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## NOTES ON CANADIAN WEASELS.

By J. DEWEY SOPER.

### THE LEAST WEASEL, *Mustela rixosa* (Bangs).

This diminutive carnivore is doubtless the least known of the North American weasels. About fifteen records all told, mostly from Canada, indicate both our limited knowledge and the scant possession of scientific material relative to the species. Since 1857 when Baird first described the species, data concerning its life history has accumulated slowly and even yet is of very limited extent.

The range of *rixosa*, according to Seton<sup>1</sup> extends in a broad band, roughly, eight or nine hundred miles in width diagonally across the continent from Montreal and the south-western extremity of Lake Superior to Alaska. As a boreal species it is restricted to the Arctic, Hudsonian, and Canadian life zones. In north-western Alaska a race of this species *P. eskimo* (Stone) is recognized, also what may prove to be a race is Rhoads'<sup>2</sup> *allegheniensis* from Pennsylvania. Thus, theoretically, southern Ontario comes within the range of the Least Weasel, but I know of no records from the region.

The Least Weasel is not only the smallest of the weasels, but is the smallest known beast of prey in the world.

In summer, the upper parts including the tail are of an even light brown color, the under parts being pure white. The winter coat is entirely white. The tail is very short and lacks at all seasons the black tip.

As a carnivorous animal its diminutive proportions may be better appreciated when compared with a mouse for instance. The Least Weasel habitually preys on mice, but exceeds them but little in size. A glance at the following measurements of *rixosa* will reveal slight difference in this respect from the genus *Microtus*, the meadow mice, etc.

Total length about 6½ inches (166 mm.); tail vertebrae, 1¼ inches (32 mm.); hind foot, 13-16 inches (21 mm.)

Measurements of a large meadow mouse (*M. pennsylvanicus*) taken Feb. 17, 1918, coll. No. 243,

male: Length, 168 mm.; tail, 50 mm.; foot 21 mm.

It will be noticed that the latter is the largest, but this one was of more than ordinary size.

The only place I ever came into contact with the Least Weasel is Edmonton, Alta., and even there where weasels are common only one was taken within a certain period of time, during which about one hundred and fifty of the other species were captured. This fact indicates its rarity in that region.

I found it about Nov. 13 in one of my traps, along the White-mud river, a few miles south-west of the city. It was pure white, proving it takes on its winter pelage as soon as the other species.

The locality in which it was collected was that ordinarily frequented by *M. cicognanii* and *M. longicauda*—meadow-like river-tracts sparsely overgrown with poplar. The first sight of its body made me think of an Albina meadow mouse. Even such small mammals sometimes spring the larger traps as all trappers know. To those who are unfamiliar with the many disappointments of the trap line, it may be said that after repeated failures at certain "sets" when bait disappears and traps are mysteriously sprung, a crushed shrew or deer-mouse in the jaws will at last dispel the mystery.

### THE LONG-TAILED WEASEL, *Mustela longicauda* (Bonaparte).

This species, the largest of our Canadian weasels, should not be confused with others of the family. Great strength for its size is suggested in the muscular contour of its make-up. The legs are comparatively short and stout, the body compact and very muscular, and the head massively formed in alliance with its other physical proportions.

In size it approaches that of a small mink and in summer coat with hasty glance might be mistaken for one. In winter, as Seton remarks, it could easily be mistaken for a big white squirrel, that is, upon the ground. It has a closest resemblance to *M. noveboracensis* but as the range of the two species do not coincide and as extra limital occurrences are rare, little or no confusion should be experienced in the field.

<sup>1</sup>Seton, E. T., Life Hist. of Northern Animals, Vol. II, p. 861, 1909.

<sup>2</sup>Rhoads, S. N., Mamm. of Penn. and N.J., pp. 173-176, 1903.

Except for one extra limit record by Miller<sup>3</sup> for North Bay, the species has only been found in Canada broadly coincident with the prairie conditions of the western provinces of Manitoba, Saskatchewan, and Alberta; in the south-western portion of the former and north to 55° in the two latter. In the United States its range is south to Kansas. While it is generally recognized as a prairie dweller, the poplar forests skirting the prairies harbor great numbers, as do also to some extent the darker coniferous areas. Probably the latter fact is not generally accepted. I have personally, however, frequently collected the species about the city of Edmonton. The immediate region comprises conditions peculiar to the north-west, such as the occasional grass or prairie lands, the poplar woods of the upper country, and the deep river basins and ravines which are comparatively heavily timbered. Over all such areas around Edmonton the long-tail ranges indifferently.

In summer the species over the upper parts is pale yellowish-brown, the under parts rich ochraceous or buff yellow. The winter fur is pure white. The tail is one-third the length of the animal and the black tip one-quarter of the length of the whole tail.

Measurements as given by Seton<sup>4</sup>: Length about 18 inches (457 mm.); tail 6 inches (152 mm.); hind foot 2 inches (51 mm.) Female about one-seventh smaller.

With the short-tailed species, *M. cicognanii*, the Edmonton region is favorably endowed. In winter their delicate paired tracks may be seen nearly everywhere. *M. longicauda* occurs in a ratio of about one to ten of *M. cicognanii*. Under the discussion of the latter I have placed my estimate on the general and specific numbers of all the weasels found around Edmonton.

Along the Saskatchewan river numerous deep wooded ravines open out upon the valley. Within these, probably induced by a greater abundance of game in winter, a goodly number of weasels, or ermine as they are called, make their daily rounds. The spaces under the spruces and the open runs of the little frozen streams are usually at very frequent intervals indented with the innocent-looking trails. Hither and thither they lead, under wind-falls and logs, through tangled growths, into crevices or other surface openings, etc. A blood-flecked hollow reveals the tragic end of a little deer-mouse; probably at a grassy margin a meadow vole. In a sheltered hollow a huddled hare has provided a sumptuous feast for days. And so all through the bitter weeks until nature fans the land with vernal

breezes, the great white page is written again and again with signs of frolic or grim tragedy that spells life or death.

Bordering the White-mud river which flows into the Saskatchewan about two miles south-west of Edmonton I found the favorite hunting grounds of *longicauda* in the meadow-like areas on both sides. On these miniature alluvial plains in the concavity of the bends now grown to grass and scattered poplars, the weasels bounteously fared on the numberless population of shrew, mice and rabbits. Such places always suggest good weasel grounds.

NEW YORK WEASEL, *Mustela noveboracensis* (Emmonds).

In comparison with other weasels this species has a relatively restricted range within which also occurs *Mustela cicognanii*. In some sections it yields in numbers to the latter, but in other areas entirely replaces it.

The range of this species is approximately within the area bordered by an imaginary line drawn from the southern New England States, south to the Carolinas, west to the Mississippi, north to Georgian Bay, and east to Montreal. Within such area it is confined to the Canadian, Transition and Upper Austral zones.

The summer color of *M. noveboracensis* is dark brown above and white below, sometimes tinged with sulphur-yellow. In Ontario the winter coat is pure white, excepting sometimes a slight xanthic tinge on the belly, buttocks and tail. The latter is one-third of its total length and the terminal half is black (at all seasons). By this character it may readily be distinguished from *M. longicauda*, but as the range of the two species do not coincide, it will not be needed as a field mark.

The following measurements of this species are given by Rhoads<sup>5</sup>: Total length, male 405 mm. (16 ins.), female, 325 (12¾ ins.); tail vertebrae, male, 140 (5½ ins.), female, 108 (4½ ins.); hind foot, male, 47 (1¾ ins.), female, 34 (1¼ ins.)

In the counties of Wellington and Waterloo, of the province of Ontario, I have found this species to be much less common than *M. cicognanii*. Brooks as recorded by Miller<sup>6</sup> saw weasels at Milton much larger than the latter. The species, I think, would scarcely be other than *M. noveboracensis*. Mr. W. E. Saunders, of London, Ont., has informed me that the New York Weasel is the form occurring there, and that it is common throughout the western part of the Ontario peninsula.

By a peculiar coincidence the first weasel I ever trapped in Ontario was this species. This was near

<sup>3</sup>Miller, Jr., G. S., Mammals of Ontario, Vol. 28, No. 1, 1896.

<sup>4</sup>Seton, E. T., Life Hist., N. Animals, Vol. II, p. 865, 1909.

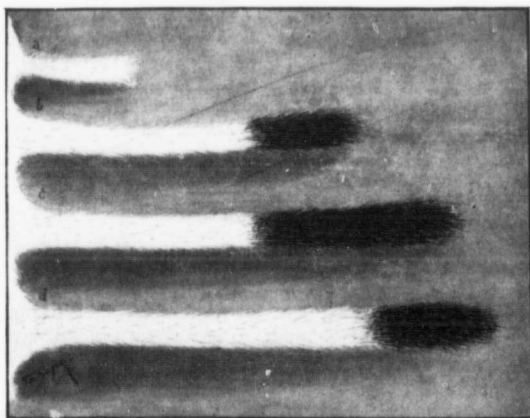
<sup>5</sup>Rhoads, S. N., Mammals of Penn. and N. Jersey, p. 172, 1903.

<sup>6</sup>Miller, Jr., G. S., Mammals of Ontario, Vol. 28, No. 1, p. 44, 1896.

Rockwood. Since, I have taken numbers of the Lesser Weasel, but only, I think, two or three of the large kind. The capture of the one mentioned was purely accidental and happened in November. The seasonal change to white is not always affected by this time. Some specimens taken near Christmas time when snow was on the ground still had a few belated brown hairs over the back. Contrary to this, individuals of spotless white are occasionally taken when no snow exists. The moult from brown to white or the reverse does not seem to depend on any particular seasonal change or condition.

