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Devoted to the Study of
Birds in the Field

Edited by Lynds Jones

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BIRDS OBSERVED IN SOUTHEASTERN TEXAS IN MAY, 1923

BY A. C. BENT

At the suggestion of Mr. George Finlay Simmons, then Chief Deputy of the Game, Fish and Oyster Commission of Texas, as the guest of the Commission and with the help of Mr. Simmons and all of his Wardens and Deputies along the coast, I was given an unusual opportunity to make a thorough, but brief, survey of the bird life of the coast region between Galveston and Brownsville, together with some of the more inland counties.

Mr. Simmons met me at Galveston on May 4 and we spent three days exploring various islands in East Bay, after which he left me and I started down the coast on the Jim Duke, the commodious 50-foot power boat, belonging to the Commission and commanded by Captain Frank E. Bauer. Our course led us through numerous bays, intercoastal canals and other inland water ways as far as Corpus Christi, which we reached on May 18. We landed on numerous islands in the varions bays, where we recorded large numbers of migrating land birds, as many as 37 species on one small island, and found many breeding colonies of gulls, terns, skimmers, pelicans, herons and egrets. Most of the islands were small, low, flat sand and shell reefs, with a scanty growth of grass or low herbage; but some were densely covered with tall weeds, sun-flowers and low shrubbery; and some supported thickets of huisache, willows or prickly-pear cactus.

The intercoastal canal between Galveston West Bay and Matagorda Bay led us for a long distance through the coastal plain, a broad flat expanse of prairie or marsh land dotted with many small lakes or muddy ponds and with occasional mottes or clumps of small live oaks. Herds of cattle were grazing on the prairies; the open marshy places were full of migrating shore-birds, chiefly yellow-legs, long-billed curlews and black-bellied plover; willets and black-necked stilts were breeding on

the grassy islands; and in the live-oaks mottes or scattered clumps of bushes were many breeding colonies of Ward herons.

From Corpus Christi, with Messrs. A. C. Thompson and R. E. Farley as guides, we made a three-day trip by automobile up into Refugio and Victoria Counties. On the extensive prairies of Refugio County we were shown the haunts of the Attwater prairie chicken and a large breeding colony of the white-faced glossy ibis in a tule lake. In the alluvial bottom lands of Victoria County we saw some of the finest hardwood forests I have ever seen, made up of live oak, Texas white oak, burr oak, American elm, pecan, sycamore, white and green ashes, shag bark hickory, cotton-wood, hornbeam, hackberry, red cedar, etc. These forests were the homes of hawks, owls and woodpeckers, not seen elsewhere. In the swampy lowlands and bayous, along the banks of the Guadalupe River, we found an entirely different type of heavy forests, containing cypress, swamp tupelo, sweet and black gums, water oak, magnolia and various willows. Here we found such birds as water-turkeys, wood ibises, yellow-crowned night herons, prothonotary warblers and parula warblers.

On our return to Corpus Christi, we started on May 22, in Mr. Simmons's car, for Brownsville, arriving there the next day. In our hurried trip through Nueces and Kleberg Counties we caught only a fleeting glimpse of the great cattle ranch country of the coastal plains, where wild turkeys abound and where whooping cranes are regularly seen. And in Hidalgo and Cameron Counties we passed some fine citrus fruit plantations and much good agricultural country.

At Brownsville, Captain R. D. Camp acted as our host and showed us some of the surrounding country, which was quite different from anything we had seen.

The charparral of the Rio Grande plains is a pigmy forest of mesquite mixed with various thorny bushes, evergreen Texas ebony, retama or horse bean, fragrant cat's claw, round flowered devil's claw, granjena, Mexican persimmon, madrona, gum elastic or shittim wood, etc.: mixed in with it are numerous specimens of Spanish dagger, much prickly-pear cactus of large size and that thorniest of all thorny bushes the *Corona christi*. The most characteristic birds of the chaparral were Couch Kingbird, Texas sparrow, gray-tailed cardinal, small white-eyed vireo, curve-billed thrasher and verdin.

There was much open prairie around Brownsville, consider-

able cultivated land, tree claims, ponds and swamps, all of which attracted different birds; but perhaps the most interesting of all were the dense forests along the resacas or stagnant water courses, the old beds of rivers; these often contained large trees, mesquite, huisache, ebony, palms, etc., with a thick undergrowth of many shrubs and small trees such as granjena, persimmons, coffee bean, bush morning glory, etc. It was in the timber belts along these resacas that we could count on finding the characteristic birds of the lower Rio Grande valley, such as the chachalaca, red-billed pigeon, derby flycatcher, green jay and Audubon oriole. White-winged and western mourning doves fairly swarmed in these thickets and here we saw several other species not seen elsewhere. The chachalaca is one of the shiest and hardest of birds to see, but thanks to the expert guidance of Mr. E. W. Farmer, we did get a few glimpses of it and heard some of its interesting morning and evening concerts.

We left Brownsville by train on May 28, returned to Corpus Christi and visited Bird Island in Laguna Madre the next day, where we saw the wonderful colonies, to be found there, of gulls, terns, skimmers, pelicans, herons and egrets. Captain Camp had come to see this island and to visit the big rookery in Victoria County with Messrs. Thompson and Farley. On our previous visit to this region we had failed to find, though we had approximately located, what promised to be a big breeding colony of white ibises in the valley of the Guadalupe River. My last day in the field, May 30, proved to be a fitting climax of an eventful trip, for this large breeding colony of white ibises, roseate spoonbills, American egrets and other water birds far exceeded our expectations and was one of the most interesting colonies I have ever seen.

Following is an annotated list of the birds observed, which is the longest list I have ever made on any of the numerous interesting trips that I have taken. On such a hurried trip as this it was impossible to do much collecting. I have therefore relied on Mr. Simmons to outline the distribution of the different sub-species, based on his previous knowledge of the subject.

1. Mexican Grebe—*Colymbus dominicus brachypterus.*
Fairly common locally near Brownsville, nesting in certain small ponds partially overgrown with open growth of water huisache and small scattered clumps of flags, also in some small resacas with similar growth.

Typical grebe's nests, large for the size of the bird, 14″ diam. and 5″ thick, usually in plain sight in open situations, floating in water three to four feet deep, generally anchored to huisache, or flags, but sometimes drifting. Eggs usually covered. Birds very shy; saw only one and one downy young, able to dive and swim under water for about three or four feet. Took two sets of eggs on May 23.

2. Pied-billed Grebe—*Podilymbus podiceps.*
Fairly common around Brownsville, nesting in ponds and resacas with Mexican Grebe. One set of eggs taken on May 23. Saw two grebes on Matagorda Bay, near Port La Vaca, on May 12, that were probably this species.

3. Herring Gull—*Larus argentatus.*
A few, mostly immature birds, were seen in the bays all along the coast.

4. Laughing Gull—*Larus atricilla.*
Abundant all along the coast, nesting in enormous colonies on some of the islands in Espiritu Santo, San Antonio, and Red Fish Bays, on Big Bird Island in Laguna Madre and at Bahia Grande near Brownsville. Between May 15 and 20 most of the nests contained incomplete sets; more full sets were found later, but no young. A number of immature birds, one year old were seen.

5. Franklin Gull—*Larus franklini.*
Two seen on the bay near Port La Vaca on May 13.

6. Gull-billed Tern—*Gelochelidon nilotica.*
Common along the coast, occasionally seen inland, feeding on the inland marshes. Found nesting, with fresh eggs, on sandy or shell beaches on islands in Cedar Lakes in Intercoastal Canal, in Matagorda Bay, Espiritu Santo Bay, San Antonio Bay and Red Fish Bay. Also breeds abundantly at Bahia Grande. Nests usually mere hollows in sand or shells, sometimes with a few straws. No young seen. Eggs found May 7, 8, 15 and 18, in sets of two or three.

7. Caspian Tern—*Sterna caspia.*
Common all along the coast, nesting on islands in mixed colonies with Laughing Gulls and other terns. Nests usually hollows on open shell or sand beaches, rarely among low and scanty vegetation, usually unlined, but sometimes with a few straws. Eggs usually two, sometimes one. Eggs found May 15 on islands in San Antonio Bay and eggs and first young on May 29 on Bird Island, Laguna Madre. Breeds also at Bahia Grande.

8. Royal Tern—*Sterna maxima.*
Common all along the coast from Galveston Bay to the Rio Grande. Breeds in small numbers on islands in San Antonio Bay and abundantly, in enormous dense colonies, on Bird Island and at Bahia Grande. Nesting habits same as Caspian's. Probably lays later; no young seen up to May 29. This and the Caspian look much alike, but the Caspian has a heavier, redder bill and much more black in

the primaries as seen from below; the Royal has a more orange colored bill and very little black in the wings.

9. Cabot Tern—*Sterna sandwichensis acuflavida.*
Breeding abundantly on Bird Island and at Bahia Grande, in dense colonies with the Royal Terns; nesting habits similar. Eggs and a few young found on Bird Island on May 29.

10. Forster Tern—*Sterna forsteri.*
A few seen along the coast and on inland marshes and a number of immature birds seen near Port La Vaca. No breeding colonies seen, but said to breed at Bahia Grande.

11. Common Tern—*Sterna hirundo.*
Three small colonies found breeding, 31 nests in one colony, on islands in Cedar Lakes, typical well built nests with two or three eggs each, on May 7.

12. Least Tern—*Sterna antillarum.*
A small colony, 30 pairs, found breeding, with eggs, at Cotton Bayou, Matagorda Bay, on May 8. Breeds also on Green Island and at Bahia Grande.

14. Black Tern—*Chlidonias nigra surinamensis.*
Very common all along the coast and in inland marshes from Galveston to Brownsville, often in flocks, all in full plumage, but said not to breed in Texas. locally called "sea pigeons." Seen up to time of leaving, May 30.

15. Black Skimmer—*Rynchops nigra.*
Seen occasionally in the Galveston Bays. Numerous colonies, preparing to breed or breeding, were seen from the intercoastal canal southwestward.

16. Water-Turkey—*Anhinga anhinga.*
Seen only in the lowlands along the Guadalupe River in Victoria County, where we found it breeding in the big rookery of White Ibises and Roseate Spoonbills.

17. Florida Cormorant—*Phalacrocorax auritus floridanus.*
Cormorants were common all along the upper coast, often in large flocks and sometimes associated with flocks of Roseate Spoonbills, a striking contrast. I assume that most of those seen on the coast were this species. No breeding colonies seen. Not seen south of San Antonio Bay.

18. Mexican Cormorant—*Phalacrocorax vigua mexicanus.*
First seen on May 17 on Puerta Tank, near Aransas Pass. A few pairs found breeding in a large colony of White Ibises and Roseate Spoonbills in Victoria County, near Bloomington. Nests in large trees, not examined for lack of time. Formerly bred around Brownsville and probably does still, but we did not locate them.

19. Am. White Pelican—*Pelecanus erythrorhynchos.*
A few seen scattered along the coast from Galveston to Corpus Christi, but no breeding colonies were seen. A. C. Thompson and

R. E. Farley found them with nests and eggs on Bird Island earlier in the season, but they had all gone when we visited it on May 29.

20. Brown Pelican—*Pelecanus occidentalis.*
Common all along the coast, especially in Laguna Madre, where I saw a large flock fishing, circling and plunging like Gannets, a spectacular performance. A colony of some 20 or 30 pairs had attempted to nest on Pelican Island, a low flat sand bar in Pass Cavallo, but high tides had washed away most of the nests; only 7 remained with eggs. Breeding in large numbers on Bird Island, nests among and near the prickly pear cacti, with Ward Herons and Reddish Egrets. Young were seen of all ages up to fully grown, also many eggs, on May 29.

21. Man-o'-war Bird—*Fregata aquila.*
A few birds seen at various points along the coast. Not known to breed here.

22. Mallard—*Anas boschas.*
Seen on the Intercoastal Canal on May 7. F. E. Bauer, an old duck hunter who knows the ducks well, saw a female with a brood of young near Aransas Pass on May 17.

23. Mottled Duck—*Anas fulvigula maculosa.*
Fairly common from the intercoastal canal to Corpus Christi Bay. We found four nests with eggs on Dressing Point Island, in Matagorda Bay, on May 8, and one nest with eleven eggs in Chocolate Bay, near Port La Vaca, on May 12. The birds flushed from the nests in each case, which were all well hidden in long grass on dry land; the nests were made of dry grass mixed with a little down. Three of the nests contained several or many rotten eggs.

24. Gadwell—*Chaulelasmus streperus.*
Seen on May 17 near Aransas Pass.

25. Baldpate—*Mareca americana.*
Seen on May 7 and 8 in the Canal.

26. Blue-winged Teal—*Querquedula discors.*
Seen on the Canal May 7, near Aransas Pass on May 17, and near Brownsville on the 24th.

27. Shoveller—*Spatula clypeata.*
Seen on the Canal on the 7th and near Aransas Pass on the 17th.

28. Pintail—*Dafila acuta tzitzihoa.*
Seen near Aransas Pass on the 17th.

29. Redhead—*Nyroca ferina americana.*
A few cripples seen, the remnants of the large flocks seen here in winter, where it is the most abundant duck.

30. Canvasback—*Aristonetta valisineria.*
Seen on the Canal on the 7th and common around Port La Vaca and Karankawa Bay from the 9th to the 13th. Caught a crippled bird that could not fly.

31. Lesser Scaup Duck—*Nyroca marila affinis.*
Blue bills, probably this species, were seen on the canal, in the bays and on inland lakes, from the 9th to the 17th.

32. American Goldeneye—*Glaucionetta clangula americana.*
A dead bird, being eaten by a Herring Gull, was seen on an island in Galveston Bay. A mounted bird, said to have been shot nearby, was seen in a store in Corpus Christi.

33. Fulvous Tree Duck—*Dendrocygna bicolor.*
Captain Camp showed us a resaca where he had seen this species this season, but we did not see it. He says that this has nearly, and the Black-bellied has entirely, disappeared from the Brownsville region.

34. American Flamingo—*Phœnicopterus ruber.*
Captain Camp says he saw one each on October 15, 1912, and in September, 1915, at Bahia Grande, after a very severe Gulf storm.

35. Roseate Spoonbill—*Ajaia ajaia.*
Locally called "fillimingo." We saw a large flock with a flock of cormorants on a sand spit in Karankawa Bay on the 9th. A large flock frequented, and could not be driven away from, the chain of islands between Mesquite and San Antonio Bays on the 15th and 16th; they are said to breed here in June, after most of the herons have left, building their nests on the ground among the sunflowers. They are also said to nest under similar circumstances in East Bay, Galveston. We found a breeding colony of perhaps 100 pairs in a large breeding colony of White Ibises in Victoria County near Bloomington. The large well made nests of coarse sticks, lined with dry and green leaves, were built in groups in the low trees. On May 30 many nests contained small young, but most of them had three and some four eggs.

36. White Ibis—*Guara alba.*
The colony referred to above was the only breeding colony found and all the birds seen were within a few miles of it; it was by tracing their fly lines, from their feeding grounds in surrounding marshes, that we finally located the rookery, after three or four days work. It was located in the center of some extensive marshes near the Guadalupe River; in the dryer portions were groves of large live oaks and in the wetter portions were dense thickets of willows, button willows and other trees, growing where the water was often waist deep or more and where large alligators lived; fortunately we saw only their tracks in the mud and an occasional head above the water. Breeding here with the spoonbills and ibses were quite a number of American Egrets and Little Blue Herons and a few Ward Herons, Black-crowned Night Herons, Anhingas and Mexican Cormorants. We also saw perhaps twenty Wood Ibises flying over the rookery, but did not locate their nests. The White Ibises nests were thickly grouped from 5 to 12 feet up in the willows and button willows, often 12 or 15 nests in a tree. Young were seen, of all ages up to the flight stage, standing in dense

groups or scrambling through the brush. But some nests still contained three or four eggs.

37. Scarlet Ibis—*Guara rubra.*
Captain Camp says he saw one of these birds also, on each of the dates when he saw the Flamingos, at Bahia Grande, probably blown in by the same storms.

38. White-faced Glossy Ibis—*Plegadis guarauna.*
On May 19 we visited a large breeding colony, 2,000 pairs or more, of this species, previously located by A. C. Thompson and R. E. Farley, in a tule lake on the prairies of Refugio County. They had traced the birds to it from their feeding places in the surrounding country. The muddy water was breast deep and the tules were far above our heads. The nests were made of dead tules just above the water in the more open places. Most of them contained lively young almost up to the flight stage, but we found plenty with three or four eggs.

39. Wood Ibis—*Mycteria americana.*
The birds seen in the White Ibis rookery, referred to above, probably bred in some part of it, which we could not locate in the short time available.

40. American Bittern—*Botaurus lengtiginosus.*
One seen on the Intercoastal Canal on May 7.

41. Least Bittern—*Ixobrychus exilis.*
One seen on May 12 on a marsh in Chocolate Bay, near Port La Vaca. Common around Brownsville; several nests found there in the pond where the Mexican Grebes bred on May 23; some of these nests were made partly or wholly of fine twigs, others of flags, as usual.

42. Ward Heron—*Ardea herodias wardi.*
Very common everywhere along the coast and on inland lakes, marshes and prairies. Numerous breeding colonies found, but no very large ones. South of Galveston Bay practically every heron colony contained at least a few nests of this species. On a small island in the Canal, on May 7, was a colony of 13 nests, containing everything from fresh eggs to nearly full grown young, built on the ground among grass and rank herbage. In other island colonies the nests were on the ground, in low bushes or trees or in the prickly pear cacti; the nests of this species generally occupied the commanding positions on the tops of the highest trees or bushes. In the White Ibis rookery near Bloomington the nests were 40 or 50 feet up in the big live oaks. Eggs, apparently fresh and young of all ages, up to the flight stage, were found as late as May 29 on Bird Island.

43. American Egret—*Casmerodius egretta.*
First seen on the Canal on May 7. On the chain of islands between Mesquite and San Antonio Bays we found a small breeding colony of 5 or 6 pairs, nesting in a clump of willows in the centre of a colony of the smaller herons. The nests contained young,

some just hatching, some half grown and some nearly ready to fly. A small colony seen in a button willow swamp on Weed Prairie, in Victoria County, had a few nests with eggs on May 12, but most of the birds had evidently finished breeding and gone. A colony of 25 pairs or more was breeding in the White Ibis rookery referred to above; on May 30 the nests contained young of various ages and were placed from 10 to 20 feet up in the willows.

44. Snowy Egret—*Egretta candidissima candidissima.*
The best colony was found on Vingt-une Island in East Galveston Bay on May 5. Besides about 400 of this species it contained some 800 Louisiana Herons and 150 Black-crowned Night Herons. The nests were in prickly pears and huisache trees from two to eight feet up and all we examined contained eggs, three, four or five. Nesting more or less abundantly in practically all of the colonies of small herons except on Bird Island and in the White Ibis rookery, where we saw none. First young seen on the chain of islands on May 16.

45. Reddish Egret—*Dichromanassa rufescens.*
Breeding more or less abundantly from Karankawa Bay, at the lower end of Matagorda Bay, southward, in practically all of the coastal colonies, but not inland at all. Associated with Ward and Louisiana Herons most closely. The largest colony of all is on Green Island, near the lower end of Laguna Madre; it contains several thousands. But the colonies on the chain of islands, between Mesquite and San Antonio Bays, are large and densely populated; here we found our first young on May 16. On Bird Island, on May 29, we saw plenty of young, also some eggs. Their favorite nesting sites seem to be in the prickly pears, but they also nest on the ground, in the grass or low herbage, as well as on low bushes and small trees. We saw very few in the white phase, not over half a dozen in all, but Captain Camp says they are commoner on Green Island, where he has collected some interesting data on the subject.

46. Louisiana Heron—*Hydranassa tricolor ruficollis.*
The most abundant and most widely distributed of all the herons, breeding abundantly in all of the colonies along the coast from Galveston Bay to Brownsville. The largest colonies, containing several thousands were on Wolf Point in Karankawa Bay and on Rose's Point in La Vaca Bay, where they were associated with Ward and Snowy and a few Black-crowned Night Herons, as well as countless Great-tailed Grackles. Nests were placed in rank herbage, on prickly pears and in canes, but usually on low trees and bushes. Eggs ran from three to seven. The first young were seen on the chain of islands on May 16.

47. Little Blue Heron—*Florida carula.*
Less common than the other herons. First seen on Caney Creek, Brazoria County, on May 8. Found breeding only in Victoria County, on Weed Prairie on May 20 and in the White Ibis rookery on May 30, only a few pairs at each place. No nests examined.

48. Green Heron—*Butorides virescens virescens.*
Common along the canal on May 7. Found breeding near Brownsville and seen at nearly all inland creeks and lakes.

49. Black-crowned Night Heron—*Nycticorax nycticorax naevius.*
Fairly common all along the coast and breeding sparingly in nearly all of the rookeries visited. At Vingt-une Island in East Bay, Galveston, they were nesting in tall canes, with eggs and young on May 5. On Dressing Point Island, in Matagorda Bay they nested on the ground among tufts of long grass. In other places they were nesting in situations similar to those used by the other herons.

50. Yellow-crowned Night Heron—*Nyctanassa violacea.*
Apparently common along the Guadalupe River in Victoria County, but no breeding colony was located.

51. Louisiana Clapper Rail—*Rallus crepitans saturatus.*
Seen on coastal marshes from Galveston Bay to Aransas Pass. It is common enough in suitable places, long grass salt marshes, but we had very little time to devote to it and found no nests.

52. Sora Rail—*Porzana carolina.*
Saw one on a marsh near Galveston on May 6.

53. Purple Gallinule—*Ionornis martinicus.*
Saw one at Puerta Tank, near Aransas Pass. It flew into a patch of tules, where I hunted in vain for its nest. It is said to breed in the marshes about here, where the "lotus" grows.

54. Florida Gallinule—*Gallinula chloropus cachinnans.*
We saw it only in the marshy ponds and resacas near Brownsville, where it is common. We found two nests with eggs, in small clumps of flags, on May 23.

55. American Coot—*Fulica americana.*
Common on many of the ponds and lakes, particularly on Puerta Tank, May 17, and on Bellow Lake, May 20.

56. Wilson Phalarope—*Steganopus tricolor.*
Saw a few and shot one at Puerta Tank, May 17, and saw five at Cox Point, near Port La Vaca, May 13.

57. Black-necked Stilt—*Himantopus mexicanus.*
First seen at the lower end of Galveston Bay; common along the Intercoastal Canal; found a breeding colony in a muddy slough on the prairie near Brownsville on May 24. Seen occasionally at other places.

58—Long-billed Dowitcher—*Limnodromus griseus scolopaceus.*
A few seen, probably this subspecies, on the Intercoastal Canal, May 7.

59. Pectoral Sandpiper—*Pisobia maculata.*
A few seen in Galveston Bay, May 7, and at Puerta Tank, Aransas Pass, May 17.

60. White-rumped Sandpiper—*Pisobia fuscicollis.*
A few seen at Puerta Tank on May 17.

61. Least Sandpiper—*Pisobia minutilla.*
Small numbers seen along the coast from Galveston Bay, May 4, to Brownsville, May 24.

62. Red-backed Sandpiper—*Pelidna alpina sakhalina.*
Common on the Canal, May 17, and at Puerta Tank, May 17; also seen at Flour Bluff, May 29.

63. Semipalmated Sandpiper—*Ereunetes pusillus.*
Seen, in small numbers only, from Galveston Bay, May 7, to Aransas Pass, May 17. Some of these may have been Western Sandpipers.

64. Sanderling—*Crocethia alba.*
A few seen from Galveston Bay, May 6, to Aransas Pass, May 15.

65. Hudsonian Godwit—*Limosa haemastica.*
Three seen, two shot, at Puerta Tank, on May 17.

66. Greater Yellowlegs—*Totanus melanoleucus.*
Only one seen at Cotton Bayou, Matagorda Bay, on May 8.

67. Lesser Yellowlegs—*Totanus flavipes.*
Abundant all along the coast from Galveston Bay, May 4, to Aransas Bay, May 17, and at Puerta Tank.

68. Solitary Sandpiper—*Tringa solitarius.*
One seen in Galveston Bay on May 4.

69. Eastern Willet—*Catoptrophorus semipalmatus semipalmatus.*
Abundant all along the coast from Galveston Bay, May 5, to Brownsville, May 24. Two nests found on Dressing Point Island, Matagorda Bay, on May 8. Only bird taken, at La Vaca Bay, is intermediate between *semipalmata* and *inornatus*, but nearer the former.

70. Spotted Sandpiper—*Actitis macularia.*
Fairly common along the coast and on inland streams, from Galveston, May 4, to Brownsville, May 27.

71. Long-billed Curlew—*Numenius americanus.*
Very common, conspicuous and noisy, along the coastal meadows and marshes from the lower end of Galveston Bay, May 7, to Brownsville, May 24. Particularly abundant in flocks along the Canal on May 7. Last seen at Flour Bluff on May 29.

72. Black-bellied Plover—*Squatarola squatarola cynosurae.*
Abundant in flocks of full plumaged birds all along the coast, from Galveston Bay, May 5, to Aransas Bay, May 18.

73. American Golden Plover—*Pluvialis dominicus dominicus.*
Migrating flocks seen along the Intercoastal Canal on May 7.

74. Killdeer—*Oxyechus vociferus.*
Seen near Galveston and at Puerta Tank. A pair found breeding at Port La Vaca on May 11.

75. Semipalmated Plover—*Charadrius semipalmata.*
A migrating flock seen in Galveston Bay on May 5.

76. Snowy Plover—*Charadrius nivosa.*
One seen near Aransas Pass, May 18.

77. Wilson Plover—*Pagolla wilsonia wilsonia.*
One or two birds seen at Cotton Bayou, Matagorda Bay, at Karankawa Bay and at Aransas Pass.

Common all along the coast from Galveston Bay, May 6, to Aransas Pass, May 18. At the latter place a pair, apparently mated, were very tame.

79. American Oystercatcher—*Haematopus palliatus.*
Seen only in Galveston Bay, May 5, and at Cotton Bayou, Matagorda Bay, on May 8. Apparently not breeding.

80. Texas Bobwhite—*Colinus virginianus texanus.*
Very common inland from Refugio and Victoria Counties to Cameron County.

81. Chachalaca—*Ortalis vetula mccalli.*
Common in the dense brush near resacas or streams around Brownsville. Very shy, more often heard than seen. Very noisy in late evening and early morning. Two nests, each with three heavily incubated eggs, found on May 27. The small, frail nests of sticks, lined with dry and green leaves, were from 8 to 18 feet up in the thick top foliage of small trees; they were located by hearing, not seeing, the birds fly off.

82. Red-bellied Pigeon—*Columba flavirostris.*
Fairly common in the same localities as frequented by the Chachalaca. Found two nests, one with a fresh egg and one with a young bird, on May 27. The nests were frail platforms of twigs about ten feet up in the tops of saplings or in tangles of vines.

83. Western Mourning Dove—*Zenaidura macroura marginella.*
Abundant everywhere on the mainland. Numerous nests found in usual situations, with eggs or young, all through May. Young able to fly seen as early as May 9 and fresh eggs found as late as May 27. One nest found on the ground and one was completely hidden among some thick clumps of tall grass on a treeless island. Birds seen near Galveston were probably the eastern form.

84. White-fronted Dove—*Leptotila fulviventris brachyptera.*
Common in the thick brush about Brownsville. Nests with eggs and with small young found on May 27. The nests were frail structures of twigs and straws, 9 or 10 feet up on the branches of trees in the thick brush.

85. White-winged Dove—*Melopelia asiatica.*
Very abundant in Hidalgo and Cameron Counties. Said to be the most abundant bird, next to the Great-tailed Grackle, about Brownsville. Nests with eggs and with small young were found on May 25 and 27. One nest was on top of a dead palm leaf, 30 feet from the ground. Other nests were in usual situations in thick brush. The monotonous cooing or hooting notes were constantly heard in the brush, especially in the early morning and towards night.

86. Mexican Ground Dove—*Chaemepelia passerina pallescens.*
Common from Victoria County to Cameron County. Nest and eggs found near Brownsville, on May 25, six feet up in a bush in thick brush.

