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THE FOOD-BIRDS OF THE SMITH SOUND ESKIMOS.

BY W. ELMER EKBLAW.

The title of the article in itself conveys a wrong impression by suggesting that any of the birds that come to Northwest Greenland, the home of the Smith Sound Eskimos, is not used for food. Because existence in that far northern region is often precarious and the margin of safety in food supply is always narrow, every living thing in the land may be, and in times of stress is, put into the soapstone pot to boil; and if not cooked, eaten raw. Consequently every bird is eaten, from the little snow-bunting to the great northern raven.

Of course, the Eskimos have their preferences and like some birds far better than others, but in starvation times, when strips of sole leather are the only items on the Eskimo menu, even the oldest, toughest, greasiest, bird is a delicacy. Famine does not often actually face the tribe, but several times in its history the game has failed them so utterly for so long a time that many of the Eskimos have succumbed to starvation. These times of stress usually come in the early spring when first the sun rises above the horizon, before the birds have come back; old Eskimos say that starvation would many more times have overtaken them, except for the timely arrival of the first birds.

The birds of the land most certainly saved the tribe from

extinction during one period of its history, not yet forgotten by the oldest of the people. After one of the famines, acompanied by a plague in which most of the tribe died, the survivors lost the art of making the kayak, or skin boat, for summer hunting. Consequently, throughout the open season, after the ice had gone out, they were unable to kill any sea-food, and since at the same time caribou formed no part in their cuisine, they had to depend entirely upon the millions of birds that frequented the cliffs and islands of the coast. Before the ice went out of the Fjords all the Eskimos repaired to the cliffs of the great bird rookeries, where they could obtain all the birds they needed for food, and stayed there until the ice froze again and permitted the killing of seal and other sea game. This period of dependence upon birds for sustenance for at least two months of each year ended with the immigration of a small band of Eskimos from Baffin Land, who revived the lost arts of kayak-building and caribou-hunting, — a remarkably good example of the influence that an immigrant people may have upon the life of the people among whom they come.

Water-birds form the greater part of the bird-food of the Eskimos; of the land-birds only the ptarmigan plays an important role. All the small land- and shore-birds, the raven and the falcon are eaten, but they comprise no essential part of the Eskimos' dietary as do the ptarmigan and the water birds.

Even the ptarmigan (*Lagopus rupestris reinhardi*) is not so very important a food-bird, and except in the fall, when it is migrating southward in great numbers, the Eskimos rarely hunt for it particularly. Generally they kill it only when they happen to find it near the shore, as they sledge from one place to another, when they are hunting hare or caribou, or when they are attending their hare-snares or fox-traps. When the ptarmigan is migrating southward, and numerous flocks stop to feed on the heather slopes of the high rocky shores, the Eskimos often consider it worth their time and effort to hunt them. The ptarmi-

gan has a sweeter, fresher flesh, freer from grease, than that of the water birds.

Of the water birds, the dovekie (*Alle alle*), the murre (*Uria lomvia lomvia*), the guillemot (*Cepphus mandtii*), the eiders (*Somateria mollissima borealis* and *S. spectabilis*), the black brant (*Branta bernicla glaucogastra*), the snowy goose (*Chen hyperboreus nivalis*), the glaucous gull (*Larus hyperboreus*), the ivory gull (*Pagophila alba*), the kittiwake (*Rissa tridactyla tridactyla*), the fulmar (*Fulmarus glacialis glacialis*), and the old squaw (*Harelda hyemalis*) are the most used for food.

The dovekie is the most important of these at most of the villages and in general is so considered by the whole tribe. Millions of these little birds nest in the sandstone and basalt talus-slopes on Bushman Island, on the Crimson Cliffs at Cape York and westward, at Parker Snow Bay; on the south shore of Northumberland Island, and thence northward on the shores of every bay and Fjord from Inglefield Gulf to Foulke Fjord. The northern limit of their nesting-sites is Cape Hatherton.

Small though they are, the dovekies are so numerous and they are so readily caught by the Eskimo women in the nets used for that purpose, that in a summer the Eskimos are able to catch, and lay away under stones, great quantities of the little birds. When winter comes, and other food becomes scarce, the Eskimos sledge to their dovekie caches, which they find under the deep snow with almost uncanny skill, dig out the tight-frozen masses of birds, and bring them home, where they are eaten raw and whole as we eat oysters, except that the feathers are skinned off. Many times these caches of dovekies laid away in the summer have warded off starvation in the winter times of stress.

Next to the dovekies the murres (*Uria lomvia lomvia*) are the most important food-birds. Four places of Eskimo habitation yield the greater number of these birds — Akpat, on Saunders Island; Igfissuk, on Parker Snow Bay; an-

other Akpat, along the Crimson Cliffs; and Keatek on Northumberland Island. The word "Akpat" signifies in Eskimo, "the place of the murres." The murres are also caught in nets in large numbers, but many are shot in the water or on the wing. The murres are relatively less numerous and less easily caught than the dovekies, but their larger size compensates for these disadvantages, so that the Eskimos eagerly await their coming and catch large numbers, which they lay away under rocks as they do the dovekies. The murres instead of nesting under rocks as do the dovekies, nest on ledges of steep high cliffs.

The eider, — the Greenland eider and in minor degree the king eider — are perhaps of somewhat less importance than the dovekies and the murres. To almost every islet along the coast, hundreds, even thousands, of the eider come every summer to lay their eggs. In the old days the Eskimos caught nearly all the eiders that they used for food in long lines of snares stretched between the rocks where the birds nested, but now nearly all the hunters have shot-guns, which they use most skillfully and with unerring aim. The old snares were very successful; sometimes a line of snares held two-score birds at a time.

The black brants are rather common along the coast, but they are too wary to be killed in large numbers. Only in the nesting season do the Eskimos get many. The snow geese are not at all common, but almost every fall, when the birds moult before migrating south, the Eskimo get a few. As a rule an Eskimo must be rather hungry before he kills an old-squaw for food, but it is fairly common along the whole coast.

Of the gulls, the Eskimos eat every kind. The glaucous gulls are caught in a particular kind of snare along cracks in the ice, and in the open pools about icebergs. The old gulls are rather tough, but the young birds, while in their pale-brown barred plumage, are as tender and sweet as a spring-chicken. The ivory gulls and the kittiwakes are often killed and eaten, too. The kittiwakes are very good,

much like fat young squabs, and always rolling in golden fat. The fulmars are eaten in great numbers in early spring, even though they are most unpalatable, for they are the first birds to return in large numbers. The guillemots, too, are used a great deal for food.

The sandpipers, snipes, and other shore birds are not often eaten because they are so rare or so hard to get. Ravens are rather frequently eaten, and the Eskimos profess to like them.

Besides the birds themselves, the eggs are a considerable addition to the Eskimos' larder. On Lyttleton Island, McGary's rock, and other islets north of Etah, the Eskimos gather thousands of eider eggs, which they store away under rocks for winter use. Likewise in Inglefield Gulf they get hundreds of eider eggs, though not so many as near Etah. The eggs freeze solid and keep fresh until the next summer. At the great murre rookeries, the Eskimos collect thousands of the murre eggs on the high, dangerous cliffs; and in the nesting-places of the dovekies, the Eskimo women and children gather the pigeon-like eggs, which they eat frozen in the long arctic night as the children of the southland eat chocolates. Wherever the dovekies nest in numbers the Eskimos gather their eggs too.

Without these birds and eggs, the Eskimos' food supply would often fail them; and though the abundance of birds is but one of the conditions that make human life possible in that far north country, it is of as great importance as any. Small wonder it is then that the Eskimos half unconsciously mark most of the natural periods of their year by some bird activity or some bird movement; as, for example, the time that we call June, the Eskimos call the time of nesting birds. And just as small wonder it is that they rejoice when the first birds come to their country.

MIGRATION RECORDS FOR KANSAS BIRDS.

BESSIE PRICE DOUTHITT, INSTRUCTOR IN ZOÖLOGY,
UNIVERSITY OF KANSAS, LAWRENCE.

(Continued from December issue.)

FAMILY ODONTOPHORIDAE—BOB-WHITES.

289. *Colinus virginianus virginianus*—Bob-white.

Year round common resident.

FAMILY TETRAONIDAE—GROUSE.

305. *Tympanuchus americanus americanus*—Prairie Hen.

Locally common year round resident.

307. *Tympanuchus pallidicinctus*—Lesser Prairie Hen.

Rare resident in southwestern Kansas.

FAMILY COLUMBIDAE—PIGEONS.

316. *Zenaidura macroura carolinensis*—Mourning Dove.

Abundant in summer in eastern Kansas. Replaced in western part of state by Western Mourning Dove. First seen in 1917 on March 19. More common March 29, but not really common till April 8. They were not plentiful after September 27, but were still present in some numbers till October 5.

FAMILY CATHARTIDAE—AMERICAN VULTURES.

325. *Cathartes aura septentrionalis*—Turkey Vulture.

A common summer resident, but not common about Lawrence. Observed March 11 and October 5.

326. *Catharista urubu*—Black Vulture.

A common summer resident in Barber and Comanche Counties. No data.

FAMILY BUTEONIDAE—HAWKS, EAGLES, KITES, ETC.

327. *Elanoides forficatus*—Swallow-tailed Kite.

Irregular summer resident. No data.

329. *Ictinia mississippiensis*—Mississippi Kite.

Common summer resident in Barber and Comanche Counties, but irregular farther north. Fourteen were taken between May 16 and 25 (1911) in above counties. Two September 15 and 16, Douglas County. No data as to arrival or departure.

331. *Circus hudsonius*—Marsh Hawk.

Common resident.

332. *Accipiter velox*—Sharp-shinned Hawk.

A year round resident.

333. *Accipiter cooperi*—Cooper's Hawk.

Common resident.

334. *Astur atricapillus atricapillus*—Goshawk.

A rare winter visitant.

337. *Buteo borealis borealis*—Red-tailed Hawk.

A common resident.

337a. *Buteo borealis krideri*—Kreider's Hawk.

A visitant. Three records at the museum show dates from October 1 to November 19.

337b. *Buteo borealis calurus*—Western Red-tail.

This hawk is not uncommon in winter. Three museum records from December 17 to February 2.

337d. *Buteo borealis harlani*—Harlan's Hawk.

Occasional in winter. Twelve (museum) records, November 16 to February 28 and one record October 19.

339. *Buteo lineatus lineatus*—Red-shouldered Hawk.

In southern part of state it is a common resident; in northern part it is less common.

342. *Buteo swainsoni*—Swainson's Hawk.

A common resident.

343. *Buteo platypterus*—Broad-winged Hawk.

This species is a rare resident.

347a. *Archibuteo lagopus sancti-johannis*—Rough-legged Hawk.

A common winter resident. Ten museum records from November 5 to March 10.

348. *Archibuteo ferrugineus*—Ferruginous Rough-leg.

This species is a resident but is not common in eastern Kansas.

349. *Aquila chrysaëtos*—Golden Eagle.

A rare resident, more common in winter months.

352. *Haliæetus leucocephalus leucocephalus*—Bald Eagle.

This eagle, too, is a rare resident.

FAMILY FALCONIDAE—FALCONS.

355. *Falco mexicanus*—Prairie Falcon.

A rare resident in Kansas.

356. *Falco peregrinus anatum*—Duck Hawk.

This hawk is rare as a resident.

357. *Falco columbarius columbarius*—Pigeon Hawk.

A rare migrant. Three specimens at the museum were taken October 1 to 29.

357b. *Falco columbarius richardsoni*—Richardson's Pigeon Hawk.

A common migrant in western Kansas and rare in eastern part of the state.

360. *Falco sparverius sparverius*—Sparrow Hawk.

Year round resident, but less common in winter. Migrants observed last half of March and last half of September.

360a. *Falco sparverius phalæna*—Desert Sparrow Hawk.

Common resident in western Kansas.

FAMILY PANDIONIDAE—OSPREY.

364. *Pandion haeiaëtus carolinensis*—Osprey.
A rare summer resident.

FAMILY ALUCONIDAE—BARN OWLS.

365. *Aluco pratincola*—Barn Owl.
This owl is a common resident.

FAMILY STRIGIDÆ—HORNED OWLS, ETC.

366. *Asio wilsonianus*—Long-eared Owl.
A common resident.

367. *Asio flammeus*—Short-eared Owl.
This species also a common resident.

368. *Strix varia varia*—Barred Owl.
A common resident.

372. *Cryptoglaux acadica acadica*—Saw-whet Owl.
A winter visitant or sojourner, but not common.

373. *Otus asio asio*—Screech Owl.
Common resident.

373g. *Otus asio aikeni*—Aiken's Screech Owl.
In western Kansas a common resident.

375. *Bubo virginianus virginianus*—Great Horned Owl.
Common resident.

375a. *Bubo virginianus palescens*—Western Horned Owl.
This owl is a common resident in western Kansas.

376. *Nyctea nyctea*—Snowy Owl.
Classed as rare in winter.

378. *Speotyto cunicularia hypogea*—Burrowing Owl.
In central and western Kansas this species is a common resident.

FAMILY CUCULIDAE—CUCKOOS, ANIS, ETC.

385. *Geococcyx californianus*—Road-runner.
In southwestern Kansas an occasional resident.

387. *Coccyzus americanus americanus*—Yellow-billed Cuckoo.
Common in summer. Observed daily in 1917 after May 11, but none before. Museum records, two May 14, 1915, one May 9, 1912. Leave mostly in August. Less common in September. Last record September 21.

388. *Coccyzus erythropthalmus*—Black-billed Cuckoo.
Not an uncommon summer resident. Usually arrive later in other states, but may come earlier. Occasionally remain considerably later in other states. One record May 5.

FAMILY ALCEDINIDAE—KINGFISHER.

390. *Ceryle alcyon*—Belted Kingfisher.
Common in summer. Sometimes spend winter where open water is found. Earliest record April 15, but probably came somewhat

earlier. Full records October 17, and in Trego County, October 28. (Museum.)

FAMILY PICIDAE—WOODPECKERS.

393. *Dryobates villosus villosus*—Hairy Woodpecker.

A year round resident. In summer they keep mostly in deep woods and are seldom seen.

394c. *Dryobates pubescens medianus*—Downy Woodpecker.

A year round resident. Seemed more numerous from April 1-15, but possibly because of mating activities.

402. *Sphyrapicus varius varius*—Yellow-bellied Sapsucker.

An occasional migrant or winter resident. Records from museum show October 12; November 14; January 16; April 22 (2).

402a. *Sphyrapicus varius nuchalis*—Red-naped Sapsucker.

A rare migrant.

406. *Melanerpes erythrocephalus*—Red-headed Woodpecker.

Common in summer. But where insects are plentiful this woodpecker will spend the winter even far north of here. Migration erratic. In 1917 first arrived April 27. Did not become common till May 6. They leave mostly in August. Last observed in 1916 on September 22.

408. *Asyndesmus lewisi*—Lewis's Woodpecker.

Common visitant in western Kansas.

409. *Centurus carolinus*—Red-bellied Woodpecker.

Common resident.

412a. *Colaptes auratus luteus*—Northern Flicker.

A common resident, but most of them leave by the middle of October and do not return till middle of March or later.

413. *Colaptes cafer collaris*—Red-shafted Flicker.

A rare resident in eastern Kansas but common in western.

FAMILY CAPRIMULGIDAE—NIGHTHAWKS, GOATSUCKERS.

The records of the goatsuckers are hard to obtain on account of their nocturnal habits. They must all arrive late and leave early since they feed exclusively upon flying insects.

417. *Antrostomus vociferus vociferus*—Whip-poor-will.

Common all summer. Only spring museum record is April 29, which is probably about the time of arrival. For the most part they leave in August.

418. *Phœnoptilus nuttalli nuttalli*—Poor-will.

A common summer resident. Museum records, May 1, Leavenworth County, and August 26, Douglas County.

418a. *Philœnoptilus nutalli mitidus*—Frosted Poor-will.

In summer, common. No records.

420. *Chordeiles virginianus virginianus*—Nighthawk.

Eastern Kansas knows this species as a common summer resi-

dent. Museum and field notes give May 16 as the date of arrival. Although seldom seen in summer they were daily observed in 1916 from September 18 to October 8, when they left.

420a. *Chordeiles virginianus henryi*—Western Nighthawk.

This species replaces the former in western Kansas. Occasionally found in the eastern part. Museum gives two specimens captured in Douglas County on May 14 and September 12.

420c. *Chordeiles virginianus sennetti*—Sennett's Nighthawk.

Not uncommon in summer. One record, Lawrence, September 12.

FAMILY MICROPOIDAE—SWIFTS.

423. *Chætura pelagica*—Chimney Swift.

This species is very abundant in summer. In 1916 they left in a body on October 25. They arrived the following spring in abundance on April 18.

FAMILY TROCHILIDAE—HUMMINGBIRDS.

428. *Archilochus colubris*—Ruby-throated Hummingbird.

Fairly common in summer. They probably arrive somewhat earlier. Museum and field, May 20 to September 17.

FAMILY TYRANNIDAE—TYRANT FLYCATCHERS.

Since the flycatchers feed upon flying insects they must come late and leave early. Phœbe an exception. It feeds also upon other insects.

443. *Muscivora forficata*—Scissor-tailed Flycatcher.

A common summer resident in southern Kansas. Has been reported as far north as Lawrence. Museum records, May 4, Thomas County; April, no date, Ashland County; September 22, Marshall County.

444. *Tyrannus tyrannus*—Kingbird.

Common in summer. April 26 the date of first arrivals. (1917) few in numbers before May 5. Last field record (1916), September 6. Last museum record, September 18.

447. *Tyrannus verticalis*—Arkansas Kingbird.

While classed as a common summer bird, it is not so common in eastern Kansas. One observed in field near Lawrence, May 7, 1916. Museum records, September 4, 1906.

452. *Myiarchus crinitus*—Crested Flycatcher.

Very abundant. Observed daily in considerable numbers May 1, 1917, and thereafter. Careful daily observations made in April, but none were seen. Last noticed in 1916 on September 8. Earliest museum record is April 30, 1912. The last record is September 12 and 14, Douglas County, and October 6, Cloud County.

456. *Sayornis phœbe*—Phœbe.

This is the only flycatcher to come early. It is a common summer resident. First seen on March 17, 1917. Became common

March 25. Observed daily thereafter. Last noticed on September 30, 1916. Museum has specimens taken September 27 (3), Republic County; October 2, Lane County; October 14, Cloud County.

457. *Sayornis sayus*—Say's Phœbe.

A common summer resident in western Kansas. No migration records.

459. *Nuttallornis borealis*—Olive-sided Flycatcher.

Rare summer resident. Taken May 12, September 5 and 8. (Museum.)

461. *Myiochanes virens*—Wood Pewee.

Quite common in summer. Observed April 1 and 24, 1917. Seldom seen until May 16. Observed daily after that date. Museum records show April 2. Last seen, 1916, September 22. Museum reports, September 5, 19, (three seen) 20, 30.

462. *Myiochanes richardsoni richardsoni*—Western Wood Pewee.

Rare summer resident western Kansas. No records of migration.

465. *Empidonax virescens*—Acadian Flycatcher.

Classed as not uncommon in summer in eastern Kansas. Museum has specimens taken May 5, 8, 14, etc., and September 15.

466. *Empidonax trailli trailli*—Traill's Flycatcher.

In western part of state, common through summer, in eastern it is fairly so. One record May 3, Neosho Falls.

466a. *Empidonax trailli alnorum*—Alder Flycatcher.

Rare summer resident. One record May 12.

467. *Empidonax minimus*—Least Flycatcher.

A common migrant. Museum records give May 18, Comanche County; May 21, August 30; September 14, 15, 17, Norton County.

FAMILY ALAUDIDAE—LARKS.

474b. *Otocoris alpestris praticola*—Prairie Horned Lark.

This lark is a common winter resident, a few remaining over for the summer. Still common (1917) April 22. May have remained somewhat later. Migrants appear from north November 20 or earlier.

474b. *Otocoris alpestris praticola*—Prairie Horned Lark.

Permanent resident. Replaces the preceding in the western part of the state. Occasional in eastern Kansas.

FAMILY CORVIDAE—MAGPIES, CROWS, JAYS, ETC.

475. *Pica pica hudsonia*—Magpie.

Rare winter visitant, chiefly western Kansas.

477. *Cyanocitta cristata cristata*—Blue Jay.

An abundant resident. Perhaps more than four-fifths of the jays leave in the fall, but they may be seen almost any day in winter, sometimes in flocks of considerable size. During the fall migration of 1916, from September 5 to 27, they were very abun-

dant. They returned gradually in the spring of 1917, beginning about March 25. In early May they were again much more abundant than in the summer.

486. *Corvus corax sinuatus*—Raven.

In western Kansas the raven is a rare visitant.

487. *Corvus cryptoleucus*—White-necked Raven.

This, too, is a rare visitant in the western part of the state.

488. *Corvus brachyrhynchos brachyrhynchos*—Crow.

Common resident.

FAMILY ICTERIDAE—BLACKBIRDS, ORIOLES, ETC.

All migrate ordinarily, but may remain in large numbers if food be abundant. Mr. Oscar Brownlee reports that Grackles, Redwings, and perhaps others, spend the winter at Stafford on his father's farm, where considerable numbers of cattle are fed.

494. *Dolichonyx oryzivorus*—Bobolink.

The Bobolink is rare in summer, but is a common migrant. There are seventeen museum records from May 4 to 21. No fall records.

495. *Molothrus ater ater*—Cowbird.

Very abundant in summer. First observed in 1917 on March 18. Last seen (1916) October 6. Last record (museum) October 10.

497. *Xanthocephalus xanthocephalus*—Yellow-headed Blackbird.

An abundant migrant but rare in summer. Many seen (1917) May 11, 15. Museum has specimens taken April 19 and May 5. In 1916 two were observed on November 9.

498. *Agelaius phœniceus*—Red-winged Blackbird.

This blackbird remains in winter where food is abundant. The systematist recognizes four subspecies for Kansas which cannot be distinguished except by careful measurements. In 1917 the Redwings arrived March 15. In 1916 they left in a body the night of October 14. One specimen was observed February 7. The time of arrival varies much according to season.

The subspecies are:—

(1) *Agelaius phœniceus predatorius*—Red-winged Blackbird. Summer resident.

(2) *Agelaius phœniceus fortis*—Thick-billed Redwing. Migrant. Museum records, February 26 (5), Pratt County; March 5, 12; November 7, 15, two each.

(3) *Agelaius phœniceus phœniceus*—Northeastern Redwing. Migrant. Museum, February 26 (5), Pratt County; March 2, 12; October 10 (2).

(4) *Agelaius phœniceus arctolêgus*—Northern Redwing. Migrant. Museum. Each month except December and April, from September 28 to May 21.

501. *Sturnella magna magna*—Meadowlark.

A common bird in eastern Kansas during the summer. Occasional in winter. Arrived (1917) February 25. Became abundant March 11. November 9, 1916, found them still present. They often remain into December.

501.1. *Sturnella neglecta*—Western Meadowlark.

This species replaces the meadowlark in western part of state. Not uncommon in eastern Kansas.

506. *Icterus spurius*—Orchard Oriole.

Common in summer. Earliest date of observation for 1917 is May 10. Seen daily thereafter. The museum has specimens taken April 17, May 4, 8, 11. They leave mostly in August. Last museum record September 15.

507. *Icterus galbula*—Baltimore Oriole.

Very common summer resident in eastern Kansas. This species came in considerable numbers (1917) on April 24. Nearly all gone by the end of August. Last field records August 29, 30 (1916).

508. *Icterus bullocki*—Bullock's Oriole.

Common in western Kansas and occasionally in eastern as summer resident. No migration records.

509. *Euphagus carolinus*—Rusty Blackbird.

This blackbird is occasional in winter and a common migrant. Museum records March 5, 12, 29; October 31 to December 5; December 28, 30. Miami County.

510. *Euphagus cyanocephalus*—Brewer's Blackbird.

A common migrant. Occasional resident. Many observed March 25. Two museum records for April 11. Museum and field, October 5-November 9.

511b. *Quiscalus quiscula æneus*—Bronzed Grackle.

Very abundant in summer. Occasional in winter, and if food is plentiful they remain in great numbers. Observed (1917) March 14. Not common till March 18. Left (1916) March 12 in a body.

FAMILY FRINGILLIDAE—FINCHES, SPARROWS, ETC.

514. *Hesperiphona vespertina vespertina*—Evening Grosbeak.

A rare winter visitant.

514a. *Hesperiphona vespertina montana*—Western Evening Grosbeak.

This is a rare migrant.

517. *Carpodacus purpureus purpureus*—Purple Finch.

This species is a rare winter sojourner. Museum records show specimens taken from November 10 to February 24.

519. *Carpodacus mexicanus frontalis*—House Finch.

Rare resident.

521. *Loxia curvirostra minor* and

521a. *Loxia curvirostra stricklandi*—Crossbill, American and Mexican.

Irregular winter visitants. Observed three times in winter of 1917, but it was not possible to determine which subspecies. Last observed April 12. Museum records for American Crossbill October 28 to January 30.

522. *Loxia leucoptera*—White-winged Crossbill.

Irregular visitant during the winter. One taken November 4.

528. *Acanthis linaria linaria*—Redpoll.

Rare as a winter visitant.

529. *Astragalius tristis tristis*—Goldfinch.

Common in summer, and occasional in winter. First observed in 1917 on May 5 and 6. Not seen again until May 17. Were quite plentiful in fall of 1916 as late as October 17 and possibly later.

529a. *Astragalinus tristis pallidus*—Pale Goldfinch.

Similar to the former. Three collected on March 12, and one on April 15.

533. *Spinus pinus*—Pine Siskin.

The siskin is a common winter resident. One to three flocks observed nearly every day from March 14 to May 18, 1917. Not observed previously except on March 1. Since then they were observed in all parts of the city. It would seem that the siskin is more common as a migrant than as a winter resident. Museum records October 14, Trego County; October 15, Wakeeney; October 23, and throughout winter, Douglas County.

534. *Plectrophenax nivalis nivalis*—Snowflake.

Rare winter visitant.

536. *Calcarius lapponicus lapponicus*—Lapland Longspur.

Irregular winter sojourner. Abundantly represented in the museum. Specimens taken from November 24 to April 12.

536a. *Calcarius lapponicus alascensis*—Alaska Longspur.

