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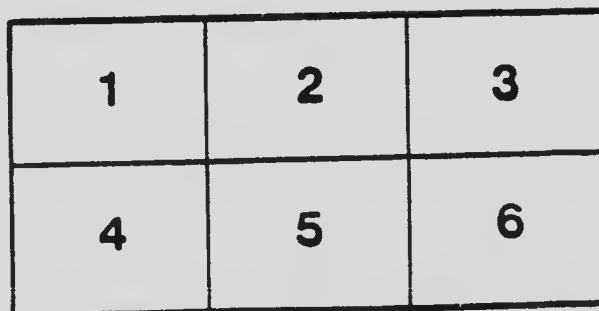
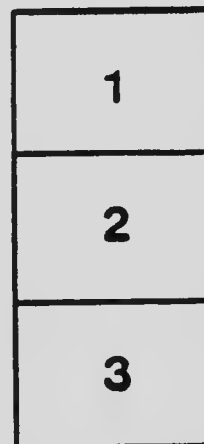
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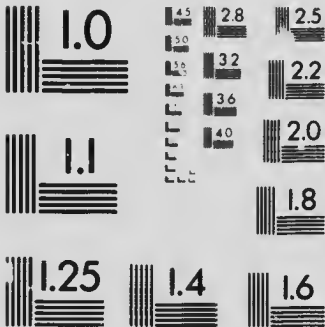
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THE BIRDS OF SHOAL LAKE, MANITOBA.

By P. A. TAVERNER.

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No. 8.

THE BIRDS OF SHOAL LAKE, MANITOBA.*

By P. A. TAVERNER.

Shoal Lake, Manitoba, lies some thirty-five miles a little east of north from the city of Winnipeg and approximately midway between the lower lobes of the two great lakes, Winnipeg and Manitoba. Though brought to the attention of ornithologists at an early date and later repeatedly visited by collectors, very little information has found its way into print regarding the details of its bird life.

Donald Gunn visited the lake in 1867, and his account¹ is extensively quoted by Ernest E. T. Seton (Ernest E. Thompson or Ernest Seton Thompson) in his *Birds of Western Manitoba*.² The same notes with additions appear in *The Birds of Manitoba*³ by the same author and briefly summarized again in the bird part of his *Fauna of Manitoba*⁴ in which the nomenclature is brought up to date.

In 1891, Fred Dippie was in the adjoining locality of Raeburn. In 1893 and the following year Edward Arnold⁵ and Walter Raine visited the lake itself. The latter casually mentions Shoal Lake in his *Birds Nesting in Canada*⁶ but gives no details, and his only published account appears in the *Oologist*.⁷ Frank Chapman and E. T. Seton were on the lake in July, 1901. The former has a popular generalized account of his trip in his *Camps and Cruises of an Ornithologist*,⁸ and I am indebted to Mr. Seton for a copy of his original field notes which I have quoted freely in the following. By him I am informed that Mr Miller Christy, of

Broomfield, Essex, England, visited the vicinity in May, 1887, and a collection of birds he made there is now in Seton's museum. June 27 to 29, 1912, Mr. Herbert K. Job and his son visited the south and west end of the lake looking for headquarters at which to obtain water bird's eggs for propagating purposes, but found the locality unsuited to their work. Mr. Job has kindly furnished me with a copy of his notes. I have heard of several other observers having collected about the lake at various times, but reports from them are not available at the present writing. From the context most of these trips have been made to the southern extremity of the lake, or in the case of Gunn, 1867, along the west side as far north as the Narrows.

Prompted by these accounts—and desiring a representative collection of Manitoban material, the Biological Division of the Geological Survey, Canada, made an expedition to Shoal Lake the spring of 1917. The party consisted of Mr. C. H. Young and the writer. We arrived at the C.N.R. station at Erinview, some four miles from the east side and about opposite the middle of the lower section of the lake, on May 16. Here we were fortunate in meeting Mr. Frank Ward, who with his father and brother, lives on the lake shore. He transported us and our baggage to his farmstead and allowed us camping privileges in the immediate vicinity. The Ward brothers proved to be unusually well informed sportsmen naturalists and we are indebted to them for many interesting notes and much valuable assistance during the course of our work. I heartily recommend them to all visiting naturalists.

On the map, Shoal Lake is indicated as being about thirty miles long north and south and ten miles in extreme width at the southern end. It is very irregularly shaped, with a constriction called the Narrows somewhat below the middle, forming practically two lakes divided by wide marshes through which winds a narrow creek-like channel. Both Chapman and Gunn describe the shores as composed of broad marshes with tall reeds in which

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¹Notes on an Expedition to Shoal Lake, west of Lake Winnipeg, Manitoba, Twenty-second Annual Report, Smithsonian Institution, for 1867, pp. 427-432, by Donald Gunn.

²*Birds of Western Manitoba*, by Ernest E. T. Seton, Auk III, 1886, pp. 143-156 and 320-329.

³*The Birds of Manitoba*, by Ernest E. Thompson, Proc. U.S. Nat'l Museum, XIII, 1891, pp. 657-653.

⁴*Fauna of Manitoba*, by Ernest Thompson Seton, as it appeared in *British Association Handbook, Winnipeg, 1909* (repaged?) pp. 3-47, part on birds, pp. 11-47.

⁵A Few Notes from Shoal Lake, Manitoba, *Oologist*, XII, 1895, pp. 22-24, by Edward Arnold.

⁶*Birds Nesting in Northwest Canada*, by Walter Raine, 1892.

⁷A Rough Time Collecting at Shoal Lake, Manitoba, *Oologist*, XII, 1895, pp. 3-6, one plate, by Walter Raine.

⁸*Camps and Cruises of An Ornithologist*, by Frank

water birds, grebes, ducks, and rails nested in immense numbers, and with stony islets in the lake populated by nesting gulls, tern, pelicans, and cormorants. Today this description and outline are hardly recognizable. The water has fallen from eight to ten feet from its old level, as indicated by the old shore line still visible and the outline and conditions are greatly changed. The Narrows are now high, dry hay fields and the creek channel is a dry ditch winding its way across two miles of open prairie cutting the lake into two separate bodies of water having no communication with one another. The surrounding marshes have disappeared and in their place are broad reaches white with alkali crystals. The islets, deserted by their original tenants, are of considerable extent and with long sand and stone shoals reaching toward each other or toward the shore. Of the luxuriant growth of reeds nothing remains but the root tops in the mud, prevented probably by increasing salinity from following the water in its retreat from the old shore-line. Of the vast numbers of birds that once treaded the mazes of the marsh practically none remain but the few that are restricted to the borders of the rapidly disappearing pools back from the shores.

A tradition from aboriginal sources asserts that the lake rises and falls regularly with a period of about fifteen years. Mr. Seton informs me that "the waters of Shoal Lake, in common with all in Manitoba, have a fashion of rising and falling in periods of about seven years". However regular this rise and fall may be and what the period is, Shoal Lake was high in 1867 when visited by Gunn, also in 1901 when Chapman and Seton were there. The Wards arrived on its shores about 1889 and Ward, Sr., declared that at that time the lake was low. It is evident from the reports of Arnold and Raine that the water was fairly high in 1894 and the Wards say that it reached its maximum about 1899. It rises faster than it falls we are told. Whether the water will ever come back again to its old level remains for the future to show. Should it do so it will offer a remarkable interesting ecological study in investigating the effects of the change from highly alkaline to practically fresh water upon the contained and surrounding life. Before this change takes place it is most desirable that a comprehensive study should be made of the present biological conditions as a basis of contrast with higher stages of water.

The lake has no important inlet and no outlet. The level is probably governed by the variation in annual rainfall extending over a series of years. The geological strata in which the lake lies is obviously porous and fissured with underground channels, as evidenced by changes in the water of near-by wells, but I have heard nothing of corre-

sponding variations in level of the great lakes on either hand, so the local conditions are probably independent of them.

The surrounding country is prairie, liberally sprinkled with small clumps of bush. These clumps, called "bluffs" throughout the prairie provinces, range from mere spots of one or two low growing bushes to several acres of woodland and are occasionally a mile or more in their longest direction. They are usually very dense and sometimes all but impassable owing to underbrush, felled tops, or burnt trunks criss-crossed on the ground like jack straws. The edges, however, are sharply defined and between them runs the clear prairie, winding in and out, narrowing here to grassy lanes and widening there to green glades or broad meadows of varying extent. All the woodland has suffered severely from fire. Grazing is the principal industry and the practice of burning the dead grass to induce a vigorous growth has not only tended to check the natural spread of the bluffs but has devastated many of them and groups of black skeleton trunks offend the eye more often than is desirable.

Most of the timber composing the bluffs is poplar with willow and other smaller shrubbery about the edges. In the largest bit of woodland in the neighbourhood of our camp is a small stand of bur-oak and on Maple Island, some five miles up the lake—an island no longer—is a little maple (Sp.?) from which sugar used to be made. At the head of the upper lake, we are informed, considerable spruce or evergreen exists, but there is none in the parts visited by us. Poplar is the principal timber and that upon which the residents rely for general uses and for fuel. Viewed by eyes accustomed to eastern woodlands none of the growth is large—a ten-inch trunk is the maximum now seen, though occasional rotting stumps indicate that larger trees were more common before they fell to the axe of the early settlers. Now most of the growth is little more than pole size and rarely exceeds a height of 40 feet.

Here and there, where the level of the land is lower, there have been marshes and the so-called red-root bogs are common and muskeg occurs locally. Now, however, owing to the lowering of the water-line these are mostly dry except in spring and represented by damp areas with a few reed-like water grasses growing about the occasional watery spots which still persist. On my return in September I found that most of these hydrophytic evidences were obliterated and the usual hay grass was growing where in the spring cat tails and reeds had flourished. Occasional ponds had remained through the summer's drought, but few of these promised to last long.

The spring of 1917 was late and as we passed

over the prairie on our arrival our driver pointed to the grass just appearing through the dead mat of last season's growth and remarked that it should be from 8 to 10 inches high. The poplars were just coming into leaf and the few oaks in the big woods behind the camp were still bare and gaunt. Though the day of our arrival was oppressively hot a change came before we had pitched camp and thereafter we had raw, cold weather during most of our stay, with ice forming in the pails of water at night and towards the middle of June we were glad to have our stove in the working tent even throughout the warmth of the day.

The lake is subject to sudden cyclonic squalls and high winds. The former burst suddenly out of clear skies, whirl a cloud of dust and debris high in the air, and subside as quickly as they rise. On one occasion we saw where a boulder of consider-

able size had been rolled over and over on the mud shores by a particularly vicious twister. The squalls do not last long but they try tent material and pegs. The steadier wind storms are violent and sustained and during our stay several of them tested the texture of our canvas and raised anxiety for our specimens and effects. I would advise all future campers to select sheltered spots for their quarters.

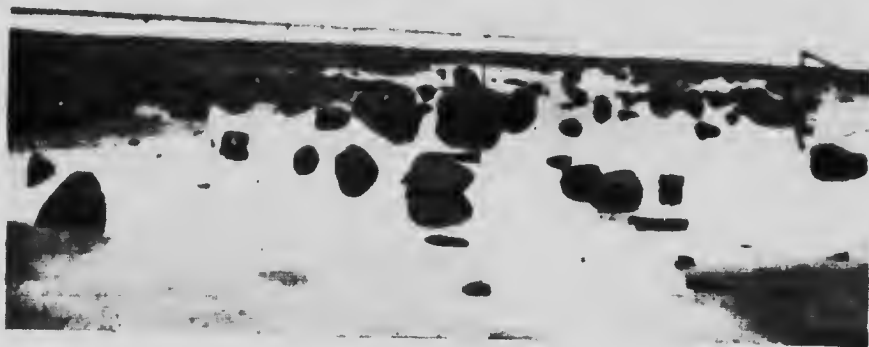
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In the fall the writer spent from September 17 to 26 in the same neighbourhood to obtain an idea of the autumnal conditions and to fill some of the gaps of the spring work. It was after the first frosts and while the days were warm and pleasant, the nights verged on freezing.

We were disappointed in not finding any great breeding ground for water birds; a few ducks still remained in spite of the altered conditions of the

lake, but evidently are becoming fewer each year. Waders still visited the shores, and birds were fairly numerous. We had no difficulty in obtaining as many specimens as we were able to prepare. Unfortunately in shipping our collections to the Museum one box, containing the majority of our small birds, was lost in transit. Manitoba is the most eastern of the prairie provinces and one of the most important subjects of geographical distribution in Canada is the location of the meeting points of prairie forms with those of the eastern woodlands. As the determination of these fine subspecific points must be based directly upon specimens the loss of them was serious and it was largely to replace them that Mr. Young returned to Shoal Lake the spring of 1918, spending from April 23 to October 2 on the same grounds we had occupied the previous spring.

He arrived just after the ice had broken up on



The shores of Shoal lake in 1917-18, view near camp. The shores were of this character everywhere.

Mr. Young worked all the adjoining country in the neighbourhood of the Ward homestead as far as it was possible on foot and made several

auto traps farther afield. The day before he left he reported a heavy frost. In the course of this season's work he obtained personal notes on 183 species, and specimens of 147 of them, which added to the previous year's observations and collections, form a sufficient basis for a fairly complete and representative list of the birds of the locality.

Some few species are herein included upon circumstantial evidence and until confirmatory specimens are secured must be looked upon as hypothetical. However, the evidence upon which they are based is fully given and the reader can form his own judgment as to their value, bearing in mind, however, that no record is absolutely unassailable until specimens are secured and examined by competent authority.

