

JAMES OGILVY, Bookseller, Stationer and Publisher.
191 Sparks Street

FOR SALE : Complete Set Transactions and Naturalist. W. A. D. LEES, 78 Rideau St.

<p>WM. STRACHAN, Importer and Dealer in Shelf and Heavy Hardware, Stoves, Tinware, Paint, &c. Corner Queen and Bridge Streets, OTTAWA. Phone 629</p>	<p>R. A. McCORMICK, Prescription Druggist, 75 Sparks Street. Ottawa. Phone 159.</p>
<p>A. G. PITTAWAY, ...PHOTOGRAPHER, 58 Sparks St. OTTAWA.</p>	

James W. Woods,

Headquarters
for....

**Camping Outfits, Tents, Kit Bags,
Blankets, Clothing, etc.**

See us about your NEW AWNING.

Special attention paid to Letter Orders

SEND FOR CATALOGUE

64-66 Queen St.

<p>R. H. WRIGHT, Rose Grower and Florist, AYLMER EAST. Store—63 Sparks Street, Ottawa.</p>	<p>HENRY BIRKS & SONS, Manufacturing Gold and Silversmiths DIAMOND MERCHANTS. Phillips' Square, Montreal and 57 & 59 Sparks Street, Ottawa.</p>
<p>For neat printing GO TO.... Ottawa Printing Co., Ltd. 3 & 5 Mosgrove St., OTTAWA.</p>	<p>C. STRATTON, Wholesale and Retail Grocer, &c. Corner Sparks and Lyon Sts. TEL. 664.</p>

Ketchum & Co., SPORTING GOODS 52, 54, 56 BANK STREET.

KODAKS - TOPLEY - KODAKS

THE OTTAWA NATURALIST.

VOL. XVIII. OTTAWA, NOVEMBER, 1904.

No. 8

SUMMER WARBLERS IN COMPTON COUNTY, QUEBEC.

By LEWIS M. TERRILL, Montreal, P.Q.

The district in which the following observations were made comprises an area of about five miles in the vicinity of Bury, Quebec, a village in Compton County on the C.P.R. almost equidistant from Sherbrooke and Megantic.

Lumbering has only recently become extensive and the forests are still large, with coniferous trees predominant. The country is hilly and well watered, forming an ideal summer home for many warblers and other birds of a retiring disposition.

BLACK-THROATED GREEN WARBLER.—My notes on this species are based on three nests and if others should be found to continue in a relative similarity, a description of one would suffice. The first, found June 1st, 1902, was fastened, one foot from tip, on to limb of a small shrubby spruce, three feet from the trunk and six from the ground. The spot chosen was a side hill covered with a growth of young spruce and cedar. The nest, well hidden by an overhanging branch held four fresh eggs and was composed exteriorally of dead spruce twigs neatly interwoven with yellow birch bark shreds and lined with fine grasses and animal hair. Its inside diameter measured $1\frac{3}{4}$, outside 3 inches; inside depth, $1\frac{3}{4}$, outside, $2\frac{1}{3}$ inches. The well rounded and finished appearance and the predominance of birch bark reminded me of certain vireos' nests. Two nests found later, on June 9th and 29th, were similarly situated and constructed and contained respectively four fresh and one addled egg. The eggs measure uniformly .66 x .49, are white distinctly and obscurely dotted, chiefly at the larger end, with varying shades of rufous brown and lilac and a few distinct spots of black.

BLACK AND WHITE WARBLER.—June 5th, 1902. I saw a pair which evidently had a nest near by. Not otherwise observed during the breeding season though common about the toth of May.

BLACKBURNIAN WARBLER.—July 12th, 1902. I saw a pair in an open spot of spruce woods, caused by surveyors felling several trees whilst staking out a line. They were much disturbed by my presence and probably had young.

CANADIAN WARBLER.—I saw a pair June 5th, 1902, and noticed others at different times through summer months.

NASHVILLE WARBLER.—June 12th, 1902. As I emerged from spruce thicket into an alder grown portion of a blueberry swamp, I noticed one of this species fly from a mossy knoll and after considerable searching found the nest deeply embedded in the yielding side of the mound. It was a slight affair (the surrounding mosses rendering a more substantial structure unnecessary) of withered grasses, moss and rootlets, containing four young a few days old. I saw several others during the breeding season principally amongst the undergrowth in boggy places.