I recall a story told me years ago by a farmer which portrays nicely the intrepid nature of this

An interesting note by John F. Carleton, East Sandwich, Mass., entitled "Bold Mother Weasel Rescues Young" (January, 1919, *Field and Stream*) illustrates again the venturesome spirit. He says: "Some years since I was at work with my man on the edge of a dry swamp, on high land, one-eighth of a mile from Bay Shore, when I found a weasel's nest with four half-grown young in a brush heap. I regret that I cannot recall the composition of the nest. I sat down 'side-saddle,' took up the four young and placed them in the outside left breast-pocket of my coat, my man standing near. Soon the mother appeared hunting for her young. I placed one on my knee; the mother soon scented it, jumped on my knee, grabbed the little



TAILS OF WEASELS (WINTER FUR)—ONE-HALF NATURAL SIZE.

a—*Putorius rixosus*.

b—*Putorius cicognanii*.

c—*Putorius noveboracensis*.

d—*Putorius longicauda*.

animal. While working in the fields he heard high overhead the strident calls of a hawk. Their unusual quality attracted his attention as well as the peculiarity of the actions accompanying them. Watching, he noticed the bird pass through some unusual gyrations, steady itself a moment and then come pitching to the earth, tumbling and turning. The man ran rapidly to the spot where the hawk fell and was just in time to see a brown weasel leap from the feathers and disappear in a near-by fence. From some concealed position it had doubtless leaped upon the feeding hawk and being lighter was instantly borne high into the air. In bull-dog fashion once having a grip it continued to work deeper and deeper until a fatal spot was reached.

one, and was off like a flash. I remained quiet and she soon returned to my knee, worked slowly along my leg and up my coat till she reached the pocket, pulled out another little one, and dashed away with it. As I was not willing to give up the others, I did not experiment further. I took them home, but the folks objected so to the odor that I was obliged to kill them. I have several times seen weasels very bold, but nothing to equal this experience."

Mr. E. T. Seton<sup>7</sup> cites an instance of an old weasel (*noveboracensis*) accompanied by five young ones about half-grown on June 28 near his home in Connecticut. These were evidently older than the other ones, which were still in the nest. On

<sup>7</sup>Seton, E. T., *Life Hist. of Northern Animals*, Vol. II, p. 848, 1909.

June 1, 1910, north-east of Guelph, Ont., I saw a weasel carrying a young one in its mouth as it followed along the bottom of a fence leading from a strip of woods. This individual may have been *M. cicognanii*.

SHORT-TAILED WEASEL, *Mustela cicognanii*  
(Bonaparte).

The Short-tailed or Bonaparte's Weasel is the most abundant species in Canada. Its numbers like other mammals of course are very variable as regards locality. Under favorable conditions *M. cicognanii* usually claims first notice throughout its range; the latter, including that of its closely allied races, covers almost the entire Dominion from coast to coast. Its range in the United States is governed by the boreal conditions existing in the Canadian and Upper Transition zones.

The summer color above is much like *M. longicauda*, a warm brown; under parts white, but sometimes tinged with sulphur-yellow. In winter the fur is pure white with a slight xanthic diffusion on tail, rump and hind legs. This stain is thought to exude to some extent from the odorous glands situated at the base of the tail. The latter is one-third its total length, and the black tip one-third the length of the tail.

Measurements of *M. cicognanii*: Total length about 11½ inches (292 mm.); tail vertebrae, 3¾ inches (95 mm.); hind foot, 1½ inches (38 mm.)

The female is considerably smaller, probably as much as one-fifth.

With the exception of the narrow belt of the Upper Austral zone above Lake Erie, this species ranges over the entire province of Ontario. It is common in the counties of Wellington and Waterloo. In a recent letter, Mr. Saunders informs me that he had no record of this species from London or the western part of the peninsula, but has skins from Durham and Ottawa, and a record by Hobson from Woodstock.

Winter is the time when this weasel is most in evidence. The dainty paired tracks may be seen in the snow about fences, log heaps, wind-falls, etc., representing vividly the wanderings of the night. In this the weasel is absolutely tireless, and withal, a very eager hunter. The white fur renders it almost invisible; except for the black tip on the tail it might bound by unseen.

The ermine trail may easily be distinguished from that of all other animals by its size in conjunction with the symmetry of its paired tracks. The mink trail is similar, but very much larger. The hind feet register almost, if not exactly in the front-foot impressions, with the right front and hind feet lagging slightly behind. The sequence of tracks with a bounding animal is not as regular between in-

dividual impressions as that of a running or walking animal, due to the variation in the length of jumps from time to time. The ermine being a bounding animal leaves a wide range of space lengths between imprints. The distance normally is about 19 inches, representing a regular rate of travel. The "jumps," however, depend entirely upon the mood, purpose or demands of the traveller. Sometimes they are no further apart than 6 or 8 inches; obviously the ermine is slowing down for more acute observation, scents prey or some similar reason. In traversing open spaces they resort to long, graceful leaps upwards of six feet in length. On January 5, 1919, I measured a record for *M. cicognanii*, a remarkable jump of 8 feet, 2 inches. The larger species should naturally be able to exceed this, but whether they do or not I am unable to say.

For pure audacity, I have seen enough of this species to prompt his classification as a ring-leader. Weasel reputation is, however, I think, very largely exaggerated. In rural sections the animal is seldom discussed apart from the hen-roost, for it seems firmly impressed upon the population that every weasel, big and little, here or there, now or anytime, is by right, might and heritage a blood soaked villain of endless carnage. But then some reasoning would dispel that view. Unfortunately for the whole lot the evil of one jeopardizes all. Individual temperament in animals is probably quite as diversified as in human beings, wherewith due allowance should be made for individual exception. Weasels do stand on the aggressive, but only a few interfere with the farmer.

I remember a little incident that happened on a summer night a number of years ago. About ten o'clock an old mother hen covering a brood of chicks, near the house, began to cackle anxiously, becoming gradually more positive until in about five minutes she opened up with a whirlwind of vociferous hysterics, sufficient to arouse the soundest sleeper. I dressed hurriedly and with light invaded the troubled region, expecting to find a skunk (*Mephitis*) on a stroll with views and tastes similar to certain southern dwellers, but it was only a solitary little *M. cicognanii*. Three chicks had been killed and the remainder was under very active consideration.

At Edmonton they were very common during 1912-14. In two or three weeks each of two winters I trapped about sixty ermine over an area of not more than nine square miles. A great deal of this area escaped the trap in running the lines making it safe to discount one-third, leaving six square miles. I believe when I ceased operation that nearly as many remained free as were taken. Halving sixty for the one year and doubling for



the supposed original population we have ten ermine per square mile. I do not consider this figure in the least excessive for the wooded, northern portion of Alberta. That portion of the province, say from Edmonton to Fort Smith, would thus yield about 1,478,750 weasels. About one in every ten of this number would undoubtedly be *longicauda*; that is, one of the latter and nine *cicognanii* to the square mile.

North of Jasper Park on the Hay river during the fall of 1913 a friend and I in eight weeks' trapping for this animal, took about eighty skins. Whether these were all *M. cicognanii* or not I cannot now say. I queried this point under *longicauda*. As the territory trapped, up the valley of the Hay river, Fish creek, and other tributary streams, did not exceed thirty linear miles, one-quarter of a mile in width, we have only a total of eight square miles. Again this is ten weasels to the square mile, coinciding with the Edmonton figure, with this difference, however, that the number of the trapped animals is not doubled to indicate the probable total population. This is because over the restricted area of the valleys and the prolonged period of trapping I believe most of the weasels were taken. At Edmonton this was not the case. In the former instance, a certain influx of animals from adjacent areas may have occurred as the competitive influence was removed from the valleys, thus lowering the figure somewhat per square mile, but I do not think a weasel travels widely in a wooded country like western Alberta.

Many interesting experiences happen to a man in the woods. One day I travelled up a long dark timbered ravine that cut into the White-mud river south-east of Edmonton. At the base of a big spruce I had a "set" for ermine, which on inspection showed the bait stolen with some of it in the sprung trap. In a few minutes' hunting, another hare was secured with which to replace it. The meat being warm was no doubt exuding a tantalizing odor to furtive nostrils, for as I knelt at the trap, a faint rustle, like leaves in a light breeze attracted my attention. There was no wind, so I concluded that it was a shrew, but looking quickly, following a repetition of the sound, I saw a beautiful snow-white ermine silhouetted among the dark roots of a spruce not three feet distant. It

eyed me for a while, head held high and nose a- quiver; then it disappeared. But the next moment back it came, followed by a rapid series of disappearances and reappearances. I then laid the rabbit near the roots and the intrepid little rascal ran out, bit into the meat and retreated. After doing this for a while he would pertly mount the rabbit's carcase with his front feet, draw one foot up under his breast as if it were cold and gaze me straight in the face. Ambition was now chasing away all discretion. His next move was to bite into the rabbit's ear and attempt its removal to the hole. The brave attempts following this consuming desire were indeed very commendable.

A year later near a mountain pass in Alberta a similar experience befell me, while I was setting a lynx snare. This time the ermine after watching me with beady eyes for a time, actually followed (though with caution) a piece of meat that I slowly pulled along the ground. It was not because of food scarcity that prompted this, for hares existed in plenty throughout the region that autumn.

Another time on Fish lake, in the same general region, I broke through the ice one early afternoon and to prevent frostbite was compelled to camp and dry out my clothes. Comfort was about restored as I sat dreamily gazing into the leaping camp-fire when something flashed just to one side of my line of sight and was gone. Looking, expecting to see a whisky-jack, as usual, I saw nothing, the silent wilderness apparently, excepting myself, without an atom of life. About to dismiss the matter as a trick of the sight, I saw an ermine bounding along among the trees, hesitating momentarily, but ever circling nearer, until on the very edge of the camp almost, he stood partly erect, daintily folding one foot along his breast and surveyed the scene for several seconds. He circled the camp a number of times, darting here and there venturing now close, then retreating, bolting under roots, into holes, and over open spaces until I suppose his curiosity was fully satisfied. Then I saw him no more. There is a strange fascination in thus sitting silently in a great solitude, fleetingly viewing a bit of its wild life, open, free, unsuspecting, though usually occult and mysterious.

## AN UNRECOGNIZED SUBSPECIES OF MELANERPES ERYTHROCEPHALUS.

BY HARRY C. OBERHOLSER.

There is in the west central United States and adjacent portion of Canada an unrecognized subspecies of *Melanerpes erythrocephalus*. Mr. Ridgway, years ago, called attention<sup>1</sup> to the difference in size and color between specimens of this species from the eastern United States and those from the region of the Great Plains and the Rocky Mountains, but made no subspecific separation on account of the more or less intermediate character of the birds from the Mississippi valley. A recanvass of the matter, however, shows that the bird from the Great Plains and the Rocky Mountains is subspecifically distinct and therefore deserves recognition in nomenclature. It has an available name, however, as we shall explain, and should stand as *MELANERPES ERYTHROCEPHALUS ERYTHROPHTHALMUS*, *subsp. nitidus*.

