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MAMMALOLOGY.

THE PANTHER IN CANADA.

DURING the years 1883-4, while on a Government survey in the Rocky Mountains, I several times saw the panther, though I never had a close acquaintance with him. In fact, I rather avoided an introduction, when I had no gun with me.

While producing the eighth base line (about lat. $51^{\circ}, 30'$) into the mountains, one of the chainmen cut his foot, and remained in the supply camp in the last ridge of foot hills (about w. long. 117), and I remained overnight with him. We had made our beds, and were soon enjoying that sound sleep which comes to those who have clear consciences and sleep on balsam boughs, when suddenly we were awakened. Awakened! Yes, and lifted out of bed. I found myself near the door of the tent, grasping a rifle, my chum beside me, and we both were listening to the most hideous screams and shrieks, that might rival those of the lost souls in Hades. We watched the timber which surrounded the camp ground, and soon saw, though indistinctly, a large animal like a huge cat crossing the moonlit glades which ran into the woods. We felt sure that it was the panther, or commonly called in this locality "mountain lion."

The panther came nearer, and once we saw the wicked glitter of his eyes, about fifty feet from the tent. He was trotting around us, and trying to get at the pork, with which the tent was stored. When he stopped near the door of the tent, we were both seized with the idea that we had better let him know that there was someone at home, and simultaneously we fired. Crash went the woods, and for over half a mile we could hear him getting out of the country. We did not stop much longer in that locality, and never saw that individual lion again.

During the following season ('84), while up the Bow River at the mouth of Cascade River, where the National Park now is, we fell in with a party of railway navvies, who were just returning from an unsuccessful lion hunt. While at work on the track repairing, etc., they had seen a pair of mountain lions a short distance away to the north, and they sallied forth to kill them. The navvies were armed with axes, spades, picks, etc., and were led by a courageous Englishman, who was determined to have a skin to take "ome t'owd country." It was well they did not come to close quarters, for perhaps some would never have seen "ome" again.

The next experience we had with the panther was on a small lake on the Morley Indian Reserve, within a mile of the Kananaskis River. One evening we were awakened by the same shrieks and cries, but this time knew their source. Ad. and I crawled out, armed, and sat under a cart for nearly an hour waiting his approach, but did not get a chance at him. The ground was grown with clumps of willow, and our horses were pasturing near, so that we dare not chance anything. He came several times quite close (we afterwards found), but we could not tell but it might be a pony browsing, and did not dare to fire. We retired disgusted with our luck. In the morning his tracks were found in the snow which had fallen in the early night while we watched for him. He had been within twenty-five or thirty feet of the tent, and tramped all around the carts and through the willows. I did not measure his tracks, but remember that my hand, fingers closed at the second joints, would not cover one of them.

One of our axemen had an adventure with one, a few miles from this spot. We had produced our township line south over the hills which, from where our tent was, rose 1,800 feet in one steep incline. We worked our way about seven miles, and returned in the evening by going down to the pack trail along the Kananaskis river, or walking back along the line. The axeman took the trail *once*, but never again. He saw the "lion in the way," and knew that he was not chained. He sidled around about a quarter of a mile, and when he had got a good clump of trees between himself and the cat, he made a bee line for home, and, notwithstanding he had been walking out of the trail, made the best of time. If he were expected for supper by that lion, he was "awaited in vain."

I have tried since those years to locate the northern limit of the panther. Mr. Fred Brick, a gentleman who for some years has been in the Indian trade, says that in his locality he has never seen one, nor received a skin from the Indians. He has traded up the Peace River from his station, at the junction of the Peace and Smoky Rivers, up to the summit of the mountains, and his Indian hunters range quite a distance south of that. So the northern point must be between lat. 52 and 56. Possibly the panther may be found on the head waters of the Athabasca, in the neighborhood of the Yellow Head Pass, near Mounts Brown and Hooker. Hunters and traders on the British Columbia side of the mountains, report it as fairly common.

Toronto.

J. W. MILNE.

ZAPUS HUDSONIUS.

THE Jumping Mouse is fairly common here. It lives principally in the bush, but it is often found in the harvest fields. My cat once brought in four young and one old one in one day, and I thought she had the whole family. It is not likely they breed more than once in the year in this locality, but I will try and determine this point.

Port Sidney, Muskoka.

A. KAY.

ORNITHOLOGY.

ARDETTA NEOXENA AT TORONTO.

ON JUNE 10TH, I saw Cory's Least Bittern rise from the marsh, quite near to me, and flew round across an open piece of water, alighting in the marsh at the other side of the channel. I am sure of the identity, for it was not at any time during its flight, more than fifty yards from me, and rose from the marsh about twenty feet from the boat.

On August 16th, I received a specimen of this bird, shot by Mr. Hume, a few hundred yards from the spot where the above mentioned specimen was observed. The following is a description of this bird; the colors are named from Ridgway's "Nomenclature of Colors for Naturalists:" Mature male—Forehead and crown, the feathers lengthened to a crest covering the occiput, lustrous black; lores naked, of a greenish cast soon after death; upper mandible blackish on culmen, shading to greenish black on sides; lower mandible, ochraceous yellow, with a greenish cast, darker at base and tip; irides, yellow; the ruff, composed of the feathers of chin, throat and jugulum, rich burnt umber, fading into cinnamon on the chin and upper throat, and on the outer edges to a blackish brown, finally becoming black, caused by the outer feathers being black shafted, and tipped and edged with black of a duller cast than the crown and back; back, rump, upper tail coverts and tail of the same rich, lustrous black as the crown; the lesser coverts on the carpal joint, blackish; the others, with the middle and greater coverts, of a dark brown, darker than the ruff; alula, brownish, with a white mark at base; primaries and secondaries, slate color, much paler on the inner webs; tertials, black, like the back; the frontal feathers of the breast, blackish, forming a narrow elliptic mark at the end of ruff; breast, deep brown, shading to dull black on sides; flanks, dull black;

tibia, black on outer side, with a few brown feathers; on the inner side, white, interspersed with a few brown feathers; a white patch on abdomen, banded posteriorly by a blackish mark; anal region, white; under tail coverts, dull black; feet and legs, olive green, darker anteriorly; the under side of feet orange. Length, 14 in.; wing, $4\frac{3}{4}$; tail, 2; tarsus, $2\frac{3}{4}$; bill, $1\frac{3}{4}$; testes, about $5-16 \times \frac{1}{8}$ diam. Stomach contained twenty-five young perch, the largest 1 in. long, the smallest $\frac{5}{8}$ in. This specimen is now in my possession.

Toronto.

JAMES R. THURSTON.

A male Cory's Bittern (*Ardetta neoxena*) was shot on August 17, 1894, on Ashbridge's Bay, Toronto, by Mr. Harry Day, and is now in my possession.