Occasional in winter. Seven specimens taken from December 14 to December 22.

537. *Calcarius pictus*—Smith's Longspur.

A common winter sojourner. No data.

538. *Calcarius ornatus*—Chestnut-collared Longspur.

Resident. Breeds from central Kansas northward.

539. *Rhynchophanes mccowni*—McCown's Longspur.

Common in winter in western Kansas.

540. *Poœcetes gramineus gramineus*—Vesper Sparrow.

This species is a common migrant. Rare in summer. Museum and field give records from March 24 to April 24 and October 4, also October 12. Fall records not sufficient.

540a. *Poœcetes gramineus confinis*—Western Vesper Sparrow.

Migratory in western Kansas.

542a. *Passerculus sandwichensis savanna*—Savanna Sparrow.

Common as a migrant. Museum and field records from March 9 to May 21. Few records for October, on the 12th and 28th.

542b. *Passerculus sandwichensis alaudinus* — Western Savanna Sparrow.

A not uncommon migrant. Five museum specimens taken from March 19 to April 23. One on September 25 and 30 in Lane County. Many records from October 4 to 22 in Douglas, Gove, and Cloud Counties.

546. *Ammodramus savannarum australis*—Grasshopper Sparrow.

546a. *Ammodramus savannarum bimaculatus*—Western Grasshopper Sparrow.

Not distinguishable in the field except under favorable circumstances. Observed very plentiful May 2 to 15. After May 15 they were not seen. The museum records Western Grasshopper Sparrow May 3 to December 3.

547. *Passerherbulus henslowi henslowi*—Henslow's Sparrow.

Rare summer resident. Records April 6, 14, 23, and August 6 for museum specimens.

548. *Passerherbulus lecontei*—Leconte's Sparrow.

This sparrow is a common migrant. Museum and field, February 19, two specimens; March 21, two; March 26; April 2, 9, 10 to 27, twelve; September 30, one, Lane County; October 6 to 19, fifteen in Cloud County; October 10 to 19, six; and November 7, one.

549. 1. *Passerherbulus nelsoni nelsoni*—Nelson's Sparrow.

A rare summer resident.

552. *Chondestes grammacus grammacus*—Lark Sparrow.

Common in summer. Field and museum show specimens for April 17, 24, 26, 28, etc. No data as to fall migrations.

552a. *Chondestes grammacus strigatus*—Western Lark Sparrow.

In central and western Kansas a common summer resident. Earliest record May 16. Probably arrive earlier. No fall data.

553. *Zonotrichia querula*—Harris' Sparrow.

This species is an abundant migrant and a rare winter resident. The migrants in 1917 arrived in force February 24. Seemed to be fewer by April 8. By May 12 they were quite distinctly fewer but still common in places. Last observed May 18. Fall migrants appeared October 3, no date as to leaving. Not common in winter.

554. *Zonotrichia leucophrys leucophrys*—White-crowned Sparrow.

Common migrant. The only spring record May 5. The museum records give October 11, 15, 19, for Trego and Gove Counties.

554a. *Zonotrichia leucophrys gambeli*—Intermediate Sparrow.

Common migrant. Occasional in winter. Field and museum records give May 3 to 11. Fall museum records are September 28 and 30. Abundant in October, a few records in November, December, January, and February.

558. *Zonotrichia albicollis*—White-throated Sparrow.

This sparrow is a common migrant. The field notes show first observation April 12; common April 24 to May 10. First museum record is April 14. Fall museum record October 2 to December 31.

559. *Spizella monticola monticola*—Tree Sparrow.

A common winter resident. First arrived in 1916 on September 29. Common till March 16, 1917. Few seen until March 27. Museum records April 14, 1913.

559a. *Spizella monticola ochracea*—Western Tree Sparrow.

In western Kansas this sparrow is not an uncommon winter sojourner. Occasional in eastern Kansas. Museum records from October 3 on; the last dates being March 13 and 26.

560. *Spizella passerina passerina*—Chipping Sparrow.

Common in summer. First observed in 1917 on April 2. Seen nearly every day thereafter. Museum records throughout October in western Kansas. But seldom seen in September.

561. *Spizella pallida*—Clay-colored Sparrow.

Not uncommon as a migrant. No records.

563. *Spizella pusilla pusilla*—Field Sparrow.

Common as summer resident in eastern part of state. First observed in 1917 on March 18. Common thereafter. Last seen in 1916 on August 29 and 30. Seldom seen in September. Museum records give up to October 31.

563a. *Spizella pusilla arenacea*—Western Field Sparrow.

Rare. One record October 23.

566. *Junco aikeni*—White-winged Junco.

A rare winter visitant in western Kansas. Two specimens taken at Lawrence.

567. *Junco hyemalis hyemalis*—Slate-colored Junco.

This species is abundant in winter. First seen in 1916 on October 4 in great numbers. Museum records October 3. Became fewer April 8, 1917, but still quite common. Last observed April 17.

567b. *Junco hyemalis connectens*—Shufeldt's Junco.

Winter resident, western Kansas. No data.

567f. *Junco hyemalis montanus*—Montana Junco.

In western Kansas a winter resident. Museum records for October 14, 15, and later.

581. *Melospiza melodia melodia*—Song Sparrow.

A common migrant. Not uncommon in winter. First observed in 1917 on February 18. Became plentiful February 24. Left very largely by March 30, but still common till May 5. Last observed May 11. Fall museum records for August 10; September 28, Lane County; October 3, 6, 7, 9, 11.

581j. *Melospiza melodia juddi*—Dakota Song Sparrow.

Migratory, western Kansas. No record.

583. *Melospiza lincolni lincolni*—Lincoln's Sparrow.

Occasional as a winter resident, but common as a migrant. Field, 1917, show first date March 25. From then to April 5, common. Last observed April 10. Museum records give March 26, April 26, April 30 (3), May 24, for Barber County. The field notes for fall, September 6, October 2. Museum, October 6 to October 22. Also January 2 for Miami County.

584. *Melospiza georgiana*—Swamp Sparrow.

This is a common migrant. Rare in winter. Field and museum give following dates: March 27, April 2, 11, May 21 (2), September 9, 10, to December 30 Miami.

585. *Passerella iliaca iliaca*—Fox Sparrow.

The fox sparrow is a common migrant and not rare as a winter resident. Field notes for 1917, March 18 to 30, common. None seen before nor after. Museum, March 16 to 24, twelve specimens. October 3 on through January and February.

587. *Pipilo erythrophthalmus erythrophthalmus*—Towhee.

Abundant in summer and a few remain through the open winters. First observed 1917, March 8; not common till March 18. Not often seen in fall, but in 1916 six were observed in September; two, October 7; two, October 12; two, October 13.

588. *Pipilo maculatus arcticus*—Arctic Towhee.

A winter resident, rare in eastern Kansas. Lane County, according to museum records, gave six specimens on September 30 and others throughout September, also throughout October. Douglas County has one specimen for May 1 and one for December 15.

593. *Cardinalis cardinalis cardinalis*—Cardinal.

A very common resident. At certain times it is more often seen along countryside, where shrubs or undergrowth give shelter.

595. *Zamelodia ludoviciana*—Rose-breasted Grosbeak.

This grosbeak is a common summer resident. It came in full force (1917) April 23. Quite common till May 19, by which time migrants had passed north. Not often seen thereafter. Last date (museum) August 30. None seen in careful field observation in (1916) September.

597. *Zamelodia melanocephala*—Black-headed Grosbeak.

Common summer resident. No migration records.

597a. *Guiraca caerula lazula*—Western Blue Grosbeak.

In central and westen Kansas, common in summer. No migration records.

598. *Passerina cyanea*—Indigo Bunting.

The indigo bunting is common throughout the summer months in eastern Kansas. Museum records, April 27, April 30 (2), May

1, 3 (2), 5. Leave in August and September. (Museum.) September 19, 24.

599. *Passerina amoena*—Lazuli Bunting.

No records. Classed as a rare summer resident in western Kansas.

601. *Passerina ciris*—Painted Bunting.

In southeastern Kansas the painted bunting is common in summer. No data.

604. *Spiza americana*—Dickcissel.

Very abundant in summer. Arrived (1917) on April 25. Nearly all leave in August. Two seen till September 20. Museum records October 12 for Lane County.

605. *Calamospiza melanocorys*—Lark Bunting.

Common summer resident in western Kansas. No migration records.

Passer domesticus—English Sparrow.

Always present. One redeeming feature, he will eat canker worms.

FAMILY TANGARIDAE—TANAGERS.

607. *Piranga ludoviciana*—Western Tanager.

Casual in Western Kansas. No records.

608. *Piranga erythromelas*—Scarlet Tanager.

This tanager is not an uncommon summer resident. Several observed in 1917 from May 7 to May 30. Museum records May 1 and 3. Observed as late as September 19.

610. *Piranga rubra rubra*—Summer Tanager.

In Eastern Kansas, it is common in summer. None observer in field by author. Museum records, Douglas County, for May 3, 7, 9, etc., to September 14, 15.

FAMILY HIRUNDINIDAE—SWALLOWS.

Since all members of this family feed upon flying insects they must leave as soon as insects cease to fly and can return only when insects are again on the wing.

611. *Progne subis subis*—Purple Martin.

The martin is a common summer resident. Carefully observed two regular nesting places in 1917. First observed March 29. A cold spell followed and the martins seemed to have returned. Not again seen until April 19. Observed daily thereafter. Left in 1916 on September 10.

612. *Petrochelidon lunifrons lunifrons*—Cliff Swallow.

In summer common. Museum record April 18. No field spring records. A colony at Haskell Indian School, present September 10, gone September 14.

613. *Hirundo erythrogastra*—Barn Swallow.

This swallow is a common summer resident. First museum record April 27, Lane County. Last observed in field September 30 and October 4.

614. *Iridoprocne bicolor*—Tree Swallow.

A common migrant and a rare summer resident. Observed abundantly April 19, 29, and two on May 10, two May 12. Other swallows observed, probably tree swallows, but identification not certain, because of cloudy weather. No fall records.

616. *Riparia riparia*—Bank Swallow.

A common summer resident. The museum records are incomplete; they, however, show May 9 and September 19. No field migration notes.

617. *Stelgidopteryx serripennis*—Rough-winged Swallow.

Common in summer. Museum April 14. No fall record.

FAMILY BOMBYCILLIDAE—WAXWINGS.

618. *Bombycilla garrula*—Bohemian Waxwing.

A rare winter visitant.

619. *Bombycilla cedrorum*—Cedar Waxwing.

Year round resident.

FAMILY LANIIDAE—SHRIKES.

621. *Lanius borealis*—Northern Shrike.

In winter quite common. Museum records show following dates: Lane and Trego Counties, October 5 and March 19.

622a. *Lainus ludovicianus excubitorides*—White-rumped Shrike.

Common in summer. Field record March 24. No fall record.

622c. *Lanius ludovicianius migrans*—Migrant Shrike.

Occasional permanent resident.

FAMILY VIREONIDAE—VIREOS.

Since vireos feed upon insects found among leaves of trees, they can be present only during foliage season.

624. *Vircosylva olivacea*—Red-eyed Vireo.

This species is common in summer. In 1917 it arrived April 19. Last museum record is September 20.

627. *Vircosylva gilva gilva*—Warbling Vireo.

Common as a summer resident. Museum gives April 26 and September 19.

628. *Lanivirco flavifrons*—Yellow-throated Vireo.

This vireo is not common, although a summer resident. Only a few records. May 1, two specimens, August 11, one.

629. *Lanivireo solitarius solitarius*—Blue-headed Vireo.

A rare migrant. But one museum specimen, taken September 21, in Lane County.

630. *Vireo atricapillus*—Black-capped Vireo.

As a summer resident in southern Kansas it is doubtful. The

museum has one specimen, taken on May 9 in Comanche County.

631. *Vireo griseus griseus*—White-eyed Vireo.

Common in summer. Museum records May 9, September 15, 16.

633. *Vireo belli belli*—Bell's Vireo.

This species is common throughout summer. Arrived in 1917 on April 24. It leaves mostly in August and early September. Last seen in 1916 on September 6.

DESCRIPTION OF A NEW RED-WINGED BLACKBIRD FROM TEXAS.

BY HARRY C. OBERHOLSER.

Investigations of the birds of Texas revealed, many years ago, an unrecognized subspecies of *Agelaius phoeniceus* from the southern part of the State. Subsequent examination of material in the United States National Museum, including the Biological Survey Collection, also in the Academy of Natural Sciences of Philadelphia, the American Museum of Natural History, and the private collections of Mr. John E. Thayer, Mr. J. H. Fleming, Mr. William Brewster, Dr. L. B. Bishop, and Dr. Jonathan Dwight, confirms the distinctness of this form. Owing to an indefinite delay in the appearance of our report on the birds of Texas, it seems desirable now to publish a description of this new red-wing. We accordingly propose to call it

Agelaius phoeniceus megapotamus, subsp. nov.
Rio Grande Red-winged Blackbird.

Chars. subsp.—Similar to *Agelaius phoeniceus richmondi* from southern Vera Cruz and Tabasco, Mexico, but larger; female more grayish above and less ochraceous below.

Description.—Type, adult female, No. 207912, U. S. Nat. Museum; Brownsville, Texas, February 17, 1911; A. K. Fisher, original number 7093. General color of upper parts dark fuscous; broad medial crown streak pinkish buff, verging a little toward chamois; rest of the pileum, together with the cervix, much streaked with pale buff, dull cinnamon, and clay color. Back and scapulars more broadly and less numerously streaked with the same colors

and with white; rump and upper tail-coverts streaked with smoke gray and light smoke gray, the long coverts with avellaneous; tail brownish fuscous black, anteriorly margined on both webs with very pale brownish or brownish white; primaries fuscous; rest of the wing of the same color as the tail, but the longest scapulars and the innermost greater wing-coverts broadly margined exteriorly with cinnamon, the lesser coverts edged with dull buffy brown, the bend of the wing dull reddish; remainder of the wing-coverts and quills margined with dull pale buff and with whitish; superciliary stripe white, anteriorly with a slight wash of buffy; postocular streak fuscous; the rest of the sides of the head grayish white with a slight dull buffy tinge, and flecked with pale fuscous, the lores darker; narrow rictal and submalar streaks fuscous; sides of the neck very pale buffy grayish, thickly but finely streaked with fuscous; chin and upper throat pale ochraceous salmon, immaculate except for a few small spots of dusky on the posterior portion of the latter; rest of lower parts dull creamy white, with a buffy tinge on the abdomen and crissum, and broadly streaked with fuscous, most so on the sides, flanks, and crissum, but elsewhere the white interspaces broader than these dark markings; lining of wing smoke-gray; edge of wing cinnamon.

Measurements.—Male:[1] Wing, 113-120.0 (average, 115.3) mm.; tail, 83-92 (86.8); total culmen, 22-24 (22.6); tarsus, 26-31.5 (29); middle toe without claw, 20.5-22.3 (21.1).

Female:[2] Wing, 84-98 (average, 93) mm.; tail, 63-72.5 (68.5); total culmen, 18.6-22 (19.5); tarsus, 24.5-26.5 (25.6); middle toe without claw, 17-19.5 (18.5).

Geographic distribution.—Central southern Texas and northeastern Mexico. Breeds north to central Texas; west to eastern Coahuila; south to Nuevo Leon and northern Vera Cruz; and east to Tamaulipas and to the Brazos River in Texas.

[1] Seven specimens, from Texas.

[2] Nine specimens, from Texas, Nuevo Leon, and Tamaulipas.

Remarks.—This new subspecies differs from *Agelaius phoeniceus phoeniceus* in somewhat longer wing, rather shorter bill, and much lighter coloration of the female; from *Agelaius phoeniceus sonoriensis* and *Agelaius phoeniceus fortis* in very much smaller size; and from *Agelaius phoeniceus neutralis* in greatly inferior size and paler female. Birds belonging to this geographic race have hitherto been referred to *Agelaius phoeniceus richmondi,* but they are so different from typical representatives of the latter that subspecific separation seems desirable. It is a larger and less brownish edition of *Agelaius phoeniceus richmondi,* and replaces that form in Texas, Tamaulipas, and Nuevo Leon. It seems to be more or less permanently resident, as no specimens have been taken outside of its breeding range. Southward it passes into *Agelaius phoeniceus richmondi* somewhere in the northern part of the State of Vera Cruz; westward through central western Texas into *Agelaius phoeniceus neutralis;* northward in central northern Texas into *Agelaius phoeniceus predatorius;* and along the coast of southeastern Texas beyond the Brazos River into *Agelaius phoeniceus phoeniceus* of the southeastern United States. Birds from Del Rio and Fort Clark in central western Texas are intermediate between the present race and *Agelaius phoeniceus neutralis,* but are nearer the former.

The type of *Agelaius phoeniceus richmondi*[1] came from Tlacotalpam in southeastern Vera Cruz, and represents the bird breeding in that region; hence the northern race is the one without a name.

By this separation the geographic distribution of *Agelaius phoeniceus richmondi* is restricted to the southern part of its former range, *i.e.,* from central Vera Cruz, south through Tabasco, Yucatan, and Cozumel Island, to British Honduras. The average dimensions of seven adult males from southern Vera Cruz and Tabasco are added here for comparison with *Agelaius phoeniceus megapotamus:*

[1]*Agelaius phoeniceus richmondi* Nelson, Auk, XIV, No. 1, Jan., 1897, p. 58.

Wing, 108.5 mm.; tail, 82.3; total culmen, 24.9; tarsus, 28.7; middle toe without claw, 21.1.

About 100 specimens of *Agelaius phoeniceus megapotamus* have been examined in the present connection, from the subjoined localities:

Texas.—Giddings (May 24, 1887); San Antonio (February 22, 1887); Fort Clark (January 4, 1893, February 18, 1893, March 4, 1893, May 15 and 17, 1893); Devil's River (January 29, 1886); Del Rio (May 20, 1903; June 2, 1903); 12 miles east of Del Rio (June 4, 1903); Eagle Pass (June 2, 1902); Rio Grande City (May 27, 1891); Lomita Ranch (February 5, 15, and 27, 1880); Granjeño Ranch, 10 miles west of Hidalgo (March 8, 1894); Hidalgo (June 21, 1891; May 15 and 18, 1889); Webber's Ranch, on the Rio Grande, 10 miles east of the western line of Cameron County (February 28, 1894); El Blanco in southern Cameron County (June 23, 1891); Brownsville (May 3, 1900; Feb. 17, 1911; February 17, 1876; March 9, 1876; Dec. 22, 1909; January 7, 1912; December 8 and 9, 1909; May 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 26, and 27, 1913); Sauz Ranch, Cameron County, (April 30, 1900); Corpus Christi (June 28, 1886; March 25, 1891; May 20, 29, and 30, 1891; June 1, 1891); fifteen miles northwest of Corpus Christi (March 29, 1886); Beeville (August 7 and 9, 1905); Velasco (March 10, 1892); eight miles southeast of Cuero (March 18, 1907); Roma (May 27, 1891).

Coahuila.—Porfirio Diaz (June 2, 5, and 6, 1902).

Nuevo Leon.—Monterey (February 18, 1891).

Tamaulipas.—Alta Mira (April 21, 1898; May 19, 1898); Camargo (January 7, 9, and 10, 1902).

Vera Cruz.—Rivera (April 26, 1904).

GENERAL NOTES

RECORDING BIRD SONGS.

The present method of recording bird songs is artificial and unsatisfactory, and I am hoping to stir up interest in this subject, so that by discussion we may arrive at some standard method of describing bird songs and bird calls.

Distinction must be made between the voice of a bird and his song, and there is a difference between musical, i.e. melodious notes and unmusical, i.e. piercing notes. Every time a bird makes a sound, he does not necessarily sing.

I think we are safe in saying that birds have (1) ordinary song or songs, which they give during the entire season, and (2) a mating song of more elaborate character, which they give during a limited period. They also have (3) a series of musical call notes, (4) signal notes, and often (5) alarm notes.

In discussing the songs of birds, we must bear in mind that such songs have quality,—pitch,—rhythm,—melody,—and time, and in noting such songs it will be necessary for us to use the ordinary musical scale to which orchestral instruments are tuned in preference to the tempered scale of the piano.

In suggesting the *quality* of the tone, I would make four divisions: (1) like a banjo, i.e. gut strings; a zither, i.e. wire strings; (2) a flute, i.e. head tones; a bassoon, i.e. throat tones.

In describing the *pitch*, it may be well to assume that birds sing in the second, third and fourth and fifth octaves above middle C.

In describing the scale, it might be well to use the four strings of the violin rather than the piano notation.

Each species of birds has a *rhythm* of its own, which is marked and decided, (but erratic within limitations) and substantially the same in each male of the species, although not identical.

In describing the *time*, we may say that it is erratic and variable and difficult to accurately classify, but using metronome markings, as a basis, the speed should be increased from four to ten times.

In describing melodies, we may say that they are never sustained, but are usually in short theme-like phrases, with an ornamentation of trills, or low pendant phrases interspersed between the themes. Phrasing in each species is, in general, alike, but varied by each individual. I have heard Song Sparrows from the same family sing six different variants of the same general song.

As an example, I venture to suggest the following method of description varied as occasion requires to meet the facts:

Rhythm—Four long notes, two short high notes, a trill, two drop notes.

Quality—Zitherlike in the fourth octave.

Pitch—4/4. Metronome markings, 64 plus 10.

Melody—Four notes followed by a jumble of ornamentations similar to colortura work, given in a low tone; two drop notes sung with throat tone.

Variants of the song: Probably three, at least three distinct themes of four notes each can be noted.

I submit these suggestions, hoping that they will bring out some discussion on this subject from ornithologists who have made a study of bird songs and their notation.

P. B. COFFIN.

Chicago, Ill.

AN INTERESTING HYBRID OF MARECA PENELOPE (WIDGON) AND MARECA AMERICANA (BALDPATE).

A male hybrid of the above species taken in North Bay, Princess Anne County, Virginia, on November 28th, 1918, and sent me by Mr. E. V. Roe, is worthy of a detailed description.

Crown, almost pure white, more so than with *americana*. Superciliary line, partly green, partly red.

Lore, ear coverts, throat, and side of neck mottled similar to *americana*, only with undergrown reddish like *penelope*.

The green on the wing, speculum, is less than with *penelope*, but more than with *americana*. Balance of wing similar to *penelope*.

Back similar to *penelope*, but with undergrown of faint reddish tinge.

In the under tail coverts is a single white feather with a black spot about three-eighths-inch diameter, near its extremity.

Although the bird had been under the tender care of the postal authorities for five days previous to arrival,—when it should have come through in one,—I managed to make a very creditable addi to my series of American taken *Mareca penelope*.

HAROLD H. BAILEY.

Newport News, Va.
January 1st, 1919.

MIMUS POLYGLOTTOS POLYGLOTTOS IN NORTH CENTRAL NEW JERSEY.

The published records of *Mimus polyglottos polyglottos* for New Jersey since 1880 are perhaps not numerous enough to render unacceptable still another. The writer has in his collection,

where it has lain unnoticed for many years, an immature male of this species taken on November 25, 1889, at Newman Springs, a mile or so southwest of Red Bank, Monmouth County, New Jersey.

HARRY C. OBERHOLSER.

Washington, D. C.

GAVIA STELLATA IN THE MOUNTAINS OF WESTERN NORTH CAROLINA.

It may be worth while to record a North Carolina specimen of *Gavia stellata* which the writer had the privilege of examining in 1906. It had been killed a year or two before, exact date unknown, on the French Broad River, near Biltmore, North Carolina. It was a perfectly typical bird in immature plumage. This species, while not unusual along the coast of North Carolina, is rare in the interior, and, so far as we are aware has not previously occurred in the mountain region of the state.

HARRY C. OBERHOLSER.

Washington, D. C.

HISTRIONICUS HISTRIONICUS PACIFICUS IN NORTH DAKOTA.

There appears to be no published record for the Harlequin Duck in North Dakota, although it has been reported two or three times from the state of Nebraska. The writer has, however, examined an adult of this species referable to the Pacific form, *Histrionicus histrionicus pacificus*, obtained at Mandan, North Dakota, about September 23, 1912, by Mr. J. D. Allen, who has kindly permitted us to place it on record. It makes thus a very interesting addition to the list of the birds of this state.

HARRY C. OBERHOLSER.

EUROPEAN WIDGEON IN LAKE COUNTY.

How many of you have had the good luck to study at close range an adult male European Widgeon? Probably some, but how many have had that pleasure the *second* time? I found my first back in 1914, in company with one male and two female Baldpates, with sunlight at my back as they passed by on the river so it was hardly necessary to use my glass to distinguish all its characteristic markings. This bird was reported by me in Bird-Lore for that year. Today (March 23, 1919) history has repeated itself, and under still better conditions for observation.

Visiting a large swamp pond early this morning I was disappointed to find its sole occupant in the duck line to be a female

Golden-eye. On my way back, as I neared the bridge that crosses the pond, a flock of twelve ducks lit in close to shore on the other side, so I hurried for the bridge to see from there what species they were. I had no more than distinguished that they were Baldpates when they were in the air again. I found another observer on the bridge, who said he thought there was a Red-head among them. The ducks circled about a few times and finally settled into a shallow pond of small size that lies among the button bushes at the edge of a swampy woods. As I had on boots, and nothing better to do, I decided to see if I could stalk near enough to them for close observation. So through the woods I went, in water six inches deep, and a thin skim of ice in places. Soon I could see them through a thin fringe of button bushes, and about the first thing noticed was a red-head, but it wasn't the right red for a Red-head, and then I "tumbled" as to what it *might* prove to be. Right then I did the stalking of my life—six inches at a time—and plenty of time for every six inches, but I reached the fringe of button bushes without alarming a bird. Every now and then a male whistled and all were tipping up for food and having a glorious time. I soon found the one with the red head, and sure enough, his pate was "bald," and then, one by one, his other distinguishing marks disclosed themselves,—the black throat, the vinaceous breast, and sides that looked gray in comparison with the vinaceous sides of the Baldpates. He stood on his head in the water like the others, and the white belly, surmounted by the black under tail coverts, made an attractive picture. To cap the climax he, with a few of the Baldpates, came to my side of the little pond, so close that I could see that the gray sides were really white, with little wavy lines of black that blended into a uniform gray when mixed with distance; and there they stood for a full half hour and fed, while I stood like a frozen statue on the other side of the button bushes and feasted my eyes on *Mareca penelope*.

