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THE OTTAWA NATURALIST.

VOL. XX. OTTAWA, JUNE, 1906. No. 3

A SAGACIOUS CROW.

By ASA A. GALLUP.

Every student of nature has observed in animal life acts that showed wonderful sagacity; but this faculty is more often noticed in mammals than birds, probably owing to the number of domesticated animals about us, and in birds it may be considered a rarer quality. It must have appeared, however, to anyone who has watched crows congregating and heard the many noises they make that the strange calls and harsh sounds were crow language, and that they had a large vocabulary. The actions of the common American Crow which I relate here were observed this year, and, at least, show remarkable sagacity.

In the latter part of April two crows began housekeeping on Parliament Hill, and built their home about twenty feet from the ground in a cedar tree half way between the brow of the hill and the river. By the third week in May five little crows occupied the home, and at any part of the day five red-lined mouths could be seen wide open to receive whatever food the parents might bring. The mother was always on guard, and at the slightest noise would sit on the nest and cover the young; but the father apparently spent most of his time during the day away from home. On one of these occasions I happened to be standing on the walk, which runs around the side of the hill, a short distance from the nest, observing some warblers, when I saw the crow alight on a large rock about twenty yards below me. He seemed to have his eyes fixed on some object on the ground farther down the hill, for notwithstanding the repeated attacks of two grackles he held his position. On the departure of his tormentors he shuffled down off the rock and over to the object he had been watching, which was lying among the stones, and began pecking it. After several hard

knocks requiring more than ordinary exertion he broke off a piece and apparently had some difficulty in swallowing it, but in spite of his best efforts, which appeared to be directed in getting a smaller piece than the first, he was unable to get a second mouthful ; and I wondered what he would then do. Without any hesitation, however, he took the object and flew a short distance to where some water trickled over the stones, and as he came nearer to me I saw that he had a biscuit, probably hardtack, or part of a lunch some person had thrown down the hill. He was then partly hidden from view by a projecting rock, and quietly moving along the walk to where I had full view of him I was astonished to see that he was standing in the water holding the biscuit under water with one foot and patiently waiting for it to soak. In a short time his biscuit was partly softened, and beginning around the edge he ate the softer parts. Thus he continued, and finished his meal with no other discomfort than wet feet. The last piece of biscuit he took in his bill broke into several pieces and fell into the water, but he did not lose any of it. Then looking around to see that he had taken all, he quietly flew towards his nest.

This observation was made with the aid of a strong field glass that brought the bird into such clear view that I could almost count the primaries in his wings, and when he came nearer to eat the biscuit I could see the water drop from his bill at each mouthful. A.

TO THE EDITOR OF THE OTTAWA NATURALIST.

Whilst engaged in some Fisheries matters in the month of month of May, 1903, I found some specimens of the American Smelt (*Osmerus mordax*) floating dead on the surface of the water of Lac des Isles, in the Gatineau District, P.Q. It is known that this species of fish exists land-locked in fresh water-lakes in New Brunswick, Nova Scotia, and in the State of Maine, but its occurrence in a lake so far away from the sea as Lac des Isles, is perhaps worthy of mention. The specimens are dwarfed and perhaps may be regarded as a sub-species : otherwise the external characters appear to agree with the ordinary form of *Orsmerus mordax*.

A. H.

THE CHAMBORD METEORITE.*

Some time during the season of 1904, a mass of iron was picked up in a field about two miles from the village of Chambord, (latitude 48° 35′ N. ; longitude 73° 8′ W.) county of Lake St. John, province of Quebec. It was secured by Mr. J. Obalski, Superintendent of Mines, Quebec, and by him kindly loaned to the Geological Survey Department for purposes of examination. It is an irregularly shaped block having a length of 18.9 cm., a thickness of about 8.9 cm., and a width varying from 10.1 cm. to 15.5 cm., and a weight of about 6.6 kilogrammes. The surface of the specimen has unfortunately to a considerable extent been marred by chisel and hammer marks made in attempts to cut up the iron. The greater portion of the original crust has been scaled off by prolonged weathering and its place taken by a thin coating of dark brown rust ; that portion of the crust which is still remaining is smooth with a dull enamel-like lustre and has brownish-black colour ; the surface is possessed of the usual pittings found on meteoric irons ; some of these are broad and shallow while others again are small. A trough-like depression extends along one side of the specimen, the bed of which is more or less jagged as if a piece had been detached during the meteorite's flight through the atmosphere. Over a considerable area of the specimen a natural etching is visible, sometimes as coarse furrowings and at others as minute ridges. Etching of a polished surface develops the Widmannstatten figures in moderately coarse outline, the general design indicating an octahedral structure ; this iron therefore belongs to the "Mədium Octahedrites" (Om) of Brezina's system of classification. Schreibersite appears in considerable abundance as very thin lamellae disposed between the kamacite plates : in the trough-like depression previously referred to two small nodules of of troilite are exposed in section ; they measure approximately 13 mm. in diameter and exhibit a series of fine parting lines running in parallel position. This iron has not yet been subjected to chemical analysis.

R. A. A. JOHNSTON.

Ottawa, May 19th, 1906.