87. Inca Dove—*Scardafella inca.*
Common around Brownsville, nesting in trees near houses. No nests examined.

88. Turkey Vulture—*Cathartes aura septentrionalis.*
Fairly common on the mainland, but not so common as the Black Vulture. Seen at various places from Galveston to Brownsville. No nests found.

89. Black Vulture—*Coragyps urubu.*
Much commoner than the preceding and evenly distributed all along the coast, and inland, from Galveston to Brownsville. Nests with eggs and nests with young found on May 7 and 8.

90. Harris Hawk—*Parabuteo unicinctus harrisi.*
Apparently the commonest hawk and universally distributed throughout the coastal counties. A nest, with dead young under it, found in a large prickly pear in the chaparral near Brownsville on May 24, probably destroyed by some animal.

91. Red-tailed Hawk—*Buteo borealis subs.?*
One seen on Caney Creek, Brazoria County, on May 8, and one in Refugio County on May 19. J. J. Carroll (Auk, vol. 17, p. 342) says that *krideri* is the dominant form in Refugio County.

92. Florida Red-shouldered Hawk—*Buteo lineatus alleni.*
Heard in the heavily wooded river bottoms of Victoria County.

93. Bald Eagle—*Haliœetus leucocephalus leucocephalus.*
A nest seen, said to be this species, near the Guadalupe River in Victoria County. Birds not seen.

94. Duck Hawk—*Falco peregrinus anatum.*
A pair of adults in full plumage seen at close range on a small isand in Matagorda Bay, May 8.

95. Audubon Caracara—*Polyborus cheriway.*
Fairly common inland from Refugio County to Cameron County. A nest seen in a Spanish dagger near Brownsville.

96. Texas Barred Owl—*Strix varia helveola.*
Heard hooting in the heavily wooded river bottoms of Victoria County.

97. Texas Screech Owl—*Otus asio mccalli.*
A young bird taken from a nest was brought in to Captain Camp's shop.

98. Western Horned Owl—*Bubo virginianus pallescens.*
A nest with one large young bird was found near Brownsville, on May 24, in a Spanish dagger.

99. Groove-billed Ani—*Crotophaga sulcirostris.*
A single bird seen in some dense brush near Brownsville on May 25.

100. Roadrunner—*Geococcyx californianus.*
Seen occasionally in the chaparral from Refugio County southward.

101. Yellow-billed Cuckoo—*Coccygus americanus americanus.*
Common in all the coastal counties from Galveston to Brownsville. Nests with eggs found near Brownsville on May 25 and 27.

102. Black-billed Cuckoo—*Coccygus erythrophthalmus.*
Seen on Caney Creek on May 8 and at Port La Vaca on May 11.

103. Belted Kingfisher—*Ceryle alcyon.*
One seen on Caney Creek on May 8 and one near Brownsville on May 25.

104. Texas Kingfisher—*Chloroceryle americana septentrionalis.*
Two or three seen on the resacas near Brownsville, May 25 and 27.

105. Texas Woodpecker—*Dryobates scalaris symplectus.*
Fairly common in Cameron County; probably only overlooked elsewhere.

106. Red-bellied Woodpecker—*Centurus carolinus.*
Noted only in Victoria County. A nest with three eggs found in a fence post near a house, on May 21.

107. Golden-fronted Woodpecker—*Centurus aurifrons.*
Common, noisy and conspicuaus from Nueces County to Cameron County. Two nests with fresh eggs found near Brownsville on May 24.

108. Florida Nighthawk—*Chordeiles virginianus chapmani.*
Nighthawks were common all along the coast. This is the form which is found in the northeastern counties as far as West Galveston Bay. Two nests with eggs were found on an island in Galveston Bay on May 4.

109. Asere Nighthawk—*Chordeiles virginianus asserriensis.*
This is the form found from eastern Matagorda Bay southwestward. A nest with eggs was found on an island in Redfish Bay, below Aransas Pass, on May 18.

110. Texas Nighthawk—*Chordeiles acutipennis texensis.*
Noted occasionally between Corpus Christi and Brownsville. No nests found.

111. Chimney Swift—*Chaetura pelagica.*
Seen on Galveston Bay on May 4.

112. Ruby-throated Hummingbird—*Archilochus colubris.*
Seen at Caney Creek on May 8.

113. Buff-bellied Hummingbird—*Amazilia chalconota.*
Said to be very rare in Cameron County, but we saw two or three and I positively identified one, perched at close range, near Brownsville on May 25.

114. Scissor-tailed Flycatcher—*Muscivora forficata.*
A common and familiar bird, usually seen about the ranch houses and along the suburban roads, sitting on telegraph wires or flitting about the shade trees. Universally distributed but not abundant.

A pair was seen building a nest on the wings of a windmill, which was upset every time the mill was put in motion.

115. Kingbird—*Tyrannus tyrannus.*
Seen on islands in Galveston Bay, May 4, 7, and 8, at Port La Vaca, May 11, and at Brownsville, May 23.

116. Couch Kingbird—*Tyrannus melancholicus couchi.*
Common in Hidalgo and Cameron Counties. Young, out of the nest, seen at Brownsville on May 23.

117. Arkansas Kingbird—*Tyrannus verticalis.*
Seen on an island in Galveston Bay, May 5, at Puerta Tank, May 17, and at Flour Bluff, May 29.

118. Derby Flycatcher—*Pitangus sulphuratus derbianus.*
Fairly common in the dense thickets of tall trees along the resacas or where large trees grow about the ranches, in Cameron County. A large conspicuous bird with striking and characteristic notes. It builds a very large nest. One that I brought home measures 14 inches in height and 10 inches in diameter.

119. Crested Flycatcher—*Myiarchus crinitus.*
Fairly common in the river bottoms of Victoria County.

120. Mexican Crested Flycatcher—*Myiarchus magister nelsoni.*
Common in Cameron County. An empty nest found in a hole in a fence post near Brownsville.

121. Ash-throated Flycatcher—*Myiarchus cinerascens cinerascens.*
Fairly common and evidently breeding in the timber belts along the resacas near Brownsville.

122. Phœbe—*Sayornis phœbe.*
A few migrants seen on the island in Galveston Bay on May 4 and 5.

123. Wood Pewee—*Myiochanes virens.*
Seen near Galveston on May 4 and in Victoria County on May 20.

124. Traill Flycatcher—*Empidonax trailli trailli.*
Birds, apparently this species, were seen on islands in Galveston Bay, May 4, and on Caney Creek, May 8.

125. Least Flycatcher—*Empidonax minimus.*
Common on the islands in Galveston Bay on May 4.

126. Texas Horned Lark—*Otocoris alpestris giraudi.*
Fairly common on the prairies from Refugio County to Cameron County.

127. Florida Blue Jay—*Cyanocitta cristata cristata.*
Seen, but not very common, in the river bottom forests along the Guadalupe River. This is the form that formerly was called *florincola.*

128. Green Jay—*Xanthoura luxuosa glaucescens.*
This beautiful bird was fairly common in the timber along the resacas near Brownsville. In spite of its brilliant colors, it was surprisingly inconspicuous among the lights and shades of the thick foliage, where it was usually rather inactive. No occupied

nests were found, as the young were on the wing and mostly fully grown at that season.

129. White-necked Raven—*Corvus cryptolcucus.*
A few seen in western Kennedy and Cameron Counties, May 22 to 24.

130. Southern Crow—*Corvus brachyrhynchos paulus.*
Two or three seen near Port La Vaca on May 13.

131. Cowbird—*Molothrus ater ater.*
Cow birds seen migrating near Galveston on May 5 were this form.

132. Dwarf Cowbird—*Molothrus ater obscurus.*
This was the breeding form all along the coast where it was only fairly common.

133. Red-eyed Cowbird—*Tangavius aeneus involucratus.*
A few seen and one shot near Brownsville, where it breeds.

134. Florida Redwing—*Agelaius phœniceus floridanus.*
Breeding abundantly in the coast region about Galveston.

135. Rio Grande Redwing—*Agelaius phœniceus megapotamus.*
This is the form which breeds along the coast below Matagorda. It was breeding very abundantly about Brownsville, where we saw numerous nests with eggs on May 23.

136. Rio Grande Meadowlark—*Sturnella magna hoopesi.*
This form replaces the Southern Meadowlark from Refugio County to Brownsville.

137. Southern Meadowlark—*Sturnella magna argutula.*
Fairly common from Galveston to Matagorda Bay.

138. Audubon Oriole—*Icterus melanocephalus auduboni.*
Said to be common about Brownsville, but we saw very few and found no nests.

139. Sennett Oriole—*Icterus cucullatus sennetti.*
Very common around Brownsville, nesting in the palm trees in the woods and about the ranches and towns. The nests are neatly woven of palm fibres and sewed to the under sides of the broad fan-like leaves. Nests with fresh eggs and with young found on May 24.

140. Orchard Oriole—*Icterus spurius.*
Common around Port La Vaca where I saw young males in full song. Not recorded elsewhere, but probably overlooked.

141. Baltimore Oriole—*Icterus galbula.*
An adult male was seen near Galveston on May 4, evidently a migrant.

142. Bullock Oriole—*Icterus bullocki.*
An adult male seen near Corpus Christi on May 22, and a nest with five fresh eggs was taken on the outskirts of Brownsville on May 24.

143. Bronzed Grackle—*Quiscalus quiscula aeneus.*
Common about Galveston.

144. Boat-tailed Grackle—*Megaquiscalus major major.*
Very abundant from Galveston to the head of Matagorda Bay.

145. Great-tailed Grackle—*Megaquiscalus major macrourus.*
Astonishingly abundant from Matagorda Bay to the Rio Grande. This is unquestionably the most abundant species of bird all along the coast of Texas, as well as the noisiest and most conspicuous, almost a nuisance at times. It nests in enormous numbers in practically all of the heron colonies, especially where there are trees or shrubs, which are often filled with the nests, a score or more of nests in a tree. The nests are often built in the lower parts of the nests of the Ward Herons, in prickly pear cactus, Spanish daggers or even in long grass. Their dense colonies seem over crowded. Both eggs and young were found all through May.

146. Savanna Sparrow—*Passerculus sandwichensis savanna.*
This is the winter resident form on the prairies, where it was still common during the first half of May.

147. Western Grasshopper Sparrow—*Ammodramus savannarum bimaculatus.*
Mr. Simmons said that the small sparrows, seen in the prairie regions of Refugio and Victoria Counties, were mostly of this species.

148. Texas Seaside Sparrow—*Passerherbulus maritimus sennetti.*
Common in the coastal marshes from Galveston to Corpus Christi.

149. Western Lark Sparrow—*Chondestes grammacus strigatus.*
Common in the prairie regions from Refugio County to Cameron County.

150. Harris Sparrow—*Zonotrichia querula.*
Noted as a migrant on an island in Galveston Bay, May 5.

151. Black-throated Sparrow—*Amphispiza bilincata bilincata.*
A few seen on the dry plains of Cameron County.

152. Texas Sparrow—*Arremonops rufivirgatus.*
Common in the chaparral and in the thickets around Brownsville, where its characteristic song is often heard and where it moves about quietly on or close to the ground and is usually sociable and unsuspicious, often quite inquisitive.

153. Gray-tailed Cardinal—*Cardinalis cardinalis canicaudus.*
Fairly common in all suitable localities, generally in dense brush or chaparral, from Port La Vaca to Brownsville. A nest, with two incubated eggs, was found near Brownsville, on May 25.

154. Rose-breasted Grosbeak—*Hedymeles ludovicaina.*
A female, apparently this species, was seen on Caney Creek, on May 8.

155. Western Blue Grosbeak—*Guiraca carulea lazula.*
A few seen around Brownsville.

156. Indigo Bunting—*Passerina cyanea.*
Migrants were seen near Galveston on May 4 and on Caney Creek on May 8.

157. Varied Bunting—*Passerina versicolor versicolor.*
A few seen around Brownsville.

158. Painted Bunting—*Passerina ciris.*
Seen in Refugio County on May 19.

159. Sharpe Seedeater—*Sporophila morelleti sharpei.*
We saw a bird near Brownsville, which we took to be this species, on May 25.

160. Dickcissel—*Spiza americana.*
Common on the prairies of Victoria County.

161. Lark Bunting—*Calamospiza melanocorys.*
Specimens seen in Captain Camp's collection, taken as migrants in changing plumage, near Brownsville.

162. English Sparrow—*Passer domesticus.*
Common in all the towns and cities and about the ranches.

163. Summer Tanager—*Piranga rubra rubra.*
Common in the river bottom forests of Victoria County.

164. Purple Martin—*Progne subis subis.*
Summer resident about the towns.

165. Cliff Swallow—*Petrochelidon lunifrons.*
Seen around Galveston Bay, May 4, and on Caney Creek, May 8.

166. Barn Swallow—*Hirundo erythrogastra.*
Seen along the coast from Galveston, May 4, to Corpus Christi, May 29.

167. Tree Swallow—*Iridoprocne bicolor.*
Seen only near Galveston on May 5, probably migrating.

168. Bank Swallow—*Riparia riparia.*
Seen near Galveston, May 4, and on Caney Creek, May 8.

169. White-eyed Vireo—*Vireo griseus griseus.*
Heard singing near Galveston, May 5, and observed in Victoria County, May 20.

170. Small White-eyed Vireo—*Vireo griseus micrus.*
Specimens collected near Brownsville, where it is common. A new nest, about five feet up on a lower branch of an ebony tree, was found on May 24, and another with four heavily incubated eggs, in a thicket, on the next day.

171. Black and White Warbler—*Mniotilta varia.*
Migrants seen on an island in Galveston Bay on May 4.

172. Prothonotary Warbler—*Prothonotaria citrea.*
Heard singing in the cypress swamps on the Guadalupe River in Victoria County, on May 30.

173. Parula Warbler—*Compsothlypis americana americana.*
Heard in the same localities as the preceding species.

174. Sennett Warbler—*Compsothlypis pitiayumi nigrilora.*
Fairly common around Brownsville, on the edges of the resacas where the trees are covered with *usnea* moss. Specimens collected on May 27.

175. Yellow Warbler.
Migrants common on an island in Galveston Bay on May 4.

176. Myrtle Warbler—*Dendroica coronata coronata.*
A few seen on Caney Creek, on May 8, must have been late migrants.

177. Magnolia Warbler—*Dendroica magnolia.*
On a small island in Galveston Bay, on which only grass and low shrubbery was growing, we recorded 37 species of birds, mostly small land birds on migration, on May 4. A strong wind was blowing and the little birds were seeking shelter in the shrubbery or long grass, in little gullies and hollows, or behind sand dunes or drift logs. This pretty little warbler was one of the most numerous.

178. Chestnut-sided Warbler—*Dendroica pensylvanica.*
A few seen on the island referred to above, on May 4.

179. Bay-breasted Warbler—*Dendroica castanea.*
One seen with the above.

180. Blackburnian Warbler—*Dendroica fusca.*
One seen on the same island.

181. Black-throated Green Warbler—*Dendroica virens.*
Common on the same island.

182. Ovenbird—*Seiurus aurocapillus.*
One seen on the same island.

183. Water Thrush—*Sciurus noveboracensis noveboracensis.*
A few seen on the same island.

184. Mourning Warbler—*Oporonis philadelphia.*
A few seen on the island referred to above and one seen on an island in San Antonio Bay, on May 15.

185. Maryland Yellowthroat—*Geothlypis trichas trichas.*
Migrants seen on islands near Galveston, May 4, and one heard near Brownsville on May 25.

186. Yellow-breasted Chat—*Icteria virens virens.*
Migrants seen on the island in Galveston Bay on May 4. A nest and three eggs found in a thicket near Brownsville on May 25; one shot here proved to be the eastern bird.

187. American Redstart—*Setophaga ruticilla.*
Common on the island in Galveston Bay on May 4.

188. Mockingbird—*Mimus polyglottos polyglottos.*
The birds seen near Galveston early in May were of the eastern form, which is common as far southwest as Brazoria County.

189. Western Mockingbird—*Mimus polyglottos leucopterus.*
Very common in all suitable localities in all the other coastal counties. Nests with eggs were found at Port La Vaca on May 11 and near Brownsville on May 24.

190. Catbird—*Dumetella carolinensis.*
Migrants seen on the island in Galveston Bay on May 4.

191. Sennett Thrasher—*Toxostoma longirostre sennetti.*
Abundant in Hidalgo and Cameron Counties. Several nests with eggs and young found near Brownsville from May 25 to 27.

192. Curve-billed Thrasher—*Toxostoma curvirostre curvirostre.*
Common in Hidalgo and Cameron Counties, but no occupied nests found.

193. Carolina Wren—*Thryothorus ludovicianus ludovicianus.*
The resident form of the more eastern and northern counties. Seen near Port La Vaca on May 13 and heard in Victoria County on May 20.

194. Lomita Wren—*Thryothorus ludovicianus lomitensis.*
The resident form of Hildago and Cameron Counties. Heard and seen near Brownsville on May 25 and 27.

195. Texas Wren—*Thryomanes bewicki cryptus.*
Common around Brownsville. A nest with young found there on May 24; it was behind a blind on a deserted house.

196. Black-crested Titmouse—*Bacolophus atricristatus atricristatus.*
Common around Brownsville.

197. Verdin—*Auriparus flaviceps flaviceps.*
Common around Brownsville in the dry chaparral. Two nests with eggs found on May 24.

198. Rio Grande Bluebird—*Sialis sialis episcopus.*
A nest with broken egg shells, taken near Brownsville, was seen in R. D. Camp's collection.

ORNITHOLOGICAL IMPRESSIONS OF FIJI AND NEW ZEALAND

BY DAYTON STONER

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On the occasion of the visit of the scientific expedition from the University of Iowa to Fiji and New Zealand during the summer of 1922, it was my good fortune to be associated with the enterprise as ornithologist and entomologist. Very naturally, a trip involving about 18,000 miles of travel on both land and water afforded some opportunity for certain ornithological observations. While a limited amount of collecting was accomplished on both Viti Levu and Makaluva of the Fiji group and on North Island, New Zealand, the short stay in these places, four weeks in the former (June 5 to July 3) and five weeks in the latter (July 7 to August 15), precluded any intensive study of the birds inhabiting them. Therefore, it is my wish at this time, to point out only a few general impressions

concerning the avifauna of these two regions which have come to me largely as a result of these observations and experiences.

The Fiji Islands, of which there are more than two hundred with a total of about 7,500 square miles and a population of 165,000, lie between 15° and 22° south latitude and 177° west longitude and 175° east longitude. Some of the islands are merely small coral points a few square yards in area; Viti Levu, the largest of the group, measures approximately ninety-six miles from east to west and sixty-three from north to south; it is volcanic in origin. The average annual rainfall is about 130 inches and the average summer temperature about 83° Fahr. Although the northwest side of the island is comparatively dry, the general amount of precipitation combined with a fairly high temperature, result in a humid but healthful climate. In the vicinity of Suva, on the southeast and "wet" side of the island where most of my field work was done, the vegetation is very luxuriant, and here, too, birds are most plentiful.

Since the topography is so rough and the population, in general, so sparse a considerable proportion of the land is not under cultivation. Nevertheless, there are many banana and cocoanut plantations owned and managed largely by Europeans; rice farming is done by the East Indians of which race there are more than 65,000 in the Fiji group; and of late, truck farming has been taken up with a considerable degree of success by a good many Chinese. Having been accustomed, for many generations, to depend upon Mother Nature for most of their subsistence, the native Fijians do not readily adopt farming as a means of livelihood. Contrary to the popular belief, cannibals are no longer in evidence on Viti Levu although some of the oldest natives living there have tasted human flesh.

Briefly stated, the avian fauna of Viti Levu and the near-by islands partakes of the following characteristics:

1. There is a total of about 75 forms on the islands and in the surrounding seas.
2. Not any species of *native* bird is markedly abundant.
3. A surprisingly small number of "water-birds" is present.
4. The small number of nocturnal and crepuscular birds is apparent. This lack is recognized by the Colonial Government and while in Fiji I was invited to participate in a conference in which the possibility and advisability

of importing certain nocturnal insectivorous forms from Australia was discussed.

5. Only three species of raptorial birds occur on the islands.
6. Woodpeckers are entirely wanting.
7. A goodly number of introduced species is present and all seem to thrive.

Native predaceous mammals and snakes are lacking; predatory birds are few; the mongoose, wild pig and rat have been introduced by man and cause some reduction in the bird population. Education, a favorable public sentiment toward protective measures, and more stringent laws have yet to be developed in Fiji.

New Zealand, another British colony consisting of the three islands, North Island, South Island, and Stewart Island, lies between 34° and 48° south latitude and 166° and 179° east longitude. It has a total area of about 105,000 square miles which supports a population of one and a half million thrifty people.

My work was confined entirely to North Island which I was able to traverse for almost its entire length of approximately 550 miles. This island, sometimes spoken of as the "Japan of the South Pacific," has an area of 44,468 square miles. Its topography is rough and volcanic and a considerable portion of the land can be used only for grazing purposes. An annual rainfall of 51 inches and a mean annual temperature of 55° insure a pleasant and healthful climate.

There is much rough and rocky coast-line which offers favorable nesting sites for many kinds of sea birds.

The native forests, largely totari, remu and matai are always green; fern trees and beeches abound in the "rain-forest." In some parts of the island large areas of dense bush remain and these afford shelter and seclusion for a considerable number of land birds.

A famous naturalist once said "New Zealand is the most interesting ornithological province in the world." In *some* respects at least, the statement is true for this, one of the oldest if not *the* oldest country on the face of the globe, contains the only living representatives of an extinct race of peculiar and wonderful birds.

Within comparatively recent times this British insular de-

pendency was inhabited by great numbers of large, short-winged or wingless birds almost or altogether twice as large as a full grown ostrich. These monsters of the avian class, known collectively as moas and belonging to several genera and species, have now disappeared but their more diminutive representatives, the various species of apteryx, still exist in some parts of the Dominion.

Additional characteristics of the New Zealand avifauna may be condensed under the following headings:

1. A large proportion of the genera represented are peculiar to New Zealand.
2. The large number of marine birds is at once apparent.
3. The small number of raptorial birds is just as obvious.
4. Woodpeckers are absent; one misses them in the bush.
5. The number of migratory species is very limited.
6. The number of introduced forms is considerable and most are very successful; among these is numbered the European house sparrow.
7. A total of about 220 forms is found on the island and adjacent seas.

There are no *native* carnivorous animals, though weasels and stoats have been introduced. Snakes and the mongoose are absent but wild pigs cause some loss among the bird population. Just now a wave of conservation is sweeping the Dominion and the scientists in the Government laboratories are accomplishing a good work in arousing a proper public sentiment toward bird protection. Stringent legislative and protective measures have been enacted and are rigidly enforced. Government and local game refuges, parks and reserves have been set aside. As a result, it is probable that at least a part of this most interesting bird fauna will be preserved to future generations.

The writer will set forth a more detailed account of the ornithology of the regions visited in Professor C. C. Nutting's forthcoming "Narrative" of the Expedition.

NESTING BIRDS OF LAKE COUNTY, OREGON

BY DR. A. G. PRILL, SCIO, OREGON

Additions, and corrections, of the 1922 list, with field notes on important breeding conditions.

Another season spent in the Warner Lake regions, of Lake County, Oregon, has added materially to the number of birds found there and also has verified the corrections to the 1922 list, here given.

ADDITIONS

HORNED GREBE—*Colymbus auritus.*

Several pairs seen in the various lakes on June 1.

AMERICAN EGRET—*Herodias egretta.*

Four pair nesting on an island, ten miles north of Adel. On account of water and no boats could not be reached.

BLACK-NECKED STILT—*Himantopus mexicanus.*

Two pair seen in the valley on June 1. Mated, and probably getting ready to nest.

AMERICAN OSPREY—*Pandion haliaëtus carolinensis.*

Again noted in the valley, but not common, in fact, rare.

LONG-EARED OWL—*Asio wilsonianus.*

Quite common, and nests and eggs in willow bushes on May 15.

BARRED OWL—*Strix varia varia.*

One pair seen at the head of Crump Lake on June 1.

TRAILL'S FLYCATCHER—*Empidonax trailli trailli.*

One of the common flycatchers of the valley.

BLUE-FRONTED JAY—*Cyanocitta cristata cristata.*

Quite common on Deep Creek and Warner Rim.

AUDUBON'S WARBLER—*Dendroica auduboni.*

Several pairs on Deep Creek and Twenty-mile Creek, arriving May 25.

WHITE-RUMPED SHRIKE—*Lanius ludovicinnus excubitorides.*

Very common over the entire valley, arriving May 10.

SAGE THRASHER—*Oreoscoptes montana.*

Several pairs seen on Hart Mountain at an elevation of 6200 feet.

CORRECTIONS

Should be Treganzàs Blue Heron (*Ardea herodias treganzi*).

Should be Pacific Horned Owl (*B. v. pacificus*).

Should be Batchelder's Woodpecker (*D. p. homorus*).

Becomes Dusky Horned Lark (*O. a. merrili*).

Becomes Fischer's Song Sparrow.

Becomes Willow Thrush (*Hylocichla fuscescens salicicola*).

Since my visit to this region in 1922, some remarkable changes in the bird life of the valley had taken place, and a few of the more important ones will be mentioned in these field notes.

A very early spring, of warm weather, followed in May by much

cold weather, high winds, rain, and snow, together with the water conditions in the valley, probably account for the changes in bird life.

In 1922 the entire valley was well covered with water, from its most southern to its northern point, but during 1923, fully 50% of this area was dry and bare. Many small ponds and large areas of marshes were entirely devoid of water.

Gadwalls were the most abundant duck found, while the mallard, which in 1922 was equally as abundant, was almost entirely absent.

Cinnamon teal were very rare and only six pairs were noted. Shovelers and pintails were much more common than in 1922.

Sandhill cranes were present in increasing numbers and not less than 36 pairs.

The American white pelican had increased from a few hundred birds to more than a thousand, which were counted in one flock on Crump Lake; western grebes and horned grebes had increased 200%; western mourning doves showed a marked decrease in numbers; Caspian terns were not common, and showed a decrease in numbers, as also did Forsters terns.

Avocets, which were very common, were very rare in the valley, although much better nesting sites seemed available.

Black-crowned night herons were present in large increasing numbers and one colony contained 200 nests.

Black terns were found by the thousands, which were not seen in 1922.

Canada geese were nesting in increasing numbers and many had eggs on May 25.

The ring-bill gull, Farallone cormorant, and Treganzas heron colonies seemed to have increased at least 100%.

The sage grouse, or hen, showed to me to be decreasing very rapidly and was hard to find.

THE TENNESSEE ORNITHOLOGICAL SOCIETY

The recent affiliation of this organization with The Wilson Club makes a short historical sketch of its activities appear to be in order. On October 7, 1915, Messrs. A. F. Ganier and Dixon Merritt, of Nashville, called together a meeting of the half dozen local men known to be interested in bird study and as a result an organization was decided upon. At the subsequent bi-weekly meetings a constitution was written and adopted, notes compared and a survey made of the ornithological literature applicable to the central south. It was decided that the first work to be undertaken should be an authoritative list of the birds of the state and that field work should be begun by the members, toward that end. Two years later the list, in preliminary form, was published in the shape of a 32 page pamph'et as a bulletin of the State Department of Fish and Game. Since then field work has been carried on by the members and trips to various parts of the state have led to the accumulation of a great deal of data which will be available for the formulation of a revised edition of the list and later for a comprehen-

sive work on the birds of the state. The use of 3x5 inch printed bird record cards, in recording field lists, has assisted materially in standardizing the work of members. These cards were described in the December 1917 Wilson Bulletin. A number of local lists and papers, on Tennessee birds, have been published by members, chiefly in the above publication.

Since The Society's organization, it has met regularly every fourth week during the winter and every second week during the fall and spring. No meetings are held during the summer months. An annual meeting is held during October and a Spring Field Day each May. The Annual Meeting is held afield, at some attractive spot within motoring distance of Nashville, and the morning is spent in making a joint field list. A picnic dinner is followed by the meeting proper, which includes talks by members and the annual election of officers. At the meeting of October 28, 1923, the attendance was 34 and the birds listed numbered 51 species.