1. WESTERN GREBE, *Aechmophorus occidentalis*.

Though reported by all previous observers as remarkably common we saw none at any visit. The Ward brothers say that they used to breed in such numbers on the marshes that a canoe could scarcely pass between their nests, and Seton reports the species as an abundant breeder and notes that "its shrill metallic cries could be heard from the quills day and night". He further observes "it is the easternmost breeding place of the species. Most birds peter out towards the limit; but here, at the northeastern corner of its limit, this bird has a sort of metropolis". With the lowering of the water this is all past.

2. HOLBOELL'S GREBE, *Colymbus holboellii*.

Reported by Gunn "in fair numbers" and by the Ward brothers as "never very common". Two seen by Young, May 25, 1918, are all we can report.

3. *HORNED GREBE, *Colymbus auritus*.

Both Arnold and Raine report it nesting in 1894. One only was noted in 1917, on June 4. In 1918, Young found it rather common, noting it almost daily through May and from the end of July to Sept. 2.

4. *PIED-BILLED GREBE, *Podilymbus podiceps*.

Seton reports it common and evidently breeding. In 1917, we noted but three in September on a small pond, but in 1918 Young observed individuals, mostly singles, April 25 to May 18, and the latter half of August to the middle of September.

5. *COMMON LOON, *Gavia immer*.

The Ward brothers say that it used to breed though they never found its nest. On both visits we saw single individuals almost daily. They were usually observed flying over and seldom showed any inclination to stop on the lake.

6. IVORY GULL, *Pagophila alba*.

In Mr. Darby's taxidermy establishment in Winnipeg, I examined on May 15, 1917, a mounted specimen of this species which I was informed was taken at Woodlands, Man., on Dec. 27, 1915, a station on the Canadian Northern Railway just south

of Shoal Lake, and hence within the scope of this paper. It is a medium-sized, pure white gull, with face and forehead flecked unevenly with light smoky gray, with remains of terminal tail band, dark spots on tips of primaries, and a few dark flecks on tertiaries, bend of wing, and lesser coverts.

7. HERRING GULL, *Larus argentatus*.

Chapman reports finding a few Herring or California Gulls nesting on Pelican Island and states that they were very troublesome to other birds, destroying numbers of Tern's eggs and even those of the Pelican. Large gulls of the Herring Gull type were seen by us on every visit but were very shy and all we managed to take were Ring-bills. Young tells of a Herring Gull carrying off a Horned Grebe he had shot and was wading out to retrieve, lifting it bodily by the nape of the neck and taking it out to mid-lake where, joined by another, the two proceeded to tear it to pieces. The Ward brothers say the species bred on one of the rocky islands as late as 1916, but as no boats were available were unable to say whether they continue to do so or not.

The specific status of the larger gulls of the province has not been well determined. Specimens of both migrants and breeders are necessary from various localities. The Herring Gull and the California Gull, *Larus californicus*, are so similar as to be differentiated with difficulty. When juvenile, probably careful size comparison between similar ages and sexes is the only guide. When adult, probably the best criteria is the colour of the legs and feet; in *argentatus* these are flesh coloured whilst in *californicus* they are said to be light greenish.

8. *RING-BILLED GULL, *Larus delawarensis*.

Raine reported the species breeding on the islands in 1894. We saw a few in the spring of 1917, but were not always able to separate them with certainty from the Herring Gull as the ringed bills are only safe criteria when perfectly adult and most of the large gulls seen on the lake showed various traces of juvenility. Young recognized the species with certainty only during the latter part of July, August, and September. Four birds were taken and all are juveniles. They probably do not now nest on the lake.

9. *FRANKLIN'S GULL, *Larus franklini*.

In 1917, common on our first arrival May 17, but became scarcer towards the latter part of our stay, to June 14. According to Young, it was present on his arrival on the lake on April 24, reached a maximum on May 7, and then gradually became reduced in numbers to June 7. It returned on July 1 and remained until Aug. 27, after which no more were seen. Very large flocks were noted Aug. 8 to 10. Chapman notes it as breeding, but there is no indication that it nests on the lake now that the marshes are gone.

10. *BONAPARTE'S GULL, *Larus philadelphia*

Not identified by us in 1917 though a flock of birds noted at a distance, Sept. 22, were probably of this species, as Franklin's Gull seems to leave before this date. In 1918, Young saw eleven on May 25, taking specimens in verification. They appeared again in some numbers on Aug. 16 and remained without much diminution up to the date of his leaving, Oct. 2. Though Seton (*Auk*, 1886, p. 147) cites Gunn as the authority for its breeding on Shoal Lake and repeats the statement in subsequent lists, including his Fauna of Manitoba, British Association Handbook, 1909, I cannot but regard it as a mistake, and think that Franklin's Gull has been the basis of these records. The nearest well authenticated records of the breeding of this bird is on the lower Mackenzie. The more or less common occurrence of non-breeding Bonaparte's Gull in summer dates, as far east as the Atlantic coast, has probably been to blame for many confusions of breeding records between these similar birds.

11. CASPIAN TERN, *Sterna caspia*.

On the gravelly islands where the Common Tern used to nest in immense numbers the Ward brothers tell us that there were occasional sets of eggs that were so much larger than the rest as to attract immediate attention. The parents of these seemed to them to be exactly similar to the other tern flying about but considerably larger. Though they regarded them at the time as only monstrosities there can be but little question but that these were Caspian Tern. The numerical ratio these eggs bore to those of the Common Tern was about five to a thousand.

12. *FORSTER'S TERN, *Sterna forsteri*.

Seton, that while he did not note the species, Miller Chrisy, found it common on May 1, 1887. Arnold and Raine report colonies of hundreds of nests, but it is suggestive that they make no mention of the Common Tern. In 1917, we found Forster's Tern in company with the Common Tern but generally scarce. In 1918, Young observed it from the 8th to the end of May, but much more common during the last week. He has one hypothetical record for two individuals, namely Aug. 21. The Wards say that it was once much more common than now and that it used to nest singly on the musk-rat houses in the marsh and not on the gravelly islets with the Common Tern.

13. *COMMON TERN, *Sterna hirundo*.

The Ward brothers tell us that when the water was high the Common Tern nested in immense numbers on the gravelly islets. On one such islet of about three acres, they once estimated one thousand nests. In some places the foot could not be put down without treading on eggs. This statement is largely confirmed by Seton. Such descriptions, however, do not represent the species at Shoal Lake

now and there is no indication of any nesting there.

The species was occasionally common during our spring visit in 1917. In 1918, Young found them more or less common during the latter half of May and noted a few individuals occasionally through June, July and August and as late as Sept. 16, when a flock of thirty was seen. The Common Tern can be separated from Forster's in life by the grayness of the white below. In Forster's Tern the under parts look a dazzling, pure white in the sun, a character that is obvious when both species are in view together and, after a little experience, of value when they are seen separately.

14. *BLACK TERN, *Hydrochelidon nigra*.

A common breeding species nesting in the few wet spots remaining back from the lake. None were seen in September of 1917. Young reports heavy migrations Aug. 1 to 21, and the last seen, Sept. 3.

15. DOUBT-CRESTED CORMORANT, *Phalacrocorax auritus*.

Said by Gunn, Seton, and the Ward brothers to have been a common breeder on the islands, but now, except for occasional stragglers and during migrations, they have deserted the lake. None were seen by us in 1917, but Young reports flocks of five to sixty in late April and early May with straggling singles on May 23 and Aug. 29. All seen were flying over, mostly from east to west, towards Lake Manitoba. Probably the growing alkalinity of the lake has destroyed the fish and forced them to seek other feeding grounds.

16. WHITE PELICAN, *Pelecanus erythrorhynchus*.

Said by the Ward brothers to have been a very common breeder on the islands during high water, and Raine speaks of an "Island white with them" in 1894. Seton tells of seeing a flock of thirty-five and finding a score of deserted nests, "the eggs strewn about, in some cases evidently sucked, I suppose by Herring Gulls". We are told that their eggs used to be regularly gathered by Indians and others. In one case a boat-load were boiled and fed to the hens. At present only a few small flocks appear in the spring, and occasional summer visitors. Young reports thirty on May 6, which were all we saw.

17. *RED-BREASTED MERGANSER, *Mergus serrator*.

Young found one dead on the beach near the Narrows in the spring of 1918. This is our only definite record of the species. Though the Ward brothers do not distinguish between the two big saw-bills, they report them common in spring but do not think they breed locally.

18. *HOODED MERGANSER, *Lophodytes cucullatus*.

Young reports this species in early May, the middle of June, late July and the last of August. The Wards state that it breeds in the neighbourhood and that young in flapper stage are often

seen in small pools and standing in ditch water along the railroad tracks, and that it is one of the earliest of ducks to mature.

19. *MALLARD, *Anas platyrhynchos*.

One of the commonest ducks though being rapidly reduced as a breeder by the progressive restriction of suitable marshes.

20. *BLACK DUCK, *Anas rubripes*.

The Ward brothers seem to know this species and describe it as a fall migrant. We are in receipt of a specimen labelled Winnipeg, Man. (W. R. Hine) which we are informed by its donor, M. Seton, was taken at Shoal Lake. The date is not recorded.

21. *GADWELL, *Chaulelasmus streperus*.

Raine found nests in 1894 and Seton noted them on Pelican Island on July 6, 1901. Wards say it is, or was, an uncommon but regular breeder. Specimens were taken on May 15 and 19, 1917, and Young reports a few individuals during May, 1918.

22. BALDPATE, *Mareca americana*.

Raine found nests in 1894 and Chapman in 1901, and the Ward brothers say it is one of the scarcest of the ducks and growing more so. Young reports seeing individuals at the end of April and in the beginning of May, 1918.

23. *GREEN-WINGED TEAL, *Nettion corolinense*.

A common breeder and still lingering in some numbers, seeming to require less extensive marshes than many other species of duck.

24. *BLUE-WINGED TEAL, *Querquedula discors*.

A common breeder similar to the green-winged but seen considerably later in the fall.

25. CINNAMON TEAL, *Querquedula cyanoptera*.

Seton (*Auk*, 1886, p. 328) quotes R. H. Hunter as having taken a specimen at Oak Point, on the adjacent Lake Manitoba shore. This is near enough to the locality under discussion for mention though the lack of recent records for the species and apparent absence of specimens render it a little unsatisfactory.

26. SHOVELLER, *Spatula clypeata*.

A common breeder in 1917. Said by the Wards to be the only duck that is showing an increase, and they describe, during the past three years, vast flocks of a thousand or more in eclipse, remaining until the fall plumage is assumed when they depart for the south. However this may have been just previous to 1917, we have seen nothing like it in the last two years. They are present throughout the spring, but Sept. 17-26 may have been too late for such aggregations in 1917. Young was present all the summer of 1918 and only noted occasional birds through April and May, so it is probable that the above increase was only momentary and was

checked by the continued ecological changes in the locality.

27. *PINTAIL, *Dafila acuta*.

Was a common breeder. Said by the Ward brothers to mature earlier than any other species of duck except the Hooded Merganser. More Pintails were seen during the spring of 1917 than any other kind of duck. In 1918, Young found them very common in early May, gradually reducing in numbers after the middle of the month, scarce in midsummer, which here gives no cover for eclipse conditions. The last noted were fifty on Sept. 16.

28. WOOD DUCK, *Aix sponsa*.

The Ward brothers give circumstantial accounts of the occurrence of two Wood Ducks at different times. One male taken in 1899 or 1900 was identified as such by a Mr. Robt. Holland, who was familiar with them in Ontario, and the other from memory of that specimen. Whilst these records are not unimpeachable, taking into consideration the striking characters of the birds and the qualifications of our informants, I accept them with but slight reservations.

29. REDHEAD, *Marila americana*.

Arnold found nests in 1894 and the Wards say that it used to breed. We saw only occasional specimens during spring and fall.

30. *CANVAS-BACK, *Marila vallisneria*.

Said by the Wards to have been a common breeder in the past. A female was taken on June 6, 1917, but it proved to be a non-breeder. We have only seen occasional individuals in spring and early summer.

31. *LESSER SCAUP, *Marila affinis*.

A considerable number of Scaups were noted during both spring and fall. All taken proved to be the Lesser Scaup, though undoubtedly the Greater Scaup also occurs. The Wards know of but one nest being taken, that one being amongst the gulls on an island.

32. *RING-NECKED DUCK, *Marila collaris*.

Nothing like as common as the Scaups. A few were observed in the spring of 1917 and specimens taken in the following fall. It was not observed by Young in 1918. The Wards know it under the name of "Buck-eye", and say that it occasionally occurs in small flocks but do not know of its breeding.

33. AMERICAN GOLDENEYE, *Clangula clangula*.

A flock of six were seen between May 17 and 23, and a pair hung about until the first week of June in 1917. Young noted one on July 11, 1918. All adult males observed were of this species. We have no record of its breeding.

34. BARROW'S GOLDENEYE, *Clangula islandica*.

Seton (*Auk*, 1886, p. 328), cites R. H. Hunter as authority for the capture of a drake on Shoal

Lake in the spring of 1880. It is a long way from normal range of the species and should be authenticated by specimens for unreserved acceptance. The Wards are unacquainted with the species.

35. BUFFLEHEAD, *Charitonetta albeola*.

Said by the Wards to have been a common migrant, but not known to breed. Seen on May 19, 1917, and a few in late April and early May in 1918.

36. HARLEQUIN DUCK, *Histrionicus histrionicus*.

Frank Ward tells us that in the spring of 1898 he shot three brilliantly coloured little ducks that he was unfamiliar with. At the time he thought they might be Wood Ducks, but upon seeing that species later realized the mistake. He identified them as similar to coloured pictures of the Harlequin Duck in Reed's Bird Guide. Taking everything into consideration I am inclined to accept this record with but few mental reservations.

EIDER, Sp?