MAGNOLIA WARBLER.—One of the most common warblers in this district, breeding in localities similar to those that the black-throated green and myrtle frequent. A nest found June 5th, 1902, was fastened, six feet from the ground and four from the trunk, on to a well foliated limb of a small shrubby spruce, situated on the outskirts of a hilly spruce-grown pasture land, almost surrounded with deep woods. The female was on the nest, which was composed of very fine blackened grasses loosely fastened with spiders' silk and lined with horsehairs, appearing very fragile and transparent, somewhat similar to nests of the chipping sparrow. It was well concealed by an overhanging branch and measured inside depth $1\frac{1}{3}$, outside $1\frac{3}{4}$ inches; inside diameter 2, outside $3\frac{1}{4}$ inches. The eggs, four in number, averaging $63 \times .48$ and quite fresh, were washed on the larger ends with a pale shade of cinnamon brown encircled with a wreath of spots of rusty brown and lilac in varying shades, on a creamy white ground. On June 16th another nest $2\frac{1}{2}$ feet from the ground resting on twigs of a small cedar brush, the topmost foliage partially concealing it, was composed of fine grasses, black rootlets and spruce twigs, loosely

bound with spiders' silk and lined with horsehair. Locality, a dense growth of small spruce, cedar, tamarac and alders, gradually merging into a large forest. This nest also held four fresh eggs, creamy white, encircled on the larger ends with a wreath of brownish purple markings, and averaging $66 \times .49$.

Other nests show that the eggs vary considerably more, in the coloring, than do those of the black-throated green warbler, one nest containing eggs finely dotted over the entire surface with light grayish brown. In this locality the Magnolia warbler commences building about the first of June and four eggs, I found invariably, to be the complement. Two nests noticed on the 15th and 20th of June contained young newly hatched.

MYRTLE WARBLER.—This species appeared to be more abundant than any of those previously mentioned, excepting, perhaps, the Magnolia. They commence nest-building about the latter part of May, about one week earlier than the Magnolia. Their nests are very substantial and warmly built, one found June 3rd, 1902, with five eggs incubation 1-5th, was composed chiefly of dead spruce twigs with a few grasses and rootlets, bound with spiders' silk and thickly lined with feathers and animal hair. It was four feet from the ground, built close to the trunk of a young slender spruce with scanty foliage, situated in a spruce grown pasture skirting the swamp. The dimensions of this nest were, inside diameter 2, outside 4 inches; inside depth $1\frac{1}{2}$, outside $2\frac{1}{4}$ inches.

Eight out of ten nests discovered were placed a few feet from the ground near the top of slender spruces, the characteristic material used being a predominance of spruce twigs with a lining of feathers. Five eggs, less commonly four, composed a set and it would be vain to attempt a description as they show great variation, though in one instance, when I was enabled to examine two sets laid by one female, consecutively on June 10th and 24th, the markings were similar, though curiously enough the second nest held five and the first but four eggs. The nest found on June 10th was disturbed, hence the second laying as this species, in common with other warblers, normally breeds, as far as I am aware, but once a year. Measurements also differ considerably, the largest found being $.76 \times .58$ and the smallest $.64 \times .51$, the largest being nearer the average. This warbler is one of the last

of the family to leave for the south, large flocks remaining until October 20th. I saw a few feeding in an orchard in the village as late as October 24th.

CHESTNUT-SIDED WARBLER.—Arrives here during the second week of May and many remain to breed. Its nest is usually a slight affair of grasses and vegetable fibres placed in the crotch of some small shrub or sapling amongst deciduous second growth. A nest found June 7th was very compactly built for this species. It contained four fresh eggs and was placed in a triple crotch of a basswood sapling amongst undergrowth in a well timbered locality. It was two feet from the ground and composed of shreds of yellow birch bark. Coarse bleached grasses, well woven and bound with a large quantity of spiders' silk, ornamented with numerous basswood bud coverings and with fine rootlets and horsehair.

This bird showed great foresight in placing the nest, as it was completely hidden by a large basswood leaf, though a week previous, during development of nest and leaves, the nest was in plain view. In the several nests I examined in this district the number of eggs deposited was invariably four. The uniformity, with regard to the number of eggs in a set, of the several warblers enumerated, may perhaps be partially ascribed to the absence of that parasite the cowbird, which appears not very partial to newly settled districts notwithstanding an abundance of cows. I did not find any warblers' nests containing eggs of the cowbird, in fact the only individual intruded on was a bluebird, and in this instance the would-be cowbird did not mature as the egg, with three of the bluebirds, was frozen during the severe frosts of May 9-10th, 1902.