*Melanerpes erythrocephalus* Silloway, Bull. Fergus County Free High School, No. 1, 1903, p. 36.

*Chars. subsp.*—Similar to *Melanerpes erythrocephalus erythrocephalus*, but decidedly larger; abdomen more strongly tinged with yellow, and more often with red.

*Measurements.*—Male:<sup>2</sup> wing, 142-149.5 (average, 145.6) mm.; tail, 72.5-81 (77.1); exposed culmen, 26.5-28; tarsus, 22.5-24.5 (23.5); middle toe without claw, 17.5-19 (18.2).

Female:<sup>3</sup> wing, 140-144 (average, 142.6) mm.; tail, 74-84.5 (78.1); exposed culmen, 27-30 (27.8); tarsus, 20.5-24 (22.2); middle toe without claw, 18-19 (18.4).

*Type locality.*—Lewistown, Fergus County, Montana.

*Geographic distribution.*—West central United States and adjacent portion of Canada. Breeds north to southern Manitoba, southern Saskatchewan, and southeastern British Columbia; west to southeastern British Columbia, central Montana, central Wyoming, and central Colorado; south to northern New Mexico, northwestern Texas, and southern Oklahoma; and east to central Oklahoma, central Nebraska and eastern North Dakota. Casual in northern Utah and southeastern Arizona.

*Remarks.*—Size is the best and most reliable character for distinguishing this subspecies. The following measurements of *Melanerpes erythrocephalus erythrocephalus* from the central eastern United

States will facilitate comparison with those of *Melanerpes erythrocephalus erythrophthalmus* given above:

Male:<sup>4</sup> wing, 134.5-145 (average, 138.1) mm.; tail, 70.75-75 (73.2); exposed culmen, 25-29 (26.4); tarsus, 22-23.5 (22.6); middle toe without claw, 17-18 (17.4).

Female:<sup>5</sup> wing 133.5-138.5 (average, 135.6) mm.; tail, 72.5-77 (74.5); exposed culmen, 25-26 (25.4); tarsus, 21-22 (21.7); middle toe without claw, 17-18 (17.4).

The color differences between these two races of the red-headed woodpecker, while of value in subspecific characterization, are not constant enough to be of much use in the identification of individual specimens. The depth of the yellow tinge on the abdomen, while appreciable in a series, is in individual specimens often the same in both forms, while a more or less evident tinge of red on the abdomen is present in only 20 of 31 adult specimens of *Melanerpes erythrocephalus erythrophthalmus*; while of 40 examples of *Melanerpes erythrocephalus erythrocephalus* from the eastern United States, 9 show more or less evidence of red. In fact, one example from Fort Meade, Florida (No. 78253, U.S. Nat. Mus.), taken in June, 1879, has as much red on the abdomen as any western bird that we have examined.

Mr. Ridgway suggested<sup>6</sup> that if a Great Plains race of this species were to be separated, the Mississippi Valley bird should be treated likewise because of its similarity in color to the birds from the Great Plains and its corresponding difference from those of the eastern United States. As we have shown above, the differences in color between the eastern and the farthest western birds is scarcely constant enough to serve for their recognition in absence of any other character; furthermore, of 31 adults from the Mississippi Valley, only 17 have any red tinge on the abdomen, though practically all have a more or less strong buffy suffusion. This, in view of the fact that about one-fourth of the eastern birds have at least an indication of red on the abdomen, shows clearly that there is here no color difference by any means constant enough for the subspecific separation of the Mississippi Valley birds from those of the eastern United States, or from those of the Great Plains. As will be seen, however, they are, in this average color character of red on the abdomen, somewhat nearer *Melanerpes*

<sup>1</sup>Bull. U.S. Nat. Mus., No. 50, pt. VI, 1914, p. 43.

<sup>2</sup>Ten specimens, from Colorado, Wyoming, and South Dakota, measured by Mr. J. H. Riley.

<sup>3</sup>Six specimens, from Colorado, Wyoming, and Oklahoma, measured by Mr. J. H. Riley.

<sup>4</sup>Ten specimens, measured by Mr. J. H. Riley.

<sup>5</sup>Five specimens, measured by Mr. J. H. Riley.

<sup>6</sup>Bull. U. S. Nat. Mus., No. 50, pt. VI, 1914, p. 43.

*erythrocephalus erythrophthalmus*; but since they are practically the same in size<sup>7</sup> as typical *Melanerpes erythrocephalus erythrocephalus*, they are to be referred to that form.

Birds from Mount Scott, in south central Oklahoma, belong undoubtedly to the western race, as do also birds from central New Mexico, and breeding birds from the Panhandle of northwestern Texas.

Red-headed woodpeckers from Minnesota are rather large and frequently have red on the abdomen, but appear to be, as a whole, nearer the eastern form. All the specimens from Texas examined, except those from the northwestern portion, belong to the typical eastern bird.

By the segregation of the present subspecies the range of *Melanerpes erythrocephalus erythrocephalus* becomes restricted to the following area:

Eastern United States and southeastern Canada: north to New Brunswick, southern Quebec, and southern Ontario; west to Minnesota, Iowa, Missouri, Arkansas, and central Texas; south to southeastern Texas, southern Louisiana, and southern Florida; and east to the Atlantic coast of the United States and New Brunswick. Casual in Nova Scotia.

The technical name to be used for the western red-headed woodpecker involves an interesting complication. In an annotated list of the birds of Fergus County, Montana, Prof. P. M. Silloway enters this species as follows:<sup>8</sup>

"406. RED-HEADED WOODPECKER, *Melanerpes erythrophthalmus*.

This handsome woodpecker occurs sparingly in the wooded coulees near Lewistown, which is certainly near the western limit of its distribution. On several occasions I have seen it along Big Casino, where it breeds. On June 9, 1903, I noted the presence of the red-headed woodpecker at Cottonwood. Dr. J. A. Allen states that the red-headed woodpecker was abundant everywhere from the Missouri to the Yellowstone, far outnumbering all the other Picidae together. It is migratory in this portion of its range, making its appearance about the middle of May, and beginning to nest early in June.

Distinguishing features: Head, neck, and upper part of body crimson; middle of back across, bluish-black; other parts white; length 9-10 inches."

The name *Melanerpes erythrophthalmus* is apparently a lapsus calami for *Melanerpes erythrocephalus*, and there is no other evidence that the author intended to describe a new species or subspecies. The name *Melanerpes erythrophthalmus* does not occur

in the index, but the species is duly entered there<sup>9</sup> as *Melanerpes erythrocephalus*. If no description had been given, the name *Melanerpes erythrophthalmus* could have been regarded as a nomen nudum; but it is validated by the addition of the perfectly recognizable description, for it certainly can not be called a typographical error; therefore, according to the rules of nomenclature, it must be applied to the form of red-headed woodpecker occurring in its locality, now that this is found to be different from typical *Melanerpes erythrocephalus*. Its type locality is, of course, Fergus County, Montana; furthermore, since Lewistown is the first definite place mentioned we may legitimately select this as the restricted type locality. The original description of *Melanerpes erythrocephalus*<sup>10</sup> was based on the bird of South Carolina, so that this name is, of course, properly applicable to the eastern race.

The specimens of this newly recognized race examined are principally in the United States National Museum, including the collection of the Biological Survey, but additional examples seen are in the Museum of Comparative Zoölogy, the American Museum of Natural History, and the Field Museum of Natural History. The writer is further indebted to Mr. Charles B. Cory for data in regard to specimens in the collections under his charge. The 46 specimens of *Melanerpes erythrocephalus erythrophthalmus* examined are from the localities given in the subjoined list.

*Colorado*.—Denver (June 5, 1874); Bear Creek (June 7, 1873); Pueblo (July 23, 25, and 28, 1874); Fort Lyon (May 16 and 19, 1883); North Fork of South Platte River (July 12, --); Kettle Creek (August 6, --); Huntsville, August 7, --).

*Kansas*.—Hart's Hill, east of Fort Riley (June 13, 1856).

*Montana*.—Custer's Creek (August 1, 1873); near old Fort Sarpy (August 9, 1873); Big Bend of Musselshell River (August 24, 1873); Sur River (September 5, 1867); 5 miles southeast of Ekalaka (May 31, 1916); Crow Agency (August 5 and 6, 1916); Little Missouri River, 8 miles north of Capitol (June 3, 1916); Pilgrim Creek, 8 miles northeast of Broadus (June 12, 1916); Darnall's Ranch, Dawson County, 30 miles south of Glasgow (June 28, 1910; July 1, 1910); Zortman (July 28, 1910).

*Nebraska*.—Valentine (September 8, 1891).

*New Mexico*.—Bear Canyon, Rañon Range (September 10, 1903).

*North Dakota*.—Valley City (June 25, 1912);

<sup>9</sup>Ibid., p. 75.

<sup>10</sup>[Picus] *Erythrocephalus* Linnaeus, Syst. Nat., ed. 10, 1, 1758, p. 113 (southern South Carolina: based on Catesby, Nat. Hist. Car., Florida, Bahama Is., 1, 1743, p. 20, pl. XX.)

<sup>7</sup>Cf. Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. VI, 1914, p. 43.

<sup>8</sup>Bull. Fergus County Free High School, No. 1, 1903, p. 36.

Medora (June 16, 1913); Cannonball (August 16, 1915).

*Oklahoma*.—Kiowa Agency, 17 miles southeast of Fort Cobb (April 1, 1868); Mount Scott P.O. (March 26 and 27, 1904).

*South Dakota*.—Custer County (July 7, 1894);

Coral Draw, Pine Ridge Indian Reservation (May 16, 1894).

*Texas*.—Vernon (April 30, 1894).

*Wyoming*.—Deer Creek (May 21, 1877); Fort Laramie (May, 1864; May, 31, 1878); Black Hills (August 3, 1856); Saratoga (June 4, 1911); Greybull (June 8, 1910).

## NOTES ON SOME OF THE FISHES OF ALBERTA AND ADJACENT WATERS.

BY F. C. WHITEHOUSE, RED DEER, ALTA.