The Wards tell of a large duck of unknown species, with greatly swollen bill, having been taken by Mr. Samuel Martin, of Winnipeg, about 1900. Plumage descriptions seem to suggest a female, either Eider or Scoter. If Eiders, ever occur they must be accidental stragglers and except for the above uncertain record they are unknown on the lake.

37. WHITE-WINGED SCOTER, *Oidemia deglandi*.

Seton found nest and eggs on Pelican Island on July 6, 1901. This is the only Scoter known to the Ward brothers, who say that when the lake was fished many were taken in the nets. We saw small flocks almost daily in the spring of 1917, and Young reports occasional individuals throughout the season until Aug. 10.

38. RUDDY DUCK, *Erisimatura jantacensis*.

Reported by Seton, 1886, on the authority of Hine to breed at Shoal Lake. Said by the Wards to have bred very commonly but not often taken. It has practically disappeared from the marsh since the drying of the marshes. Young noted one individual on May 29, 1918.

39. SNOW GOOSE, *Chen hyperboreus*.

Single individuals seen on May 25 and 28, in 1917, a large flock on April 30, a smaller one on May 25, and two individuals on Oct. 2, in 1918. The residents are enthusiastic over the "Wavie" shooting. I take it for granted that all are Lesser Snow Geese, *C. h. hyperboreus*. It is locally called Greater, but apparently in contrast with Ross' Goose, which seems to be as well known as the "Lesser Wavie".

40. BLUE GOOSE, *Chen caerulescens*.

One was seen on May 29, 1917, in company with a Snow Goose and watched for some time in good field-glass range. The iridescent black and white head and neck made identification positive. Young

noted a flock of one hundred on April 30, 1917, and a few more individuals on Oct. 1 and 2. The Ward brothers say that in most flocks of Snow Geese a few of this coloration occur, but not many are taken.

41. ROSS' GOOSE, *Chen rossii*.

The Wards differentiated between the Greater and Lesser Snow Geese, but upon questioning it appeared that the latter were little larger than Mallards. There can be little doubt but that this is the species referred to. They are only occasionally seen on the lake, but numbers have been brought into Winnipeg market.

42. WHITE-WINGED GOOSE, *Anser albifrons*.

May 26, 1917, one pitched on an isolated rock off the shore within sight of camp, from whence we watched it with glasses for a considerable time. The general brown coloration, white frontal patch and pink bill and feet were plainly visible and there can be no doubt as to the identification. The Ward brothers say it is scarce within their experience and know of but six individuals being taken on the lake.

43. *CANADA GOOSE, *Branta canadensis*.

Besides seeing the species during spring and fall in 1917, Young noted individuals as late as June 4 and as early as Aug. 10 in the following season. Arnold reports finding a nest on an island in 1894 and doubtless the present breeding ground is not far away. Two captive birds seen were evidently *B. c. hutchinsi*. One specimen obtained on April 30, 1918, is *B. c. canadensis*. The Wards and others say that the two large forms of Canada Goose can easily be told apart in life, having different voices and the flocks keeping more or less separate. The living birds of the small form do not make good decoys for the larger. They also upon their own initiative tell of occasional very small Canadas, scarcely larger than Mallards, and with voices like a hard *cack-cack-cack*. They are very scarce and there can be little doubt but that they are stragglers of the Cackling Goose, *B. c. minima*.

44. BRANT, *Branta berniola*.

Reported by Seton (*Auk*, 1886, p. 329), on authority of R. H. Hunter, to have been killed at Shoal Lake. As Geo. Atkinson records in his Rare Birds of Manitoba (Trans. No. 65, Hist. and Sci. Soc. Man., 1904), a specimen in his possession from Oak Lake, killed the spring of 1889, the record is not an isolated one for the province.

45. WHISTLING SWAN, *Olor columbianus*.

The Ward brothers tell us that Swans are still common migrants, especially in the fall and do not seem to be decreasing to any marked degree. We saw none in 1917, but in 1918 Young noted thirty on April 30, and six on May 6.

46. TRUMPETER SWAN, *Olor buccinator*.

The Ward brothers have observed Swans of two different sizes. One shot in 1904 weighed thirty-two pounds and was so large that Frank Ward, a large man, could not close his hand about the neck behind the head. Mr. Ward, Sr., says that swans nested on the lake in 1893-94 and that he watched the old one with cygnets one day for hours. This can only refer to the Trumpeter Swan and is strong circumstantial evidence of its occurrence. Our informants also tell us that the big swans are not as wary as the small ones, do not keep as consistently in the centre of the open lake, and are more easily taken. The voice is also quite different from

that of the smaller species, being either a single "Whoop-Whoop" or a louder, clearer, and less shrill "Coo-coo—" that can be plainly heard for miles. Frank Ward tells of a wounded one uttering a long drawn note of such extreme mournfulness that it moved him deeply, thus substantiating, in a measure, the fabled song of the dying swan. These trumpeters do not come with the large flocks of Whistlers, but usually as individuals accompanied by one or two dark cygnets. Two have been seen as late as the early spring of 1917.

(To be continued.)

The asterisk (*) denotes that specimens were taken.

THE ORCHIDS OF HATLEY, STANSTEAD COUNTY, QUEBEC.

By H. MOUSLEY.

In that interesting book, "How to Know the Ferns", Mrs. Theodora Parsons recounts how a friendly rivalry used to exist amongst fern students as to who could claim the greatest number of species for a given area. Possibly if such a rivalry exists amongst students of the orchid family, I might take a prominent place, for I can lay claim to having found seventeen species and one variety of orchids (or just one-quarter of all those known to occur in Eastern North America) within a radius of one mile of my residence, and I am beginning to wonder whether Hatley is not an "El Dorado" for these lovely flowers, the same as Dorset and Pittsford (both in the State of Vermont) are for ferns. On a two hours' walk in the former place thirty-three species and four varieties of ferns have been found, but then it must be remembered that the party finding them had made the study of ferns a specialty, whereas I do not lay any claims to being considered a specialist in orchids or even a botanist. Still from childhood I have always had an innate love of the beautiful, and it has been whilst pursuing my favourite study of ornithology, that I have made a sideline, so to speak, of botany, having collected and named some two hundred or more local species of wild flowers, at odd moments when from some cause or another birds were scarce. Possibly I owe my success with the orchids almost entirely to the warblers, for in making a special study of this family of birds, I generally seem to have been most fortunate in securing my rarest finds, the following up of a Cape May Warbler (*Dendroica tigrina*) for instance giving me my first sight of that exquisite little orchid, *Calypto bulbosa*.

Hatley is a pretty little village lying at an elevation of 1,000 feet above the sea level, the country

all round being of an undulating character with plenty of small streams, many of which eventually find their way into Lake Massawippi, a fine sheet of water about nine miles long, lying on the western side of the village. Between this lake and the village there stretches a long belt of low-lying woods composed largely of spruce, fir and cedar, with hemlock, maple, birch, beech, ash and other deciduous trees intermixed. It is in these woods principally to the north-west of the village that most of my records have been made, although there is a famous bog to the north-east, where several species are to be found growing in profusion including *Arethusa bulbosa*.

During most of my eight years' residence here (1911-1918) I have resided about one and a half miles to the south of the village, but in May, 1917, I made a temporary change and occupied a house about a mile or rather more to the north of the village until October, 1918. Previous to making this change I had only observed six species of orchids to the south of the village, so that my change of residence is responsible for an additional twelve, the ground being of a more swampy nature and better suited to the requirements of orchids, although I do not wish it to be understood that a systematic worker could not find any of these twelve additional ones to the south or east of the village, for indeed I myself have already done so during the present year (1918); nevertheless I think the localities indicated will be found to be the most productive, as the following annotated list (taken in the order given in Gray's Manual of Botany, Seventh Edition) clearly shows:

SMALLER YELLOW LADY'S SLIPPER, *Cypripedium parviflorum* Salisbury. My first acquaintance with this fragrant flower was on June 22, 1917, when I

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THE BIRDS OF SHOAL LAKE, MANITOBA.

By P. A. TAVERNER.

(Continued from page 144)

46. *AMERICAN BITTERN, *Botaurus lentiginosus*.

In 1901, Seton found it abundant and breeding. He says: "A conspicuous feature of the landscape—hard at work night and day pumping out the bog". We found it in no such numbers. May 19 to 21, 1917, one was heard each night in a marshy spot behind camp. The next day one was taken but we did not hear the species thereafter. This bird was a male with the skin of the throat greatly thickened with a tough gelatinous tissue inside that I have met with a number of times before in spring males of this species, but have never seen referred to in print nor found ornithologists generally familiar with it. The tissue is very much like that behind the throat puffs of the courting Prairie Chicken and, judging from the dried specimens of breeding spring Pectoral Sandpipers in our collection, probably similar to conditions found in the inflatable sac of that species. As the Bittern inflates its throat while courting or booming it is likely that this deposit is of similar origin in each of these species. It lines the inside of the skin perhaps one-eighth of an inch thick and is soft and rubbery, firmly attached to the skin, and sliding away under the knife in a manner that makes its removal very difficult. In 1918, Young saw occasional birds in May, June and August.

47. GREAT BLUE HERON, *Ardea herodias*.

The Ward brothers say that this species was rare on the lakes even in time of high water and extensive marsh. They rarely observed over one or two each year. In 1918, Young reports seeing two birds on July 10 at the Narrows.

48. BLACK-CROWNED NIGHT HERON, *Nycticorax nycticorax*.

Reported by Chapman as breeding on the ground in reeds two to three inches above water, the record is accompanied by photographs of nests in "Camps and Cruises". It is said by the Ward brothers to have nested in large colonies on the floating debris where the drift of the lake came in at the edge of

the marshes. Only a few migrants have been seen of late years. Seton describes a night herony where "scores, probably hundreds of nests, were in the tall quill-reeds; but none at all to the trees". He quotes a resident farmer, G. H. Meacham, as authority for the statement that three years previous (to 1901) there were but twenty pairs present, but remarks that their rapid increase was marvelous, stating, "No doubt this is one of the species whose number fluctuate with the rise and fall of the lake", thus forecasting their present disappearance again.

49. WHOOPING CRANE, *Grus americana*.

We were informed by the Ward brothers that Whooping Cranes used to breed and be fairly plentiful. About 1901 they saw thirty birds together. They have grown much scarcer of late years, but still a few are seen each season. In 1916, three were seen by Frank Ward, and even in 1917, about a week before my return visit, two passed immediately over him flying very low.

50. SAND-HILL CRANE, *Grus mexicana* or *canadensis*.

In 1917, we saw no cranes but a nearby farmer had heard them a few days previous to our questioning. We looked for them but found their old haunts dried up and encroached upon by settlers. The Ward brothers say that, until very recently a few still bred on nearby muskogs and in late summer and early autumn they visit the grain fields in large flocks, but are decreasing. A few days previous to my return visit in the autumn, William Ward saw several, but regarded this as a late date. In 1918, a number were observed shortly before Young's arrival, and he noted one April 25. Small flocks of from three to eight were seen later from August 15 to Sept. 6, usually high in the air. The Ward brothers think they recognized two sizes in the cranes commonly seen, which would indicate that both the Sandhill and Little Brown Crane occur; in which case the former would likely be the breeding form, and the latter a migrant.

51. *SORA RAIL, *Porzana carolina*.

During the spring visit of 1917 there were innumerable suitable places for rails and their voices were heard a number of times, but we saw only a single bird on May 30. The Ward brothers are, quite excusably, uncertain in their identifications of the various species and plumages of the rails. They claim to have found nests of three species; and speak of a small black one which is likely the young of the Virginia. In 1918, Young reports Soras rather scarce in spring but becoming very common in August. On Aug. 2 he counted over fifty in one small wet marsh. After that they gradually reduced in number, and the last one seen was on Sept. 20.

52. YELLOW RAIL, *Coturnicops noveboracensis*.

Though this little rail should be common, it is such an accomplished skulker that we saw none. The Ward brothers tell of nests of very small rail eggs, and during my autumn stay in 1917, Frank Ward, while raking hay, uncovered and forced into flight some small rails with large amounts of white on the wing. He was unable to capture any at the time, and though I later watched haying operations in adjoining localities closely, no more were discovered. In the same vicinity while hiding in the grass near a small pond, I heard a repeated bird voice suggesting a rail close by, but was unable to flush the author. I have little doubt but that they were from Yellow Rails but am unable to substantiate my conclusions. Through the summer and autumn of 1918, Mr. Young watched haying operations closely but was unable to detect any Yellow Rails.

53. *AMERICAN COOT, *Fulica americana*.

Chapman, in his "Camp and Cruises", gives photographs of a Coot's nest taken in 1901. Not seen by us in 1917, but in 1918, Young observed small numbers to May 21 and flocks of 100 to 150 the last of September. Said by Seton and the Ward brothers to have been a very common breeder when the water was high and even up to three years ago, in favorable localities, a few still nested.

54. *NORTHERN PHALAROPE, *Lobipes lobatus*.

A few seen in 1917 among the groups of Wilson's Phalaropes between May 23 and 29, perhaps twelve in all. In the autumn three were seen on Sept. 22 and again on the 24. Specimens were taken during both seasons. Regarded by Ward brothers as rather scarce. In 1918, Young noted occasional flocks, beginning with 20 on May 29, culminating in 100 on June 1, and a few remaining until June 12. In autumn he observed small groups from Aug. 20 to the end of the month with a straggling flock on Sept. 21.

55. *WILSON'S PHALAROPE, *Steganopus tricolor*.

