to fix the position as nearly as may be, it should be noted that the slope of the field becomes a little steeper just here and forms a slight shoulder, and the stream begins a small deviation towards the south. The stream is not nearly large enough to navigate a canoe, and there is nothing to show that it was ever any larger. But its valley leads in an approximately direct line to Muskrat lake, and there is no doubt that Champlain and his party portaged

along it both for the guidance of the flowing water and because it was their shortest road.

In the preparation of this article I have to thank Mr. A. F. Hunter, secretary of the Ontario Historical Society, for bibliographical references and other assistance; and I am also under obligation to Mr. L. P. Sylvain, of the Library of Parliament, Ottawa, for ready permission to consult the Government's rare Canadiana.

BIRDS OF NORTHERN SASKATCHEWAN AND NORTHERN MANITOBA COLLECTED IN 1914 BY CAPT. ANGUS BUCHANAN.

By J. H. FLEMING.

Almost the first knowledge we have of the ornithology of the Saskatchewan region is contained in a series of papers published in the Ibis of 1861-62-63, by Capt. Blaikston, who spent the winter of 1857-58 at Fort Carlton, on the Saskatchewan river, and in 1858 collected at various points in what is now the Province of Saskatchewan. In these papers Capt. Blakiston incorporated much information from Vol. II of the Fauna Boreali-Americana of Richardson and Swainson, and other published sources. Since then our knowledge of the birds of southern Saskatchewan has been constantly enlarged, but strangely enough the ornithology of the great region drained by the Churchill river and lying to the north of what was till 1912 the northern boundary of the province, has had little or no attention paid to it. Notes on its birds were made by James M. Macoun, who in 1888 travelled from Lesser Slave lake east by way of the Athabasca and Churchill rivers to Lake Winnipeg; these notes were eventually published by John Macoun in his "Catalogue of Canadian Birds." Less than a dozen birds are in the U.S. National Museum collected at Du Brochet lake in 1890, and Pelican Narrows in the Churchill river in 1891; probably collected by Henry MacKay, and Joseph Hourston for Roderick MacFarlane; these are the only skins I have seen from this region taken before 1914. During the years 1892-93-94, J. Burr Tyrrell in the course of his explorations of the Barren Grounds more than once traversed the Churchill river, and his official reports1 contain the best description we have of this region; in these reports there are short references to birds. When Edward A. Preble wrote his great report on the Natural History of the Athabasca-Mackenzie region2 he included all that

was known of the birds of the Churchill river up

When the boundaries of Saskatchewan were, in 1912, extended north to include a part of the old Northwest Territory, so little was known by the Provincial Government of the natural history of the northern part of the country that Angus Buchanan determined to investigate the country lying between the Saskatchewan river and the Barren Grounds. He left Prince Albert on May 6, 1914, and descended the Beaver river to Lake Ile-à-la-Crosse, and the Churchill river, thence continuing upstream on Reindeer river, and Reindeer lake, entering the Cochrane river on July 18, and Lake Du Brochet on August 1. His base camp was made north of this lake, and here he proposed to winter, but hearing of the outbreak of the war in late October, he dedecided to return, reaching Regina on January 15, 1915, after an absence of eight and a half months, during which he travelled nearly two thousand miles by canoe and dog-sleigh. The birds collected during this expedition were divided, part were deposited in the Provincial Museum at Regina, and the rest handed over to me; they form a very important addition to our knowledge of the birds of the region drained by the Churchill river, and are in fact the first collection made in northern Saskatchewan.

After making a short report³ of his trip, to the Provincial Museum at Regina, Mr. Buchanan returned to his home in Scotland, enlisted in the Legion of Frontiersmen (25th Royal Fusiliers) as a private, was sent to East Africa, and served throughout that campaign, rising to the rank of captain, and received the Military Cross, and on being invalided home requested me to prepare a list of the birds collected in 1914. I had already examined the birds in the Museum at Regina in 1915

¹Annual Report, Geological Survey of Canada VIII (new series) Part D, pp. 5D to 120D, Ottawa, 1896. Ibid., IX, 1896, Part F (1897).