Each spring The Society puts on at Nashville a public exhibition, chiefly of birds though other forms of natural history are included. Specimens of all common local birds, with their nests and eggs, are represented, as well as such uncommon ones as are distinguished by some interesting feature or mark of interest. Color charts and pictures, photos, books and periodicals are included. Through an extensive labeling and poster system the exhibit is made to serve the twofold purpose of being educational as well as an aid to conservation. Public lectures on various phases of bird and nature study, illustrated with slides, supplement the exhibition. Some progress has also been made toward the creation of a state museum of natural history where such exhibits would be permanent.

Difficulty has been experienced in sustaining the interest of members scattered about the state at points where there are no others having the same or kindred interests. Affiliation with The Wilson Club, under terms which will enable The Society to interpret The Wilson Bulletin as its official organ, is expected to remedy this difficulty to a considerable extent. A well developed interest in bird study and its conservation has for some time been maintained at Knoxville, Tenn., and during January, 1924, a Knoxville Chapter of The T. O. S. was organized there with H. P. Ijams, President and Paul J. Adams, Secretary.

The officers for the state association, for 1924, are as follows: Albert F. Ganier, (Nashville) President; Prof. J. A. Robins, (McKenzie) Vice-president for West Tennessee; Dr. Harry S. Vaughn, (Nashville) Vice-president for Middle Tennessee; H. P. Ijams, (Knoxville) Vice-president for East Tennessee; Harry A. Monk, (Nashville) Secretary-Treasurer; Edgar McNish, (Madison) Curator.

Harry A. Monk, Sec'y.

Nashville, Tenn., March 1, 1924.

GENERAL NOTES

NOTES FROM LAKE COUNTY

Purple Sandpiper—In the 1917 volume of Wilson Bulletin, page 130, I reported an individual of this species as making a considerable stay on a stone breakwater at Lake Erie, i.e., October 22 to November 12, 1916. It has been my good fortune to have seen a single bird at the same place on two occasions since then. First on October 25, 1922, and second, on November 11, 1923; thus making three records of this rare species in eight years. As was the case with my first record the birds were exceedingly unafraid and gave me full opportunity to note the orange yellow legs, the yellow at base of bill, white area back of eye, dark slaty plumage, and other items.

Parasitic Jaeger—I reported a dead bird of this species in Wilson Bulletin for 1919, page 128, that came under my notice September 20, 1914. I again found a dead bird on the beach the past year, October 7, 1923, and am herewith sending its bill to the editor.

E. A. Doolittle.

Painesville, Ohio.

THE BARN OWL AS A MIGRANT

On July 28, 1923, I freed two young Barn Owls (*Strix pratincola*), which had been raised by hand, and on December 27, 1923, one of them was reported to the U. S. Biological Survey as having been shot at Opp, in southern Alabama. This point lies 75 miles from the Gulf of Mexico and 350 miles south of Knoxville, Tenn., where the bird was raised and freed. Dr. Fisher in his "Hawks and Owls of the U. S.," states that "it migrates more or less in the northern part of its range, and there is an appreciable increase in the number of individuals to the southward during the fall months." The above record would indicate a southward migratory movement of southern as well as northern individuals.

The nest from which the young Barn Owls were taken was a large cavity in a live sycamore tree, in the bottoms of and a few hundred yards from the Tennessee River. On May 27th it contained three young about one week old, one of which, the middle sized one, was taken, to be reared by hand. A week later the nest was examined again and the smaller one of the two remaining owls had disappeared. The larger was taken and it was found that the hand fed "middle sized one" had caught up with it in size. They thrived and developed rapidly and as pets were a source of much interest. On July 28th they appeared to have reached maturity, so were banded and released. Nothing was heard or seen of them afterward until the above mentioned report of one of them having been killed. During the past winter the hollow sycamore has been the headquarters of a Barred Owl.

H. P. Ijams.

Knoxville, Tenn., Feb. 1924.

AN OBSERVATION ON THE DRUMMING OF A RUFFED GROUSE

Long years ago, when I was a child in Virginia and went out for chinkapins in the fall, I heard occasionally the drumming of a partridge. All recollection of the sound had faded, so that, when early last spring, as I snuggled down into my sleeping-bag for another nap before beginning my tent housekeeping, I heard it again, I wondered what farmer was starting his gas engine so early in the morning and why the engine ran for only a few seconds. Why it never occurred to me that it might be a Ruffed Grouse I know not, for grouse had nested at the Wilderness the year before and had been flushed often during various visits.

For shelter and comfort during both winter and summer, we have at the Wilderness a 12 x 16 wall tent. In warm weather both ends are open and curtained with bobbinet to keep out the flies. During the noon hour on September 19, 1923, the sound of the "gas engine" came from the woods, and looking through the open doorway a movement caught my eye, a Ruffed Grouse in the act of drumming. The log upon which he stood was about seventy feet from and in plain sight of the tent, offering an unusual opportunity for observation. Eight power binoculars were used for details and an ordinary watch for timing intervals between the drummings and the duration of the act.

After the first complete act which I saw, the Grouse was not quite satisfied with his footing and moved over a little, placing his feet very carefully on the front curve of the log, seeming particular as to the way they fitted on the bark. He stood up straight, head up, neck and legs straight, tail dropped at a slight angle over the crest of the log. Just before drumming, he crouched slightly and bent forward as if about to take flight. As the beat began he seemed to sit hard upon the log, tail horizontal and flattened over the log but not widely spread, body erect, neck ruff somewhat open, head drawn down between the shoulders with bill out, wings hanging easily from the shoulders, but bent practically at right angles at the elbow joint and the primaries spread. Feathers on the breast and belly were raised to a horizontal position. The movement began slowly, one beat of the forewings toward the breast without striking the feathers of the breast, then a long pause, followed by five deliberate beats, a short pause, a sixth beat, slight pause, then increase in speed of beats from the seventh to the nineteenth, when they became too rapid for counting. At the finish of the drumming the feathers of the breast flattened, the Grouse stretched himself to the usual standing position, elevated his tail and lowered it. The feathers of the breast were at no time ruffled except close by the elbow, showing that there was no actual contact with the beating wings. The drummings timed lasted from ten to twelve seconds each, and the intervals between the drummings from two to seven minutes when the bird was undisturbed. After watching the bird for about an hour and a half I walked out of the tent and around to the other side without disturbing him other than to delay the next drumming. He flushed, however, when I went out on his side of the tent some fifteen minutes later.

The entire observation lasted from ten minutes before one to thirty-

five minutes after two, with a total of twenty-seven drummings. "Michigan Bird Life" gives as possible causes for the sound the striking of the wings over the back, striking of wings against sides, and a hollow log. In this instance the wings did not touch above the back nor did they strike the sides of the breast. The log, which was twenty inches in diameter, had a hollow center possibly two to three inches in diameter.

My conclusion is that the opening of the feathers permitted the formation of an air cusion which acted as a sounding board for the vibrations caused by the heating of the wings.

L. R. Gleason.

ACTIONS OF COOTS DURING FREEZE-UP

Squaw Lake, Minnesota, where these observations were made, is in the north-central part of Minnesota, 32 miles by road, north of Deer River, and 120 miles north-west of Duluth. The lake is about 8 miles long, a series of bays completely covered with wild rice. This offers food for thousands of ducks and coot.

On the morning of October 28, 1923, a very cold north-west wind began to freeze the lake. The ducks, mainly lesser scaup and canvassbacks left the country, but the coots remained. They stayed in the open patches of water, as long as there were any, and then flew to places on the ice where it was strong enough to hold them. By 10 A. M. there were at least 2,000 birds on the ice in one of the bays. They were scattered about over a half square mile area in little groups of anywhere from 3 to 10. They did not seem to want to fly. Individuals would run about for a few minutes and then join a group. It was noticeable that coots strayed from smaller to the larger gatherings. By 2 P. M. the general sprinkling of birds was no longer in evidence. Instead, there were three large compact masses of Coots containing approximately 600 individuals each. They had gathered, evidently, to keep warm, and to protect themselves from the wind. The groups were about 15 ft. wide and 40 to 50 ft. long, running in a north-west-south-west line. The wind was from the north-west, so that the formation of the birds offered them maximum wind protection.

Two rafts of the coots stayed all night, and were on the lake most of the next day. Some 300 birds stayed out the second night, and were still in a compact flock on the ice the following morning. They spread out over the ice during the warm part of the day, but returned to their mass formation toward dusk. At the end of five days there were still about a dozen flying birds, and as many cripples in the flock. The rest had left. While the coots remained on the lake, they could have had little or no food, for the rice had been eaten off very thoroughly by the Indians, and upon examination of the ricebeds, when the ice was thick enough to hold a man, we could find no kernels about anywhere.

Only one coot did I notice; that was frozen into the ice alive. For two days it tried to free itself by flapping its wings and struggling. It could not release its feet, nor break them off. The morning of the second day, two herring gulls that had been circling over Squaw Lake, settled on the ice near the imprisoned bird. I watched the gulls carefully.

They did not touch the coot while it was alive. Their actions plainly showed that they were waiting for dead meat, for they never went more than thirty yards from the coot. The morning of the third day I found two gulls dragging the entrails of the dead bird about. When the ice was thick enough to walk on I examined the remains and found nothing but the head, wings and feet, held together by a few shreds of skin.

553 Prospect Ave., Milwaukee, Wis. CLARENCE S. JUNG.

CROSSBILL IN KENTUCKY

The Crossbill, recorded for this part of Kentucky only once before, by Professor Gordon Wilson, January 19, 1920 (Auk, April, 1922), was seen by me at close range on the road from Tompkinsville to Gamaliel, Kentucky, on February 2, 1924. J. L. Crawford, Gamaliel, Kentucky.

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Extracts from a letter from John A. Gillespie, Glenolden, Pennsylvania, to the Secretary: "Most of my spare time is taken up with my bird banding, but at the same time I have tried to keep in touch with my friends in the field. Here in southeastern Pennsylvania we have experienced one of the mildest winters for some time. Only twice has the thermometer reached 10°. Only one snowfall of any consequence has occurred, and that was gone in a day or two. Boreal species have been either very scarce or entirely absent. I have seen no Shrikes, Crossbills, Siskins, etc. and my fellow workers of the Delaware Valley Ornithological Club say the same thing. White-throated Sparrows were very abundant in November, but only a dozen or so are in evidence now. Purple Finches are common. I imagine they wander about a good deal, for at times they are plentiful, and a day later are absent. Golden-crowned Kinglets have been absent since November 22. Every one else reports them as being plentiful, but in Glenolden we seldom see them in the dead of winter, no doubt on account of the scarcity of their natural food. Here the woods are made up mostly of beech, oak, tupelo, tulip poplar, and hickory. I imagine the Golden-crowned Kinglet prefers coniferous tracts.

"I rather expected more Fox Sparrows would winter than those present. On Christmas Day I saw but one. He wore a band and no doubt was one of "my birds".

"Nuthatches and Titmice have been common all winter; in fact, more so than usual. Woodpeckers of all kinds have been less common than usual. Brown Creepers are more plentiful than I have seen in five years. I have often heard of their tameness, but had it brought home to me rather forcibly the other day: I was leaning against a tree trunk watching one in a tree near by. Suddenly he flew to one of my young peach trees. This surprised me, for generally one sees a Creeper mounting the trunk of a mature tree, while in this case he was stationary. (Later I discovered he had been feeding on an old piece of suet, black with age, forgotten by me, but evidently not forgotten by him.) The next moment he was flying toward me and dropped to the foot of a telephone pole some twelve feet distant. Not finding much there to his liking, he flew to the foot of the tree against which I leaned,

landing on the opposite side of the trunk from me. He crawled around the trunk in plain view and stopped when only a foot from my head. For about five seconds he gazed at me (and I at him). He evidently did not like my looks, for he flew into the upper branches of the same tree, renewing his diligent search as unconcerned as before.

"A Brown Thrasher has wintered with us. This is rather unusual —in fact, my first winter record. I was looking through Bird-Lore's census to see if any Thrashers had been observed in our latitude and was surprised to find only one (Monticello, Illinois). I was amazed not to find any in the southern states until Georgia was reached, where two observers each saw one. In Alabama two observers saw four, and in Florida one observer saw one. Now the Brown Thrasher is one of our commonest birds. Where do they winter? Probably in the dense underbrush in unfrequented districts. Or do they leave the United States? My Thrasher friend now wears a band. He was captured in less than an hour after the trap was set, on December 1, 1923. By the way, Thrashers and also Fox Sparrows are fond of soda crackers. Catbirds also relish them. I generally take a cracker with me in the morning on my way to the train and crumble it for Mr. Thrasher at a certain spot. He may be nowhere in sight at the time, but before I know it he comes hopping through the underbrush and feeds while I stand in full view, a dozen feet away. It is amusing to watch him hammer a large piece into smaller bits, as a Nuthatch or Titmouse pecks away at a tempting morsel placed in a crevice in a tree trunk."

February 6, 1924

STARLINGS ABUNDANT AT NASHVILLE, TENN.

The western and southward spread of the Starling (*sturnus vulgaris*) has been watched with interest and the following note, from the frontier of its invasion, should be of interest. In one of our large cemeteries, in Nashville, there are several acres of magnolia trees and coniferous evergreens to which each winter immense numbers of the blackbird family congregate at nightfall for roosting purposes. It had been several years since I had closely observed these roosting birds when, last December, it occurred to me that a trip would probably show some Starlings present. On the evening of December 8th I stationed myself in the grove and began to observe the incoming birds. It was almost immediately apparent that the looked for birds were present in considerable numbers among the great throng of Grackles and Cowbirds. As I became accustomed to the physical structure and flight of the Starlings I was in a few minutes able to pick them out from the others at a glance even though at that hour colors were not perceptible.

After a number of piecemeal counts, based on past experience, I estimated the population of the roost that night as 300,000 Grackles, 150,000 Robins, 100,000 Cowbirds and 60,000 Starlings. The Robins, for the most part, used evergreens on the outskirts of the main roost, many of them using low bushy conifers, 5 to 10 feet high. The flight of the Starling, about the roosts, is strikingly like that of the Purple Martin,

while, at rest, its short tail, long bill and, if the light is sufficient, its' silvery plumage, make it easy to single out. Wishing specimens for my collection I secured a permit and, in company with Dr. Geo. R. Mayfield, returned a few evenings later. My first four shots brought down four Starlings after which I secured half a dozen Grackles to determine if any were the Purple variety. As expected, they all proved to be Bronzed Grackles (*Q. q. aeneus*). The birds remained in large numbers until the middle of January, when, fearing damage to the trees, the cemetery superintendent had them "shot out" for several evenings whereupon they left and have not returned. The Robins were not bombarded but took the hint and left also.

Starlings were first recorded at Nashville on December 9, 1921, by Mr. Harry Monk who, observing another Grackle roost, identified the species and estimated 300 present. On December 17th he estimated 500 and on December 23rd 1000. The following day one of the birds was found dead under the roost and was presented to A. C. Webb who in turn gave it to me. A year later Mr. Monk observed Starlings at this roost all through January, the last seen was February 18th when two were noted.

The only published record I have found for Tennessee appears in Bird Lore, Vol. 24, p. 94, in which Mr. Bruce P. Tyler records it on December 12th, 1921, near Bluff City, in the eastern part of the state. The Starling has been reported several times from Montgomery, Ala., and as far south as Baton Rouge, La.

It is likely that a more than casual inspection of the various blackbird roosts throughout the south, will show them a regular and common winter resident throughout this area. ALBERT F. GANIER.

Nashville, Tenn., March 1, 1924.

MEADOWLARKS
(*Sturnella magna*)

WITH OBSERVATIONS ON SEVERAL OTHER SPECIES

On the morning of October 18, 1923, not having had an opportunity for several days, to make observations, I took a walk of several miles along the tracks of the C. R. I. & P. Ry. to see what progress had been made in the fall migration.

The Railway Company had neglected to mow their right of way. This is an advantage to our winter birds as it affords them more food in the form of seeds and more cover in which to hide. There are also a number of insects that hibernate among these weeds and others which deposit their eggs here to await the coming of spring, when the warm sun hatches them out. All these furnish most welcome tid-bits for the birds.

As I walked along I observed the Slate Colored Junco in considerable numbers; also some Tree Sparrows. The latter had just come from the north and were not yet present in full force. I also observed a few Song Sparrows and a fairly good number of the sprightly and very busy little Black Capped Chick-a-dees. A number of Downy Woodpeckers

attracted my attention in partcular. They were rattling their bills vigorously against the dry stems of some tall wild horse hemp and the wild artichoke. A careful examination of some of these stems showed that it was not simply the music they were getting out of this performance that the birds were after, but a small white grub concealed in the center of these stems. The birds were simply working for their daily bread and incidentally ridding the vicinity of some perhaps very injurious insects.

After walking on about two miles, I came to a place where there was meadow land on both sides of the right of way, but there was a continuation of the tall weeds and grass upon the right of way. On one side outside the right of way and in the meadow stands a large boxelder tree. On approaching this tree, I could see at some distance a considerable number of birds among its branches. As I came closer I could see that they were the Eastern Meadow Larks, and I could hear most exquisite music. They were singing in chorus, not the Meadowlark's usual "Spring Song", but a kind of phantom dream of the same. It was perfectly enchanting, much sweeter than the plaintive whistle which we all know as the Lark's song. Occasionally one would whistle their regular song, then they would all revert to the low, sweet, dreamy autumn song again. There were perhaps twenty larks in the tree and a number more on the ground.

I had stood perfectly still for some time entranced by their music when suddenly everything was hushed, not a sound was to be heard. The silence was painful and the larks began to drop from the tree into the grass and weeds below. I looked about me to see what could be the cause of this most abrupt conclusion of the concert, when I saw a Cooper's Hawk silently winging its way past the tree, evidently having had a craving for lark for dinner that day, but seeing me so near the objects of its quest, he became alarmed and flew on without making an attack on the larks.

I walked on several miles further and saw more of the species above mentioned; also a flock of perhaps 30 American Goldfinches. These were busily engaged getting their dinner in the form of seeds from the various weeds upon the right of way, but seemed to be giving particular attention to the thistles. They are always cheerful little sprites and even with their olive drab winter dress, their black tail and wing primaries and yellowish wing bars, they are objects of beauty and certain to cheer up and delight the heart of most any observer. Their little twitter, "Per-chick-o-ree" is always the same, so they can be identified readily as far away as their voice can be heard.

Turning back I hoped that by the time I should reach the Boxelder tree in the meadow again my chorus of larks might be re-assembled so I could hear the next number of that exquisite concert, but not so. There was not a lark in sight. They had evidently been so thoroughly frightened by the hawk that they would not again appear on that day. And I walked home silently meditating on the wonders of the Universe and the intricacies of Nature.

E. D. Nauman.

Sigourney, Iowa.

NOTES—HERE AND THERE

Conducted by the Secretary

At the meeting at Cincinnati during the holidays President T. L. Hankinson exhibited some remarkable photographs of bird life made by one of our newest members, Mr. Walter E. Hastings of South Lyon, Michigan. The pictures were particularly clear and showed to great effect characteristic poses of some of our common and even less common birds, together with backgrounds which suggested typical habitats.

Mr. I. H. Johnston, State Ornithologist of West Virginia, presented each member present at the annual meeting a copy of his splendid handbook recently reviewed in this column, "Birds of West Virginia."

A bulletin entitled, "Mammals, Reptiles, and Birds of Kentucky" is now in press. The author is Professor W. D. Funkhouser of the Department of Zoology of the University of Kentucky. Dr. Funkhouser has been collecting materials for this book for several years and has received the cordial assistance of all the leading observers of Kentucky.

The Stratford Company of Boston has recently issued a handsome volume from the pen of one of our members, William Butts Mershon, of Saginaw, Michigan. It bears the attractive title of "Recollections of My Fifty Years Hunting and Fishing". It is profusely illustrated and highly readable, being accounts of a number of his great hunting expeditions: with Emerson Hough, with the Wells-Stone party, with the Nichols and Shepard deer-hunting party, and others. It is regarded as one of the finest contributions of its kind to the literature of sportsmanship and the outdoor life.

Mr. Amos W. Butler, of Indianapolis, Indiana, is preparing a new edition of his well-known "The Birds of Indiana". It will be issued by the Indiana State Conservation Commission.

The Reverend Angus McDonald, for many years a member of our club, and one of the Vice-presidents of the active Tennessee Ornithological Society, died October 17, 1923. At the time of his death he lived at Knoxville, Tennessee.

Houghton Mifflin Company published in November, 1923, Volume II of "A Natural History of the Ducks," by John C. Phillips, Associate Curator of Birds at Harvard University. The first volume was published more than a year ago and has already become famous and authoritative.

Mr. C. H. Morris of McConnelsville, Ohio, in a letter to the Secretary, reviews in a very interesting fashion the pioneering work in ornithology he did 35 years ago, recalling some delightful experiences with our Editor, Dr. Lynds Jones, and our good friend W. Leon Dawson of Los Angeles. Mr. Morris is not a very active ornithologist now, he says.

Mr. R. H. Dean of Anniston, Alabama, is especially interested in the

Pine Siskin and is at present conducting some experiments in connection with his banding operations. He hopes all bird men north of him will keep a sharp lookout for the Siskins.

In Nature Study Review for January there is a very delightful article by Lucile W. Wilkerson entitled "James Maurice Thompson, Nature-Poet." It emphasizes especially his bird poems and his classic little book of outdoor essays, "Byways and Bird-notes."

One of the Vice-presidents of The American Nature Study Society is one of our new members, Miss Theodosia Hadley of Kalamazoo, Michigan. Miss Hadley is also one of the associate editors for 1924 of the society's publication, "The Nature Study Review."

Herbert Friedmann of Cornell University, Ithaca, New York, contributes to the November-December Bird-Lore an illustrated article on "Evening Grosbeaks at Ithaca."

William G. Fargo, whose trip to James Bay last summer was mentioned in this column, has an article in the same issue of Bird-Lore on "Birds Seen in Florida in February, 1923."

Dorrance and Company of Philadelphia have recently published, "Birds: Their Photographs and Home Life," by Dr. A. H. Cordier of Kansas City, Missouri. Dr. Cordier has the unique distinction among ornithologists of having never shot a bird except with the camera and his new book is designed to show some of the delights of studying birds in this way.

Dr. T. S. Palmer of the United States Biological Survey makes a splendid suggestion, that there ought to be at least one complete set of the AUK and the WILSON BULLETIN in each state. Just recently the Secretary received a letter from Dr. Casey A. Wood of Chicago, who said that the Emma Shearer Wood Library of McGill University, Montreal, Canada, has a complete set of the Bulletin since its first issue and that he intends to see that the set is not broken.

The Secretary is now making his annual drive for members. Since we took in 66 last year, I see no reason why we should not hope for 100 this year. That is the goal set and all efforts will be bent in that direction. If every reader of this magazine, whether a member or just a subscriber, would send in the name of a prospect, the Secretary would gladly try to secure even more than the proposed goal. The problem of membership is for the whole society, though the Secretary has better opportunities to find out prospects than most of the other members. Do not forget! It's 100 for the year 1924!

Though some of the newly elected officers are well-known to the readers, it might not be out of place to tell briefly who they are. Our new President, Albert F. Ganier, Nashville, Tennessee, is head draughtsman of the Nashville, Chattanooga, and St. Louis Railway and the President of the Tennessee Ornithological Society, recently affiliated with the Wilson Club. For five years he served faithfully as Secretary, re-

signing a year ago in favor of the present incumbent. Our Vice-President, William I. Lyon, Waukegan, Illinois, is a real estate dealer, Secretary of the Inland Bird-Banding Association, and for 1923 was Treasurer of the Wilson Club. Our Treasurer, Ben. J. Blincoe, Dayton, Ohio, is a florist. He formerly lived at Bardstown, Kentucky, and has contributed some excellent articles to the ornithological magazines on birds in that section. Of the Councillors, W. M. Rosen, Ogden, Iowa, is president of the Ogden State Bank and also President of The Iowa Ornithologists' Union, which adopted articles of affiliation with the Wilson Ornithological Cub when its annual meeting was held at Ames, Iowa, on March 8, 1924. H. L. Stoddard is assistant curator in the Milwaukee Public Museum; T. L. Hankinson, Ypsilanti, Michigan, is the head of the Zoology department of the State Normal College at Ypsilanti and served in 1922 and 1923 as the President of the W. O. C., besides a long, active service in other capacities in the Club. Since the Editor and the Secretary are "hold-overs", it will not be necessary to remind the readers that they are college professors in their respective institutions. As "old-timers" the two "hold-over" members extend their best wishes to the new officers and bespeak for them a happy year with the Club and its interests.

We regret to learn of the death of Mrs. H. P. Knapp of Painesville, Ohio, on September 26, 1923. Mrs. Knapp has for a number of years been a vigorous supporter and member of the Wilson Ornithological Club.

Mr. C. F. Jenney of Boston, Massachusetts, another of our members, died on November 29, 1923.

Mr. E. R. Davis of Leominster, Massachusetts, has been very active recently teaching the economic value of birds, appearing before bird clubs and schools. He writes the Secretary under date of February 16: "It is very cold weather now, but soon I shall be going about conducting bird walks and doing what I can to induce both children and adults to take a deeper interest in the protection of birds. As I sit writing this, there are more than a dozen different birds within a few feet of me, on the hard-frozen snow and ice by my window, eagerly partaking of the food I keep constantly on hand for them.

"At present I am feeding daily five Chickadees, two Hairy Woodpeckers, two Downy Woodpeckers, two White-breasted Nuthatches, one Red-breasted Nuthatch, one Junco, one Golden-crowned Kinglet, three Blue Jays, five Evening Grosbeaks, and twenty-four Tree Sparrows. They have become very tame and confiding, and watch for me to place the food for them and then immediately appropriate it. Although I live in the heart of the city, I have the birds with me at all seasons."

The Iowa Ornithologists' Union is making big preparations for its annual meeting, which is to be held at Ames, with the Iowa Conservation Association, on March 8. A good program has been arranged, including papers by such well-known people as Dr. T. C. Stephens, Miss Althea Sherman, C. J. Spiker, and Professor J. E. Guthrie. Though a young state organization, the I. O. U. already has a large membership and promises to become a power in its state and neighboring ones.

BIRD BANDING DEPARTMENT

Under the Direction of Wm. I. Lyon, Waukegan, Ill.

GULL AND TERN BANDING CAMPAIGN

The Inland Bird Banding Association is promoting a wholesale, co-operative banding scheme to work on the colony birds in their breeding districts. The main efforts will be directed towards the nesting colonies of the Great Lakes, but it is the desire of the Association to include any others that are reported. Efforts have been made to compile a list of such breeding sites as have been reported up to date, and we hope if any of our readers know of other sites, that they will notify us at once, so we will have a very complete list before we begin operations.

Many volunteers will be needed to do the banding, and those willing to help should write at once to W. I. Lyon, Sec. Inland Bird Banding Association, Waukegan, Illinois, stating any preference that they may have for locations in which to work. We hope to allot the breeding sites so there can be no duplication of efforts or loss of time. We will need plenty of time to arrange, where necessary, for the proper permits to be issued to the volunteers. There are some groups of islands that have been worked in the past year and we expect these persons will take charge of the banding in the same districts during this year and guide the work of other volunteers. Look the printed list over very carefully and see if you can suggest any site that has been overlooked.

The following is a list of breeding points that have been occupied by Gulls or Terns.

Lake Michigan

Beaver Island Group—Squall Island, Gull Island, Hat Island, Mire Island, Whiskey Island, Trout Island.

Green Bay—Hat Island, Strawberry Island, Sister Islands, Gravel Island, Gull Island.

Traverse Bay (near mouth of Crooked River)—Fisherman's Island, Gravel Island, Garden Island.

Black Terns nest in marshes and inland lakes in numerous places around the shores of Lake Michigan.

Soo River

Numerous small colonies along the Soo River between Lake Superior and Lake Huron.

Lake of the Woods, Canada

Lake Superior

Gull Island, Huron Island, Caribou Islands, Grand Portland Island, Grand Island, Isle Royal, Two Islands, Gull Rock, Washington Island.