During the 1917 spring visit the commonest and

most generally distributed wader. Nearly every little slough had a pair or little group, usually females gracefully swimming about, and a nest of fresh eggs was collected on June 6. Young tells of a flight song he saw executed by a female in the presence of her (prospective?) mate. During it she distended her throat in the same manner as the Pectoral Sandpiper is reported to do. The Ward brothers state that they have seen this courtship flight a number of times. At another time a Phalarope was whirling in its characteristic manner in shallow water; upon examination the bottom below it was found to be scratched in semicircles as if with the feet. The Phalarope seem to be entirely surface feeding birds, never dipping down into the water for food. Evidently this graceful spinning is a method of stirring up the water and bringing small particles of food to the surface within reach of the delicate, rapier-like bill. The usual note of the species is a miniature quack, like that of a domestic duck but less loud. From this they are locally called "Grunters". None were seen during the return visit in the autumn of the year. Owing to the progressive drying of the marshes, Wilson's Phalarope was not quite as common in 1918, but Young records a few almost daily from May 7 to Aug. 20 when the species disappeared.

56. *WILSON'S SNIPE, *Gallinago delicata*.

Quite common in 1917 and, though no nests were found, evidently breeding. The sound of its aerial dive and love-making flight could be heard each evening, and occasionally throughout the day. A few were still present during the autumn visit in September. In 1918, Young found it rather less numerous from May to August, but very common in September, and to the time of his leaving on Oct. 2.

57. *DOWITCHER, *Macrorhamphus griseus*.

On May 18, 1917, one was dropped from a large flock as it passed the tent and another was taken on May 30. In 1918, Young saw small bunches on May 22, 25 and 28, and Aug. 9. Of six adult spring specimens but one can be particularly referred by bill size to *M. g. griseus* and two to *M. g. scolopaceus*, the remainder falling into the overlapping measurements of the two forms as given by Howe, (*Auk*, 1901, pp. 157-162). In coloration the birds seem to agree most closely from descriptions with *scolopaceus* but without direct comparison with birds of eastern origin I would hardly like to make a definite determination; on geographical grounds they should be referred to *M. g. scolopaceus*.

58. *STILT SANDPIPER, *Micropalmus himantopus*.

In 1917, a flock of twelve were noted wading "knee deep" in the shallows of the Narrows on May

25, and on May 28 twenty-five more were observed in the same place. In 1918, Young observed eight on May 25 and 28. They returned again on Aug. 26, and from four to six were seen to the end of the month. The Wards regard them as common migrants.

59. *PECTORAL SANDPIPER, *Pisobia maculata*.

On May 25, 1917, a small flock of eleven waders that we took to be of this species were seen. On June 2 a single individual was taken. Young did not see the species in the spring of 1918, but on Aug. 24 ten birds appeared and he noted them almost daily, in numbers fluctuating between four and fifty, to the end of September. Only one of these, taken Aug. 27, is adult.

60. *WHITE-RUMPED SANDPIPER, *Pisobia fuscicollis*.

In 1917 a single individual was seen on May 29 in company with a flock of Least Sandpipers, but it was very common on June 2 with large mixed flocks of Least and Semipalmated Sandpipers and Plover. In 1918, Young observed them almost daily from May 22 to June 12, and a later group of four on June 20. On Aug. 7 ten returned and remained in approximately constant numbers until Sept. 12.

61. *BAIRD'S SANDPIPER, *Pisobia bairdi*.

Not recognized in 1917. Amongst the small waders collected by Young in 1918 are individuals taken on Aug. 8 and 9 from companies of White-rumped Sandpipers.

62. *LEAST SANDPIPER, *Pisobia minutilla*.

In 1917, very common until June 6, when it departed with the majority of the other waders. During the September visit, I saw a number of small sandpipers with Semipalmated Sandpipers and Plover that I took to be Least, though the presence of more important material near by prevented shooting them for absolute verification. In 1918, Young reports the first Least Sandpiper on May 16, becoming common on the 28th, and remaining so until June 12. Individuals were seen June 20 and July 27, but the species did not return until Aug. 22, remaining until Sept. 7.

63. *RED-BACKED SANDPIPER, *Pelidna alpina*.

Common in the spring of 1917. First noted on May 25. Most abundant on the 28th; they disappeared with most of the other migrant waders on June 5. In 1918, observed from May 22 to June 1 in limited numbers; not noted in the autumn of either years.

64. *SEMIPALMATED SANDPIPER, *Ercunetes pussillus*.

In 1917, we did not note this species definitely amongst the flocks of mixed small sandpipers until May 25 when they were selected from a bunch of

Least and collected. On June 2 the flocks were composed almost entirely of this species and three solitary individuals were seen after June 5. A few were seen and collected during the autumn visit Sept. 22. In 1918, Young reported them between May 19 and 29, and again in the autumn from Aug. 23 to Sept. 10.

65. *SANDERLING, *Calidris leucophaea*.

In 1917, common in the mixed flocks of small waders from May 28 to June 5 when most of the migrant shore birds left. In the fall several were seen on Sept. 24. In 1918, seen by Young from May 19 to June 12 and again from Aug. 8 to 31.

66. MARBLED GODWIT, *Limosa fedoa*.

Though the Wards recognize two Godwits occurring at Shoal Lake, we were unable to positively identify the Marbled, though several flocks observed the day of our arrival, in 1917, we tentatively ascribed to this species. The Wards do not know of either species breeding.

67. *HUDSONIAN GODWIT, *Limosa haemastica*.

One of the surprises of the 1917 trip was the re-discovery of this fast disappearing species. On May 18, Young took one male from a flock of five and the day after I saw a bird that I was satisfied was of the same species. In 1913, Young saw flocks of 12 and 15, on May 21 and 25, and a single bird on the 29th. On July 31, five more were noted passing over towards Lake Manitoba. Of the specimens taken, two females have considerably more white and grayish feather edgings below than the males and a third shows this sexual (?) character less distinctly. The Ward brothers say that the Hudsonian is the commoner of the two Godwits and that it is more easily approached and shot. The fact is they call this the "Foolish Godwit" and say it can be repeatedly approached after having been fired at. This is quite similar to an experience I had with a bird of the same species at Point Pelee, Ont., in 1915, when I stalked and secured a specimen after having once missed it. In seeking for a cause for the rapid decrease of the species this unwariness should be considered as a factor. It may be that similar habits will also explain the unexpected disappearance of other species. (See *antea*, Trumpeter Swan.)

68. *GREATER YELLOW-LEGS, *Totanus melanoleucus*.

But single birds identified May 27 and 30 in 1917. In 1918, Young found it present in small numbers in a ratio of about one to ten, as compared with the Lesser Yellow Legs, from April 24 to May 15, leaving about two weeks before the latter. In the autumn but casual singles were seen between Aug. 21 and Sept. 12. Said to have been the commoner of the two Yellow-legs when the lake

was high but now much less numerous and growing scarcer.

69. *LESSER YELLOW-LEGS, *Totanus flavipes*.

In 1917 common from the time of our arrival on May 17 to June 5 when most of the migrant waders left. One was taken Sept. 21 on the shore of a small pond some distance from the lake. In 1918, the species was common from April 25 to May 28, and abundant from May 5 to 15. In the autumn stray individuals appeared July 13 to 20, but the bulk did not arrive until Aug. 4, culminating in numbers on the 19th, and remaining until Sept. 7.

70. *SOLITARY SANDPIPER, *Hedronas solitarius*.

In 1917 but single specimens occasionally seen during our spring visit and one noted Sept. 17. In 1918 small numbers were seen regularly between May 8 and 27, and Aug. 5 and Sept. 18.

71. *WILLET, *Catoptrophorus semipalmatus*.

In 1917 one bird was observed from the train between Winnipeg and Erinview, but the species was not noted on the lake. In 1918, Young took single individuals, the only ones noted on the lake, on May 29 and Aug. 10. The spring adult of these two is so decidedly grayer than a Sapelos Island, Ga., bird and both agree so perfectly with comparable material from Saskatchewan and Alberta, that I have little hesitation in referring them both to the Western Willet, *C. s. inornatus*.

72. *UPLAND PLOVER, *Bartromia longicauda*.

Said by Seton to have been "somewhat common" in 1901, "but nearer Winnipeg, where the prairies were drier, it became more abundant". Evidently the drying of the prairie has allowed it to increase its range considerably for we found it a very common bird in 1917, and the Ward brothers say it is increasing. One could hardly go five minutes in any direction from camp without coming across one or more pairs, while its long-drawn whistle was one of the most characteristic and beautiful of the prairie sounds. On the ground the Upland Plover has a very un-wader-like appearance looking more like a long-legged grouse chick, but immediately it takes flight the long sweeping wing strokes proclaim its true relationship. It breeds commonly about the lake, but its eggs, surprisingly large for the size of the parent, are very difficult to find. The parents are very solicitous for the safety of their nests and show great ingenuity in diverting the attention of the intruder. It was not present on my return visit in September. In 1918 it put in an appearance on May 7 and remained common until the middle of August, the last one being seen on Aug. 28. Mr. Young informs me that he looked very carefully for juveniles through the summer but without success. Adults were in common evidence the entire season but even the mowing-machines of the hay-makers

failed to discover young or partially grown individuals. How so large and prominent a bird can be raised to maturity without observation is problematical.

73. *BUFF BREASTED SANDPIPER, *Tyngites subruficollis*.

Young met single individuals of this rare species on Aug. 9 and 31, collecting the latter one. The growing scarcity of this species is a matter of some anxiety to those who view with alarm the general decrease in our shore birds.

74. *SPOTTED SANDPIPER, *Actitis maculata*.

This unusually common species was unaccountably scarce on the lake shore in 1917 where conditions seemed ideal for it. We only saw occasional individuals and some days along the lake shore we would fail to see a single bird. In 1918 the species seemed slightly more numerous but still far from common and the greatest number noted any one day was 8 on Aug. 21. It was not noted in spring until May 18 and the last one was seen on Sept. 21.

75. LONG-BILLED CURLEW, *Numenius americanus*.

In 1917 we saw birds in the distance several times that we took to be Curlew. Young did not observe it in 1918. The Ward brothers know of but one species. I include them under this species hypothetically.

76. *BLACK-BELLIED PLOVER, *Squatarola squatarola*.

In 1917 seen from May 26 to June 1, and again on Sept. 22 and 24. Said to be more common in autumn than in spring and to stay very late. In 1918, Young noted small flocks numbering from 3 to 15 on May 22 to June 3. A single individual was seen on June 20. In the autumn similar numbers were seen from Aug. 8 to Sept. 23.

77. *GOLDEN PLOVER, *Charadrius dominicus*.

In 1917 one seen on May 22 and another on the 26th. In the autumn one specimen was taken on Sept. 22. In 1918, four and three were noted May 30 and June 4 and 6 and one on Aug. 21 and on Sept. 21.

78. *KILLDEER, *Aegialitis vocifera*.

Very common and breeding everywhere. One could hardly get out of hearing of its querulous complaining. In the autumn several were seen in 1917 and until Sept. 19, 1918.

79. *SEMIPALMATED PLOVER, *Aegialitis semipalmata*.

First seen in 1917 on May 19, common on the 28th; none observed after June 5. Present in 1918 from May 20 to June 12, and from Aug. 1 to 31, with a single straggler Sept. 14.

80. *PIPING PLOVER, *Aegialitis meloda*.

One or two pairs were usually to be seen on the flats near the Narrows, where they associated with

flocks of Semipalmated Plover and other small waders. Without doubt they breed though we discovered no nests. In 1918 the Piping Plover was present in small but constant numbers continuously from May 15 to Aug. 30, and a single individual noted on Sept. 7.

81. *TURNSTONE, *Arenaria interpres*.

Five seen in 1917, May 25 and 30, and six on June 3; none thereafter. In 1918, the species arrived in large numbers (500) May 28, gradually reducing to 2 on June 12. In the autumn a few individuals were noted on Aug. 7 to 27.

82. *RUFFED GROUSE, *Bonasa umbellus*.

A few Ruffed Grouse still hold out in some of the larger bluffs. Their far carrying drumming was often heard and three specimens taken in 1917. According to Ward brothers, they were once very numerous indeed, but are getting very scarce. They do not seem to have learned the wariness that our eastern birds find necessary to existence, and still allow themselves to be treed by the dogs or shot on the ground in truly primitive manner. This and the unusual number of Goshawks and Horned Owls that invaded the country in the winter of 1916-17 are probably the causes of the great decrease in numbers. Though the Gray Ruffed Grouse, *B. u. umbelloides*, that inhabits the prairies is not a very well marked or stable race these are quite typical of that form. 1918 did not show much improvement in the Ruffed Grouse situation and no increase was apparent. One specimen taken is slightly more red than those of previous years, but we obtained none of the large red phase that Seton mentions as occurring in Manitoba and of which the Wards seem cognizant.

83. PTARMIGAN, *Lagopus (lagopus?)*

The Ward brothers say that they know of five Ptarmigan being killed within a few miles of our camp—always in winter of course. If the Ptarmigan ever occur here they are in all probability Willow Ptarmigan, *L. lagopus*.

84. *PRAIRIE CHICKEN, *Tympanuchus americanus*.

The Ward brothers say that this species appeared commonly in the Shoal Lake country some 13 to 15 years ago, though Arnold records nests in 1894 at the south end of the lake and Seton saw one in 1901. They increased to great numbers, but the last few years have died out together with the other grouse both Sharp-tailed and Ruffed. Of this I have more to say under the following species. Throughout the Canadian west the name of this species has been given to the Sharp-tailed Grouse and wherever the term Prairie Chicken is popularly used it is that species that is meant. However, correctly speaking, this is the true Prairie Chicken and has a prior right to the name. Taking into consideration the con-

fusion that has arisen between these two species it might be advisable to apply "Prairie Chicken" to either species of Prairie Grouse indiscriminately and revive the equally satisfactory name Pinnated Grouse for this species. About Shoal Lake the true Prairie Chicken is called "Square-tail" or simply "Grouse". Unlike most of its family this species is partially migratory and most of them disappear from the northern sections of their habitat in winter. The Wards tell about a tame Prairie Chicken they had for several years that returned regularly each spring and was as much at home about the place as a dog or a cat and quite able to protect itself against these natural enemies. Once, during migration, it was noted in the outskirts of Winnipeg where its tameness attracted interested attention, and a newspaper paragraph, while its identity was substantiated by its lack of a toe.