In this specimen the colours of the eye, beak, legs, and toes, did not differ from the published descriptions, and from two specimens I have examined, when fresh. The bird is a small one, and is undoubtedly a bird of the year. On a close examination, down is evident on the top of the head, like the young of other bittern. The feathers of the back of the neck are spare and downy in appearance. The mantle is not the decided glossy black of an adult specimen before me (the one recorded by Mr. Hubert Brown in the *Auk*, Vol. X., 1893, p. 363), but is dull, and the black relieved in several places by traces of umber brown. The entire under parts, including the thighs, are brownish black, the feathers still retaining, in part, the appearance of down. Except in the general dullness of the plumage and the differences already noted, this bird does not differ, in distribution of colour, from the adult.

From the state of plumage and the date of capture I believe this bird was bred near Toronto.

Measurements (fresh): Total length, from tip of beak to end of claw of middle toe, 11.75 in.; wing, 4.50; tail, 1.50; tarsus, 1.37.

Toronto.

JAMES H. FLEMING.

On August 24, 1894, while Mr. P. Jacobs and a friend were out boating on Ashbridge's Bay, Toronto, they observed something in a small clump of reeds, which appeared to them like a large bat. On approaching it, they found it to be a Cory's Least Bittern (*Ardetta neoxena*).

Mr. Jacobs endeavoured to capture it alive, and succeeded in approaching within three feet of it, but his companion killed it with a paddle. It proved to be a young male, about two-thirds grown, with down on its feathers; coloration similar to that taken May 26, 1894. (See *antea*, pp. 52-53.) Both these birds are in my collection.

The stomach contained about fifteen small bass, about one-half inch long, and the larva of a large dragon fly.

Toronto.

J. H. AMES.

NOTES ON CORY'S BITTERN (*ARDETTA NEOXENA*)
AND A COMPARISON OF THE SEVEN TORONTO
SPECIMENS.

THAT the history of this remarkable bird may be more readily understood, I have taken the liberty of presenting a summary of what has been published regarding it, and of describing the difference between the seven specimens captured at Toronto.

A most peculiar circumstance in the history of this bird, is that it has only been recorded from two isolated and widely separated localities, viz.: Southern Florida and Toronto, Ontario; and it is interesting to note that not until 1890 was it observed in Toronto, some four years after it was discovered in Florida.

In 1893 another was captured here, and this year (1894) five have been secured.

Quite a number have been observed, but only five taken, in Florida since the type was obtained. This fact would lead to

the supposition, that the species is increasing in numbers, or is it because greater pains have been taken to search for them?

The marshy location at Toronto, to which the birds resort, and where all of the seven were taken, is only about half a mile square, protected from the seas of Lake Ontario by a narrow sand-bar a few yards in width, and is situated immediately adjacent to the city of Toronto.

A great deal of shooting is practised there at all seasons, so that the bird, though evidently of retired habits, could scarcely have chosen a more frequented piece of marsh.

It seems natural to suppose that there exists in this marsh, some peculiar attraction, since it is the only place where they have been seen except in Florida. It may, therefore, be interesting to know something regarding the chief characteristics of its flora, and through the kind assistance of Dr. Brodie, I am enabled to give the following notes, which will give some idea of its nature. It is chiefly grown up with *Typha latifolia*, *Scirpus fluviatilis* and *Phragmites communis*, which abound in dense masses.

Scirpus fluviatilis, while mixing with *Typha* to a great extent, often crowds it out, leaving patches here and there entirely free from it.

Phragmites communis grows in the more open water, as well as among the crowded *Typha*, and *Scirpus validus* abounds in the more shallow open spaces.

In still water, several species of *Potamogeton* abound, and *Lemna trisulca* floats on the surface, covering most of it.

There are a number of large patches of *Nymphaea odorata*, and *Nuphar advena* is quite common.

At present (November) the marsh is almost entirely dried up. This year *Porsana carolina* and *Ardetta exilis* were very abundant.

In Florida the habitat of Cory's Bittern as now known extends over a swampy area, about forty by fifty miles in extent.*

* W. E. D. Scott, *Auk* IX., 1892, p. 214.

Of the seven Toronto birds, six have the sex determined, four being males and two females.

That they bred here is evident from the fact that they were captured this year, on the following dates: May 26, July 16, August 16, 17 and 24, and those taken on the two latter dates are evidently young birds.

A peculiar habit of these birds, as noted by Mr. Pickering and Mr. Jacobs, is their stupidity or tameness; several allowed so near an approach, that they were killed with paddies.

Mr. J. F. Menge has also noted this habit in Florida, as on one occasion, when he had found their nest, he held one of the old birds in his hand; it showed no signs of flight, and its mate was within two or three feet of him; when he "let the old bird go she hopped back on her nest as though she were accustomed to being handled."²

This habit has not been observed in the common bird *Ardea exilis*.

The stomach dissections of three specimens show that the food consists of small bass and perch, from one half to one inch in length; and in one stomach, there was found the larva of a large dragon fly.

There is much to be learned regarding the status and life history of this strange bird, and it would be interesting to hear what the leading authorities have to say on the matter, since so many additional specimens have been secured at Toronto.

As the seven Toronto specimens represent more than half the number known to have been taken, a comparison of them might be of interest to the readers of the REVIEW, especially as they are a representative group, consisting of two adult males, two females, two young males, and an adult, of which the sex is undetermined. I have succeeded in bringing together, for the purpose of comparison, all of these with the exception of one in the Canadian Institute.

I must here thank Messrs. J. H. Ames, J. H. Fleming, J. R. Thurston and Charles Pickering, for their kindness in loaning me the specimens they possess.

In the following descriptions I have used Mr. Ridgeway's "Nomenclature of Colors," in defining colors, and will refer to the birds by their numbers as follows:

No.	SEX.	LOCALITY.	DATE.	COLLECTION OF	RECORDED.
1	Toronto, Ont.	May 18, 1890	Canadian Institute.	Wm. Cross, Proc. Orn., sub-sec. Can. Inst., 1890-91, p. 41.
2	♀ ad.	"	May 20, 1893	J. H. Fleming.	H. H. Brown, Auk N. Oct., 1893, p. 363.
3	♂ ad.	"	May 26, 1894	J. H. Ames.	Biol. Rev., Vol. I., p. 52
4	♂ ad.	"	July 16, 1894	Chas. Pickering.	" p. 54
5	♂ ad.	"	Aug. 16, 1894	J. R. Thurston.	" p. 84
6	♂ juv.	"	Aug. 17, 1894	J. H. Fleming.	" p. 85
7	♂ juv.	"	Aug. 24, 1894	J. H. Ames.	" p. 86

The measurements (taken from dried skins) show that the two adult males are somewhat larger than the females, the greatest difference being in the wing, tarsus, and culmen. No. 5 is considerably larger than the others, in most of the measurements.

Nos. 3 and 5 (adult males) have the back black, glossed with green, as in *exilis*, without any traces of brown; the black feathers covering the back of the neck are much more conspicuous than in the females, and are glossed with green, the same as the back. No. 5 is much richer in color on the under parts, and has a considerable amount of white (which is wanting in No. 3) on the abdomen, thighs and anal region.