²A Biological Investigation of the Athabasca-Mackenzie Region. North American Fauna No. 27. Bureau of Biological Survey, Washington, 1908.

³Report of the Chief Game Guardian, 1914, pp. 33-34, 37-39, Regina, 1915

and I am indebted to Mr. H. H. Mitchell, of the Provincial Museum, Regina, for the loan of any that were needed for comparison. The data on the birds themselves is exceedingly full, and Capt. Buchanan has furnished me with a list of the specimens together with notes on the colors of the soft parts, food, etc., from this I have quoted when necessary, but except in three instances have not used the sight records, which will be given fully in a forthcoming book by Capt. Buchanan. Colymbus holboelli, Holboell's Grebe.

Set of five eggs taken on Churchill river, June 6; bird seen at close range.

Gavia immer, Loon, Great Northern Diver.

An adult taken on Reindeer lake, July 8. Larus brachyrhynchus, Short-billed Gull.

An adult female taken on Reindeer lake, July 9; one more seen on same date; this is very far east for this gull. "Iris, clear blackish-grey; edge of eyelid surrounding eye, deep orange chrome; corners of mouth, pure orange chrome; feet, pale whitish-yellow." Dr. Oberholser regards this gull as a subspecies of Larus canus.4

Larus delawarensis, Ring-billed Gull.

A male taken on Ile-à-la-Crosse lake, May 23; adult except for the black primaries and terminal black band of the tail, probably a non-breeding bird. "Bill, medium dark greenish-yellow, with strong black ring around bill a short distance from tip; eyelids, and corners of mouth, deep orangechrome; feet, pale greenish-yellow." Seventeen others seen with this bird.

Larus philadelphia, Bonaparte's Gull.

Four specimens, one adult male (thought by the collector to be a non-breeding bird), taken on the Cochrane river, July 20. "Iris dark; bill black; legs and feet, orange-chrome." One adult female, taken on Cochrane river, July 25, "Iris dark; eyering, dark crimson; bill, black; corners of mouth, reddish-flesh color; legs whitish orange-chrome; feet, more rich chrome." Two juvenile birds taken on Lake Du Brochet, Cochrane river, August 1, one of these, a female, is marked "Iris, dark; bill, medium dull blackish-grey; both mandibles dark from nostril out; legs, feet, and webs, whitish skin color with pale brown joints." This species is believed to breed in trees, and it is unfortunate in view of the young birds taken, that the nesting site was not found.

Xema sabini, Sabine's Gull.

Three seen and a pair of adults taken on Sandy lake, Churchill river, June 9; the female is marked "Iris, black; pure red eye-ring; bill, black to oneeighth beyond nostril, remainder of tip medium dull lemon yellow; feet, black."

Sterna hirundo, Common Tern.

A juvenile female with primaries not fully grown, taken on Cochrane river, August 14. Seen in company with parents and another young bird.

Mergus americanus, Merganser.

A male in very worn immature plumage, taken on the Churchill river, June 1. "Iris, dark; bill, medium deep crimson, crown of upper mandible, black; feet, bright orange-chrome."

Mergus serrator, Red-breasted Merganser.

An adult female taken on Lake Ile-à-la-Crosse, May 23. "Iris, clear deep umber brown; bill, all red except along crown of upper mandible which is dark horn-brown; legs and feet, rich reddish orange-chrome."

A downy young female, length 14.75 in., taken on the Cochrane river, August 15. "Iris, pale clear brownish sage-green; bill, blackish-brown over crown of upper mandible for entire length, except tip, sides of upper mandible and entire lower mandible pale dull buffish yellow; legs and feet, dull brownish-grey; webs, dull umber-brown. Bird in company with mother and about a dozen young."

Set of twelve eggs taken on rocky island in Reindeer lake, July 12. "Nest, found on ground concealed beneath ledge of rock; eggs almost hard on rock and rim of nest composed of small leaves and twigs profusely mixed with blackish-grey down." Nettion carolinense, Green-winged Teal.