Owing to the fact that ichthyology has never apparently appealed to amateur naturalists to any great extent, the general knowledge respecting our fishes is infinitely less than that concerning our birds, mammals, flora and at least two orders of insects. This surely should not be in a country like Canada, blessed with fresh water fishes to the extent that they constitute a very important factor in the economic wealth; not to mention the sport and outdoor recreation they provide to a very large number of enthusiastic fishermen. In spite of their enthusiasm, however, I find that most sportsmen are lamentably ignorant concerning their catches, and in speaking of trout for instance, either generalize in calling everything "speckled-trout," or go to the other extreme and specify "Brook trout" or "Rainbow trout," neither of which species occurs in this section of Canada—unless of course the imported "Brook trout" of the Mountains Park be included.

While disclaiming any specialized learning in the science of ichthyology, I contribute the following notes for the purpose of correcting errors in the recorded range in the case of three well known fishes, and I hope clearing up a few mistaken ideas in the minds of some who may know even less than myself upon the subject.

The list is arranged according to the "Check List of the Fishes of the Dominion of Canada and Newfoundland," which laudable work will be hereinafter alluded to as the "Government Check List."

### ACIPENSERIDAE.

41. *Acipenser transmontanus* Richardson. White Sturgeon.

Sturgeon are but rarely captured in Alberta. Three or four years ago, however, a very fine specimen was taken in the C.P.R. dam (Bow river) at Bassano, and since the Bow and Belly rivers join to become the South Saskatchewan river, and *transmontanus* is recorded from the latter waterway, the Bassano fish must presumably be referred to that species. On the other hand *A. rubicundus* (Lake sturgeon) is also recorded from "Lake of

the Woods and Prairie Provinces" so it is clearly unsafe to jump to conclusions.

### HYODONTIDAE.

52. *Hyodon chrysoptis* Richardson. Western Goldeye.

While the Government Check List gives "Provinces of Manitoba and Saskatchewan" as the range of this fish, it is certainly common in Alberta in the Red Deer river. It was also one of the fishes recorded by Mr. Fletcher's survey party, 1916, "Peace river." I do not doubt but that it is common in both branches of the Saskatchewan river.

Goldeyes usually average rather less than one pound, but they are frequently taken up to 18 ounces. I was informed of a specimen fish taken at the junction of the Blindman river and Red Deer river two years ago, the weight given being two pounds. This fish rises nicely to artificial flies, and on a light rod puts up an excellent fight. It is an insect feeder, "whirl a gig" beetles forming an important item of its diet. Under normal water conditions Goldeyes feed all over the river, but in times of flood seek the less muddy water in the mouths of tributary rivers and creeks, when they can be taken in numbers with various baits such as worms, grasshoppers, meat, etc.

In Manitoba there is a small industry in kippering Goldeyes, and both from an economic and sporting point of view an increase rather than diminution of these fishes is desirable.

### SALMONIDAE.

67. *Coregonus williamsoni* Girard. Rocky Mountain Whitefish.

This fish occurs throughout Alberta and British Columbia in rivers and lakes, but I have no first hand knowledge concerning it. In the interesting and useful little booklet, "Classified Guide to Fish and Their Habitat in Rocky Mountains Park" by Mr. S. C. Vick, published by the Dominion Parks Branch, Department of the Interior, 1913, the author states that *C. williamsoni* "is found in almost all the park lakes and streams," and both in the text,

and below the illustration, gives the species the alternative common names of Rocky Mountain Whitefish or Grayling—which, of course, places it simultaneously in two different genera. In the Raven and Clearwater rivers, west of Red Deer, so-called "Grayling" occur, and have been taken by fishermen for years past. Whether these are really Rocky Mountain Whitefish I cannot state, but I am confident that many of the "Grayling" catches are so only in the minds of their captors.

73. *Coregonus labradoricus* Richardson. Labrador Whitefish.

Whitefish occur in Lake Wabuma, west of Edmonton, and in fact in many of the lakes of northern Alberta. If the facts are as stated in the footnote (Jordan and Everman) in the Government Check List, however, the whitefish of commerce in the prairie provinces is *labradoricus*, and not *clupeiformis* the common whitefish of the Great Lakes.

89. *Oncorhynchus kennerlyi* Suckley. Kennerly's Salmon: Little Redfish.

I have no personal knowledge concerning this species. Through the kindness of Mr. J. W. Cockle, of Kaslo, B.C., I am able to give the following data:

"This diminutive salmon is found in all the waters of the interior of British Columbia. It runs up the creeks to spawn in the fall and is taken with nets and by spearing and salted down for winter use by many of the settlers. The fish is sometimes taken in Kootenay lake when trawling for salmon and forms the main diet of both salmon and char which inhabit these waters. It runs up from the Columbia river into Christina lake and spawns there on the shallow shores at the south end of the lake; large numbers are taken there every season."

93. *Salmo clarkii* Richardson. Cut-throat Trout.

This fish is most aptly named since there is a red streak on the throat on either side. It occurs in the clear rivers of Alberta and in the mountains in streams and lakes. The Cut-throat trout rises very well to artificial flies, and is a game fighter. In bodies of water of high altitude such as Consolation lake near Lake Louisa, etc., and mountain creeks, *clarkii* does not frequently exceed one pound in weight, but at lower altitudes runs from three to four pounds.

The author of the "Classified Guide," already referred to, suggests that mature fish cannot negotiate the small mountain creeks and that inbreeding results. The lakes are not inaccessible to small fish, however, and as new blood is thus introduced I do not think inbreeding is the explanation. The temperature of the high altitude lakes is intensely cold—

42 or thereabouts—and I personally incline to the opinion that the rigors of the habitat is responsible for dwarfing—a theory supported to some extent by insect life under alpine conditions.

95. *Salmo rivularis kamloops* Jordan. Kamloops Trout.

My experience of this fish is confined to the Kootenay lake at Kaslo, B.C., where it is taken on rod and line with a large spoon. Local fishermen use about 600 feet of thin line, and run the spoon say 300 feet from the boat. The fish in its fight breaks water like an Atlantic salmon. I quote, in addition, from a recent letter from Mr. J. W. Cockle, of Kaslo:

"A native of Kootenay and Okanagan lakes; when mature, large fish of both genders are silvery with a very faint tinting of pink over the gill covers; attains a weight of over 20 pounds, but the usual size of mature fish is about 12 to 16 pounds. Nothing is known of its spawning habits, but it is usually taken about the end of May and during June at which time it is in prime silvery condition."

( ) *Salmo rivularis kamloops*? (By Mr. Cockle and the present author).

The fish I now refer to is the species commonly (and of course erroneously) called the "rainbow trout" by fishermen. I have taken the fish at Kaslo on a spoon up to 12 pounds, and at, or rather below, Boddington Falls, B.C., up to 3½ pounds on artificial fly. It is a very game fighter, and a beautiful fish in appearance—the sides being streaked with an iridescent sheen. Mr. Cockle, of Kaslo, B.C., has had this species under observation for years and has consequently had ample opportunity to form a mature opinion as to its distinctness from the species next above. I quote from recent correspondence:

"A large salmon indigenous to Kootenay lake, which spawns on the upper waters of the Lardo and Duncan rivers just as they emerge from Trout and Houser lakes. It spawns during May and up to the second week in June, at which time the males are nearly black: specimens spawned at the Hatchery at Gerrard last season weighed 40 pounds, but the average spawning fish are about 16 to 20 pounds. When in prime condition during November they are a bright silver color, heavier spotted with black markings than the preceding, and have a bright pink band extending from the gill covers along the sides. The back is a deep olive green in contradistinction to *S. kamloops* which is blue-black on the back. There also exist some very small varieties of this species which are to be found in mountain lakes; these attain a weight of about six ounces, but the identical with the above in habit and in also turning black when spawning. The late Dr. Starr



Jordan and other authorities could find no difference in the structure of these two varieties (i.e., *S. kamloops* and *S. kamloops* . . . ?) but from the fact that the first is in prime condition at the same time that the other is spawning and has turned black, the writer has not a doubt of their distinctness, but until it is proved by breeding, the fact that they are two species will have to remain unproven."

98. *Cristivomer namaycush* Walbaum. Great Lake Trout.

*Namaycush*, generally conceded to be our most valuable commercial fresh water fish, inhabits the lakes of northern Alberta, and also, supposedly, Minnewanka lake, near Banff. While closely allied to the genus *Salvelinus* (Charrs) the teeth in the palate, or more correctly the vomeral ridge, easily serve to separate from that genus. To the best of my knowledge this fish will not rise to a fly at any stage in its life—a "spoon" or bait being the lures used by sportsmen. The commercial method is netting.

In the Classified Guide, already referred to, an illustration is given of a Minnewanka "*namaycush*"? but the body of the fish illustrated does not taper narrowly to the tail; the tail is not forked, and excepting for the large mouth, the figure depicts the genus *Salmo* rather than *Cristivomer* or *Salvelinus*. Of course the illustration may have been made from a faulty painting or cast, but a comparison of it with the excellent illustrations in the Government Check List, Fig. 46, 47, Plate VII, will explain why I state the Minnewanka lake fish is supposedly (?) *namaycush*.

100. *Salvelinus fontinalis* Mitchell. Speckled Trout: Brook Trout.

Disregarding the importations from Lake Nipigon to the waters of the Mountains Park, this species does not occur in western Canada. In spite of this fact, however, and as stated in the introduction to this paper, more bags of fish are designated "brook trout" or "speckled trout" by their proud captors than are named (or more probably misnamed) anything else. *Fontinalis* is unusually unhappy in the matter of its common names. If it is "speckled," so are all the other members of the family! If it inhabits "brooks," it thrives equally well, or even better, in lakes and rivers! It is not a trout but a charr. Notwithstanding everything, including the fact that the Canadian charrs otherwise will not rise to artificial flies, and are poor fighters, *fontinalis* is probably the sportiest and most popular fish in the world, and in the Nipigon river on the north shore of Lake Superior specimen fish run up to 10 pounds. Mr. Vick, in the Classified Guide, states that the imported fish in the Mountains Park have adapted

themselves and that they are doing well. It is to be hoped that they are not doing so at the expense of the Cut-throat trout.

101. *Salvelinus parkii* Suckley. Dolly Varden Trout: Bull Trout.

( ) *Salvelinus* ? Silver Trout: Bull Trout.