We saw very few scattered individuals during the spring visit of 1917, though their dull booming while love-making could be heard at all hours of the day. This sound has a peculiar intensity and wonderful carrying power and is as easily heard a mile away as just across a field. The constant re-occurrence of this sound in our ears, therefore, was not an indication of large numbers of the species, but of the great extent of the country within auditory range. We probably heard the same individuals again and again. The birds were very wild indeed flushing at a great distance from the intruder and flying a mile or more before alighting. In the autumn I found them considerably more common probably owing to the successful raising of a few broods. Contrary to expectations, Young found the species even less common in 1918 than the previous year. Probably the fall shooting was more than their reduced numbers could stand. A close season of some years on this bird seems expedient to bring them back to their normal numbers.

85. *SHARP-TAILED GROUSE, *Pedioecetes phasianellus*.

This is the original prairie grouse of the Canadian plains. It has been gradually displaced in southern Manitoba by the true Prairie Chicken or Pinnated Grouse of further south. Though generally called "Prairie Chicken" it has no title to that name having a perfectly good and distinctive one of its own as above. About Shoal Lake, we found it even scarcer in 1917, than the real Prairie Chicken which seems now to be the most characteristic game bird of the locality. During the spring visit we saw but two birds and inquiry amongst the farmers elicited reports of but a few more individuals. In the autumn none were seen. In 1918, Young found it still scarcer than the previous year only noting it once at Shoal Lake on Sept. 21, though a flock of

20 were seen on Sept. 29 at Lake Francis at the south-east end of Lake Manitoba when it seems that the species enjoys better conditions. Though undoubtedly overshooting has had a powerful influence in the depletion of the grouse of the prairie provinces it was probably not the whole cause. Throughout the provinces of Manitoba, Alberta and British Columbia we heard practically the same report in 1917. A great abundance of grouse of all kinds followed by sudden disappearance. Coincident with this were unusual numbers of Goshawks and Horned Owls through the late fall and winter of 1916-17 and the failure of the rabbits of all kinds both locally and throughout the north. The connection between all this is obvious. The regularly re-occurring dying of the rabbits through the well known rabbit disease deprived the large raptorial birds of their usual food supply, and they were forced to come into more southern sections and turn their attention to the only food to be found there, the grouse, with the result that the latter were practically cleaned out. The story is remarkably consistent wherever we obtained first-hand evidence, and applied as well to the lonely reaches of the Red Deer river valley, the preserved areas of Dominion Parks, where shooters rarely or never penetrated, as to sections adjacent to dense settlement where the sportsmen would be a most important factor. When limited to animal or steam locomotion the radius of action of the shooter is comparatively small and in the vast extent of the western provinces there remain large expanses where the birds can live practically undisturbed. By use of the automobile, however, there is little chance of retaining sanctity for any purely natural reservation. However, it cannot be doubted that this particular and present low ebb in upland game life is due more to natural causes than to man. Caution must be used in advocating the destruction of large hawks for it is only a few winter species that can be unhesitatingly condemned. The summer hawks do little if any damage[†] and will be discussed under their proper headings.

86. *MOURNING DOVE, *Zenaidura macroura*.

Not uncommon, they were seen in small numbers on every visit and as late as Sept. 28, in 1918.

87. *MARSH HAWK, *Circus hudsonius*.

This is the commonest hawk of the locality and it was seldom that one or more were not in sight. They seemed to have well defined beats over which they worked regularly at stated times of the day. There were several nests in the vicinity of our camp, one of which was found, though later broken up by some animal of prey of considerable size, as there was evidence of a severe struggle about the nest. A

very pretty sight was witnessed several times. One hawk, usually the male, with a mouse or other prey in its talons approached the nesting marsh calling loudly. It was answered by its mate who rose from the nest and came to the call. They circled and manoeuvred a minute and then, as the female passed beneath her mate, he dropped what he held and she with a quick reach of her talon, caught it in the air and returned to the nest or an adjoining knoll to feed it to the young or to herself. Sometimes several attempts would be made by the two birds to get into the proper relative position, but the upper bird never dropped the prey until he was satisfied that conditions were favorable nor, when he did drop it, did we ever see his mate miss the catch. Marsh Hawks were still common when I returned in the autumn of 1917 and when Young left in early October, 1918.

88. *SHARP-SHINNED HAWK, *Accipiter velox*.

In 1917, one bird seen on May 25th and other individuals on various days during the September visit. In 1918, Young noted occasional individuals throughout the summer except from June 2, to Aug. 5.

89. GOSHAWK, *Astur atricapillus*.

Though no Goshawks were seen in 1917, Young noted two on Aug. 21, 1918. We received such detailed accounts of the number of "large gray hawks" that visited the country the winter of 1916-17 that there could be little doubt as to the identity. Without question these birds together with Horned and Snowy Owls, were the immediate cause of the scarcity of Prairie Chicken, and Sharp-tailed and Ruffed Grouse. This bird is a brush hunter and doubtless accounted for many Ruffed and Sharp-tailed Grouse in the poplar bluffs by day, while the Horned Owls took many by night that roosted in insufficient cover whilst the Snowy Owl that is largely a diurnal hunter scoured the more open places. The trio made a combination that is difficult for any grouse to escape. As mentioned before, doubtless these birds came from the north in such unusual numbers in search of food on the depletion of their usual rabbit supplies. To date, February, 1919, we have received no notification of another flight of these birds. On the contrary all reports point towards an increase of rabbits, and a decrease of destructive raptorial birds in the more settled communities, and we assume that it will be several years before the latter become a serious menace again.

90. *RED-TAILED HAWK, *Buteo borealis*.

Next to the Marsh Hawk this was the hawk most often seen. They were shy, though still not quite as wary as the individuals we are in the habit of meeting in the eastern provinces. They nest in some of

[†]See Hawks of the Canadian Prairie Provinces, by P. A. Taverner, Mus. Bull. No. 28, Geological Survey, Dept. of Mines, Ottawa, Aug., 1918.

the smallest trees, and those accustomed to finding Red-tail nests in the tops of the highest and most inaccessible trees, are surprised at the low elevations of many of their nests; we found them as low as twelve feet from the ground. A few birds seen were very dark or entirely black, though the six taken in 1917 were of ordinary light type and four of them indistinguishable from eastern birds; only two would have been identified as Western Red-tails, *B. b. calurus*, if their geographical origin were unknown. Probably some of the birds seen were Swainson's Hawk but except in most typical plumage I fail to see how these species can with certainty be separated in life. While it is evident that the Goshawk and the two large owls do serious damage to upland game, little objection can be made to these large summer Buteos. Through the spring and summer their main dependence is upon the Gophers and Ground Squirrels and the good they do in this direction can hardly be over-estimated. Though we were not in the Shoal Lake district during the summer we had special opportunities of studying the economic effect of these birds on the Red Deer River in Alberta a few weeks later, where the conditions as far as this aspect of the question is concerned are similar. We found them subsisting exclusively upon small destructive mammals. If it is true, as most excellent judges have stated and as was verified to us by several practical farmers, that a gopher will destroy a bushel of wheat in a season, with this grain worth two dollars a bushel, the hawk that takes a gopher a day for three months in the year is of real economic value to the community and should be rigidly protected. It is true that gophers hole up early in the autumn, after which the Red-tails and other Buteos may turn their attention to other food supplies, but only after several months of valuable service to man. These birds are peculiarly mammal-eaters and usually turn to mice rather than to birds. A few individuals occasionally, under certain conditions, develop a taste for poultry and game, but it is comparatively rare for they have not the speed and energy to hunt such game systematically as does the Goshawk or the rare large falcons. However, it would take a great number of chickens and game to counterbalance the good done by the destruction of noxious rodents, especially in the prairie provinces where these pests are a serious hindrance to agriculture. The farmer and other shooters usually plead their inability to separate one hawk from another as extenuation for killing all birds of prey. In truth, when the stake is so important, a modern agriculturist has as little excuse for not learning to discriminate between bird friend and foe, as he has for failing to learn the obnoxious weeds or insects and the methods for their control. Many, also, fail to judge the relative proportions of the

case; they are loud with indignation when a hawk takes a partially grown chick, but fail to enthuse when the same bird prevents the destruction of twenty bushels of grain. While an occasional Goshawk does or may remain in settled communities through the summer the majority of the large summer hawks are Buteos and harmless. They depart in the autumn while the objectional ones are mostly winter visitors. Should only winter hawks be killed or such others as are caught in the guilty act, but little mistake will be made.

91. *SWAINSON'S HAWK, *Buteo swainsoni*.

Though we failed to identify this species specifically in 1917, Young took a specimen on May 23, 1918. It is quite similar in color to the ordinary juvenile Red-tail, but more profusely and evenly spotted over with dark on all below except throat.

92. *BROAD-WINGED HAWK, *Buteo playpterus*.

Mr. E. Arnold tells me that he took a set of Broad-winged Hawk's eggs near Woodlands a few miles south of Shoal Lake, June 10 (1895). On May 5, 1918, Young reports flocks of 5 to 10, aggregating 50 or more, passing over every twenty minutes or so, all headed north. Single individuals were noted on the 8th and 22nd, and then no more were observed until Oct. 1 and 2, when three and two were seen.

93. *ROUGH-LEGGED HAWK, *Archibuteo sanctijohannis*.

Mr. Wm. Ward presented us with a specimen he killed on Oct. 2, 1917, which forms our only record for the locality. These large hawks, characterized by having the legs feathered to the base of the toes, are probably the least harmful and most beneficial to man of all the raptors.

94. BALD EAGLE, *Haliaeetus leucocephalus*.

The Ward brothers told us in 1917 that four years previously a juvenile was taken. They usually see from three to four eagles a year.

95. PEREGRINE FALCON, *Falco peregrinus*.

In 1918, Young reports the Duck Hawk *F. p. anatum*, several times in May and again on Aug. 2. The Ward brothers seem to know it and report it regular but not common. It is unlikely that it breeds in the locality.

96. PIGEON HAWK, *Falco columbarius*.

Young records the Pigeon Hawk as seen once in early July, several times in late August, and again in September and early October. No specimens were taken but, without doubt, the form is the typical race, *F. c. columbarius*.

97. *SPARROW HAWK, *Falco sparverius*.

Only occasionally seen in the spring of 1917 and not noted in the autumn, but in 1918 a few individuals noted constantly from arrival April 23 to departure the first of October.

98. OSPREY, *Pandion haliaetus*.

One flew directly over our camp on May 26, 1917. Noted in 1918 by Young, from May 5 to Aug. 6. Said by the Ward brothers to be rare.

99. LONG-EARED OWL, *Asio wilsonianus*.

In 1917 we received descriptions evidently referring to this species and were shown an old nest that seemed corroborative evidence. The supposition is confirmed by Mr. Job who reports finding four young of various sizes in an old crow's nest on opposite side of the lake June 28, 1912.

100. *SHORT-EARED OWL, *Asio flammeus*.

The commonest owl in 1917, seen nearly every evening, and often during the day, beating along the lake shore or over the old reed beds and marshes. In 1918, however, Young only noted single individuals three times during the entire season, April 30 to May 15, taking one on May 2.

101. *GREAT HORNED OWL, *Bubo virginianus*.

In 1917 occasional large owls were glimpsed or heard of during the spring visit and on Sept. 17th one was taken. It is referable to the Arctic

Horned Owl, *B. v. subarcticus*, but not absolutely typical and with slight tendencies towards the Western Horned Owl, *B. v. pallescens*. During the winter of 1916-17 a large flight of these birds, together with Goshawk and Snowy Owls, came from the north, obviously driven into new fields by the dearth of rabbits. Without doubt the Horned Owls had an appreciable influence in the destruction of upland game; though, as a night hunter, it was probably the least harmful of the trio. Young only noted one individual in 1918, on July 21; by its dates a probable breeder.

102. *SNOWY OWL, *Nyctea nyctea*.

From the accounts of the Ward brothers, it is evident that unusual numbers of this species accompanied the flight of Goshawks and Great Horned Owls in the winter of 1916-17. Being more of a diurnal and open country hunter than the Horned Owl probably this species was largely instrumental in the destruction of the grouse. In 1918, Young saw individuals from April 30 to May 15, taking one on May 2.

(To be continued)

THE ARCHAEOLOGICAL VALUE OF PREHISTORIC HUMAN BONES

BY HARLAN I. SMITH, MUSEUM OF THE GEOLOGICAL SURVEY,
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Why do we bring so many human bones into a museum? Why is one skeleton not enough? Such questions are always surprising for it would seem that anyone might think of many reasons why we should collect the bones and why one skeleton would be as unrepresentative as one man is unrepresentative of his race. If we were to describe a tall, bearded man and say that he is representative of the English, it would be untrue, for there are short Englishmen and there are beardless Englishmen. These features of Englishmen are only two of a great many that could be mentioned. Likewise it is necessary, if we are to know an ancient people, to have enough skeletons to enable us to obtain average measurements and a representative series for study of the type.

The age at which an individual died can be determined approximately from his bones. If we have enough skeletons, we can determine how many individuals died in infancy, how many as little children, how many in middle age, and how many lived to be very old. This information regarding a primitive or savage people would be interesting in comparison with the same facts regarding our own people. We are often told that Indians were very healthy and lived to an old age, but in archaeological explorations we find the bones of a great

many children and young people as well as those of old people, showing that many of the Indians died young.