A pair taken on the Beaver river, May 18.

Oidemia perspicillata, Surf Scoter.

Three specimens, one adult male, taken at Lake Ile-à-la-Crosse, May 31; two adult females taken on the Reindeer river, June 30. "Flock of about twelve scoters together, all in pairs."

Phalaropus fulicarius, Red Phalarope.

A male taken on Sandy Fly lake, Churchill river, June 11.

Steganopus tricolor, Wilson's Phalarope.

Two specimens, an adult female taken on Crooked lake, May 13. "Bird alone, resting as if tired out, perhaps migrating." The other an adult male taken on the Beaver river, May 19. "Male and female together on floating weeds, on edge of small lake off Beaver river; birds in company with pair of Dowitchers and Lesser Yellow-legs." Gallinago delicata, Wilson's Snipe.

Nest taken near Lake Ile-à-la-Crosse, May 31. "Four eggs, slightly incubated, nest of damp grasses on ground among low snow-berry bushes. Flushed bird off nest three or four times to-day and yesterday."

Macrorhamphus griseus griseus, Dowitcher.

Five specimens, a pair taken on Crooked lake, May 13, have been compared with a series of this form and of M. g. scalopaceus. Another pair

⁴Auk, XXXVI, 1919, pp. 83-84.

taken on the Beaver river, May 19, and a male on Lake Ile-à-la-Crosse, May 23.

Pisobia fuscicollis, White-rumped Sandpiper.

A female taken on Sandy lake, Churchill river, June 10, and a male taken on Sand Fly lake, Churchill river, June 11.

Pisobia bairdi, Baird's Sandpiper.

Four specimens, a female taken near Fort Du Brochet, Reindeer lake, July 17; and a male and two females taken on the Cochrane river, July 23. Pisobia minutilla, Least Sandpiper.

Four specimens, a female, Reindeer lake, July 13. "Bird alone breeding on island, apparently had nest." A female taken July 29, and a pair taken on the Cochrane river, July 30.

Pelidna alpina sakhalina, Red-backed Sandpiper.

A female, Churchill river, June 8. "Shot on small stony island, in company with seven Semi-palmated Sandpipers."

Ereunetes pusillus, Semipalmated Sandpiper.

Two pairs taken on the Churchill river, June 2, from a flock.

Calidris leucophaea, Sanderling.

river, May 18.

Three specimens taken from a flock of four, Cochrane river, July 21; "probably non-breeding birds."

Helodromus solitarius solitarius, Solitary Sandpiper.
"A female with large egg in oviduct;" Beaver

Actitis macularia, Spotted Sandpiper.

Two adults ,a male, Crooked river, May 15, and a female, Lake Ile-à-la-Crosse, May 23. Two sets of four eggs each, taken on the Churchill river, June 10 and 13, also a downy young taken on the Cochrane river, July 29.

Charadrius dominicus dominicus, American Golden Plover.

An adult female taken when in company with Kildeer Plover, on the Churchill river, June 2. "Eye, bill, and feet black."

Oxeyechus vociferus, Kildeer.

Seen in company with the Golden Plover, but no specimens taken.

Aegialitis semipalmata, Semipalmated Plover.

Four specimens, a male, Lake Ile-à-la-Crosse, May 23; a pair, Cochrane river, July 23, and a female taken July 29, also on the Cochrane river. Arenaria interpres morinella, Ruddy Turnstone.

Four specimens, a female found alone on Lake Ile-à-la-Crosse, on May 22; a male also found alone on the same lake on the 23rd; and two females taken from large flock on June 9, on the Churchill river

Canachites canadensis canadensis, Hudsonian Spruce Partridge.

Eight specimens, six adults and two downy young.