In the Classified Guide to the fish in the Rocky Mountains Park, the author, Mr. Vick, separates *parkii*, the Dolly Varden trout, from the Silver trout which he designates "of the same species," but fails to supply us with a scientific name. If there are two Bull trout—and I incline to such view myself—Mr. Vick's dilemma is my own! Personally, I separate these charr chiefly by the sheen on the scales: the Dolly Varden is golden in appearance, whilst the Silver Charr is silvery. They both have pink spots, large mouths, and bodies that taper very much toward the tail. They will take any bait from a live or artificial minnow to a mouse or garter snake: are voracious feeders, but poor fighters. I have caught them from six inches long in the headwaters of mountain creeks, to six or seven pounds in the Red Deer river, and Kootenay lake, but they run up to 12 and even 14 pounds. They put in an appearance at the mouths of creeks tributary to the Red Deer river just as the ice is going out, and owing to the fact that they are native to waters unsuitable for the more delicate Salmos, are a valuable and interesting fish. I quote Mr. Cockle, of Kalso, B.C.

"Besides the large variety of this fish which is indigenous to the waters of Kootenay lake and reach the weight of 10 to 15 pounds and which go up the creeks during high water during June to spawn at the headwaters of the creeks, and which return again when the first snow water comes into the creeks, there is also a small variety which is practically identical, but which seems to stay up the creeks and mountain lakes at all times. These attain a weight of one-half to two pounds, and spawn during October, but whether they are the fry of the larger fish which spawns during the summer or are distinct can only be solved by the hatchery."

I have on several occasions been told of a fish that occurs in the lake at Sicamous Junction, B.C., and locally known as the "Silver Trout." From my understanding of the matter the Sicamous fish must not be confused with the Silver (charr) trout, above discussed.

109. *Thymallus tricolor montanus* Milner. Montana Grayling.

The absolute identity of the south Alberta Grayling does not appear to be established, but the Government Check List refers it to the above species. I have personally never seen an Alberta Grayling, but the curator of the Calgary Museum

(Basement, Supreme Court Building) two or three years ago showed me plaster casts of what he regarded as Alberta Grayling in contradistinction to casts of Rocky Mountain Whitefish, *Coregonus williamsoni*. I am not questioning, therefore, that a fish of the genus *Thymallus* occurs in the province, on the other hand I feel sure (as already stated under *C. williamsoni*) that no small percentage of the catches of "Grayling" taken by fishermen are Rocky Mountain Whitefish. If *T. tricolor montanus* possesses the characteristic long dorsal fin of the Grayling group—long in the sense that the fin occupies approximately one-third of the fish's back—it should be easily distinguished from any species in the Whitefish group.

#### SUCKERS, MULLETS, ETC.

We next come to the large group of fishes commonly known as "Suckers," including Mulletts, Red Horse, etc., quite uninteresting to sportsmen, and unesteemed for the table, yet far from unworthy of study from an economic standpoint. Like many creatures of nature the "Sucker" group of fishes are not wholly bad, nor good! On the one hand they are evil, in as much as they are spawn-eaters of fish more worthy than themselves, and on the other their own myriad young provide food for the said fish of greater value. I have made no study of the local fishes of this group and therefore simply list several species which, according to the Government Check List, occur in the province:

#### CATOSTOMIDAE.

136. *Pantosteus jordani* Evermann. Mountain Sucker.
137. *Catostomus griseus* Girard. Gray Sucker.
138. *Catostomus casostomus* Foster. Northern Sucker.
140. *Catostomus commersonii* Lacépède. Common White Sucker.
147. *Moxostoma lesueurii* Richardson. Northern Red Horse.

#### MINNOWS, DACE, ETC.

The next group is closely allied to the last, and comprises a number of genera of small fishes, including minnows, dace, chub, etc. By fishermen they are esteemed as bait, and as food for larger and more valuable fishes they have their uses. Some of them at any rate are spawn-eaters—so like the Suckers they are both good and evil. I list a few that are recorded in the Government Check List as occurring in the prairie provinces:

#### CYPRINIDAE.

168. *Notropis jordani* Eigenmann and Eigenmann. Jordan's Shiner.
177. *Notropis hudsonius selene* Jordan. The Spawn Eater.

181. *Notropis scopifer* Eigenmann and Eigenmann. Prairie Minnow.
186. *Rhinichthys cataractae dulcis* Girard. Long-nosed Dace.
195. *Couesius dissimilis* Girard.
197. *Platygobio gracilis* Richardson. Saskatchewan Dace. (Government Check List, Flat-headed Chub).

A specimen that I forwarded in alcohol to Prof. Bensley, of the University of Toronto, was referred by him to this species. The fish is common in the Red Deer river in the vicinity of Red Deer. It inhabits the mouths of creeks and eddies along the shore, and can be taken with bait, worms, etc. It appears to be an insect feeder as I have had them rise to artificial fly. The little fish is round bodied; wide across the head between the eyes, and has an extremely long nose, with protruding upper lip or snout.

#### LUCIIDAE.

210. *Lucius lucius* Linnaeus. Common Pike (Western "Jack-Fish.")

The pike is probably as well known as any fish that swims, for it is widely distributed not only in North America but also in Europe, Asia, etc. It occurs all over the Province of Alberta in lakes and rivers, such as the Red Deer river, Saskatchewan river, Peace river, and away north to the delta of the Peace and Athabasca. While the pike is not regarded very highly by fishermen in North America, since, generally speaking, it is a poor fighter, although individual fish will occasionally be hooked that will put up quite a struggle, such fact depends very largely, in my opinion, upon the condition of the fish, and of the water. As a table fish it is decidedly in the second rank; at the same time it is of no small economic importance due to its wide distribution. In many districts in western Canada the pike is virtually the only fish that can be obtained to supply cheap food and change of diet for the inhabitants and to the Indians it has undoubtedly always been of very considerable value.

The name "Jack-fish," so frequently given to this fish in western Canada, is an interesting mis-nomer. In the language of old country fishermen, a "jack" is a small pike, say up to five or six pounds. The name signifies size, just as the term "parr" and "grilse" signify certain immature stages in the life of the Atlantic salmon. I suppose old country settlers, years ago, called the small pike "jack" until in the end it was mistakenly adopted as a proper name, and the Pike became a "Jack-fish" quite irrespective of its size.

I am not at all sure that there are not two species of pike in western Canada, but whether the doubt-

ful form I have in mind is *Lucius reticulatus*, the Green Pike of Eastern North America or some variety of that species I cannot say. My suspicions of two species is based on the shape of the head. The head of the Common Pike, *Lucius lucius* should, according to my views, show a protuberance or bulge over the eyes, while the other species or form has a head curving gradually from the tip of the snout to the dorsum. The latter fish is the poorer fighter.

## GADIDAE.

286. *Lota maculosa* Le Sueur. Fresh-water Ling: Burbot.

The Fresh-water Ling or Burbot belongs to the Cod group of fishes, including the Cods, Sea Ling and Haddock, and it is the only member of its family inhabiting fresh water. The belly is much distended by the abnormally large liver—a characteristic of the cods.

This very interesting, though somewhat objectionable-looking fish, is common in sluggish rivers and lakes in Alberta: Sylvan lake, Red Deer river, Peace river, etc. It attains considerable size, sometimes I am told up to 40 pounds. The flesh is white, it is comparatively free from bones, and it is a clean feeder, living, so far as I can discover on small fish. In spite of these facts, however, very few ling ever find their way to the table, for most fishermen, who catch them by chance, seem frightened of them. The liver and roe were esteemed as delicacies by the voyageurs, a statement I make on the authority of the Ontario Game and Fish Committee's Report of 1892.

Under normal water conditions this fish is extremely sluggish, and will lie on the bottom immobile for hours. As eels are affected by thunderstorms to unusual activity in search of food, so the fresh water ling in times of flood and muddy water, becomes a thing of action. The mouths of creeks are full of them seeking their prey—minnows and small fry. They hunt close to the bank and right on the surface, the locality always chosen by terror-stricken minnows seeking sanctuary up the creek. The gulps of the ling, sucking their prey into their spacious maws, is an unnatural and somewhat uncanny sound. My idea of the feeding habits are as follows: The fish, a strong but slow swimmer, is incapable of catching its prey by the chase. In clear water, therefore, it lies like a log, entices the small fry by means of the artificial "worm" provided by nature as an attachment to its chin, and without movement of body sucks in the intruder. In time of flood the muddy water provides concealment and "angling" is put aside in favor of the chase as explained above.

## PERCIDAE.

315. *Stizostedion vitreum* Mitchell. Pike-perch (Old English), Pickerel (Canadian); Doré (French Canadian); Wall-eyed Pike (United States.)

While the Government Check List gives Saskatchewan as the western limit, probably most fishermen in Alberta know that this fish is common in some rivers in the province, and also in some of the lakes. The largest specimen fish taken by me (mouth Waskasoo creek, Red Deer river) weighed 8½ pounds, but some years ago at the mouth of the Blindman river, at Blackfalds, Mr. D. Gregson took a pair each of which weighed 12 pounds. In 1918, a Red Deer man caught a twelve-pounder at the mouth of the Medicine river, the weight of which I verified. The fish is not a great fighter, but fishermen esteem it because of its excellence for the table. The pickerel, when of mature age, is a shy fish and cunning. It has white eyes, like a wall-eyed horse, but excellent sight nevertheless. It will take a live or artificial minnow, a spoon, and a number of different natural baits, such as worms, frogs, mice, etc.

316. *Stizostedion canadense* C. H. Smith. The Sauger.

The name Sauger probably sounds strange, and I fancy that even to many fishermen the very existence of the fish is unknown. According to the text books it is similar to the pickerel, but seldom exceeds fifteen inches in length and has a rounder body. It has a black blotch at the base of the pectoral fins, and lacks the black blotch at the hinder part of the dorsal fin of the pickerel. The western range of this fish has not been clearly defined, and it will be interesting to determine definitely whether or not some of the small sized "pickerel" of the Red Deer river are not properly the Sauger. To date I have not been able to satisfy myself upon the point, as the position of black blotches is a very unsatisfactory characteristic upon which to separate two fish. Mr. Gregson, who has lived for many years at the mouth of the Blindman river, Blackfalds, claims that he can always tell what he calls a "Red Deer river pickerel" from the smaller fish taken between the mouth and the dam. In the former the black "perch bars" are more clearly defined. On the other hand these may simply be more mature fish, and I must leave the matter undecided.