E. A. DOOLITTLE.

Painesville, Ohio.

NOTES FROM LAKE COUNTY.

VISITATION OF PINE GROSBEAKS:—From all reports these birds seem to be the most common of all the erratic visitors from the north for this winter—especially in the eastern states. On December 8 and 11, 1918, I found a small company of them feeding in sumac, four brilliant males and four females. Visiting the vicinity on December 23 I was rewarded by finding ten in female plumage, but no adult males. Repeated searches through January failed to disclose any at all.

BELATED OLIVE-BACKED THRUSH—On December 11, 1918, after watching the Grosbeaks mentioned above for some time, I moved on a ways and was greatly surprised to flush an Olive-backed Thrush, which also flew to a sumac and began to feed. The bird was carefully examined to make sure it was neither a Hermit nor a Grey-cheeked, and its unusual reluctance to leave the small cluster of sumac gave me full opportunity for positive identification. Have been unable to find it since that date.

E. A. DOOLITTLE.

Painesville, Ohio.

AVAILABLE MAPS.

Not infrequently one is tempted to extend his observations and collecting into a region with which he is unfamiliar and for the lack of a good map he hesitates, or if he goes, is handicapped in his work. It is not widely known that a large area of the United States has been carefully and minutely mapped by the government and that map sheets about twenty inches square are available at the small cost of ten cents each. All rivers, streams, lakes, marshes, towns, roads, trails, county lines, houses (in some cases), are shown, and the hills and valleys are denoted by contour lines. Most of the maps cover an area about thirty miles square, though some are drawn up to double this scale. Key maps are sent out, gratis, covering each state and on these key maps are shown the areas which have been mapped to date. Communications should be addressed to "The Director, U. S. Geological Survey, Washington, D. C."

In addition to the above, hundreds of counties have been mapped by the Bureau of Soil Surveys and by the Postoffice Department, but are not so complete as those made by the Geological Survey.

A. F. GAINER.

Nashville, Tenn.

ANNUAL MEETING

The announcement by the American Association for the Advancement of Science that the 1919 meeting will be held at St. Louis, Mo., during the holiday season, settles for us the place and approximate time of our next meeting. We should keep this in mind and plan to attend this meeting.

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THE SNOW-BUNTING, AN ARCTIC STUDY IN BLACK AND WHITE.

BY W. ELMER EKBLAW

In his far polar home, a thousand miles beyond the Arctic Circle, the snow-bunting (*Plectrophenax nivalis nivalis*), a pretty study in black and white, is the only songster of all the birds that come so far North. In the vast reaches of the lonely rock-bound islands of the Arctic Archipelago and northern Greenland, the only sound that breaks the all-enveloping silence for months at a time, is the snow-bunting's sweet vibrant song, happy and musical as the tinkle of the mountain brook. To those of us who know him only in winter, when he comes to us in his brown and buff overcoat, silent except for his plaintive call-chirp, the striking beauty of his black and white suit, and the compelling sweetness of his voluble song would indeed be a pleasant surprise.

No shore seems too desolate, no rock ledge too bare, for the snow-bunting. Everywhere throughout the North, wherever man has been in summer, the snow-bunting has greeted him. Even the explorers who have crossed the great ice-cap of Greenland have reported hearing his song, or seeing him, as they have sledged along their lonely, dreary way. The snow-bunting, and the poppy, and the Eskimos, are all alike in their fearlessness, their cheeriness, and their love of the North.

The snow-bunting comes to the Far North in late April or early May; when the heavens are so blue that they can't be bluer; when the stars have all been gone out of the sky for a month; when the midnight sun has risen far enough above the northern horizon to peep over the highest mountains on the rim of the world, and to bring a suggestion of spring into the Northland; when for two or three days the sun-warmed southern wind has blown, and the Eskimos say they can feel the balminess of summer coming, though they still wear their heavy caribou-skin kooletas, or fox-fur kapetahs; then all at once, out of the very sky, it seems, falls the joyful song of the snow-bunting. Only a few moments later, a pair of the songsters, coming from how many miles southward nobody knows, drops cheerfully upon one of the snow-bare rock ledges near an Eskimo village.

A shout of joy greets the little travelers, for "koop-enook" is a favorite with the people. His coming is the signal for them to abandon the crowded little stone-igloos in which they have lived a semi-troglodytic life through the winter, for the fresher, roomier skin-tupiks in which they spend the summer. Often the snow is still deep about the village site when they put up their tupiks and move "out-of-doors," where they stay until the snow-bunting leaves again. Undoubtedly the freedom from tuberculosis and pulmonary illnesses, so characteristic of the Smith Sound Eskimo in contrast with their disease-ridden relatives farther south, is due to their custom of accepting the snow-bunting's invitation to come out-of-doors to enjoy the fresh air with him.

The snow-bunting and his mate do not wait long to select their nesting-place and to build their nest. They make themselves busy at once examining every cranny and crevice about the rocky slopes and ledges for a place where they can be safe from prying eyes or hungry foxes. Usually they decide upon some crack in a steep ledge, but

often they choose a niche under a rock that lies upon the ground. Nearly always it is well concealed.

The nest is most cunningly made of grasses and sedges, usually lined with the white feathers of ptarmigan, the white fur of the hare, or the white hairs of the polar bear. In Ellesmereland, where the muskoxen are numerous, the nest is usually lined with the long black hairs of that animal. Apparently the birds prefer certain localities, for I have found a dozen or more nests of different years' construction placed about one rock ledge. Whether or not the birds return to the same nesting site I could not determine with certainty; but the factor at Sondre Upernivik, in North Greenland told me that a pair built in a niche in the eaves of his station three years in succession. Naturally he thought it to be the same pair.

June has barely come when the first eggs are laid. The eggs are constantly brooded, most of the time by the female, but sometimes by the male, until they hatch in ten or twelve days. Then both parents are busy all the twenty-four hours of the day catching enough crane-flies, gnats, spiders, flies, and moths to keep their nestful of five or six youngsters from hunger. The youngsters grow so fast that in less than two weeks they leave the nest, and begin fluttering about the rocks near their home. Only a day or two passes before they begin flying about, and in a few days they have begun to shift for themselves. Rarely the mother bird broods a second set of eggs so far north, though sometimes, if her first clutch of eggs be destroyed, she makes a new nest and tries again to bring forth a family.

I am not sure that the snow-bunting sleeps at all as long as his youngsters demand food. Early and late he is busy, for his food-supply is not so abundant that he can find it easily or in very great quantity. I have come upon him apparently cuddled away on a sunny ledge, but never in the time when he has young ones to care for. It may

be that his mate and he have some arrangement whereby one or the other broods the young for some time of the day, but of that I am not sure.

In the summer of 1917 a pair of snow-buntings made their nest in a crevice in a rock-ledge less than fifty yards from our headquarters at North Star Bay. This pair I carefully studied throughout their nesting period, and until their young flew. While the young were being fed I was for a time surprised to note that the male bird fed the young about twice as often as did his mate, rather unusual, according to my observations on other birds. Then I found that he had come upon a particularly good hunting-ground, where the flies gathered about our refuse heap and our blubber-barrel near the shore. Here he could catch a mouth full of flies in half the time his mate could gather her bill full of the rarer and more scattered crane-flies and moths, for which she had to search far afield. Whether or not the youngsters derived more nourishment or "vitamines" from the flies, or the moths and crane-flies, it would be hard to state.

The Arctic sledge trail would be lonely indeed without the cheerful, companionable snow-bunting to greet the explorer from every sunny slope or warm rock-ledge, and to come inquiringly about the sledge or tent to pass the time of day. In my traverse of Grant Land, the snow-buntings came to our camp at the head of Canon Fjord on April twenty-eighth, and afterwards hardly a day passed that we did not see them or hear their song. All the way down the Veery River and Lake Hazen from the divide of Grant Land the snow-bunting frequented every cliff and slope. About the ruins of old Fort Conger a dozen pairs were making ready to nest.

A snow-bunting's song would attract attention even in the Southland. It is as thrillingly sweet as the song-sparrow's as vibrant as a thrush's; and as exultant and exuberantly happy as the mocking bird's. Sometimes he gives voice to

his song while perching; but on calm sunny days he rises from his perch to sing, singing as he rises, and then drops back to his favorite rock still singing. Often a pair of males appear to engage in competitive antiphonal concert, and then the mountain-side rings with ecstatic melody.

Along in August, when the midnight sun no longer glorifies the North, the snow-buntings don their warmer buff and brown plumage, and begin to assemble in considerable flocks on the grassier slopes for the journey southward. Quiet and still, as if sad to leave their northern home, they feed about the rocks, lingering even until November, when the night comes on, and the sun no longer shines even at noonday. Then the North is silent until they come again.

MIGRATION RECORDS FOR KANSAS BIRDS.

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[Continued from March Issue.]

FAMILY MNIOTILTIDAE—WOOD WARBLERS.

This family lives upon foliage insects; a few, however, have flycatcher habits. They come late and leave early. Field observation is rarely dependable because there are so many kinds, and these kinds have many variations; the immature ones differing, in many cases, from the mature in plumage. Then, too, for most part, they keep to the tree tops. The data for most species is based on museum records. Many seen in field but positive identification not possible for above reasons.

636. *Mniotilta varia*—Black and White Warbler.

A fairly common summer resident. Field and museum records give May 1, 3, 5, 9. Lane County, September 14, one specimen.

637. *Prothonotaria citrea*—Prothonotary Warbler.

This warbler is a common summer resident in eastern Kansas wherever swamps are found. Field observation May 1. It is quite likely that they arrive considerably earlier. They probably return south in July and a few, if any, remain till September. Last museum records August 6, 11, 13.

639. *Helmitheros vermivorus*—Worm-eating Warbler.

A rare migrant. One museum record May 6.

641. *Vermivora pinus*—Blue-winged Warbler.

An occasional migrant. Museum records May 12, August 10.

645. *Vermivora rubricapilla rubricapilla*—Nashville Warbler.

Rare migrant. Museum records for October 2, and two for October 12.

646. *Vermivora celata celata*—Orange-crowned Warbler.

A common migrant. Museum has three specimens taken April 26, 27, 30. There are nine from Cloud County ranging from October 9 to 19.

Vermivora celata orestera—Western Orange-crowned Warbler.

"Migratory in western part of the state."—Bunker. No museum specimens.

647. *Vermivora peregrina*—Tennessee Warbler.

Rare migrant. Specimens taken, one May 3; four on May 11; two on May 16; and one on May 17.

648a. *Compsothlypis americana usnea*—Northern Parula.

Common migrant. One specimen on May 3; two May 5; one May 8; one September 14; and two September 20.

652. *Dendroica æstiva æstiva*—Yellow Warbler.

Common summer resident. In 1917 arrived April 24. Common May 1. This species leaves mostly in July and August. The museum has one specimen taken September 20, 1907.

654. *Dendroica cærulescens cærulescens*—Black-throated Blue Warbler.

This warbler is a rare migrant. The museum records but one specimen. It was taken in Lane County October 16.

655. *Dendroica coronata*—Myrtle Warbler.

The myrtle warbler is a common migrant. According to Bunker it is an occasional sojourner in open winters. The first observation date for 1917 is April 8. Not common till April 24. Still common May 9. Not observed after May 12.

656. *Dendroica auduboni audoboni*—Audubon's Warbler.

Common migrant in western part of Kansas. Specimens at museum show one from Gove County October 1, four October 3; Lane County, two October 4; Trego County two, October 15 and 16.

657. *Dendroica magnolia*—Magnolia Warbler.

A rare migrant. No data.

658. *Dendroica cerulea*—Cerulean Wrabler.

This species is a common migrant and a rare summer resident. One migration record May 3, 1912. (Museum.)

659. *Dendroica pensylvanica*—Chestnut-sided Warbler.

A rare migrant. No museum records.

661. *Dendroica striata*—Black-poll Warbler.

This warbler is a common migrant. Museum records one specimen May 17 and three May 21.

662. *Dendroica fusca*—Blackburnian Warbler.
A rare migrant. No museum records.

671. *Dendroica vigorsi*—Pine Warbler.
In eastern Kansas a rare migrant. No museum records.

672. *Dendroica palmarum palmarum*—Palm Warbler.
A rare migrant in eastern part of state. One museum record, April 28, 1881, Douglas County.

673. *Dendroica discolor*—Prairie Warbler.
No museum records. It is a rare summer resident in eastern Kansas.

674. *Seiurus aurocapillus*—Oven-bird.
In eastern part of state it is a common summer resident. Three museum records, May 16, 17, and September 14.

675a. *Seiurus noveboracensis notabilis*—Grinnell's Water-Thrush.
A rare migrant. One specimen at museum, taken April 29, 1904.

676. *Seiurus motacilla*—Louisiana Water-Thrush.
As a summer resident, common. Observed in 1917, on May 5. Two seen May 8; again observed May 13 and 18. Museum has one specimen, May 15, 1908.

677. *Oporornis formosus*—Kentucky Warbler.
In eastern part of state it is a common summer resident. Three museum records May 12, July 29, August 1.

679. *Oporornis philadelphia*—Mourning Warbler.
This species is a rare migrant. One museum record August 30.

681. *Geothlypis trichas trichas*—Maryland Yellow-throat.
A common summer resident. It arrived in 1917 on April 24. Common May 5. Last museum records September 14, 15, 17, 19.

681d. *Geothlypis trichas brachidactyla*—Northern Yellow-throat.
No records of migration. Museum specimens, two in Cherokee County for June 21 and 30 and one in Montgomery for July 28.

683. *Icteria virens virens*—Yellow-breasted Chat.
Common in summer. Museum records, one May 5, two May 9, and one on May 13, 15, 16, 20, 22. Also on September 14, 15, 19, 20.

683a. *Icteria virens longicauda*—Long-tailed Chat.
In western Kansas it is quite common through the summer. No data.

684. *Wilsonia citrina*—Hooded Warbler.
A rare summer resident in eastern part of state. No data.

685. *Wilsonia pusilla pusilla*—Wilson's Warbler.
A common migrant. One record, October 9, 1912, in Gove County.

686. *Wilsonia canadensis*—Canada Warbler.

Rare migrant in eastern Kansas. One record for Neosho Falls, August 29, 1881.

687. *Septophaga ruticilla*—Redstart.

In summer a common resident. Museum and field records, May 1, four, May 3, 8, 9, 16, etc., September 8 and 19.

FAMILY MOTACILLIDAE—WAGTAILS.

697. *Anthus rubescens*—Pipit.

A common migrant. Four museum specimens taken April 16; two on April 23; one September 10; and one October 29.

700. *Anthus spraguei*—Sprague's Pipit.

Sprague's Pipit is a common migrant in western Kansas and a rare migrant in eastern part of state. September 5, 13, 19, Wakeeney; October 5, Lane County; October 6, 7, 9, Cloud County; six on October 10, Gove County, according to museum records.

FAMILY *MIMIDAE*—THRASHERS, MOCKINGBIRDS, ETC.

703. *Mimus polyglottos polyglottos*—Mockingbird.

This species is a common summer resident in eastern Kansas. First observed in 1917 on April 26. Last observed in fall of 1916 on October 3.

703a. *Mimus polyglottos leucopterus*—Western Mockingbird.

A common summer resident in western part of the state. The museum records two specimens in May, one on May 19, Barber County, and one the 27th from Comanche County. There are seven specimens from Wallace County, taken in June and July. Of these, two for June 29; four for July 3; and one for July 6.

704. *Dumetella carolinensis*—Catbird.

The catbird is a common summer resident. Arrived in 1917 on May 1, and was seen every day, thereafter, during the summer. In 1916 it was last observed on October 16.

705. *Toxostoma rufum*—Brown Thrasher.

This species is very abundant during the summer. First observed in spring of 1917 on April 5. Fairly common April 12. Arrived in full numbers April 16. In the autumn of 1916, very common until September 21. It was last seen September 28. The museum gives last record October 3 for Lane County.

FAMILY TROGLODYTIDAE—WRENS

715. *Salpinctes obsoletus obsoletus*—Rock Wren.

This species is a summer resident in central and western Kansas. Only one specimen at museum and it was taken in Lane County September 27.

718. *Thryothorus ludovicianus ludovicianus*—Carolina Wren.

A common resident.

719b. *Thryomanes bewicki bairdi*—Baird's Wren.

Baird's wren is a not uncommon resident in southwestern Kansas.

719c. *Thryomanes bewicki cryptus*—Texas Bewick's Wren.

A common migrant in southwestern Kansas. The museum records show sixteen specimens from Barber and Comanche Counties, ranging from May 9 to May 29

721b. *Troglodytes aedon parkmani*—Western House Wren.

As summer resident, common. Plentiful in spring of 1917. First observation on April 19. Last observed in fall of 1916 on September 27. The museum record for Cloud County gives October 10.

722. *Nannus hiemalis hiemalis*—Winter Wren.

Not uncommon in winter. Museum records October 18, Trego County; December 30, Miami County; November 11, January 2 and February 11 for Douglas County.

724. *Cistothorus stellaris*—Short-billed Marsh Wren.

This wren is a rare migrant. One specimen at museum is recorded for May 30, and two others, one for August 6 and one for August 24; another for October 2.

725d. *Telmatodytes palustris iliacus*—Prairie Marsh Wren.

A rare summer resident. Museum records for May 3 and October 19 and 31.

FAMILY CERTHIIDAE—CREEPERS.

726. *Certhia familiaris americana*—Brown Creeper.

A common winter resident. It is, however, a more common migrant. One observed on October 2, 1916. Museum records show three on October 3. The creeper was observed daily in 1917 between March 25 and April 26, but seldom seen in winter. It has been more common in other winters.

FAMILY SITTIDAE—NUTHATCHES.

727. *Sitta carolinensis carolinensis*—White-breasted Nuthatch.

A common resident.

728. *Sitta canadensis*—Red-breasted Nuthatch.

This nuthatch is a migrant, but is not common. Sometimes it is a winter resident. It is a bird of irregular habits, sometimes spending the winter far north of Kansas. The migrations are irregular. Observed in 1917 on May 24; in 1916 on October 10. The museum records show two specimens, one for Trego County, on October 16, and one for Lawrence, on November 19.

FAMILY PARIDAE—TITMOUSE.

731. *Bacolophus bicolor*—Tufted Titmouse.

The Tufted Titmouse is a common resident.

735a. *Penthestes atricapillus septentrionalis*—Long-tailed Chickadee.

735a. *Penthestes atricapillus sextentrionalis*—Long-tailed Chickadee.

These two species are not distinguishable in the field. The chickadees are one of our most numerous winter birds. In 1917 careful records showed a gradual thinning out, beginning about March 25, but they were still common May 6. After the 6th of May the numbers were less. After May 15 they were seldom seen except in deep woods. In fall of 1916 they became more numerous and began to move out of deep woods into more open places about September 1, but they were not common until about September 20. Thereafter observed almost daily.

FAMILY SYLVIIDAE—KINGLETS, GNATCATCHERS.

748. *Regulus satrapa satrapa*—Golden-crowned Kinglet.

While this species is a winter resident, he is not common. The first museum record is November 14. The field record for 1917 shows one specimen for March 17

749. *Regulus calendula calendula*—Ruby-crowned Kinglet.

Kansas is within the winter range of this common migrant. In the spring of 1917 the first arrivals were observed on March 25. From that date the kinglets were quite common till April 22. They came, as it seemed, in a body and left in like manner. The museum records April 27. Observed abundantly in 1916, October 12, according to same record. For Lane County, September 27, 28 to October 21.

751. *Polioptila caerulea caerulea*—Blue-gray Gnatcatcher.

This species is rare as a summer resident, but as a migrant quite common. The time of migration is irregular. The museum records show specimens taken on April 17; one on April 9; and one on the 13th and one on the 22d of May. They return in August and leave the same month. The fall records show two specimens captured on August 27 and two on August 29.

FAMILY TURBIDAE—THRUSHES, ROBINS AND BLUEBIRDS.

754. *Myadestes townsendii*—Townsend's Solitaire.

The Townsend Solitaire is an occasional fall and winter visitant. No data.

755. *Hylocichla mustelina*—Wood Thrush.

This species is common during the summer. It arrived in a body on May 1, 1917. In the fall the numbers gradually decrease. The fall records show it as last seen on September 27. Its quiet, secluded habits during fall makes necessary more careful searching.

756a. *Hylocichla fuscescens salicicola*—Willow Thrush.

Only a rare migrant. But one record reporting it, and that on September 10.

757. *Hylocichla aliciae aliciae*—Gray-cheeked Thrush.

This is a rare migrant. No record.

758a. *Hylocichla ustula swainsoni*—Olive-backed Thrush.

The Olive-backed Thrush is a common migrant. As observed in the spring of 1917 it was found to be fairly common from April 28 to May 5. One specimen was daily seen till May 16. The museum records show the later date of May 19; also three for May 21.

759a. *Hylocichla guttata auduboni*—Audubon's Hermit Thrush.

The Audubon Hermit Thrush is found along western border. It is probably not a regular resident as this is a mountain subspecies. Lane County reports one record on September 27, 1912.

759b. *Hylochichla guttata pallasi*—Hermit Thrush.

For Kansas this species is a rare migrant. But one migration record, and that on April 14, 1916.

761. *Plantesticus migratorius migratorius*—American Robin.

The robins are with us in great numbers during the summer. They are not at all uncommon during the winter months. Quite true, they are seldom seen at that time, because they go out to the countryside to find shelter in woods and low shrubbery. Among the spring arrivals this species is one of the first to come. The first field notes for 1917 gives date of coming February 21, although friends reported having seen them on the 19th. By February 23, they were fairly common, and by the 25th they were abundant. At this time, however, they kept to the country and congregated in flocks. In town the number was comparatively small until March 10. When autumn came they were not often seen after September 29, 1916, but occasionally until November 9.

761a. *Plantesticus migratorius propinquus*—Western Robin.

This species is a rare winter visitant in western Kansas. Seventeen records from Trego, Gove, and Lane Counties, range from October 3 to 23. One record shows a specimen for Douglas County on January 9. This, however, is purely accidental.

766. *Sialia sialis sialis*—Bluebird.

A few of the bluebirds remain throughout the winter, but so very few that the bird must be classed as a rare winter resident. In the summer they are abundant in eastern and central Kansas.

They were first observed in the spring of 1917, on February 8. By February 21 they were fairly common, and on March 3 they seemed to be here in full numbers. Became noticeable about October 20, but a few were still seen December 1. Occasionally, throughout the winter, one or two were noted.

768. *Sialia currucoides*—Mountain Blubird.

Reported as occasional summer visitant in western Kansas, but no migration data are at hand for this species.

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THE BALD EAGLE IN LOUISIANA.

BY ALFRED M. BAILEY.

The Bald Eagle is a not uncommon bird in Louisiana and it may be met in all parts of the state, although found most commonly near bodies of water. These large, beautiful birds of prey are striking features of the Southern swamps and marshes, and they are often seen skimming comparatively low as they search for food, and their strange, wild call can be heard for great distances, even when the bird is itself invisible. They will sail so high as to be almost indistinguishable from vultures, and yet that piercing cry is plainly audible.

The habit of the Bald Eagle to waylay the hard working Osprey is well known, but the eagle often fishes for himself, although not nearly so skillfully as his smaller relative. They work the beach systematically for dead fish, and a pair of birds almost always is to be found where fishermen are accustomed to seine. But a straight fish diet does not appeal to this old patriarch, and he will often

drop like a bullet into a flock of unsuspecting ducks, and ducks are not the only birds that sometimes make life worth living either.

I have examined four nests of the eagle in Louisiana, three on the estate of E. A. McIlhenny, the well known conservationist. The first nest was found February 17, 1917. There is a peninsula of cypress trees jutting into the marshland about a mile back in the dense swamps surrounding Avery Island, and the eagles had chosen the snag of a very high tree, that would give them a range of view. The half rotten tree had a portion of the top broken off, and leaned at quite an angle, so as to be an aid in climbing. I used iron pegs, and drove in as I climbed. In this nest was one young only, a bird almost full grown, and weighing in fact, as much as an adult. It was one of the characteristic uniform brown plumage of the juvenile. The nest itself was nearly six feet across, a massive affair of small cypress limbs two and three feet in length; moss and marsh grass were used for lining, and the whole interior was a mass of filth. Bits of rabbit fur, feathers from pintail and mallard ducks, and numerous bird bones, including the leg bone of a Great Blue Heron, cluttered up the nest.

The adults were not at all ferocious, but after a few preliminary circles, sailed off and watched me from a distant outstretched limb. They are exceedingly wary and usually occupy such an exposed position, where they can see and be seen from afar.

The second nest was found within a few hundred yards of the first, on February 2, 1919. Eagles seem to nest in the same locality for many years, and one pair that I know of, occupied the same general nesting site for seventeen successive years. In this nest were two eggs, one in advanced state of incubation, while the other was spoiled. One bird only was seen, the bird on the nest, and she flushed before we were within two hundred yards. She made a few circles and then disappeared, not to be seen

until we left the vicinity, when she called our attention by her strange cries.

The third nest was found the same day, three miles farther in the swamp. It was in an especially high cypress with no side branches below the nest. Young birds could be heard plainly from a good distance, and their little round heads could be seen above the black rim. Neither adult was present when we arrived, and as the young were desired for museum specimens, the tree was cut. One of the old birds appeared in a short time trailing a long piece of moss in her talons, which gave her tail a long pointed appearance. This bird, too, refused to approach close to the nest. Their sharp eyesight is uncanny, and although we desired to collect the pair, we were never able to get them within range. In the last nest, besides the usual clutter of feathers and bones, we were surprised to find a nest of hornets.

Eagles, as is usual with large predacious birds, do not nest in close proximity to each other. On Pecan Island I have been told of seven nests on one ridge, and that is the largest number I have heard of,—and can not verify that report. Usually there is only one to many miles of territory. It would be supposed that such a bulky nest would be very conspicuous, especially as the cypress are not leaved out during the nesting season, but the masses of waving moss that festoon all the trees and the dense growth of underbrush effectively conceal this aerial home from casual observers.