Fairy tales about the bones of giants and dwarfs are common. One can hardly think of a place he has explored where he has not been told of the finding of the bones of a giant, yet giants are very rare and of all the hundreds of skeletons that I have dug up and of the thousands seen in museums, I have yet to find so large a specimen. In fact, the skeletons are no larger than those of the people with whom we daily mingle.

The bones of children, easily determined, are often mistaken, by those who know nothing of such subjects, for bones of dwarfs.

A human skull that would hold "at least a peck" figures frequently among stories told by people who have probably never dug up a single skeleton, but who tell of what they have seen someone else find. Where all these extraordinarily large skulls are now is a mystery, for certainly they are not to be seen in our excavations, or in museums. The same is true in regard to the story of the leg bone of a man, told at practically every place in North America where I have carried on explorations. One end of the bone was put on the ground and the other end came nearly to the waist; but such bones

THE BIRDS OF SHOAL LAKE, MANITOBA.

By P. A. TAVERNER.

(Continued from page 164 of THE OTTAWA NATURALIST, Vol. XXXII.)

103. *BLACK-BILLED CUCKOO, *Coccyzus erythrophthalmus*.
Job reports seeing this species on the western side of the lake on June 27 to 30, 1912. We saw none in 1917 though we heard rumors of cuckoos having nested in the vicinity. In 1918 the Black-bill appeared on June 14, after which Young noted a few birds almost daily to August 1.
104. BELTED KINGFISHER, *Ceryle alcyon*.
Strangely enough, on the borders of such a fine lake we saw no kingfishers in 1917, though Young reports one on May 2, 1918. The Ward brothers say that in previous years there were always a few about, and Seton reports a specimen taken by Miller Christy on May 15, 1887. The only explanation of their present absence seems to be the lack of fish caused by the extreme alkalinity of the lake at its present level.
105. *HAIRY WOODPECKER, *Dryobates villosus*.
Rather rare. Only two seen during the spring visit and one in September of 1917. Young noted the species, in 1918, in limited numbers, from June 3 to Sept. 26, taking juveniles but recently from nest, so it doubtless breeds in the vicinity. Five of our specimens are clearly referable to *D. v. leucomelas* though one, Sept. 22, 1917, falls slightly short of *leucomelas* measurements.
106. *DOWNY WOODPECKER, *Dryobates pubescens*.
Several seen during the spring of 1917, but none in the autumn. Observed by Young in 1918 in small numbers from May 3 to Sept. 12.
107. *YELLOW-BELLIED SAPSUCKER, *Sphyrapicus varius*.
Next to the Flicker the commonest woodpecker. Several nests were found and the species was still present during the fall visit in 1917 and to the end of September, 1918.
108. RED-HEADED WOODPECKER, *Malanectes erythrocephalus*.
Though we have no substantiating evidence, the Ward brothers declare that they have seen one or two individuals. There should be but little mistake with such a showy and strongly marked species.
109. *FLICKER, *Colaptes auratus*.
Very common and breeding. Still present in 1918 to date of leaving Oct. 2. Young says that through September they were very busy feeding on ant hills.
110. *NIGHTHAWK, *Chordeiles virginianus*.
Very common in 1917. First arrival May 18. One seen on Sept. 17, but none thereafter that year. The specimens taken seem to be *virginianus*. One is nearly light enough to be regarded as *hesperis* but as it can be matched by individuals from New Brunswick and central Ontario, I hesitate to so identify it.
111. *RUBY-THROATED HUMMINGBIRD, *Archilochus colubris*.
Quite common throughout the spring visit of 1918 and noted by Young occasionally in 1918 from June 1 to end of August.
112. *WHIP-POOR-WILL, *Antrostomus vociferans*.
Heard in 1917 nearly every night during the spring visit and once in the autumn, on Sept. 17. Young only observed it once on June 6 in 1918, but his difficulty in hearing would prevent his noting it very often.
113. *KINGBIRD, *Tyrannus tyrannus*.
First seen in 1918 on May 18; very common by the 29th. On Sept. 18 a flock of six were common in 1918 from May 17 to Sept. 10.
114. *PHOEBE, *Sayornis phoebe*.
One taken by Young, on Aug. 30, 1918, is our only record.
115. *CRESTED FLYCATCHER, *Myiarchus crinitus*.
In 1917 only one was seen, June 1. In 1918, Young noted it twice in early June, three times in July, and once in September. The Ward brothers say that in 1916 Frank McGiffon took a set of eggs locally.
115. OLIVE-SIDED FLYCATCHER, *Nuttallornis borealis*.
In 1917 one reported on June 5 and one taken on the 14th. In 1918 Young noted several on June 4 to 9, and again a single bird on Aug. 17.
117. *WOOD PEWEE, *Myiochanes virens*.
Our only record for this species consists of two specimens taken by Young on June 18 and July 2, 1918. The former is a female and had an egg ready to lay, thus verifying the species as a breeder in the locality.
118. *YELLOW-BELLIED FLYCATCHER, *Empidonax flaviventris*.
One taken on Maple Island above the Narrows on May 30, 1917. As sight records unsupported by the ear are unsatisfactory in regard to the smaller flycatchers, citing the specimens taken by Young in 1918 is probably the better way of reporting his experience. He took specimens of this species on June 4 and Aug. 15.

119. *TRAILL'S FLYCATCHER, *Empidonax trailli*.

First seen on May 9, becoming almost common by the 14th. In 1918 Young took one on June 8. All specimens are referable to the Alder Flycatcher, *E. t. alnorum*.

120. *LEAST FLYCATCHER, *Empidonax minimus*.

In 1917 first seen on May 23. By the 30th they were common in all the bluffs. Young's experience in 1918 seems about similar. He took specimens from May 30 to July 31.

121. *HORNED LARK, *Otocoris alpestris*.

In 1917 very common during the spring visit, but only a few present in the autumn. In 1918, Young found them consistently common throughout his stay from late April to early October. On April 24 he found a large flock (100) in company with Lapland Longspurs. He obtained one specimen from it, a well-marked *O. a. alpestris*. All other birds taken are *O. a. praticola*. It is worth while noting, as a caution against taking assumed breeding dates as evidence of nesting, that only six days after the taking of the above evident migrant *alpestris* nearly fully fledged young of *praticola* were collected. Thus local birds had young out of the nest before more northern nesters had left for their breeding grounds.

122. MAGPIE, *Pica pica*.

The Ward brothers say that the Magpie occasionally occurs about Shoal Lake. They recall one seen in July and two in June, 1904. May 21, 1918, William Ward reported seeing one near camp, and a few days later Frank Ward had exceptional opportunities of watching another at Gimli on the shores of Lake Winnipeg, some forty miles east of us.

123. BLUE JAY, *Cyanocitta cristata*.

In 1917 fairly common in spring but not noted during the autumn visit. In 1918 Young noted the species until Sept. 28.

124. CANADA JAY, *Perisoreus canadensis*.

Said by the Ward brothers to be a winter visitor, coming sometimes as early as September, but less numerous of late years.

125. RAVEN, *Corvus corax*.

Said by the Ward brothers to be fairly common during hard winters.

126. *AMERICAN CROW, *Corvus brachyrhynchos*.

Very abundant. Residents do not complain much of its destructiveness to crops but it is certainly a great nest robber and its effects upon the ducks must be marked and serious. Amongst Young's specimens are two that he concluded from their actions to be mated, but, while the male is large even for *C. b. brachyrhynchos*, the female falls well within the measurements for *C. b. hespris*. Considering other Canadian prairie specimens with these, I do

not consider the two races satisfactorily differentiated.

127. *BOBOLINK, *Dolichonyx oryzivorus*.

In 1917 a few were seen on wet meadows in the spring, none in the autumn. In 1918 Young noted them from June 8 to Aug. 22. The residents say that occasionally they do some damage to grain.

128. *COWBIRD, *Molothrus ater*.

Very abundant. Noted by Young in 1918 to Sept. 7.

129. *YELLOW-HEADED BLACKBIRD, *Xanthocephalus xanthocephalus*.

The least common of the resident blackbirds. Occasional small flocks were found foraging here and there on the uplands, cultivated fields and dry marshes. In 1918 still scarcer than during the preceding season. It seems that this bird requires more extensive marshes than the Red-wing. In 1917 we found resident colonies in a few places while the Red-wings occupied every reedy slough. Young reports no breeding birds in 1918. His latest record for the species is Aug. 26. The juveniles in first winter plumage are quite similar to the adults but the white primary coverts are reduced to traces and the crown and hind neck concolorous with the back. In one specimen, a stripped plumage, similar to that of the juvenile Red-wing is just disappearing on the breast where it is being replaced with yellow of rather a deeper orange than that of the adult.

130. *RED-WINGED BLACKBIRD, *Agelaius phoeniceus*.

Very abundant, breeding in every suitable locality.

The A. O. U. Check List recognizes the Red-winged Blackbird of central North America as the Thick-billed Red-wing, *A. p. fortis*. This race Mr. H. C. Oberholser (*Auk* XXIV, 1907, pp. 332-336) further divides into northern and southern forms, calling the Canadian race *A. p. arctolegus*, extending its range east to Isle Royal, Lake Superior, and restricting *fortis* to the United States, south from Nebraska. As the A. O. U. Committee has not as yet recognized *arctolegus*, from the standpoint of the Check List, it can be regarded as a synonym of *fortis*. The diagnosis for *fortis* calls for a larger bird than *phoeniceus*, the eastern race, with a comparatively shorter, thicker bill. *Arctolegus* is characterized by its describer as a large *phoeniceus* with slight color differences in the female.

To obtain easily compared factors of shape and size, I have divided the length of the bill by the depth for an index of shape and multiplied them together for an index of size. The former gives the length in units of depth, and the latter a product that whilst more or less arbitrary in itself, when derived from specimens of the same species, should be strictly comparable with each other and representative of relative size, irrespective of the disturbing element of shape.

Comparing Shoal Lake birds with other material, I have made use of the following adult male material: 9 from Mass., southern Ont. and southern Mich.; 7 from Shoal Lake and two from Douglas, Man.; and 7 from Sask., Alta., and Mack. The measurements of these birds together with those similarly derived from Mr. Oberholser's paper above cited, tabulate as follows:

	Index	Index	Wing	Wing
	Bill	Bill	Average	Min. & Max.
9. Eastern Canada	1.9	245.1	121.7	(116.9-128.0)
7. Manitoba	1.96	264.1	121.1	(120.5-128.0)
7. Sask. - Alta.				
Mack.	1.8	229.2	127.2	(111.5-132.5)
10. phoeniceus				
(H.C.O.)	1.8	269.2	118.8	(111.0-122.0)
12. fortis				
(H.C.O.)	1.88	304.8	125.1	(121.5-130.0)
11. fortis (H.C.O.)	1.88	271.01	129.7	(125.9-131.0)

In color, I find Shoal Lake females showing a slightly greater amount of white below, most distinctly on the throat and upper breast, but the distinction is too slight and inconsistent for certain or individual recognition.

It will be seen that the difference in shape of the bills of these various strains is very slight, and in no case marked enough to warrant the title "Thick-billed", in fact Oberholser's *arctolegus* and *fortis* have more slender bills than *phoeniceus*, and the Shoal Lake specimens considerably exceed all others in this direction having minimum and maximum indices of 1.72 and 2.22.

It is also evident that whilst there is a slight increase in size of both bill and wing of this species westward over the prairie provinces, the difference is not so marked in the new material as in Oberholser's measurements: also that individual variation is almost as great as the racial distinction and is one of averages, leaving the bulk of individual specimens subspecifically unrecognizable by character. Such distinctions do not in the view of the writer form criteria sufficient for systematic separation and nomenclature. Irrespective of such judgment on the races concerned it is evident that these Shoal Lake birds are just about intermediate between eastern and west plains birds though personally I do not care to separate them from *phoeniceus*.

131. *WESTERN MEADOW LARK, *Sturnella neglecta*.

Very common during all visits. The song of the Western Meadow Lark is justly noted. It is one of the most wonderful prairie sounds and its constant repetition and infinite variety is characteristic of the west. However, eastern ears may be pardoned for a little disappointment on first hearing it. If they expect to hear a glorified eastern Meadow Lark song they certainly will be disappointed. While it is a beautiful production it is not the song they have been accustomed to associate with the coming of spring. It has many charms of its own, but they are not familiar; in fact hardly a note suggests the

well remembered voice of the old eastern friend and until its source is traced, even an experienced ornithologist is apt to wonder as to the identity of the singer. It will, I think, take several seasons' experience with this species to build up a new set of associations and take it to the heart in place of the well beloved eastern harbinger of spring.

132. *BALTIMORE ORIOLE, *Icterus galbula*.

In 1917, arrived on May 23, common on June 2; not seen in the autumn. In 1918, arrived on May 16, the bulk disappeared on July 23, and the last one was seen on Aug. 6.

133. *RUSTY BLACKBIRD, *Euphagus carolinus*.

Not recognized in spring, but one was noted on Sept. 21, 1917; not recorded by Young in 1918.

134. *BREWER'S BLACKBIRD, *Euphagus cyanocephalus*.

Very abundant and nesting in nearly every open bluff. They follow the ploughman about his work gleaned from the newly turned furrow, and associate commonly with the sheep perching upon their backs and scrutinizing the fleece, probably for ticks. On Sept. 25, 1917, three were taken from stock. Of these one female, seemingly an adult by its completely granulated skull, had the iris reddish-brown just flecked with straw. All other specimens taken had the usual straw-colored iris.

135. *BRONZE GRACKLE, *Quiscalus quiscula*.