*Published by permission of the Director of the Geological Survey.

NOTES ON THE EGGS OF THE SOLITARY SANDPIPER.

The solitary sandpiper (*Heledromus solitarius*) is a fairly common Albertan bird not seen much in summer, but abundant during the fall migration. They appear from their retired haunts during the first week in August, when they are found in ones or twos at almost every wet place of any size; that is, in the western parts of the prairie. The variety found is "Cinnamon." The only record I have of the eastern variety is, curious to relate, the ones from which eggs were obtained, at the same time it held the record of being the furthest western point where I have seen the birds, it being some seven or eight miles into the timber (Range 5). We departed to Fallen Timber Creek in quest of fish as also bush butterflies, chiefly *Erebia disa* and *Chionobas Macounii*, camping on Fallen Timber Creek. The next day my friend, Mr. Broughton, enquired where to find certain Graptæ, and decided to go down stream about a mile. Returning to camp for dinner he told me of having found a nest in a small spruce tree; the bird he believed to be a sandpiper. After dinner we both took the gun and returned to the nest. The bird sat very close, in fact did not fly until I put out my hand to catch her. She flew some twenty-five yards, but was shot. The nest contained three eggs and was undoubtedly an old one of a Bohemian waxwing, bent down on one side, in a spruce tree about 12 feet high; nest about 4½ feet off ground. Location, a horseshoe slough, watered by springs flowing out very slowly into the river. Nest tree, 10 feet from the mouth of river. North and south side spruce; northeast, poplar; east, willows. Two days later a set of Bohemian waxwing's eggs were taken in the same spruce.

The eggs, size 1½ x 1 inch, are pale green ground color, sparingly spotted with lilac, but heavier with brown in shades, and are of the usual pointed type. The spots all over, though chiefly at the larger end. Data, 5, vi. 06. One-third fairly hard set. ♀ obtained Fallen Timber Creek, Alta.

NOTE.—The male obtained another mate and I think bred again at that slough, anyway stayed there all summer.

Didsbury, Alta. P. GARRETT.

NESTING OF WILSON'S SNIPE.

On the 17th of May, 1905, as I was passing through a patch of low ground overgrown with second-growth willows, a rather large-sized bird flushed from a spot a few feet from where I had jumped over a neck of water. I did not see the exact place from which the bird had flown, but the fluttering sound of her wing caught my ear, and looking ahead I saw the creature, who with outspread tail and wings, was fluttering on the damp earth, and with her long bill down in the mud was giving vent to a series of squeaking sounds. I knew at once that this bird had flushed from a nest, and that the object of her actions was to draw my attention from something that she was very desirous to conceal; but a little research revealed a nest containing four beautiful eggs. These were of a glossy yellow or olive hue, heavily blotched on the larger end, and marked all over the surface with varying spots of brownish-black; and, as I afterward noted, were about one-third incubated. In size they were about one and a half inches in length by one and one-tenth broad. A clump of willows a little elevated stood about six feet from the pool over which the bird had flown, and midway between the water and the willows, which overhung it, the nest was placed. This was simply a slight depression made by the bird in the moss and dry grass, and except from its concealed situation and being a little more expanded, there was no particular distinction between it and those of the more familiar killdeer plover and spotted sandpiper, though the lining was probably of a warmer texture, being of fine dry grass, while the eggs, as in the case of all the ground-nesting waders, were arranged with the small ends inward. At that time I was not aware that "the snipe," of which there is but one species to be found in Ontario, had become a summer resident of our neighborhood; and as there were reasons for believing that the woodcock nested here, I did not pay the attention to the fluttering bird across the pool that the case required, and so made the serious mistake that the nest and eggs before me were those of the latter bird. On comparing those eggs with a specimen of the egg of the woodcock I saw at once that there was a wide difference—not, however, so much in size or form as in color and

marking, but as I had received other specimens illustrative of oology, purporting to be those of certain species which afterwards proved not to be correct, I concluded, for the time, that such was also the case in this instance, and that my new-found set of eggs were those of the woodcock. So the matter remained until the close of the year when my esteemed ornithological friend, Mr. W. E. Saunders, of London, made me a welcome visit, and on looking over my oological collection I drew his attention to the first and only set of "woodcock's" eggs that I had ever collected. Mr. Saunders at once denied the identification; a dispute followed, and while I admitted that I might be mistaken, yet I was certain that the specimens in question if not those of the woodcock were those of Wilson's snipe. This identification Mr. Saunders also disputed, stating that he had in his collection specimens of the eggs of the European snipe, which he understood were similar to those of Wilson's and that there was a wide difference between the appearance of "his" specimens and those under review; so, in order to settle the question at issue Mr. Saunders kindly undertook to send one of the eggs to the authorities of the Smithsonian Institute at Washington and have the specimen properly identified. The following note from Mr. Saunders, under date of Feb. 28, 1906, tells the sequel. "I have received the egg back from the Washington people, and return it to you by this mail. They say that it is the egg of the European snipe, which, of course, means Wilson's when taken in Canada. I have eggs supposed to be those of the European snipe myself, which are nothing like those at all, but I have no doubt their identification is correct."