Nesting material is gathered from the ground, and some small pieces were nicely cut as though from the blow of a hatchet. An old trapper told me of an interesting experience with these noble birds. He was resting under a tall cypress after a hard trip over the trap line, and he was attracted by the birds sailing overhead. One of them came to his tree, hovered above with a few strong strokes of its powerful wings, and then dropped like a plummet for a distance of about twenty-five feet upon a small out-

stretched limb. The limb snapped close, and quickly recovering itself, the bird sailed away with the branch.

March 4 I found another nest along Black Bayou in Cameron Parish. It was in a small cypress standing almost isolated in the marsh, a very conspicuous nesting site. One baby, only a few days old, and an egg pipped but with the young dead were in the nest at this late date. This nest was the most easily accessible of any found, but the region itself was far from the ordinary path of man. Several duck wings as well as fish (horned pout and shad) littered the nest, and the little fellow huddled off in one corner was almost lost among the debris.

Eagles are not molested as a rule. The stockmen claim the old birds kill young sheep and pigs, but the trappers and sportsmen consider them as friends, for when flying low over the marshlands, they keep the game moving, and many birds are brought to bag that otherwise would have escaped.

Louisiana State Museum, New Orleans.

THE GRAY KINGBIRD IN WAKULLA COUNTY, FLORIDA.

BY JOHN WILLIAMS.

These birds occur here along the shores of the Gulf in all congenial situations. They seem to be extremely particular as to a locality for nesting, and as such sites are not numerous within the limits of our county the birds cannot be called abundant summer residents.

They are to be found, for the greater part of their stay with us, where there are a few scattered trees—Live Oaks usually—contiguous to or at least but a short distance back from the open waters of the Gulf or on the shores of an extended bay. Broad salt-water marshes usually stretch along shore on either side of these home sites, in which abound Florida Clapper Rails (*Rallus crepitans scotti*),

Scotts Seaside Sparrow (*Passerherbulus maritimus peninsulæ*), and Marion's Marsh Wren (*Telmatodites palustris mariannæ*).

Along the nearby beach and on the sandflats interspersed over the marshes the Gray Kingbird (*Tyrannus dominicensis*) finds almost countless numbers of kindred assembled when they came on weary wing from across the broad waters after a winter's distant sojourn.

Here are Willets (*Catoptrophorus semipalmatus semipalmatus*) already mating, and numerous Wilson's Plover (*Ochthodromus wilsonius*), on nimble feet. The mass of the great flock is made up of Red-backed Sandpipers (*Pelidna alpina sakhalina*), Least Sandpipers (*Pisobia minutilla*), Semipalmated Sandpipers (*Ereunetes pusillus*), and Dowitchers (*Macrorhamphus griseus griseus*), with others in lesser numbers; Turnstone (*Arenaria interpres morinella*), Black-bellied Plover (*Squatarola squatarola*), Hudsonian Curlew (*Numenius hudsonicus*), Black Skimmers (*Rynchops nigra*), Common Terns (*Sterna hirundo*), Yellow-legs (*Heiornis flaripes*), and doubtless scattered rarities.

Thither they repair on their arrival, which is in early April; the 14th of that month last past (1919) being the earliest I have recorded, but from a lack of frequent opportunities for observations at that season it is probable they come a few days earlier.

Compared with the Kingbird (*Tyrannus tyrannus*) they are somewhat more tardy in reaching our shores as the more common species arrives for the most part in late March—3-30, 14, 3-25, 16, 3-29, 17, 3-24, 18, and 3-28, 19, being dates when I have first seen them here.

The feeding grounds of the Gray Kingbird extend over the open marsh and the flats close back from the beach and good gleaning is found about the bushes that frequently line the shores just above ordinary high tide. Occasional small stunted Live Oaks and scattered Pines afford vant-

age points on which the birds mount guard and whence they sally forth on numerous forays.

They are far less pugnacious than are their next of kin, the Kingbirds, and seldom ever are they seen attacking other species. Both these species of *Tyrannidæ* are usually found closely associated in the localities already indicated, but while the Kingbird extends its summer domicile widely throughout the inland sections and are one of our most numerous breeding species, the Gray Kingbird rarely nests out of sight of the Gulf and all exceptions under my notice have been on the banks of our larger rivers or extensive bays, and then but a few miles back from the coast.

The few nests of this species which I have examined were invariably built in small Live Oak trees that survive with a stunted growth in the sandy soil and buffeted by the storms that not infrequently rage from the tropics to beat out against our shores.

In appearance the nests of this bird are quite dissimilar to those of the Kingbird and so far as noted were placed low down in the thicker, denser portions of the tree—eight to twelve feet up and well out towards the extremity of the limbs. One of these structures carefully examined was made up of twigs and small rootlets and stems and lined with a finer assortment of the same materials. The external diameter was about five and one-half inches and about two and one-half inches in external depth. The nest cavity was large in proportion to the bulk of the nest; in general, not unlike a substantial nest of the Cardinal (*C. c. cardinalis*). Three eggs almost fresh were taken May 22, 1913, and on the following day the birds were already commencing the building of another nest in a nearby tree. A nest found June 6, 1915, contained three young almost ready to fly. When the nest is approached the old birds, while solicitous and keeping close about, are not inclined to be pugnacious, but either show a nervous strain by frequent short flights close at hand or maintain a prolonged

perch, frequently uttering a few rather low-pitched weak notes like "Quit-eat," pronounced and repeated rapidly and several times successively. At times their strain was translated into "Quit eat it."

After the young are grown and awing they are inclined to remain with the parent birds, or at least it is usual to find groups of four or five of these birds associated in the late summer, and at that time they are more inclined to wander farther from the open waters, although with my limited opportunities I have not found them even then removed from the immediate proximity to a river bank or bay shore, and never beyond the limits of a tidal marsh. As they come to us a little later in the spring than the bolder, more strenuous Kingbird, so in the autumn they depart a few days earlier, September 26, 1917, being the latest date I have seen them here, on which day five were in company near our lighthouse; while the latest noted dates for the Kingbird were September 29, 1914, September 26, 1915, October 4, 1918.

While in general appearance and flight they resemble *T. tyrannus* they may be readily distinguished from that species at a considerable distance, even when the paler coloring and lack of white tail-tip are observed, by a more sluggish flight and dash for prey and to a greater degree by the heavier appearance of the head due to the longer, stouter bill, which gives to the bird a rather top-heavy appearance.

St. Marks, Fla.

A DAY WITH LAKE COUNTY BIRDS.

BY F. N. SHANKLAND.

The morning of May 19, 1918, dawned bright and clear, and by six o'clock, four of us had eaten our breakfasts and set out for an all-day bird census. Our objective was Joplin's Woods, where birds of all kinds are always abundant and migrating warblers especially numerous during the month of May. Through this woods runs a small creek which empties into Chagrin River about a mile further down. The creek is bordered by beautiful wooded hillsides, with just enough swamp land, second growth and blackberry thickets, to make it a veritable birds' paradise. This little wilderness had been left to itself in the midst of the neighboring farms, and if it had been designed especially for the birds it could not have served the purpose better.

We had made thorough preparation for this bird census, and had listed all the birds in that vicinity, so that they could readily be checked off as observed. We were fortunate in having selected an excellent day for bird study and we were kept busy making records from six o'clock in the morning until late in the afternoon. We had planned to stay three or four hours in this particular woods and then go by automobile to Mentor Marsh, located some eight miles distant on the shores of Lake Erie. There we expected to add to our lists some water birds that could not be found elsewhere.

During the day we succeeded in recording eighty-two species in all, which is the best record that any of us had made in Lake County up to that time. Most of these were common birds, and not more than four or five of the species recorded would be considered as rare or even scarce. Furthermore, when we checked up our lists in the evening we were surprised to find that we had been unable to record a dozen or more fairly common species which we knew were present in the vicinity.

Birds of prey are not very plentiful in this locality and our list included only four species, as follows:

Sparrow Hawk	Red-tailed Hawk
Red-shouldered Hawk	Sharp-shinned Hawk

This list was something of a disappointment since we were positive that Marsh Hawks and Cooper's Hawks were resident in that woods. We were simply unable to get a glimpse of them on that particular day. We did see one bird that might have been the Bald Eagle, but it was too far away to make identification sure. None of our four common species of owls were to be seen that morning, which was quite a keen disappointment. It was not late enough in the season to look for Turkey Vultures and the Rough-legged Hawks had long since gone north. These are about all the birds of prey that are ever recorded in Lake County, although some of the older lists contain the names of the Snowy Owl, the Barn Owl, and the Osprey.

We had very good luck with the *Conirostres,* among which are included the crows, jays, blackbirds, orioles, sparrows, grosbeaks, and buntings. Our complete list included the following:

English Sparrow	Crow
Song Sparrow	Blue Jay
Field Sparrow	Cowbird
Chipping Sparrow	Red-winged Blackbird
Vesper Sparrow	Scarlet Tanager
Bronzed Grackle	Towhee
Orchard Oriole	Cardinal
Baltimore Oriole	Rose-breasted Grosbeak
Bobolink	Indigo Bunting
Meadowlark	Goldfinch

We were very fortunate indeed in our study of the *Dentirostres*, among which are included the vireos, warblers, thrushes, fly-catchers, wax-wings, etc. The warblers, on account of their small size and rapid movements, made us quite a lot of work following them through bushes and thickets or trying to identify them with the aid of our field glasses as they flitted through the tops of the trees. In

addition to the warblers listed, we saw three or four more varieties which were not positively identified. The list follows:

Robin	Yellow Warbler
Bluebird	Oven-bird
Wood Thrush	Hooded Warbler
Cedar Waxwing	Black-throated Blue Warbler
Kingbird	
Wood Pewee	Blue-winged Warbler
Phœbe	Tennessee Warbler
Crested Flycatcher	Bay-breasted Warbler
Acadian Flycatcher	Canada Warbler
Least Flycatcher	Blackburnian Warbler
Traill's Flycatcher	Magnolia Warbler
Yellow-throated vireo	Black-poll Warbler
Warbling Vireo	Maryland Yellow-throat
Red-eyed Vireo	Yellow-breasted Chat
Chestnut-sided Warbler	Cape May Warbler

Of the thrushes we were disappointed in not recording the Wilson's Thrush, and the Olive-backed Thrush. The Hermit Thrushes had all gone north some time before. Of the warblers we were a little too late for some of the early ones, such as the Black and White Warbler, the Palm Warbler, the Myrtle Warbler, and one or two others, but we were disappointed in not seeing the Nashville Warbler, the Parula Warbler, the Redstart, the Water-Thrush, and the Black-throated Green Warbler.

Lake County boasts of six common species of woodpeckers, of which we succeeded in recording four, as follows:

Yellow-bellied Sapsucker	Red-headed Woodpecker
Downy Woodpecker	Northern Flicker

We were unable to locate the Hairy Woodpecker, although we usually saw several individuals in passing through these woods. The Red-bellied Woodpecker was also conspicuous by its absence.

Owing to the fact that swallows of all kinds had been

very scarce all spring, we were rather surprised in making as good a showing with these birds as we did. The extremely cold winter had almost exterminated the Purple Martins and we therefore counted ourselves fortunate in finding several pairs of them carrying nesting material into a Martin-house on the estate of one of the wealthy Cleveland men who lives near Lake Erie. Our complete list of swallows included the following:

Purple Martin	Cliff Swallow
Barn Swallow	Chimney Swift was also seen
Bank Swallow	

In the deeper woods we found the Chickadee, the Brown Thrasher, the Tufted Titmouse, the Catbird, and the White-breasted Nuthatch. One of the most interesting discoveries of the day was a Chickadee's nest containing eight eggs, in the decayed limb of a small willow tree. Before leaving home, we had listed the House Wren and later in the day we recorded the Long-billed Marsh Wren, near Mentor Marsh.

When we left Joplin's Woods, we checked up our list and found that we had seventy species recorded. As we drove along the country road toward the Marsh, we heard the welcome and cheery calls of the Bob-whites, from the adjacent fields and pastures. While stopping at a dilapidated old barn, we found a Mourning Dove sitting upon her nest, which had been built upon one of the heavy timbers of the frame of the barn where a section of the roof was still intact and effectually sheltered her from the weather.

One of the most agreeable surprises of the day was our finding of a large colony of Cliff Swallows. As we made our last turn before reaching the Marsh we noticed a group of several old barns and one of our number called attention to the swallows which were flying around. One of them flew past our car a moment later, and we were delighted to find that it was a Cliff Swallow. We hastily

climbed the fence and upon arriving at the barnyard found that the eaves were thickly covered with the picturesque nests of these birds, and out of nearly every nest a Cliff Swallow's head was visible. Such colonies have become very rare in this section of northern Ohio and we urged the proprietor of the farm to use every effort to protect them, which he promised to do.

When we arrived at the Marsh, we found the Herring Gulls circling around over the lake or resting upon its surface. A short time later we also saw a flock of Common Terns, which appeared around a bend in the shore and wheeled past us, calling loudly as they went. In the open water of the Marsh we saw a Coot. As we approached nearer, it disappeared among the cat-tails. Where the marsh empties into the lake we found water birds abundant. There were Killdeers, Spotted Sandpipers, Semipalmated Plovers, Kingfishers, and Green Herons, and once a flock of shore birds which we could not positively identified, but which were probably Pectoral Sandpipers, flew overhead. Here, also, we saw a Ruby-throated Hummingbird, which increased our total to eighty-one species, and that evening, while checking over our records, we saw three Nighthawks circling overhead, making the total eighty-two. No doubt other Lake County observers have made larger records, but this list is representative and gives a good idea of the species that one may expect to meet with in this vicinity.

In comparing this list with that made by Harry C. Oberholser and associates, near Washington, D. C., it will be seen that their lists contain many more species, due principally to the fact that the territory which they covered is a more favorable one and is haunted by many species never found in Lake County at all.

Our party included C. M. Shipman, R. W. Hill, E. J. Chesbro, and the writer.

Willoughby, Ohio.

GENERAL NOTES

DENDROICA CERULEA IN WESTERN NORTH CAROLINA IN SUMMER.

The cerulean warbler does not appear to be common or generally distributed in the western North Carolina mountains during the breeding season. There is, so far as the writer is aware, only a single previous breeding record, that of Mr. Arthur T. Wayne, who found several individuals near Morganton, North Carolina, on May 28, 1909 (Auk, XXVII, January, 1910, pp. 84-85). The writer has in his possession a specimen of this species shot by Mr. P. M. Wilson in the "Pink Beds," Pisgah Forest, Transylvania County, North Carolina, on July 17, 1906. This bird is a juvenal female, and since it is in first autumn plumage, probably came from a nest somewhere in that vicinity, and therefore forms the second breeding record for the State. This example, as will be noted, was collected three years before Mr. Wayne's observations above noted were recorded, but for various reasons has hitherto failed of published record.

HARRY C. OBERHOLSER.

ANOTHER CINNAMON TEAL IN NORTH DAKOTA.

Authentic records of *Querquedula cyanoptera* for North Dakota are still sufficiently few to make worth while the publication of any additional specimens. Through the courtesy of Mr. J. D. Allen, the writer was privileged, during a recent visit to the State, to examine an adult example of this species then in Mr. Allen's possession, which had been taken by him at Mandan, North Dakota, October 10, 1902.

HARRY C. OBERHOLSER.

OTOCORIS ALPESTRIS HOYTI IN OHIO.

While the Hoyt Horned Lark (*Octocoris alpestris hoyti*) is known to occur in Ohio, there are aparently not over half a dozen specimens actually recorded from the State. It may be worth while, therefore, to place upon record an additional example which recently came to light in the collection of the United States National Museum, and which was originally No. 2164 in the private collection of Dr. Edgar A. Mearns, but is now No. 235158, U. S. Nat. Mus. It is an adult male, and was taken by Dr. Mearns at Circleville, Ohio, on November 26, 1880. The length in the flesh is given as 7.75 inches, and the extent as 14.10 inches. Other com-

ment on the label is as follows: "Iris hazel. Shot on the River Road, from large flock." This specimen is not quite typical, but verges slightly towards *Otocoris alpestris alpestris* in the more ochraceous, less grayish tone of the upper parts, and is like birds that breed on the western shore of Hudson Bay. It is, however, undoubtedly referable to *Otocoris alpestris hoyti*.

HARRY C. OBERHOLSER.

Washington, D. C.

UNUSUAL NESTING SITES OF CRESTED FLYCATCHERS AT ST. MARKS, FLORIDA.

The species—*Myiarchus crinitus*—is a rather common summer resident here, nesting generally throughout the timbered sections, except in the heavily wooded hammocks, and they frequently occur nesting about dwellings of the village as well as throughout the country districts. Several out-of-the-common sites have come under my notice and may be of interest to record:

I. In the front piazza of an occupied dwelling in the village of St. Marks; the entrance being through an opening at the eaves directly under the shingles—the structure being ceiled beneath—young birds were being fed May 25, 1913. The young left the nest June 3. The old birds did not hesitate to enter this nest while persons occupied the porch but a few feet distant.

II. An uncovered sill in the second-story loft of an unoccupied dwelling in our village; entrance through displaced shingles. On May 20, 1914, incubation was about one-third completed.

III. May 1, 1915, a pair commenced building under a broken and raised piece of metal roofing which had been laid on boards. After being almost completed the birds abandoned the site. Excessive sun-heat may have warned them of serious results if continued.

IV. On May 18, 1915, a pair were seen to enter a stove-pipe that extended out of a small one-story frame building occupied as a restaurant by an old colored "Auntie." The pipe served as a chimney and turned upright after emerging from the building. The birds were noticed about the place all day, but it is not known that they carried nesting material on that day. They were probably the pair that had abandoned No. III site. "Aunt Maria" had a fire burning for about an hour on May 19 without noticing any stoppage to the draft of the stove. During May 20 the birds worked industriously at nest-building, carrying material down into the pipe. On May 21, about 8:00 a. m., on attempting to build a fire, the old lady was completely smoked out and was

unable to get a "draw" until the pipe was emptied of a peck or more of straws, feathers, twigs, hair and snake skins.

V. Five eggs were taken May 20, 1916, from an abandoned hole formerly occupied by a Woodpecker. Hole ten feet up, in a dead pine tree by the side of a road. Nothing unusual about this site.

VI. A pair reared young in one of my martin boxes, a new structure not occupied by *P. subis* until the following year.

VII. On May 7, 1919, an apparently completed nest, without eggs, was seen in a stovepipe projecting upright through the roof of an unoccupied dwelling in St. Marks. The nest was bulky, of pine needles and cow's hair mainly, with some feathers and grasses and a small piece of snake's skin.

JOHN WILLIAMS.

St. Marks, Fla.

MINUTES OF THE TWENTIETH ANNUAL MEETING OF THE NEBRASKA ORNITHOLOGISTS' UNION.

The twentieth annual meeting of the Nebraska Ornithologists' Union was held at Hastings, Nebraska, Friday and Saturday, May 9 and 10, 1919. The members arrived at Hastings on various trains during the afternoon, and convened in the museum of Hastings College at 4:00 o'clock to inspect the A. M. Brooking collection of birds and mammals. This collection of excellently mounted specimens is one of the most complete in the state, and President A. M. Brooking personally conducted the party through the museum and explained the more interesting exhibits.

After the examination of the Brooking collection the members reassembled at 6:30 p. m. at the Clarke Hotel, which was the headquarters of the society. Eleven members of the N. O. U. and five guests sat down to dinner in the grill room of the Clarke Hotel.

The business meeting of the society was called at 8:00 p. m. in the Chamber of Commerce Building, with President A. M. Brooking in the chair. The reports of the officers were received, and a Nominating Committee consisting of Mr. C. E. Mickel, Dr. H. Hapeman, and Mrs. G. A. Loveland, was at once appointed. An Auditing Committee, consisting of Messrs. R. W. Dawson and Ewald Witt, was also appointed to audit the financial statement of the Secretary-Treasurer.

While these committees were preparing their report, the society proceeded with the election of new members, and Messrs. Frederick Haecker of Lincoln, H. Hapeman of Minden, and Mesdames H. C. Johnson of Superior, L. H. McKillip of Seward, and Jennie Woodworth of Ayr, were formally elected to membership.

The Auditing Committee then reported that the accounts of the Treasurer had been found to be correct, and upon motion this report was accepted by the society. Following the report of the Nominating Committee the folowing officers were elected for 1919:

President—Mr. C. A. Black, Kearney.

Vice-President—Mrs. L. H. McKillip, Seward.

Secretary-Treasurer—Mr. M. H. Swenk, Lincoln.

Eleven members were at this session of the N. O. U., as follows: Mesdames L. R. Button, H. Hapeman, and G. A. Lovelan.d, and Messrs. J. M. Bates, C. A. Black, A. M. Brooking, R. W. Dawson, C. E. Mickel, M. H. Swenk, Wilson Tout, and Ewald Witt.

During the evening the matter of laying definite plans for the printing of a new edition of the "Birds of Nebraska" was discussed. On motion by Dr. Hapeman that a committee be appointed by the chair to investigate the cost of printing such a book as was tentatively projected during the discussion, and report at the next

meeting, President Brooking appointed Dr. Hapeman, chairman, M. H. Swenk and R. W. Dawson.

The business meeting then adjourned and the program of the evening was taken up. The retiring President, A. M. Brooking, addressed the society and its guests on the subject, "Bird Collecting West of Lincoln." Following the President's address Mrs. G. A. Loveland presented a paper on "Recent Cat Legislation," and Prof. R. W. Dawson discussed "Bird Migration Records." There was a general discussion of these papers by various members of the society. A call by President Brooking for some remarks from Mr. J. M. Bates and Mr. Wilson Tout was very interestingly responded to.

The plans for the field day on Saturday were then arranged, and the meeting adjourned at 10:35 p. m.

On Saturday, May 10, the seventeenth annual field day of the Union was held. The locality chosen for the field trip was along the Little Blue river, about eight miles south of Hastings, and cars were provided to take the field party to the woods. The party subdivided into four sections, each section covering a different portion of the territory. The field day started at 8:00 a. m., the members reconvening at the cars at 11:30 to return to Hastings for luncheon. In the afternoon the men of the party donned their boots and waders and motored to the lagoon near Inland, Nebraska, ten miles east of Hastings, where study was made of the water birds. The total list of the day included seventy-eight birds, as follows:

Bluebird, Robin, Olive-backed Thrush, Wood Thrush, Long-tailed Chickadee, Western House Wren, Brown Thrasher, Catbird, Mockingbird, Redstart, Yellow-breasted Chat, Maryland Yellowthroat, Ovenbird, Blackpoll Warbler, Myrtle Warbler, Yellow Warbler, Bell's Vireo, Warbling Vireo, Red-eyed Vireo, Migrant Shrike, Rough-winged Swallow, Bank Swallow, Barn Swallow, Dickcissel, Rose-breasted Grosbeak, Black-headed Grosbeak, Cardinal, Arctic Towhee, Lincoln's Sparrow, Western Field Sparrow, Clay-colored Sparrow, Chipping Sparrow, Lark Sparrow, Savannah Sparrow, Goldfinch, Bronzed Grackle, Baltimore Oriole, Western Meadowlark, Red-winged Blackbird, Yellow-headed Blackbird, Cowbird, Crow, Blue Jay, Desert Horned Lark, Traill's Flycatcher, Phœebe, Crested Flycatcher, Arkansas Kingbird, Kingbird, Yellow-shafted Flicker, Red-headed Woodpecker, Northern Downy Woodpecker, Belted Kingfisher, Burrowing Owl, Sparrow Hawk, Ferruginous Rough-legged Hawk, Swainson's Hawk, Marsh Hawk, Western Mourning Dove, Bobwhite, Killdeer, Spotted Sandpiper, Yellowlegs, Semipalmated Sandpiper, Least Sandpiper, Wilson's Phalarope, Coot,

Sora Rail, Bittern, Lesser Bluebill, Pintail, Shoveller, Blue-winged Teal, Gadwell, Mallards, Hooded Mergansers, and Black Tern.

Nests were found of the Marsh Hawk and Desert Horned Lark, each containing three eggs.

REPORT OF THE TREASURER, 1918-19.

Receipts.

Cash on hand, May 10, 1918	$217.06
Annual dues collected	76.00
Excess dues collected	1.50
Interest on investment	2.98
Sale of publications	3.45
	$300.99

Expenditures.

Wilson Bulletin	$ 66.00
Postage	.93
Fund invested	194.86
Refund of excess due and exchange	1.60
Balance on hand May 9, 1919	37.60
	$300.99

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PURPLE MARTINS AT ST. MARKS, FLORIDA

BY JOHN WILLIAMS

St. Marks, Florida, is situated on the St. Marks river, about seven miles up from the open gulf. But little timber appears in the intervale, and save for the lighthouse and two or three small buildings close about it, our village offers the first resting place for these birds on their return in the spring. Our river at the gulf presents a broad opening of a mile or more in width, making an especially plain landmark for birds coming into land, after an ocean trip. There seems to be little doubt that the "Martins" come to us directly from Cuba, Central America or lower Mexico, as on their first appearance they come up the river from the south and frequently show signs of extreme exhaustion when they arrive.

The following notes extend over the seven seasons from 1912 to 1918, both inclusive, but are noticeably irregular and incomplete, due in the main, I trust, to lack of spare time from regular occupation.

During the seasons of 1912 and 1913 there was but a single nesting box for the martins in our little village and it was a four-compartment, scant affair that was rapidly passing into decay, and threatened early dissolution but, as will appear, was evidently "Home Sweet Home" to certain members of the family and furnished most cherished memories. In the spring of 1912 two pairs of birds reared young in this box, and it was thought every high

gale would surely bring down the domicile, but the winds were tempered; and in 1913 again two pairs of birds were brave enough to risk the family cares within such shattered, crumbling walls; and again the brood was reared and departed notwithstanding the dropping floor, gaping doors and leaking roof.

A civic awakening came to our town in the late winter of 1913-14 and several boxes were prepared for the use of the martins immediately following their appearance in mid-February. The first arrival in that year was of five birds about 5:00 p. m. on February 4, and ten more came by 9:00 a. m. of the following day.