A pair with nest and eggs taken at Lake Ile-à-la-Crosse, May 25; male not preserved. "Eggs, six in number, fresh; nest on ground close in at foot of alder bush; site, dry open poplar knoll, surrounded by dense spruce and tamarack swamp; nest of dry leaves, same as carpet of surrounding ground, a few feathers lining nest." A male, same locality, May 29. A female in moult, and a downy young, Reindeer lake, July 10, the female has pin feathers on the sides of the head, and new tail feathers are appearing. A downy young, Cochrane river, July 20, was with other young and female parent when taken. A male taken August 3, a female, August 4, and a male, August 7, all adults, Lake Du Brochet. The young could fly, though the first was only five inches in length.

Lagopus lagopus lagopus, Willow Ptarmigan.

One specimen, Fort Du Brochet, Reindeer lake, November 4. "Same day first Barren Land Caribou of the season were shot."

Accipiter velox, Sharp-shinned Hawk.

An adult male, Otter lake, Churchill river, June 20.

Astur atricapillus atricapillus, American Goshawk. A female, and set of three eggs, Beaver river, May 16.

Buteo platypterus, Broad-winged Hawk.

Three specimens, a melanotic male, Crooked river, May 14, is chocolate brown except for the tail bars, which are normal; a male taken in same locality on the 15th, and a female taken on Beaver river, May 16.

Haliaectus leucocephalus alascanus, Northern Bald

An adult male, taken on the Churchill river, June 12; three downy young taken on Reindeer lake, two on the 7th and one on the 10th of July. These latter are marked, "Iris, dark umber brown; bill, dark horn color; cere, slightly more light brown, corner of mouth, pale whitish-yellow; legs and feet, whitish-yellow."

Falco columbarius columbarius, Pigeon Hawk.

Seven specimens, an adult female (two other birds seen), Reindeer lake, July 13; a female in company with four or five almost fully fledged young, three of which were taken, Lake Du Brochet, August 3; the young have wings and tail not fully grown and traces of down on the head; the old bird is in very worn plumage with one fresh blue tail feather, but showing no other signs of the blue plumage. Two fully fledged young birds (two others seen), Lake Du Brochet, August 7.

Pandion haliaëtus carolinensis, American Osprey. Three specimens, a female, Crooked lake, May

13; a male, taken with nest, Lake Ile-à-la-Crosse, May 25. "Nest containing single egg on very top of broken-off dead jack pine; nest mainly built of twigs, inside thickly lined with damp mud, grass and moss; fish scales on edge of nest; the male bird was bringing both talons full of damp moss to nest when shot." A female taken with nest and two eggs, Churchill river, June 6.

THE CANADIAN

Surnia ulula caparoch, American Hawk Owl.

A male taken on Lake Du Brochet, August 1. Picoides arcticus, Arctic Three-toed Woodpecker.

An adult male, Cochrane river, July 13; yellow crest, much worn, exposing the white bases of the feathers.

Picoides americanus fasciatus, Alaskan Three-toed Woodpecker.

An adult female, Fort Du Brochet, October 22. Sphyrapicus varius varius, Yellow-bellied Sapsucker.

Two males, Big river, May 7 and 11. Colaptes auritus borealis, Boreal Flicker.

One female, Cochrane river, July 21; the male seen. There is another adult female in the United States National Museum taken at Lake Du Brochet, September 26, 1890. This form is included in the range of luteus in the A.O.U. Check List. Sayornis phoebe, Phoebe.

A male, Reindeer river, June 30.

Nuttallornis borealis, Olive-sided Flycatcher.

Two males, Lake Ile-à-la-Crosse, May 27 and 28.

Empidonax trailli alnorum, Alder Flycatcher

Three specimens, a male, Churchill river, June 6; two from the Cochrane river, July 27 and 28, the latter a female. All taken in willows at edge of marsh.

Empidonax minimus, Least Flycatcher.

A female, Lake Ile-à-la-Crosse, May 29, and a male, Reindeer river, June 28.

Perisoreus canadensis canadensis, Canada Jay.

One immature bird, Reindeer lake, July 11, is somewhat difficult to place; it compares well with one of about the same age from 40 miles southwest of Calgary, Alberta, August 4, 1895; and is not so dark above as a younger bird from near Latchford, Ontario, June 10, 1906. Preble refers to a breeding bird from Pelican Narrows, Churchill river, in the United States National Museum, and in fact Reindeer lake is well within the known range of canadensis.