Of the nesting habits of *Gallinago delicta* but little of a reliable character is yet known. When Mr. McIlwraith published the second edition of his "Birds of Ontario," in 1894, he wrote of this bird as "a species known only as a spring and fall migrant in southern Ontario," and of its nesting habits he had only vague reports; and from a reference to what little was known about it, in eastern Canada, he springs almost at a bound to some intimations of its existence in almost unexplored regions of Alaska. In the more recent and extensive "Catalogue of Canadian Birds" there are indications that the life-habits and distribu-

tion of this species is becoming better known, and there are various reports that it was found to nest in different parts of Ontario, as well as in the other provinces of the Dominion, yet no ornithologist of Ontario comes forward to actually state that he had seen a nest or taken a set of the eggs of this species within the boundaries of this province ; so it is here claimed that the above observations are the first actual record of the finding of the nest of Wilson's snipe in southern Ontario. This game bird is called Wilson's snipe because Alex. Wilson, the distinguished British-American ornithologist, was among the first to direct attention to the difference between it and its European congener. Regarding it he says : "This bird is well known to our sportsmen ; and, if not the same, has a very near resemblance to the common snipe of Europe. It is usually known by the name of the English snipe to distinguish it from the woodcock and from several others of the same genus." Up to the past spring season of 1905, I had noted this bird only as a spring and autumn visitor, but it is probable that in the last few years when seen in small flocks I have confounded it with the woodcock.

WM. L. KELLS.

CHRYSANTHEMUM LEUCANTHEMUM, L.—The the typical Ox-eye Daisy appears to be confined to the Atlantic and Pacific coasts, at least as represented in the herbarium of the Geological Survey, all our specimens from the interior, including several from Ottawa, being the var. *subpinnitifidum*, Fenald. The species should be looked for at Ottawa and is easily distinguished from the variety by its basal leaves alone. In *C. Leucanthemum* these are "spatulate-obovate, on slender elongate petioles, the blades crenate-dentate, the slightly broadened petiole-bases rarely fimbiate. In var. *sub-pinnatifidum* the basal leaves are "coarsely and irregularly toothed or lobed, often with the petioles fimbriate at base." The cauline leaves of the variety are much narrower than in the species.

J. M. M.

ZOOLOGICAL REPORT—1905-6.

As a result of the year's work the leaders of the Zoological Branch have the following subjects of interest to lay before the members of the Club.

Two meetings were held during the early part of the season, the first at the residence of Mr. Halkett, the second at that of Prof. Prince. At the first meeting, held on 9th May, 1905, besides the chairman there were present Prof. Prince and Messrs. Lemieux, Campbell and Baldwin. Mr. Campbell, of the Collegiate Institute, exhibited specimens of a salamander in various stages of development. Mr. Halkett followed, shewing prepared specimens of the cranium of Menobranchus or the mud-puppy (*Nocturus maculosus*), and illustrated the comparative structure of the cranium of certain fishes by shewing specimens of that of the angler (*Lophius piscatorius*), the pollock(*Pollachius virens*), the catfish (*Ameiurus nebulosus*) and the yellow perch (*Perca flavescens*). Mr. Baldwin spoke of having seen a black snake (*Zamenis constrictor*) killed with a stone, some ten years ago, from the wounded place of which little young snakes made their exit—thus drawing attention to the apparent viviparous nature of that serpent. Mr. Lemieux shewed photographs of certain mammals, such as the black bear (*Ursus americanus*) and the red deer (*Cariacus virginianus*). Prof. Prince concluded the meeting by reading a paper on the function of the swim-bladder of fishes, of which the following is the substance.

None of the various views generally held, the professor pointed out, regarding the function of the swim-bladder of fishes appears to be perfectly satisfactory. According to these views the swim-bladder is supposed to aid in flotation, giving buoyancy to the fish possessing it, or it acts as a barometer informing the fish as to the pressure of the surrounding water, while it is also regarded as a resounding organ, in connection with the production of sounds, or again respiratory functions have been attributed to it. In some fishes it has connection with the ears by specially modified bones (the Weberian apparatus), and may aid in audition. Professor Prince stated that the following difficulties in accepting these views existed, viz. :—The most buoyant fishes, such as

sharks, mackerel, etc., do not possess a swim-bladder, hence it is not essential for flotation. Fresh-water suckers, cat-fishes, etc., have a swim-bladder, and are not exceptionally buoyant. If it is a barometer, why do so many species not possess it, while if it is of use in some cases in connection with voice, it must be noted that most fishes possessing a swim-bladder are voiceless, and again as an aid in hearing, it is no doubt of utility in rare cases, but such is not its common purpose. The features of the organ in young larval fishes indicate a glandular character and it may be a survival of a gland attached to the digestive system, whose utility has gone. In most cases pure aerated blood supplies the swim-bladder, and it cannot be respiratory excepting in rare instances, and being dorsal it is difficult to see how it can be homologous, as many authorities claim, with the ventrally placed lungs of higher vertebrates. Professor Prince also stated that while oxygen was often found in the swim-bladder, that organ frequently appeared to be filled with nitrogen, an element associated in many animals with the hibernating habit, or with change of food.