In my yard I had erected a pole carrying a six-compartment box, three on either side, with cross arms beneath which suspended four long-necked gourds, afterwards increased to eight, which were evidently of too small a capacity for the comfort of the birds, for while often used for sleeping quarters, with the exception of the season of 1917 were never used for nesting.[1]

These pioneer birds did not tarry with us and two others came to my pole February 21. These were a male and a female and came flying slowly from the south about 6:00 a. m. directly to my box, the female alighting on the top of the pole, the male on a cross-arm. Both seemed exhausted and scarcely turned their heads during the period of over a half-hour they were closely watched. The tips of their wings were dropped below the body showing white of underparts above the upper border of the primaries. No

[1] A gourd of proper size and shape, carefully suspended, furnishes one of the very best permanent nesting sites for the Purple Martin. Some of my original gourds still hang suspended (Nov. 1, 1918) and have weathered all storms since February, 1914. A straight necked gourd, with a body at least eight inches in diameter, should be used: By piercing the upper end of the gourd an inch or more below the end and passing a stout galvanized or copper wire through, a convenient hanging device is formed that will last for years. Gourds have been so used through the South for generations.

alert active movements were noticed. They had departed at 7:30 a. m.

A new box had been erected near the old one that had so long served the birds of this district. On February 24 three birds came to this old box. They were seen first at 7:00 a. m. On the 25th three birds were yet there. A fine rain was falling, temperature about 50°, and at 11:00 a. m. there were twelve martins at the old box; all were on the ledges and roof, the frame of the house barely clinging together. At 9:00 a. m. a steady rain began which lasted all day. About 1:00 p. m. six male and six female martins came to my box, probably the same birds seen earlier in the day at the old box. These birds remained on the outside of my box in the continued rain until about 4:00 p. m., when they flew to the new box near the old decayed one, but did not enter.

February 26, twelve martins were about all day. They kept close to the old house for the most part but visited the new nearby box and were at my gourds. Cold all day, but no rain.

February 27, the old box was dismantled late yesterday, but the birds continued flying about the bare pole. Some were seen to enter the new box, which is a four-hole freshly painted one. Eighteen birds were on the cross-arms and roof of the house at my pole. They seemed much exhausted, sitting almost motionless for a half-hour at a time.

February 28, another cold rain from the northwest. Four male and three female martins at my gourd-pole, all facing the storm but remained *outside.*

March 3, but three pairs of birds seen about the village. All of these located at the Warren box—the one supplanting the demolished box. A pair of English sparrows quarrel for a share in this shelter. Cold and frost March 1. Ice on 2d, with cold wind following, and frost on 3d. A cool reception for exhausted travelers from the tropics!

March 20. Since the 3rd of March we have had but

two warm spring-like days. Much cool weather, with northeast winds and rain. Several new boxes have been put up for the martins about the village and considerable interest manifested in the birds. On wet and cold days the birds are most abundant about the boxes and gourds. A few seem to be permanently established at Warren's and at Fraser's; the latter a crude affair, double, with two holes on each side, about twelve feet up on a pole set within thirty feet of railroad track and opposite our busiest store and the postoffice. However, as we have but a single train daily the traffic will count for little to alarm the birds. On clear warm days these four or five pairs are the only martins to be seen about.

During one or two fine sunny days all birds were away during the entire day.

It is the general opinion among the hunters here that numbers of these birds remain out and nest in holes in the woods. I have never been convinced of this. All the boxes here, seven in number, I believe, have been visited many times by the birds, especially as night comes on and they seek shelter. On March 20 over sixty birds were congregated about the postoffice; on wires and bird boxes for the most part; a few on the roof of one house. Eighteen or twenty came to my pole and one entered a gourd.

March 21 was cloudy with rain most of the day and a large number of the martins remained about the village, for the most part huddled close together on the various boxes or on wires. About sixty birds were counted.

March 22. The sun shone in the afternoon and many of the birds were actively foraging about the open lots.

April 8-9. Cold, with damp north winds. Thirty or more birds about the various boxes all day. On warm, sunny days not infrequently but two or three pairs of birds are to be seen about the village for the entire day. Visitors still come to my pole, but none permanently located there, and building operations were commenced at other boxes.

June 7. Visitors continue to come to my pole, but no birds nesting there. Two or three birds seemed to resort there for a time regularly—lasting two weeks or more—each evening late, and as they are seen usually about sunrise the following day they may have used it for sleeping quarters, possibly an overflow from Fraser's box, which is crowded and contains young birds. These visitors are sometimes females, or males and females.

June 13. Eight to ten birds were assembled on a telephone pole about two hundred yards from nearest nesting box. For the most part they were young birds and were huddled closely. Adults were seen feeding them there. On June 14, 15 and 16 the birds were seen at the same place. A few were on a nearby tree on the 16th.

1915

February 9. A lone male Purple Martin flew from the south over the river near the fishhouses about 8:00 a. m., and between 3 and 4 p. m. three birds flew on the same course. All males.

February 11. Saw a single male martin on top of Warren's box.

February 12. A male martin on wire near Fraser's box.

February 13. One near same place.

February 14 to 16. No martins seen.

February 17. A male martin flying near Warren's. A north wind and cool.

February 18. A male and female martin flying near Fraser's at 8:00 a. m.

February 19. No birds seen.

February 20. A single male seen. A cool north wind continued.

February 21. Two males at my boxes for a half hour between 8:00 and 9:00 a. m.

February 22. Two birds near Fraser's. Sex not determined.

February 23. No martins seen. Rained last night and during early morning; heavy southeast wind.

February 24. Three males and one female about village at 9:00 a. m. Wind went northwest early this a. m.; cloudy and dull.

February 25. Two males seen today. Wind still northerly.

February 26. Two males about village. Wind southwest this evening. Cloudy.

February 27. Twelve martins about Fraser's at noon, seemingly all males, but not sure. Commenced raining about 9:30 a. m. Cold. Rained most of afternoon. 2:00 p. m., 25 to 30 martins came to my box and then off towards Fraser's. Later the same number were huddled on top and on ledges of Fraser's boxes, 8 females and 20 males, as nearly as could be determined.

February 28. Cloudy. Wind east. About 30 birds around my house at 8:30 a. m. At 2:00 p. m. I counted 72 martins about the village, mostly on Fraser's and Warren's boxes, a few on top of a small tree and a few flying. About one-third of them were females. At 5:00 p. m. at least 100 birds on boxes, tree and flying. Eight or more spent the night at my boxes, some of them in one or more gourds.

March 1. 75 to 100 martins about village all day. Cool and windy in morning; towards night wind went northwest. At dark several birds entered my box and gourds and at daylight next morning tails and wings were protruding from gourds.

March 2. Apparently all the birds have gone. Saw none after 9:00 a. m.

March 3. About 20 birds around and on my box before sunup and others flying about village until 9:00 a. m. None seen later until nearly sunset, when about the same number appeared. They may have been off foraging.

March 5. But three or four martins about the village during the day. A heavy blow last night, with rain

from south from 9:00 p. m. until 2:00 or 3:00 a. m. Cleared before sunup. Wind northwest and mild.

March 6. Six or eight birds about village. Clear and bright after 10 a. m. Wind south.

March 7. Three or four birds at my boxes before 7:00 a. m., but soon left. Saw six only about village.

March 13. For past five or six days the birds seem to spend the night at boxes about the village and then are absent from 8:00 to 9:00 a. m. until a half hour or so before sunset. Ten to twelve pairs noted. Two pairs regularly at my box.

March 23. Today for the first time since becoming established the birds have remained about the village all day. For greater portion of day the weather was cloudy, damp and chilly. A heavy white frost at sunup.

March 24. Clear, sharp white frost. Birds were away for most of the day.

March 26. Warm and clear. The first clear day the martins have remained about the village all day. Three pairs about my box.

March 30. Since 26th the birds have been about the village for the most part of each day. About 4:00 p. m. today a heavy shower came and I noted 12 birds at my box huddled outside in the storm. In all I counted 60 birds about the village huddled in groups on boxes and elsewhere; 30 on roof of one house. Twenty-five at my boxes just before dark, all trying noisily for shelter, and as far as I could determine all were finally accommodated after much stormy protest from some birds that had earliest secured shelter. Two birds seemed to be unpopular or had been blacklisted, and until quite dark these failed to gain admission despite many attempts at entrance, which were as often repelled from the birds inside.

April 7. The birds continue to remain about the village for greater part of the day.

April 15. Nest building has commenced. Eighteen pairs seem to have located here. At least four pairs at

my boxes and they are now most industriously occupied in carrying nesting material from about 6:00 to 9:30 a. m. and during the earlier part of the afternoon to a more moderate degree.

May 9. The males evidently assist in incubation, as many of the females seem to have leisure hours, sit on top of the boxes or fly about the village or disappear in the woods for hours at a time.

May 25. Found a young bird dead on ground under my box. Feathers of tail just showing from sheaths; eyes barely opening.

May 30. I find five and sometimes six female martins at my box, but have never counted more than four males. All very busy feeding young now. The food seems to be of great variety. Species undetermined. Twice only have I recognized Dragonflies, of which we have countless numbers of numerous species widely distributed.

July 10. I have seen no birds at my box since July 6 until this evening. Three pairs with their young departed between June 28 and June 30 and the other two families left July 6.

July 11. Six birds about my box at 9:00 a. m. lit and chattered.

July 12. Six birds at my box at sunrise.

July 14. A single bird came to my box about 11:00 a. m., remaining but two or three minutes.

July 24. Eight martins came to my box about 6:00 a. m. Clear and warm. I had seen none at my box nor about village since 14th. About sunset today one came after a brisk shower.

1916

February 14. Mr. Strickland reports several martins arrived at his home a mile up the river. None here yet.

February 20. Two males at my boxes from 9:00 to 10:00 a. m. None others seen about the village.

February 22. One male and three females about village at 2 p. m.

February 29. One male at my boxes 7:00 a. m. and four birds flying about at sunset.

March 2. A male and a female at my boxes this morning.

March 16. Tumult at my boxes until after dark similar to the occurrence of March 30, 1915. On this occasion 30 birds were present, but as I now have two houses and more room there should have been less occasion for petty jealousies. There seemed to be three black sheep this time and the moon shone brightly before all was quiet in the fold.

April 9. From eight to ten birds have been located at my boxes for several days, but at sunup today I counted 24 birds there. Cold and windy. At 2:00 p. m. about 40 birds at my boxes and on roof of my dwelling.

April 15. Noticed first signs of nest building. Birds flying to the ground and twigs being broken from dead pine limb.

May 18. Young birds in one of my boxes and a pair of birds building in the other box.

June 11. Young of one or two broods in my boxes flew today.

June 29. Young birds are accompanying the adults off from the boxes for the day, returning towards sunset.

July 29. Four birds about my boxes at 6:30 a. m. All birds had been absent from the village for about two weeks.

September 12. Five or six birds seen near the fish-houses.

October 2. A lone bird flying at the river.

1917

February 3. A single male martin came flying slowly from the south as I walked down the railroad at 8:00 a. m. Thermo 18°. A strong northwest wind and all ditch water frozen over.

February 17. A male flying near my house just before

sunup. One — probably the same — lit on one of my boxes an hour later. None other seen since February 3.

February 19. A male at my boxes, 7:00 a. m., and two males at 10:00 a. m.

February 20. Two males and two females at my boxes at 5 p. m. The above constitute all of this species noted thus far this year.

February 27. Still but two males and one female martin at my boxes and none seen elsewhere.

March 2. Two males and two females at my boxes this a. m.

March 3. Five birds at my boxes this morning.

March 5. Eleven or twelve birds at my boxes.

March 14. Twelve martins seem to be settled at my boxes.

March 31. Twenty-five birds at my boxes at 5 p. m., the largest congregation of martins I have seen this year. The strangers departed early on April 1.

April 10. One bird seen carrying sticks to box.

April 12. Seven pairs of martins now building at my three boxes and but one other box now in the village so far as I can ascertain.

April 17. Nest building seems to be progressing rapidly.

May 13. First feeding of young noted.

July 14. Three young out of nest, — unable to fly — huddled in a close bunch on the ground at base of pole supporting one of my boxes. Adults feeding them.

July 18. The three juveniles remained on the ground until today, when they flew. Whenever observed they were bunched closely. I judged one pair of birds had been disturbed in earlier nesting as all other than this family had departed from my boxes sometime before the young were found on the ground.

September 8. A single martin flying near my house. The first seen for three or four weeks.

September 16. Four birds on wire near fish-house.

1918

February 27. Five martins at my boxes before sunrise.

March 7. Ten birds at my boxes. The greatest numbers seen together this spring. There have been no arrivals or gatherings here in considerable numbers.

April 17. Nest building well under way.

July 4. During the past week I have seen martins but once at my boxes. They were seen feeding over the marsh and river but they do not return to boxes at night.

July 5. Three birds came to my boxes about noon but remained for only a short time.

September 15. Two martins flying near my house in company of ten or more barn swallows.

October 2. Two martins flying near the river at 8:00 a. m.

Year	When first seen	About No. first seen	*Spring Migra'n* Next seen	Became comm'n	Last seen	
1909	Mar. 29	1	April 4	April 8	April 17	
1910	May 1	4	May 6	April 12	April 24	
1911	April 2	1	April 6	April 8	April 13	They were common at an earlier date which I failed to record
1912	May 3	3	May 4		April 20	I failed to record the missing date
1913	May 1	3	May 2	April 8	April 22	
1914	Mar. 29	3			April 24	I failed to record the missing dates
1915	April 2	4	May 7			I failed to record the missing dates

Year	When first seen	About No. first seen	*Fall Migration* Next seen	Became comm'n	Last seen	
1908	Sept. 23	5	Sept. 27	Oct. 4	Nov. 8	Last one seen could not fly. as it had a broken wing
1909	Sept. 25	10	Sept. 29	Oct. 4	Oct. 31	
1910	Oct. 1	20	Oct, 2	Oct. 8	Nov. 4	
1911	Oct. 1	20	Oct. 3	Oct. 7		Failed to report last date
1912	Sept.16	10		Oct. 12	Nov. 10	First seen by Mrs. E. B. Hayden
1913	Oct. 2					Failed to secure other dates

ACTIVITIES OF PURPLE MARTIN AT ST. MARKS, FLORIDA

	1912	1913	1914	1915	1917	1917	1918
First seen and number	1 box only in village	1 box only in village	[1] 10 Feb. 14	4 Feb. 9	2 Feb. 20	1 Feb. 3	1 Feb. 23
Second appearance and number			10 Feb. 15	Feb. 11	4 Feb. 22	1 Feb. 17	5 Feb. 27
When abundant			Feb. 25	Feb. 27	Mar. 2	Mar. 5	Mar. 7
Commenced building			Apr. 12	April 15	April 15	April 10	April 17
First feeding young			May 25	June 5	May 18	May 13	
Young first flying		June 9	June 13	June 12	June 11		
Vacate boxes			June 23		June 29		June 27
Becoming scarce		Aug. 27		Sept' 6	Aug. 16	Sept. 8	Sept. 15
Last seen		Sept. 20	Sept. 25		Oct. 2	Sept. 26	Oct. 2
Number of nesting pairs	2	2	9	18	?	7	7

[1] In every instance first arrivals were ♂.
[2] Juveniles, ten days or more old.
[3] Were under way.
[4] Probably ten pairs.

SUMMARY

First arrivals vary from February 3 to February 23.

All first arrivals are males but sometimes the females follow within a day or two.

The birds arrive and depart in the early spring at various times of the day.

Many birds tarry for a few days or a few hours only in the early spring as they first arrive on the vernal migration.

Often sit exposed in a cold rain rather than seek the shelter of a box on which they are resting.

Show a strong attachment for a former nesting box.

Exacting as to the selection of a new box for nesting purposes.

Nest building begins from April 10 to April 17 as extremes.

Generally but one brood reared yearly.

The male aids in incubation.

Earliest positive date for young in nest, May 13.

For at least two to three weeks before the commencement of nest building the birds spend the greater part of clear days away from the boxes, returning to them towards sunset. During rainy or extra cold days they do not so generally depart from the boxes at such times.

All the birds forsake the boxes two to three weeks after the young first fly. Prior thereto they may be absent during the greater part of the day but usually return to the boxes at night.

Latest dates when seen September 20 to October 2 for different years.

TWENTY-FOUR HOURS IN A BLACK SKIMMER COLONY

BY B. R. BALES, M.D.

A day and a night spent in the midst of a densely populated sea bird colony is an experience never to be forgotten. Such was my experience on June 23, 1917. The colony was one of the Black Skimmer (*Rhynchops nigra*), and was located on a small island about fifteen miles off the Virginia coast.

The island is composed entirely of fine sand, and is barely above high tide, in fact, it is so slightly elevated that high tides in 1916 swept over the island drowning all the young birds with the exception of a few which took refuge on several slight elevations. A thin growth of salt water grass covers these elevated portions, but the rest of the island is destitute of vegetation.

The colony, a conservative estimate of which, would number the breeding birds at 4000 pairs, is about one mile long and several hundred yards wide. It is like a city, being more thickly populated at some parts than at others; at one place, without moving, 26 nests could be seen, at another place 14, and at another 10. The similarity to a great city is further carried out by the small detached

hamlets or villages of 25 or 30 nests located some distance from the main colony.

As is well known, no nest worthy of the name is made; the bird makes a depression in the sand by turning round and round, and in the slight hollow thus formed, the eggs are laid. Four eggs comprise a full set, although three nests were found containing five eggs and quite a number containing only three.

It is probable that the sets of three (while some of them were highly incubated) were incomplete sets.

On windy days, if the bird stays away from the nest for any length of time, the nest is soon filled level full of the fine shifting sand and the eggs are completely covered. This may account for the smaller sets.

One set was found containing a dwarf egg and three sets containing albino or partially albinistic eggs.

Quite a difference in size was noted; the longest egg measured 2.02 and the shortest 1.55. In the short diameter, the largest measured 1.48 and the smallest 1.14. In a series of 179 eggs measured, the average long diameter is 1.74 and the short diameter 1.28. The dwarf egg measures 1.09x.83.

Assisted by my son, I set up the blind where five nests could be seen, each one of them in a different direction and none of them more than ten feet from the blind. Four of the birds did not return to their nests, but the fifth one did; she was very nervous and during the day did not remain at the nest for any great length of time. As she settled upon her eggs, she would utter a sort of liquid cuddling sound, somewhat similar to the clucking sound made by a hen as she broods her chicks. Each time as she settled upon the eggs, she pressed her sharp bill upon the edge of the nest. This action accounts for the sharp lines in the sand frequently seen radiating in all directions from the nests. As the skimmer invariably faces the wind, either while brooding or while standing upon the sand, in time these marks point in almost every direction.

The four birds that did not return to their nests used every means in their power to lure the strange object from their eggs. They would alight some distance from the blind and then toddle away on wobbly legs, with wings outspread; push themselves along by sliding upon their breasts; stagger away with outspread wings beating upon the sand; sit at a safe distance opening and closing their bills, but not making any sound as though they were swearing at us under their breath or they would fly past the blind in small companies screaming, "Ow, ow, ow," as though some one was beating them and they were crying out with each stroke of the whip. When larger companies charged past, the sound was almost deafening and the combined "ows" sounded like a pack of hounds baying.

There was always a large number of birds not on their nests and they would line up upon the sand at a safe distance, always facing the wind; as their fright became less, they would move up closer to the blind until some sudden panic would send them all sailing away. This performance was repeated again and again. They presented a strange sight all facing the same way and looked for all the world like a company of undertakers in their somber black and white suits.

When approaching the nest, the Skimmer does not alight directly upon it, but alights a short distance away and toddles up on its absurdly small "Chinese lady" feet. The bird then enters the nest, cuddles down upon the eggs, presses the bill into the rim and after it is settled, utters the cuddling note.

While we were in the blind, another bird some distance away, but outside our line of vision, would fequently enter and leave its nest and we could hear it utter its cuddling note. Its voice was higher in pitch than the one we were observing and photographing, and we could always tell without looking which bird was entering its nest.

The skimmers were coming and going almost all of the night and the cuddling note could be heard from all

sides. This contrasted strongly with a nearby colony of Common Terns that became quiet as soon as darkness fell.

The young when hatched are so near the color of the sand that they are almost invisible and when walking about in a colony one must exercise great care to avoid stepping upon them. Their instinct tells them that their safety lies in remaining motionless, and they will lie quietly upon the sand with neck far outstretched and not move unless disturbed, when they scuttle away with long slender wings outstretched and with surprising speed.

When first hatched, both the upper and lower bills are of the same length, but by the time they are beginning to feather out, the lower bill begins to get longer, and by the time the bird is flying, it is much the longer.

Some authorities maintain that the lower bill does not become longer than the upper until the birds are able to fly. This we found to be untrue.

As with most birds, the Black Skimmer becomes much bolder when there are young birds, and charges upon the intruder in immense flocks, with open mouths and deafening cries, but the flock swings to one side when close to the object of attack, and I have never heard of any one being struck.

The food seems to consist mainly of small minnows and killifishes. None of these are obtainable nearer than at least two miles from the island, and small parties may be seen far from home, industriously skimming the water, searching for food, and are often encountered flying toward the island with small minnows carried crosswise in their bills. They have the habit of skimming close to the surface of the sand or of mud in the same manner as when over the water.

The local names of "Cutwater" and "Shearwater" of course apply to their habit of skimming, but I am at a loss to account for the name of "Flood Gull."

While observing and photographing from a blind in the midst of a Black Skimmer colony, June, 1917, I could

not help noticing the actions of the birds in a near-by colony o fCommon Terns, and was surprised at the vocabulary of this Tern.

In addition to the common cry of "Te-ahr-r-r-r-r," or as sometimes written, "Te-ah-a-a-a-a," they possess a cry somewhat similar to the scream of the Flicker; another that could be likened to the "chip" of the Song Sparrow, a harsher, grating cry somewhat like that of the Purple Martin, as well as a twittering calling cry, heard when the parent has food for the young.

Circleville, Ohio.

DESCRIPTION OF ANOTHER NEW SUBSPECIES OF LANIUS LUDOVICIANUS.

BY HARRY C. OBERHOLSER.

Specimens of a shrike representing the breeding form of *Lanius ludovicianus* in north central Lower California seem not referable to any described subspecies. A small series in the United States National Museum has been supplemented by birds collected by Mr. A. W. Anthony and loaned by the Carnegie Museum at Pittsburgh, through Mr. W. E. C. Todd. The writer is also indebted to Mr. A. B. Howell for specimens of *Lanius ludovicianus anthonyi* and *Lanius ludovicianus mearnsi*. Since all the forms of *Lanius ludovicianus* from western North America bear the names of ornithologists, it seems appropriate to provide a similar designation for the present new race, and it accordingly gives me pleasure to dedicate it to Dr. Joseph Grinnell, who has done so much to promote the cause of ornithology on the Pacific Coast.

Lanius ludovicianus grinnelli, subsp. nov.

Grinnell Shrike.

Chars. subsp.—Similar to *Lanius ludovicianus mearnsi*, from San Clemente Island, California, but bill longer; up-

per tail-coverts averaging slightly darker, not abruptly white, but light gray; little or no white on scapulars; lower parts much darker, more strongly tinged with gray, especially on the breast, sides, and flanks; upper parts averaging darker; and the white terminal area on outer rectrix averaging smaller.

Description.—Type, adult female, No. 196162, U. S. Nat. Mus., Biological Survey Collection; San Fernando, Lower California; September 4, 1905; E. W. Nelson and E. A. Goldman; original number, 11644. Pileum and cervix, rather brownish deep neutral gray; back deep mouse gray; rump neutral gray; the shorter middle upper tail-coverts between pallid mouse gray and pale smoke gray; longest middle upper tail-coverts of similar color but darker; the lateral upper tail-coverts paler, even whitish; scapulars neutral gray, their tips paler; tail black, tipped with white, the two middle feathers very slightly, the outer pair for about 14 mm.; wings black, the inner webs of the secondaries with fuscous margins, the basal part of the inner webs of the primaries and secondaries brownish white; a small speculum at the base of several primaries white; tips of the tertials, secondaries, and inner primaries, dull white; a narrow band across the extreme forehead, all of the lores, and a broad postocular and subocular band, black; sides of the neck like the cervix; cheeks and subocular region, pale smoke gray; chin, middle of the abdomen, and crissum, grayish white; remainder of lower parts smoke gray, but the sides and flanks lighter, between pale smoke gray and pale mouse gray; lining of wing of the same color, but edged with whitish and paler gray; thighs neutral gray.

Measurements.—Male:[1] wing, 101 mm.; tail, 106.5; exposed culmen, 16.8; tarsus, 27; middle toe without claw, 16.

Female:[2] wing, 98 mm.; tail, 98.5; exposed culmen,

[1] One specimen, from Lower California.

[2] Three specimens, from Lower California.

15.8 to 16 (average, 15.9) mm.; tarsus, 26.5 to 27 (26.7); middle toe without claw, 16-17 (16.3).

Geographic distribution.—North central portion of the peninsula of Lower California, from about north latitude 29° to north latitude 31°.

Remarks.—This new form is similar to *Lanius ludovicianus anthonyi* from Santa Cruz Island, California, but has a longer bill, darker upper parts, and usually somewhat darker under surface, less whitish upper tail-coverts, larger white spot at the base of the primaries, and average smaller white spots on the outer tail-feathers. It differs from the recently described *Lanius ludovicianus nelsoni*[1] in its much darker upper and lower parts, the little or no white on scapulars, smaller white wing speculum, and less extensive white tail-spots. It is so different from *Lanius ludovicianus gambeli* in its dark upper and lower parts, lack of white on the scapulars, and much smaller white tail-spots that no further comparison with that race is necessary.

It seems to be as nearly related to *Lanius ludovicianus anthonyi* as to *Lanius ludovicianus mearnsi,* for in the respects in which it differs from one, it resembles the other, excepting chiefly its large bill and small white tail-spots, in which it differs from both. Only one of these two island forms, *Lanius ludovicianus anthonyi* and *Lanius ludovicianus mearnsi,* has been recognized by recent authors, but both now prove to be readily separable.

This new subspecies is distinguishable in any plumage, even that of the partly grown juvenile. It seems to have a limited geographic range in the north central part of Lower California, a region in which many species have races of darker coloration, for example, *Colaptes chrysoides brunneus, Toxostoma cinera mearnsi, Pipilo fuscus senicula,* and *Dryobates scalaris eremicus.* No specimens

[1] *Lanius ludovicianus nelsoni,* Oberholser, Condor, XX, No. 6, December 12, 1918, p. 209 (Todos Santos, southern Lower California.)

of *Lanius ludovicianus grinnelli* have been taken outside of its breeding range, and it therefore appears to be nearly or quite resident. It is darkest and most typical at San Fernando, Lower California. Birds from San Quintin, Lower California, belong to the same race, although they are slightly paler; and one specimen from Yubay, Lower California, is referable also here, though it inclines a little toward *Lanius ludovicianus nelsoni.* Some of the specimens of *Lanius ludovicianus grinnelli* that we have examined are too much in process of molt to furnish reliable measurements. The dimensions of all the adults of which use can be made for this purpose are added below:

MEASUREMENTS OF SPECIMENS OF LANIUS LUDOVICIANUS GRINNELLI.