Nos. 2 and 4 (adult females) are similar in coloration to the males, but the occipital crest is not so evident: and the color of the back shows traces of brown, No. 2 being a decided brownish tinge, while No. 4 is glossy green, with traces of brown. The tails of both are dark glossy green. The rufous of the sides of the head, in No. 4, extends anteriorly over the eye, to the forehead, forming a narrow frontal margin of rufous; in No. 2 it just passes the eye, not reaching the forehead; the white feathers on the thigh are absent in No. 4, otherwise they are alike.

Nos. 6 and 7 are both young males of the year. No. 7 is of special interest, as it bears undoubted signs of youth. General coloration same as adults, but having down very conspicuous over the whole body. The head, back, under parts and thighs especially, and some of the feathers of the back show this feature; the dark glossy green of pileum is somewhat obscured with it. This down is about half an inch in length, and is attached to the tip of the shafts of the feathers, from one to four barbs being attached to one tip; it is of a light brown color, darkest on the crown.

On the crissum, the feathers are of a very loose and downy nature and of a dusky color, excepting some white in the anal region.

The measurements (from dry skin) are as follows:—wing, 4.20; tail, 1.45 (?); middle toe, 1.45; hind toe, .70; gonys, .30; nasal fossa, 1.10; depth of bill at middle, .26.

It is about ten per cent. less than the adult male, No. 5, in all measurements excepting those of the bill; in No. 5 the culmen and gonys are each .35 longer than in No. 7, a great variation.

No. 6 is similar to No. 7, but has only a few feathers of the head with down. The back is without the green gloss, excepting on the tail and edges of some of the secondaries, and is suffused with chestnut, thus resembling the adult females.

I have examined the specimen (No. 1), now in the Canadian Institute, and believe it to be an adult male, as it is almost identical in coloration to the adult males, Nos. 2 and 5; it lacks any white on the lower parts, and in this respect resembles No. 3.

Ardetta neoxena differs considerably from *exilis* in the coloration of the feet; the former have the tarsus and upper surface of the toes a dark "olive green," and the soles "orange," while the latter have a light greenish-yellow tarsus and yellow soles.

The males of *neoxena* and *exilis* correspond in colour only on the pileum and back, while the females of *neoxena* are much darker on these parts than *exilis*.

The individual variation of the seven specimens of *neoxena* is so small as to merit notice; the rufous and chestnut of the neck and wing varies only slightly, and some of the birds have white feathers on the thighs and crissum, while others have not, but this may be attributed to albinism.

On the whole, when compared with *exilis*, *Ardetta neoxena* is a very distinct species, and not known to interbreed.

Through the kindness of Dr. Verner a couple of good photographs were taken of the group, with the exception of No. 1, which was not obtainable.

Toronto.

HUBERT H. BROWN.

PODILYMBUS PODICEPS.

WHEN collecting on the Onemee River, County Victoria, Ontario, June 1st, I found large numbers of Pied-billed Grebes breeding, and many of the nests were destroyed by the freshets caused by the recent heavy rains. One nest however, I managed to secure; the contents were three young chicks in the down, all of which took to the water at sight. After many attempts to escape by diving, they were captured by lifting them into the canoe on the paddle in an exhausted condition.

Description: Age, possibly one day old; forehead, a white patch extending to base of bill and diverging to two white lines running over each eye, these bounded on each side by black, that next the lores being a very narrow line; the crown black, with a short, broad line over each eye white; a triangular-shaped patch of bright rufous on centre of crown; the black of the crown bounded posteriorly by two rufous marks, narrowing in the centre and nearly meeting; the cervix black, relieved in the middle by two white lines converging on the occiput to a sagittate mark of rufous; lores, naked, pinkish white, ending in a white stripe which runs to the occiput, meeting the two rufous lines, thence down the sides of neck; throat, white; sides of neck, white intersected by three black stripes, making about equal proportions of black and white; upper breast, greyish black, mottled with indistinct white marks; breast and abdo-

men, pure glossy white; back, black, fading to grey-black on sides, and intersected longitudinally by six white lines brightest in middle of back; wings, blackish, showing indistinct white marks; bill, black on culmen and anterior half, with a right-angular-shaped white mark on the bend of culmen, embracing a decided knob, the white also appearing on the tip of lower mandible, which is pinkish, with a dusky mark on middle; feet, greyish blue.

B. L. NUSSEY.

NESTING OF CANADIAN WARBLERS.

BLACK AND WHITE WARBLER (*Mniotilta varia*).

THIS species is one of our wild woodland warblers. They are never seen in the open fields or gardens, or even in high, hardwood-timbered tracts, except where the underwood is dense and the ground moist. In general its haunts and home for the season is the bordering of swampy woods, or similar places as those frequented by the Water Thrush and the Canadian Warbler, and here it doubtless finds the particular insect food on which it subsists and feeds its young. While in quest of food, especially in the early spring time, it may often be observed running up the trunks of trees, and out along the branches, somewhat after the manner of the Nuthatches, from which circumstance it has, until recently, been known among ornithologists as the Black and White Creeper.

On the opening of our spring, usually the latter days of April or beginning of May, its arrival is announced by its oft-repeated song, which resembles the words, "sweeten, sweeten, sweeten," repeated three or four times in rapid succession.

It is among the first of our warblers to arrive in spring.

It builds its nest about the last week of May or in June, which is usually placed on the ground, or in a bank of earth turned up by the roots of a fallen tree, but always in a cavity

or under some concealing object, either stick, bark or clump of dry leaves.

On the 31st of May, 1893, I collected a nest and set of eggs of this species. The site of this nest was near the top of the turned-up root of a fallen tree, in a dense thicket of bush and underwood, and three feet above the hollow out of which the root had been torn. Over the site a part of the root projected, sheltering it from the sunshine except at noonday. The place was on the edge of a swampy burn and a highland dell, which I find to be a favorite nesting place of several other species. The bird had been on the nest, and flushed out as I, a few feet off, crashed through the tangled bush, and saw at once that it contained three of her own eggs and one of a Cow-bird's, and these I afterwards found had been about three days incubated. The nest was composed of dry leaves, some strips of bark, a little moss, rootlets and hair. The eggs are of a whitish hue, thickly dotted toward the larger end with spotting of a flesh color. A person not well acquainted with the nesting peculiarities of this species might easily have mistaken it for a nest of the Canadian Warbler. Though placed in a similar position, and composed of similar materials, it was more bulky in size, and the eggs, though about the same size, had not so clear a ground color, and were a little more globular in form. The return of the bird, however, soon settled the question of identity.

THE MOURNING WARBLER (*Geothlypis philadelphia*).

A nest with four beautiful eggs that I collected this season (1894) is before me, and as they may be regarded as typical, I will give some account of them.