The American redstart and Maryland yellow-throat were fairly common, though not nearly so abundant as in Montreal.

The yellow warbler, one of the most common summer residents in Montreal, was notable by its absence, as I did not see a single specimen either as summer resident or migrant.

One nest of the ovenbird was found July 1st, 1902, not arched though built higher on the side furthest in the hollow of the mound in which it was located, containing four eggs. I found this species fairly common in damp woods, and their song was very noticeable at night from 9 to 11 o'clock, during the breeding season.

UNUSUAL NESTING SITES OF THE AMERICAN
MERGANSER (*Merganser americanus*.)

By WALTER RAINE, Toronto.

In all works on North American birds, nests and eggs the nesting situation of this species is given as being in a hole in a tree, after the manner of the hooded merganser, buffle-head, American golden-eye and wood duck. I was therefore very much surprised to find American mergansers nesting in holes under boulders on an island in Lake Winnipegosis, Manitoba, during June, 1903.

My son and I found about 30 pairs nesting on Gun Island on June 16th. All the nests that we could reach were built far back at the end of dark passages under boulders on the highest part of the island, some nests being from four to six feet back from the entrance and were hard to get at; in some cases my boy had to crawl between the boulders to reach the eggs and I had to pull him out by the feet. In one hole he caught a female on the nest, and afterwards my boy tied a fishing line to its leg and let it swim around the boat. It was astonishing with what speed it cut through the water using its wings and fairly flying under water, after which we gave it its liberty and it flew away. The nests contained from 8 to 12 eggs, one nest containing as many as 13. They are easily distinguished from other duck eggs by their very large size and pale buff tint, averaging 2.60 x 1.80. One nest contained eggs laid by two females as half the eggs were of a deeper tint and different size and shape than the others. The down is pale greyish-white after the fashion of all other ducks that nest in holes in trees or in the dark. The male mergansers flew away as our sail boat approached the island, but the females sat close dashing past our feet as we scrambled amongst the boulders where they were nesting. On this same island several red-breasted mergansers had nests containing 8 and 9 eggs each; their nests were not at the end of burrows, but in depressions under dense undergrowth. The eggs are smaller than those of the American merganser and of a darker tint, being yellowish-drab or warm drab; average size 2.50 x 1.70. The down is also

darker and of a warm greyish tint. Both ducks are very destructive to fish and are therefore disliked by the fishermen. They are known to gunners as sawbills, and their flesh is rank and unpalatable.

ORNITHOLOGICAL NOTES.

During the past season I investigated an unusual nesting site of our common black duck (*Anas obscura*). This well known and extensively distributed species usually builds its nest on the ground, but last June I visited an island in the St. Lawrence where a pair had taken possession of a last year's crow's nest and successfully brought off their brood. The nest, which was built after the usual style of crow architecture, was saddled on a limb of a high elm, forty feet from the ground, and was reached after a difficult climb with climbing irons. A liberal supply of down had been furnished by the duck and incubation was well advanced. Just how frequently such nesting sites are resorted to by these ducks it is difficult to say; had the bird not been accidentally observed flying to the tree her presence would never have been suspected. I photographed the nest containing the ten eggs, but owing to the extremely awkward position in which I had to make the exposure only eight are shown. The duck sat very close and did not leave the nest until I was within a few feet of it.

THE BLACK GUILLEMOT (*Cephus grylle*).—June 10th last, while walking along the harbor front, I saw a black guillemot swimming rapidly toward the open lake. I believe this is the first instance of this species having been observed in this locality. Speaking of this bird in 1885 the late Mr. McIlwraith, in "Birds of Ontario," says one was shot in Hamilton Bay many years ago, and according to the Catalogue of Canadian Birds one was taken at Toronto in 1885. These seem to complete our records for Ontario. While at the Magdalen Islands last year I saw many flocks; they are swift flyers and expert divers. Unfortunately, a large percentage of the guillemots that occasionally stray as far west as Lake Ontario die of starvation, so often the common fate of sea birds that wander so far from their natural habitat.

E. BEAUPRÉ.

Kingston, Oct., 1904.

AN OCTOBER TRAMP.