At the second meeting of the branch, held on the 22nd May, 1905, besides the chairman, Prof. Prince, there were present Professor Macoun, and Messrs. Lemieux, Baldwin, Campbell, and Halkett. Mr. Campbell showed some living specimens of branchiate larvæ, which appeared to be those of *Amblystoma*, and Mr. Lemieux brought a single antler of the Virginian Deer, which had been picked up beside a lake in the province of Quebec, soon after it had been shed. It was a fine example, and of unusual interest owing to the fact that shed antlers are very rarely found. The members present discussed the remarkable phenomenon, the annual shedding of deers' horns, the massive antlers of the moose being specially mentioned as surprising structures to grow in a single season, and then be cast away. Mr. Halkett shewed a specimen of the dor-mouse (*Evotomys rutilus*), which he caught with the hand, a year or two ago, at Madawaska, in the Nippissing district, and also a specimen of a bat (*Vespertilio subulatus*) which was found alive in the Fisheries Museum, and which is one of several specimens found there; and a scheme was discussed, led by Prof. Macoun, for securing specimens of small mammals in the vicinity of Ottawa. Small traps were described, which if set

in the evening, in suitable localities would in the morning be found to have secured interesting specimens. At most of the fishing clubs it was pointed out this work could be easily done, and specimens obtained from widely scattered localities. Professor Macoun offered to give information as to the best traps for the purpose, and it was agreed that the Muridæ, the Soricidæ, and the bats formed a most desirable line for the zoologists of the Club.

Samples of beaver work, with chips of wood, and a skull, from the Algonquin National Park of Ontario, were recently displayed in the windows of the Messrs. Orme, along with two mounted beavers from the Fisheries Museum, and they attracted much interest by the general public. The samples of the work of those interesting rodents were sent by Mr. Robert Lett, an employee of the Park, and the following is an extract from his letter concerning them: "I am shipping you to-day two samples of beaver work. ..... The larger of the two shews the tree a little more than half way cut through. The cut was towards the water so that their efforts to float or pull it under water to their house after having cut it up into short lengths would be lessened by a tree's length in distance when it came to the carry. Sample No. 2 shews a tree which has been felled completely. ... .. In the little tin box you will find some of the chips which these wonderful woodsmen made, when cutting on the larger tree..... .. I took my lunch in pocket one day and located these samples and on another day took saw and sleigh and brought them in." One of the samples—part of a birch-tree—was 10 inches in diameter, and the other some 8 ins. in diameter.

Under protective restrictions, the beaver (*Castor canadensis*) is multiplying rapidly in the Algonquin Park. Furthermore a colony of those interesting creatures is said to have established itself at Green Creek, some distance away, east of Ottawa, and they ought to be left unmolested.

Two red and one silver-gray foxes (*Vulpes fulvus*)—the three from the same litter—from about 150 miles north of Maniwaki, Gatineau district, a prairie coyote (*Canis latrans*) from Edmonton, and two racoons (*Procyon lotor*) from up the Ottawa near Shawville, P.Q., were recently displayed alive, and all together, in the windows of the Messrs. H. J. Sims & Co. One of the gentlemen

of that firm informs the leaders that the coyote was taken when two weeks old, and has become quite tame, so much so that it will answer a whistle and lick the hand. He runs loose in the yard and plays with the dog, and they are fast friends. The silver gray fox takes to the coyote in preference to the dog, although the fox and the dog were brought up together. There was also a musk-rat placed in the window with these various creatures, but one of the foxes very soon bit it, necessitating its removal.

Although an exotic species, it may not be amiss to mention, that 13 specimens of the spring-bok (*Antidorcas euchore*) from South Africa, were recently exhibited in the windows of Mr. Slattery's store. These specimens of that beautiful antelope were sent to Ottawa for the annual dinner in commeroration of the battle of Paardeberg, held at Government House. Although outwardly very like deer, it may be pointed out, that the antelopes are more closely related to the oxen, sheep, and goats, and like these have hollow and permanent horns, instead of solid antlers, which are periodically shed, such as deer have. They are best represented in the continent of Africa which contains more species than any other part of the world. One species the prong-horn, or Rocky Mountain antelope (*Antilocapra americana*) is sometimes to be seen on the plains of our own far west.

The leaders of the branch desire to express their appreciation of the good which merchants and business men of the city occasionally do in attracting public attention to natural history objects, living or otherwise, by placing them in their store windows.

Mr. Lemieux contributes the following note in regard to: "Small Suckers in Lake Pembina, Lievre district."

"A small carp or sucker was discovered in the month of May in Morin's Creek. There were thousands and thousands of this fish, and they seemed to hide in the weeds, in fear of the trout that appeared to wage a war of extermination against those new comers. In September a smaller number were seen in front of the Club-house landing. This discovery is rather a surprising and unexpected one, as in the past no other fish than trout had been noticed in those lakes. Have these suckers been recently introduced, and how? This is a mystery, although I believe they were brought there in the egg-stage, by birds such as shell-drakes,

mergansers, &c., which visited other waters and returned to Pembina Lake with the eggs adhering to them. As is well known, suckers and carp are most destructive to spawn. However, I sincerely hope tnat the multitudes of trout in the Pembina will annihilate these suckers in a short time. Future observations on this subject will be eagerly expected and prove interesting. I have obtained a sample of this little fish."