317. *Perca flavescens* Mitchell. Yellow Perch: American Perch.

The Government Check List mentions Saskatchewan as the western limit of the perch in Canada.

As a matter of fact, however, Pine lake, south-east of Red Deer, is full of perch, averaging in weight about three to the pound. The fish also occurs in the reed-beds at Sylvan lake, the average weight being from half to three-quarters of a pound. The perch is a very fair table fish, and steps should be taken to prevent the wholesale slaughter that sometimes occur at Pine lake.

The foregoing notes include a number of species of our most interesting and valuable fresh water fish, and in concluding this paper I ask the question: Do we as a people sufficiently appreciate our heritage in fishes, and realize with the rivers and lakes of Canada at our disposal, the opportunities they

offer (a) as food, (b) as a poor man's sport. Personally I do not think so upon the *broad lines* that I have in mind, and I feel, with a view to the generations to follow, that we should bestir ourselves. It seems to me the necessary procedure to be followed groups itself under three heads:

1. Continually restocking rivers and lakes with the *best fishes native* to such rivers and lakes—thus insuring an increase and not a diminution in the supply.

2. Introducing into river and lakes the *best fishes adaptable* (but not native) to such rivers and lakes.

3. Prohibiting by legislation the pollution of rivers and lakes by untreated sewage.

### NESTING OF THE CASPIAN TERN IN THE GEORGIAN BAY.

BY W. E. SAUNDERS, LONDON, ONT.

The Caspian is the largest of the three Terns which the observer has a reasonable right to expect to see on our waters. Until within a few years it was supposed that the only nesting ground of these birds in the Great Lakes was on some islands in Lake Michigan, and I was, therefore, quite surprised in June, 1909, when I found an adult specimen in the collection of Mr. Chris. Firth, at Durham. It was still more surprising to be told that this bird came from near Parry Sound where it nested on an island in that portion of the Georgian Bay.

This information had come from Adam Brown who is the lighthouse keeper at Red Rock light, five miles from the Limestone Islands on which the Caspian Tern has eventually been found to nest.

The summer following my discovery of this specimen at Durham, I had a letter from Prof. Guy Bailey, Geneseo, N.Y., inquiring where he could go for some interesting Canadian bird work, and I promptly detailed him for the hunt after the Caspian Tern which he carried out with entire success. He went to Parry Sound, made inquiry, and eventually landed on Limestone Islands, where he took photographs of the eggs and young.

I was not able to visit the locality until 1918, when on June 4, Rev. C. J. Young, Brighton, Ont., Mr. Edwin Beupre, of Kingston, Ont., and I reached Parry Sound in the afternoon and went out with Mr. Dan Bottrill to Snug Island lighthouse, some distance past the entrance to Parry Sound bay. The next day being calm we traversed the intervening ten miles to the Limestone Islands. Caspian Terns were in evidence now and again on this journey and indeed, are tolerably familiar birds around Parry Sound harbor. When we came near

the island we began to see them in considerable numbers and mingled with them were Herring and Ring-billed Gulls. The island on which the Caspians nest is only slightly elevated above the lake level with the exception of two places where mounds rise to the height of about ten feet above the lake. The chief mound, on and around which most of the nests are found, is perhaps thirty yards across at the base. The sides have a moderate slope and are covered with grasses, but the top of the mound is nearly bare of vegetation and the rock is breaking into small scaly fragments. The other mound is similar, but smaller, and the rest of the island, the northern one, is only slightly elevated above the level of the lake and more or less thickly covered with grasses.

Bare rock showed in a great many places in large irregularly formed rectangles and in the cracks between these rock faces grew the grasses which outlined them.

The two islands are connected at low water, but we had to wade from one to the other and it took us up to our knees and the footing was none too good at that.

On the southern island we imagined the nests of Kingbirds, Yellow warblers, Song sparrows, Tree swallow, Spotted Sandpiper and probably Black Duck or American Merganser as these birds were represented there, but there were no Terns' nests on it nor any gull's except those of the Herring, of which there were thirty or forty nests placed mainly between the timber logs which had drifted up from the low shores of the island and had been left high and dry by heavy winds.

Our interest centered, of course, on the Caspian Tern, and as usual in cases of communal nestings of



water birds, we found the different species keeping pretty well to themselves. The Caspian Tern selected for itself the highest portions of the island, namely, the tops of the two knolls. Here they rested when they came in from flight, and the fact that they always seemed to prefer to rest on the highest point probably accounts for the small number of nests on that part of the knoll. There were only five nests on top of the large knoll. On the sides were more nests of the Caspian Tern, but as the lower level was approached the nests of the Ring-billed Gull began to be found, and when the level at the bottom of the slope was reached, no more Caspians were to be seen. In addition to the five nests of the Caspian found on top of the large knoll, there were ninety-three nests on the sides of it. On the smaller knoll we found fifty-seven nests, making one hundred and fifty-five with eggs in all. It is to be presumed, therefore, that this colony consists of about 350 or 400 breeding birds, as many of the sets were incomplete and some of them had probably not yet begun to lay.

The habit of Terns in general is to make a very sketchy nest, often nothing more than a mere hollow, and the nests of the Caspian on top of the knoll followed this general rule, but as one observed the nests on the sides of the knoll, he found that as he went down the side, the nests became more and more substantial, until the bottom nests were almost as elaborate as those of the Ring-billed Gulls nesting alongside, and our surmise was that the higher levels were the preferred nesting ground for all species, and that the ring-bills started to lay their eggs on these higher levels but were ousted from them by the Caspians who adopted the more substantial nests of the gulls. The Caspians which were later in beginning to lay would then steal the nests of the next highest Ring-bills. This theory would account for the increasing thickness of the walls and lining of the Caspian nests as the lower levels were approached and the fact that the Caspians and the Ring-bills were nesting within three or four feet of each other in some places, also supports the theory. At one point at the south-east side of the larger knoll there was a clump of small bushes, in and around which were five nests. Three of these were Caspians and two were Ring-bills, one of these being in the centre of the patch.

It was very interesting to have these birds so close together and to compare their voices. The notes of the Caspian are, of course, unique and no one who has ever heard them would think of confounding them with any other kind of water bird to be found in Ontario. One does not need an ear for music to accomplish the distinction. Any one who can tell the bray of a donkey from the rooster's

crow, should be able to distinguish the Caspian Tern by its notes, but the Herring Gull and the Ring-bill have long been a puzzle to me and I did not get any serious help from this visit, except that the Ring-bill did not give us any example of the cackle so often used by the Herring Gull, but the musical tones of the gulls we found indistinguishable, both of them using many different pitches and phrasings.

Considering that there was so little opportunity for concealment, the Ring-billed Gulls concealed their nests very well, placing them among the grasses which grew in the cracks between the rocks.

When the cracks were of sufficient dimensions, say five or ten inches, the concealment thereby afforded was substantial, and the Ring-billed Gulls placed their nests in these strips of grassy growth at from four or five feet to fifteen feet apart.

We found the Herring Gulls to be less companionable than the others as their nests were much farther apart, seldom being as close as fifteen feet from one another. They seemed also to have laid their eggs a little earlier as we found three or four of their nests with newly hatched young, while none of the Ring-bills or Caspian Terns had hatched a single egg. Three was the maximum set for each and two were apparently being incubated in a good many cases.

Against the 155 nests of the Caspian Tern we found only 64 nests of the Herring Gull, and 77 nests of the Ring-billed Gull, and Mr. Bottril and Mr. Brown think that the Caspians in the colony are increasing slowly.

Sometimes nesting grounds of this character are apt to be much molested by human beings, but in the present instance such is not the case.

During the nesting season, the Georgian Bay indulges in a good deal of windy weather. The approach to these islands is so bad that landing can only be managed on a day so calm that it would be exceptional. To make matters still better for the Gulls and Terns they nest in a season in which the fishermen are very busy, and there is no other class of inhabitants nearby.

One of our friends had heard that there were a few Caspian Terns nesting on an island some ten or twenty miles south where the Common Tern has a colony, but we were not able to investigate this rumor.

The migration route of this species was for a long time an unsolved puzzle. They appeared in small numbers at various points in the lower lakes and that was about all we knew of them, but from the observations of Mr. E. M. S. Dale of the McIlwraith Ornithological Club, and of our president, Mr. J. F. Calvert, it seems that after the breeding season has finished, these birds make a very leisurely



journey southward, following roughly the route of the Trent Valley canal, and from there they doubtless make longer flights to the south.

That their journeys are not confined to the immediate vicinity of water was proved by our presi-

dent one day when he was gardening with his ears open, and heard from one of his friends of the Kawartha district, a salute from the upper air, making the only record we have of the occurrence of this Tern in Middlesex county.

### AN IMPORTANT DISTINCTION BETWEEN OUR TWO GOLDENEYES.

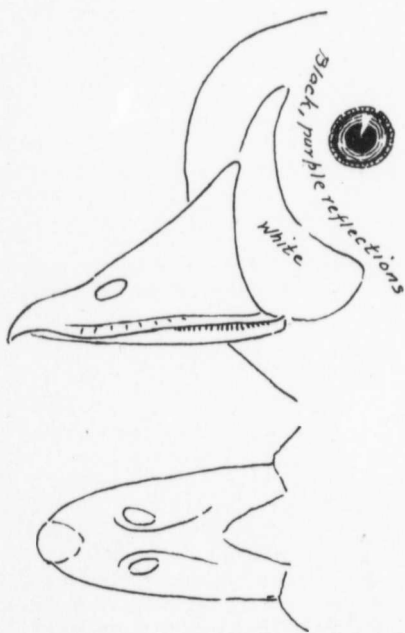
(*Clangula clangula americana* and *Clangula islandica*.)

By P. A. TAVERNER.