Lured by the glamour of a recent morn, which presaged a bright invigorating day, I started at eight o'clock for a tramp to Kirk's Ferry, where the charming scenery of the Gatineau river and the Laurentian hills is admirably exhibited. This very diversified and picturesque district holds many attractions for the naturalist and nature-lover. Through its broken ridges and swamps, the deer are still not uncommon, especially in the neighbourhood of the beautiful lakes which lie a few miles to the westward (Meach, Harrington and Phillips). From these retreats they sometimes stray, or are driven, even nearer to the city, as it was my good fortune to observe on this tramp. When half way up the long hill (which gives pause to many a cyclist) opposite Wright's Bridge, I heard the yelping of dogs coming up from the deep wooded ravine through which the Old Chelsea brook flows down to the Gatineau. Halting for a moment, I was greatly surprised to see a doe and fawn go bounding by on the other side of the ditch, their white tails flashing among the roadside weeds and brambles. They did not seem to see me, but disturbed by a wagon a few rods ahead they separated, the doe going off toward the river and the fawn turning to the left down through the gullies. The noise made by the dogs upon their trail showed that the pursuers were not hounds, and when they came in view, toiling heavily along, they proved to be a spotted coach-dog and an old collie. They went off upon the trail of the fawn, but I was glad to think that they could hardly overtake even this poor little creature. Surprised to witness a chase within less than five miles of the Parliament Buildings, my wonder was augmented upon gaining the plateau at the top of the next hill (at the pine grove where such a good view offers of the Chelsea rapids) to see another doe coming down through the field, as if to cross the road toward the river. It was running almost straight for a wagon full of hunters from Hull, but startled by their stopping and jumping down to get their guns out of the wagon, it turned and ran down inside the fence toward me. My sympathies being with the harassed and timid animal, I crouched down by the fence, and when it came by at arm's length I jumped up and waved my coat,

to frighten it back into the woods. It ran to the end of the field and then crossed the road and went down over the hill side. Two of the gunners came up and asked me where it had gone but I merely said that it had crossed the road, upon which they went down through the thick scrub some distance from where the deer went in, and having no dogs I knew there was little fear of them finding the quarry. Near Chelsea, in the cone-laden pines, squirrels were feasting upon the seeds, which they deftly extracted from the long cones held upright like tapers before them. The road here winds through a rich piece of woods, offering a welcome shade to the way-farer in midsummer. Unfortunately the axe of the woodman has already made considerable ravages among the maples, beech and oaks. Some ledges of rock, faced with various mosses and lichens and crested with a luxuriant growth of polypody, suggested that a new locality might be found for the dainty walking-fern. My quest extended some distance from the road, but in vain. A large hawk was working among and over the trees beyond and apparently made a kill, as it settled on a limb and evidently tore its prey to pieces. The bird was so hidden by intervening trees that the species could not be made out, but it appeared to be dark above and very pale beneath. The squirrels here were feasting on the fallen beech nuts, and bluejays with brilliant plumage and ugly voices fluttered from place to place. There were numerous juncos and occasional sparrows creeping about among the fallen leaves, but the bluebirds, so abundant a fortnight before had evidently departed. A partridge next flew up from the roadside and sailed off with a noisy whirr of wings, and while I strolled on slowly looking carefully around for any others, I saw standing in a little glade about thirty yards from the roadside a fine large doe, much larger than those previously seen. It was standing broadside to me in full view, the trees being scattered and leafless, and was calmly contemplating me. After looking at it for some minutes I decided to frighten it back into the bush as I knew if the hunters came along and saw it in such an exposed position its health might suffer. Waving my arms did not disturb it and it viewed the waving of a coat with no more sign of alarm. When I started to go nearer through the rustling leaves it soon cocked up its tail and bounded back over the ridge

to temporary safety. Kirk's Ferry was reached without further incident, and the Gatineau was seen to be unusually high. The hills along the river had lost nearly all the bright colours that clothed their sides so brilliantly two weeks before, for winds and rains had left few leaves upon the trees. After dinner I returned by the back road through Old Chelsea, and down past the old iron mines. Several gunners were seen and shots heard in the hills but no game appeared. Three examples of the Canada jay were noted; one near Kirk's Ferry, one on the road to Old Chelsea, and one about a mile nearer town than that hamlet. I can recommend to our naturalists such a twenty-five mile ramble as pleasant, profitable and health-giving.

W. H. H.

BOTANICAL BRANCH.

The first meeting of the Botanical Branch since the early summer was held at the residence of Mr. W. T. Macoun, on the evening of Nov. 4th. The members present were Messrs. Fletcher, John Macoun, Whyte, Clarke, J. M. Macoun, St. Jacques, Edward Cameron, Roy Cameron, Attwood and Campbell. Mr. Willing of Regina and Mr. W. H. Harrington were present as guests.