The following is a list of fishes of the Ottawa District preserved in formalin in the collection of the Fisheries Museum, with the localities were they were found :

Silvery lamprey (*Ichthyomyzon concolar*). Ottawa River.

Rock sturgeon (*Acipenser rubicundus*). Lac des Chêne.

Gar-pike (*Lepidosteus osseus*). Vicinity of Ottawa.

Dog-fish (*Amia calva*). Ottawa River.

The two specimens of dog-fish have been long in the museum, and are labelled Ottawa River. Possibly they may have been found beyond the limits of the district, but are included in the list as shewing that that species exists in the Ottawa.

Horned pout (*Ameiurus nebulosis*). Gilmour's Mills, P.Q., Rideau Canal near Ottawa, and Kinburn, Ont.

White sucker (*Catostomus commersonii*). Vicinity of Ottawa.

Eel (*Anguilla chrysypa*). Gilmour's Mills.

Brook Trout (*Salvelinus fontinalis*. Gatineau District, near Ottawa.

Pike (*Esox lucius*). Gilmour's Mills, and a large head from Shirley's Bay.

Killifish (*Fundulus*). Hull, P.Q.

Brook stickleback (*Eucalia inconstans*). Stittsville, Ont.

Grass or calico bass (*Pomoxis sparoides*). Lewis Dam and Gilmour's Mills, P.Q.

Rock bass (*Ambloplites rupestris*). Near Hog's Back.

Pike perch (*Stizostedion vitreum*). Upper Ottawa River.

Ling (*Loto maculosa*). Lac des Chêne and Rideau River, near Ottawa.

There is also a large mounted maskinonge (*Esox nobilior*)

and specimens of various species in the collection which await determination.

A specimen of a muskrat (*Fiber zibethicus*) from the Rideau River, near St. Patrick's Bridge; and a specimen of an otter (*Lutra canadensis*) from Smoky Falls, some 9 miles from Sturgeon Falls, Ont., have been acquired by the Fisheries Museum. The former is of a cinnamon colour, the hairs being edged with white, and approaches an albino in its contour; whilst the latter manifests the opposite of this—a case of melanism, the specimen being almost jet black, and this is most striking when it is put beside a mounted otter of the usual brown colour.

A leopard frog (*Rana virescens*) was found jumping about near the Rifle Range, on the outskirts of the city, on the 27th January, 1906, during the unusually mild weather. It was handed alive into the museum of the Fisheries and is now preserved in formalin.

An article entitled; "The Eggs of the Scarlet Water-mite (*Hydrachna sulcata*)" by Prof. Prince, was published in the August issue of the OTTAWA NATURALIST, and since then Mr. O'Dell has been making some remarkable discoveries in regard to the metamorphosis which this mite, or perhaps an allied form, undergoes in the course of its life history, and he hopes shortly to publish what he has discovered.

Another thing of interest was the finding recently of the remarkable eggs of the fresh-water ling (*Lota maculosa*), an account of which will appear in the forthcoming number of THE NATURALIST.

An official list, prepared by Mr. Halkett, representative of such fishes of the Dominion as are preserved in formalin, as well as a list of specimens of other aquatic vertebrates, and of aquatic invertebrates, in the collection of the Fisheries Museum, forming Appendix XIV of the Fisheries Report, is now in the hands of the King's Printer, and will shortly be issued.

E. E. PRINCE.
ANDREW HALKETT.
W. S. ODELL.
E. E. LEMIEUX.

Ottawa, 6th March, 1906.

ERIOPHORUM RUSSEOLUM, FR., VERSUS *E. CHAMISSONIS*, C. A. MEY.

In an article on North American species of *Eriophorum* (Rhodora, Vol. 7, 1905) Mr. Fernald expresses the opinion that *E. Chamissonis*, Mey.. is identical with *E. russeolum*, Fr., hence the name of Meyer must be prefered, being the older. This article has been reprinted *ex parte* in THE OTTAWA NATURALIST (May, 1906) by Mr. James M. Macoun without further comment.

In recent years the matter of changing plant-names has, in America, been considered a most important point in botanical science, and far more so than the study of the plants themselves; that a number of these alterations have proved unsuccessful, we all know. Now, in regard to the proposed change of name of said *Eriophorum*, from *russeolum* to *Chamissonis*, I wish to state that this question was amply discussed some sixty years ago, and by authors who were familiar with the species of both. And I should think that the following statement, by Fries himself (Bot. Notiser 1848, p 6) would be more than sufficient to settle the question: "We are able to produce Meyer's own statement acknowledging identity of his *E. Chamissonis* with our Swedish *E. capitatum*."

THEO. HOLM.

Brookland, D.C., May, 1906.

THE IDENTITY OF ERIOPHORUM CHAMISSONIS AND E. RUSSEOLUM.