On the 28th of May, as I was doing some work on the margin of a swampy burn and the highland wood, I discovered in a clump of yellow-topped weeds a newly-made nest, of whose identity I was at first uncertain, as it seemed to be rather large for any of the warblers that nest in such situations. On each of the two following days an egg was deposited, which resembled those of the Maryland Yellow Throat. On the 3rd

of June the nest contained four eggs, and as a day had passed without one being deposited, I concluded that the set was complete, so I took them home, and they are now in my cabinet.

On this occasion the bird was seated in the nest, which she did not leave until I almost touched her with my hand, and then, instead of flying out, she ran mouse-like into a neighboring brush pile, which I shook before she flushed to a stand a few yards off, when she gave tongue, and I had no doubt of her identity as a female Mourning Warbler.

The ground color of these eggs is white, and the spotting more of a brownish hue than either reddish or black. One is marked near the smaller end.

The nest itself was rather bulky for the size of the bird. Underneath, on the earth, was a platform of dry weed stalks; then dry leaves, which had evidently been placed together in a moist condition, formed the bottom and sides of the nest; but the upper rim and inside is formed of fibres of vines and grasses, and there is some horse or cattle-tail hair intermingled with the lining.

This species is chiefly found in second-growth timbered places, and nests in various situations, such as clumps of weeds and grasses, and the cavities of turned-up roots and banks, and the nest is in harmony with the situation. Five or six eggs are usually deposited.

Listowel, Ont.

W. L. KELLS.

A SUMMER'S COLLECTING AND OBSERVATIONS AT PORT ARTHUR, ONTARIO.

PORT ARTHUR is situated on the northern shore of Lake Superior, about 900 miles north-west of Toronto, and is about half way between Manitoba and Muskoka.

The character of the country surrounding Port Arthur is of

a rocky nature, grown up with scrub tamarac, spruce and hemlock, and in the lower localities are numerous large swamps.

There is no large timber in this region.

One can hardly be expected to give a complete account of the birds of any region in one short season's observations, nor is it my intention to try to do so. I merely give a list of the species observed during the summer of 1892.

Colymbus holbællii (Holbælls Grebe).—One young bird seen in August, which might indicate its breeding in the vicinity.

Colymbus auritus (Horned Grebe).—Two young specimens collected; several others observed. Breeds.

Urinator imber (Loon).—Said to be extremely common in the spring, breeding in the smaller lakes. Very few seen in the fall. Two were secured by some fishermen near Thunder near Thunder Cape, one in young and one adult plumage.

Urinator articus (Black-throated Loon).—One specimen of this species was secured from W. H. Davis' dock about the middle of October, but I could not find out whether others had been observed or taken at any time, most people not knowing the difference between it and the Northern Diver.

The specimen mentioned was in young plumage.

Urinator lumme (Red-throated Loon).—In making enquiries about the Black-throated Diver, I was informed by several parties that the Red-throated Loon was often taken in the spring, but seldom in the fall. I did not hear of any being taken this fall.

Gavia alba.—The gulls are exceedingly plentiful all about Port Arthur, and no doubt the Ivory Gull will hold its own among them. While working in town, two beautiful specimens were brought to me to be mounted. They were secured in the bay, near the breakwater. The fishermen tell me that they are sometimes numerous about the nets, but are always shy.

Rissa tridactyla.—One specimen of the Kittawake was taken early in November.

Larus glaucus, *laurus marinus*.—The Glaucous and Great Black-backed Gulls were sometimes observed among the large numbers of gulls which congregate about the docks, and one

fine specimen of the former was secured. The latter were more shy.

Larus argentatus smithsonianus.—The Herring Gull was exceedingly abundant at all times, and large numbers of them breed at Thunder Cape, Pie Island, Victoria Island, and all along the shore among the rocks. A large variety may be obtained, adult birds ranging from twenty-two to twenty-six inches in length, the young plumaged birds seldom being less than twenty-four inches.

Larus delawarensis.—The Ring-billed Gull is also abundant at all seasons, and breeds in company with the Herring Gull. Some beautiful specimens were secured.

Larus philadelphia (Bonapartes Gull).—This little gull is tolerably common in August for about two weeks, but none are observed after September 1st.

Sterna.—No Terns were observed at all.

Pelecanus erythrorhynchos.—During the last week in October, a carpenter boarding at the hotel told me of a large bird, which he called an eagle, which had alighted in a field near where he was working. He described the bird as being all white, so I could not call it an eagle. He was, however, too far away from it to see much of the shape, but a man came on the scene with a gun, and, after firing at the bird twice, drove it away. This man was afterwards in the shop, and told me about the occurrence, and described the bird to me, and I at once knew it to be a Pelican. He says he was within forty yards of the bird when he shot, but the charge was too small. The bird was evidently tired, as it did not fly until he fired the second time. No report could be heard of it afterwards.

Merganser americanus (American Merganser).—I secured one specimen of this species from the dock in October. They are said to be abundant all winter.

Lophodytes cucullatus.—The Hooded Mergansers are also common all winter. Some beautiful specimens were brought in about the middle of November.

Anas boschas, *Anas obscura*, *Anas americana*.—These three species are tolerably common in the early fall, but in very poor plumage.

Anas carolinensis.—The Green-winged Teal are the most numerous ducks in the early fall, and are in fairly good condition. They are very tame, allowing one to approach within sixteen or twenty yards, and in consequence a large number are killed.

Anas discors.—The Blue-winged Teal are far more scarce, only one specimen being obtained.

Spatula clypeata.—The Shoveller is often taken in the fall, but in very poor condition.

Aythya americana.—In southern Ontario the Red Head is found in November and on into the winter, but at Port Arthur it was only seen during the second week of September, and very few persons ever saw them earlier. I secured four specimens in very poor plumage.

Aythya marila nearctica, *Aythya affinis*.—The scaup ducks are common during the second and third week in September, but are in poor condition.

Glauconetta clangula americana.—The Whistler is sometimes seen in November, and is fairly common all winter.

Charitonetta albeola.—The Buffle-head is seldom seen in the fall, but is common in the spring.

Clangula hyemalis.—The Cowheen is sometimes found in the winter, but not very plentifully.

Histrionicus histrionicus.—I secured a female Harlequin Duck out of a flock of Baldpate on September 19th, the only specimen I met with.

Oidemia deglandi, *Oidemia perspicillata*.—The Scoters are said to be abundant all winter.

Branta canadensis.—While going up the P. A. D. & W. Railway, we passed a flock of about twenty Canada Geese, within about thirty yards of the track, on Iron Range Lake, about sixty-five miles south-west of Port Arthur. They did not seem in any way alarmed at the train.

Botaurus lentiginosus.—The American Bittern is fairly common from May till September.

Ardea herodias.—Fairly common around the small lakes.

Grus mexicana.—On September 27th a Sand Hill Crane was

brought to me, which was secured out of a flock of five on Silver Island, a few miles from Thunder Cape. The first specimen ever seen in that locality.