The subject chosen for discussion by the chairman was "Individuality in Plants," and in order to introduce it he read extracts from an address delivered by Prof. Hugo de Vries at the Convocation of the University of Chicago, Sept. 2nd, 1904. Prof. De Vries holds that new species of plants originate from accidental forms or sports rather than as described by Darwin in his theory of evolution. In his address, Prof. De Vries gives an account of his observations on Lamarck's evening primrose, a close ally of the common evening primrose. He observed that while the type persisted, sports presenting specific characters were frequent, and in the discussion which followed the reading of these extracts Mr. W. T. Macoun mentioned that he had seen some of these new species in New York. Some of the members present thought Prof. De Vries' selection of a plant to observe unfortunate as the *Oenothera biennis* group have very long been

known to exhibit a wide range of variation in individual plants. It was decided to secure further information on this subject and discuss it at a future meeting.

Dr. Fletcher told of the efforts that were being made in Argenteuil Co. to prevent the further encroachment of drifting sand on cultivated lands there, and exhibited branches of Canadian balsam which had thrown out roots when the sand reached them. These roots would not only serve to add to the food supply of the tree but in the event of its being killed young trees would grow from them. *Spiræa salicifolia*, which grows in the depressions among the sand was mentioned by Dr. Fletcher as being an evidence that the "drifting sand" is dry only on the surface.

Mr. W. T. Macoun exhibited specimens of apetalous apple blossoms. About a dozen flowers were received by him, May 26th, in clusters averaging three flowers each. The calyx was very similar to that of ordinary apple blossoms but the petals were abortive, very small and hidden by the sepals. The flowers were evidently all pistillate. There were 15 stigmas on each flower.

BIRD MIGRATION.—With reference to the note on Bird Migration which appears on page 144 of THE OTTAWA NATURALIST for October, I can fully confirm Mr. Wright's observation as to the immense flocks of evidently small birds passing over the city on the morning of 9th Oct. Sleeping in an upper room with my window wide open I was awakened by their notes and listened to them for a long time. While they were passing I heard the clock in the Parliament Buildings strike three. About an hour later I again heard them for some time. My scanty knowledge of bird-notes did not enable me to recognize the species.—W. H. H.

REVIEWS.

CONTRIBUTIONS TO CANADIAN PALEONTOLOGY, Vol. III.—ON DRYPTOSAURUS INCRASSATUS (Cope), FROM THE EDMONTON SERIES OF THE NORTH-WEST TERRITORY. Part III., July, 1904. By Lawrence M. Lambe.

The continuation of the Reports on vertebrate palæontology of the Geological Survey of Canada is most welcome. Following Part I. by Professor Cope on the mammals of the Cypress Hills Oligocene beds, and Part II. by Professor Osborn and Mr. Lambe, chiefly on the reptiles of the Belly River series, Alberta, comes the interesting memoir of Mr. Lawrence M. Lambe on the large carnivorous Dinosaur of the Upper Cretaceous, Edmonton or Laramie beds. In the meantime Mr. Lambe has received the well earned title of Vertebrate Palæontologist.

The two skulls described here were found many years ago in the Edmonton series of Alberta, and were identified and described by Professor Cope as specifically identical with *Laelaps incrassatus* which had been found in the somewhat older Judith River beds of Montana. Professor Cope published a brief description without figures, and as we knew little of the cranial characters of the Upper Cretaceous Dinosaurs, Mr. Lambe's full description and figures are of very great interest and value.

As restored by him the skull in proportions is remarkably similar to that of the small Tuatera lizard of New Zealand enlarged to a massive and formidable scale, that is, the facial region is less elongated than in the carnivorous Jurassic Dinosaurs, which seem to be closely related if not ancestral to this Upper Cretaceous form. What is lost in length, however, is gained in strength and power, proof that the Upper Cretaceous carnivorous Dinosaurs were thoroughly capable of attacking the huge horned Dinosaurs (the Ceratonia) of the same period. These particular specimens are of a somewhat smaller and lighter construction in the feet than others which have been found farther south, and there is evidence of considerable specific if not generic variation among these animals in adaptation to the capture of the many different

forms of herbivorous Dinosaurs which existed at the same period. In his description of the jaw Mr. Lambe figures the presplenial. Professor Williston considers that this is simply an anterior expansion of the splenial.

HENRY F. OSBORN.

MONOGRAPHIE DE L'ILE D'ANTICOSTI. By Joseph Schmitt. Paris. 1904. pp. 367.