Lake Huron

Georgian Bay—Three Islands in Pike Bay, Cabot Shoals, Limestone Islands, Colonies along the DeTour Passage, Squaw Islands, East Twin Islands, Munosknong Islands.

Islands in Thunder Bay, Islands in Saginaw Bay.

Lake Erie

Middle, Starve, Chicken group, North Harbor, Rattlesnake and others.

NOTE.—We are unable to give exact locations because much of the information has not been received up to date. If anyone knows of any site that was formerly used, we will appreciate it if they will send in definite information as soon as possible.

BANDING GULLS IN LAKE MICHIGAN

The migration of the various members of the group *Longipennes*, or Gulls and Terns, presents one of the most interesting phases of a fascinating subject. Strength is given this assertion by recalling that the only banded birds that have thus far been known to cross the Atlantic Ocean have been members of this group. The two black-headed gulls, *Larus ridibundus*, banded at the German station of Rositten on the Baltic Sea, and recovered from the island of Barbados and the Bay of Campeche, near Vera Cruz, Mexico,[1] and the common tern, *Sterna hirundo*, banded on the coast of Maine and four years later found floating in the delta of the Niger River, British West Africa,[2] afford data indicative of the great value of banding in elucidating the remarkable journeyings of these birds. The breeding colonies of American gulls and terns should accordingly be given intensive treatment by bird banding advocates.

In July, 1922, Mr. W. S. McCrea of Chicago, Illinois, banded 80 herring gulls at colonies in the northern part of Lake Michigan. Three returns from these birds have already been received. Number 202237 was captured at Ennis, Texas, on November 30, 1922; number 202248 was caught in an injured condition at Brunswick, Georgia, on January 12, 1923, and number 202213 was found dead on January 18, 1923, one mile northwest of Wickliffe, Kentucky. All were banded as juveniles on July 16, 1922. These data become doubly interesting when it is remembered that herring gulls remain in winter as far north as the latitude where these birds were hatched, while at the same time, the species occurs over most of the northern hemisphere ranging south in Europe and America to the Mediterranean Sea and the Gulf of Mexico.

The unique character of these returns, scattered as they are to points that are wide apart prompted the belief that by systematically working the colonies in that region, a much larger total of banded birds might be secured with a proportionate increase in the number of returns. Accordingly, through the generous coöperation of Mr. McCrea the writer had the privilege of visiting this group of islands known collectively as "the Beavers", and of banding the young gulls and Caspian terns at the colonies in that vicinity.

I arrived at St. James, Michigan, on Beaver Island (the largest of the group) on July 20, 1923, covering the thirty-three miles of lake between St. James and the beautiful town of Charlevoix on the steamer "Bruce," a 75-foot steamboat that makes daily runs to the island. The town of St. James, which was my headquarters for the next ten days, is now a combination of "fish town" and summer resort, although a few

[1] Lucanus, Friedrich von. Die Ratzel des Vogelzuges, 1922, p. 31.

[2] Lincoln, Frederick C., American Common Tern Recovered in West Africa, The Auk, vol. 38, 1921, pp. 453-454.

years ago, the scene of important lumbering operations. At distances of from two or three to twenty miles to the east, north and west are other islands varying in extent from an acre or less to a mile or more in diameter. These are the sites of the gull and tern colonies, some being particularly favored whilst others are singularly neglected.

Mr. McCrea had made all preparations for a series of cruises; and we began activities on the morning of the 22nd when we left St. James harbor in the motor boat "Anna F", piloted by Mr. Joseph Floyd, for Hat Island, 12 miles distant. The character of this island is similar to most of the others—a wide but steep beach of sand, gravel and limestone boulders, with a central crown of trees and underbrush. Shrubs, mostly a dogwood, *Cornus asperifolia*, dot the beach affording shelter for the young gulls. A colony of about 500 pairs was found at this point with the young well grown. In fact, there were few that were less than one-half fledged, the majority being almost as large as the adults, which at our approach circled overhead, screaming incessantly, while the bulk of the youngsters took fearlessly to the lake. Despite the ability of the adult birds to rest easily on the waves, their plumage resisting a drenching, the feathers of the young birds apparently do not possess this quality as they soon became water logged and many returned to the shore, thoroughly soaked. Such of these as were collected, together with those found hiding in the underbrush, were banded, giving a day's total of 169. Our departure was somewhat hurried as it was evident that while we were present the adult birds would keep the young out in the lake as much as possible, and it was equally evident that it was highly desirable that they be allowed to return and dry out. The youngsters found hiding never made any attempt to escape when discovered, although biting savagely when handled, the sharp edges of their mandibles being capable of inflicting severe cuts.

Nearby, on Little Hat Island, was a colony of Caspian Terns, that we decided to leave until another day.

The next island visited was Ant Island or Mire Island, an islet not over an acre in extent with a correspondingly small colony of gulls. Not over 100 pairs had nested here, but they evidently started earlier, as most of the young were already on the wing, and only 20 were secured to band. After leaving this island a stop was made at a long low-lying bank of gravel and boulders, locally known as "Stony Reef" where we were surprised to find a colony of about 150 pairs of common terns, *Sterna hirundo*. The eggs were just hatching, but a few small chicks were found. As I did not have bands small enough for such birds, it was arranged that Mr. McCrea should make a later trip to this point for the purpose of marking the chicks.[1]

[1] On August 7, 1923, Mr. McCrea again visited this reef and banded 100 young birds, assisted by his brother, Mr. S. Harkness McCrea, of Darien, Conn.

In this connection mention should also be made of the recent work of Walter E. Hastings, who visited a large colony of common terns in Saginaw Bay, Lake Huron, and marked 500 young in a single day. Mr. Hastings had planned to be with me at St. James, but was deterred by personal affairs.

On the 25th an early start was made for Gull Island, 20 miles to the west where is located the largest colony of herring gulls in the neighborhood. Our party numbered seven, Mrs. McCrea and two other members of the family volunteering to assist, while Mr. Floyd secured the services of Mr. John Cross to help with the boat.

Gull Island is heavily timbered at the southern end but the northern half contains a long valley or pocket, covered only with shrubs and ground vegetation and it was here that the birds had nested. We estimated the colony to total 1,000 pairs but other estimates ran considerably higher. Work at this point was practically continuous during the time that we were present. I established a headquarters, with racks of bands, pliers and camera, while the others began to round up and bring in the birds. At times this progressed so rapidly that I was unable to keep up, and would be obliged to retain a few of my assistants as guards to prevent the collected youngsters from making sudden dashes for liberty. The ground vegetation in the area occupied by this colony consisted very largely of poison ivy that attained an average height of 12 to 15 inches. This provided excellent cover that the youngsters seemed to appreciate fully, and it was necessary literally to comb the ground in order to locate the hiding birds. After being banded and released the birds would take to their heels with such an air of injured dignity that we were many times convulsed with laughter. The net result of the day's activities was 259 birds banded, which is, I believe, a record for a single operator with the adjustable lock bands, although I had most able assistance and was kept well supplied with birds.

Little Hat Island was visited on the 26th and we had the pleasure of working in a colony of Caspian terns that numbered 1,000 to 1,200 individuals. As the islet was little more than a long, narrow bar, it was difficult to keep the young terns rounded up, and we had to resort to the small boat and a dip net. However, we were surprised to find that the young terns did not get wet as quickly as the young gulls, and they seemed to have no difficulty in swimming long distances. Two hundred were banded with number six bands.

Leaving this colony we stopped at Hat Island to ascertain how thoroughly our work was done on the 22nd. Only 8 or 10 unbanded young were found, while we picked up half a dozen dead banded youngsters that had evidently been killed by a small colony of crows, residing on the island. This so incensed Mr. McCrea that he later employed a professional crow hunter to exterminate them on that island. Recent reports indicate that this has been done in a thorough manner. While at Hat Island on this date a southwester came up the lake and the trip back to the harbor at St. James was replete with thrills.

The storm continued for two days, but the work was practically done so it caused us only slight inconvenience. On the 29th we left early, in order to visit other islands where gulls had been reported, but not known to breed. The waves were still running high and suitable anchorages difficult to find, but by skillful work of Mr. Floyd, we were enabled to make a reconaissance of Whiskey and Trout Islands. At the

former a small colony of gulls had evidently nested, but practically all of the young were on the wing and a careful search yielded only one bird for banding.

Since writing the above account of the expedition, many returns have been received, from both the herring gulls and the Caspian terns. These indicate an entirely different dispersal from that shown by the returns in 1922. This material will form the subject of another paper now in course of preparation. The most noteworthy return is that of Caspian tern number 224117, banded on July 26, 1923, and killed on November 25, 1923 in the vicinity of Bocas de Ceniza, mouth of the Magdalena River, Republic of Columbia.

Frederick C. Lincoln.

Biological Survey, Washington, D. C.

FIVE HUNDRED COMMON TERNS BANDED

Lying about half way up Saginaw Bay and about six miles off the east Shore, is little Lone Tree Island. One of the largest and most remarkable colonies of Common Terns that inhabit any of the islands of the Great Lakes, nest here each season. This island has been used for a great many years by the Terns, and it is not an unusual thing to count as many as two thousand nests at the height of the breeding season.

On August 4, 1923, with a party of friends, I visited this island for the purpose of banding some of the young Terns. We met with fine success and banded five hundred young birds in about three hours. Nothing but birds that were nearly ready to fly were banded, as we were afraid of injuring the smaller ones. We could easily have used twice as many bands had we had them with us.

This species of birds is being accused of doing a great deal of damage to the commercial fishing and some of the fisherman do not hesitate to make this known. I honestly believe that this is mostly imaginary and that the damage does not amount to much. At one time I watched hundreds of these birds feeding, and found that they were taking fish of no food value whatsoever, and also taking a great quantity of insects; and at another time, I saw a great many Terns feeding on cadis flies, with which the water was covered. I am afraid that the commercial fisherman are too willing to lay the blame for the decrease in fish at the feet of some one or something else, and not willing to shoulder the blame for which they, themselves, are responsible.

Bird Banding is certainly very interesting and instructive and I heartily recommend it. I am planning to do a great deal of it the coming season, and will try and cover the islands of Lake Huron and see that a great many of the Gulls and Terns are banded.

Walter E. Hastings.

South Lyon, Mich.

AN OPPORTUNITY TO BAND FRANKLIN GULLS

Prof. Wm. Rowan, University of Alberta, Edmonton, Alberta, Canada, reports: "I have rented the ground on which I hope soon to do some Banding work. It will thus be available for extensive operations. It includes a colony of Franklin Gulls numbering twenty thousand breeding birds, a colony of Eared Grebes running to some five thousand individuals, with ten or fifteen other species breeding on the same ground. On it we recorded 31 species of waders in ten days on a mile of mudflat, constituting an American record as far as I can gather, and possibly even a world's record. This was on the spring migration. We are not quite so well favoured in the fall. Methods of trapping and ringing waders have always appealed to me, as they strike me as being the richest field for returns of a useful sort."

REPORTS OF CO-OPERATORS FOR PERIOD OF 1923

R. H. Dean, Anniston, Alabama, reports total banded 2, as follows: One Carolina Wren, and 1 Bluebird.

Mrs. Benjamin Bachrach, Decatur, Illinois, reports total banded 2, as follows: One Junco, and 1 Oven-bird.

Mrs. Lotta A. Cleveland, Downer's Grove, Illinois, reports total banded 14, as follows: One Screech Owl, 3 Downy Woodpeckers, 1 Red-headed Woodpecker, 4 Blue Jays, 1 Brown Creeper, 1 White-breasted Nuthatch, 2 Red-breasted Nuthatches, and 1 Robin. She also destroyed 15 English Sparrows.

Dr. H. H. Hayes, Hubbard Woods, Illinois, reports total banded 53, as follows: Two Cowbirds, 24 White-throated Sparrows, 5 Juncos, 9 Song Sparrows, 6 Towhees, 1 Catbird, and 6 Robins.

Robert L. Jackson, Ohio, Illinois, reports total banded 88, as follows: One Black-crowned Night Heron, 3 Screech Owls, 4 Mourning Doves, 2 Red-headed Woodpeckers, 3 Northern Flickers, 1 Blue Jay, 8 American Crows, 33 Bronzed Grackles, 1 Boat-tailed Grackle, 1 Vesper Sparrow, 1 Chimney Swift, 13 Purple Martins, 7 House Wrens, 5 Robins, and 5 Bluebirds.

Wm. I. Lyon, Waukegan, Illinois, reports total banded 1602, as follows: One Herring Gull, 5 Spotted Sandpipers, 2 Killdeer, 4 Mourning Doves, 2 Marsh Hawks, 1 Black-billed Cuckoo, 9 Downy Woodpeckers, 9 Yellow-bellied Sapsuckers, 2 Flickers, 20 Blue Jays, 1 Crow, 40 Cowbirds, 7 Red-winged Blackbirds, 31 Bronzed Grackles, 57 Purple Finches, 1 Cross-bill, 1 Goldfinch, 15 White-crowned Sparrows, 346 White-throated Sparrows, 164 Tree Sparrows, 4 Field Sparrows, 245 Juncos, 84 Song Sparrows, 19 Lincoln Sparrows, 4 Swamp Sparrows, 44 Fox Sparrows, 13 Towhees, 1 Cardinal, 6 Indigo Buntings, 12 Barn Swallows, 200 Cedar Waxwings, 1 Northern Shrike, 3 Black and White Warblers, 1 Tennessee Warbler, 13 Myrtle Warblers, 4 Pine Warblers, 11 Oven-birds, 3 Water-Thrushes, 1 Mourning Warbler, 1 Redstart, 25 Catbirds, 14 Brown Thrashers, 40 House Wrens, 92 Brown Creepers, 2 White-breasted Nuthatches, 2 Tufted Titmice, 2 Chickadees, 4 Gray-cheeked Thrush, 3 Olive-

backed Thrush, 19 Hermit Thrush, 43 Robins, and 7 Bluebirds. He also destroyed 193 English Sparrows.

Ruth H. Martin, Canton, Illinois, reports total banded 32, as follows: One Mourning Dove, 1 Baltimore Oriole, 1 White-throated Sparrow, 4 Tree Sparrows, 10 Juncos, 3 Song Sparrows, 1 Fox Sparrow, 2 Rose-breasted Grosbeaks, 3 Catbirds, 1 Brown Thrasher, and 5 House Wrens.

George Roberts, Lake Forest, Illinois, reports total banded 128, as follows: Two Mourning Doves, 1 Downy Woodpecker, 3 Red-headed Woodpeckers, 17 Blue Jays, 3 Cowbirds, 9 Bronzed Grackles, 17 Purple Finches, 23 White-throated Sparrows, 13 Juncos, 1 Song Sparrow, 3 Cardinals, 23 Rose-breasted Grosbeak, 5 Catbirds, 2 House Wrens, 1 White-breasted Nuthatch, 1 Wood Thrush, 1 Gray-cheeked Thrush, and 3 Robins.

Mary B. Schumacher, Chicago, Illinois, reports total banded 2, as follows: One Fox Sparrow, and 1 Robin.

Dr. J. P. Sprague, Evanston, Illinois, reports total banded 12, as follows: Five Barn Swallows, 3 Red-eyed Vireos, 1 Pine Warbler, and 3 Robins.

W. B. Taber, Kansas, Illinois, reports total banded 107, as follows: Five Quail, 52 Mourning Doves, 1 Sparrow Hawk, 2 Downy Woodpeckers, 5 Red-headed Woodpeckers, 4 Red-bellied Woodpeckers, 4 Blue Jays, 3 Baltimore Orioles, 2 White-throated Sparrows, 1 Junco, 1 Song Sparrow, 4 Brown Thrashers, 16 House Wrens, 1 Carolina Chickadee, and 6 Robins.

Dr. F. C. Test, Chicago, Illinois, reports total banded 25, as follows: Three White-throated Sparrows, 4 Slate-colored Juncos, 1 Lincoln Sparrow, 3 Catbirds, 1 Brown Thrasher, 1 Wilson Thrush, 3 Gray-cheeked Thrushes, 2 Hermit Thrushes, and 7 Robins.

D. H. Boyd, Hobart, Indiana, reports total banded 33, as follows: Five Kingfiishers, 8 Red-winged Blackbirds, 5 White-crowned Sparrows, 5 Yellow Warblers, 1 Wood Thrush, and 9 Robins.

Mrs. R. H. Gardner, Columbus, Indiana, reports total banded 2, as follows: One Bewick's Wren, and 1 Song Sparrow. She also destroyed 68 English Sparrows.

James C. Garner, Russiaville, Indiana, reports total banded 15, as follows: One Screech Owl, 9 Juncos, 1 Cardinal, 2 White-breasted Nuthatches, and 2 Tufted Titmice.

Margaret R. Knox, Indianapolis, Indiana, reports total banded 27, as follows: One Mourning Dove, 2 Flickers, 4 Phœbes, 1 Red-winged Blackbird, 1 Grackle, 6 Cardinals, 6 Barn Swallows, and 6 Brown Thrashers.

Samuel E. Perkins III, Indianapolis, Indiana, reports total banded 195, as follows: Three Green Heron, 4 Killdeer, 25 Mourning Doves, 1 Barn Owl, 1 Red-headed Woodpecker, 15 Phœbe, 4 Red-winged Blackbirds, 1 Orchard Oriole, 13 Grackles, 3 Grasshopper Sparrows, 3 White-throated Sparrows, 5 Chipping Sparrows, 4 Field Sparrows, 4 Juncos, 3 Song Sparrows, 4 Towhees, 3 Cardinals, 2 Rose-breasted Grosbeak, 11 Cliff Swal-

low, 7 Barn Swallows, 11 Rough-winged Swallows, 1 Oven-bird, 9 Catbirds, 11 Brown Thrashers, 1 Water-Thrush, 1 Wood Thrush, 5 Olive-backed Thrushes, and 34 Robins.

Mrs. Georgia B. Thomas, Indianapolis, Indiana, reports total banded 14, as follows: Two Blue Jays, 4 Grackles, 6 House Wrens, and 2 Robins.

W. D. Baker, Nevinville, Iowa, reports total banded 14, as follows: One Mourning Dove, 2 Downy Woodpeckers, 1 Red-bellied Woodpecker, 2 Juncos, 1 Catbird, 2 White-breasted Nuthatches, 2 Tufted Titmice, and 3 Black-capped Chickadees.

Mrs. F. L. Battell, Ames, Iowa, reports total banded 32, as follows: One Florida Gallinule, 2 Screech Owls, 1 Meadowlark, 2 Grackles, 1 Harris Sparrow, 1 Junco, 5 Lincoln Sparrows, 1 Rose-breasted Grosbeak, 2 Loggerhead Shrikes, 4 Brown Thrashers, 10 House Wrens, and 2 Robins.

Jos. N. Beck, Remsen, Iowa, reports total banded 92, as follows: One Red-headed Woodpecker, 1 Northern Flicker, 5 Blue Jays, 3 Grackles, 1 Harris Sparrow, 11 White-throated Sparrows, 23 Juncos, 4 Barn Swallows, 1 Yellow Warbler, 7 Catbirds, 11 Brown Thrashers, 5 House Wrens, 4 White-breasted Nuthatches, 2 Chickadees, 5 Olive-backed Thrushes, and 8 Robins.

Burr W. Butler, Whitten, Iowa, reports total banded 15, as follows: One Downy Woodpecker, 1 Flicker, 11 Blue Jays, 1 Bronzed Grackle, and 1 Robin.

Allen A. Green, Oakville, Iowa, reports a total of 77 Mallard Ducks banded.

Kathleen M. Hempel, Elkader, Iowa, reports total banded 156, as follows: Four Hairy Woodpeckers, 8 Downy Woodpeckers, 3 Red-headed Woodpeckers, 3 Flickers, 2 Nighthawks, 32 Blue Jays, 1 Red-winged Blackbird, 6 Baltimore Orioles, 19 Bronzed Grackles, 1 Cardinal, 1 Rose-breasted Grosbeak, 3 Purple Martins, 1 Maryland Yellow-throat, 10 Catbirds, 4 Brown Thrashers, 12 House Wrens, 9 White-breasted Nuthatches, 1 Red-breasted Nuthatch, 13 Chickadees, and 23 Robins.

W. W. Hollister, Clear Lake, Iowa, reports total banded 33, as follows: Two Mourning Doves, 1 Flicker, 8 Bronzed Grackles, 2 Rose-breasted Grosbeaks, 2 Catbirds, 7 House Wrens, and 11 Robins.

Prof. H. E. Jaques, Mt. Pleasant, Iowa, reports total banded 73, as follows: Five Mourning Doves, 2 Red-headed Woodpeckers, 2 Flickers, 3 Kingbirds, 1 Meadowlark, 1 Bronzed Grackle, 1 Rose-breasted Grosbeak, 7 Purple Martins, 3 Brown Thrashers, 26 House Wrens, 4 Blue-gray Gnatcatchers, and 18 Robins.

Prof. Dayton Stoner, Iowa City, Iowa, reports total banded 283, as follows: One American Merganser, 4 Mourning Doves, 1 Belted Kingfisher, 4 Hairy Woodpeckers, 4 Red-headed Woodpeckers, 11 Northern Flickers, 11 Kingbirds, 3 Arkansas Kingbirds, 4 Phœbe, 5 Blue Jays, 6 Red-winged Blackbirds, 1 Rusty Blackbird, 16 Bronzed Grackles, 76 Bank Swallows, 17 Yellow Warblers, 23 Catbirds, 33 Brown Thrashers, 43 House Wrens, 19 Robins, and 8 Bluebirds.

Lem W. Laird, Harper, Kansas, reports total banded 24, as follows:

One Mourning Dove, 3 Rough-legged Hawks, 2 Red-shouldered Hawks, 1 Burrowing Owl, 2 Brewer Blackbirds, 1 Screech Owl, 6 Flickers, 2 Kingbirds, 1 Blue Jay, 1 Orchard Oriole, and 4 Pheasants.

N. J. Williams, Arnolds Park, Iowa, reports having banded one Mourning Warbler.

W. F. Vaniman, McPherson, Kansas, reports total banded 49. While at Palmer Lake, Colorado, he banded 29, as follows: One Spotted Sandpiper, 5 Say's Phœbe, 2 Magpies, 1 Cowbird, 4 Chipping Sparrows, 2 Warbling Vireos, 1 MacGillivray's Warbler, 1 Maryland Yellow-throat, 3 Dippers, 6 Robins, and 3 Mountain Bluebirds. While at McPherson, Kansas, he banded 20, as follows: One Mourning Dove, 1 Red-headed Woodpecker, 3 Flickers, 2 Blue Jays, 1 Orchard Oriole, 1 Baltimore Oriole, 3 Cardinals, 5 Catbirds, 2 Brown Thrashers, and 1 Robin.

Dr. K. Christofferson, Sault Ste. Marie, Michigan, reports total banded 19, as follows: Three Common Terns, 2 Herring Gulls, 1 Spotted Sandpiper, 1 Killdeer, 1 Saw-whet Owl, 3 Red-winged Blackbirds, 1 Junco, 1 Song Sparrow, 1 Myrtle Warbler, 1 Winter Wren, 1 Brown Creeper, 1 Red-breasted Nuthatch, and 2 Robins.

Mrs. Clark H. Gleason, Grand Rapids, Michigan, reports total banded 11, as follows: Ten White-throated Sparrows, and 1 White-breasted Nuthatch.

Frederick Herman, Laurium, Michigan, reports total banded 55, as follows: One Harris Sparrow, 3 White-throated Sparrows, 5 Chipping Sparrows, 5 Juncos, 37 Song Sparrows, 2 Swamp Sparrows, 1 Fox Sparrow, and 1 House Wren.

Geo. W. Luther, DeTour, Michigan, reports total banded 21, as follows: Six Herring Gulls and 15 Common Terns.

M. J. Magee, Sault Ste. Marie, Michigan, reports total banded 1297, as follows: One Black Tern, 2 Black Duck, 59 Evening Grosbeaks, 1092 Purple Finches, 2 Goldfinches, 2 Savannah Sparrows, 9 White-crowned Sparrows, 38 White-throated Sparrows, 7 Chipping Sparrows, 11 Juncos, 27 Song Sparrows, 2 Lincoln's Sparrows, 1 Fox Sparrow, 1 Scarlet Tanager, 1 Tennessee Warbler, 1 Yellow Warbler, 6 Myrtle Warblers, 3 Catbirds, 4 House Wrens, 1 White-breasted Nuthatch, and 27 Robins. He also destroyed 588 English Sparrows.

Michigan Agricultural College, East Lansing, Michigan, reports total banded 42. Report by J. W. Stack, Assistant Professor of Zoölogy, as follows: Fifteen Quails, 1 Blue Jay, 1 White-throated Sparrow, 1 Field Sparrow, 23 Juncos, and 1 Song Sparrow.

J. Van Tyne, Cambridge, Massachusetts, formerly of Ann Arbor, Michigan, reports total banded 40, as follows: One Upland Plover, 1 Killdeer, 1 Downy Woodpecker, 4 Kingbirds, 4 Phœbes, 1 Blue Jay, 1 Cowbird, 8 Red-winged Blackbirds, 5 Bronzed Grackles, 2 House Wrens, 5 White-breasted Nuthatches, 6 Robins, and 1 Bluebird.

Neil C. Giere, Northfield, Minnesota, reports total banded 35, as follows: One Baltimore Oriole, 5 Blue Jays, 14 Grackles, 1 Catbird, and 14 Robins.

May Rice, Canton, Minnesota, reports total banded 12, as follows: One Red-headed Woodpecker, 1 Cowbird, 2 White-throated Sparrows, 3 Catbirds, and 5 Robins.

Prof. Thomas S. Roberts, Zoölogical Museum, University of Minnesota, Minneapolis, Minnesota, reports having banded one Chimney Swift.

Lawrence Zeleny, Minneapolis, Minnesota, reports total banded 8, as follows: Two Baltimore Orioles, 1 Junco, 1 Song Sparrow, 2 Catbirds, and 2 Brown Thrashers.

Frank L. Bischof, Rockport, Missouri, reports total banded 21, as follows: Three Flickers, 6 Blue Jays, 6 Catbirds, 1 Tufted Titmouse, and 5 Chickadees.

Johnson A. Neff, Marionville, Missouri, reports total banded 360, as follows: One Sora Rail, 4 Bob-whites, 5 Screech Owls, 51 Mourning Doves, 2 Yellow-billed Cuckoos, 2 Downy Woodpeckers, 2 Red-headed Woodpeckers, 10 Crested Flycatchers, 6 Least Flycatchers, 11 Blue Jays, 2 Cowbirds, 10 Meadowlarks, 1 Orchard Oriole, 17 Goldfinches, 2 Lark Sparrows, 4 White-throated Sparrows, 9 Chipping Sparrows, 18 Field Sparrows, 8 Lincoln Sparrows, 6 Towhees, 4 Cardinals, 4 Blue Grosbeaks, 3 Dickcissels, 12 Migrant Shrikes, 8 Mockingbirds, 17 Catbirds, 53 Brown Thrashers, 22 Bewick's Wrens, 2 White-breasted Nuthatches, 2 Tufted Titmice, 27 Robins, and 35 Bluebirds.

Rev. John A. Brady, Lakewood, Ohio, reports total banded 4, as follows: 1 Blue Jay, 1 Veery, 2 Brown Creepers.

H. H. Hipple, Delaware, Ohio, reports total banded 4, as follows: One Mourning Dove, 1 Flicker, 1 Blue Jay, and 1 Robin.

S. Chas. Kendeigh, Oberlin, Ohio, reports total banded 4, as follows: 2 Downy Woodpeckers, and 2 White-breasted Nuthatches. He also destroyed 77 English Sparrows.

Mrs. E. F. Chilcott, Woodward, Oklahoma, reports total banded 34, as follows: Twenty-eight Mockingbirds, 3 Lark Sparrows, 1 Baltimore Oriole, 2 Brown Thrasher. She also destroyed 115 English Sparrows.

Edwin C. Anderson, Dell Rapids, South Dakota, reports total banded 87, as follows: Two Mourning Doves, 6 Northern Flickers, 3 Kingbirds, 4 Arkansas Kingbirds, 1 Bronzed Grackle, 22 Barn Swallows, 3 Yellow Warblers, 15 Catbirds, 2 Brown Thrashers, 9 House Wrens, 7 Chickadees, and 13 Robins.