Phalaropus lobatus.—On August 24th I secured a single specimen of the Northern Phalarope out of a flock of small sandpipers. The only one seen.

Gallinago delicata.—I received several pairs of the Wilson's Snipe and one pair of Dowitchers (*Mocrohamphus griseus*) in October.

Among the sandpipers and plover found were *Tringa maculata* (Pectoral Sandpiper); (Least Sandpiper) *Tringa minutilla*; *Tringa alpina pacifica* (Red-backed); *Ereunetes pusillus* (Semipalmated); *Calidris arenaria* (Sanderling); *Totanus melanoleucus* and *Totanus flavipes* (Greater and Lesser Yellow Legs); *Totanus solitarius* (Solitary Sandpiper); *Actitis macularia* (Spotted Sandpiper); *Charadrius squatarola* (Black-bellied); *Charadrius dominicus* (Golden Plover); *Ægialitis vocifera* (Killdeer). But, like the ducks, they were in such poor plumage as to make them of little value.

Among the grouse were *Dendragapus canadensis* (Spruce Partridge); *Bonasa umbellus* (Ruffed Grouse); and *Pediocetes phsaianellus*, common in some places, some good specimens of each being taken.

Circus hudsonius.—The Marsh Hawk was about the most abundant of the hawks. Not being satisfied with marsh, several specimens were secured among the hills and rocks near Gunflint Lake.

Accipiter velox.—Sharp-shinned Hawks were also tolerably common.

Accipiter atricapillus.—The Goshawk is sometimes found in the fall. One adult female brought to me was the finest bird I had ever seen. She was twenty-six inches long, and had a spread of four feet ten inches.

Aquila chrysaetos.—Two splendid specimens of the Golden Eagle were secured in the fall of 1891, one by W. H. Davis and one by a Mr. Garland. Both are very poorly mounted, and spoiled specimens now. None were seen this year.

Falco columbarius.—The Pigeon Hawk is abundant in some places. Several good-plumaged specimens were secured.

Falco sparverius.—The Sparrow Hawk is also common.

Striges.—There are only three species of owls common there, the *Bubo virginianus*, *Nyctea nyctea* and *Surnia ulula caparoch*. The Hawk Owl is common every winter, first appearing about the last week in November. The Snowy Owl is common in October and November some years, and other seasons is entirely absent. The Great Horned is common all the time, breeding in suitable places, and showing a greater variation than any other bird, from the extreme dark eastern variety to a variety almost as white as the Snowy, the lighter variety being much smaller than the dark.

Ceryle alcyon.—Abundant; breeding.

Dryobates villosus, *Dryobates pubescens*.—Abundant; breeding.

Picoides arcticus.—Common; breeding.

Ceophæus pileatus.—Numerous in burnt districts.

Colaptes auratus.—Abundant; breeding.

Chordeiles virginianus.—Abundant. Breeding commonly around the railway camps.

Chætura pelagica.—Common, breeding in store and out-houses.

Sayornis phæbe.—Common; breeding.

Contopus borealis.—Common on the F.A.D. & W. Railway; breeding.

Contopus virens.—I came across a nest of young Wood Pewees in July, on Gunflint Lake, the only record of this species.

Otocoris alpestris, *Otocoris alpestris praticola*.—In October large flocks of larks were seen, and a number of both species secured.

Cyanocitta cristata.—Common in the more heavily wooded sections; breeding.

Perisoreus canadensis.—Canada Jays were common in all localities.

Corvus corax sinuatus.—Common about Port Arthur, more rare farther back; breeds.

Corvus americana.—Common ; breeding.

Agelaius phœniceus.—Rare ; only one female observed.

Scolecophagus carolinus. The Rusty Grackle takes the place of the Red-winged Blackbird, breeding abundantly along the banks of rivers, and also in the marshes.

Quiscalus quiscula æneus.—Common, breeding around the more cultivated parts, and in the neighborhood of the small

Pinicola enucleator (Pine Grosbeak).—Common in November and December.

Spinus tristis.—Common ; breeding.

Plectrophenax nivalis.—Exceedingly abundant in October and November. Flocks of thousands swarm on the docks.

Calcarius lapponicus.—Common. Large flocks arrived early in October, but became scarce as the Snow Birds increased.

Zonotrichia albicollis.—Abundant ; breeding ; several young birds captured around the camps.

Spizella monticola.—Abundant in October.

Junco hyemalis.—Common ; breeding.

Melospiza fasciata.—Breeds rarely.

Melospiza georgiana.—Breeds commonly.

Spiza americana.—A female Black-throated Bunting was collected in October among a flock of Lapland Longspurs.

Chelidon erythrogaster.—Abundant ; breeding.

Clivicola riparia (Bank Swallow).—Abundant ; breeding.

Vireo olivaceus.—Abundant summer resident.

Helminthophila celata.—A beautiful specimen of the Orange-crowned Warbler was brought to me in September to be mounted. It had flown into a house, and was captured for a canary. The owner never came after it, so I have it in possession at present.

Dendroica coronata.—The Myrtle was about the only warbler observed, and was abundant in September and October. Also breeds, as several young specimens were taken in August.

Anthus pensylvanicus.—Pipits were abundant in September and October, large flocks accompanying the shore larks.

Turdus ustulatus swainsonii.—The Olive-backed Thrush was the only thrush observed, and it was common, breeding about the railway camps.

Merula migratoria.—Common, breeding about Port Arthur.

Sialia sialis.—Observed breeding near the railway camps about eighty miles south-west of Port Arthur. None were seen around the town.

The general plumage of the birds was very poor, especially the sandpipers and ducks, the gulls being in the most perfect plumage of any of the birds secured or observed. The impression is that the birds do not attain the full plumage until they reach a more southern resting place. All the migration seemed to be directly south with strong-flying birds like ducks and plover, while the smaller species left us by the south-west, following the lake shore as far as Duluth, where they could then strike south across Minnesota. The first sign of movement began about August 1st, and was noticed among the sandpipers, followed by the ducks, the smaller birds not moving much until after September 10th.

G. E. ATKINSON.

GENERAL NOTES.

Coccyzus americanus nesting.—On July 9, while walking in the scrub bush on Wells' Hill, I found a nest of the Yellow-billed Cuckoo. I satisfactorily identified the bird but, as it was Sunday, I had no means of collecting it. On the following morning I returned and secured the bird, which proved to be a ♂. I waited and visited the spot several times, but saw no trace of the ♀; she had evidently been killed.

The nest was a rough, loose structure made of twigs, placed loosely on a crotch formed by a grape vine crossing a hawthorn limb. I had to tie it all over with string before I dared move it. It contained one egg, which was partly incubated but was quite cold, which would show that the bird had not occupied the nest for some time; and as the ♂ remained in the neighborhood, it would show that the nest was not deserted, but that the ♀ had been killed.