TO THE EDITOR OF THE OTTAWA NATURALIST:

I thank you for the opportunity to see the proof of the preceding note in regard to the identity of *Eriophorum Chamissonis* and *E. russeolum* and for your courteous invitation that I restate the reasons for considering the two identical. That question was discussed at length by me in Rhodora, vii. 83, 133 (1905); but, since your correspondent apparently sees in the attempt to clear the identities and relationship of our American Eriophorums only a "matter of changing plant-names" and has seemingly been unable

to follow the chief points in the discussion of *E. Chamissonis*, it becomes necessary to state the matter in simpler language. In doing so, however, I shall refer freely, in order not to over-crowd your valued space, to the discussion already published in Rhodora.

The elementary steps in my reasoning are as follows : —

1. *Eriophorum Chamissonis* of C. A. Meyer was named for Adelbert von Chamisso, who collected it "in Kamtschatka et Unalaschka" and who had called it in a letter *E. intermedium*, a name which was suppressed on account of the earlier *E. intermedium*, Bastard.

2. As first published in Ledebour's Flora Altaica,[1] and later in C. A. Meyer's "Cyperaceae Novae,"[2] the species was a complex of the Unalaskan and Kamchatkan plant of Chamisso and Altai material from some collector other than Chamisso.

3. These two elements of *Eriophorum Chamissonis*, as shown by Meyer's beautiful plate of the familiar plant of Kamchatka and Unalaska whence Chamisso secured his material and by Altai specimens distributed by Meyer, are quite different plants.

4. The Altai element of *Eriophorum Chamissonis* has been problematical. Material in the Gray Herbarium is *E. callitrix* (*E. vaginatum* of most American authors),[3] and by Nylander[4] it was considered a variety of *E. vaginatum*. By Fries, however, in 1842 (and again in 1844 as indicated by your correspondent), it was treated as identical with *E. Scheuchzeri*, Hoppe (*E. capitatum*, Host).[5] This identification of the Altai element of *E. Chamissonis*, sometimes with the densely caespitose nonstoloniferous *E. callitrix* and *E. vaginatum*, sometimes with the noncaespitose freely stoloniferous *E. Scheuchzeri* (*E. capitatum*), indicates that there were possibly three or four, instead of two, plants confused by Meyer under the name *E. Chamissonis*.

5. It is customary in case of a species containing mixed elements to interpret the species by the best available evidence. The

[1] C. A. Meyer in Ledeb. Fl. Alt. i. 70 (1829).

[2] C. A. Meyer in Mém. Sav. Etrang. Acad. St. Pétersb. i. 204, t. 3 (1831).

[3] See Rhodora, vii. 85, 134, 135 (1905).

[4] Nylander, Acta, Soc. Sc. Fenn. iii. (1852) according to Anders., Bot. Not. (1857) 58.

[5] Fries, Nov. Mant. iii. 170 (1842).

original description of *Eriophorum Chamissonis* both in the Flora Altaica and in Meyer's later and more elaborate treatment give the following characters.

a. Root-stock repent, the culms solitary: "radix repens hinc inde protrudit culmos solitarios"—Fl. Alt.; "radix valde repens et hinc inde culmos solitarios emittens"—Cyp. Nov.

b. Spike oblong.

c. Anthers linear, about a line long.

d. Bristles of the Unalaska plant—the plant of Chamisso—reddish, of the very different Altai plant white: "lana longissima, alba (in specimine unalaschcensi rufa)"—Fl. Alt.; "lana copiosa, laevissima, in specimine fructifero pollicem superans, rufa (an semper?)"—Cyp. Nov.

6. There are only two repent plants with solitary culms concerned in the question of the identity of *Eriophorum Chamissonis*. One is *E. Scheuchzeri* (*E. capitatum*) with which your correspondent, following a statement of Fries rather than the original description and the clear plate of Meyer, would associate it. The other is *E. russeolum*, Fries, which, before he had seen the Altai element of *E. Chamissonis*, Fries himself recognized as unquestionably the plant meant by Meyer, saying in a discussion of *E. Chamissonis* with "spica oblonga" and "antheris linearibus" from Lapland: "Reliquis nominibus nondum divulgatis *E. russeolum* diximus, quod vero nomen lubenter alio publicato supprimimus, ne inutilis synonymia augeatur."[1]

7. All botanists who know the two plants are perfectly definite in their statements that *Eriophorum Scheuchzeri* (*E. capitatum*) has the flowering spike broadly obovoid, in fruit becoming subglobose; the anthers cordate-elliptic, 1 mm. (½ line) long; and the bristles bright white. They are equally definite in describing in the words of Fries himself *E. russeolum* with "spica oblonga", "antheris linearibus", and "lana fulvo-rubella."[2]

8. Now, if we compare the leading characters of *Eriophorum Scheuchzeri* (*E. capitatum*) with those of *E. Chamissonis* as originally described, we shall find that it disagrees in having the flower-

[1] Fries, Nov. Mant. ii. 2 (1839).