Dr. H. M. Halverson, Yankton, South Dakota, reports total banded 65, as follows: One Mourning Dove, 1 Black-billed Cuckoo, 4 Kingbirds, 2 Arkansas Kingbirds, 4 Phoebes, 1 Orchard Oriole, 1 Bronzed Grackle, 20 Barn Swallows, 9 Bank Swallows, 3 Yellow Warblers, 3 Brown Thrashers, 12 House Wrens, and 4 Robins.

W. B. Mallory, Lennox, South Dakota, reports total banded 86, as follows: One Mallard, 10 Flickers, 1 Crow, 1 Cowbird, 3 Western Meadowlarks, 12 Harris Sparrows, 1 White-crowned Sparrow, 19 White-throated Sparrows, 5 Juncos, 2 Song Sparrows, 4 Lincoln Sparrows, 1 Cedar Waxwing, 1 Black Poll, 1 Catbird, 6 Brown Thrashers, 12 House Wrens, and 6 Robins.

Wyman R. Green, Chattanooga, Tennessee, reports total banded 8, as follows: Four Blue Jays, and 4 Brown Thrashers.

R. D. Camp, Brownsville, Texas, reports total banded 643, as follows: Five Laughing Gulls, 14 Gull-billed Terns, 30 Caspian Terns, 17 Royal Terns, 12 Cabot's Terns, 14 Forester's Terns, 3 Least Terns, 1 Water Turkey, 125 Mexican Cormorants, 16 Brown Pelicans, 4 White Ibis, 25 Great White Heron, 86 Ward's Herons, 5 Egrets, 88 Reddish Egrets, 140 Louisiana Herons, 21 Black-crowned Night Herons, 5 Mourning-Doves, 2 Mexican Ground Doves, 3 Dwarf Cowbirds, 22 Red-winged Blackbirds, 2 Great-tailed Grackles, 3 Curved-billed Thrashers.

Dr. Leon J. Cole, Washington, D. C., formerly Madison, Wisconsin, reports total banded 7, as follows: One Chimney Swift, and 6 Flickers.

Mrs. Fred L. Hook, South Milwaukee, Wisconsin, reports total banded 11, as follows: Six Blue Jays, and five Bronzed Grackles.

George F. Fisher, State Line, Wisconsin, reports total banded 744, as follows: One Loon, 1 Merganser, 1 Hairy Woodpecker, 1 Downy Woodpecker, 1 Phœbe, 1 Canada Jay, 3 Red-winged Blackbirds, 8 Grackles, 575 Red and Common Crossbills, 14 White-winged Crossbills, 4 Goldfinches, 105 Pine Siskins, 1 Song Sparrow, and 4 Chickadees.

Frederick C. Meyer, Racine, Wisconsin, reports total banded 2, as follows: Two Robins.

Irving J. Perkins, Oconomowoc, Wisconsin, reports total banded 67, as follows: Three Least Bittern, 4 Green Heron, 2 Mourning Doves, 1 Cowbird, 2 Red-winged Blackbirds, 4 Swamp Sparrows, 4 Barn Swallows, 40 Bank Swallows, 2 Catbirds, 3 Robins, and 2 Bluebirds.

Fred Ramsland, River Falls, Wisconsin, reports total banded 4, as follows: One Junco, 1 Swallow, and 2 Robins.

A. W. Schorger, Madison, Wisconsin, reports total banded 3, as follows. Three young Catbirds.

Rev. O. W. Smith, Evansville, Wisconsin, reports total banded 19, as follows: Four Flickers, 2 Juncos, 3 Song Sparrows, 4 Yellow Warblers, and 6 Brown Thrashers.

Clyde B. Terrill, Oshkosh, Wisconsin, reports having banded a Shoveller Duck.

Mrs. Ethel M. Towns, Milwaukee, Wisconsin, reports total banded 101, as follows: Three Red-headed Woodpeckers, 1 Flicker, 6 Phœbe, 1 Blue Jay, 5 Grackles, 1 Savannah Sparrow, 18 White-throated Sparrows, 1 Oven-bird, 5 Catbirds, 1 Brown Thrasher, 20 House Wrens, 4 Chickadees, and 15 Robins.

Harold C. Wilson, Ephraim, Wisconsin, reports total banded 22, as follows: One Killdeer, 1 Mourning Dove, 3 Chimney Swifts, 2 Chipping Sparrows, 2 Song Sparrows, 1 Cliff Swallow, 1 Red-eyed Vireo, 2 House Wrens, and 9 Robins.

K. Grant McDougal, East Kildonan, Manitoba, Canada, reports total banded 129, as follows: Two Purple Finches, 3 Savannah Sparrows, 13 Harris Sparrows, 40 White-throated Sparrows, 2 Tree Sparrows, 48

Juncos, 5 Song Sparrows, 1 Lincoln Sparrow, 4 Fox Sparrows, 1 Myrtle Warbler, 7 Catbirds, 1 Brown Thrasher, and 2 Olive-backed Thrushes.

The following coöperators reported their totals to August 1st, only:

A. L. Hamner, Auburn, Alabama, reports total banded 59, as follows: Two White-throated Sparrows, 53 Chipping Sparrows, 1 Field Sparrow, 1 Song Sparrow, 2 Brown Thrashers.

W. S. McCrea, Chicago, Illinois, has a summer home on Beaver Island, in the northern part of Lake Michigan. He was joined by F. C. Lincoln and together they banded 454 Herring Gulls and 200 Caspian Terns. On a subsequent trip with his brother, S. H. McCrea, a Darien, Connecticut Bird Bander, they banded 99 Common Terns and 1 Least Sandpiper, making a total of 753 birds banded.

Dr. Earl Brooks, Noblesville, Indiana, reports total banded 113, as follows: Two Mourning Doves, 2 Phœbes, 2 Blue Jays, 16 Bronzed Grackles, 5 Baltimore Orioles, 2 Chipping Sparrows, 6 White-crowned Sparrows, 19 White-throated Sparrows, 3 Song Sparrows, 19 Cardinals, 5 Purple Martins, 3 Maryland Yellow-throats, 13 Catbirds, 6 House Wrens, 10 Robins.

Mr. Elliot R. Tibbets, Indianapolis, Indiana, used his vacation to promote Bird Banding at Burt Lake, Michigan, just south of the Straits of Mackinac, by giving a talk on Bird Banding in a local church. He banded a total of 37 from January 1 to August 1. The list follows: Five Kingbirds, 9 Phœbes, 1 Chipping Sparrow, 3 House Wrens, 5 Hermit Thrushes, 5 Robins. While in Indiana he banded 2 Phœbes, 4 Chipping Sparrows, 2 Rose-breasted Grosbeaks, 1 Bank Swallow.

W. B. Van Gorder, Albion, Indiana, reports total banded 48 as follows: One Downy Woodpecker, 3 Blue Jays, 9 Grackles, 2 Baltimore Orioles, 26 House Wrens, 2 White-breasted Nuthatches, 1 Gray-cheeked Thrush, 4 Robins.

Mrs. R. C. Flannigan, Norway, Michigan, reports total banded 33, as follows: Eight Bronzed Grackles, 2 Chimney Swifts, 8 Phœbes, 3 Bohemian Waxwings, 1 House Wren, 11 Robins.

Bert S. Gregg, Belding, Mich., reports total banded 10, as follows: One Oriole, 4 Martins, 3 House Wrens, 1 Bluebird. A Brown Thrasher was also banded.

Arthur D. Moore, South Haven, Mich., reports total banded 166, as follows: Four Mourning Doves, 2 Hairy Woodpeckers, 3 Downy Woodpeckers, 4 Flickers, 5 Blue Jays, 54 Bronzed Grackles, 23 White-throated Sparrows, 14 State-colored Juncos, 5 Song Sparrows, 2 Cardinals, 28 Cedar Waxwings, 1 Carolina Wren, 2 White-breasted Nuthatches, 13 Hermit Thrushes, 6 Robins.

F. W. Rapp, Vicksburg, Michigan, reports total banded 67, as follows: One Downy Woodpecker, 1 White-breasted Nuthatch, 1 Screech Owl, 1 Chipping Sparrow, 8 American Robins, 1 American Bittern, 54 Purple Martins.

A. S. Warthin, Jr., Boyne Falls, Michigan, reports total banded 66, as follows: Six Killdeer, 11 Blue Jays, 3 Red-winged Blackbirds, 1 Grackle, 7 Tree Swallows, 10 Oven-birds, 5 House Wrens, 9 Meadowlarks, 4 White-throated Sparrows, 8 Chickadees, 2 Robins.

Lester R. Badger, Minneapolis, Minnesota, reports total banded 25, as follows: Two Mourning Doves, 1 Red-headed Woodpecker, 1 Baltimore Oriole, 2 Chipping Sparrows, 3 Cardinals, 1 Bank Swallow, 2 Yellow Warblers, 13 Catbirds.

Frank W. Commons, Minneapolis, Minnesota, reports total banded 266, as follows: One Mourning Dove, 1 Yellow-billed Cuckoo, 2 Phœbes, 1 Blue Jay, 6 Cowbirds, 17 Red-winged Blackbirds, 1 Baltimore Oriole, 12 Evening Grosbeaks, 1 Harris Sparrow, 19 White-throated Sparrows, 9 Rose-breasted Grosbeaks, 5 Bank Swallows, 15 Yellow Warblers, 1 Oven-bird, 69 Catbirds, 46 House Wrens, 22 Robins.

Herman Fels, Jr., Monticello, Minnesota, reports total banded 3, as follows: Two Mourning Doves, and 1 Mallard.

Carolyn Jensen, Northome, Minnesota, reports total banded 136, as follows: One Red-headed Woodpecker, 1 Mourning Dove, 1 Phœbe, 2 Least Flycatchers, 56 Red-winged Blackbirds, 1 Grackle, 1 Baltimore Oriole, 2 White-throated Sparrows, 1 Chipping Sparrow, 17 Song Sparrows, 5 Barn Swallows, 2 Yellow Warblers, 17 Catbirds, 3 House Wrens, 19 Robins, 7 Bluebirds.

Mary B. Salmon, Tarkio, Mo., reports banding 4 Robins.

Roy H. Smith, Kent, Ohio, reports total banded 70, as follows: Two Red-headed Woodpeckers, 2 Blue Jays, 25 Grackles, 8 Chipping Sparrows, 3 Song Sparrows, 1 Purple Martin, 2 Rose-breasted Grosbeaks, 2 Catbirds, 1 House Wren, 2 White-breasted Nuthatches, 22 Robins.

Adrian H. Tebbs, Harrison, Ohio, received his banding permit in July and has banded 2 Robins, 2 Grackles, and 4 Purple Martins. He has had a second glimpse of one of his Martins, which he saw sitting on a wire one day.

Walter G. Gerth, Wolsey, South Dakota, reports total banded 13, as follows: One Sora, 1 Northern Flicker, 1 House Wren, 10 Lapland Longspurs.

J. F. McGee of Mercer, Tennessee, reports total banded 19, as follows: Two Herring Gulls, 1 Royal Tern, 1 Cabot Tern, 2 Laughing Gulls, 1 White Pelican, 1 Quail, 2 Mourning Doves, 3 Flickers, 2 Blue Jays, 1 Cardinal, 2 Wood Thrushes, 1 Robin.

Mrs. E. J. Carley, Stevens Point, Wis., reports total banded 23, as follows: Two Blue Jays, 2 Baltimore Orioles, 14 Grackles, 5 Robins.

S. Paul Jones, Waukesha, Wisconsin, reports total banded 17, as follows: One Killdeer, 1 Red-headed Woodpecker, 6 Phœbes, 4 Cowbirds, 5 Long-billed Marsh Wrens.

Clarence S. Jung, Milwaukee, Wisconsin, reports total banded 103, as follows: Four Spotted Sandpipers, 1 Prairie Chicken, 9 Mourning Doves, 3 Kingbirds, 2 Crows, 4 Cowbirds, 6 Red-winged Blackbirds, 6

Grackles, 1 White-throated Sparrow, 48 Bank Swallows, 7 Catbirds, 8 Brown Thrashers, 4 Long-billed Marsh Wrens.

Mrs. Harry McLeod Lewis, South Milwaukee, Wisconsin, reports total banded 2, as follows: One Bronzed Grackle, and 1 Hermit Thrush.

Mrs. H. C. Miller and son, Clark C. Miller, Racine, Wisconsin, report total banded 124, as follows: One Florida Gallinule, 1 Chimney Swift, 1 Baltimore Oriole, 9 Grackles, 8 Juncos, 5 Lincoln Sparrows, 2 Swamp Sparrows, 12 White-throated Sparrows, 1 Purple Finch, 34 Cedar Waxwings, 1 Red-eyed Vireo, 2 Orange-crowned Warblers, 3 Oven-birds, 1 Mourning Warbler, 10 House Wrens, 1 Gray-cheeked Thrush, 1 Olive-backed Thrush, 4 Hermit Thrushes, 1 Brown Thrasher, 4 Catbirds, 22 Robins.

J. A. Laughlin, Marshall, Missouri, reports total banded 66: One Yellow-billed Cuckoo, 3 Red-headed Woodpeckers, 1 Flicker, 1 Chimney Swift, 17 Blue Jays, 1 Baltimore Oriole, 18 Grackles, 2 Juncos, 10 Cardinals, 2 Myrtle Warblers, 4 Catbirds, 5 Brown Thrashers, and 1 Robin.

Adolf L. Holm, Lundar, Manitoba, reports total banded 112, as follows: Seven Canvas-backed Ducks, 1 Sora Rail, 1 Killdeer, 2 Ruffed Grouse, 2 Marsh Hawks, 5 Flickers, 4 Kingbirds, 3 Red-winged Blackbirds, 10 Crows, 1 Cowbird, 2 White-throated Sparrows, 3 Juncos, 9 Barn Swallows, 13 Tree Swallows, 33 House Wrens, 6 Chickadees, and 4 Robins.

Arthur D. Moore, So. Haven Michigan, reports total banded 61, as follows: Four Mourning Doves, 38 Grackles, 11 White-throated Sparrows, 4 Cardinals, 3 Chickadees, and 1 Robin.

Herbert L. Stoddard, Milwaukee, Wis., reports total banded 314, as follows: One Bonaparte Gull, 1 Black Tern, 18 Semipalmated Sandpipers, 1 Sanderling, 3 Solitary Sandpipers, 31 Spotted Sandpipers, 1 Killdeer, 2 Semipalmated Plover, 12 Kingfishers, 4 Marsh Hawks, 10 Flickers, 1 Kingbird, 7 Cowbirds, 3 Yellow-headed Blackbirds, 19 Red-winged Blackbirds, 4 Goldfinches, 8 Barn Swallows, 4 Tree Swallows, 88 Bank Swallows, 2 Chipping Sparrows, 3 Song Sparrows, 1 Pipit, 3 Catbirds, 11 Long-billed Marsh Wrens, 73 Robins, and 3 Bluebirds.

INTERESTING EVENTS

Mrs. E. J. Carley, Stevens Point, Wisconsin, reports that she was successful in banding a partial Albino Robin, also that a Robin of very similar markings had been in their city for the two previous years.

Mrs. Lotta A. Cleveland, Downer's Grove, Illinois reports the following: "The first Red-breasted Nuthatch slipped out of my hand and flew against the window. When I picked it up I found it had lost all of its tail feathers except two. This happened on November 12, 1923. This bird repeated a number of times; on November 20, its new tail feathers were just barely visible. November 26, they measured about a quarter of an inch. December 16, they were just as long as the two feathers that had not been pulled out."

Mrs. Lotta A. Cleveland deserves much credit for ingenuity in constructing traps, having converted an old wire rat trap, gold fish aquar-

ium, and a corn popper into successful traps that actually caught birds.

Mr. W. B. Mallory, Lennox, South Dakota, reports the following: "The only special experience I had was with one Harris Sparrow which got in the trap four times in six days and I think was in once more in that time as one evening three escaped which had bands on before I looked at the numbers of the bands."

Dr. A. R. Shearer, Mont Belvieu, Texas, who is a prospective Bird Bander, reports the following: "Just four days ago I wrote you that I had never found a bird with a band. Yesterday evening a boy brought a male Mallard he had shot in the rice fields near here to show me a band on its leg. I removed the band, No. 205,195, and forwarded it to the Biological Survey."

George Roberts, Lake Forest, Illinois, has had some very interesting returns. They are as follows: "Rose breasted Grosbeak No. 49510 banded May 25, 1919, retaken May 2, 1923, also retaken May 4, 1923. Cowbird No. 13360 banded April 30, 1922, retaken April 18 and 21, 1923. Robin No. 16468 banded May 5, 1922, retaken April 15, 1923. Blue Jay No. 104567 banded July 17, 1922, retaken, (picked up, dead) August 1, 1923 about one half mile from my yard."

F. Dale Pontius, Columbus, Ohio, reports the following amusing incident: "The time of my first capture of a bird, I went over to the traps at dark. As I started to return, a policeman came up to me and wanted to know what I was doing over there at that time of night looking around with a flashlight. I was about scared to death at that experience for he slipped up on me unawares. I nearly had heart failure. He made me take him to my house to show him my permit. He thought that the explanation of my presence there was 'fishy,' I imagine. I have not since had any such experience as that."

Johnson A. Neff, Columbia, Missouri, writes: "I want to report the banding of a Red-breasted Nuthatch at Neff Orchards, Marionville, Mo., on January 3, 1924, banded in one of my feed tray traps by my Mother. It is the first one of the species that has ever so visited us for over ten years of tray feeding of winter birds. It is stlli feeding there, and is very tame, according to her last letter. Also, while waiting for the Nuthatch she caught Downy Woodpecker No. 35,396, which was banded on April 27, 1923. I forgot to say that the Nuthatch was banded No. 116,316. Both were caught on January 3, 1924. Having caught the stranger, she left the lid of the trap up, as she does not do any work unless some stranger appears; at present there are four Purple Finches there, but she has not banded them. I expect to have a mighty busy winter of banding there next winter."

Mr. and Mrs. George F. Fisher, State Line, Wisconsin, report the following: "When we returned from Chicago, we found the lake frozen quite solid. We had been home three or four days when Mrs. Fisher announced that she had heard a Loon over across the lake, and nothing would do but we should investigate. Sure enough we found it in a small hole about twenty-five feet across, which due to its activities, had not frozen. The ice was perfectly solid and clear as crystal, and as we approached, the Loon dove and stayed under for quite a while. At last

he came up again and immediately dove and stayed under as long as he could, coming up every few moments, until later he got less afraid. It was apparent that it could not get up to fly in such a small space of water. It was very interesting to watch it swim under the water and at such a great speed. It held its wings in a crouched position and only used them like the wings of an airplane, to balance with. It circled the hole many times directly beneath us and we could see every movement clearly. We captured it by drawing a minnow seine across the open water.

"There were no Cross-bills here at all this winter (600 banded during last winter) and we have been very busy building our new home, but will be ready for the work in the coming year."

Mr. Frederick Herman, Laurium, Michigan, caught and banded a Harris Sparrow, which, according to Barrow's Michigan Bird Life, is a very rare bird in Michigan.

Dr. Frederick C. Test, Chicago, Illinois has the distinction of having banded the only Wilson Thrush so far recorded.

Mr. Allen Green, Oakville, Iowa, reports an interesting return, a Mallard Duck banded January 30, 1923, at Oakville, Iowa, was shot November 2, 1923, at Regina Beach, Saskatchewan, Canada.

Dr. K. Christofferson, Sault Ste. Marie, Mich., reports the following: "To explain about the Winter Wren, it is necessary to tell about my unique bird trap. On the lock walls of the SOO Locks there are about 22 small buildings for the purpose of sheltering the machinery and men for operating the gates. These buildings have large plate glass windows on all four sides and are also well lighted at night. The birds do not seem to see any obstruction ahead and therefore many are killed outright, while others are stunned, and if the doors are open, some get inside and are caught. It was in this manner the Winter Wren flew in on October 6, 1923, at 10 P. M. The Lockmen usually notify me, so I went over and banded it with No. 74404. Ten P. M. would almost indicate that it is one of our night migrants. September 12, at 4 P. M., a Red-breasted Nuthatch was caught and banded 74403, also September 26, a Slate Colored Junco, minus eight tail feathers. No. 76605 Wren caught in the same place and manner as the Winter Wren.

"Woodpeckers, Savannah Sparrows, Golden Crowned Kinglets, Robins and others have been killed outright.

"Tomorrow Mr. M. J. Magee and I hit for the tall timbers to see what we can find in the Winter bird line. We expct to use skis the next four days in getting around."

HONOR FOR INLAND TREASURER

Word has just been received that Herbert L. Stoddard, Treasurer of the Inland Bird Banding Association, has been selected by the Biological Survey to take charge of the Quail Study in Georgia. This is to be an extensive study of their entire life histories, and will cover a period of at least three years. We know he will make good, and he leaves with the best wishes of a host of friends in the Chicago and Milwaukee district.

NOTES

T. E. Musselman, Gem City Business College, Quincy, Illinois, is making a study of Fear Conditions and Diseased Feet as he found them at Thomasville, Georgia. He would appreciate it if anybody who has made observations along these lines, would answer the following questions for him:

Do you capture many Chipping Sparrows, if so, how many?

Have you ever found any scaly or warty looking diseased portion on the feet of these or any other birds?

The condition I refer to fills as a bloody sack, cracks, bleeds two or three days, then becomes a black scab.

If you have discovered such trouble among any of your captives, how generally would you say the disease prevails among the birds you capture?

Have you noticed any birds that you have taken in your traps with the absence of toe nails, toes, or parts of the foot? If so, in what species?

Is this a general condition with you?

While banding birds have you noticed that they remain motionless in the hand and have you captured any variety which does not seem to be afflicted with this cataleptic condition?

Have you found any variety of bird that you have captured that constantly chirps while it is being banded?

Have you noticed any other peculiar actions which show a fear condition not mentioned above?

INLAND DISTRICT ORIGINATES BANDING

Another incident has just been discovered to show that the Inland Bird Banding district is the pioneer in the banding work. In the Bird Banding Notes Number Nine of the Biological Survey, they show that the first attempt at Bird Banding in the United States where a bird carried a recorded inscription, also the same bird was the first known return in the work, came about through an unusual record that has been reported by P. P. Thrasher, Tuscaloosa, Alabama, who writes that in the year of 1880, a "Buzzard (probably a turkey vulture), wearing a small collar with a bell attached, was killed in Pike County, Alabama." An inscription on the bell indicated that it had been attached to the bird's neck in the State of Ohio about fifteen years previously. The second known return, we believe occurred from the work started by P. A. Tavernor while at Detroit, Michigan through some bird bands issued by him to Chas. D. Kirkpatrick, of Keota, Iowa, who banded among other birds in 1905, a family of young Flickers, and one of the young birds was taken at Prairie du Chien, Louisiana, the following winter. Although we are calling it the second real return here, we believe it was the first of the returns through an active co-operative Bird Banding scheme in the United States.

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EDITORIAL

The Editor regrets the delay of this issue, and must ask the indulgence of members and readers for the delay, which has been due to illness. He trusts that the June issue will appear on time, if not a little early. The clamor for space in this issue has necessitated the postponement of several things that it was planned to present on this page. The March issue is the one in which the reports of officers naturally appear, thus making necessary the postponement of the membership roll as well as other matters.

PROCEEDINGS OF THE WILSON ORNITHOLOGICAL CLUB, CINCINNATI, OHIO

December 31, 1923, and January 1, 1924

December 31, 1923, 10:00 a. m.

Joint Meeting of The Wilson Ornithological Club and The Ecological Society of America.

1. Birds and Their Environments—Dr. Lynds Jones, Spear Laboratory, Oberlin College, Oberlin, Ohio.

Dr. Jones has made nine Ecology trips to the Pacific coast from Oberlin, Ohio. He has been particularly interested in comparing his knowledge of birds in the Grasslands gained in his youth with the knowledge gained on these trips. He has found that birds which were originally to be found only in the Deciduous Forest area have gradually adapted themselves to the Grasslands or, in the case particularly of the larger birds, have succumbed to civilization. However, the great irrigation projects have served to increase bird life of two types, water birds and those that nest in the vegetation which has sprung up around the great dams and lakes. In fact, the territory which surrounds these places has become a bird-paradise. Fortunately, the birds which have decreased are not of very great economic importance, while insectivorous birds have greatly increased in number.

2. Food Habits of the American Eagle—Professor Francis H. Herrick, Western Reserve University, Cleveland, Ohio.

The American Eagle, though very unpopular and considered fair game by every sportsman at all seasons of the year, has continued to survive, even in Alaska, where bounties offered for heads of eagles because of its supposed destruction of valuable fishes and game animals

have so far failed to exterminate it. During the seasons of 1922 and 1923 Professor Herrick and one of his assistants have watched the last three weeks of nest-life in an eyrie at Vermilon, Ohio, just a mile from Lake Erie. This nest, in a shell bark hickory, 81 feet from the ground, has been occupied continuously since 1890, and, with a few brief intervals, since 1840. Professor Herrick built an observatory 82 feet high, later raised to 100 feet, in a tall elm only 85 feet from the nest, and studied with the eye, high-power binoculars, and a Graflex camera the activities of the nest. In 1923 the adult eagles in the period of three weeks made 109 visits to the nest, 102 of these visits with food. Fish were brought 87 times, usually small fish thrown up on the shores of Lake Erie by storms or else left by fisherman as undesirable for the market. Chickens, always partially plucked, were brought 13 times. In spite of the fact that the tree was in plain view of highways, farmhouses, and cultivated fields, the eagles came and went as if unconscious of the danger. The young were fed by the parents, bill to bill, until the very last day in the nest, a habit rather different from that of other birds of prey, says Professor Herrick. (See The American Eagle, Later Nest-Phases, below)

3. The Ecology of Lake St. Mary's, Ohio—Charles Dury, Cincinnati Society of Natural History, Cincinnati, Ohio.

Dr. Dury concerned himself largely with the abundance of wild life at Lake St. Mary's fifty years ago, before ruthless slaughter had reduced the numbers of birds nesting or visiting this immense body of water. This lake, completed in 1854, was a reservoir for one of the canals formerly so prominent in Ohio, and occupied a commanding elevation, said to be nearly 1550 feet above sea level. Not only were waterfowl abundant, beyond the dreams of one to-day, but fishes were equally numerous and drew hordes of fishermen. Among the rare breeding birds found there by Dr. Dury was the Hooded Merganser, a female with eight freshly-hatched young. Dr. Dury, now a very old man, put the memories and experiences of a lifetime into the paper, which describes a phase of wild life forever gone.

4. The Appearance of 22 Evening Grosbeaks in Ohio—Charles Dury.

A brief account of the appearance of the Grosbeaks and an exhibition of two specimens taken in Ohio, together with a bottle of some unknown seeds upon which they were feeding.

5. The Present Status of the European Starling in Ohio—Charles Dury.

Though reported as occurring twenty years ago, the Starling was found breeding in Ohio for the first time this year. A Starling taken in Ohio was exhibited. This brief paper called forth a long discussion of the status of the Starling elsewhere. Mr. A. F. Ganier of Nashville, Tennessee, reported a roost of 60,000 Starlings in one of the large old cemeteries of his city.

6. Notes on the Fauna of the Lake-Bog Habitat Series—Professor T. L. Hankinson, State Normal College, Ypsilanti, Michigan.

Professor Hankinson has spent many years in Michigan studying the lakes, bogs, ponds, and marshes of the moraine country. For the

past few years he has spent his summers in working for the State Department of Conservation, which has led him into this attractive field. He classifies the fauna in ten well-marked belts, not all found in every lake but several represented in each, owing to the size of the lake, its depth, and the elevation of the country immediately surrounding: (1) the deep-water area, with little vegetation, with muck bottom and a good many fishes; (2) the intermediate zone, with the water about five feet deep, the greatest fish area and the feeding grounds for the Ducks; (3) the water lily zone, with water three to five feet deep, teeming with invertebrate life and with bullfrogs and bass. (4) the marginal shallows, the greatest area for birds because of the rushes and grasses; (5) the leather-leaf area, moist but not wet; (6) the fern area, where shore birds abound; (7) the thicket, home of hosts of bush birds; (8) the conifer area, grown up in tamarack and spruces; (9) the meadow area, uncultivated, full of Snipe and Killdeer; and (10) the wooded border on higher ground. Many of these areas are practically untouched by man and offer a splendid opportunity for study, even with large classes.