Although it may be known that this bird breeds about Toronto, this is the first authentic report of its nest having been taken.

Coccyzus americanus at Hamilton.—On July 13, at Mountain View Park, Hamilton, I secured a pair (♂ and ♀) of Yellow-billed Cuckoos. They were in a long, low hedge, and were evidently breeding, but, although I searched for some time, I did not succeed in locating the nest.

Picoides arcticus.—On October 19, I collected a beautiful ♀ specimen of the Arctic Three-toed Woodpecker on Wells' Hill, and on Saturday, 21st, Oliver Spanner was given a ♂ specimen, collected in Rosedale.

G. E. ATKINSON.

Coccyzus americanus.—On August 13, found the Yellow-billed Cuckoo, plentiful and breeding; secured three specimens. Also one, *Zenaidura macroura* ♀, and *Contopus borealis* ♀ at Queenston.

Contopus borealis.—Toronto, August 25, obtained a very fine ♂ specimen on the Humber River,

Dendroica tigrina.—Toronto, September 3, secured a specimen of this rare warbler on the Sandbar, Ashbridge's Bay.

B. L. NUSSEY.

Tringa maritima.—On October 25, I shot a Purple Sandpiper at Hanlan's Island. It is a fine specimen, and is now in my possession.

Toronto.

JOHN MYERS.

Dragon-fly killed by a Sparrow.—Mr. C. Pickering handed me a specimen of *Anax junius*, with the following note: "Killed by a sparrow (*passer domesticus*) on Carlton street, Toronto, this morning, October 10, 1894, while trying to alight on a telephone wire." This is one of the many records we have of the insectivorous habits of the sparrow.

WM. BRODIE.

ENTOMOLOGY.

PLATYSAMIA COLUMBIA NOKOMIS.

BY WM. BRODIE.

In the summer of 1863 I found a bombycid cocoon firmly attached to a twig of a double spruce *Abies nigra* growing in the Township of Whitchurch, York County. It was the first of the kind I had ever seen, and, although it was very different from the usual *Cecropia* cocoon, I thought it might have been made by a starved and diminutive *Cecropia* larva, but as the imago had emerged it was not possible to determine.

In Vol. III., p. 201, of *Canadian Entomologist*, December, 1871, the late G. J. Bowles gave an account of the collecting of larvæ of *P. columbia* by himself and the late Mr. Cowper in the Province of Quebec. He also gives an engraving and Prof. Smith's descriptions of the imago *Columbia* and of the cocoon, which was originally published in the proceedings of the Boston Society of Natural History, March, 1865, but which I had not seen until it was reproduced in the *Canadian Entomologist*. From Prof. Smith's description I was pretty sure the cocoon I found on the double spruce was the cocoon of *P. columbia*. Provancher in Vol. IV. of the *Naturaliste Canadien*, September, 1872, gives a print of Bowles's lithograph of *S. columbia* and some general matter, but adds nothing new.

In the *Canadian Entomologist*, Vol. X., March, 1878, there is a very good coloured lithograph of the larva of *P. columbia* by the late G. J. Bowles and a short paper by the late F. B. Caulfield giving a description of the larvæ. There is also on page 43 an article by C. H. Fernald, in which he gives several food plants, a description of the egg, of the larvæ in the several stages of development, and some valuable general information. Up to this time very little had been published as to the geographical range of the species. From 1875-1880 I received

several parcels of *P. columbia* cocoons from Muskoka, collected near Bracebridge by Capt. James Brodie and Mr. R. Mosey, and I was told they were found on the "wild cherry," (*Prunus virginiana*?) the dry twigs seemed to me. Many of these were destroyed by parasites. The perfect imagoes which emerged were of the dull-coloured southern type, corresponding very well to Smith's description. I used every possible endeavour to get them paired, but failed. The ♀s ovapositioned freely, but, of course, the ova were infertile.

In the spring of 1882 I received a parcel of *columbia* cocoons collected by W. G. A. Brodie near Carberry, Manitoba. They were attached to twigs of the *Elæagnus argentea*, and I was informed the larvæ must have fed on the leaves of this shrub. When the imagoes emerged they differed so much from Muskoka specimens that I fancied there must be a specific difference, and so I sent specimens of the moth and of the cocoons to the late H. Edwards. He did not know *E. argentea* as a food plant of *P. columbia*. He remarked the difference of the northern form sent by me and the usual southern form, and thought, if permanent, it was at least sub-specific; and he suggested that it should be described and named.

Early in 1883 I received a package of cocoons of *P. columbia* and of *T. polyphemus*, collected by W. G. A. Brodie near Pelly, N.W.T. Only one imago emerged from this lot, from a *P. columbia* cocoon, and it differed so very much from the Manitoba form that I considered it a well-marked variety, being much less in size and of much brighter colours, and the boundaries of the colours much more distinct. All these facts and descriptions of the two forms were embodied in a paper which I read before a meeting of the Natural History Society of Toronto, and I also submitted type specimens of the two forms. For the Carberry form I proposed the name *P. columbia nokomis*, and for the Pelly form *P. columbia winonah*. I presented the types, with specimens of the food plant *E. argentea*, to the museum of the society, all of which, I understand, have been lost. The paper also became the property of the society, but was not considered of sufficient importance for publication, although the

proposed names appeared on the list of Canadian insects published by the Society. In the following year I got six cocoons from Mr. Miller Christy, collected between Carberry and Brandon; the imagoes which emerged were of the pure *columbia nokomis* type.

In the fall of 1885 I received from Mr. H. Leigh a lot of *columbia* cocoons, collected somewhere near Birtle, Manitoba, from twigs of the "Wolf Willow," one of the common names given to *E. argentea*, but sometimes given also to *Shepherdia argentea*. Several imagoes emerged, and they were all of the *nokomis* type.

In the spring of 1886 I received a small box by mail containing three specimens of this moth collected by W. A. Ducker, D.L.S., near Pilot Mound, Southern Manitoba. There were two ♀ and one ♂; one of the ♀ had been put in the box alive, and had ovapositioned, but so slow had been the transit that the larvæ had emerged from the ova, and had died of starvation before reaching me. Although very much rubbed they were evidently of the *nokomis* type.

In March, 1887, I received a parcel of galls and cocoons, collected from twigs of the "Wolf Willow" by W. D. Ducker, D.L.S., in the Souris district, and at a point near Moosomin on the line of the C. P. R. These cocoons also gave imagoes of the *nokomis* type.

Early in 1894, I received from Mr. E. Heath, of the Hermitage, Cartwright, Man., a package of cocoons of the usual *nokomis* type, and was informed by that gentleman that the species was not uncommon in his section, and that the larvæ feed on the leaves of *E. argentea*. No imagoes emerged from this lot; they were all destroyed by parasites.