[2] Fries, l. c. ii. 1 (1839), iii. 170 (1842).

ing spike broadly obovoid instead of oblo[illegible] the anthers cordate-elliptic, about 1 mm. long, instead of linear, about 1 line (1.5-3 mm. long; and the bristles bright white instead of reddish. These differences were perfectly understood by Meyer when he originally published *E. Chamissonis*; and it is quite clear that those botanists who, like your correspondent, maintain that Meyer had in mind *E. Scheuchzeri* (*E. capitatum*) cannot have taken the trouble to read carefully Meyer's original discussion of *E. Chamissonis*, for there Meyer says "*Er. capitatum Hoffm.* differt spica subrotunda spatham aequante nec non antheris brevibus cordato-ellipticis."[1]

9. When, however, we compare *Eriophorum russeolum*, or Fries's own description of it, with the original detailed description of *E. Chamissonis* and the fine plate of Chamisso's plant, we must admit that in their oblong spikes, long linear anthers, and reddish bristles, they are quite identical; and that in 1839, before being prejudiced by the confusion of the Altai element with the Kamchatkan and Unalaskan type of *E. Chamissonis*, Fries was quite right in deciding that it was best to suppress his own *E. russeolum*, a course which is followed not only by the writer but by Richter, and some other European students of the group.

The foregoing notes are much longer than I should ordinarily ask you to publish, but, since your correspondent has seen fit to doubt the care with which the identity of *E. russeolum* and the earlier *E. Chamissonis* has been worked out, it is necessary to restate what is already published in my earlier notes.

M. L. FERNALD.

Gray Herbarium,
Cambridge, Mass., May 24, 1906.

[1] C. A. Meyer in Mém. Sav. Etrang. Acad. St. Pétersb. i 205 (1831).

SUB-EXCURSIONS.

Saturday, May 5th, was an exceptionally fine day for the excursion to Rockcliffe Park, a goodly number attended, and the presence of Dr. Whiteaves was very much appreciated, as he is an enthusiast in his work which Canada is only too slow to take note of.

Rockcliffe, under the magic wand of the Improvement Commission is breaking out into more than its usual beauty, or rather the beauties are being brought to light. Glimpses of hill and stream never guessed before, burst into view, at every point. The different sections brought back their hoards to the meeting place in the grove near the Pavillion, and short talks were given by Pastor Eifrig, who has the German love of nature in his heart, on birds. Those seen and heard were :—

Hermit Thrush,	Bronzed Grackel,	Purple Martin,
Gold Finch,	Kentucky Warbler,	Barn Swallow,
Song Sparrow,	White-throated	Tree Swallow,
Junco,	Sparrow,	Red-winged Black-
Purple Finch,	Chipping Sparrow,	bird,
Robins,	Herring Gull,	Phoebe,
Kinglet,	Meadow Lark,	Kingfisher.

Dr. Ami who unfortunately is still on crutches from the accident to his limb drove down in order to be on the spot, and gave a talk on the stones and fossils found at Governor's Bay.

Mr. Andrew Halkett who is never so happy as when his pockets are bulging out with every creeping and crawling insect he can find, discoursed on the

1. Leopard frog (*Rana virescens*). Found by the edge of the Ottawa River.
2. American toad (*Bufo Americanus*). Found by Mr. Newman.
3. Numerous slaters or wood-lice—isopods of the family Onicidæ —found under stones.
4. Egg capsules of spiders filled with eggs.
5. A few centipedes, millipedes, insects, slugs, etc.

Mr. McNeil, of the Fruit Division, is a recent acquisition to the Club, and promises to be a most helpful one. He spoke on the "Foundation of things," or the first things in geology.

"Governor's Bay," where so many of the geological specimens were found, is rich in material from a scientific standpoint. Some years ago an Indian mound was discovered here, and many Indian relics, showing that it was a place treasured by the aborigines, who generally made the most of the beautiful spots in the country.

M. McK. S.

NATURE STUDY—No. XXXV.

THE GALT PARK WILD-FLOWER GARDEN.

By R. S. HAMILTON, Galt, Ont.

About six years ago through the generosity of a kind friend, the town of Galt came into possession of some thirty acres of woodland, lying on a rapidly rising upland, which forms the west bank of the river Grand and immediately adjoins the western limit of the corporation.

At one time this area was heavily timbered with white pine but later was devastated by fire. At the present time it is covered with a dense growth of young trees, such as red and white maple, white oak, wild cherry, juneberry and poplar, with here and there a tall white oak or beech, raising its head high above its fellows.

A condition attached to the gift was that the woodland should be left as far as possible in a state of nature. The present dense growth, however, and the consequent obliteration of herbaceous plants has robbed the region of much of the beauty of ordinary woodland, and some changes are in contemplation so as to bring it into a state more in keeping with the conditions that prevail in the majority of our Ontario woods.

The surface varies in its conformation. There is a gradual ascent to a divide on the western edge of the area; but this is broken by many minor sharp ridges and deep depressions, so that in one part may be found the conditions of dry rich woods, in another those of open and rocky woods, and here and there are the moist woods and pond conditions.

A commission of citizens, was appointed by the municipality to plan, construct and maintain a system of parks for the benefit and pleasure of the citizens of Galt. A competent landscape gardener was engaged, who after careful examination of the situation, drafted plans for a system of park development, which is at present in process of evolution. Driveways have been made and bridle paths cut through the underbrush. Feeble and stunted trees are being removed, so that the more perfect specimens may develop and light and air may penetrate.