December 31, 2:00 p. m.

1. Some Ornithological Impressions of Fiji and New Zealand—Professor Dayton Stoner, Iowa University, Iowa City, Iowa.

(This paper is published in this issue.)

2. Birds of Naknek Lake, Alaska—James S. Hine, Ohio State University, Columbus, Ohio.

Professor Hine, as a member of the National Geographic Society's Mount Katmai Expeditions in 1917 and 1919, studied the birds and their habitats along the Alaska shore, going north by the Island Passage; and, later, along the shores of Naknek Lake, a large fresh-water lake, three or four miles wide at the widest part, and sixty miles long, reaching halfway across the Alaska Peninsula. On account of the abundance of foxes, the water birds have learned to build their nests on inaccessible ledges on the shore or on low-lying islands in the part of the lake named by the members of the expedition the Bay of Islands. Professor Hine's slides included pictures showing the abundance of seabirds and the inaccessible nesting-cliffs of the Cormorants and other birds.

3. Breeding Birds of Reelfoot Lake—Albert F. Ganier, President of the Tennessee Ornithological Society, Nashville, Tennessee.

Reelfoot Lake is a large, irregularly shaped body of water, twenty miles long and varying in width from a few feet to five miles. The lake, formerly the site of a swamp, sank in a terrific earthquake in 1812, the trees of the old forest being still seen, rising from the water or marsh. The shallow areas have grown up in cypresses and water plants. The whole lake country forms one of the greatest of the hunters' paradises in North America. Mr. Ganier has made ten or twelve trips to the lake within the last dozen years, staying from a day to two weeks. He has found very few of the bordering areas suitable for breeding-places and records only those birds which nest in marsh grasses, on stumps in the swamp, or in tall trees around the lake, since there is an absence of beaches. Three of the regular ducks breed in numbers: the Wood Duck, now rapidly becoming extinct elsewhere; the Hooded Merganser; and

the Mallard. Coots are exceptionally plentiful. The lake is at present owned by the state of Tennessee, so far as the water and the immediate shore is concerned. A movement is on foot for the state to purchase, with fees from hunting-licenses, the marsh areas and the surrounding uninhabited country and to establish a great state biological station. One thing Mr. Ganier brought out was that many species found breeding on the Mississippi River, only a few miles away, are never found on the lake. Readers of the National Geographic Magazine will welcome an extended article on Reelfoot Lake by the State Geologist of Tennessee, the natural history part of the article having been contributed by Mr. Ganier.

4. The American Eagle—Later Nest-Phases, Francis H. Herrick, Western Reserve University, Cleveland, Ohio.

The American Eagle, in common with many other species of birds, builds its new nest on top of the preceding one. The nest spoken of by the author in his preceding paper, was eight and a half feet in diameter and 12 feet deep. The photographs shown revealed the eaglets in every characteristic attitude: dozing, exercising their wings and talons, watching the arrival or departure of their parents, feeding, and making their first attempts at flight. The observatory was made in an elm tree 85 feet from the nesting tree and was built very strongly, to withstand the Lake Erie gales. After the 1922 season a few obstructing branches were removed by the observers, in order to see better and photograph the nest activities. The observation period was the last three weeks of the nest-life. Next year Professor Herrick intends to study the earlier phases of the life in the same nest, provided no accident occurs to the adult eagles or the eyrie.

5. The Prairie Horned Lark as a Breeding Bird in Kentucky—Ben. J. Blincoe, Dayton, Ohio.

The frequency of the Prairie Horned Lark in summer led Mr. Blincoe to collect all data gathered by Kentucky ornithologists on this species. Dr. L. O. Pindar of Versailles, many of whose records were destroyed by fire, has seen the species nearly every spring month in several central Kentucky counties. Gordon Wilson of Bowling Green reports the bird seen every month except June and expresses the belief that its nesting ground is only a little distance from his territory. Mr. Linebaugh of Guthrie records the bird as nesting, without giving dates, and says he has found the nests. Mr. Embody recorded it at Russellville about twenty years ago as an all-year resident. Mr. Blincoe has on several occasions heard the flight song of the Prairie Horned Lark, usually thought to be given only in the nesting season. Several Kentucky ornithologists have decided to investigate further the probable breeding places of the bird and to establish its status as a Kentucky breeder.

January 1, 1924, 10:00 a. m.

1. Banding the Great Lakes Colony Birds—Dr. Lynds Jones, Spear Laboratory, Oberlin College, Oberlin, Ohio.

The Bird-banding Associations are eager to enlist the coöperation of all people who spend their summer vacations on the Great Lakes

in banding the common water birds. Dr. Jones has collected lists of breeding-places which have been discovered by him and other ornithologists and hopes that many of these places can be visited and the birds banded during the coming nesting season. Many of the islands and reefs used for nesting-places are in Canadian territory but the Canadian officials are favorable to bird-banding. Dr. Jones has been rather discouraged by the fatality discovered among the young birds banded, reporting as high as fifty per cent. as dying in two weeks after the banding was done. Though he does not think that any of the fatalities were due to the banding process, he doubts the wisdom of banding nestlings and favors the trapping and banding of adults.

2. The United States Biological Survey on Bird-banding—E. A. Goldman, Biological Survey, Washington, D. C.

It has been demonstrated that it is rather dangerous to band nestlings on account of their fraility. Besides, hosts of nestlings die within a few days after leaving the nest and, consequently, furnish little information about migration routes. The number of birds taken by collectors in the whole country in 1922,—15,000,—is very small as compared with the natural fatalities. The Biological Survey furnishes bands and permits to those interested in this phase of study. The growth in banding has been very rapid, on account of the good work of the New England Bird-Banding Association and the Inland Bird-Banding Association. The great difficulty has been in trapping birds which do not come to the ground to feed, Warblers, for instance. Traps are being devised to catch all types of birds, even Humming-birds. Up to the present the Biological Survey has especially pushed the banding of waterfowl, Ducks in particular. By this means there are being rapidly accumulated data on migration routes, particularly of the Mallard. There is to be published shortly a preliminary bulletin on the migration routes of the Mallard.

There is before Congress at this time a measure to set aside public shooting-places, designed to conserve wild places and wild life, except for the open hunting season. These reserves are really to be a species of government parks or playgrounds for the people. These places, in the very nature of things, will furnish great opportunities for banding.

3. Developing Districts for Bird-banding—A. F. Ganier, President of The Wilson Ornithological Club, Nashville, Tennessee.

Mr. Ganier is in charge of the Southern Bird-Banding District, which includes Kentucky, Tennessee, Georgia, Alabama, Mississippi, and Louisiana. Few returns have come in as yet from this district. Frequently New England birds are known to migrate diagonally across to the South. Already there are four trapping-places in Tennessee and one or more in each of the other states in this district. Mr. Ganier is trying to enlist bird-banders in all parts of the South. At his own traps he has taken a large number of ground birds. He has discovered that the House Sparrow has learned to get out of the traps but the native birds have not.

4. Ten Years of Bird-Banding—William I. Lyon, Secretary of The Inland Bird-Banding Association, Waukegan, Illinois.

Mr. Lyon was a pioneer in banding, beginning twelve years ago, using bands devised for baby chicks. He was unable to receive a supply of official bands until 1915. At first the Biological Survey insisted on the banding being only of the young, but later it relented and allowed and encouraged the banding of the adult. Dr. E. W. Nelson, chief of the Biological Survey, has greatly encouraged Mr. Lyon and has furnished him with an abundance of bands. On account of the inability of Mr. Lyon to secure traps suited to his needs, he has devised several traps: the ground trap, the tilting trap for perching birds, and traps to catch Creepers, Woodpeckers, and similar birds. In one season he caught and banded 100 Brown Creepers, 22 in one day. He has also devised a trap-door to close Woodpecker, Bluebird, and Chickadee holes. Many valuable bits of information have been discovered by Mr. Lyon, particularly about bird diseases and albinistic variations. He made some experiments by removing the tail feathers of an albinistic Bronzed Grackle several times, until it came in perfectly black. During the past five years Mr. Lyon has made a set of nearly a hundred valuable slides, many of them colored, illustrating every phase of banding: traps, birds caught in the traps, bait, bands, position of birds in banding, diseased birds caught, etc. His contribution to the study of ornithology has been one of the most unique of the last seventy-five years.

5. Banding in Alabama—J. M. Robinson, Alabama Polytechnic Institute, Auburn, Alabama.

Professor Robinson has had a wide experience in getting people interested in banding and other phases of bird-study. Though his work is yet in its infancy, 18 species of birds have been banded and nearly 700 individuals. The goal for next year in the state is 1000. Many of the birds taken were trapped on the campus of his school, where he is creating a very unusual interest among all the school people in the joys of bird study.

Attendance at the Meetings

The following are some of the names of people who attended one or more of the meetings (quite a few left before the Secretary could get their names and addresses): Professor C. C. Adams, State College of Forestry, Syracuse, New York; Professor G. A. Bowden, University School, Cincinnati, Ohio; Ben J. Blincoe, Dayton, Ohio; Dr. Blen R. Bales, Circleville, Ohio; Susan H. Ballon, Bryn Mawr College, Bryn Mawr, Pennsylvania; Paul W. Bowden, Cincinnati, Ohio; William G. Cramer, President of The Ohio Audubon Society, Cincinnati, Ohio; Charles Dury, President of The Cincinnati Society of Natural History, Cincinnati, Ohio; Professor W. D. Funkhouser, University of Kentucky, Lexington, Kentucky; Albert F. Ganier, President of The Tennessee Ornithological Society, Nashville, Tennessee; Eloise Gerry, U. S. Forest Products Laboratory, Madison, Wisconsin; E. A. Goldman, Biological Survey, Washington, D. C.; Professor James S. Hine, Ohio State University, Columbus, Ohio; Professor Francis H. Herrick, Western Reserve University, Cleveland, Ohio; Professor T. L. Hankinson, State Normal College, Ypsilanti, Michigan; Lena B. Henderson, Randolph-Macon College, Roanoke, Virginia; Constance E. Hart, Passaic, New Jersey;

Dr. Lynds Jones, Spear Laboratory, Oberlin College, Oberlin, Ohio; I. H. Johnston, State Ornithologist, Charleston, West Virginia; Mary Belle Johnston, Bird Haven, Charleston, West Virginia; William I. Lyon, Secretary of The Inland Bird-Banding Association, Waukegan, Illinois; A. F. Miller, member of The Mt. Katmai Expeditions, Wooster, Ohio; Julia G. Parker, Cincinnati, Ohio; W. C. Purdy, Cincinnati, Ohio; Professor Leigh H. Pennington, State College of Forestry, Syracuse, New York; Professor J. M. Robinson, Alabama Polytechnic Institute, Auburn, Alabama; Mrs. A. F. Satterthwait, Webster Groves, Missouri; Mary M. Steagall, Carbondale, Illinois; Mrs. Frank H. Shaffer, Cincinnati, Ohio; Professor Dayton Stoner, Iowa University, Iowa City, Iowa; E. S. Smith, T. J. Smith, S. E. Smith, Cincinnati, Ohio; A. J. Wildman, Jr., Cincinnati, Ohio; Professor A. O. Weese, James Millikan University, Decatur, Illinois; Gordon Wilson, Teachers' College, Bowling Green, Kentucky.

Business Meeting

At the Business Meeting, December 31, 1923, the following members were appointed as the Nominating Committee: Professor Dayton Stoner, Professor T. L. Hankinson, and Mr. E. Lawrence Palmer. They recommended the following for the officers for the year 1924:

President, Albert F. Ganier, Nashville, Tennessee
Vice-President, William I. Lyon, Waukegan, Illinois.
Secretary, Gordon Wilson, Bowling Green, Kentucky
Treasurer, Ben. J. Blincoe, Dayton, Ohio

Additional Members of the Council:

H. L. Stoddard, Milwaukee, Wisconsin
T. L. Hankinson, Ypsilanti, Michigan
W. M. Rosen, Ogden, Iowa

The Council met and named Dr. Lynds Jones, Oberlin, Ohio, as Editor.

The Treasurer's report was made, approved by an auditing committee composed of Ben J. Blincoe, Gordon Wilson, and Lynds Jones, and adopted by the Club. It follows.

Treasurer's Report for 1923

Waukegan, Illinois, January 1, 1924

Receipts

Dec. 31, 1922	Cash received from former Treas.	$ 88.04
	Associate Members	316.50
	Active Members	414.00
	Sustaining Members	130.00
	Subscribers	34.53
	Back Numbers	20.50
	Nebraska O. U.	64.00
		$1067.57
	Money deposited but not accounted for	12.85
		$1080.42

Disbursements

Mar. 31, 1923 News Printing Co.	$ 23.50	
Apr. 11, 1923 Gulbenk Photo Eng. Co.	7.78	
May 14, 1923 News Printing Co.	700.00	
Sept. 10, 1923 News Printing Co.	200.00	
Dec. 19, 1923 W. I. Lyon, Treas., Expenses	18.05	
May 28, 1923 Check returned unpaid	1.50	
		$ 950.83
Jan. 1, 1924 Cash on hand		129.59
		$1080.42

William I. Lyon, Treasurer.

Approved, January 1, 1924.
Gordon Wilson, Ben. J. Blincoe, Lynds Jones, Aud. Committee.

It was moved by A. F. Ganier that the list of new applicants' names be acted on each month by the Council, subject to the approval of the entire Club in annual session. This motion, duly seconded, was carried.

On the motion of Gordon Wilson the Iowa Ornithologists' Union and the Kentucky Ornithological Society were admitted to affiliation on the same terms as those used by the Nebraska Ornithologists' Union. On the motion of A. F. Ganier the Tennessee Ornithological Society was admitted on the same basis.

I. H. Johnston and James S. Hine were appointed to serve with the Secretary as a Program Committee.

66 new members were elected, one being a sustaining member, 15 active members, the remainder being associates.

It was decided by the members to refer the place of the 1924 meeting to the Council.

The Resolutions Committee reported as follows:

Whereas, The Wilson Ornithological Club has completed one of the most successful years in its history, and, at Cincinnati, Ohio, one of the best meetings it has yet had; therefore, be it resolved:

First: That we extend our thanks to the University of Cincinnati and to the local committee of the American Association for the Advancement of Science for their assistance and hospitality in providing quarters and otherwise helping to make our meeting a success.

Second: That we hereby express our appreciation for the work done during the past year by President T. L. Hankinson, Vice-President Dayton Stoner, Treasurer William I. Lyon, and Secretary Gordon Wilson and make recognition of the personal sacrifice they have made in devoting so much of their time and energies to forwarding the work of the Club.

Third: That we recognize with thanks the work of our veteran Editor, Lynds Jones, in piloting our official organ, The Wilson Bulletin, through another successful year.

A. F. Ganier,
B. R. Bales,
Committee.

CORRESPONDENCE

LITTLE GULL AT LAKE COUNTY, OHIO

[The following letter is published not as a record of this species for Ohio, because it does not conform to the reasonable rule that a record of so unusual a species must be accompanied by a specimen, but because it illustrates the way field observations ought to be made. Ed.]

Although this constitutes only a sight record of an extremely rare bird for any part of North America, the very fact makes me feel it a duty to report the same and to go into full detail as to the facts, especially since the bird in question could hardly be confused with any other small Gull occurring in the Western hemisphere. Full opportunity was given to study the bird at close range and all main characteristics were fully noted and carefully compared with Bonaparte Gulls before looking up descriptions in various bird publications to determine what my find could be.

December 29th, 1923, found me seated at the end of a stone breakwater trying to identify with my glass a small bunch of ducks a long distance out on the lake. In the near foreground some two hundred Bonaparte Gulls were flitting about above the waves, individuals of which repeatedly crossed the vision afforded by my glass. Suddenly I thought I saw one with the entire under surface of wings a velvety black. In astonishment I lowered my glass to more easily pick it out from among the many others with the naked eye. And, sure enough, coming straight toward me, making me think of a big butterfly, was a little gull whose entire under wing surface looked a full black in comparison with the white body. Later, for I watched this bird fully an hour, I had determined the color to be really slate, though in comparison with the whites and gull blues of the large ever-changing flock of birds it looked as black as a crow. This color of under wing surface was fact No. 1 and the most easily noticed of all.

The next item secured was that of size. At first I thought it had a shorter tail than the Bonapartes but upon direct comparison again and again with companion birds I determined the entire bird to be shorter by at least two inches. This was especially noticeable when I compared body length only and left the beating wings out of the questiou. This constitutes fact No. 2. Later, on looking up measurements, I find the Little Gull to be about three inches shorter than the Bonaparte.

The bird at times would get lost among the others but could immediately be picked out again as soon as it flew towards me thus giving a view of the under surface of wings. At times it came within a rod or two, and it was during these near flights that I determined fact No. 3;—the top of head and upper neck were darker (smoky I called it) as though a suggestiou of a summer hood remained. This was noticeable as the bird flew low over the water and away from the observer.

I caught one glimpse of the feet, which were red, but whether of the same shade as the Bonaparte I could not say. The bill was apparently black (which is correct for Little Gull in adult winter plumage,

though the base is dull red in nuptial attire; or so sayeth the books I read upon my return home.)

Leaving the place I had the above descriptions, and might have also seen a slight difference in the upper wings, but had about convinced myself I had only been observing a small Bonaparte with a strange melanistic phase of the under wing surface, for my mind had been busy as well as my eyes and I could *recall* no small gull that coincided with this one. However a plate in Butler's British Birds first started an enthusiastic reading bee, and one can imagine the sensation when I read the description of plumage and found all points agreed. Several other works on European birds were consultde before turning to Bent's Life Histories of American Gulls and Terns to learn its status quo in this country. I found everything to agree with my observations and nothing to disagree, even to the mention of its butterfly like flight.

Painesville, Ohio

E. A. Doolittle.

EXPLANATIONS AND CORRECTIONS

Since the appearance of the June (23) Bulletin containing my note on the "Bald Eagle in Franklin County, Ky.," I have received several letters of inquiry about my "list of birds of Franklin County" referred to in the note asking when and where it was published, etc. The list has not yet been published and exists only in manuscript. These notes and those in the September Bulletin (part of them at least) were hurriedly written at odd times and were portions of personal letters to my good friend aud our efficient Secretary, Prof. Wilson, who very kindly abstracted them and arranged them for the Bulletin. Written to him so hastily, as above stated, I overlooked the fact that statements clear to him in the light of previous converstions and correspondence would not be so to the general reader. Hence the necessity of this and the following corrections.

September Bulletin, page 161, line 1. Sentence should read, "If we assume that there were two young doves in the first nest and four nestlings in each of the other three nests," etc.

Page 162, line 10. The point I was trying to make was this: along the road at this stretch were trees and some undergrowth and apparently the Whip-poor-will preferred the comparative shelter they afforded to the open road or open fields on either side, and therefore continued to fly alongside the road ahead of us for the distance mentioned. But if it sought concealment, why did it fly?

Page 163, line 17. The Buff-breasted Sandpiper is **not** in my "List of Birds of Fulton County, Ky." published in the AUK in 1889 but is listed as quoted in a later supplemental list still in manuscript.

The quotation Swainson's Warbler is correct. The 1890-92-93 notes are from the supplemental list.

Dr. L. Otley Pindar.

Versailles, Ky., Feb. 15, 1924.

PUBLICATIONS REVIEWED

Yearbook of the Public Museum of the City of Milwaukee. 1922. (Published Aug. 1923.)

This volume contains four papers which will be of interest to bird students. "A collecting expedition to Bonaventure Island, Quebec," by George Shrosbree. This is an interesting narrative of a trip taken by Mr. and Mrs. Shrosbree and H. L. Stoddard to the famous Gannet rookery in the Gulf of St. Lawrence. The party was later joined by Dr. W. D. Richardson. The excellent photographs accompanying the article give a very clear conception of the island and the bird colonies. Nine thousand feet of motion picture film were exposed during the party's stay of more than a month. As a result of this trip the Milwaukee Museum will have a fine habitat group of this well-known, but rather inaccessible, bird colony. The author gives no estimate of the bird population at the time of his visit.

Following this article is one by Mr. H. L. Stoddard, "Notes on a 'side trip' to the Gaspe cormorant colonies." This paper is an account of experiences in collecting Double-crested Cormorants and gives information of value to anyone contemplating a trip to this region. Mr. Stoddard estimated that the colony contained at least two hundred and fifty cormorant nests. In another article Mr. Stoddard records the capture of two male starlings (*Sturnus vulgaris*) in Wisconsin.

T. C. Stephens.

PROCEEDINGS OF THE OKLAHOMA ACADEMY OF SCIENCE

Each of the three volumes thus far issued has contained one or more ornithological papers which may be mentioned as follows. Volume I, (1910-1920), 1921. "A flight of hawks," by Chas. N. Gould. This note records a flock of over a hundred Marsh Hawks. "Some Experiences with Mourning Doves in Captivity," by Margaret M. Nice. An interesting paper on the food and behavior of this species. Volume II, 1922. "A note on the economic status of the Bald Eagle in Alaska," by Ed. D. Crabb. In the summer of 1921 Mr. Crabb went up along the Alaskan coast and returned through the interior, ascending the Yukon valley to Dawson and across country to Skaguay. On the coastal trip he saw "scores of eagles," but in the interior they were practically absent. Along the coast eagle stomachs contained fish bones, and one contained the feet of a ptarmigan. One nest contained the remains of seven Dolly Varden trout. The author believes it a mistake to place a bounty on eagles in the interior, and seems to doubt the necessity of it even along the coast. Volume II. "Some birds of the Oklahoma Panhandle," by C. R. Tate. One hundred and twenty-four species are listed, and all but six are substantiated by specimens. The list is the result of fourteen years of observation. "Nesting records from 1920 to 1922 from Norman, Oklahoma," by Margaret M. Nice. A report is made on the nesting of 37 different species. Among the nests whose history was watched to completion 118 were reported as "successes," while 150 were "failures"; thus indicating a mortality of considerably over fifty per cent.

Publications of the Wilson Ornithological Club

The complete series consists of the following publications:

The Ornithologists and Oologists Semi-Annual, three volumes, 5 numbers.

The Wilson Quarterly, one volume, two numbers.

The Journal, two numbers.

The Wilson Bulletin, three numbers in the first volume, two in the second, six numbers in each of the next four volumes, and four numbers in all succeeding volumes including the current volume–34.

Out of print numbers of this entire series are as follows:

Semi-Annual, Vol. 1, No. 1; Vol. 2, both numbers.

The Wilson Quarterly, both numbers.

The Wilson Bulletin, Vol. 10, No. 5; Vol. 16, No. 1.

The available numbers, to Vol. 32, will be sold at the rate of one dollar a volume.

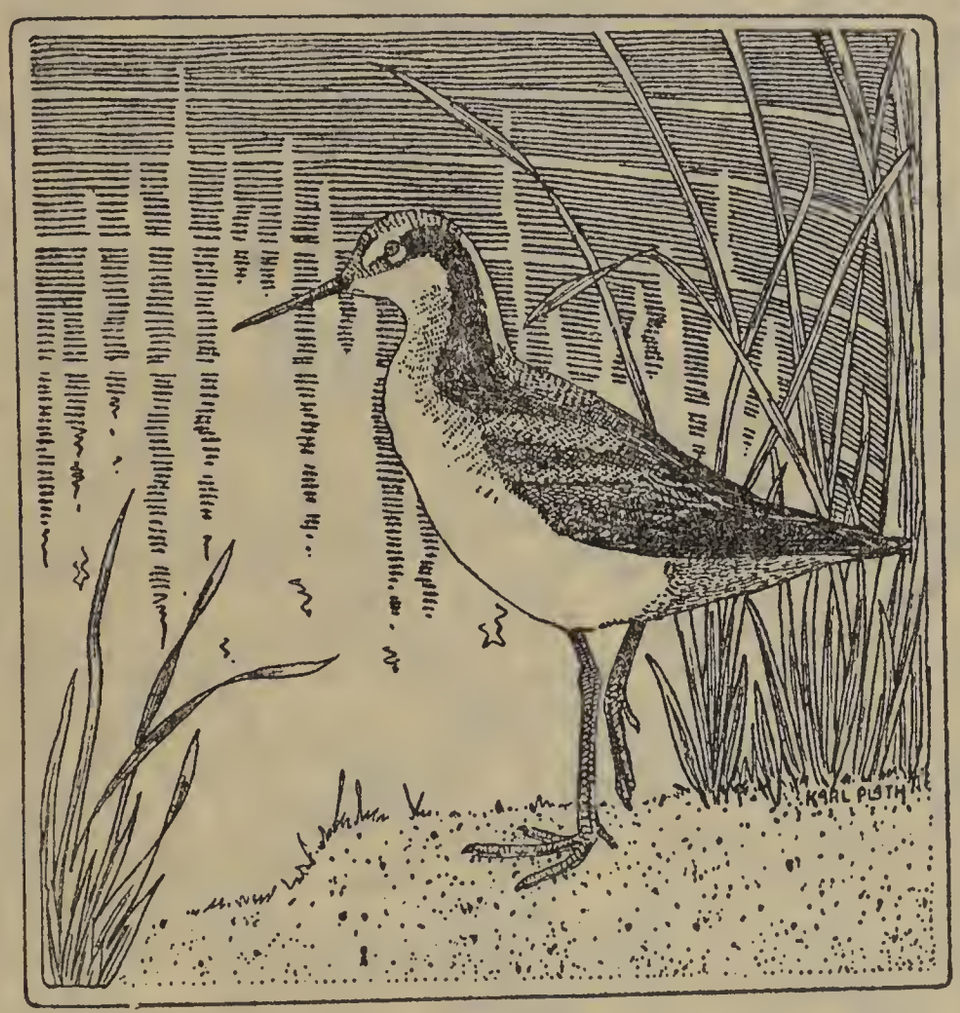
— ADDRESS —

THE WILSON BULLETIN

SPEAR LABORATORY, OBERLIN, OHIO

Vol. XXXVI. No. 2 June, 1924

THE WILSON BULLETIN



OFFICIAL ORGAN OF

The Wilson Ornithological Club and The Nebraska Ornithologists Union

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THE WILSON BULLETIN

A QUARTERLY JOURNAL OF ORNITHOLOGY

VOL. XXXVI JUNE, 1924 NO. 2

OLD SERIES VOL. XXXVI. NEW SERIES VOL. XXXI.

THE NEW BROWN PELICAN ROOKERY ON THE FLORIDA EAST COAST

R. J. LONGSTREET

SECRETARY, HALIFAX RIVER BIRD CLUB

DAYTONA BEACH, FLORIDA

For more than a century, the Brown Pelican rookery on Pelican Island in the Indian River, near Sebastian, has been the Mecca of ornithologists and bird lovers. The island was made a federal reservation some years ago and placed under the protection of a warden. This breeding place was one of the sights of Florida and one of the best known rookeries in North America.

The Brown Pelican has incurred the hatred of the fishermen, who falsely charge him with eating food fish and thereby harming the fishing industry. During the World War, a determined effort was made to remove protection from this bird and subject him again to the persecution of hunters and others who find sport in killing defenseless creatures. The prompt and energetic action of the Florida Audubon Society was able to check this attempt, so that the Pelican yet enjoys what protection the law may give him.

The prejudice of the fishermen was not abated, however, and two or three years ago the island was raided at night and a large number of birds were killed. Whether or not this was the reason, the fact remains that last fall the east coast Brown Pelicans, as a body, deserted their ancestral breeding place and moved north to the south end of Mosquito Lagoon, about fifty miles south of Daytona. Here they selected a mangrove island which had been the site of a considerable colony of Ward's Herons (the Florida Great Blue), and as is their habit, began to breed in December.

The site of the new rookery is an island about half a mile in length, shaped like a crescent, not over five hundred feet wide

at its center. It is about two miles west of the Atlantic Ocean, among the other mangrove islands that dot the southern expanse of the lagoon. The outer shore is wooded with mangrove, the inner shore is sandy or marshy. In addition to the mangrove, the island bears not a little Spanish Bayonet (Yucca) and some palmetto scrub.