In 1917 there was a thriving colony of Bronzed Grackles nesting in the willows just behind the Ward house until persevering work with a shot gun removed them, after which many more attractive birds of less questionable character were able to appropriate the premises. The Wards accuse them of doing considerable damage by killing young chicks. While I cannot substantiate this charge I have little doubt as to its truth. None were seen in the autumn of 1917, but Young noted the species as late as Sept. 27, in 1918.

136. *EVENING GROSBEAK, *Hesperiphona vespertina*.

In 1917 we saw two to four individuals, May 20, 24 and 25, and secured several specimens. I noted that the bills of these were as green as those of summer birds from British Columbia and quite different from the yellow mandibles of eastern mid-winter specimens. The difference is probably seasonal rather than subspecific. Unfortunately these are amongst the birds that were lost. In 1918, Young noted three and two Sept. 25 and 30.

137. *PURPLE FINCH, *Carpodacus purpureus*.

None noted during either spring. Two or three were seen on several days in a small growth of hawthorn in September. In 1918, Young noted small numbers from July 11 to Aug. 26, and a single individual on Sept. 25.

138. *GOLDFINCH, *Astragalinus tristis*.

None seen in spring until May 27, 1917, after which they became common and were still numerous in September. Young noted them in 1917 from April 29 to his departure on Oct. 2.

139. *PINE SISKIN, *Spinus pinus*.

In 1918 Young noted 5 on June 5, 2 on the 21st, and one Sept. 24, taking specimens on the first two occasions.

140. *SNOW BUNTING, *Plectrophenax nivalis*.

In 1918, Young found large flocks on his arrival on April 24, and saw them almost daily until May 24. After this, 5 were noted on the 22nd and one on the 28th. Specimens taken on April 21 and May 2 are in high breeding plumage.

141. *LAPLAND LONGSPUR, *Calcarius lapponicus*.

A few seen between May 22 and 25. Very abundant in the autumn, occurring in large flocks in the long grass of the old marshes and on the lake shore. In 1918, Young found large flocks on April 24, but the bulk of the species left after the 30th. One straggler was taken on June 4. In the autumn the flocks of the previous year were absent and he noted but one individual on Sept. 23.

142. *CHESTNUT-COLLARED LONGSPUR, *Calcarius ornatus*.

A single bird secured on June 6, 1917, and a flock of seven noted on the 9th. It was not seen by Young in 1918. Seton has a specimen taken by Miller Christy in May, 1887, but the Ward brothers are not familiar with it, and it is doubtless rather rare in the locality or very local in distribution.

143. *VESPER SPARROW, *Pooecetes gramineus*.

Strangely absent both springs in the vicinity of the lake though from the train one was seen a few miles south of Erinview. In the autumn of both years they were seen about the Ward house in limited numbers between Aug. 23 and Sept. 28. These birds are rather large for the eastern race, and though in rather indeterminate juvenile plumage can probably be referred to the western race *P. g. confinis*.

144. *SAVANNA SPARROW, *Passerculus sandwichensis*.

Very common indeed during all visits. The local breeding birds show the bright yellow eye-brow common to the birds of the prairie provinces, and certainly do not agree with the described characters of *P. s. alaudinus* and at present seem without a name. The autumn birds are slightly darker than savanna and are both with and without the yellow loreal spot. I suspect that both a resident and a migrant form are represented, but I do not care to refer them to any sub-species generally accepted at present.

145. BAIRD'S SPARROW, *Ammodramus bairdii*.

Though reported by Chapman as very common at Shoal Lake and by Seton as common and breeding, the species was carefully searched for both seasons without success. Undoubtedly it has departed from the country with the lowering of the lake level and the disappearance of the broad marshes.

146. *LECONTE'S SPARROW, *Passerberbulus lecontei*.

Scattered individuals were met with both seasons in widely separated localities both in spring and in autumn.

147. *NELSON'S SPARROW, *Passerberbulus nelsoni*.

The western form, the Prairie Sharp-tailed Sparrow, *P. n. nelsoni* was met with in scattered individuals in various parts of the surrounding country as late as September 25. The juvenile plumage is quite different from that of the adult and might well be taken for a different species. All strong ocher, slightly paler below and only broken by restricted fuscous centres of secondaries and wing coverts which become fainter and almost concealed across the back, a double crown stripe and a faint bar back from the eye. The outer web of the first primary is edged with clear cream and the tail is ochraceous-fuscous with dark shaft. One specimen shows adult plumage appearing in the juvenile dress indicating that full plumage is assumed the first winter.

148. *HARRIS'S SPARROW, *Zonotrichia querula*.

Very common on our first arrival in 1917. Most of them left about May 28, though a couple of individuals remained to the end of our stay. Frank Ward reported seeing one carrying nesting material from his chip-yard towards the nearby bluff and suspected that they were nesting in the locality. The same authority tells us that some years ago he found a nest of this species on the ground in the shelter of an old log. On the return visit the same autumn they were common again in their old spring haunts and I was informed that individuals had been noted regularly through the summer. With this possibility of finding breeding birds, Young watched carefully for them during the summer of 1918, but between May 28 and Sept. 14 none were noted. They returned on Sept. 14 and were still present when he left on Oct. 2. The most peculiar thing about these autumn birds was the unusual abundance of adults in comparison to juveniles. Of perhaps fifty birds seen but three or four were juvenile either by plumage or cranial characters. This is unusual enough amongst autumn birds to justify special mention, as usually juveniles greatly outnumber adults.

149. *WHITE-CROWNED SPARROW, *Zonotrichia leucophrys*.

In 1917, single individuals seen on May 15 but

common throughout the autumn stay. In 1918, present in limited numbers from May 6 to May 23 and rather more numerous Sept. 17 to 30. Of those in adult plumage, two males (May 13, 1918 and Sept. 20, 1917) have the white loreal line continuous to hill and can therefore be ascribed to *Z. l. gambeli*. The other has it faintly interrupted across the lores and must therefore be regarded as intermediate between *Z. l. leucophrys* and *gambeli*.

150. WHITE-THROATED SPARROW, *Zonotrichia albicollis*.

Common both spring and autumn. In 1918, absent from May 27 to Sept. 8, except four individuals seen on July 24. Great numbers seen Sept. 19-27, but still present when Young departed on Oct. 2.

151. *TREE SPARROW, *Spizella monticola*.

Not noted in 1917. In 1918 observed from April 26 to May 4, and again on Oct. 1 and 2. One specimen, female, April 30, I refer to *S. m. monticola*.

152. *CHIPPING SPARROW, *Spizella passerina*.

Very common in the spring of 1917. To the end of May flocks of a hundred or more were met. In the autumn the species was not certainly identified though the first day of arrival I thought I recognized them amongst the hordes of clay-colored sparrows. In 1918, Young noted a few on May 4 and 8. From the 16th to 27th it was present in flocks of from 50 to 100. The species departed on June 8 and no more were seen except 3 on July 23.

153. *CLAY-COLORED SPARROW, *Spizella pallida*.

Very common in spring and autumn. In 1917, they seemed to leave on Sept. 21, but in 1918, Young noted them to the date of leaving on Oct. 2.

154. *SLATE-COLORED JUNCO, *Junco hyemalis*.

In 1917, but one specimen seen in the spring but fairly common in the autumn. In 1918, Young noted it from April 24 to May 15 and from Sept. 6 to Oct. 2.

155. *SONG SPARROW, *Melospiza melodia*.

Common in spring and autumn of both years. In 1918, present on arrival, April 24, and when leaving, Oct. 2. Specimens taken between May 13 and July 31, probably breeding birds are the slightly lighter form, with more distinct markings, than eastern *M. m. melodia* and I refer them to *M. m. juddi*.

156. *LINCOLN'S SPARROW, *Melospiza lincolni*.

In 1917, single individuals seen and taken on May 19 and June 1. In the autumn seen nearly daily in limited numbers. Noted in limited numbers by Young in 1918 from May 11 to 25 and more commonly from Aug 3 to Oct. 1.

157. *SWAMP SPARROW, *Melospiza georgiana*.

Seen in small numbers in the spring of 1917 and more commonly in the autumn. In 1918, Young noted it from May 4 to 30 and again Aug. 21 to Oct. 2. Strangely enough but one bird was seen in the summer, June 10, which seems to indicate that the species does not breed in the locality.

158. *FOX SPARROW, *Passerella iliaca*.

One specimen taken Sept. 22 is all that was seen in 1917. In 1918, Young noted single individuals on Sept. 16, 24 and 30, and a flock of 30 on the 25th.

159. *TOWHEE, *Pipilo erythrophthalmus*.

In 1917, fairly common in the spring and still present Sept. 19 and 21. In 1918, Young saw a few individuals with general regularity from May 24 to July 29. A single bird, Aug. 13, and another Sept. 19.

160. *ROSE-BREASTED GROSBEAK, *Zamelodia ludoviciana*.

Fairly common during the spring visit in 1917. In 1918 observed irregularly from May 16 to Aug. 5.

161. *PURPLE MARTIN, *Progne subis*.

A few seen daily in 1917, probably the same ones. A few occupied a box near an adjoining summer cottage and another colony was found nesting according to aboriginal habit in a hollow tree a few miles from camp. In 1918, noted by Young from May 17 to Sept. 20.

162. *CLIFF SWALLOW, *Petrochelidon lunifrons*.

In 1917 a few seen daily with the flocks of Barn Swallows about camp and occasional birds elsewhere. Seton noted twenty-five nests on a barn in 1891. In 1918, noted from May 24 to Sept. 17.

163. *BARN SWALLOW, *Hirundo erythrogaster*.

Small colonies occupy most of the farm building groups in the neighborhood. In the autumn of 1917 this was the only swallow seen. In the chilly mornings a small flock of them would be found warming themselves on the sunny roof of the house where the frost was melting. As soon as the day warmed they disappeared over the meadows and rarely returned until the next morning. The last seen were on Sept. 21. In 1918, they remained common until Sept. 20.

164. *TREE SWALLOW, *Iridoprocne bicolor*.

In 1917, only a few seen each day in spring and none in the autumn. In 1918, they remained common until Aug. 21, but a few were seen thereafter until Sept. 17.

165. *BANK SWALLOW, *Riparia riparia*.

A few observed daily in the spring of 1917. The Ward brothers say that one stage of the lake left numerous steep banks five to six feet high and that swallows nested in these in great numbers. Now

these banks are far removed from the water, cut down by cattle and sheep, and are deserted by the birds. We saw no nesting places in the vicinity. Young noted it in 1918 only in autumn, arriving on Aug. 17, and seen in small numbers irregularly until Sept. 12.

166. *CLDAR WAXWING, *Bombycilla cedrorum*.

In 1917, a flock of a hundred or so seen on May 11 and smaller lots daily thereafter through the spring visit but not noted in the autumn. In 1918, the species was first seen on June 4th and irregularly observed until Sept. 26.

167. *LOGGERHEAD SHRIKE, *Lanius ludovicianus*.

In the spring of 1917 we found two breeding pairs and a single individual. I can find little foundation for Ridge way's color distinction, "decidedly paler" of the White-rumped Shrike, *L. l. exubitorides*. Prairie birds are very slightly paler than *L. m. migrans* from eastern Ontario. The difference can only be observed by the closest comparison. In the four specimens taken at Shoal Lake the rumps are intermediate between that of eastern birds and *exubitorides* from Alberta. I, therefore, regard them as intermediates between these rather poorly defined races.

168. *RED-EYED VIREO, *Vireosylva olivacea*.

In 1917, not seen until May 30 after which occasional birds were noted. Not seen that autumn. In 1918, Young noted the species continuously, in fair numbers from May 17 to Sept. 16.

169. *PHILADELPHIA VIREO, *Vireosylva philadelphia*.

Not noted by us in 1917, but Seton has a specimen in his collection taken at Shoal Lake by Miller Christy on May 20, 1887; Young collected specimens on the following dates in 1918, May 21 and 24, June 1 and Sept. 24.

170. *WARBLING VIREO, *Vireosylva gilva*.

In 1917, quite common after May 28. In 1918, Young found it constantly present in fair numbers from May 20 to Sept. 26. All specimens are *V. g. gilva*.

171. *SOLITARY VIREO, *Lanius solitarius*.

Not noted by us in 1917, but seen by Young in 1918 from May 10 to 20 and Sept. 2 to 16.

172. *BLACK AND WHITE WARBLER, *Minotilta varia*.

In 1917, occasional individuals seen after May 30 in spring and one on Sept. 19. In 1918, Young noted it with fair regularity, but scarcer in July, from May 8 to Sept. 26. It probably breeds.

173. *NASHVILLE WARBLER, *Vermivora rubricapilla*.

Not noted in 1917 but reported by Young in 1918 to be very common in May and September. Noted May 18 to June 20 and Sept. 2 to 26 with occasional individuals through July.

174. *ORANGE-CROWNED WARBLER, *Vermivora celata*.

In 1917, seen the first two days of our spring visit and on Sept. 19. In 1918, Young noted it only from May 17 to 24. In specimens obtained the yellow is slightly lighter than in comparable eastern species, but as this is probably due to the cleaner and better condition and make up of the skins, I regard them as *V. c. celata*, the geographical probability.

175. *TENNESSEE WARBLER, *Vermivora peregrina*.

Not noted in 1917, but reported by Young in 1918 to be very common in May and September. Noted May 18 to June 24 and Sept. 2 to 26 with occasional individuals through July.

176. *CAPE MAY WARBLER, *Dendroica tigrina*.

Two taken at Maple Island on May 30, 1917, and noted by Young on May 21 to 24, 1918.

177. *YELLOW WARBLER, *Dendroica aestiva*.