From whatever standpoint it may be considered, Dr. Schmitt's monograph must be considered one of the best works of its kind published anywhere, and nothing approaching it in completeness has ever been published on any part of Canada. Whatever one may think of such a large part of our country as Anticosti being owned by a single individual, one cannot but feel grateful to M. Menier for having made the publication of such a work possible. Paper and type are excellent and scattered through the book are many illustrations, charts and maps which in themselves would serve to give one a very good idea of the physical features of the island. Dr. Schmitt's long residence in Anticosti and the large collections he has made in all branches of natural history, enabled him to discriminate between what were trustworthy and what were doubtful among the published records, and that these were all consulted is evidenced by the very complete bibliography which concludes the volume.

The first part of the monograph is devoted to the geography and history of the island, and the account of its discovery and settlement is given in considerable detail. Under the heading "Meteorologie" the climatic conditions are considered, and Dr. Schmitt's conclusions are based on careful and complete observations extending over several years. The sections devoted to palæontology, botany, ornithology and entomology contain lists of all the species known to occur on the island, with localities and collectors' names, and in all branches of natural history notes on distribution and other information is contributed by the author himself.

J. M. M.

NATURE STUDY—No. XIX.

NATURE STUDY AND THE CAMERA.

By FRANK T. SHUTT, M.A.

As we understand the term, popularly, to-day, Nature Study is primarily and essentially the study of the out-of-doors. Therein lies its great fascination and charm. It takes us out into the sunshine and fresh air—and that is wherein it differs from our ordinary scholastic work. Away—body and mind—for the time from bricks and mortar and books and desks to learn what we can of the form and life and habits of plants and animals, to consider the meaning of the rocks and the soil, the clouds and the rain, but what is of far higher value, to realize as we have never done before the beauty of form, of motion and of color in the things about us—that, in part, is the essence of Nature Study and what it helps us to do. Forest and field, river and stream, the earth and the sky, all may be made to contribute towards this knowledge and all looked at aright may help us in the recognition of the beautiful and thus add much to the enjoyment of life. Our eyes and our mind are opened to the beauty of the things about us. There is created or developed within us a new sense—the realization of the beauty that lies in form and color.

Now, it is evident that the first step in Nature Study is to correctly observe. This is by no means such an easy matter as many may suppose. It is a rare art, though a fascinating one. It not only requires time—one might say, leisure—and concentration of thought, but also practice. To a certain degree it is a gift, born in us, *i. e.*, that we differ, naturally, in our ability to see clearly and accurately and take note of the things about us, but like all gifts it must be developed and trained before it can reach its highest attainment. Moreover, it is an art that can be acquired even by those who by nature are in a large measure unobservant—and we believe that to such, especially, is this study one of great value. How many of us go through life without making a clear mental concept even of the trees and plants passed and repassed almost every day, so much so, indeed, that some have never recorded (mentally) the difference in contour between an elm and a maple!

But Nature Study does not stop at careful observation and the formation of distinct and true mental pictures. It leads to a knowledge not only of the structure but of the functions of living things. It continually puts the questions, why? and wherefore? and thus educates or draws out that valuable art of deduction, without which our observations would be of little service—without which half the value of Nature Study would be lost. Of this feature, however, it is not our present intention to speak further, but rather to bring to the notice of the earnest and enthusiastic student the camera as an aid and adjunct to careful, accurate observation. The making of a photograph—and by the making I include the taking, the dark room work and the printing—serves to impress the image of what we have seen upon the mind and memory as nothing but making a drawing can—emphatically and accurately. The mere focussing on the ground glass of the tree, a clump of fern, the bird on her nest, serves to imprint the image on the memory more accurately, vividly and permanently than does the casual glance at the objects themselves. How much deeper and more lasting is the image after the finished print is made! The writer found in his college days that it well repaid to write out his lecture notes, even though the manuscript might never be reviewed—and in later days he finds the same principle still holds good with Nature Study and the camera.

All this, valuable as it is, however, does not comprise all the benefits to be derived from the aid of the camera. Though Nature Study is, as we have said, primarily for the out-of-doors, it frequently calls for subsequent work indoors to a more complete understanding of the objects of our study. In the photograph, carefully made, we have a record for this purpose. We cannot bring home with us the clump of towering trees, but in the image so accurately made by light we can again and again consider and compare their mode of growth, their contour and many other features. The same truth is still more obvious in geological studies. The rock cuttings showing the various strata, the escarpments and boulders can only be brought home for future study by the camera. And what shall we say of the fugitive clouds that, unconsciously to most of us, make the beauty of the landscape? We must secure the image ere the substance goes,

and that quickly or we shall be without an aid to our imagination for enjoying again the pleasures of the cloud-flecked sky. And as the highest enjoyment is only obtainable when accompanied by knowledge, we may add there is much to be learned from cloud formation and cloud forms, from the utilitarian as well as from the æsthetic standpoint.