Museum and number	Sex	Locality	Date	Collector	Wing	Tail	Exposed culmen	Tarsus	Mid'l toe without claw
Carnegie Museum 17024	♂	San Fernando, Lower California	June 3, 1891	A. W. Anthony	101	106.5	16.8	27	16
U. S. N. M. 196162	♀	San Fernando,[1] Lower California	Sept. 14, 1905	E. W. Nelson, E. A. Goldman	—	98.5	16	27	17
U. S. N. M. 196159	♀	San Simon River, San Quintin, Calif.	Aug. 27, 1905	E. W. Nelson, E. A. Goldman	98	——	16	26.5	16
U. S. N. M. 196160	[♀]	San Fernando, Lower California	Sept. 4, 1905	E. W. Nelson, E. A. Goldman	98	——	15.8	26.5	16

[1] Type.

BIRDS FROM A SICK MAN'S WINDOW

BY W. ELMER EKBLAW

Always interested in birds from the viewpoint of a scientist, and as a Nature lover glad of their beauty and song and companionship, I had never truly appreciated how much I owed to them until I was kept in my room, an unwilling prisoner, to recover from a minor operation. Though my imprisonment lasted for but ten days of the most delightful and pleasant May weather, I chafed restively against even so brief a period of restraint and confinement indoors, for I had ever been accustomed to wander freely as I chose.

During this time the birds were one of my chiefest solaces as they came before my window, a window which overlooked numerous war-gardens and service yards, long lines of telephone wires held up by three poles within view, a garage, and a clump of witch-hazel and black cherry. Many vacant lots overgrown by bluegrass and shrubbery, and the University forestry, stretched away beyond the gardens to the University farms. All about me were tall trees that shade the streets and homes of the University residence section.

I mention these surroundings of mine to explain in a measure how it came to pass that so many birds came to see me. The environment was somewhat unusual for some city homes, but not wholly unlike that of many suburban localities. In many a neighborhood even more favorable to bird life, an invalid might easily record a longer list of feathered visitors; but my purpose is to give due credit to those who did so much to sustain my patience, and help the days pass fast and pleasantly.

When I was brought home from the hospital I had scarcely settled myself comfortably in my cot before a full-voiced cardinal called to me from the tip-most branch of a black cherry. It was his vibrant mating-song to which he gave voice, every note coming in through my window,

rich and clear like the notes of a flute. He was a faithful songster and though I did not once see him until I was out-of-doors again, he did not fail to greet me a single day. There is something so cheerful, so hopeful, so full of promise, in the passionate song of the cardinal that man must wax optimistic when he hears it.

Like the flute-toned song of the cardinal is the warbling whistle of the meadowlark, in its thrilling message of joy and encouragement. Two pairs nested in the tussocky grass of nearby vacant lots. Perched upon the telephone poles or the black cherry treelets they responded in antiphonal chorus to the challenging morning call of the robins or the ringing song of the cardinal. Perhaps I was prejudiced in favor of the meadowlarks because I could see them and delight so much in their bright golden waistcoats and jaunty demeanor, but I believe that to a sick man they seem the sweetest songsters of all.

The robins came, not only to entertain me with their cheer-up songs, but to let me supervise their wooing, their house-building materials, and their domestic felicities and infelicities. On the yard and in the garden beneath my window many things happened too intimate to publish. They courted and wooed assiduously; they searched about for nesting-materials; they quarreled and scolded, or hopped about in contented groups like staid householders. Even while visiting me, they were too thrifty to let a June-bug or cutworm escape, even if it might not be the best of manners to catch it in company.

One early morning I was surprised to see an oven-bird sneaking stealthily along under the witch-hazel as if he feared to intrude upon my privacy. He came to see me several days in succession, but not once did he burst forth into that cataclysmic torrent of song that so often surges through the woods he frequents. For five years I had not seen or heard the oven-bird, and I rejoiced that he came to greet me.

No matter how early I woke, often when the gray light

of dawn was just coming into the east, the first sound I heard was the distant booming of the prairie chickens on the University farm, where they mate, and nest, and live, unmolested. No sound more vividly suggests the free, zestful prairie dawns than this booming of the prairie-chicken, or recalls the purple morning hazes lying in the west, on the far horizon where day has not yet broken.

The flicker was another early morning bird whose rollicking spring song sometimes woke me with a start, thinking that I heard friendly laughter beside my window. Dozens of his family came to call upon me through the long days, or greeted me hilariously as they flew up to a telephone pole after a full meal of ants, or some juicy morsel to pick to pieces and devour. The flicker is a good fellow to call upon an invalid, for despite his unconventionality and his jocularity he is interesting and entertaining every minute, and courteous and considerate as a true-born gentleman. He would be a good Y. M. C. A. secretary, I feel sure.

Not such a thorough gentleman because of his loud voice and inconsiderate curiosity, the blue jay is on the whole not such an undesirable visitor as his reputation might lead one to expect. One came to see me twice, quite out of the goodness of his heart, I believe, and each time I was sorry, when, because of urgent business elsewhere, he took his departure. I imagined that they were family affairs that engrossed his attention, but he did not take me into his confidence.

A score or more of grackles followed behind a plow that was breaking up a well-sodded vacant lot a block away, but not one came near enough to pass the time of day with me. I rather resented their neglect, but I reflected philosophically that while such an abundance of food was being provided them, they felt constrained to care for it with true win-the-war thrift.

The only unpleasant incident that marred my whole sick-window record of the birds, was an unprovoked and

utterly uncalled-for assault of a pair of kingbirds upon two sedate, unoffending crows that flew by my window nearly every day on their way to and from the forestry. I had come to feel a great deal of respect for these crows that went so unassumingly about their own business, and I was quite indignant when they were insulted and assaulted by the vindictive kingbirds. I had heard or seen nothing of these tyrants before, and not once afterward did they appear; but on this one occasion they monopolized the attention of the whole neighborhood as they indulged their inherent family hatred of the poor crows, who, I am sure, would be only too glad to let the old feud die out.

The same day that this unpleasant episode of the kingbirds occurred, I was more than compensated by hearing the song-sparrow greet me from the witch-hazel thicket with a burst of happy song that quite diverted my mind from the recent unpleasantness. He sang but this once for me, and though I listened long for another greeting, I never heard it. Once, too, and only once, his cousin the vesper sparrow sang to me, but did not come to call upon me, much to my regret.

My most faithful songsters were a brown thrasher that frequented a young orchard not far from my window, and a wren that had a nest under the eaves of the garage even nearer. The brown thrasher seemed to take it upon himself to keep me happy and content, for his gay, sweet song never failed me for very long a single day.

He came to visit me often, too, and strolled tranquilly about the yard beneath the window, very much at home on my premises, as becomes a good friend. The sociable little wren came "jinking" about my window, intent upon telling me all about his nest, but when he sang I felt sure he was singing not to me at all, but to his little brown mate on the nest under the eaves, the demure little housewife about whom he was ever so solicitous.

A flash of blue darting about the clump of witch-hazel one noon-day apprised me of the coming of other callers, a

pair of indigo buntings. I suspect that they were out foraging or house-hunting, rather than intending to call, but when they heard that I was ill, they were kind enough to stay for quite ten minutes to gossip with me. At any rate they did not leave the witch-hazel until we had had quite a visit together.

I can not neglect longer the mention of the English Sparrow. He and I have been bad friends for a long time, and when we meet on the streets we do not notice each other. The dislike is reciprocal, deep-seated, and well-founded. Between his family and mine is a long record of enmity and persecution. But in all justice, I must admit that he and many of his relatives appeared before my window, and though they chattered noisily and ill-mannerredly, as is their wont, they spent long hours entertaining me; I feel now that probably some of my antipathy toward his family may be misplaced, at any rate somewhat unnecessary.

Likewise the cat-bird rose considerably in my estimation. He and his mate came to see me often, and though I had never had any quarrel with them, I had not fully appreciated before their whole-souled optimism and friendliness. He sang often to me, especially in the mornings. I was quite won by the friendly familiarity of the family, and I have assured myself that in the future I shall more confidently and openmindedly cultivate their acquaintance. They are nothing if not shrewd, and neighborly.

The yellow-billed cuckoos, the mourning doves, and the yellow-breasted chats were other daily callers. The cuckoos came to tell me of impending rains that never came, but I never grew tired of watching their swelling throats as they uttered their queer notes. The mourning doves acted in much the same manner when giving voice to their plaintive coos so that I wondered if they had been trained in the same schools. I was pleased and flattered by the visits the chats paid me, for I had never before become well acquainted with them.

A pair of goldfinches, who made their summer home in our part of town and nested in a Lombardy poplar across the way, came often to call. Sometimes it was Mrs. Goldfinch who came, sometimes it was Mr. Goldfinch. Neither of them stayed long at a time, but Mr. Goldfinch came oftener, or at least seemed to do so. It may have been that he made himself more evident, for his sharp call and conspicuous garb would always attract attention.

The friends of my early boyhood, the bluebirds, came but once to cheer me, but the gentle and sincere greeting they gave me as a reminder of old times touched me deeply. The bluebirds are like those old, tried, true friends in whom our faith never wavers, and of whom a doubt or suspicion never enters our minds. We may not see them, or hear from them for months or years, but when we do, we know that they have not changed.

Hardly less welcome than the bluebirds, the red-headed woodpeckers greeted me often. Frequently a pair of them perched on the nearest telephone pole. I am sure they came to call on me, but as they gossiped, they usually grew so interested in their own affairs that they quite forgot me. Not sensitive to their neglect—unintentional it was, I am sure—I thoroughly enjoyed hearing them chatter, just the same.

The evenings of my days were usually lonesome, but then it was that Bob White called to me from the edge of the forestry, and the swallows came sweeping over the vacant lots, and the swifts fluttering home to their own chimney-corners. Now and then a flock of nighthawks came coursing along, stooping in abrupt nose-dives like aviators in training. Always their course lay eastward; I wished that some of them had stopped to tell me why, for here on the prairies their sunset flight is always into the approaching dusk.

After night-fall the screech owls came to see me. The whole family, five or six, fluttered about my window, perching on the clothes-poles, the ridge-pole of the garage, or

wherever a convenient corner projected. Without uttering a note, they frequently exchanged perches, as if they were engaged in a strigidine "pussy wants a corner"; they were silent as wraiths, but their big, bright eyes saw everything.

When I was able to be about and out-of-doors again, I soon became too deeply engrossed in my work to give to my bird-friends the attention they deserved, but my heart will ever be grateful to them for the entertainment they afforded me while time passed so slowly.

THE LURE OF THE GODWIT.

He approached me whenever I visited the Yellow Rail Coulee in the Choctaw Basin, Benson County, North Dakota. T'was difficult to determine the direction from which this Marbled Godwit came. Before I could see, away in the distance, his voice of suspicion would pierce the horizon and over the ridge he skimmed with the wing strokes similar to a Killdeer.

I climbed through the slopes of badger brush where a Prairie Sharp-tail Grouse had a setting of fifteen eggs, and hunted up and down the uncultivated patches. This wary Marlin stood in the grass close by and scrutinized my actions.

The Western Willet surveyed conditions from "on wing" but never pausing to alight even though he manifested considerable curiosity at my presence.

In the Red River Valley of Minnesota there were quite a few Godwits this spring. Heavy rains and "no shooting" contributed largely to the conditions which made the environment attractive. Residents said the "Indian Moccasin State" was fast losing its virgin prairies, but I saw thousands of acres undisturbed and without fences. After visiting the headquarters of the Red River of the North and the Mississippi and making an inventory of the bird life now in evidence, I found Minnesota more promising than North Dakota, for waders. Dakota is still par excellence

for Ducks but the population of Cranes, Phalaropes, Bartramian Plovers and Marbled Godwits in Northwestern Minnesota was a revelation to me. Too late for eggs of the Sandhill Crane but apparently Godwits and Uplands were sitting close.

Two or three miles is a trivial distance for male Godwits to patrol. They are not so aggressive as the Curlew, but just as watchful and suspicious. Less dove like than the Bartramian and more bold than the Willet, a Marbled Godwit will worry any man or dog if the intrusion is even remote. I was certainly surprised to discover my first Godwit's nest with the parent crouching beneath a little screen of woven grass blades on four heavily blotched eggs. Her general contour and the situation and design of the nest was suggestive of many King Rails whose nests I have found, after noticing how the grass blades were woven together canopy like to shield the bird and her treasures. About a mile from this nest and screened on one side by willow sprouts sat another tame Godwit. This time the grassy hollow held five boldly marked eggs. Incubation was one-half completed and the date was June 8th. These five eggs bear a general resemblance to each other and I believe they are all the product of the same bird.

In size Marbled Godwit's eggs are larger than Willet's but smaller than Long-bill Curlew. The shape is rather different from either of the preceding and can possibly be better described when the outline may be said to compare quite accurately with typical eggs of the Wilson's Snipe, although the latter are, of course, very much smaller.

The color patterns are distinctive, and may be classed in two types. In one the ground color is an olive green, while others have a pale chocolate background. The markings are less inclined towards specks and spots, as compared with other shore birds' eggs, but are manifest in the form of blotches or cloudings usually similar to the ground color prevalent in the same setting, but several shades darker. The shell is glossy.

Godwits behave like Black Terns after the nest of the former are actually found, but until then the male very cleverly controls his actions in such a manner as to defy the application of any fixed set of rules, should an effort be made to analyze his conduct.

GERARD ALAN ABBOTT

NESTING OF AMERICAN LONG EARED OWL

During a walk in search of birds, on March 16, I and my two brothers discovered two long-eared owls in an evergreen tree in a deserted farm-yard.

After a period of two weeks we again visited this locality and saw but one of the owls in the same tree. We concluded at that time that the female must be upon her nest some place near. We continued our journey to an old orchard about a quarter of a mile away and while looking for screech owls' nests, I noticed two long feathery tufts protruding over a thick collection of sticks in a crotch in an apple tree about fifteen feet above the ground. Upon closer examination I noticed two bright eyes peering at me from beneath a stick. I called my brothers and showed them this queer specimen. I climbed a tree about twenty feet away for further investigation and to my astonishment a long eared owl flew out. I had my camera along but I could secure no good pictures. My brother climbed the tree in which the nest was located and obtained a picture of the nest and eggs which turned out well.

About the nest small branches were very dense, thereby offering very good protection for a secluded nest. The nest itself was composed entirely of sticks with but a very few leaves for a lining. The three eggs in the nest were completely white. In another crotch in the same tree we observed an old nest, identical in composition to the present one. As the long-eared owl has been recorded in this vicinity every year recently, doubtless the second nest was last year's.

A second visit to obtain pictures of the owls was unfruitful; both birds were discovered in the tree, one on the nest, the other near in a hedge. Photographs of the sitting bird proved worthless and efforts to film the other were in vain. The bird on the nest was not disturbed, which we regretted, for when the next visit was made two weeks later to obtain a few pictures of the young, the nest was vacant. Without doubt the young had been hatched before the second visit and had flown, as there was nothing to indicate any different conclusion.

SIDNEY E. EKBLAW.

Obituary.

KENYON ROPER

Kenyon entered the Coast Artillery in the summer of 1917 as a Second Lieutenant. After training at Fortress Monroe, he sailed for France in December, 1917. Shortly after his arrival overseas he transferred to the aviation service and was promoted to First Lieutenant in the 91st Aero Squadron. In March, 1918, he receivel another promotion to the rank of Captain. Spurred by the idea of revenging the death of George, he accounted for at least four Boche planes. But on September 14, 1918, he and his pilot were brought down behind the German lines. For five months he was reported missing in action, but finally the government reported his grave near Tronville, Meuthe et Moselle, the identification being a handkerchief with his name in indelible ink, the handkerchief being in the possession of a young German boy who lived in the vicinity where Captain Roper fell to his death and is buried.

Book Review

Life History of North American Birds, Order Pygopodes. By A. C. Bent.

This, Bulletin 107 of the U. S. Nat. Museum, is a continuation of the late Major Bendire's monumental work. Mr. Bent is a member of the Wilson Club, as was Major Bendire. In writing this work Mr. Bent has been assisted by many well known ornithologists, who have furnished him with much valuable material. He has also had access to all the literature needed. The result

has been an accurate, as well as an interesting work. Under each species the setting of its natural environment is first given, portraying a vivid picture of the bird in its actual haunts. Courtship, nesting, eggs, young, plumage, food, behavior are then taken up and finally very accurate data concerning the distribution, such as breeding range, winter range, spring and fall migration, casual records and egg dates. With each species characteristic photos are given, selected from the author's own fieldwork and that of many others. At the end of the volume there are eleven color plates of the eggs of the Pygopodes, which are certainly true to nature. Colored plates of the birds themselves would have added still more to the value of the work, which we regard as perfect as far as the contents are concerned. Mr. Bent has certainly earned the full gratitude of Ornithologists the world over. In regard to some questions of species and subspecies, while following the A. O. U. check-list's decision officially, he has also had the courage to express his private opinion, e.g. in regard to *Cepphus mandtii*, which he is inclined to regard as a subspecies of *grylle*, an opinion in which we concur. The disputed *Uria ringvia* we are personally convinced is a good species, but as Mr. Bent shows there is much to be said on both sides of the matter, that he has done well to leave it an open question which the future may decide.

The one great criticism we have to make does not strike at Mr. Bent, but at a government that has been shameless enough to put such a fine piece of work out in a poor pamphlet form without even any binding, on miserable paper and with still worse covers. This certainly is not the place for petty economy.

W. F. H.

THE ANNUAL MEETING

Bear in mind that our next annual meeting will be held in St. Louis, Missouri, in conjunction with the meetings of the American Association for the Advancement of Science. No program of these meetings has been issued, so that the dates of our meetings cannot be announced at this time. But it is probable that our meetings will be held on December 30 and 31. Announcement of the exact time and place of meeting will be made in ample time by circular letter. It is hoped that you will not wait for an invitation to prepare and read a paper at this meeting, but that you will send your title as soon as possible to the secretary, A. F. Ganier, 1023 Villa Street, Nashville, Tenn. Liberal coöperation will ensure a most profitable and interesting meeting.

THE ART OF SUBSPECIATION

The species that were,
The species that are,
The species that are to be,
Are a source of dismay,
In the present day,
To philosophers, such as we.

To cover the need
For a definite creed,
We scientists large and small,
Have developed a scheme,
Which, on the surface, would seem,
The ultimate all-in-all.

That it happened by chance,
You may see at a glance,
For it's simple as two and two;
To arrive at the point
You just measure a joint,
And look the specimen through.

Then you note in your book,
With a wisdomful look,
(It's a matter of touch-and-go)
And you give it a name,
It may all be the same,
Buteo buteo buteo.

Then you pass it along
To the ignorant throng,
With a most magnanimous air,
Then act as the sponsor,
And stand-by to answer,
For the species that isn't there.

—ARTHUR LAWRENCE BOLTON.

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SOME CHANGES IN THE SUMMER BIRD LIFE AT DELAVAN, WISCONSIN

BY N. HOLLISTER

A recent three weeks' visit to Delavan, Wisconsin, from July 7 to 26, 1919, gave me the first opportunity in many years to compare the summer bird life of today in my home county with that of twenty to thirty years ago. From boyhood I had closely observed the birds in this region, and my first journal begins in 1888. From 1891 until 1902 I was especially active as a collector of birds and was almost daily in the field. I left Wisconsin early in 1902 and except for a brief visit in the summer of 1907, with no opportunity for the observation of birds, my occasional trips to Delavan have been at some other time than the breeding season.

Delavan is in southeastern Wisconsin, in a beautiful country of varied physiography, with abundant streams and lakes, forests, prairies, marshes, and farmland. It has always been a most favorable region for bird life.

My first impression, on this recent visit, was that birds were more abundant than at the time of my main ornithological activity in Wisconsin, and the three weeks of excursions afield convinced me that this is true. Several species, as summer residents, are conspicuously more abundant now, and many others have held their own in numbers. A few, on the other hand, have almost or completely disappeared from the region.

One of the most notable cases of increase is that of the

house wren. I had never been able to obtain a breeding bird of this species although two forms, *Troglodytes aëdon aëdon* and *T. a. parkmani* (or, as we called it then, *aztecus*), were common during migrations. House wrens were reported by ornithologists as breeding now and then in other portions of the state and some few may have been present in my region, but as a summer resident the bird was certainly rare in the vicinity of Delavan. Now I found it, in July, one of the most conspicuous and generally distributed of town birds. It rivals the martin in popularity and everywhere I went were wren houses occupied by busy, singing wrens. Such favorites indeed are the birds that I should hesitate to be the collector of the desired series of breeding examples for subspecific determination. I suspect that both *aëdon* and *parkmani* will now be found nesting within the state.

Purple martins have also increased in numbers. Martin houses are much more common than formerly, and no one seems to have trouble in obtaining the desired tenants. Sentiment in a bird's favor is the greatest help in its survival and increase in settled communities.

The crested flycatcher has certainly greatly increased in numbers as a breeding bird. In my collecting days at Delavan I had to go to certain unfrequented woods to find the great-crest, but now it is much more common; I saw it often in places it never used to inhabit, and it has actually become a town bird. I also saw the wood pewee feeding young in a nest on an oak limb over our own house, near the city street; something I should have been much surprised to note twenty years ago. Though always abundant in that vicinity, the pewee was never suspected of being a city dweller. Both the red-headed woodpecker and the yellow-billed cuckoo are much more abundant and generally distributed than formerly, although both were common summer birds in my collecting days in Wisconsin. They are now city birds also, and the red-head seemed one of the most conspicuous birds of the country roadside.

The effects of spring protection for waterfowl are especially noticeable; more ducks breed about Delavan than at any time since I can remember; and if they continue to increase the numbers of young birds must soon approach in some measure those of the still earlier days before the ducks were forced by an army of spring shooters to desert their old breeding grounds. In my shooting days at Delavan we killed almost entirely wood ducks on the opening of the season (August 20, or later on September 1), and individuals of other species before the first fall migration had commenced were comparatively rare. Some years there was a fair sprinkling of blue-winged teals, or an occasional mallard, gadwall, or other river duck. Now the mallard and blue-winged teal are the most common breeding species; black ducks are fairly so; and, most unexpectedly, I find that pintails now regularly nest. Last year (1918) fully fifty pintails were reared in one large marshy pond not over seven miles from Delavan, where the flocks of young birds were seen by sportsmen friends of mine before the shooting season opened. About five hundred ducks, mostly mallards, teals, wood ducks, and pintails were, I was told, found in this one pond on the opening day, September 16, 1918. Baldpates and pintails are of late years frequently found in the bags on the first day's shooting, and although there is no direct evidence that the baldpate nests, it is hardly likely that any extensive migration has taken place at that early date.

The robin, wood thrush, catbird, song sparrow, and kingbird are certainly as abundant as they were twenty-five years ago, and I feel almost sure that they have actually increased in numbers since that time. The black tern is still a most fimiliar bird in suitable localities and seems fully as abundant as formerly. As many as fifty terns were seen in one flock, the adults and young congregated on the muddy shore and a nearby fence. At each of the old ponds and marshes that I vistied during my stay I saw numbers of them gracefully hunting for insects low over the water

and flags. The mourning dove and prairie chicken, both supposed to enjoy full protection, are not recuperating as they should under favorable conditions. The prairie chicken is no doubt kept from actual increase only by the illegal shooting of a few poachers and would, if the laws for its protection were rigidly enforced, become a much more common and generally distributed bird. Of course those now to be found are but a mere fraction of what were here at one time, but I do not think the prairie chicken has much decreased in numbers, locally, during the past twenty years. Its plentifulness in any given year is in a great measure dependent on the weather conditions at nesting time.

Among the more familiar of the smaller birds that seem to me to have been distinctly reduced in numbers are the bluebird, brown thrasher, barn swallow, cliff swallow, and chipping sparrow. The dickcissel was certainly not as abundant as I have seen it, but this species was always subject to a considerable variation in numbers from year to year.

There are, I think, fewer crows than at one time. The mania for crow shooting, fostered for commercial reasons by a great powder company, has swept this country as well as other states and it is no uncommon thing to find several dead crows under a single tree. It appears to me that the pernicious practice of summer crow shooting is bound to have a direct detrimental influence on the other breeding birds, game birds as well as beneficial hawks and owls, the herons and all other conspicuous bird targets. It is a very bad policy indeed to encourage an army of boys and irresponsible men to roam the country with guns throughout the entire spring and summer. It is not human nature for them to confine their shooting to the crow alone; harmless or valuable birds are killed and breeding game birds, if not actually slaughtered, are much disturbed. Even were it proved that the crow is a distinct menance to the game and

other birds, they will suffer vastly more from this promiscuous summer hunting than from the crow itself.

All breeding hawks are distinctly reduced in numbers. I saw, during the three weeks, only one marsh hawk and one Cooper's hawk. The marsh hawk formerly was really common and the red-tail was a regular breeder in considerable numbers. The summer crow shooters are, I think, largely to blame for this disgraceful extermination of breeding hawks. The nighthawk, pied-billed grebe, and wood duck are less in numbers than formerly; of the first two I happened to see only a single example of each. Wood ducks are still much commoner as nesting birds than in most parts of the range of the species, but are not so plentiful as they were twenty or more years ago.

I saw no Forster's terns nor upland plovers whatever; they seem to have completely disappeared from their old breeding haunts; and saddest of all the ruffed grouse has gone—I interviewed many hunters and others and could not find a single person who has seen one in five or six years. Some few are doubtfully reported in the extreme northern part of the county but the woods about Delavan where the grouse was formerly plentiful are absolutely barren of this glorious bird. The grouse was not exterminated by shooters; I think the pasturing of the wood lots and the ever present house cat are chiefly to blame. The Hungarian partridge, a poor substitute indeed, has been introduced, is locally common just north of us, and may eventually take the place of the native bird.