It would appear, then, from these records that the *nokomis* type is generally distributed over the Province of Manitoba, and that the common food plant is *Eleagnus argentea*, and that probably *Shepherdia argentea* (Wolf Willow?) may also be a food plant. I do not know the northern nor the western limit of *E. argentea*, but Mr. Jas. M. Milne, who was on the Government survey, has informed me that he found the shrub on the eighth

base line, which lies to the north of the South Saskatchewan, and as far west as the cactus hills, and there can be little doubt that the range of *P. columbia nokomis* is coterminous with the range of this food plant *E. argentea*.

The food plants of the southern form (*P. columbia*) in Ontario, Quebec and in the State of Maine, so far fairly well identified, are *Prunus virginiana*, *Prunus pennsylvanica*, *Nemopanthes canadensis*, *Kalmia angustifolia*, *Rhodora canadensis*, *Salix* sp., *Abies nigra*, *Larix americana*. None of these are allied botanically to *E. argentea*, but I think it most likely that the larvæ would take very kindly to the leaves of our common *Shepherdia canadensis*.

On comparing a series of specimens of *columbia* with *columbia nokomis*—the Manitoba form—the difference is very obvious in the brighter colors and more sharply defined color areas. This difference may be in some measure from a difference of food, or from the much longer duration of daylight while the larvæ are feeding, or perhaps in part from the lower temperature in winter. And perhaps it may yet be shown that the north and north-west territories are the normal habitat and *nokomis* the normal form of the species, differentiated ages ago from *cccropia* by climatical and other conditions, and that the now southern form is from degenerate stragglers from the north.

The following points of difference may be noted between the *columbia nokomis* form and the *columbia* form, as represented by Ontario specimens, and as compared with Smith's description of *columbia*, parts of which are given in brackets. The standard of color is Ridgway's Nomenclature of Colors.

Antennæ, central shaft, bright reddish brown; pectinations, darker (black); palpi, light liver brown (dark maroon brown); dorsum of thorax, bright reddish liver brown, with a posterior pure white band (dark maroon with a short, grey band); under side of thorax, reddish liver brown (black); legs, reddish brown, pile darker (black, slightly tinged with brownish); abdomen, with alternate annulations, bright liver brown and pure white (black and dirty white).

Primaries, above, with a rather sharply elbowed pure white

line (greyish white); the middle area of the wing is bright reddish liver brown (dark brown), and contains a central ovate white spot (triangular); this bright colored area is separated from the costa by a moderately wide longitudinal greyish stripe.

Secondaries, with a large white spot at the shoulder (small, dirty white); the central area, bright reddish liver brown (dark brown), having a central white spot, which varies from kidney form to curved pear form, and varying much in size, but always larger than the corresponding spot on the primaries; but no sexual difference could be observed, either in the size or in the form, of these central white spots.

The primaries beneath have the space from the shoulder to the median white cross band of a maroon brown (black), and generally the under side of the wings of *columbia nokomis* is brighter colored than that of *columbia*.

As I have not seen but one specimen of the *columbia winonal* type, little need be said about it. My specimen may have been representative of an extreme northern group, or it may have been only a strongly marked specimen of *columbia nokomis*.

THE BEE-EATING HABIT OF *PHYMOTA EROSA*.

BY W. M. METCALFE.

This fall at Grimsby, Ont., *P. erosa* was very abundant. I first noted it July 24th, on which date a specimen of the larvæ was taken while in the act of feeding on the juices of *tachina* sp. From August 1st till towards the end of September it was exceedingly plentiful on various species of *Solidago*. Its destructiveness to the honey bee, *Apis mellifica* must be a menace to apiarists. I generally had a half day's collecting each week, and on these occasions the number of dead bees hanging on the flowers and lying on the ground was startling. Along a ditch about one hundred and fifty yards in length, fringed with

solidagos, I have frequently counted, at one time, thirty-five bees being eaten by the bugs. With the assistance of *Reduvius raptatorious* the *erosa* must have kept the hives in the neighborhood rather thinly populated. Beside the usual variety of bees, their prey included over fifty species of insects. It speaks well for their courage when such powerful hornets as *Ammophila luctuosa* and *A. conditor* are numbered with the victims. One rather amusing habit they had was the way in which they kept watch on the curious observer. In only one instance did I see an insect captured; it was a specimen of *Agrotis subgothica*. The bug seized the moth by the front of the head and plunged its proboscis into the thorax—Mr. *Agrotis* fluttering and beating about on the blossom for nearly a minute before death relieved his sufferings. Appended is a list of the prey of *P. erosa* and a shorter one of that of *R. raptatorious*:—

LIST OF THE PREY TAKEN BY *P. EROSA* LINN.

Coleoptera.	
Chauliognathus pennsylvanica <i>De Geer.</i>	Stigma fraternus <i>Say.</i>
Cyllenc robiniaæ <i>Forst.</i>	Oxybelus brodiei <i>Prov.</i>
Diabrotica 12-punctata <i>Oliv.</i>	Crabro 6-maculatus <i>Say.</i>
Mordellistena vitis <i>Lec.</i>	Thyreopus la-ripes <i>Smith.</i>
	Lyroda subita <i>Say.</i>
	Larra abdominalis <i>Say.</i>
	Pompilus cylindricus <i>Cress.</i>
	Ammophila luctuosa <i>Smith.</i>
	Ammophila conditor <i>Smith.</i>
	Smiera canadensis <i>Cress.</i>
	Ceratosoma fasciata <i>Cress.</i>
	Pimpla pedalis <i>Cress.</i>
	Lampronata americana <i>Cress.</i>
Hymenoptera.	
Apis mellifica <i>B. Drury.</i>	
Apis mellifica <i>Syr Drury.</i>	
Bombus pennsylvanicus <i>De Geer.</i>	
Andrena vicina <i>Smith.</i>	
Andrena sp.	
Halictus pilosus <i>Smith.</i>	
Halictus lævissimus <i>Smith.</i>	
Halictus parallelus <i>Say.</i>	
Agapostemon radiatus <i>Say.</i>	
Ceratina dupla <i>Say.</i>	
Vespa vulgaris <i>Linn.</i>	
Polistes sp.	
Odynerus capra <i>Sauss.</i>	
Philanthus solivagus <i>Say.</i>	
Philanthus bilunatus <i>Cress.</i>	
Cerceris nigrescens <i>Smith.</i>	
	Lepidoptera.
	Pieris rapæ <i>Linn.</i>
	Colias philodice <i>Godt.</i>
	Chrysophanus hypophleas <i>Bd.</i>
	Phamphila (two species).
	Agrotis subgothica <i>Harr.</i>
	Agrotis volubilis.
	Nephelodes minians <i>Guen.</i>
	Orthosia ferrugineoides <i>Guen.</i>
	Plusia pæccationis <i>Guen.</i>

Diptera.	
Anthrax fascipennis Say.	Eristalis tenax Walk.
Syrirta pipiens Macq.	Gymnosoma occidua Walk.
Sphærophoria cylindrica Say.	Ocyptera lateralis Harris.
Helophilus similis Macq.	Tachina (six species).
Eristalis flavipes Walk.	Sarcophaga cadaverina Desv.
	Musca cæsar Linn.
	Scatophaga stercoraria Linn.