Corvus corax principalis, Northern Raven.

Five specimens; three from Churchill river; a young bird taken from the nest, June 2; an adult female, June 18, and a young bird fledged and in company with parent and two other young; two adult males taken December 15, one on Lake Du Brochet, the other on Reindeer lake.

5North American Fauna No. 27, 1908, p. 402.

Corvus brachyrhynchos subsp? American Crow.

An immature female taken on the Reindeer river, June 29; this bird compares well with a breeding female from Craven, Saskatchewan, much better than it does with Ontario birds, and may better be placed with the Western Crow, C. b. hesperis, but owing to lack of material of comparable age I hesitate to do so.

Euphagus carolinus, Rusty Blackbird.

Three specimens from Lake Du Brochet, August 7, an adult male, "Iris, clear yellowishwhite," an immature (female?) "Iris, medium clear umber brown;" and an immature male, "Iris, pale sage green."

Carpodacus purpureus purpureus, Purple Finch.

Two adult males, Big river, May 9; a female seen with these.

Acanthis linaria linaria, Redpoll.

Three specimens, an adult male with rosy breast, Cochrane river, July 21, "Bird in company with one young; bill, dark brownish." Two males, an adult and young, Lake Du Brochet, August 10; "bill, flat black" in the young.

Plectrophenax nivalis nivalis, Snow Bunting.

One specimen, Reindeer lake, October 23. "Large flocks of these birds for the past fortnight."

Passerculus sandwichensis subsp? Savannah
Sparrow.

Three specimens, one from Lake Ile-à-la-Crosse, May 27; an adult male from Fort Du Brochet, July 17; and a juvenile female, Cochrane river, July 28. These are very dark birds, much more so than alaudinus should be, and very different from the light race that breeds in southern Saskatchewan which is, no doubt, nevadensis.

Passerberbulus lecontei, Leconte's Sparrow.

Two specimens, one of a pair, Churchill river, June 2; a male, Haultaine river, June 6. "Birds breeding here."

Zonotrichia querula, Harris's Sparrow.

Seven specimens, an adult female, and a juvenile male, Cochrane river, July 26; an adult male, Cochrane river, July 30. "Male and female with fledged young." A female and young bird, Cochrane river, July 31; a female, Cochrane river, August 3. "Bird in company with others, probably her fully fledged young." An adult female, Lake Du Brochet, August 6. Adult's "bill, dull senna brown," juvenile's, "bill blackish-brown, yellow along edges of mandibles and at corners of mouth." So little is known of the early plumages of this sparrow that a description of the young of July 31, may not be out of place: length 3.75 in., pileum with feathers brownish-black, indistinctly edged with grayish-buff, producting a dark crown with a few grayish-buff spots ;throat and chin grayish-buff, throat with a

few blackish-brown spots; chest brownish-buff streaked with brownish-black; flanks buff with brown streaks, rest of under parts buffy-white; above brown streaked with black, upper tail coverts brownish-buff ta,il darker than in adult; wing coverts tipped with buff.

Zonatrichia leucophrys gambelii, Gambel's Sparrow.

Three specimens, an adult male and a juvenile male, Reindeer lake, July 16; and a young male, Cochrane river, July 26.

Spizella monticola monticola, Tree Sparrow.

A male, Reindeer lake, July 11. "Two pairs breeding on an island, first seen on trip." A female, Fort Du Brochet, July 17. "Bird had young almost fully fledged."

Spizella passerina passerina, Chipping Sparrow.

A male, Lake Ile-à-la-Crosse, May 27. Melospiza melodia melodia, Song Sparrow.

A pair, Reindeer river, June 28.

Melospiza lincolni lincolni, Lincoln's Sparrow.

A male, Reindeer river, June 29.

Melospiza georgiana, Swamp Sparrow.

A male, Churchill river, June 6. "Small colony of these birds breeding at this place."

Passerella iliaca iliaca, Fox Sparrow.