Altogether, during the three weeks' visit, I saw sixty-eight species of breeding birds, but as I made no special effort to search out certain kinds the list is much smaller than it might have been. The immense weed, grass, and fern grown marsh or low-land prairie, which has been the breeding grounds for Henslow's sparrows and short-billed marsh wrens since long, long before my time, is being slowly reclaimed. The cornfields and pastures are eating into it on all sides, and will, before many years, meet in its

very center. I have never found a single example of either of these birds in any other locality in this region during the breeding season. What will become of them, as well as the hordes of bobolinks, the marsh hawks, the prairie hens, and other characteristic nesting birds, when the last acre of virgin sod is ploughed for corn? The sandhill cranes, which still frequent this marsh in the spring and fall, deserted it for the breeding season many years ago. The last record of a crane's nest here that can be considered authentic was in 1883. The other birds, less alarmed by settlement but requiring these exact conditions, must soon look elsewhere for breeding grounds. And with the marsh and the birds, will disappear, locally, the Blanding's turtle, the last massasauga, the pitcher plant, rare orchids, and a generally peculiar native fauna and flora not otherwise represented in this immediate region.

Extreme abundance of a certain few birds during the nesting season will be poor compensation for the loss of others. Personally, I prefer to see a goodly number of species on a day's excursion rather than hundreds of robins, martins, wrens and other familiar birds. But those species that are able to adapt themselves to changed conditions are the ones that may and do increase. In southern Wisconsin, as in some other parts of the world, they will, I believe, grow more and more abundant; while many of the more interesting and beautiful forms of bird life must become rarer and more restricted, until they cease to nest at all, as the conditions necessary to their very existence are swept away. A number of nesting birds have been exterminated in southern Wisconsin since the settlement of the country. We can not help but wonder which species will be the next to go. The ruffed grouse, the Forster's tern, and the upland plover were depleted in numbers at Delavan, but no one, twenty years ago, would have predicted their complete disappearance from this region within so short a time.

NOTES ON BIRDS OF WAKULLA COUNTY, FLORIDA

JOHN WILLIAMS, ST. MARKS, FLA.

Wakulla County lies directly south of Leon County, wherein is located our State Capital, St. Marks being twenty miles directly south from Tallahassee.

The county covers about five hundred square miles and has a frontage on the Gulf (Apalachee Bay) of about twenty-five miles.

The eastern portion of the county is traversed by the St. Marks river, on which, eight miles up from the Gulf, our little village is located.

In general the surface of the county is a low coastal plain of limestone formation, the greatest elevation about sixty feet above sea-level.

Large areas are covered with water at times of protracted rains. Sinks are numerous and in two instances large streams appear directly from such openings. Several sulphur springs occur. The soil is sand and sandy loam. Cypress, Palmetto, Long-leaf and Pitch Pines, Sweet Gum, Live Oaks and Water Oaks are the prevailing trees in the lower sections, while in the higher hummocks Red Oaks, White Oaks, Hickory and Dogwood are common and on the sandy ridges Black Jack barrens occur.

Farming, while practiced somewhat, has not advanced greatly except in a few isolated cases. Turpentine industry is quite general throughout the county. Vast marshes line the coast and tidal streams and in many places the so-called "Open Piney Woods" are little more than sparsely timbered marshes.

Commercial fishing is followed to a considerable extent along shore, St. Marks being the principal shipping point, while seine yards are operated at a few places during the months of October and November each year and have some bearing on the abundance of certain species of birds.

Local interest in the bird life of the county has been found quite limited and little reliable information is to be gleaned except at first hand. Fortunately there are a few exceptions thereto and the writer desires to extend his hearty appreciation for numerous valued notes from the Messrs. W. F. and T. A. Linton of St. Marks and from their brother, Mr. John Linton of Wakulla, who have freely given from their almost life-long experiences in the county.

These observations, while extending over several years, have been as a recreation and of necessity at spare time from business. While for the most part they refer to the section lying on and near the coast, occasional trips have been made farther inland. As my work has been at St. Marks, so the notes are mainly from that immediate locality.

1. *Colymbus auritus*—Horned Grebe.

Numerous in the lower river and along shore in the Bay. Arrive in early November and remain until April. November 3, 1917, April 21, 1919.[1]

2. *Podilymbus podiceps*—Pied-billed Grebe.

Frequent the fresher waters rather than in the Bay. Common from the last of September until early April. Some of the fishermen report "Dodappers" in the summer and a few may occasionally nest with us. September 20, 1916, April 3, 1914. One caught in a fisherman's net June 21, 1919.

3. *Gavia immer*—Loon.

To be seen regularly along shore and in the larger rivers and streams from early September until late in April. September 4, 1913, April 26, May 16, 1914. Not unusual to see five or six in close company.

4. *Larus argentatus*—Herring Gull.

Arrive regularly in October and remain until early May. At times abundant up the river to our village, gleaning from fish refuse. September 27, 1917, May 4, 1914.

5. *Larus delawarensis*—Ring-billed Gull.

I have only identified this species on two or three occasions, but believe it to be of regular winter occurrence, along the coast and lower river areas. My records are all in December.

[1] Unless otherwise indicated the dates represent the extremes in seasonal records.

6. *Larus atricilla*—Laughing Gull.

A nesting colony of about fifteen pairs has continued on our coast for several years. An extra high tide will sometimes destroy the eggs, but the birds usually rear some young. More numerous from the last of October until about April 1. June 6, 1915, nests with eggs and one or two young just hatched.

7. *Larus philadelphia*—Bonaparte's Gull.

Of regular winter occurrence, arriving the last of September and remaining probably until early May. September 30, 1917, February 26, 1917, May 3, 1919.

8. *Sterna maxima*—Royal Tern.

Probably occurs regularly in small numbers at the mouth of St. Marks river and the bars off Shell Point. One identified May 3, 1919. Not known to nest here.

9. *Sterna forsteri*—Forster's Tern.

Found usually along shore during the winter. Specimens taken April 11, 1915.

10. *Sterna hirundo*—Common Tern.

Occur regularly in winter and at times rather numerous. I have no nesting records.

11. *Sterna antillarum*—Least Tern.

Formerly this was a regular breeder at one or two places on our coast. It has not been noted the past eight or ten years.

12. *Sterna fuscata*—Sooty Tern.

Occur occasionally if not regularly in the spring. Possibly in the fall. April 10, 1917, May 22, 1913.

13. *Hydrochelidon nigra surinamensis*—Black Tern.

Occurs regularly but in varying abundance from mid-summer until fall. Single and scattering birds come up the river feeding as far as our village. In broader waters they frequently feed in flocks of twenty or more, hovering over bunches of small fish close along shore and dropping down after their prey. I have no spring records. July 4, 1915, October 5, 1917. Local name, "Mother Carey's Chicken."

14. *Rhynchops nigra*—Black Skimmer.

Formerly said to have nested along our shore. Apparently occurring rather rarely for several years, until the fall of 1917, when they were numerous. Local name, "Scissor-bill." June 8, 1917, September 29, 1917, April 22, 1919.

16. *Phaëthon americanus*—Yellow-billed Tropic-bird.

". . . Accidental at St. Marks, Fla." The A. O. U. Check List of N. Am. Birds, 1910, p. 58. Normally a strictly tropical species.

16. *Phæthon americanus*—Yellow-billed Tropic Bird.

One of our reliable fishermen states that on May 25, 1919, he saw a bird flying about the bars near our light house different

from any he had ever before seen. "About the size of the smaller black and white Gulls" (meaning the Common Tern,) "with a tail full eighteen inches long, that went back to a long slender point."

17. *Anhinga anhinga*—Water-Turkey.

My observations indicate the "snake birds" as occurring regularly throughout the year, but in small numbers. They are usually to be found along the upper reaches of our rivers or on lakes and ponds. At times they exhibit wonderful powers of high flying and soaring.

18. *Phalacrocorax auritus, floridanus*—Florida Cormorant.

A common species along our coast and frequently inland on rivers, lakes and larger ponds. Nest in colonies of fifty to one hundred or more pairs in a close group. Nests of loose sticks and twigs on tall cypress trees bordering a stream, pond or lake. Eggs early in April. In flying to and from their roosting places they are frequently in companies of five or six or more, range in single file, on slow, strong wing-beats, keeping but a few feet above the surface of the water as they travel up and down stream or off shore over the Bay. The mandibles are often held slightly open while in protracted flight. Local name, "Nigger Goose."

19. *Pelecanus erythrorhyncos*—White Pelican

Sometimes occur in considerable numbers, fifty or more, along shore from early fall until middle spring. Seemingly rare in mid-winter. August 29, 1912, October 2, 1917, April 26, 1918.

20.—*Pelecanus occidentalis*—Brown Pelican.

Seen in varying numbers throughout the year, although I am not aware of a nesting locality in our county. January 21, 1916, March 15, 1916, May 21, 1913, June 24, 1913, July 15, 1916, etc.

21. *Fregata aquila*—Man-o'-war-bird.

This bird of wonderful wing is to be seen from land only when driven in by stress of heavy wind. July 5, 1915, September 4, 1915, December 17, 1915.

22. *Mergus americanus*—Merganser. Winter visitor.

Perhaps this species occurs more frequently than my few records would indicate.

23. *Mergus serrator*—Red-breasted Merganser.

One of our most common aquatic winter visitors. Found singly and in varying flocks to twenty or more. Local names, "Sawbill" and "Hairy-head." October 10, 1918, May 8, 1917.

24. *Lophodytes cucullatus*—Hooded Merganser.

Decidedly less numerous than the preceding species. The "Fuzzy-head" frequently takes to ponds back from the bay and rivers.

25. *Anas platyrhynchos*—Mallard.

The "Greenhead" is with us in considerable numbers during the late fall and winter. October 22, 1916.

26. *Anas fulvigula fulvigula*—Florida Duck.

A few pairs of "Black Mallards" nest yearly on the broad marshes bordering our rivers and back from the Bay. Presumably they should be referred to this species.

27. *Anas rubripes*—Black Duck.

While the influx of Black Ducks during the winter may be in part of the preceding species our gunners believe they are largely from the North. R. W. Williams, Esq., reports them "Fairly abundant" at East Goose Creek, ten miles west of St. Marks, November 16-24, 1917. The Auk, January, 1919.

28. *Chaulelasmus streperus*—Gadwall.

Occur in irregular abundance from October until about April 1. Frequently resort to small ponds off from the rivers. Local name, "Widgeon."

29. *Mareca americana*—Baldpate.

I have not found it an abundant visitor. Usually a few are shot each winter.

30. *Nettion carolinense*—Green-winged Teal.

Both species of the common Teal are here during the winter, but in much fewer numbers than formerly. A few remain into April. September 26, 1917, April 11, 1915.

31. *Querquedula discors*—Blue-winged Teal.

The Teal are among the first ducks to arrive in the fall and may then often be found associated with Pintail. September 2, 1914.

32. *Spatula clypeata*—Shoveller.

The Shoveller may occur more frequently than my notes indicate. Gunners occasionally report a "Spoon-bill" Duck being shot.

33. *Dafila acuta*—Pintail.

One of our most abundant winter Ducks. Early to arrive and late in departure. September 24, 1916, early April.

34. *Aix sponsa*—Wood Duck.

The "Summer" Duck is with us in considerable numbers, being found in secluded ponds and less frequented parts of the rivers throughout the year.

35. *Marila americana*—Redhead.

Winter transient. Not numerous. So far as I have observed it occurs less frequently than does the Canvasback.

36. *Marila valisineria*—Canvas-back.

Winter transient. Quite irregular in abundance. During the winter of 1914-15 it was unusually numerous. In 1915-16 quite rare, 1917-18 again numerous.

37. *Marila marila*—Scaup Duck.

Our gunners confuse the two species of "Bullheads," both of which occur throughout the winter.

38. *Marila affinis*—Lesser Scaup Duck.

Decidedly the most numerous of our Ducks. Arriving from late September until mid-October the bulk depart in April, but a few usually remain throughout June, seemingly strong, sound birds. October 22, 1917. July 1, 1913, nine seen.

39. *Marila collaris*—Ring-neck Duck.

Winter visitor. Probably occurs regularly, but I have seen but few during the past few years.

40. *Charitonetta albeola*—Buffle-head.

Probably occurs regularly, but I have seen it but rarely. Winter visitor.

41. *Erismatura jamaicensis*—Ruddy Duck.

Winter visitor. Rarely noted along our rivers and bays.

42. *Chen hyperboreus nivalis*—Greater Snow Goose.

Seemingly rare along our coast. Lintons saw seven together October 30, 1916, and apparently the same bunch on the following day. One from a bunch of three shot November 23, 1918.

43. *Branta canadensis canadensis*—Canada Goose.

Occur along shore in considerable numbers during the winter, coming in on the flats to feed. The fishermen report them as numbering *thousands*, but in fact hundreds are to be seen at times. October 9, 1917, March 21, 1917.

44. *Branta canadensis hutchinsi*—Hutchin's Goose.

One found dead March 12, 1918, is referred to this form and identified by the Biological Survey.

45. *Ajaia ajaja*—Roseate Spoonbill.

The "Pink Curlew" was formerly a fairly common bird along our coast. For at least ten years I find no positive record of its occurrence here.

46. *Guara alba*—White Ibis.

Probably nests regularly with us. The only nesting colony I have seen was made up of about 30 pairs of birds and was associated with a much larger colony of Little Blue Herons (*F. caerulea*). April 4 the nests contained fresh eggs. Local name "White Curlew."

47. *Mycteria americana*—Wood Ibis.

While I have seen the "Garnet" here in both spring and fall I have no hint of their nesting within our limits. May 29, 1917, July 16, 1916, October 24, 1915.

48. *Botaurus lentiginosus*—Bittern.

I have not found the Bittern numerous but usually see two or three in the course of a winter or spring. September 24, 1917,

April 7, 1914. May 10, 1919, two flushed at a small pond.

49. *Ixobrychus exilis*—Least Bittern.

A regular summer dweller in our larger marshes and about inland ponds where a heavy growth of reeds and grass abound. At times, probably often, they nest in small colonies. May 22, 1914, a nest was found with four young seemingly but three or four days old. April 3, 1918, earliest arrival record.

50. *Ardea herodias wardi*—Ward's Heron.

Very generally distributed except while attending to their affairs of incubation, when they generally associate in colonies of a few or many. Singly and in small groups they wade the shoals along shore or glean from pond or stream. Almost as wary as an old Turkey they move off on labored wing, beat far in advance of an approaching boat, seemingly in no haste, yet "safety first" by virtue of a timely start. March 16, 1918, young in nest. May 16, 1916, young almost ready to fly.

51. *Herodias egretta*—Egret.

While greatly diminished in numbers, compared with years gone by, this conspicuous bird is frequently to be seen in small companies along shore or on a favored marsh. I have not seen a nesting locality, but believe a few breed regularly with us. May 24, 1913, June 29, 1913, October 3, 1916.

52. *Egretta thula thula*—Snowy Egret.

The dainty and much persecuted "Little Egret" was formerly an abundant breeder in this locality. Alas! it has almost disappeared and one hears with sorrow the tales of the hundreds that were shot for their "scalps." I have no personal dates of their occurrence for several years, but sometimes hear of one being seen by an *old timer*, who claims to distinguish them from the immature of *F. cærulea*. R. W. Williams, Esq., noted two at East Goose Creek November 24, 1917. Auk, January, 1919.

53. *Hydranassa tricolor ruficollis*—Louisiana Heron.[1]

An abundant resident, nesting at times in large colonies, two hundred to four hundred pairs. Sometimes associate at nesting time with *F. cærulea*. They are rarely molested. The nests are usually placed in bushes near water, but on May 7, 1917, I discovered a colony of four hundred or more pairs nesting on a low island two miles off shore; the nest is a slight depression in the drift or reeds as left by an extra high tide. May 7, 1917, eggs fresh. June 6, 1915, a few eggs had hatched. Local name, "Silver Gray Heron."

54. *Florida cærulea*—Little Blue Heron.[1]

[1] See "Some Florida Herons" in Wilson Bulletin, June, 1918.

[1] On May 7, 1916, an immature (white) specimen was shot, showing considerable progress towards an adult plumage.

Numerous and generally distributed, nesting in colonies, on bushes for the most part, in or bordering ponds. In a colony of about one hundred fifty pairs of these birds there were also nesting about the same small pond eight or ten pairs of Louisiana Herons (*H. t. ruficollis*), one pair Green Herons (*B. v. virescens*), and about thirty pairs White Ibises (*G. alba*). April 1, 1917, egg laying incomplete. On April 30, at same rookery, some young were traveling over the bushes, using bills as well as toes in progression.

55. *Butorides virescens virescens*—Green Heron.

Quite generally distributed, but not numerous. A few seen every year about ponds and streams. Nest with fresh eggs April 4. I have never seen it here in mid-winter. March 16, 1918, December 4, 1918.

56. *Nycticorax nycticorax nævius*—Black-crowned Night Heron.

While these birds are with us throughout the entire year I have failed to find their nesting locality. In winter they frequent the broad open marshes in companies of twenty to forty or more.

57. *Nyctanassa violacea*—Yellow-crowned Night Heron.

Much less numerous than the preceding species and usually seen singly or but two or three together. They frequent more secluded ponds or may be seen fishing a tidal creek at low water after sunset. Do not occur in winter.

58. *Grus mexicana*—Sandhill Crane.

In former years it was not uncommon to see these birds in their wanderings and a pair frequented and probably nested on one of our river marshes about 1895. Two birds were seen flying high overhead May 20, 1913. It is reported that two were shot in southwestern part of our county about May 1, 1918.

59. *Rallus elegans*—King Rail.

Probably a regular resident. An adult with a single half-grown young was seen May 26, 1917. One noted November 21, 1916.

60. *Rallus crepitans scotti*—Florida Clapper Rail.

Our coastal and larger tidal river marshes abound with this species. Eggs noted from April 18 throughout June. Many nests are destroyed by storms, high tides and Fish Crows.

61. *Rallus virginianus*—Virginia Rail.

Usually a few may be seen every winter, but I have not observed them numerous.

62. *Parzana carolina*—Sora.

Seemingly much more abundant than the Virginia Rail. Found from the last of September until May. One shot May 6, 1915, and others seen May 7 had the bright yellow—nuptial—tip to bill. September 27, 1913, May 14, 1916.

63. *Coturnicops noveboracensis*—Yellow Rail.

May occur regularly. My only record is May 22, 1915.

64. *Creciscus jamaicensis*—Black Rail.

Doubtless they occur regularly during the fall and winter, but from their secretive habits are unobserved. Two were taken during very high water September 4, 1915, and two others seen on the same date. Two were seen October 9, 1916.

65. *Ionornis martinicus*—Purple Gallinule.

Not noticed as abundant and I have no records in mid-winter, although it may occur then.

66. *Gallinula galcata*—Florida Gallinule.

More generally distributed than the preceling species in summer and found regularly in winter.

67. *Fulica americana*—Coot.

"Blue Petes" are numerous from early fall until March and occasionally birds are seen during the summer, but whether or not they are breeders I have been unable to determine with certainty.

AN ANNOTATED LIST OF THE LAND BIRDS OF SAC COUNTY, IOWA

BY J. A. SPURRELL, OF WALL LAKE, IA.

This paper continues a local list of the birds of my home county, the first part of which appeared in the Wilson Bulletin, Vol. XXIX, Number 3, (September, 1917), The reader of this list will find an account of the local topography and other data on the manner of collecting notes, etc., in the introduction of my other article.

This article is based on my own observations to a much larger degree than the former one, as only a few of the land birds have become extinct. I expected to find a record among the pioneers of some one having seen the Carolina paroquet, but I found only rumors of it, and therefore have given quotations showing that its former range covered this county. I was very much surprised to find among the pioneers a knowledge of the pileated woodpecker and the magpie, and still more surprised to find a Clarke's nutcracker which was taken locally among the specimens in the Smith collection at Odebolt, Iowa. Mrs. Smith has no catalogue of this collection but I interviewed

both Mr. Smith and her before her husband's death, and obtained a record of all specimens taken locally.

As in my former article, all data are based on careful sight records, specimens found dead, or specimens in the Smith collection. I do not expect subspecific sight records to be accorded the same value that they would have had the specimen been taken. In scientific names for subspecies, I have followed Anderson's "Birds of Iowa." Other names follow the A. O. U. 1910 checklist. I have not listed some of the vireos and flycatchers which undoubtedly occur, owing to the difficulty of sight identification. The migration data would be much more complete, had I been able to devote more time to it, especially in the later years of the record. However it is a good average for the region about Wall Lake. My complete records are in the possession of the Biological Survey at Washington, D. C., should further information be desired.

ANNOTATED LIST

BURROWING OWLS IN SAC COUNTY, IOWA

(Addenda to Former Article)

In July, 1917, I saw two burrowing owls five and one-half miles north of Wall Lake, and also an occupied burrow. The old birds circled anxiously about as though their young were in the burrow. On the same day, I saw another pair about three miles north of this on one of the hills bordering Indian Creek.

Carolina Paroquet (*Conuropsis carolinensis*).

I found no observers of this bird but give the following quotation from "The Birds of Iowa" by Rudolph Martin Anderson. Proceedings of Davenport Academy of Sciences, March, 1907, pages 269, 270, 271. "The beautiful Carolina paroquet formerly ranged in flocks as far as the northern part of the state, but has not been observed in the state for at least thirty years and has practically been exterminated throughout the United States.

'Paul Bartsch, in an article on 'Birds Extinct in Iowa and those Becoming so,' states that the paroquet formerly ranged as far north as Spirit Lake, where it would frequently remain until the cold and snow would drive it southward. Its food in winter consisted chiefly of the seeds of the cocklebur. Its nature was so peculiar that when one of the number was killed or wounded, the others would gather around it with shrill cries and in this way the entire flock could easily be annihilated."

Yellow-billed Cuckoo (*Coccyzus americanus americanus*).

This species is the common cuckoo of Sac county, according to my observations, and I have looked at the bill of every cuckoo I got close enough to. A pair or more are found in nearly every grove. My first seen dates in spring range from May 14 to June 3. I have seldom heard its loud "kelp, kelp," until the first week in June, which makes it appear probable that it is quiet for some days after arrival. I have at several different times seen one with a dragon fly in its bill. I have known them to attack and drive away domestic fowls which came near the tree in which their nest was located.

Black-billed Cuckoo (*Coccyzus erthrophthalmus*).

This species is very rare about Wall Lake. I saw one July 28, 1913, another July 23, 1914, and my sister saw one in the spring of 1917. Mrs. George May also reported it.

Belted Kingfisher (*Ceryle alcyon alcyon*).

During the spring migration, I have noted this species at Wall Lake and very rarely in the "Goosepond." I have seen it in summer along the Raccoon river, and in the summer of 1916 I saw one several times along the Boyer river west of Wall Lake. I think it nests along both rivers.

Hairy Woodpecker (*Dryobates villosus villosus*).

The hairy woodpecker is a tolerably common winter visitant about Wall Lake. I have never found a nest or seen it in summer.

Northern Downy Woodpecker (*Dryobates pubescens medianus*).

This species is somewhat more common than the hairy woodpecker in winter and I have seen an occasional one in summer. I have found them in July, apparently breeding, in the woods along the Raccoon river at Sac City.

Yellow-bellied Sapsucker (*Sphyrapicus varius varius*).

I have found this bird as a rare spring migrant only. I saw one individual May 20, 1909, and another May 23, 1913. Many years ago, one nearly killed some Scotch pine trees in our front yard by drilling holes in the bark.

Northern Pileated Woodpecker (*Phloctomus pileatus abieticola*).

According to Mr. Hugh Cory of Sac City, a very large woodpecker, which in the vernacular was called "woodcock," was found in the timber along the Raccoon river in early days. Mr. Cory said that the early settlers considered them good eating. This resulted in their early extinction, as Mr. Cory stated that the last one he saw was in 1865.

Red-headed Woodpecker (*Melanerpes erthrocephalus*).

There is a specimen in the Smith collection. This species is a common summer resident, frequently using telephone poles to nest in. My first seen dates vary from April 22 in 1913 to May 15 in 1910. They depart early in the fall; September 7 and 11 being two of my last seen dates. I knew of one second brood being reared in which the young did not fly until about September 15. The parent birds departed only a few days after the young left the nest, while the latter remained in the vicinity until about October 15. The red-heads are not peaceable neighbors with the flickers and sometimes drive the latter away.

Northern Flicker (*Colaptes auratus luteus*).

The flicker is an abundant migrant, a common summer resident, and a rare winter resident in Sac county. I have known of a single individual wintering in the years 1910, 1911, 1912, and 1914. For many years flickers nested between the walls of a double-walled building stuffed with flax straw. I have had both flickers and red-heads nest in bird boxes which had ground cork in the bottom for a nesting material. Flickers can frequently be found over a mile from any trees, apparently feeding upon ground insects in pastures and stubble fields.

Red-shafted Flicker (*Colaptes cafer collaris*).

One reported by Mrs. E. B. Hayden.

Whip-poor-will (*Antrostomus vociferus vociferus*).

I have found this species very rare at Wall Lake, having identified only one individual, May 14, 1910. Mr. C. Orville Lee reported it as formerly common and nesting near Sac City.

Nighthawk (*Chordeiles virginianus virginianus*).

Specimen in the Smith collection. The nighthawk is a common migrant at Wall Lake, but I have never known it to nest in this vicinity. Mr. Lee states that it is a common nesting species in the vicinity of Sac City. I have found it common in early July along the Raccoon river east of Lake View. My first seen dates range from May 19 to May 30.

Sennett's Nighthawk (*Chordeiles virginianus sennetti*).

My only record is that of a female which I found sitting on a clod in a plowed field I was preparing for alfalfa seeding on August 12, 1909. It was a very pale silvery color, so much so that it was very conspicuous against the black dirt, in marked contrast to the ordinary nighthawk, which can hardly be seen in a similar situation. Although I flushed it repeatedly, it always perched upon the ground again. It allowed me to approach as close as eight feet and the horses still closer.

Chimney Swift (*Chactura pelagica*).

For many years, I saw no swifts in Wall Lake, noting the first May 28, 1908. I have seen it every year since then, the dates of the first arrivals varying from April 26 to May 19. Old residents of the town report that the species formerly nested in the chimneys of houses. I have also seen it flying over the towns of Odebolt, Lake View, and Sac City. In October, 1917, I found an abandoned chimney swift's nest in an empty silo at Belle Plaine, Iowa.