This part of the lagoon is a favorite ground for the fishermen of neighboring regions, and thus the new rookery was soon discovered. The Pelicans had left a federal reservation to found a new home in an out-of-the-way place where there was no warden nor any protection for them. The consequence was that when the young birds were about half grown and wholly unable to fly, certain unknown parties, probably ignorant fishermen, descended upon the colony with clubs and shot-guns and slaughtered them without let or hindrance.

About three weeks after this outrage, a party from the Halifax River Bird Club made a trip to the rookery for purposes of investigation. It was found that the rookery was on the western half of the island. The nearest approach is from the east. The waters are very shallow, so that it was necessary to make the last two or three hundred yards in a flat-bottomed skiff.

Passing through the mangrove and marsh-grass, down to the center of the island, we first saw signs of the slaughter. Here and there lay a dead and half-decayed Pelican. To the left, in the water, half-enclosed by the points of the crescent-shaped island, was a flock of two or three hundred adult birds, and a few more were descried resting on the shore at the west end.

The western half of the island was a charnel house. The bodies of young Pelicans, together with not a few of the adult birds, lay thickly scattered over all that part of the island where the birds had nested. An effort to count the bodies was made, and the consensus of opinion was that between 1,500 and 2,000 birds had been killed. The young birds remaining alive would not exceed 400 in number. Many eggs were scattered about on the ground, and dismembered nests were lying here and there. The entire scene was one of rapine and slaughter, depressing in the extreme. It passess comprehension that human beings would wreak such merciless destruction upon helpless and harmless birds.

The condition of the bodies was such that it was impossible to determine in what manner the birds had been killed, but

local fishermen told us that most of the work was done with clubs. I picked up several shot-gun shells, of the Winchester repeater variety, which would indicate that some, probably the adult birds, had been dispatched by gun-fire.

The young birds that had escaped were wandering about in disconsolate groups, and kept at a respectful distance. A few would permit of close approach, but snapped their huge bills viciously to express their disapproval of the intruders. If pressed too closely, they would make their way out into the shallow water, where they flopped and swam to a safe distance. Not a few young birds were found with broken wings and legs and otherwise injured.

The Pelican nests for the most part were in the mangrove bushes, but some were placed on the ground, and, most interesting of all, several were situated in clumps of Spanish bayonet. Some young birds were seen scrambling about among the sharp-pointed leaves of the yucca, and undoubtedly some have been wounded and perhaps killed in that strange and inhospitable environment.

An interesting discovery was that of a Ward's Heron's nest, superimposed upon an abandoned Pelican nest, placed in a yucca clump. There were two fledglings and one addled egg in this adopted home. This is the first instance that has come to my attention of a Ward's Heron choosing an old Pelican nest in which to rear its young.

The other birds seen on the island were Black and Turkey Vultures, feeding upon the bodies of dead Pelicans, several Red-winged Blackbirds, a small flock of Boat-tailed Grackles, and several Florida Yellow-throats and Myrtle Warblers. Florida Cormorants were common out in the lagoon, together with some Herring Gulls, Royal Terns, a few Horned and Pied-billed Grebes, and thousands of Lesser Scaup Ducks.

The raiding of this new rookery has been reported to the federal warden and the Biological Survey, and to the National Association of Audubon Societies. It is hoped that the United States government will take over the island, or, better still, the southern portion of the lagoon, as a bird reservation. It is too late to save the young Pelicans of 1924, but if the old birds return to their home next fall, a federal warden on the spot, armed with Springfield rifles and considerable courage, could prevent the recurrence of what has taken place this year.

The charge that Brown Pelicans eat food fish is utterly without foundation. Dr. E. W. Nelson, Chief of the Biological Survey, states that after carefully inspecting the breeding grounds of both east and west Florida and examining hundreds of fish dropped by the Pelicans, he found that almost without exception the fish caught to be menhaden and grass minnows, species that are useless for human food, and that not one fish so examined was of any commercial value. Dr. Frank M. Chapman points out that the case is not proved against the Pelican, because fish were more numerous on the east coast when Pelicans were more abundant than they are today. Pelicans feed chiefly on inedible fish or fish that are too small to be marketed.

MIGRATION NOTES FROM STATE COLLEGE CENTER COUNTY, PENNSYLVANIA

THOS. D. BURLEIGH

The following notes were taken during three and a half years spent at the Pennsylvania State College, and cover the spring and fall migrations from September, 1914, through June, 1917, and the spring migration of 1919. No attempt will be made to describe in any detail the topography or geographical situation of this locality for this has already been ably done by Mr. Richard C. Harlow in papers that he has published concerning the breeding birds of Center County. Avoiding any useless repetition it is necessary to state merely that as its name indicates Center County lies in the geographic center of the State, and is a rough mountainous county lying will within the range of the Alleghenies that divide the State at this point. This range of mountains runs approximately north and south and has unquestionably a distinct bearing on the movement of the birds to and from their summer homes. That many of them follow these ridges in their long journeys is borne out by the early dates at which certain species appear in the spring, and by the late appearance of many of them in the fall, dates both earlier and later than recorded for these same species both farther north and farther south. River valleys undoubtedly influence migrations but my limited experience would indicate that mountain ranges are of far more importance in guiding birds at this time. Little I believe has been published concerning migration data for this part of the State.

As a matter of convenience the birds have been divided into four groups, and the data so arranged as to fall within these groups.

I. Resident Species

1. Ruffed Grouse—*Bonasa umbellus umbellus.*
2. Wild Turkey—*Melcagris gallopavo silvestris.*
3. Cooper's Hawk—*Accipiter cooperi.*
4. Sparrow Hawk—*Falco sparverius sparverius.*
5. Screech Owl—*Otus asio asio.*
6. Great Horned Owl.—*Bubo virginianus virginianus.*
7. Hairy Woodpecker—*Dryobates villosus villosus.*
8. Downy Woodpecker—*Dryobates pubescens medianus.*
9. Northern Pileated Woodpecker—*Phlœotomus pileatus abieticola.*
10. Red-headed Woodpecker—*Melanerpes erythrocephalus.*
11. Prairie Horned Lark—*Octocoris alpestris praticola.*
12. Blue Jay—*Cyanocitta cristata cristata.*
13. Northern Raven—*Corvus corax principalis.*
14. Crow—*Corvus brachyrhynchos brachyrhynchos.*
15. Starling—*Sturnus vulgaris.*
16. Goldfinch—*Astragalinus tristis tristis.*
17. English Sparrow—*Passer domesticus.*
18. Cardinal—*Cardinalis cardinalis cardinalis.*
19. Cedar Waxwing—*Bombycilla cedrorum.*
20. White-breasted Nuthatch—*Sitta carolinensis carolinensis.*
21. Tufted Titmouse—*Bœolophus bicolor.*
22. Chickadee—*Penthestes atricapillus atricapillus.*

These species occur in Center County throughout the year, and are equally common during the winter and during the summer months. There is possibly a general shifting south, but individually there is little variation at any time.

The Ruffed Grouse breeds well back in the mountains but has a tendency to wander into the open valleys late in the fall and evidently retains to a slight extent the desire to migrate.

The Red-headed Woodpecker winters regularly and there are certain stretches of woods where it can always be found during the winter months, but it is the one exception to the other species listed in that at least half of them disappear late in the fall and it is early April before they are abundant again.

Each fall there is a distinct migration of Blue Jays. On October 9, 1915, and again on September 28, 1916, these birds were much in evidence the entire day, small flocks of varying size being seen, flying by overhead or silently feeding in the scattered short stretches of woods.

The first Starlings were seen in Center County February 29,

1916, four being found feeding in a stretch of underbrush bordering an open field. None were then recorded until that fall when three were seen November 7 in the top of a tree at the edge of a field. They gradually increased in numbers during the winter and by early March, 1917, were quite plentiful. They nested here for the first time that spring, and are now abundant in this part of the State throughout the year.

II. Breeding Birds

1. Pied-billed Grebe—*Podilymbus podiceps.*
   Earliest, April 17, 1917; latest, Nov. 18, 1916.
2. Great Blue Heron—*Ardea herodias herodias.*
   Earliest, March 30, 1916; latest, Oct. 10, 1914. Status as a breeding bird uncertain.
3. Green Heron—*Butorides virescens virescens.*
   Earliest, April 24, 1917; average date, April 26; latest, Oct. 3, 1916.
4. Virginia Rail—*Rallus virginianus.*
   Earliest, April 19, 1916; in 1917 the first bird seen April 21; latest, Sept. 21, 1916.
5. Sora Rail—*Porzana carolina.*
   April 26, 1916, May 1, 1917; latest, Oct. 25, 1916.
6. Woodcock—*Philohela minor.*
   First seen March 25, 1917, March 22, 1919.
7. Upland Plover—*Bartramia longicauda.*
   First seen April 24, 1915, April 27, 1916, April 21, 1917, April 11, 1919.
8. Spotted Sandpiper—*Actitis macularia.*
   Earliest, April 15, 1916; average date, April 20.
9. Killdeer—*Oxyechus vociferus.*
   Earliest, March 2, 1917; average, March 9; birds plentiful by the latter part of the month; latest record, Nov. 24, 1914; average, Nov. 18; each year two birds winter about a small pond that is fed by a warm spring and never freezes over.
10. Mourning Dove—*Zenaidura macroura carolinensis.*
    Earliest, March 12, 1917; average, March 20; latest, Oct. 22, 1916; three records for occurrence in the winter, single birds seen Dec. 3, 1914, Feb. 13, 1916, and Jan. 25, 1917.
11. Turkey Vulture—*Cathartes aura septentrionalis.*
    Earliest, March 4, 1919; average, March 22; latest, Nov. 2, 1916.
12. Marsh Hawk—*Circus hudsonius.*
    Uncommon, and irregular in its arrival and departure; earliest, Feb. 12, 1916; latest, Dec. 5, 1916.
13. Broad-winged Hawk—*Buteo platypterus.*
    Earliest, April 18, 1919; a distinct diurnal migration of these birds was observed April 20, 1917, when for several minutes early in the afternoon they soared by high overhead in a loose, straggling line; at times but one or two would be in sight, while again a fairly compact group of seven or eight would appear; in all, forty-five were counted.

14. Yellow-billed Cuckoo—*Coccyzus americanus americanus.*
Earliest, May 6, 1919; latest, Sept. 23, 1915; birds usually plentiful by the latter part of May.
15. Belted Kingfisher—*Ceryle alcyon alcyon.*
Earliest, March 28, 1916; average, April 3, latest, Nov. 13, 1915; one winter record, two birds seen Jan. 20, 1917.
16. Northern Flicker—*Colaptes auratus luteus.*
Earliest, March 13, 1915; average, March 26; latest, Nov. 19, 1914; two winter records, two birds Feb. 1, 1916, and one bird, Jan. 14, 1917.
17. Whip-poor-will—*Antrostomus voeiferus voeiferus.*
Earliest, April 26, 1915; average, April 29; latest, Oct. 10, 1915.
18. Nighthawk—*Chordeiles virginianus virginianus.*
Earliest, May 8, 1915; latest, Oct. 4, 1915; scarce as a breeding bird.
19. Chimney Swift—*Chætura pelagica.*
Earliest, April 14, 1916; average, April 19; latest, Oct. 2, 1915; average date for departure, Sept. 25.
20. Ruby-throated Hummingbird—*Archilochus colubris.*
Earliest, May 13, 1915; latest, Oct. 2, 1915.
21. Kingbird—*Tyrannus tyrannus.*
Earliest, April 22, 1917; average, April 30; no records for departure in the fall, the birds invariably being gone by the time I reached State College the middle of September.
22. Crested Flycatcher—*Myiarchus crinitus.*
Earliest, May 2, 1915; average, May 4; latest, Sept. 17, 1914.
23. Phœbe—*Sayornis phœbe.*
Earliest, March 22, 1917; average, March 25; latest, Oct. 21, 1916.
24. Wood Pewee—*Myiochanes virens.*
Earliest, May 8, 1916; average, May 11; latest, Oct. 3, 1916.
25. Least Flycatcher—*Empidonax minimus.*
Earliest, April 30, 1916; average, May 4; latest, Sept. 22, 1916.
26. Bobolink—*Dolichonyx oryzivorus.*
Earliest, May 4, 1916; average, May 7.
27. Cowbird—*Molothrus ater ater.*
Earliest, March 30, 1916; average, April 3; latest, Nov. 2, 1916; average date for departure, Oct. 26.
28. Red-winged Blackbird—*Agelaius phœniceus phœniceus.*
Earliest, Feb. 26, 1917; average, March 4; latest, Nov. 14, 1916; average date for departure, Oct. 31.
29. Meadowlark—*Sturnella magna magna.*
Earliest, Feb. 13, 1916, a flock of eight birds being seen that day; average, Feb. 27; latest, Nov. 13, 1915; winter records, Jan. 23, 1915, Dec. 5, 1916, Jan. 20, 1917; a few birds seemingly winter each year.
30. Orchard Oriole—*Icterus spurius.*
Earliest, May 6, 1916, May 6, 1919.
31. Baltimore Oriole—*Icterus galibula.*
Earliest, April 29, 1915; average, May 2; latest, Sept. 16, 1915.
Earliest, Feb. 28, 1917; average, March 4; latest, Nov. 21, 1915;

average date for departure, Nov. 14; one winter record, a single bird, 1919.

32. Purple Grackle—*Quiscalus quiscula quiscula.*

33. Vesper Sparrow—*Poœcetes gramineus gramineus.*
Earliest, March 24, 1917; average, March 28; latest, Nov. 17, 1914; average date for departure, Oct. 31.

34. Savannah Sparrow—*Passerculus sandwichensis savanna.*
Records for arrival in the spring: March 25, 1916, March 27, 1917, March 26, 1919; latest record for the year, Oct. 16, 1915.

35. Grasshopper Sparrow—*Ammondramus savannarum australis.*
Earliest, April 8, 1919; average, April 13, latest, Oct. 23, 1916; always plentiful by the middle of April.

36. Henslow's Sparrow—*Passerherbulus henslowi henslowi.*
Dates for arrival in the spring: April 28, 1917, and May 4, 1919; known to breed in one locality only.

37. Chipping Sparrow—*Spizella passerina passerina.*
Earliest, April 1, 1916; average, April 7; usually plentiful by the 12th; latest, Nov. 4, 1916; average date for departure, Oct. 31.

38. Field Sparrow—*Spizella pusilla pusilla.*
Earliest, March 26, 1917; average, April 3; plentiful by the 5th or 6th; latest, Oct. 30, 1914; average date for departure, Oct. 26.

39. Song Sparrow—*Melospiza melodia melodia.*
Earliest, Feb. 14, 1915; average, Feb. 28; usually plentiful by the 16th of March; latest record for the fall migration Nov. 11, 1915; a few winter each year, single birds being seen at intervals of two or three weeks.

40. Towhee—*Pipilo erythrophthalmus erythrophthalmus.*
Earliest, April 11, 1919; average, April 24; latest, Nov. 14, 1915; average date for departure Nov. 11.

41. Indigo Bunting—*Passerina cyanea.*
Dates for arrival: May 8, 1913, May 6, 1916, and May 5, 1919; birds plentiful by the 12th; latest, Oct. 3, 1915.

42. Scarlet Tanager—*Piranga erythromelas.*
Earliest, May 3, 1919; average, May 6; one record for departure in the fall—Sept. 14, 1914.

43. Cliff Swallow—*Petrochelidon lunifrons lunifrons.*
Earliest, April 17, 1916; average, May 1; latest, Oct. 3, 1916.

44. Barn Swallow—*Hirundo erythrogastra.*
Earliest, April 6, 1916; two days later, on the 8th, there was a heavy snow storm and it seemed unnatural that day to see two of these birds feeding over an open pond during this driving snow, and with several inches of snow already on the ground; one naturally comes to associate these birds with warm weather, and not with blizzards; average, April 10; latest, Oct. 1, 1916; average date for departure, Sept. 26.

45. Tree Swallow—*Iridoprocne bicolor.*
Earliest, April 9, 1919; average, April 17; latest, Oct. 22, 1916.

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

Earliest, April 17, 1915; birds plentiful by the latter part of the month.

47. Red-eyed Vireo—*Vircosylva olivacea.*
Earliest, May 7, 1915; latest, Sept. 27, 1914.

48. Warbling Vireo—*Vircosylva gilva gilva.*
Earliest, April 28, 1915; average, May 3; latest, Sept. 25, 1915.

49. Yellow-throated Vireo—*Lanivirco flavifrons.*
Earliest, May 1, 1917; average, May 8; latest, Sept. 14, 1915.

50. Blue-headed Vireo—*Lanivirco solitarius solitarius.*
Earliest, April 11, 1915; average, April 20; latest, Oct. 19, 1916; this bird a very scare breeder here.

51. Black and White Warbler—*Mniotilta varia.*
Earliest, April 21, 1917; average, April 26; latest, Sept. 29, 1916.

52. Worm-eating Warbler—*Helmitheros vermivorus.*
Earliest, May 4, 1919; average, May 8.

53. Golden-winged Warbler—*Vermivora chrysotera.*
Earliest, May 4, 1919.

54. Northern Parula Warbler—*Compsothlypis americana usnea.*
Earliest, April 28, 1915; average, May 4.

55. Yellow Warbler—*Dendroidca æstiva æstiva.*
Earliest, April 24, 1915; average, April 27.

56. Black-throated Blue Warbler—*Dendroica cærulescens cærulescens.*
Earliest, April 30, 1916; average, May 6; latest, Oct. 20, 1914; average date for departure, Oct. 16.

57. Chestnut-sided Warbler—*Dendroica pennsylvanica.*
Dates of arrival, May 2, 1915, May 3, 1916, May 3, 1917, May 4, 1919.

58. Blackburnian Warbler—*Dendroica fusca.*
Earliest, April 26, 1916; latest, Oct. 11, 1914.

59. Black-throated Green Warbler—*Dendroica virens.*
Earliest, April 21, 1917; average, April 27; latest, Oct. 18, 1914; average date of departure, Oct. 15.

60. Pine Warbler—*Dendroica vigorsi.*
Earliest, April 18, 1917.

61. Oven-bird—*Seiurus aurocapillus.*
Earliest, April 28, 1915; average, April 30; latest, Oct. 18, 1914; average date of departure, Oct. 15.

62. Louisiana Water-Thrush—*Seiurus motacilla.*
Earliest, April 13, 1919; average, April 18.

63. Maryland Yellow-throat—*Geothlypis trichas trichas.*
Earliest, May 2, 1916; average, May 5; latest, Oct. 10, 1915; average date of departure, Oct. 8.

64. Yellow-breasted Chat—*Icteria virens virens.*
Earliest, May 4, 1919; average, May 8.

65. Hooded Warbler—*Wilsonia citrina.*
Earliest, May 1, 1915; average, May 4; latest, Sept. 19, 1915.

66. Canada Warbler—*Wilsonia canadensis.*
Earliest, May 5, 1919; average, May 10; latest, Sept. 19, 1915.

67. Redstart—*Setophaga ruticilla.*
Earliest, April 30, 1916; latest, Oct. 4, 1916; average, Sept. 18; birds breed very sparingly

68. Catbird—*Dumetella carolinensis.*
Earliest, April 30, 1916; average, May 2; latest, Oct. 16, 1915; average date of departure, Oct. 7.

69. Brown Thrasher—*Toxostoma rufum.*
Earliest, April 18, 1917; average, April 20; latest, Oct. 17, 1915; average date of departure, Sept. 29.

70. Bewick's Wren—*Thryomanes bewicki bewicki.*
Earliest, April 1, 1917; average, April 10.

71. House Wren—*Troglodytes aëdon aëdon.*
Earliest, April 19, 1917; average, April 26; plentiful by the latter part of the month; latest, Oct. 11, 1914; average date of departure, Oct. 10.

72. Wood Thrush—*Hylocichla mustelina.*
Earliest, May 4, 1919; the birds breed only in the mountains some distance from the town, never in the open valley, and as a result my migration records are meager.

73. Robin—*Planesticus migratorius migratorius.*
Earliest, Feb. 22; 1915; average, Feb. 25; usually not plentiful before the middle of March; latest, Nov. 23, 1915; average date for departure, Nov. 19; probable winter records, single birds seen Dec. 10, 1914, Feb. 13, 1916, and Feb. 4, 1917.

74. Bluebird—*Sialis sialis sialis.*
Earliest, Feb. 21, 1915; average, Feb. 26; usually plentiful by the middle of March, latest. Nov. 14, 1915; average date for departure, Nov. 9; two winter records, single birds seen Jan. 27, 1915, and Jan. 30, 1916.

The fact that each year I was absent from State College from the middle of June until the middle of September made me miss the opportunity of checking up on those birds which disappear in August. Such species as the King bird, Orchard Oriole, Bobolink, Rough-winged Swallow, and many of the warblers are invariably gone by the first of September.

III. Migrants

1. Horned Grebe—*Colymbus auritus.*
A spring migrant only, but fairly plentiful then for possibly a month; earliest, April 2, 1917; latest, May 14, 1917; average date for arrival April 15; for departure, May 1.

2. Loon—*Gavia immer.*
One record only, a single bird seen Oct. 8, 1916.

3. Herring Gull—*Larus argentatus.*
One record only, a single bird seen April 28, 1919, on the pond at Scotia.

4. Ring-billed Gull—*Larus delawarensis.*
One record only, two birds seen May 7, 1916, on the mill pond at Oak Hall.

5. Bonaparte's Gull—*Larus philadelphia.*
A single bird seen May 7, 1916, at Oak Hall; fairly plentiful during

the spring migration of 1917 and seen at frequent intervals on the pond at Scotia from April 20, through May 7. On the latter date seventeen were found there, resting quietly on the water.

6. Black Tern—*Hydrochelidon nigra surinamensis.*
Two records, both for the spring migration; May 17, 1915, two birds were seen at Oak Hall, and May 7, 1917, two were found on the pond at Scotia.

7. Hooded Merganser—*Lophodytes cucullatus.*
Scarce but of regular occurrence each spring; earliest, April 2, 1917; latest, May 9, 1915; one record for the fall migration, Nov. 11, 1916.

8. Mallard—*Anas platyrhynchos.*
Recorded only during the fall migration of 1916, but unexpectedly plentiful then, small flocks being seen at frequent intervals on the pond at Scotia from Oct. 26 through Nov. 14.

9. Black Duck—*Anas rubripes.*
Scarce but of regular occurrence each spring and fall; earliest, March 18, 1917; latest, April 20, 1917; earliest record for the fall migration, Sept. 25, 1915; latest, Nov. 2, 1916.

10. Blue-winged Teal—*Querquedula discors.*
An uncommon migrant; in 1916 a single bird lingered from Sept. 19 through the 24th on a small pond and on October 21 one bird was seen at Oak Hill; in 1917, two birds, male and female, were seen April 21 feeding at the edge of a creek.

11. Pintail—*Dafila acuta.*
Recorded only during the spring migration of 1917, but fairly plentiful then, small flocks being seen at frequent intervals from Feb. 4 through April 19.

12. Redhead—*Marila americana.*
One record only, two birds, both males, seen March 30, 1916, at Oak Hall.

13. Scaup Duck—*Marila marila.*
A common spring migrant; earliest record April 14, 1916; latest, May 7, 1917; no records for the fall migration.

14. Golden-eye—*Clangula clangula americana.*
A scarce migrant; three records, all for the spring migration; March 14, 1916, one bird, April 2, 1917, three birds, all males, April 19, 1917, two birds, both males.

15. Buffle-head—*Charitonetta albeola.*
Fairly common during the spring migration, scarce in the fall; earliest record in the spring, April 14, 1916; latest, May 14, 1917; one record for the fall, two birds, Nov. 4, 1916.

16. Old-squaw—*Harelda hyemalis.*
One record only, one bird seen April 16, 1917.

17. Ruddy Duck—*Erismatura jamaicensis.*
A scarce migrant; two records for the spring migration, single birds, April 21, 1917, and May 14, 1917; one for the fall migration, a single bird Oct. 28, 1916.

18. Greater Snow Goose—*Chen hyperborens nivalis.*

One record only, a flock of fully seventy birds seen Nov. 16, 1916, toward the middle of the afternoon, flying noisily by overhead.

19. Canada Goose—*Branta canadensis canadensis.*
A regular but scare migrant; earliest, Feb. 26, 1917; latest, April 2, 1916; earliest for the fall migration, Oct. 16, 1915; latest, Oct. 21, 1916; usually seen in flocks varying from thirty to sixty birds, which announced their presence long before they were seen.

20. Bittern—*Botaurus lengitinosus.*
Scarce, and of irregular occurrence during the spring migration; earliest, April 3, 1917; latest, May 12, 1917.

21. Florida Gallinule—*Gallinula galeata.*
One record only, a single bird seen May 6, 1916, on the mill pond at Oak Hall.

22. Coot—*Fulica americana.*
Two records for the spring migration, a single bird seen each time, April 30, 1916, and May 14, 1917; fairly common in the fall; earliest, Sept. 24, 1916; latest, Nov. 5, 1916.

23. Wilson's Snipe—*Gallinago delicata.*
A common migrant; earliest, March 25, 1916; latest, May 7, 1916; usually plentiful by the first week in April; earliest for the fall migration, Sept. 26, 1916; nine birds remained about a pond during the entire winter of 1916-17, and were seen there almost daily during the latter part of December, and January and February; when the weather permitted they at times scattered out about the swamps and creeks close by, but deep snows invariably brought them back; a single bird wintered about this same pond during the winter of 1918-19.

24. Pectoral Sandpiper—*Pisobia maculata.*
Recorded only during the spring migration of 1917, but single birds or small flocks seen at frequent intervals then from April 12 through May 4; possibly overlooked other years.

25. Least Sandpiper—*Pisobia minutilla.*
A common spring migrant; earliest, May 2, 1917; average, between the 9th and the 13th; latest, May 26, 1916.

26. Greater Yellow-legs—*Totanus melanoleucus.*
Common during the spring migration of 1917, but rather scarce other years; earliest, April 3, 1917; latest, four birds seen May 14, 1917; ordinarily one or two birds were seen each spring between the 6th and the 12th of May; two records for the fall migration, Oct. 21, 1916, and Nov. 14, 1916.

27. Yellow-legs—*Totanus flavipes.*
A common spring migrant, occurring in flocks of as many 10 or 12 birds, and frequently seen with the preceding species; earliest, April 3, 1917; latest, May 17, 1916; unusually abundant during the spring of 1917; four records for the fall migration, single birds seen Sept. 18, 1915, Sept. 19, 1915, Oct. 28, 1916, and Aug. 1, 1920.

28. Solitary Sandpiper—*Helodromas solitarius solitarius.*
A common migrant; earliest, April 14, 1916; plentiful by the first week in May; latest, May 22, 1916; latest for the fall migration, Sept. 30, 1915.