Again, we can live again and enjoy the pleasures of our summer studies and rambles in our photographic records, and thus obliterate in part the severity and the monotony of our long winter. Not that the study of nature must necessarily cease in that cold and snowy season. There are a thousand objects still to interest and instruct us in the forest and by the stream, even when the white mantle lies deep upon the ground. One could easily enlarge upon this phase of Nature Study—one that has as yet received but little attention.

All knowledge is relative, or practically so. We learn by making comparisons. What more necessary for this than the possession of records? Of some objects, by their very nature, we can only obtain their image and for this photography is particularly helpful—indeed indispensable. That this fact is now widely recognized we have only to note the wealth of photographic illustrations in all works now published on the Natural sciences.

But perhaps enough has now been said to awaken an interest in the erstwhile photographer, who years ago may have bought a kodak, pushed the button and let somebody else do the rest. That camera, perhaps, was long ago relegated to the garret. Unfortunately, the cheapness of the instrument and the ease with which a part of the picture making could be done has served, with many, to make the camera little better than a toy and its manipulation the merest pastime. Naturally with them the camera has gone the way of the crokinole board and table tennis—it was amusing for a time, but soon became tiresome and was put aside. No, the camera must be used seriously, if it is to be with us a life work and a life pleasure, and it is very much to be doubted if any subject or study can afford so much of interest and value and pleasure as the study of Nature in her manifold manifestations.

And, in conclusion, it may be useful to give a word or two of

practical advice to those who having some skill in photography may desire to use that skill in the study of Nature. To be successful, both from the standpoint of making records by the camera and of making real progress in our study, do not attempt at first to work in many fields. Select one or two subjects, and, as far as possible, exhaust them before taking up another. An odd fact or picture gained here and there from many subjects, may in time make a collection of some interest and occasional value, but not to be compared in either interest or value to a systematized knowledge and a complete record of one or two subjects. Concentrate, then; diffuse work seldom leads to mastery, to satisfaction or success. Choose a subject and as far as opportunity permits study it seriously, in general and in particular, before beginning the exploitation of another, is the advice of one who has had some experience following this method. For instance, let us take the deciduous trees in our neighborhood. For contour, they should be photographed in full foliage and after the leaves have fallen, isolated and growing under forest conditions. Making negatives from the same point of view in summer and winter is most useful. Then make a study of the barks of the same trees. Follow this by a study and the making of careful photographic records of their flowers and seed vessels—an interesting work and one that will put us in possession of a wealth of most fascinating pictures to be treasured alike for their beauty and educational value. Finally, take the leaves, either singly or on a small branch; study and memorize their shapes and peculiarities and make photographic records of them. In this alone there is two or three season's work, even though but half a dozen trees be studied. It will not only afford much interesting and recreative in-door and out-of-door work, but will give us such a knowledge of our trees as few to-day possess. And the probabilities are that we shall also have many beautiful photographs that will delight and instruct us and our friends.

Subjects might be mentioned without number, but they will occur to every earnest worker. Our object was to indicate how the camera may be made of valuable assistance in the study of Nature, and in this we trust we have been in a measure successful. Photographic work and Nature Study are mutually helpful—they progress together—and the writer can honestly affirm that the pleasures and usefulness of both the art and the science are enhanced by their happy combination.

Experimental Farm, Ottawa, Nov. 15, 1904.

R. H. CONLEY,
 Fashionable Tailor,
 213 Wellington near Bank.

James Hope & Sons, Booksellers, Stationers,
SPARKS St., Ottawa. Bookbinders, Printers.