LIST OF PREY TAKEN BY *R. RAPTORIUS* SAY.

Coleoptera.	Hymenoptera.
Megilla maculata De Geer.	Apis mellifica B. Drury.
Hippodamia 13-punctata Linn.	Andrena vicina Smith.
Coccinella 9-notata H.	Philanthus bilunatus Cress.
Chauliognathus pennsylvanica De Geer.	Thyreopus latipes Smith.

CANADIAN GALLS AND THEIR OCCUPANTS.

BY DR. WM. BRODIE.

DIPLOSIS MONARDI, N. S.

THE galls appear like swellings on the flowering branches of *Monarda fistulosa*, from 10 to 22 mm. long, usually a little curved and retaining the quadrangle form of the branch. The average of the side of the square of twenty of the largest was 3 mm., and of the branches below the galls 1.5 mm.

This gall is usually found on plants growing in open woods; it is very rare on robust plants growing on exposed situations.

The walls of the gall are hard and woody but thin; the interior is a soft, pith-like substance, through which the larva tunnels freely, and on which it feeds. I have found but one *Diplosis* larva to a gall. The larvæ are of a pale straw color, and when mature the imagoes escape through a small circular hole at the upper end of the gall.

A lot of over 100 galls was collected from several localities near Toronto, from April 1 to April 25, 1893. These gave out producers from June 18 to July 6, 1893. From June 4 to June 18, 1893, several specimens of a species of *Torymus* emerged, and from June 18 to June 24, 1893, numerous small parasites of two species emerged.

The producer of this gall, for which I propose the name *Diplosis monardi*, is not altogether of the true *Diplosis* type. In the venation of the wings, and in some other particulars, it nears the *Lasioptera* type.

The parasites, I believe, are undescribed species.

These galls may be collected in the fall season as soon as the leaves begin to drop, as keeping them in a dry jar over winter does not seem to injure the larvæ, but it is best to collect in the spring season.

GALLS ON PLANTS OF THE GENUS *RUBUS*.

DIPLOSIS FARINOSO, O.S.

"Rounded, woody swellings at the base of the leaflets, or on the mid-rib, of the common blackberry contains red larvæ." (O.S.)

Galls on leaf petioles of *Rubus villosus*, usually on the lower side of petioles at the base of leaflets, occasionally entirely surrounding petiole and extending up mid-vein; rarely on side veins. In a collection of twenty-seven galls, from several localities, twenty-one were on petioles at the base of leaflets, five on the upper half of mid-veins, and one on side vein.

Galls usually roughly spherical, varying to ovate and cylindrical. The largest spherical gall I have yet found measured 10 mm. in diameter. An average of fifty of the most spherical was 6 mm. diameter; an average of twenty-five of the more ovate was 6 mm. x 8 mm.; an average of twenty-five of the largest and most cylindrical was 8 mm. x 15 mm.

Galls collected August 28, 1892, were immature, soft and juicy, the larvæ minute, closely confined in their cells. When mature the galls are of a dark straw color, inclining to greyish, surface roughened with rather deep irregular cracks. The interior is uniformly soft, spongy and toughish, becoming rather friable, of a light brown color, becoming darker with age. Each gall contains from one to fifteen cells. When mature the larvæ are still closely confined in their cells, and are of a bright straw color.

These galls are usually found on diminutive plants, growing in the shade of open woods and partially hidden by ferns and herbaceous plants. I have not yet found them on robust plants growing on exposed situations.

A collection of galls was made October 8, 1893. On May 1, 1894, the larvæ were of a pale straw color; on May 29, 1894, they were still pale, and were beginning to pupate. From June 13 to June 21, 1894, *Torymus* parasites emerged; from June 18 to June 23, 1894, producers emerged; from June 18 to July 1, 1894, small parasites (*ptero-malus*) emerged; from June 21 to July 5, 1894, *Inquilines* emerged.

There is no doubt but this is Osten Sacken's gall (*C. farinosa*), but his description is very inaccurate. This gall is not "woody"; it is not at all like a "swelling"; it is much more like an excrescence, and the larvæ are not red.

GENERAL NOTES.

Argynnis bellona Fabr.—I captured a specimen of this rare butterfly May 13th, 1894, and another August 19th at Grimsby, Ont.; in the summer of 1892 I collected a specimen at Toronto.

Lycaena comyntas Godt. is very scarce in the vicinity of Toronto, and at Grimsby also; I have a Toronto specimen, dated July 25th, 1893, and a Grimsby specimen for May 13th, 1894. I might also mention the capture of two fine specimens of *Satyrus alope* Fabr. (Canadian form) at Grimsby. I know of only one being taken at Toronto in the last three years.

Ancyloxypha numitor Fab., that beautiful little skipper, was quite common at Grimsby. My first capture was made on the 17th of June; it then disappeared and became rather common for about ten days between August 10th and 20th.

I was fortunate enough to secure two individuals of that lovely moth, *Utelheisa bella* Linn., July 31st, at Grimsby.

Toronto.

W. METCALFE.

FISH-KILLING HABIT OF *BELOSTOMA GRISEA*.

I found this water bug, *B. grisea*, in our millpond yesterday, August 28, 1894, firmly fastened on the back of a sucker about five inches in length. The fish was propelling itself on the surface of the water with the fore fins, not using the tail at all. When they came to the shore I caught and separated them. I kept the bug, and on returning the fish to the water it struggled away on its back at the surface of the water as if paralyzed, and in a dying condition.

Milneford.

C. S. MILNE.

STAINING OF WINGS OF INSECTS.

At the request of Dr. Brodie a method of staining the veins of the wings of certain insects was devised as follows: Place the whole insect in a strong alcoholic solution of fuchsin, and allow it to remain there for forty-eight hours. Then transfer the insect to water, with a pair of fine forceps and wash it until no more colour comes away, changing the water if necessary. While the washed insect floats in clear water, slip a microscope slide under it; raise the slide, holding the insect on it with a fine needle; separate the wings from the body with a fine scapel and remove the body. With a drop or two of clear water on the slide, float the wings into any desired position, keeping them flat and unwrinkled, taking care to have no bubbles under them. Remove any excess of water with blotting paper, and allow the wings to dry. Then place a drop of thick Canada balsam near them, and heat the slide over a spirit or gas flame. Tilt the slide so that the now liquified balsam flows over the wings; lower a cover-glass gently into position and allow the preparation to cool. On examination, the veins will be found red, the depth of the colouring varying with the length of time of staining, the thickness of the veins, etc. The colour is well retained so far as has been tried, and successful photographs have been made. The technique of this method is very simple, but the various steps mentioned, or their equivalents, must be carefully prepared, in order to obtain good results.

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