Ruby-throated Hummingbird (*Archilochus colubris*).

This tiny bird is usually a rare migrant, but in occasional years I have found it an abundant migrant, frequenting the apple orchards when these are in bloom. First seen dates vary from May 7 to May 30. It has been reported as nesting, but I have never seen it in summer except during August, when I took it to be a migrant.

Kingbird (*Tyrannus tyrannus*).

A common summer resident. The dates of first arrival vary from April 30 to May 12. Nearly every grove has its pair of kingbirds and I have even found a nest built on a brace in a fence corner, one-half mile from the nearest trees. They frequent wire fences out in the fields a great deal, especially after the young have flown. I have never seen the red crest on a living kingbird except when displayed by a victorious male after defeating a rival.

Arkansas Kingbird (*Tyrannus verticalis*).

A rare, but in recent years, a fairly regular migrant. I first identified it May 31, 1910, and since then have seen from one to four individuals every year. My sister saw three on May 15, 1913, and I saw one on August 20, 1913. Other first seen dates are: May 20, 1912, May 11, 1914, and June 9, 1915. In the summer of 1915 a pair stayed about our grove until late in June, but I do not think they nested.

Crested Flycatcher (*Myiarchus crinitus*).

A tolerably common summer resident along the Raccoon river and an occasional summer visitant at Wall Lake. I have noted it at the latter place, June 25, 1911, and June 13, 1915.

Phœbe (*Sayornis phœbe*).

A tolerably common migrant and a rare breeder in the vicinity of Wall Lake. I found a nest under a bridge July 4, 1908. In the years 1912 and 1913, the first arrivals in a specially favorable locality came on March 31.

Olive-sided Flycatcher (*Nuttallornis borealis*).

Mrs. George May reported seeing three in the spring of 1912.

Wood Pewee (*Myiochanes virens*).

A common spring migrant, and a tolerably common summer resident and breeder.

Alder Flycatcher (*Empidonax trailli alnorum*).

A tolerably common migrant. I first identified it May 23, 1915. It was identified by my sister in the spring of 1917.

Least Flycatcher (*Empidonax minimus*).

Reported by Mrs. George May as abundant. I have found it common in the spring migration.

Prairie Horned Lark (*Octocoris alpestris praticola*).

This species occurs the year around, but is not as common in midwinter as in spring and summer. While cultivating corn in June I have frequently found their nests. They are placed at the base of a corn stalk, and are made of coarse grass leaves lined with finer grass leaves. They have contained either 2, 3, 4, or 5 eggs. I think four or five eggs is the complete set. On June 16, 1914, I found a horned lark's nest, filling it with dirt before I was able to stop the plow. I cleaned it out, unavoidably removing some of the lining in the process, and replaced the eggs. On June 24, when I again plowed the corn, I again filled the nest with dirt, and this time accidentally cracked one of the eggs in removing the dirt. It was alive and well advanced in incubation.

Magpie (*Pica pica hudsonia*).

In the early days of settlement this species was found in the timber along the Raccoon river. Mr. Shelt Tiberghien said that he had seen them previous to, and in the 1860's, Mr. Lee stated that he had seen about twelve in the county, mostly in the early days, but with the last one seen in 1904.

Bluejay (*Cyanocitta cristata cristata*).

The blue jay is only a tolerably common breeder and a rare winter resident at Wall Lake. It is usually common in April and May, a local migration apparently taking place in these months. I have seen as many as ten to fifteen in one flock at this time and all flying northward. The blue jay is common both winter and summer in the timber along the Raccoon river.

Crow (*Corvus brachyrhynchos brachyrhynchos*).

Specimen in the Smith collection. The crow is a tolerably common breeder, a pair frequently nesting in a farmer's large grove or in an isolated clump of trees. During severe weather in winter, the crow is often absent from the vicinity of Wall Lake for long periods, but after the spring thaws they are much more common. I once saw a flock of about 200 flying in great circles

trending to the northward one spring day. Ordinarily ten to fifteen are as many as will be seen together at one time.

Clarke's Nutcracker (*Nucifraga columbiana*).

It is an accidental visitant. There is only one record for the county and fortunately this is authenticated by the specimen which is in the Smith collection.

Bobolink (*Dolichonyx oryzivorus*).

The bobolink is a common breeder on the borders of all sloughs or in wet pastures where tall bluegrass is found. My first seen dates vary from May 3, 1912, to May 18, 1910. Along in late July and August the plumage of the male changes to resemble that of the female, but is much brighter and more yellowish than is the plumage of the female in spring. The bobolinks then leave the pasturage or hayfields where they nested and congregate in flocks among the reeds or tall grass bordering lakes or sloughs. My last seen dates are from September 3 to October 10.

Cowbird (*Molothrus ater ater*).

Specimen in the Smith collection. The cowbird is a common breeder. I have frequently found its eggs in the nests of yellow warblers, and once each in a wood thrush's nest and a goldfinch's nest. It has been my experience that the yellow warbler always deserts its nest when a cowbird's egg is removed from it. After the nesting season the cowbirds leave the vicinity of the groves, and gathering in small flocks frequent pastures and similar places, but not being found about cattle as much as their name would indicate.

Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*).

This bird is an irregular migrant, being common some years and rare in others. In the spring migration they sometimes fly in pure flocks and at other times in mixed flocks with redwings and grackles.

As a breeder, it is found in sloughs where very tall grasses such as reed canary grass grow in standing water. It nests in the "Goosepond" when this depression is full of water in summer. It formerly nested at a small pond north of Carnavon. My first seen dates in spring range from April 15 to May 3.

Red-winged Black-bird (*Agelaius phœniceus*).

An abundant migrant, a common breeder, and an occasional winter visitant. I have winter dates of January 21, 1908; January 4, 1913; January 27, 1914; February 19, 1915. It usually arrives from March 4 to March 30. The birds continue in flocks for some weeks, not beginning nesting until the season's growth in the sloughs has attained considerable size. I have found its nests

built in curled dock plants of the current season's growth. The nest is usually placed in plants over water, but is often built among the grass on the tops of the "bogs" or hummocks in sloughs, or even among heavy weed patches in moist places. In the fall they assemble in huge flocks and visit the grain and corn fields, often damaging the tips of ears of corn when it is in the milk or roasting ear stage.

Meadowlark (*Sturnella magna magna*).

Since I do not possess a musical ear and have never been able to distinguish the eastern and western meadowlarks with certainty, I include both forms under the common name. The meadowlark is an abundant migrant and summer resident. It is one of the earliest migrants, often braving the last snow storms rather than go south again. First seen dates are from March 5 to March 25. It nests in pastures and hayfields and I think sometimes rears a second brood as I have found a nest under a bull thistle in late July. I have several times found single eggs lying upon the ground without any attempt at a nest. My father has seen a meadowlark attack and drive away a Franklin's spermophile, presumably from the vicinity of its nest.

Orchard Oriole (*Icterus spurius*).

A tolerably common migrant and breeder. First seen dates vary from May 8 to May 30. I have an abandoned uncompleted nest of this species made of bluegrass blades, which was started in a Scotch pine tree by a pair of these orioles, the male of which had the yellowish plumage and black throat patch of the second-year bird. The species departs very early in the fall.

Baltimore Oriole (*Icterus galbula*).

This oriole is a very common migrant and summer resident. It nests both in the farmer's groves and the shade trees of the towns. My first seen dates range from April 30 to May 13. It also departs very early in the fall.

Rusty Blackbird (*Euphagus carolinus*).

Specimen in the Smith collection. This species is a late fall migrant, often in company with redwings and Brewer blackbirds. I have two winter records of January 1, 1912, and January 12, 1913. In spring it usually migrates in flocks of its own kind only. My first seen dates cover the period from March 20 to April 19.

Brewer's Blackbird (*Euphagus cyanocephalus*).

A fairly common migrant, often in mixed flocks in the fall. At this season they follow the plow to pick up white grubs, angleworms and other insects, making identifications easy because they

often come within a few feet of the plow. In spring, my first seen dates are from March 15, 1914, to April 28 in 1910.

Bronzed Grackle (*Quiscalus quiscula aeneus*).

This species is a common migrant and breeder, and an occasional rare winter resident. A small flock wintered in the years 1911 and 1913, roosting in some white pine trees just north of the town of Wall Lake. In other years the first seen dates are from March 11 to March 29. On my home farm this species quit nesting in the soft maple trees of the grove when these reached a height of from forty to fifty feet, and then nested in the trees of the orchard from ten to twenty feet from the ground. During August, they are often found in mixed flocks with redwings, feeding from the grain shocks and corn fields.

Redpoll (*Acanthis linaria linaria*).

I have seen this species only one winter. I first identified it December 3, 1910, when I saw a small flock. It was tolerably common all that winter.

Goldfinch (*Astragalinus tristis tristis*).

The goldfinch is a rare winter resident, a common migrant, and a tolerably common breeder. I have seen it in mid-winter only twice and the same number of times in winter plumage in early spring. The first migrants in summer plumage were seen from May 3 to May 20.

Pine Siskin (*Spinus pinus*).

I have seen this species only twice. On September 2, 1908, a small flock of eight or ten were eating spruce tree seeds in our front yard. On May 13, 1914, I saw one pine siskin in company with a female goldfinch, and later in the day, about twenty siskins in a flock by themselves among the trees in town.

Snowflake or Snow Bunting (*Plectrophenax nivalis nivalis*).

Specimen in the Smith collection. The snowflake is very rare and irregular in its occurrence. On January 17, 1910, during a very severe blizzard, a flock of about one hundred alighted for a short time on a straw stack in our yard. On December 25, 1911, I saw one which acted as though it was lost. Dr. A. S. Hayden reported seeing a flock one winter, also during very severe weather.

Lapland Longspur (*Calcarius lapponicus lapponicus*).

This species is a regular and common fall migrant, a rare to tolerably common winter resident, and an abundant but very erratic spring migrant. In the spring migration, it travels in huge flocks, flock after flock passing northward and all going over in one day. My first seen dates in spring are few, February 24,

1913, and February 18, 1914. On April 18, 1910, I saw a huge flock of them in breeding plumage, the only ones I have ever seen in that plumage. They were feeding in a hayfield and gradually working my way, I stood still and was soon surrounded by them. They made a beautiful sight on the partly snow-covered ground. I think they had passed north and been driven back by a severe snow storm occurring the day before. March 23 is about the usual last seen date, but I saw one lone bird on May 22, 1915.

Chestnut-collared Longspur (*Calcarius ornatus*).

Mrs. E. B. Hayden and Mrs. George May reported two seen in the fall of 1912.

Vesper Sparrow (*Poœcetes gramineus gramineus*).

A rare spring migrant. I first identified it April 22, 1911. I have never found it breeding.

Savanna Sparrow (*Passerculus sandwichensis savanna*).

A tolerably common migrant in the open fields. I have never seen it near trees or bushes. My first seen dates vary from April 29 to May 9.

Grasshopper Sparrow (*Ammodramus savannarum australis*).

A common migrant and summer resident. It nests commonly in meadows and pasture lands, the nest being well concealed in the grass.

Leconte Sparrow (*Passerherbulus lecontei*).

On May 22, 1915, I captured a sparrow with a broken wing in the grass of a large pasture far from any trees. At first I could not identify it, but by comparison with the sparrow pictures in Bird Lore finally determined that it was a Leconte sparrow.

Lark Sparrow (*Chondestes grammacus grammacus*).

A rare migrant and also a rare breeder. I first identified it May 31, 1910. On July 4, 1911, along the Raccoon river, straight east of Lake View, I found a pair with young just able to fly.

General Notes

NOTES FROM LAKE COUNTY

Western Sandpiper.—Sunday, July 20, 1919, I flushed five small "peeps" that were feeding along the beach of Lake Erie. Peep-like, they flew a hundred yards, turned, came back and alighted practically in the same place, which was not over a rod from where I stood. As they lit in I put my glass on them and said to myself, "Four Semipalmated Sandpipers and a Red-back." But immediately the absurdity of its being a Red-back was evident, for *they* were not due for nearly three months, the bird was too small, and though the bill was long and bent at the tip, it was not near the length of a Red-back. To make my meaning clear, and to let the reader understand why I momentarily thought it a Red-back, will say the bill of this little peep bore the same approximate ratio to the size of the bird as does the bill of the Red-back to the size of that bird.

I watched them a long time as they fed along the water's edge, keeping so near that the semipalmation of the feet could be readily seen as they lifted them. (I have often noticed the Semipalmated lifts its feet differently than does the Least Sandpiper,—as though they were heavier, and when very near one could imagine they had mud between their toes.) I estimated, while watching them, the length of the bills of the four Semipalmates to be not over .75 of an inch, while that of the Western was fully 1.25 and distinctly bent at the tip. I knew the Western *would* have a longer bill but was not prepared for quite such a difference nor for such a decided bend. Upon reaching home I looked up measurements and found the extremes to be .66 for the minimum of the Semipalmated and 1.20 for the maximum *female* Western. Therefore my field estimation was not far out of the way, and the bird must have been a female with extreme length of bill. Half an inch added to the bill of a bird as small as a Peep makes a very evident change in its appearance. In the lately published "Game Birds of California" there is a cut of the heads of Least and Western Sandpipers which conforms very closely to my birds, although I would say this particular specimen had a still more evident bend at the tip.

Parasitic Jaeger.—This bird is reported now and then along the lakes, but I made a record of it September 20, 1914, that may be worth while to publish on account of its early appearance. While walking the beach I noticed a dead bird on the sand that at a casual glance I took to be a Crow's remains and would have

passed it by had I not noticed the webbed feet. Upon close examination I found it to be a Jaeger, from the hooked bill with separate nail; and called it Parasitic mainly from size of bird, and relative size of the bill compared to that of a Pomarine in my possession. It was doubtless an immature for I could detect no lengthening of the central tail feathers. The plumage was so greased from the decayed flesh,—for nothing was left but bones and feathers—that little could be said of original coloration. All looked an oily brownish black. As the bird could not have reached its condition in much less than ten days' time, its death must have occurred as early as September 10.

HENSLOWS SPARROW.—At last a record for Lake County! After waiting for many years with open ears, whenever in a likely place to hear it, I was awarded on May 10 (1919), when, in a pouring rain I was passing a field often frequented by Grasshopper Sparrows, by hearing a most vehement "*se-lick se-lick*," and sure enough, there on top of some bent-over grass the little fellow sat. I approached as close as I dared, shielding my glass with an umbrella, and took notice of the streaked sides, the characteristic black marks on the head, and particularly of the bill. This last should serve as a good field mark in conjunction with the streaked sides, for it is larger than that of the Grasshopper Sparrow,—seemingly out of proportion to the size of the bird. Had hopes it would remain to breed, but have neither seen nor heard it since.

ORANGE-CROWNED WARBLER.—The spring migration, deficient in the numbers of many species, and especially so in regard to the Black-throated Blue (only four individuals having been seen), contained, however, a generous sprinkling of this scarce and easily overlooked nondescript Warbler. I had opportunity to study it closely and took advantage of it. Although the first suspects were high in the trees and the identity arrived at mainly by a chance song, a few days later I found a few at two different locations marooned in low growth by stress of chilly and cloudy weather. A particularly pleasant hour was spent with one on May 17 among a mixed company of Warblers in a thorn bush thicket. Chilly and with a fine drizzle of rain, all the other species were diligently and dejectedly feeding without a sound, but the little Orange-crowned kept up a continuous movement, flitting its wings like a Kinglet, and passing from one thorn bush to another, the busiest bird in the lot; and I would have lost him a number of times had he not kept up a loud and oft repeated "chip, chip, chip," which enabled me to locate him again at once.

PINE WARBLER AS A SUMMER RESIDENT.—On July 16, and also again on the 21st, 1919, I watched for some time a female of this species. The bird was in an old gravel pit grown up to a thicket

of Yellow Locust some twenty feet high. The ground below being almost barren of undergrowth it was not unlike the floor of a pinery. One side of the pit is bounded by the wooded bank of a stream, upon which were a few white pines and some hemlock. She was hunting the branches and leaf fronds for food, and kept very quiet, uttering only a soft low "seep, seep," when about to fly from one tree to another.

E. A. DOOLITTLE.

Painesville, Ohio, Lake County.

WATERFOWL DIE FROM EATING SHOT

Wild ducks and other waterfowl sometimes die from lead poisoning resulting from swallowing stray shot which they pick out of the mud about shooting grounds. Many ducks that become sick from lead poisoning finally recover, but it is probable that the effect is permanently injurious not only to the individual but to the species. It has been ascertained by experiment that lead greatly impairs the virility of male domestic fowls. Females mated with them lay many infertile eggs, while in many of the eggs that are fertilized the embryo dies in the shell or the chick emerges weak and unable to withstand the hardships of early life. What effect lead poisoning has on female wild fowl has not been definitely ascertained, but, as the fact is well known that lead produces abortion in female mammals, there is a possibility that it exerts a bad effect on female waterfowl during the breeding season. Thus, the supply of waterfowl is likely to be decreased by lead poisoning not only by the number of birds that die directly from it but indirectly by impairment of reproduction.

These facts are set forth by the United States Department of Agriculture in Bulletin 793, "Lead Poisoning in Waterfowl," about to be published as a contribution from the Bureau of Biological Survey. Reports of waterfowl apparently sick from lead poisoning have been coming in for several years. The Biological Survey undertook an investigation at various shooting grounds to determine how common the taking of shot by waterfowl is, and a series of experiments to ascertain the effect of shot swallowed. It was found that at places where much shooting is regularly done from blinds, shot at the bottom of the shallow water are so numerous that one or more was found in practically every sieveful of mud or silt, and that they are swallowed by waterfowl whenever found as a result of this habit of swallowing small, hard objects to supply grit for the gizzard.

The experiments have shown that shot swallowed are gradually ground away in the gizzard and pass into the intestines, pro-

ducing a poisoning that results in progressive paralysis and, usually, death. Experiments with wild waterfowl captured when young and reared in captivity—to obviate the possibility of their having taken lead before the beginning of the experiments—have shown that six pellets of No. 6 shot constitute an amount of lead that is always fatal. Two or three shot were sufficient to cause death in several instances. In one experiment, two mallards were given one No. 6 shot each. One of them died in nine days and the other was able to throw off the poison.

The list of species known to have been poisoned by eating shot consists of mallard, pintail, and canvas-back ducks, the whistling swan, and the marbled godwit, but many other species, particularly of ducks and geese, are undoubtedly affected by it, according to the bulletin.

Unfortunately, nothing can be done at this time to protect waterfowl from lead poisoning except to call attention to the malady and to make known its cause and symptoms. The Department, however, desires statistics on the numbers and species of birds affected and asks that sportsmen and others report to the Bureau of Biolgical Survey all cases that come to their attention.

THE ANNUAL MEETING

Bear in mind that our next annual meeting will be held in St. Louis, Missouri, in conjunction with the meetings, of the American Association for the Advancement of Science. No program of these meetings has been issued, so that the dates of our meetings cannot be announced at this time. But it is probable that our meetings will be held on December 30 and 31. Announcement of the exact time and place of meeting will be made in ample time by circular letter. It is hoped that you will not wait for an invitation to prepare and read a paper at this meeting, but that you will send your title as soon as possible to the secretary, A. F. Ganier, 1023 Villa Street, Nashville, Tenn. Liberal coöperation will ensure a most profitable and interesting meeting.

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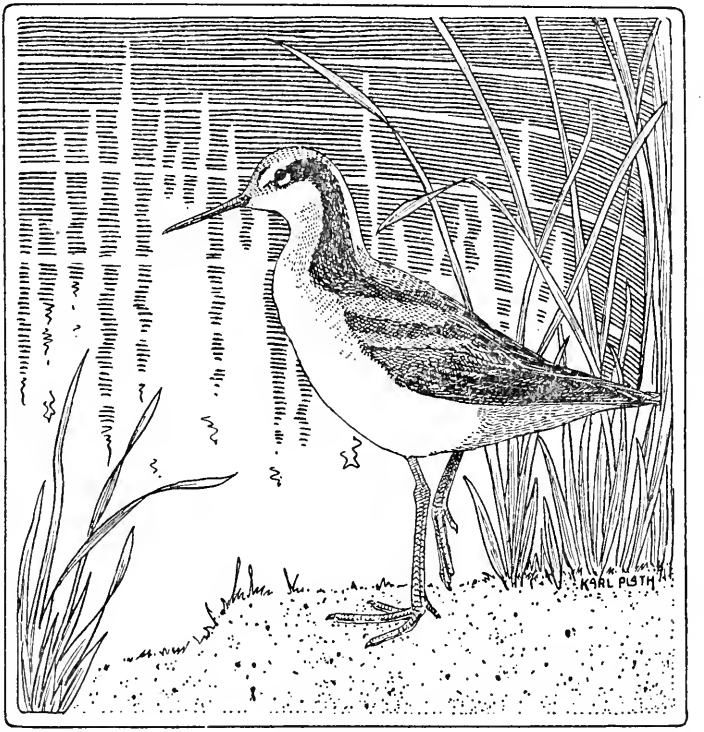

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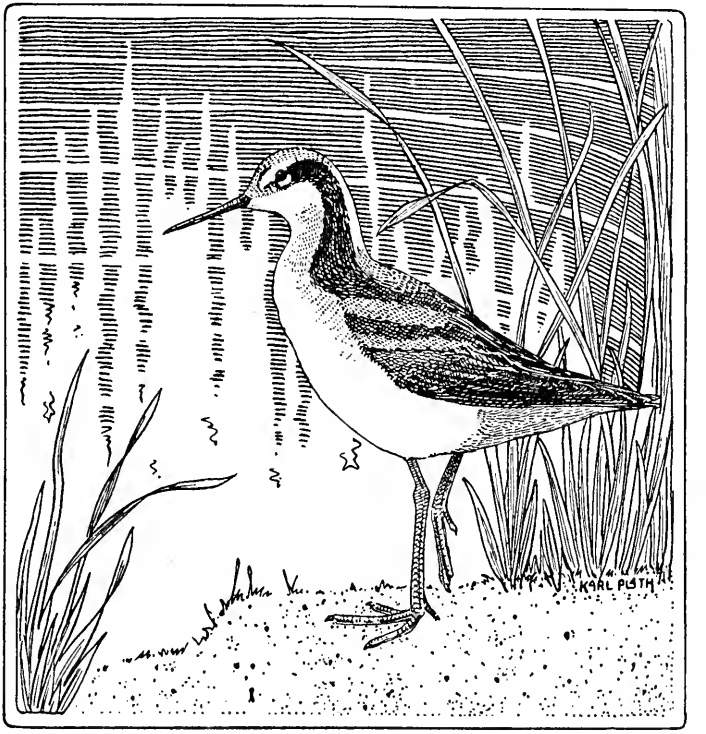

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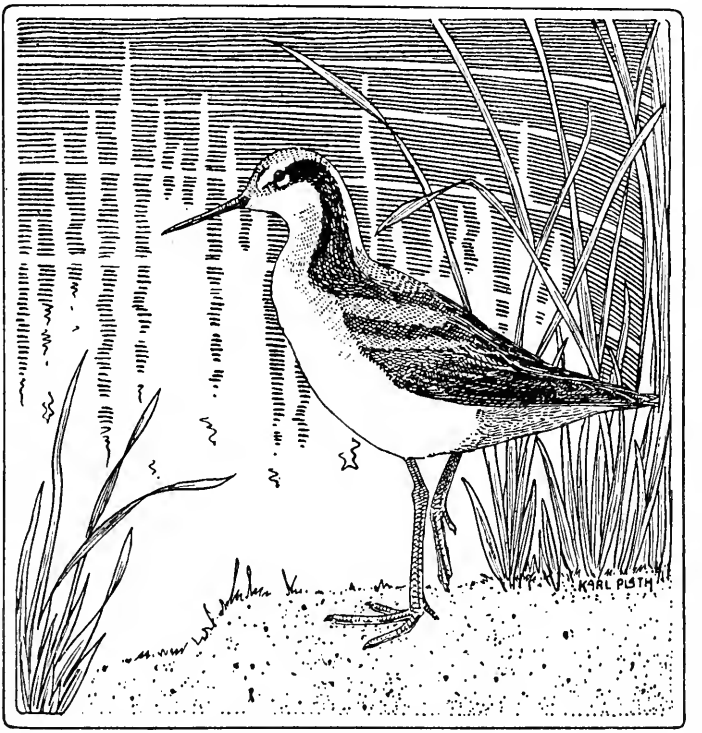

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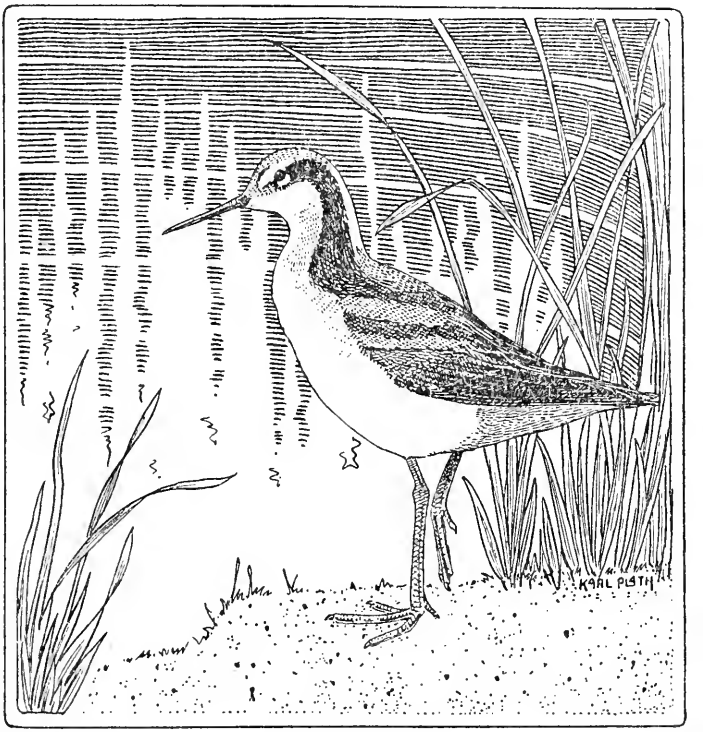

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