In 1917, a few present on our arrival on May 17 but common after June 1. In 1918, common from May 8 to Sept. 16. Compared with the writer's experience with this species in southern Ontario this is a very late stay for the species as in the Lake Erie neighborhood Yellow Warblers are rarely seen after Sept. 1.

178. *MYRTLE WARBLER, *Dendroica coronata*.

In 1917, the commonest Warbler on both visits. In spring it disappeared about June 1, after which but occasional individuals were seen.

179. *MAGNOLIA WARBLER, *Dendroica magnolia*.

In 1917, rather scarce in spring. In 1918, on the contrary, Young found it quite common from May 16 to the 27th and in the late autumn from Sept. 2 to 28.

180. *CHESTNUT-SIDED WARBLER, *Dendroica pensylvanica*.

Individuals seen June 4 and 5 and on Sept. 17. Not seen by Young in 1918.

181. *BAY-BREASTED WARBLER, *Dendroica castanea*.

In 1917, only seen on June 2 and 6. In 1918, only noted on Sept. 6 to 12.

182. *BLACK-POLLED WARBLER, *Dendroica striata*.

In 1917, first seen on May 30. Quite common on June 2, and but occasional individuals thereafter. One seen on Sept. 17.

183. *BLACKBURNIAN WARBLER, *Dendroica fusca*.

One taken by Young on May 16, 1918 is our only record.

184. *BLACK-THROATED GREEN WARBLER, *Dendroica virens*.

Individuals seen by Young on May 24 and Sept. 4, a specimen being taken on the latter date. He also reports the remains of another impaled by shrikes without giving date.

185. *PALM WARBLER, *Dendroica palmarum*.

In 1917, present in limited numbers on our arrival but none seen after May 25. Several seen between Sept. 19 and 22. In 1918, noted by Young from May 8 to 30 and Sept. 6 to Oct. 2, the date of departure.

186. *OVENBIRD, *Sciurus aurocapillus*.

In 1917, a few single individuals were heard and seen in the deeper woods from May 29 on. Before leaving they become slightly more common. In 1918, noted by Young from May 21 to June 3, one individual in July, and then again from Sept. 2 to 14. This is a retiring species and oftener recognized by ear than sight. Its absence through June, July and August is probably more apparent than real.

187. *NORTHERN WATER THRUSH, *Sciurus noveboracensis*.

In 1917, two water thrushes were seen, perhaps an original pair, May 1 and June 2, in the dry willow grown creek bed by the Ward house. On Sept. 19 another was noted in the same locality. In 1918, the species was noted with daily regularity from May 10 to 25 and Sept. 4 to 26, with a single individual on Aug. 22. The specimens are in a very mixed lot of plumages, and one a male, Sept. 12, is nearly as white below as a Louisiana Water Thrush, *S. motacilla*; two other specimens are nearer the eastern one *S. n. noveboracensis* than *S. n. notabilis*. Three others while yellower below and blacker above and characteristic *notabilis* are quite comparable with some New Brunswick birds. I find that Grinnell's Water Thrush rests upon very inconstant characters.

188. *CONNECTICUT WARBLER, *Oporornis agilis*.

On June 4, 1917, one bird was seen under excellent conditions for determination, when shot it fell far away in heavy brush and could not be found. One juvenile was taken by Young on Sept. 16.

189. *MOURNING WARBLER, *Oporornis philadelphia*.

Several times in the spring of 1917 I thought I heard this bird in a slashing in the oak patch in the big bluff behind the camp. It kept so close to a limited locality that I have no doubt that it was nesting nearby. It was absolutely identified June 14 when secured. In 1918, the species was noted by Young from May 30 to June 8 and one was taken Sept. 7. Specimens of this species in fall plumage are rather scarce in collections as it usually drifts through very inconspicuously early in the autumn.

190. *MARYLAND YELLOWTHROAT, *Geothlypis trichas*.

Quite common after June 2. In the autumn individuals were seen Sept. 21 and 22. The species obtained are referable to *G. t. occidentalis*, the

Western Yellow Throat. The backs are faintly lighter than eastern and intermediate between them and individuals from Indian Head and Edmonton, but the white foreheads are decidedly more extensive than in eastern species.

191. *WILSON'S WARBLER, *Wilsonia pusilla*.

Only seen in 1918 on May 18. In 1918, Young observed the species on May 16, 18 and 24.

192. *CANADIAN WARBLER, *Wilsonia canadensis*.

One taken on June 6, 1917, and noted by Young on May 24 and June 4.

193. *REDSTART, *Setophaga ruticilla*.

Not seen in 1917 until May 29, but common thereafter. In 1918, Young observed it from May 18 to June 8 and from Aug. 26 to Sept. 27. He did not note it through the summer.

194. *AMERICAN PIPIT, *Anthus rubescens*.

In 1918 fairly common during the early days of our spring visit along the lake shore, but none seen after May 30. Abundant in the fall occurring in large flocks, scattered bunches and individuals on all bare ground. In 1918, noted by Young on May 13 and 27 and Sept. 14 to date of departure Oct. 2.

195. *SPRAGUE'S PIPIT, *Anthus spraguci*.

Between June 5 and 9, 1917, I was much puzzled by an oft repeated and haunting bird song that could be barely heard and which I was unable to locate or recognize. It was a fine silvery gradually descending Ree-ree-ree-a-ree-a-ree-a-ree-ree of about eight notes, and an octave in range. It had a peculiar ringing jingle like the Veery but more sustained and regular. After innumerable futile attempts at discovering the singer at last I found it high over head flying about in circles for minutes at a time. It beat its wings vigorously against the slight breeze, making altitude rather than headway, and then the song came down. After the first two or three syllables reached the ground the wings fixed and the bird would sail in a downward spiral through the remainder of the song. This was repeated time and time again. It took considerable patience to watch the little vocalist until it came down to earth by an almost straight dive. Though nearly out of sight in the air the speed with which it dropped and the distance away at which it alighted indicated that it was originally up no more than a hundred yards or so while singing. Thereafter we could hear this song nearly the whole of every fine day, but this was the only bird of the species that we met. In 1918, Young reports the species occasionally throughout the summer from June 21 to Sept. 7.

196. *CATBIRD, *Dumetella carolinensis*.

Common, found in nearly every bluff. In 1918, Young noted it almost daily from May 20 to Sept. 11.

197. *BROWN THRASHER, *Toxostoma rufum*.

Fairly common. At least two pairs lived within hearing of our camp in 1917 and we met with half a dozen more on our spring rambles. In 1918, Young noted it constantly from May 16 to Aug. 24 with a couple of late individuals on Sept. 12 and 17.

198. *HOUSE WREN, *Troglodytes aedon*.

Very abundant and heard singing everywhere. They do not seem as inclined to build about the farm buildings as the species does in the east. There were innumerable possible nesting places about the farmstead that few eastern wrens could resist yet none of them were occupied. A few individuals were still present during the autumn visit. In 1918, Young noted it continuously and regularly from May 10 to Sept. 30. Specimens are distinctly *T. a. parkmani*.

199. *WINTER WREN, *Nannus hiemalis hiemalis*.

Not seen in 1917, but in 1918 Young observed single individuals from May 20 to 23, and on Sept. 16.

200. *SHORT-BILLED MARSH WREN, *Cistothorus stellaris*.

Not uncommon in certain localities. While usually inhabiting damp marshes some were found in dry grass or even in brushy edges in typical House Wren ground. None were certainly recognized in the fall of 1917 though Young lists it occasionally from June 1 to Sept. 25.

201. *LONG-BILLED MARSH WREN, *Telnatodytes palustris*.

Hardly commoner than the Short-bill and not so widely distributed. This species requires wetter and more extensive swamps than that species and the drying up of the marshes would more severely limit its habitat. A Marsh Wren glimpsed on the shore of a small pond on Sept. 19, 1917, was supposed to be of this species. Owing to their more restricted habitat the Long-billed Marsh Wren was, in 1918, even scarcer than the previous year. Young only records occasional individuals May 7 and June 10. Specimens show the light back, and brown rather than black head of *T. p. iliacus*.

202. *BROWN CREEPER, *Certhia familiaris*.

Young took two specimens of the Brown Creeper on Sept. 23 and 26, 1918.

203. *RED-BREASTED NUTHATCH, *Sitta canadensis*.

One individual seen by Young on Sept. 24, 1918.

204. *BLACK-CAPPED CHICKADEE, *Penthestes atricapillus*.

Only seen in 1917 on May 20 and Sept. 26. Of the former one female was taken with an egg in oviduct ready for deposition. Scattered individuals noted by Young throughout the summer of 1918. Specimens taken have constantly longer tails than

any but extreme eastern specimens and hence are referred to *P. a. septentrionalis*.

205. *RUBY-CROWNED KINGLET, *Regulus calendula*.

In 1917, single individuals seen May 20 and June 1. In September a few were seen nearly every day. In 1918, noted by Young daily from May 7 to 24 and Sept. 9 to 30.

206. *WILSON'S THRUSH, *Hylocichla fuscescens*.

Common. Its golden chain song could be heard every evening from our camp. In 1918, Young recorded it nearly every day from May 9 to Sept. 28. All specimens show the slightly olive back of the Willow Thrush, *H. f. salicicola*.

207. *ALICE'S THRUSH, *Hylocichla aliciae*.

Thrushes of this genus were fairly common during migrations, but the bush was generally so dense and the birds so shy that collection gave the only certain separation between Alice's and Olive-backed Thrushes. I was fairly certain that we had specimens of both in the spring collection of 1917, but they all were lost in transit. One specimen taken by Young on Sept. 19 belongs to this species.

208. *OLIVE-BACKED THRUSH, *Hylocichla ustulata*.

In 1918, Young noted thrushes under this heading from May 15 to June 1 and Sept. 6 to 20. All his specimens except one mentioned under previous heading are of this species which is probably the more common. We have specimens of the following dates: juvenile and adult males Sept. 18, 1917, Sept. 6 and 9, 1918; and juvenile females Sept. 9, 1918. These four are slightly but consistently more olivaceous (or grayer) above and rather more heavily spotted on breast than comparable eastern *H. u. swainsoni* differing from them almost as much as the Willow Thrush, *H. f. salicicola* differs from the Veery, *H. f. fuscescens*. I find these same distinctive characters in an autumn specimen from as far west as Jasper Park but not in spring and summer birds from intermediate points. These specimens agree closely with the description and range of *H. u. almae* Oberholser, and if every perceptible difference is regarded worthy of a separate name this form probably has claim to reinstatement in the Check List.

209. *HERMIT THRUSH, *Hylocichla guttata*.

Quite common during the spring of 1917. The last specifically recognized was on June 2. In the autumn one was taken on Sept. 19. In 1918, Young noted the Hermit Thrush from May 13 to 24 and Sept. 3 to 30. These are of course eastern Hermit Thrush, *H. g. pallasi*.

210. *AMERICAN ROBIN, *Planesticus migratorius*.

Common on all visits, in 1918, at date of departure, Oct. 2.

211. *BLUEBIRD, *Siala sialis*.

Though not known by the Ward brothers as a

bird of the locality, we took a pair in 1917 on May 28, and later some six individuals were seen at various times in the neighborhood. In 1918, Young saw 2 and 7 birds on June 24 and 25. On Oct. 2 as he was leaving there was a migrational wave of the species and he lists 50 for that day. This suggests that far from Shoal Lake being the most northern extremity of the species range here there is a habitat beyond that is occupied by them in considerable numbers. The species is apparently spreading into this country.

ADDENDA.

Since the publication of the earlier parts of this paper the following published data on the birds of the locality have been called to my attention in

Recent Bird Records for Manitoba by E. T. Seton, *Auk*, XXV, 1908, pp. 450-454.

20. (*antea*) BLACK DUCK, *Anas rubripes*.

Mr. Seton here reports another Shoal Lake specimen of this species in his collection taken by Geo. H. Meacham in 1901 who reports "two or more were shot at Shoal Lake in 1899".

28. (*antea*) WOOD DUCK, *Aix sponsa*.

Seton says: "G. H. Meacham reports it rare at Shoal Lake, but one or two are seen there each year".

212 LEAST BITTERN, *Ixobrychus exilis*.

Seton says: "Frank M. Chapman saw one at Shoal Lake, June, 1901".

BRIEF REPORT OF THE OTTAWA FIELD-NATURALISTS' CLUB FOR THE YEAR ENDING MARCH 18, 1919.

The fortieth year of the existence of The Ottawa Field Naturalists' Club has been the most successful in the recent history of the society. The club activities are directed toward popularizing and diffusing knowledge of the natural sciences, and have been carried on in three chief ways: a course of lectures, two series of field excursions, and the publication of THE OTTAWA NATURALIST.

The club membership now numbers 540. Twenty-one members serving overseas have been carried gratis.

The lecture programme consisted of seven scheduled lectures and a special lecture on wild geese by Mr. "Jack" Miner, of Kingsville, Ontario. The lectures are planned to create a more intelligent interest in Canadian natural history, and to give a better understanding of the value of scientific work.

The field excursions were well patronized, especially the spring series at which the attendance averaged 38. Weather conditions reduced the attendance at the fall series. The spring series consisted of five outings and the autumn series of three outings. Scientific men attended the excursions to direct interest and answer questions.

THE OTTAWA NATURALIST, the official organ of the Club has been enlarged in dimensions and improved in material qualities and by the introduction of a cover design, more illustrations and more articles of Dominion-wide interest.

At the request of several natural history societies of the Dominion, a plan of affiliation has been arranged, the magazine of The Ottawa Field-Naturalists' Club to be the medium of publication.

The officers and committees for the year 1919 are as follows:

President, M. Y. Williams; Vice-Presidents, L. D. Burling, P. A. Taverner; Secretary, Clyde L. Patch; Treasurer, F. W. Waugh; Editor, Arthur Gibson.

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