Four specimens, all males, one Reindeer lake, July 11; three, Cochrane river, July 18 and 24, and August 3. The July 24 bird was carrying food to fledged young.

Petrochelidon lunifrons lunifrons, Cliff Swallow.

Two females, Churchill river, June 9; a pair, Cochrane river, August 6, fully fledged young in company with these last.

Iridoprocne bicolor, Tree Swallow.

Two specimens, a female, Crooked river, May 15; a young male, Lake Du Brochet, August 6. Two sets of eggs taken on the Churchill river, June 11; nests in old woodpecker holes in dead poplars.

Riparia riparia, Bank Swallow.

A male, Sandy lake, Churchill river, June 9.

Bombycilla garrula, Bohemian Waxwing.

Two specimens from Cochrane river, a juvenile male taken July 28. "Iris, dark, not reddish-brown, like adult." An adult female, July 30.

Bombycilla cedrorum, Cedar Waxwing. A male, Key lake, June 25.

Lanius borealis, Northern Shrike.

A male, Cochrane river, October 19. Vireosylva olivacea, Red-eyed Vireo.

A male, Dead lake, Churchill river, June 17. Lanivireo solitarius solitarius, Blue-headed Vireo.

A male, Lake Ile-à-la-Crosse, May 28. Mniotilta varia, Black and White Warbler.

A male, Beaver river, May 17.

Vermivora peregrina, Tennessee Warbler.

Three males, two from Lake Ile-à-la-Crosse, May 27, and June 2 ,one from Dead lake, Churchill over, June 17.

Dendroica aestiva aestiva, Yellow Warbler.

Two males, one Lake Ile-à-la-Crosse, May 27, the other Reindeer lake, July 4; this latter is only a little more worn than the May bird.

Dendroica coronata, Myrtle Warbler.

Three specimens, two adult males, from Big river, May 7 and 8; a juvenile, Cochrane river, July 27. Hoover's Warbler, D. c. hooveri has recently been revived by Dr. Oberholser and the range of this western race of the Myrtle Warbler is given as reaching east to central Mackenzie, but the adult taken May 8, which I have been able to compare with a series of both the supposed races; is nearer to coronata.

Dendroica striata, Black-poll Warbler.

A male, Beaver river, May 18.

Dendroica palmarum palmarum, Palm Warbler.

A male, Beaver river, May 18.

Seiurus noveboracensis noveboracensis, Water-Thrush.

Three specimens, a female, Beaver river, May 20; a male, Knee lake, Churchill river, June 6; and a female, Reindeer river, June 28. These are close to Grinnell's Water-Thrush, S. n. notablis, in color.

Wilsonia pusilla pusilla, Wilson's Warbler.

A male, Lake Ile-à-la-Crosse, May 26.

Sitta canadensis, Red-breasted Nuthatch.

A male, Lake Ile-à-la-Crosse, May 25.

Penthestes hudsonicus hudsonicus, Hudsonian Chickadee.

Three specimens, a pair taken at Big river, May 8; and a young bird, Cochrane river, July 24. This last is interesting though full-grown (length 5 in.), the pileum instead of being soft grayish-brown is blackish-brown, forming a distinct cap, while the hind neck and back are brownish-gray.

Regulus calendula calendula, Ruby-crowned Kinglet.

Three specimens, a male, Lake Ile-à-la-Crosse, May 28; a female taken with nest containing young, Churchill river, July 3; and a male taken, Reindeer lake, July 9. The nest taken July 3 is described as follows: "Nest in young spruce tree about ten feet high, nest against limb and about eight feet up. Nest contained seven young, about fourteen days old."

Hylocichla aliciae aliciae, Gray-cheeked Thrush.

Two males, Big river, May 11; Churchill river, June 18. This latter is in very worn plumage. "Bird in company with mate."

Hylocichla ustulata swainsoni, Olive-backed Thrush.

Two males, Ile-à-la-Crosse, May 25; and Black

Bear island, Churchill river, June 14. Hylocichla guttata pallasi, Hermit Thrush.

A male, Beaver river, May 18.



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