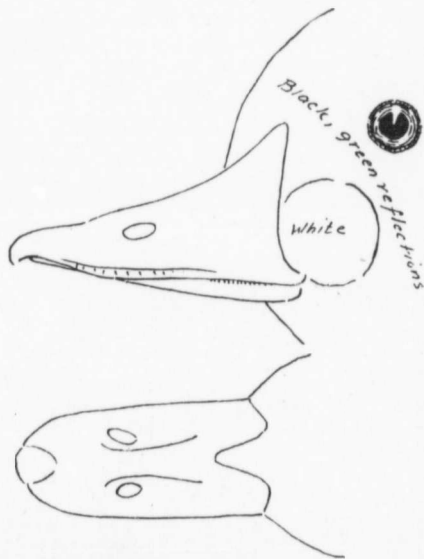
Except in adult male plumage, the resemblance between the American Goldeneye and Barrow's Goldeneye is so close as to cause considerable confusion in identification. Adult males, the American with its round facial spot against the green-black head and Barrow's with a crescentic spot of purple black are distinctive and need never be confused.

shorter, narrower and more stumpy bill than the American Goldeneye. The difference, however, is one that it is difficult to carry in mind and can only be certainly perceived when specimens are directly compared.

The male of the year is almost as difficult as the female to diagnose until traces of the adult head coloration begin to show, when the problem is immediately simplified. One distinction between these plumages has been pointed out by Major



BARROW'S GOLDENEYE.



AMERICAN GOLDENEYE.

The females are so nearly alike as to be separable with difficulty. Various plumage analysis of the two species have been worked out but the one really satisfactory distinction seems to be in the size and shape of the bill which shows the only constant character for all plumages. Even in this feature the occurrence of poorly developed juveniles is a disturbing factor. Barrow's Goldeneye has a decidedly

Allan Brooks and it seems reliable. A firm stroking with the finger from the base of the culmen over the crown reveals in Barrow's Goldeneye that the skull rises at the base of the bill more abruptly than in the American Goldeneye. The dissection of a number of specimens of both species, lately, however, has revealed another distinction that I cannot find hitherto recorded. The wind-

pipes of the males of the two species just before they enter the body at the merry-thought, are strikingly different. That of Barrow's Goldeneye is gradually enlarged and gradually reduced in diameter at this point. That of the American Goldeneye on the other hand is much more rapidly enlarged and then very suddenly reduced, forming a conspicuous bulbous enlargement between the arms of the clavicles. The illustrations herewith show this difference quite well. The sketches were



WINDPIPE OF BARROW'S GOLDENEYE.  
Male, adult: Perce, Gaspé Co., Que., Feb., 1916.

made from dried specimens moderately stretched to show the details and are considerably longer than is normal in life. It will be noticed, also, that whilst the bony rings forming the pipe of the Barrow's Goldeneye are even and comparatively regular in shape, those of the American Goldeneye are much more irregular and confused in design.\* I have purposely taken the trachea of a juvenile or yearling American Goldeneye in its first winter for comparison with the adult Barrow's

Goldeneye, for between these two developments the least difference would be expected. Half-fledged American Goldeneyes which I have examined show little or none of this specialization, but it is notable that complete development is reached by or before mid-winter. This specific difference does not extend to the females at any age.



WINDPIPE OF AMERICAN GOLDENEYE.  
Male, juv: Barkley Sound, Vancouver Island, B.C.,  
Jan. 1, 1916; No. 8916.

Besides offering a reliable specific test for young males this specialization of the windpipe is interesting as suggesting that Barrow's Goldeneye is the more ancient type of the two as it is obvious that the American Goldeneye's windpipe is a specialization of Barrow's Goldeneye and not *vice-versa*.

## THE MIGRATORY BIRDS CONVENTION.

BY HARRISON F. LEWIS, QUEBEC, QUE.

The Migratory Birds Convention is such a great advance in systematic protection of North American migratory birds, and it has already proved to be so beneficial, that one hesitates to offer any criticism of it. A short experience with the workings of the convention and its enabling Act, has, however, revealed not only its strong points, but also two or three matters, of greater or lesser importance, where improvement seems to be needed.

The birds protected by the Treaty are classified therein as "migratory game birds," "migratory insectivorous birds," and "migratory non-game birds." Further details of the species included in the terms of the Treaty are given under each of the above headings, but under no heading can one find any of the large, important, and beneficial family of the Fringillidæ, except grosbeaks, which are mentioned as such among the "migratory insectivorous birds."

\*Since writing the above I find that the difference between the windpipes of the two species is noted and figured by J. Bernard Gilpin; Proc. and Trans. N. S. Inst. Nat. Sci., IV, 1875-1878, 398-399. —P.A.T.

The writer, having reported to the Dominion Parks Branch of the Department of the Interior, which is charged with the work of carrying out in Canada the provisions of the Treaty, that Snow Buntings were being sold in considerable numbers by the grocers of Quebec, was courteously informed that, after investigation, "it would seem that the Snow Bunting is not protected under the Migratory Birds Convention Act." Presumably most, if not all, of our other Sparrows and Finches would be classified with the Snow Bunting, as they, too, are mainly graminivorous.

Surely this is a grave oversight, and one which should be remedied as soon as possible, by an amending Treaty, or such other action as may be necessary. Sparrows and Finches are highly migratory, while the usefulness to man of their food habits is well known. The following remarks in this regard are quoted from E. H. Forbush's "Useful Birds and their Protection."

"Dr. Judd, in his important paper, 'The Relation of Sparrows to Agriculture,' states that the value of

these birds to the agriculturist is greater 'than that of any other group whose economic status has thus far been investigated' . . . The great bulk of the food of Sparrows consists of seed, fruit, and insects. The native Sparrows destroy very little grain, great quantities of weed seeds and insects, and hardly any cultivated fruit; they are, therefore, almost entirely harmless. They frequent grass fields, cultivated fields, and gardens, and in some cases orchards; thus their good work is done where it is of great benefit to the farmer."

In addition to these facts, it may be noted that many of the Sparrows and Finches are excellent songsters, and a number of them are among our beautiful and brightly-colored native birds. The popular prejudice against "Sparrows" which has resulted from the harm wrought by the imported English Sparrow, or House Sparrow, should not be allowed to prevent proper protection to our useful, attractive native Sparrows. Such occurrences as the above-related sale of Snow Buntings for food show that these birds need protection, and it does not appear why it should be withheld from them while it is very properly granted to such economically neutral birds as guillemots and petrels.

Another feature of the convention which seems to be capable of improvement is the nomenclature, which one would expect to find unusually accurate and correct in such a Treaty. The "migratory game birds" are correctly designated by the scientific names of the families included, followed by the general English names commonly applied to the members of each family, as, for example, "Anatidæ or waterfowl, including brant, wild ducks, geese and swans." "Migratory insectivorous birds" is, however, stated to mean the following: "Bobolinks, catbirds, chickadees, cuckoos, flickers, flycatchers, grosbeaks, humming birds, kinglets, martins, meadowlarks, nighthawks or bull bats, nuthatches, orioles, robins, shrikes, swallows, swifts, tanagers, titmice, thrushes, vireos, warblers, waxwings, whippoorwills, woodpeckers and wrens, and all other perching

birds which feed entirely or chiefly on insects." "Migratory non-game birds" is defined by a similar list of popular English names. The undesirable inexactness and repetition in such a list are too evident to require comment, while its only system appears to be the alphabetical one. The actual working of the Treaty is hindered by such inexactness, for if, in a given region, the popular name of a bird, which it is intended to protect, is not one of those included in the above list, the people of that region will have difficulty in understanding that the Treaty applies to that bird, and the local judicial authorities may even rule that it is not protected there. "Wild geese" are protected in Quebec by the provincial law, but Canada Geese are commonly known in that province as "Outardes," and the provincial authorities have decided that they are not protected in Quebec by the law protecting "wild geese," and that they will not be protected by that law until the term "Outardes" is added to the names of the birds so protected. It seems evident that too great care cannot be exercised in naming the birds to be granted protection by the Migratory Birds Convention, or any other similar document.

There are many things in favor of naming such protected birds species by species, giving in each case the scientific name, followed by all the known popular names used in the area of protection. Such a system of naming would give accuracy and easy popular recognition, which are both highly desirable. It might result in quite a long list, but is there any objection to that? Failing such a system, should not all the birds protected by the Migratory Birds Convention be accurately and systematically named by families, at least, as are the "migratory game birds?" It is to be hoped that the efforts of all those in Canada and the United States to whom birds are of value will be joined together to secure the amendments necessary to enable the convention to perform to the best advantage all the work which it ought to perform.



## A RATTLESNAKE, MELANO GARTER SNAKES AND OTHER REPTILES FROM POINT PELEE, ONTARIO.\*

BY CLYDE L. PATCH, OTTAWA, ONT.

Point Pelee, Essex County, Ont.—the most southern point in Canada—is about six miles wide at the base and, pointing southward, extends nine miles out into Lake Erie, ending in a sand bar. A shore line map of the point somewhat resembles an outline drawing of a funnel.

The human population is comprised of about a dozen families, fifty per cent of whom devote their time to agricultural pursuits, while the other half gain a livelihood by commercial fishing. This locality might prove of archæological interest, as Indian skeletons and pottery are from time to time uncovered by the plow or the sand-shifting winds.

Point Pelee's point and west shore are wooded, while the east shore is for miles a low-sloping sandy beach a hundred or more feet in width, crowned by a fringe of willows which separates it from several square miles of marsh. The east beach is an ideal resting ground for the Piping Plover, and a most inviting point of stop-over for migrating waders. The marsh, with its several open ponds, is a feeding ground for migrant water-fowl and on or near it many resident species nest—Black Duck, Teal, Florida Gallinule, Least Bittern, Black Tern, Long-billed Marsh Wren, etc. The waters of the marsh are inhabited by various species of fishes of which the Dogfish (*Amia*) is probably the most plentiful. An interesting sight is a swarm of black, young Dogfish in a spherical mass formation two feet in diameter, and beneath the parent lurking like a bull-dog on guard.

Owing to the geographical situation of Point Pelee, many plant and animal forms found nowhere else, or only sparingly, in other parts of Canada here thrive in profusion. A floral list would include such southern tree forms as the Chestnut, Tulip, Walnut, Paw paw, and the Mulberry, which grows to a height of twenty-five feet and bears delicious thimbleberry-like fruit. Among the lower growing forms can be listed the Spicebush, the Wafer Ash and the Prickly Pear Cactus, which grows in beds sometimes ten feet in diameter and bears beautiful lemon-yellow flowers each of which lasts only for a day.

The fauna of Point Pelee equals the flora in interest, for here the Cardinal nests, and the Yellow-breasted Chat and the Mocking Bird are found,

and the Turkey Buzzard, scavenger of the south lands is not infrequently seen soaring aloft.