Nature Study Club's Opportunity.—For several years Galt has had an enthusiastic Nature Study Club, organized as a scientific society, but latterly as an association in which nature study methods might be discussed and preparatory work done by the teachers of the town. Much interest has thus been created in

the observation of the things of nature and much aid has been given in intelligently conducting nature classes in the public schools.

In addition to the above, it has been felt for some time by the members that definite assistance should be given to those directly engaged in park adornment, and that under the guidance of their teachers, the children might be brought nearer to the beautiful things of nature and at the same time might help to preserve for generations to come, many species of plants, now threatened with extermination in the wholesale destruction of the woods in the vicinity of the town.

It has therefore been decided to establish a wild flower garden along that one of the bridle paths in the woodland in which there was the greatest possibility of showing the wood plants of the district in their natural habitats.

This work is now engaging the attention of the club, and, as it may present features of interest and may encourage other similar organizations to follow the example, an attempt is here made to give in detail the working plans of this scheme which has been entered upon with much enthusiasm.

Character of Area.—The bridle path, along which the wild flower garden will be made, runs in a general north and south direction. From the norh there is gradual slope for a short distance, passing into a sharp declivity which extends into a deep depression. This area is well wooded with maple, white oak and beech, and has a rich loamy soil, generally adapted for the growth of open and deep wood plants. At the foot of the declivity, the soil becomes damp and soggy and in places almost marshy. At the base of the hill are small ponds which are to be widened and deepened for water plants. The whole forms an ideal situation for growing wild plants under natural conditions.

Design of Garden.—The general plan will be the organization of plant colonies. That is plants will be grouped together in families as far as possible in keeping with their soil and light requirements. The ground has been carefully examined and stakes driven where plants as brought in are to be located. Thus confusion and errors will be avoided by those aiding in the work. Along the path rustic arbors, and at both entrances arches, are to be constructed, over which native vines are to be trained.

Collecting and Planting.—The work of collecting and planting is to be done mainly by the school children under the superintendence of the teachers, so that each child and each teacher may have a share and a responsibility in connection with the undertaking. Each teacher will acquaint his or her class with

the general scheme and explain its purpose. To each teacher and class is assigned a gathering ground (to which, provided with a basket, trowel and strong knife they will proceed at the time appointed). Each supervisor of the collecting will keep an accurate record, and exact data will also be kept as to the locality in which the plants were found, the soil, number collected, etc. These records are to be preserved and will show what each class has done in the furtherance of the scheme.

The collecting for the day having been completed, all will go to the wood and establish their treasures in their new home. Thus in a pleasant outing much useful knowledge may have been gained, and each will feel gratified at having had a share in making their immediate surroundings more beautiful.

There are many plants which do not transplant easily. The seed of these will be secured at the proper season.

The following spring identification stakes of iron are to be placed in the several colonies, so that, to adults as well as children, a walk through this wild garden may be not only a wayside fountain of knowledge but its beauty will prove a perpetual charm to the eye.

Aims.—To enlist the sympathy, interest and co-operation of children in doing something to beautify the town they live in.

To rescue from the ruthless hand of the destroyer many varieties of plants which in the ordinary course of events would shortly become exterminated.

To make each individual worker realize not only that he has had a share in constructing the garden but that he has an interest in protecting and caring for every flower in it.

To widen the child's view of nature, to bring him into close contact with plant life and the conditions under which it is maintained.

What and When to Plant.—Speaking generally plants will be secured after the flowering season is over, when they will be best transplanted. In certain cases seeds will be collected as well as the plants and scattered in the colonies, thus aiding in the perpetuation of the species. Below is given a partial list of plants, suitable for transplanting to conditions indicated.

Any plants thought to be beautiful or interesting by each collector are suitable for such a wild garden, which, to be of the greatest educational value, should have the plants of the same nature or requirements grouped together.

I. For rich woods area :—

Hepaticas,
Rue Anemone,
Early Meadow Rue,
Fringed Polygala,
Barren Strawberry,
Bishop's Cap,
False Mitrewort,
Smoother Sweet Cicely,
Hairy Sweet Cicely,
Prince's Pine,
Shinleaf,
Trilliums,
Dog's-tooth Violet,
Wild Sarsparilia,
Gold Thread,
Blue Cohosh,
May Apple,
Blood Root,
Dutchman's Breeches,
Squirrel Corn,
Violets,
Spring Beauty.

II. In damp woods area :—

Touch-me-not,
Wild Cranesbill,
Indian Turnip,
Skunk Cabbage,
Maiden-hair Fern,
Marsh Marigold,
Toothworts.

III. For pond society :—

Water Plantain,
Arrow-head,
Polypody,
Aspidium,
Marsh Marigold,
Common Yellow Pond Lily,
Water Shield,
Sweet Scented Water Lily.

IV. Dry and rocky area :—

Butterfly Weed,
Bladder Campion,
Wild Lupine,
Early Wild Rose,
Herb Robert,
Purple Flowering Raspberry,
Wood Anemone,
Wild Columbine.

V. Climbers for arbors :—

Virginia Creeper,
Carrion Flower,
Climbing Bitter-sweet.
Virgin's Bower,
Honeysuckle,
Moonseed.

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