J. G. BUTTERWORTH & Co. All-Rail Scranton Coal. Has no Equal. 86 SPARKS ST.	Publisher of Views of Ottawa. C. H. THORBURN Books and Stationery. BOOKS ON NATURE STUDY. 80 Sparks St., Ottawa. Phone 902.
---	---

C. C. RAY & Co. COAL best quality, lowest price. 53 SPARKS ST. Phone 461.	R. McGIFFIN, ... MEN'S FURNISHINGS ... 106 SPARKS ST. OTTAWA.
--	--

The Ottawa Trust & Deposit Co. (Limited) as Executor, Trustee, Agent &c. — OFFERS — Continuous Service, Experienced Management, Prompt Investment, Absolute Security. Safety Vaults to Rent. H. W. CHAMBERLAIN, Manager.	The Bank of Ottawa. Capital (authorised) - - \$3,000,000 Capital (paid up) - - - 2,366,130 Rest - - - - - 2,194,517 BOARD OF DIRECTORS: GEORGE HAY, President. DAVID MACLAREN, Vice-Pres. Henry N. Bate, Hon. Geo. Bryson, H. K. Egan, John B. Fraser, John Mather, Denis Murphy, M.L.A., Geo. H. Perley. Head Office, - - - Ottawa, Ont. GEO. BURN, Gen. Manager. D. M. FINNIE, Ottawa Manager. L. C. OWEN, Inspector General Banking Business. Savings Departmen
---	--

When on a tramp take a
 supply of...
**EDDY'S
 FLAMERS
 and
 WAX VESTAS
 MATCHES.**
 They ensure a good
 "LIGHT" in any kind
 of weather.

**The Russell
 Motel**
Mulligan Bros.

One of the most useful things in the household is — **"MOZART PIANO and FURNITURE POLISH"** Use it on your piano and that smoky appearance will vanish. Furniture, woodwork etc. will regain its old-time lustre.

McNEIL'S SUITS are the best.
 Try them.
 203 SPARKS ST.
 OTTAWA.

JUN 13 1966

THE OTTAWA FIELD-NATURALISTS' CLUB, 1903-1904.

Patron :

THE RIGHT HONOURABLE EARL OF MINTO
GOVERNOR-GENERAL OF CANADA.

President :

W. T. Macoun.

Vice-Presidents :

S. B. Sinclair, B.A., Ph.D. W. J. Wilson, Ph.B.

Librarian :

J. H. Putnam, B.A.

Secretary :

T. E. Clarke.
(470 O'Connor Street.)

Treasurer :

Arthur Gibson.
(Central Experimental Farm.)

Committee :

Dr. Jas. Fletcher.
Rev. G. Eifrig.
Mr. J. M. Macoun.

Miss M. McK. Scott.
Miss A. Matthews.
Miss R. B. McQuesten.

Auditors :

J. Ballantyne, R. B. Whyte.

Standing Committees of Council :

- Publishing* : J. Fletcher, Miss M. McKay Scott, W. J. Wilson, Arthur Gibson
G. Eifrig, J. M. Macoun.
Excursions : S. B. Sinclair, J. Fletcher, T. E. Clarke, A. Gibson, Miss Ruby
B. McQuesten, Miss Annie L. Matthews, Miss M. McKay
Scott.
Soirees : W. J. Wilson, J. H. Putnam, J. M. Macoun, T. E. Clarke, G.
Eifrig, Miss Ruby B. McQuesten, Miss Annie L. Matthews.

Leaders :

- Geology* : H. M. Ami, W. J. Wilson, D. B. Dowling.
Botany : J. M. Macoun, C. Guillet, D. A. Campbell, A. E. Attwood, S. B.
Sinclair, T. E. Clarke.
Entomology : J. Fletcher, W. H. Harrington, C. H. Young, A. Gibson.
Conchology : J. F. Whiteaves, F. R. Latchford, J. Fletcher, S. E. O'Brien.
Ornithology : John Macoun, A. G. Kingston, G. Eifrig, E. F. G. White.
Zoology : E. E. Prince, Andrew Halkett, W. S. Odell.
Archæology : T. W. E. Sowter, J. Ballantyne.

THE OTTAWA NATURALIST.

Editor :

JAMES M. MACOUN.

Associate Editors :

- DR. R. W. ELLS, Geological Survey of Canada.—Department of *Geology*.
DR. J. F. WHITEAVES, Geological Survey of Canada.—Dept. of *Palæontology*.
DR. A. E. BARLOW, Geological Survey of Canada.—Dept. of *Petrography*.
DR. JAS. FLETCHER, Central Experimental Farm.—*Botany and Nature Study*.
HON. F. R. LATCHFORD.—Department of *Conchology*.
MR. W. H. HARRINGTON, Post Office Department.—Dept. of *Entomology*.
REV. G. EIFRIG, 210 Wilbrod St.—Dept. of *Ornithology*.
PROF. E. E. PRINCE, Commissioner of Fisheries for Canada.—Dept. of *Zoology*.
Membership Fee to O.F.N.C., with "Ottawa Naturalist," \$1.00 per annum.