Among the Red Cedars which cover about fifty per cent of the wooded land, the Damon Butterfly is sought by entomologists, and in the open places the Ajax Butterfly has been taken.

Baird's Mouse is common under the drift-wood on the beaches and until recently the Cotton-tail Rabbit was conspicuous on the evening landscape.

With life so rich and varied one might expect to find the class Reptilia well represented, and so it is.

In 1913, the writer spent the three summer months on Point Pelee as a member of a Biological field party from the Victoria Memorial Museum. During this period fifty-nine reptiles representing eight species were collected. The following list includes in addition three species not collected at this time:

### 1. BLUE-TAILED SKINK, *Plestiodon fasciatus*.

Common under the drift-wood on the beaches, where it deposits its eggs in the rotting wood. Among the nine specimens taken the old adult color phase (olive-brown body with coppery-red head) is represented by only one individual. The largest specimen measures six and seven-eighths inches in length.

### 2. HOG-NOSED SNAKE, *Heterodon contortrix*.

Common on the sandy-soiled, sparsely timbered areas. Among the six specimens taken, color phases varying from yellow with dark brown markings to almost black are represented. The largest individual measures thirty-two inches.

### 3. BLACK RACER SNAKE, *Coluber c. constrictor*.

This species is represented in the Museum herpetological collection by a skin taken on Point Pelee, in 1906, by Mr. P. A. Taverner. Judging by the skin, the specimen from which it was taken was about six feet in length.

### 4. FOX SNAKE, *Elaphe vulpina*.

Common on the beaches, where the eggs are deposited under the dead wood. Apparently several individuals sometimes place their eggs in the same site, as on one occasion three specimens and half a bushel of eggs were found under a section of log. On emission the eggs are coated with an adhesive fluid which causes them to adhere and form masses. The largest individual taken measures four feet nine inches.

### 5. GARTER SNAKE, *Thamnophis s. sirtalis*.

Of the serpents on Point Pelee this is the most

\*Published by permission of the Geological Survey of Canada.

abundant species. It here shows a tendency to produce melanistic individuals. Three adult melano specimens were collected and a female which was transported to the museum gave birth to two black individuals in a litter of thirty-eight. With the exception of white lower jaws and throats the adult melanos are coal black and might pass for Pilot Snakes (*Elaphe o. obsoleta*) or for Black Racer Snakes (*Coluber c. constrictor*) were it not for the divided anal plate of the former and the smooth scales of the latter species neither of which features are characteristic of *T. sirtalis*. The young individuals are black over all. The largest melano and normal specimens measure thirty and thirty-nine inches respectively.

#### 6. RATTLESNAKE, *Crotalus horridus*.

The only example of this species in the Museum collection was taken near the end of Point Pelee on Sept. 29, 1918, by Capt. G. Wilkinson of the life saving station. In spite of the fact that for the past fourteen years the "Point," owing to its Carolinian fauna and to its being on one of the chief bird migration routes, has been the favorite observation and collecting ground of several of the Dominion's keenest naturalists, this is the only Rattler recorded in recent years.

The capture of a young individual might indicate that there were other members of the species there

present, but as this specimen is an adult measuring fifty-six inches in length and six and one-fourth inches in girth, the probabilities are that the Rattlers at Point Pelee, like those of many other localities in southern Ontario, have been exterminated.

#### 7. MUSH TURTLE, *Kinosternon odoratum*.

Two individuals of this species were discovered by members of our party who stepped on them while wading in the marsh. The carapace of the larger specimen measures four and one-half inches in straight length.

#### 8. SNAPPING TURTLE, *Chelydra serpentina*.

Several examples of this species were observed but owing to the small size of our containers no specimens were preserved.

#### 9. SPOTTED TURTLE, *Clemmys guttata*.

The carapace of the largest of the six specimens collected measures four and three-fourths inches in straight length.

#### 10. BLANDING'S TURTLE, *Emys blandingii*.

Two small individuals of this species were collected.

#### 11. PAINTED TURTLE, *Chrysemys m. marginata*.

This species and *C. guttata* are about equally represented in the marshes.

As the foregoing is probably not a complete list of the Reptilia of Point Pelee, additional records would be of interest.

### NOTES AND OBSERVATIONS.

CANADA—HOW AN ALGONQUIN COUNTRY RECEIVED AN IROQUOIS NAME.—In the edition of Champlain's Voyages, 1604-1618, reproduced by the American Historical Society, the editor in a foot-note writes of Hochelaga: "This place was probably inhabited by Iroquois." A similar assumption is made by a writer in the last Ontario Archæological Report. In neither case is there evidence of any kind cited to support this contention and the idea seems to be merely deduced from the fact that when Cartier visited Hochelaga in 1535, he found there a flourishing settlement, while when Prevert, one of Champlain's lieutenants, reached the same locality in 1603, no trace of village or settlement remained.

Recently, however, I came across some evidence which seems to give this contention a more solid footing.

I have in my possession a copy of Zeisberger's Indian Dictionary. It is a presentation copy given to the date Mr. Lindsay Russell, by Prof. E. N. Horsford, of Harvard, at whose expense and under whose supervision the work was printed in Boston in 1887. The information contained in this book

is taken from the manuscript of David Zeisberger, a Moravian missionary who worked amongst the Indians for sixty-eight years from 1740 to 1808. The manuscript is now in Harvard College.

This work is printed in four parallel columns, English, German, Onondaga and Delaware, the latter two representing the Iroquois and Algonquin linguistic stocks respectively.

On page 103 I find English and Onondaga as follows, viz:

English	Onondaga
To inhabit	Tienageri
Inhabitants in Canada	Tiochtiage hotinageri
and on page 185	

English	Onondaga
At the fork of two streams	Tiochuhogu

Now as Hochelaga was situated at the confluence of the St. Lawrence and Ottawa rivers, and as "In Canada" doubtless meant to the Iroquois of that day "In the country north of the St. Lawrence," to one knowing the different forms which an Indian word may take, owing to the language never having been a written one, it seems a fair inference that Hochelaga and Tioch-



tiage were in intent the same word, and probably derived from *Tiochuhogu*.

The word *Tiochtiage* may have been to some extent local in its use, but it was evidently current with the Eastern Iroquois amongst whom *Zeisberger* labored, and they it was who occupied *Hochelaga* if any of the Iroquois did.

If we accept the foregoing as evidence that the people of *Hochelaga* were Iroquois, we can readily understand how *Cartier* obtained the name *Canada* there—it being an Iroquois word meaning “a settlement or village”—and so gave an Iroquois name to a country almost all of whose natives were *Algonquin*.

Furthermore, this does away with the assumption that the Iroquois were at any time to any extent settled along the lower *St. Lawrence* river or the *Gulf*, a state of affairs that is highly improbable owing to the lack of their place names in that region.

*Champlain* evidently took the name *Canada* from the tradition and history of *Cartier's* voyage, for on his map dated 1613, while he names the country as a whole “*New France*,” he marks its most easterly section “*Canadas*,” and in his journal he names the inhabitants of that section the *Canadian* Indians, although they, being probably *Abenakis* and so of *Algonquin* stock, would not know what the name meant.

ARMON BURWASH.

AN ONTARIO BIRD SANCTUARY.—It is regrettable that the penetration of our wild lands by the settler and their development for agricultural purposes should involve the destruction of the haunts and breeding places of the creatures that contribute most to the beauty and charm of the countryside, and are the most assiduous protectors of the crops which are the primary cause of their disturbance. And yet it is one of the facts which bird lovers have to face. What can we do to counteract this unavoidable result of the extension of our country's most important industry? How can we help to check this retreat; how can we help to retain in our settled land some of those sights that greet us under conditions so feelingly described by *Duncan Campbell Scott*:

“When you steal upon a land that man has not  
sullied by his intrusion,  
When the aboriginal shy dwellers in the broad  
solitudes  
Are asleep in their innumerable dens and night  
haunts  
Amid the dry ferns, with tender nests  
Pressed into shape by the breasts of the mother  
birds?”

An answer to these questions is given by *Miss Edith L. Marsh* in a welcome little book, “*Birds of Peasemarsh*.”\*

\**Birds of Peasemarsh*. By *E. L. Marsh*. *Musson Book Co.*, Toronto.

Of the several means by which we may check the disappearance of so many of our native birds in settled districts the creation of bird sanctuaries constitutes one of the most effectual. Such sanctuaries have been established by governments and organizations, but in *Canada* the maintenance of private bird sanctuaries has not as yet made very great progress. For this reason *Miss Marsh's* description of her work and the many species of birds that are taking advantage of her efforts on their behalf forms a most valuable contribution to our *Canadian* literature for the promotion of wild life conservation.

It is written in a most readable and popular style and the educational value of the book makes it especially welcome. It should be in the hands of all who wish to keep the birds around them, and who does not?

Where the *Indian* river flows into the *Georgian Bay* beneath the beautiful *Blue Mountain* there is a tract of land which from the earliest days has been a favorite haunt of many species of land and water birds. Fortunately, it is in the hands of those who are striving to retain as many as possible of the former feathered creatures of its upland, woods and marsh.

In order to secure as much protection as possible under the provincial laws the *Ontario* Government has been prevailed upon to create *Peasemarsh Farm* a bird sanctuary under the *Ontario Game Act*. In *Ontario*, therefore, we have two such private sanctuaries: the *Miner* sanctuary in *Essex* county and the *Peasemarsh* sanctuary in *Grey* county.

But the mere creation by law of a sanctuary does not ensure the attainment of its objects. The protection of birds involves not only the provision of natural and artificial haunts, feeding and nesting places, but also the suppression of predatory enemies, whether they be the possessor of a .22 rifle or the four-footed or winged enemy. These needs and the methods of meeting them are described.

We hope that *Miss Marsh's* book will be widely read and her example followed not only in *Ontario* but in all other provinces. Nothing would contribute more to the conservation of our native bird life than the establishment of similar sanctuaries throughout *Canada*. The *Dominion* and *Provincial* Governments are making excellent progress in the establishment of wild life reserves, but incalculable good would result from the creation by private individuals of sanctuaries similar to *Peasemarsh*. Bird lovers owe much to *Miss Marsh* for her praiseworthy effort, which has our best wishes for success.

C. GORDON HEWITT.