29. Semipalmated Plover—*Egialitis semipalmata.*
A scarce spring migrant; three records; one bird May 17, 1916, one bird May 30, 1916, and a flock of six birds May 7, 1917.
30. Goshawk—*Astur atricapillus atricapillus.*
Scarce, and of irregular occurrence during the winter; four records, Nov. 17, 1915, Nov. 26, 1916, March 15, 1917, and March 12, 1919.
31. Red-tailed Hawk—*Buteo borealis borealis.*
A regular but scarce migrant, one or two being seen during each spring and fall migration; earliest, March 22, 1917; latest departure, April 28, 1919; records for the fall migration, Nov. 10, 1914, and Nov. 11, 1916.
32. Red-shouldered Hawk—*Buteo lineatus lineatus.*
One record, a single bird, seen Jan. 31, 1916.
33. Osprey—*Pandion haliaëtus carolinensis.*
One record, one bird lingering for six days, from April 17, 1917, through the 22nd, about a creek near the town.
34. Short-eared Owl—*Asio flammeus.*
One record, one bird seen Nov. 5, 1916, flushed in a large open field.
35. Yellow-bellied Sapsucker—*Sphyrapicus varius varius.*
A common migrant; earliest, March 26, 1917; average, March 30; plentiful by the end of the first week in April; latest record for the spring migration, May 14, 1916; earliest record for the fall migration, Sept. 18, 1915; average, Sept. 26; latest, Nov. 14, 1914; average date of departure, Oct. 14.
36. Olive-sided Flycatcher—*Nuttallornis borealis.*
One record, one bird seen May 11, 1919, in the top of a tree at the side of a road uttering its characteristic note of alarm.
37. Yellow-bellied Flycatcher—*Empidonax flaviventris.*
Two records, Oct. 16, 1915, and May 19, 1916.
38. Alder Flycatcher—*Empidonax trailli alnorum.*
Three records, May 12, 1917, May 13, 1917, and May 17, 1919.
39. Horned Lark—*Otocoris alpestris alpestris.*
A common spring migrant, appearing in large flocks of from two to three hundred birds; abundant in 1916 and 1917, but scarce in 1919; earliest, Feb. 26, 1916; average, March 22; latest record for departure, April 9, 1916; average, March 31.
40. Rusty Blackbird—*Euphagus carolinus.*
A common migrant; earliest, March 4, 1919; latest, May 7, 1916; earliest record for the fall migration, Oct. 3, 1916; latest, Nov. 20, 1914; one winter record, a single bird seen Jan. 6, 1917, feeding with a flock of English Sparrows.
41. Purple Finch—*Carpodacus purpureus purpureus.*
A common migrant, and a scarce but regular winter resident; earliest record for the fall migration, Sept. 19, 1916; common by the first of October; latest record for the spring migration, May 17, 1915; average, May 14.

[Continued in September Wilson Bulletin]

THE PHILOSOPHY OF BIRDS' NESTS AND COMPARATIVE CALIOLOGY IN CONSIDERATION OF SOME LOCAL NIDICOLOUS BIRDS

The old Spanish proverb as pharaphrased by Longfellow, "There are no birds in last year's nest," is in many instances more poetic than true, and the bird-lover is blase indeed if the discovery of even an empty nest does not sometimes awaken a lively curiosity and a thrill of admiration for the builder.

Caliology is a most delightful and instructive department of Ornithology and should appeal to the ultrahumane, especially since the study does not necessitate the destruction of life and the collection of its bewildering variety of specimens ranging from the most crude to the most curious and artistic types, is just as practical as skins or eggs.

The site, position, composition, architecture and workmanship of the nest may reveal something of the builders' habits, haunts, structure and position in the Avian scale.

The subject is indeed full of possibilities, for the nest represents the sole constructive work of the owner, the tangible asset of a more or less mechanical energy set in motion by certain physiciological conditions or stimuli; the revelation of a most interesting phase of that mysterious innate propensity called instinct, which we are told, has the appearance of reason and knowledge, exceeding as it does the intelligence and experience of the builder; to which is added traditional habits, adaptability and perhaps a modicum of originality, should we follow the older school in the belief that birds have much the same sense facilities for acquiring knowledge that ourselves possess and though much inferior, are like us in mind and emotions. Authorities differ in their conception of the origin of instinct. In general, that of natural selection through the elimination of the unfit, seems the most plausible, and that of the effects of habit through successive generations, a contributing factor. Though the truly instinctive nature of nest-building has never been fully established, Wallace in his rejection of the hypothesis based his contention on erroneous premises and his main conclusion that nest-building is essentially imitative, lacked proof. It has been argued that a nestling knows less of its nest than of its general surroundings and that if birds were imitative there would be no reason why a species should not sometimes pattern after allied

species instead of each species constructing a standardized nest after its own kind. In colonial species it might be possible for the immatures to pattern after the adults, and there would be nothing revolutionary in this thought for it is easily proven that birds are mimetic in song and frequently in the wild state imitate the notes of other species. The writer has identified the song notes of some 18 species uttered by a single, talanted Catbird in the hedge and as many call notes given by a Starling nesting in the cornice.

After the vital continuous instinct of self-preservation (that of subsistance and avoidance of harm) hardly less powerful is the periodic or seasonable breeding instinct, which for brief and critical periods takes precedance of the first, and it may be necessary for the perpetuation of the species that it should, since many species would be individually safer without a fixed abode.

The breeding cycle is one of orderly sequence full of dominating influences and associations naturally leading from one to another. No doubt the first phase is that of the awakening of sexual and homing instincts portending the vernal migration to the place of birth, followed by the fight for exclusive rights to sufficient territory, commonly within the province of the male; then comes the period of courtship, selection of exact site for nest, in which the female commonly appears to have the last word; nest-building, deposition of eggs, incubation and care of young naturally follow, when the song period may suffer an eclipse or the more virile species of comparatively short breeding cycle may inaugurate a second or even a third cycle of similar sequence of minor actions beginning with courtship. Many species of diverse feeding habits may occupy the same ground apparently without coming into actual competition in the matter of food. Since most of the individuals have more or less restricted and distinctive haunts during the breeding season and employ the building materials close at hand, it may be assumed that the inward impulse to build is quickened by the presence of the requisite and traditional materials about its feeding station. However, instinct does not enable it to select the proper matter unerringly, for the female of many species often rejects at the last moment materials brought to the site by herself or more frequently by the male, who seems to lack discrimination most often.

In nest-building the female commonly takes the most promi-

nent part and is, in fact, the architect and builder. It is therefore of physiciological origin, for this action is quite similar to that of a mammal seeking the seclusion of a bed or den remote from disturbances to give birth to its young.

Although sufficiently complete studies of the home life of most of our birds are yet a desiderata, it appears that both sexes of many species of the groups including the Puffins, Auklets, Shearwaters, Petrels, Herons, Raptores, Cuckoos, Kingfishers, Woodpeckers and Swifts, commonly assist in nest-building; while the Hummingbirds are the only group below the rank of the Passeres in which the males are known to bear no part of the burden.

In the Passerine group there appears a bewildering amount of variability even in species closely allied. Many in which the males are highly colored render little or no assistance: Bobolink, Yellow-headed and Red-winged Blackbirds, Baltimore Oriole, Evening Grosbeak, House Finch, Crossbill, Redpoll, Goldfinch, Cardinal, Rose-breasted Grosbeak, Dickcissel, Scarlet Tanager, Summer Redbird and many of the Warblers. It apparently also includes the Wood Pewee, Crested and Alder Flycatchers, White-throated, Fox, Song, and Swamp Sparrows, Brown Thrasher, and Robin. The male Phoebe, Cedar Waxwing, some of the Vireos, Purple Martin, Mockingbird, and Bluebird assist sometimes.

Species in which the sexes are similar or alike, often both sexes assist: Least Flycatcher, Crow, Savannah and Chipping Sparrows, Swallows, Plainopepla, Shrikes, Ovenbirds, Wrens, Nuthatches, Chickadees, Gnatcatcher, Bush-Tit, and Catbird. Doubtless there are both individual and geographical exceptions to the above list.

The most potent factor governing the selection of the site of a bird's nest is impossible to determine. Habit is strong but ancestral habit yields to changed conditions; the social instinct in colonial species is especially strong; the protective instinct is also powerful, since severe persecution will drive many of the terrestrial nesters to cliffs or trees; the condition of young at birth is considered by some writers as by far the most important cause.

The lower aquatic families from the Grebes to the Frigatebird are almost exclusively insular, colonial, terrestrial, and primitive in nesting habits, and, further, with the exception of

the Grebes, Loons, Murrelets, Murres, and Auks, all of their young are born helpless and remain a long time in the nest.

Of those in which the chick leaves the nest almost immediately, the Grebes, which are not insular, and the Loons, which are neither insular nor colonial, form rude nests not inferior to that of the average nidicolous bird of the lower orders, and the less typical nidifugous Murrelets, Murres, and Auks habitually deposit their eggs upon the bare rock, comparable to the lack of nesting material of many of the nidicolous species of the lower orders.

The Puffin, Auklet, Guillemot, Dovekie, Shearwater, Petrel and Tropic-bird doubtless originally deposited their eggs on the open ground (as individuals of some of these species occasionally do yet) until persecution forced them to seek shelter in the crannies of rocks, or in the absence of sufficient quarters of this nature, to excavate burrows, where the lack of sunlight contributed materially to retard the development of the young, if not to acquire the typical nidicolous condition. It is true that some species of the lower orders are arboreal: the Common and Red-faced Boobies, Anhinga, Florida and Mexican Cormorants, California Brown Pelican and Man-o-War Bird, nest in low trees or bushes, situations less isolated than burrows or precipices but affording something of the security sought.

It is therefore evident that it could hardly have been the condition at birth that determined the nesting site and materials of the lower groups, but conversely, self-protection, and possibly led to the nidicolous condition. Perhaps the best index to the site of a bird's nest can be found in its food habits.

Professor Rennie, in his little volume entitled "Bird Architecture," written almost a century ago, took his cue from Aristophanes, an ancient Greek dramatist, and introduced the birds as artisians according to the form or nature of their nests: miners, masons, carpenters, basket-makers, weavers, tailors, cementers, felt-makers and parasites; also ground, platform and dome-builders; suggesting a somewhat similar method of groping for this paper.

(1) Doubtless the most primitive form is that in which the egg is dropped upon the bare earth or rock without preparation beyond perhaps a slight hollow. Naturally this form is confined to the lowest Nidicolæ—the Albatross, Rodger's Fulmar, Pintado Petral, Tropic-Bird, Blue-faced, Blue-footed and Brew-

ster's Boobies, and should also include the Paroquet and Crested Auklets, Black, Mandt's and Pigeon Guillemots, Dovekie, Bulwer's and Ashy Petrels, though these species deposit their eggs upon pebbles or rock spalls.

The Laysan Albatross exhibits an incipient tendency for nest-building when the sitting bird reaches out to pick up sand to build around the nest a ridge several inches high.

(2) The earth burrowers also represent the lower forms and with some notable exceptions, almost the most primitive types of the diving birds, including the Puffin, Auklet (two species), Guillemot (one species), Shearwater and Petrel, also the Burrowing Owl, Kingfisher, Bank and Rough-winged Swallows.

The burrows of the various species of Puffins are often curved and generally extend three or four feet, seldom far below the surface. Bent says that the work of digging falls chiefly upon the male and that he is at times so intent upon this work as to suffer himself to be taken by hand. The inner toe is well adapted for this work as it is strong, curved and sharp and the other toe nails are but little inferior.

Apparently the male Rhinoceros and Cassin's Auklets share with the female in the labor and Dawson states that the Pigeon Guillemot uses both beak and claws and is forced at the outset to maintain herself in midair. Montgomery says of the Slender-billed Shearwater, that the process, with intervals, requires six weeks. Fisher in describing the excavations of the Wedge-tailed Shearwater on Laysan Island, remarks that it shoves the loose earth under its body and kicks it in little jets far behind as it lies first on one side and works a foot and then shifts to the other.

Turner relates that he found the Horned Puffin nesting on the higher cliffs on the Aleutian islands where foxes were found and on islands where foxes were absent, generally at the base of cliffs, and Jones found some nests of the Tufted Puffin beneath the thickly matted salal bushes without a semblance of an earth burrow, on Bird Reservation off the coast of Washington.

Many of the Auklets, Guillemots, Dovekie, Fulmars, Pintado Petrel and some of the Shearwaters and Petrels, nest under boulders or in fissures of the rocks; doubtless all are burrowers in the future should occasion arise and may offer a hint of the probable origin of the tunnel-nesting habit.

An enlarged cavity in the earth at the end of the hole forms the nest and the slight concavity may be bare of nesting material but is often scantily lined with materials close at hand, a little dead grass, plant stems, leaves or twigs.

The Burrowing Owl appropriates the burrow of the ground squirrel and enlarges the hole. An inhabitant of treeless plains would naturally seek a nesting site similar to its kind, if not a tree-cavity then a cavity in the ground. Bendire states that the loosened dirt is thrown backward with vigorous kicks of the feet, the bird backing gradually toward the entrance and shoving the debris outward as it advances. The original lining was probably grasses and rootlets, now mostly dried cow or horse manure. The Florida form constructs its own burrow.

The Belted Kingfisher bores a nearly circular tunnel sometimes perfectly straight, again diverging at different angles near the surface in sand or clay banks. The nest chamber is on a slightly higher level than the shaft and may have a scanty lining of fish bones or coarse grass blades. The Kingfishers are solitary in contradistinction to all the rest of the burrowers, and some forest-haunting species are said to nest in tree cavaties.

The labor of perforation is accomplished by the Bank Swallow with closed bill according to the observations of Rennie; beginning at the centre and working outward, the bird consequently assumes various positions tending to throw the gallery out of line and sometimes quite tortuous. The time consumed, including the lining of grasses and feathers, is said to be from four to fourteen days.

This cosmopolitan is better known in England by the name of Sand Martin, where it has been found in exceptional instances, nesting in crevices in masonry or old ruins, in tree cavities and it has even been known to burrow in decayed wood.

I have found burrows of the Rough-winged Swallow near Howellville quarries, less than ten feet up the bank along a public road. It burrows in a similar fashion to that of the preceding species, though it is perhaps more apt to use its feet in scratching out the dirt. In the Chester and Schuylkill valleys the Rough-wing usually nests in the crevices or pockets of large stone culverts, abandoned lime kilns and rock fissures, from which it removes the disinterrigated morter or clay and lines the cavity with swamp grass and a few leaves of the swamp willow. In California it has been found nesting in adobe walls

and knotholes. Though less colonial than the Bank Swallow, it is still possible that the tunnel-forming habit originated in the social instinct fostered by a former segregation in rock crannies.

The nidification of these two species would appear to vary very considerably from the family standard, but the Swallows are confirmed mud dabblers, especially the Barn and Cliff Swallows, and Dr. Rich once observed nests of the latter in close proximity to the burrows of a colony of Bank Swallows in a sand spit along the Big Sioux river, and found some of its eggs in the burrows. Even the Eastern Martin builds a little mud dike at the entrance of its nest, and the nest of the Western Martin has recently been found in the drainpipes under the eaves of a school house, one nest having a layer of mud, then grasses, lined with acacia leaves. The Tree Swallow conforms to the family standard in its love of a darkened nest-chamber and the character and material of lining.

All earth burrowers appear to use both bill and feet in the construction of their tunnels and the male always shares in the hard work. It is remarkable that species of so extreme types and diverse equipment should be able to attain the same end in nesting site, and demonstrates that structure has little to do with this form of nidification.

(3) The more or less concave platform is a primitive type of the open nest, especially adapted to the ground or cliff nesting habit and by the enforced transition to an arboreal site, less adapted to the situation than to the bird of aquatic or terrestrial feeding habits. This type includes the Common and Red-faced Boobies, Anhinga, Cormorants, Pelicans, Man-o-War-bird, Noddy, Roseate Spoonbill, Ibises, Bitterns, Herons, Pigeons, Hawks, Owls and Cuckoos, probably nearly all of which were at no remote period ground or cliff nesters, as some are yet. Many are especially adapted for terrestrial nesting and at some disadvantage as arboreal nesters, in fact the only compensation appears to be the protective features of an elevated nest. The Hawks, Eagles, Kites and probably the Owls may have evolved from an arboreal or at least a cliff-dwelling ancestor and their nests are often much more substantial.

Generally the cliff or tree builder utilizes sticks or twigs, while the ground nester frequently uses lighter materials in the main equivalent to a lining. The Marsh Hawk, for instance, uses sticks only when necessary to raise the nest above a wet

ground. In the first trials the stick base of the cliff and tree breeders was obviously not a matter of knowledge or expediency, but the logical conclusion of an indiscriminate collection of materials by the inexpert builder, only to have the lighter materials blown away and the heavier remain.

The floor of the fertile Chester valley occasionally rises 100 feet or more to form a series of knolls parallel with the high hills on either side, the first land to emerge in a chain of islets when in the ancient days the waters broke through the hills and slowly drained into the sea. On these knolls in detached deciduous groves, the Black-crowned Night Herons have existed perhaps since time immemorial. It may be more than a coincidence that all of these heronries have been placed in the western side of the groves, facing up the valley toward the first drained area and that the birds enter and emerge from this side though some have the disadvantage of contiguous roads.

It is not necessary to go beyond 1872 when the heronry situated near the cantonment of Wayne's Continentals at Valley Forge were shot up and the survivors settled near Port Kennedy, two or three miles further down the valley. When the timber of this grove was cut a few years later, the birds simply moved one field east to a similar situation, where a nucleus has existed with a few years interruption down to the present time, and from here the increase flowed back to the former site as soon as the timber became large enough to bear nests, comprising the twin colonies reported in 1891 to be the largest extant in this part of the country.

The westernmost colony much depleted, maintained an average of about 100 adults from 1900 to 1905 when the timber was again cut the following winter and the Valley Forge colony reestablished in 1906, after an abandonment of 34 years, in a detached grove quite close to the old site. This heronry of 43 nests increased to 150 nests in 1907 by the accretion, I since learned, of the easternmost Port Kennedy colony with which it was so closely affiliated. The return of so interesting a species, en masse, to its ancestral nesting ground after a period doubtless several times longer than the life of any individual of the colony may be due to the habit of the adults of this communal group revisiting the site during migrations until it became a familiar resting place and naturally would be resettled whenever the birds were dispossessed, though it was the most ineligible from the

standpoint of timber growth and privacy, of the several groves in the neighborhood. The annoyance began in 1908 and though the maximum of newly built nests was attained on May 9, 1909, continuous persecution drove all but four pairs with small young, to seek refuge in the easternmost grove at Port Kennedy and at Red Hill about a mile further down, and definitely abandon it the next year.

I am reliably informed that the Red Hill heronry was established in 1886, however I did not visit it until 1914, when 90 nests continued to show evidence of occupation although recently "shot up." It was further reduced the next year to 60 nests, the same time that the Vallege Forge colony was once more reëstablished with 50 nests and apparently had a prosperous year on the former site, since in 1916 there were 127 nests, but the gentlemen farmers in the vicinity accused the Herons of a well developed taste for young Mallards, and on April 15, 1917, I observed only about 15 birds engaged in nest-building and 33 others in nearby timber apparently undecided; however they soon after departed to swell the lower colonies.

Though largely nocturnal this species is at a great disadvantage in beginning to nest before the leaves are formed when the birds and nests may be seen at a distance. I have observed the entire Valley Forge colony of adults perched upon the tall saplings in the rear of their heronry, looking, I fancied, like gigantic exotic blossoms on long slender stems; as they awaited the departure from under their nests of a party of idlers.

The Red Hill heronry continued the brutal sporting ground of some inconsiderate persons and on July 20, 1920, there were probably 45 nests inhabited by young belated more than a month. The following year the wood was removed and a powder magazine erected, resulting in a marked increase in the easternmost Port Kennedy colony, now the sole remaining heronry in the valley. This heronry met with a setback in 1922 when so many young perished during a storm, but was in force in excess of 300 adults the season following and due to the humane farmer had a most prosperous year.

The nests of this picturesque species are placed in the highest available crotches and topmost branches of slender young ash, oak, chestnut, cherry and poplar, 25 - 75 feet above the ground. The nest is a very good example of the platform type, although sometimes a mere bundle of sticks in the least suitable branches—

probably the work of the immature. The nests are groped as close as possible and the bill only is used to gather sticks from the ground or twist twigs from the tree, at which both sexes appear to work from a few days to a week to rear a compact structure, well tramped down and finished slightly concave. This type of unlined nest, I have reason to believe, was peculiar to this part of the country in Wilson's time.

While the excreta whitewashes the nest, tree and ground for a radius of several feet, it does not kill the tree but on the contrary it accelerates its growth, while a most luxuriant vegetation covers the ground except immediately under the nest.

The Mourning Dove, like most of its family, is social and gregarious, but not essentially colonial. It is an adaptive species nesting from the ground to upwards of 50, though usually 5 to 15, feet, mostly in evergreens or thickset deciduous trees. I have found it on top of bare stubs and once upon the broad railing of a rose-embowered balcony, and it has been found in various localities on ledges, bowlders, roofs, wood piles and in cavities. The nest has a base of a few twigs, a scant layer of grass and weed stalks and lined with grass rootlets. I have noticed the male make numberless trips of 40 feet to gather material in bill for the female to arrange and complete in two days. Dice remarked that while many other species building nests of greater bulk, gather all the material possible on a single trip, this species carries a single straw at a time and when this is accidently dropped, the bird continues to the nest before making another trip.

The Hawks are natural cliff and tree nesters, usually building a compact structure capable of withstanding the storms of several seasons. The Cooper's Hawk compares favorably with the best as a builder. Like the Broad-wing, both sexes carry material in talons or beak, much of it broken from the live tree; also bark scale lining.

The more slovenly Broad-wing is adverse to the construction of an entirely new nest, builds at a lower level, is most tenaceous to locality and has a perfect mania, shared in a lesser degree by all the Buteos, and occasionally by some of the Cormorants, Hawks, and Cuckoos, for plucking green sprigs, blossoms or leaves from nearby trees to serve as an additional lining after the deposition of the eggs, to be renewed constantly after incubation has advanced or while the young are helpless. To the

writer this simply signifies recurrence of the earlier stages of the nesting cycle coincident with a renewal of sexual activity after a short period of inactivity. Since the early nesting species are accustomed to gather more or less light twigs broken directly from trees, it is natural that in the repetition of the building phase the same thing should reoccur, even though the terminal twig should bear bud, leaf or blossom, according to the advance of vegetation.

[To be Continued in Next Issue]

FOUR DAYS' OBSERVATIONS AT A GUNNING CAMP ON MARTHAS VINEYARD

A. H. WOOD, JR.

April 18, 1924

Down to camp on Friday. A fine sunny day but very windy. There are usually myriads of Gulls and Terns at the Woods Hole wharf, but there were very few in evidence this trip. Pretty early in the season.

We saw great banks of Scoters, apparently all *Oedemia deglandi*, feeding in the sound on the way over to the Vineyard. On the beaches between Oak Bluffs and Edgartown the Gulls were fairly numerous. Three species of the Gulls were in evidence — Herring, Great Black-backed, and Laughing. They were all standing huddled up on the shore looking as though they hadn't a friend in the world. Flying overhead were a few Terns, mostly Common Terns, but we also noticed a few Roseate Terns and several Least Terns.

The ponds en route all contained small flocks of Lesser Scaup and a few American Golden-eyes.

We arrived at camp about 2:30 p. m., but as it began to storm we contented ourselves with cleaning up and airing out the camp for occupancy.

April 19

Rain and wind greeted us at 6 a. m. and lots of it. The inclement weather didn't prevent Fred and myself from starting out at 7 to see what birds were out in the storm as well as ourselves.

We found a pair of our mated Geese nesting on the shore of the lagoon on the point.

We went over to the west blind and rowed the boat over to the South Beach. The waves were running very high, and the trip over to the beach was anything but dry. The avi-fauna on the beach was very scanty. In another month the *Limicolae* will be much more in evidence than they are now. We noticed one Piping Plover running along the shore of the inner beach as we landed, and later we saw a Sanderling on the outer beach. There were two dead White-winged Scoters and a Gannet lying on the beach, evidently killed by the discharged fuel oil of passing ships as their feathers, breast and wing, were heavily matted with the viscous stuff.

The rain let up about 2 p. m. so Fred and I painted the sail boat and the front porch. While painting the boat we saw several pairs of ducks fly over but they were too far off for positive identification. They were probably local Black Ducks which are very common in this vicinity.

There are very few land birds around camp yet. About all we saw were Marsh and Red-tailed Hawks, Crows, Song Sparrows, Towhees, Robins, and Tree Swallows.

April 20

Easter Sunday and a mighty poor one! Driving rain and more high winds out of the south-east. Charley, Fred, and the Skipper went over on the mail boat for the afternoon train. Joe and I stayed in camp.

April 21

Allan called for me about 8 a. m. in the Ford and we started up-island to Squibnocket Pond to visit a Night Heron colony. While driving past Oyster Pond we saw several large flocks of Canada Geese swimming around in the pond, feeding along the shore, and otherwise enjoying themselves. Later in the morning, we saw several other wedges high in the air, headed north. These wedges were so high that the individual birds looked to be the size of a sparrow, yet the wind brought the sound of their honking down to us with astounding clarity.

In one of the small outlying Lagoons bordering on Squibnocket, we saw about twenty "Blue Peters" (American Coot) sitting idly in the sun, completely satisfied with the world in general. They were very tame and allowed us to approach to within twenty yards of them, close enough to see their peculiar

banded white bill. In times past they have bred in this vicinity, and it looks as though they might breed there again this spring.

We arrived at the Heronry about 10 a. m. This particular colony is situated off the main Gay Head-Edgartown road, about one-third of the way between the road and the north-western end of Squibnocket.

A small marshy pond, oval in shape, about one hundred yards long and half as wide, bordered by a wide fringe of tall bushes and dead trees, comprises the Night Heron colony.

The birds were sitting on every bush and tree in sight — about three hundred of them, and every bird a Black-crowned Night Heron. At our approach the Herons nearest us rose in clouds and settled on the other side of the pond. They were all very wild and would not allow any sort of an approach for observation. It was necessary for us to make use of a pair of high-power glasses to see any detail at all. The birds were all in their splending breeding plumage and made a beautiful picture perched on the dead tree tops with the sun shining directly on them. We watched them for about an hour and enjoyed every minute of that hour.

We drove back through the Heath-Hen Reservation, passing a covey of about twenty or thirty Quail on the way, but it was too late in the day to see any Heath-Hen.

Joe and I took the afternoon boat and arrived back in town that night. We are planning to go down to camp again the last of May and visit the breeding grounds of the Herring and Laughing Gulls, Piping Plover, Terns, and Parula Warblers.

Boston, Massachusetts.

SCREECH OWL

(*Otus asio asio*)

E. D. Nauman

(Observations on some of its food habits).

When my brother and I were boys our home was on a farm near where the town of Keota, Iowa, now stands. The farm buildings were located near the margin of an extended forest.

We boys became interested in the domestic pigeon business. We built and put up nest boxes to the number of about a dozen and usually had about that many pairs of adult pigeons about the place. When undisturbed they produced many a pair of

luscious squabs and besides furnishing the family a rare dish occasionally, they also produced some revenue for us.

The third summer we had the pigeons, however, something interfered with them so they did not prosper. The adult pigeons, besides being unusually wild, gradually disappeared and they produced few or no squabs. Several times we discovered dead and half devoured young pigeons in the nest boxes. Once I found the remains of an adult pigeon that had been partly devoured. We could not account for this state of affairs; but it was certain that our pigeon business was "on the blink." We tried to account for our misfortune by assuming that rats, or minks, or weasels were doing the mischief. This did not, however, quite fill the bill, for some of the nest boxes were so located that it was hard to see how any of these Carnivora could reach them.

For a long time, we were completely at sea without anchor or compass in regard to this mysterious matter. But finally the time came when all was made plain. One day I suddenly raised the lid off a nest box where there still had lived a pair of pigeons, and I was startled and dumfounded to see an Owl dodge out through the opening and make his get-away in great haste. And there was a half devoured pigeon left in the box. The owl had got out of the box in such a hurry that I could not be sure at the instant as to what species it belonged to but by subsequent observations we made certain that the mischief was being done by Screech Owls. We made war on them of course, as under the circumstances I think we were justified in doing. We shot a number of them and cut down several of the trees in the immediate vicinity, where they were known to live, and almost immediately our pigeon business began to improve and in due time to prosper again.

In recent years there was located an outhouse or storage room near a residence two blocks from my present home in Sigourney, Iowa. The one side of this outhouse was covered with a thick mat of Virginia Creeper. This tangle of vines was a favorite hiding and roosting place for great swarms of small birds, mostly English sparrows.

Directly in front of this tangle of vines and about 15 feet distant stood a clothes line post seven feet high. Many times as I passed there in the evening I could see a Screech Owl stationed on this post with his yellow eyes fixed on that tangle of

vines. One evening as I was passing, the owl made a sudden dash into the vines and flew away carrying a wriggling and screeching sparrow in its talons. The gentleman who lived at that place told me that he had seen the owls catch a great many birds at this tangle of vines. I suppose we are justified in assuming that these owls do not indulge in any hair splitting arguments over sub-species, so doubtlessly many a luckless Junco, Tree Sparrow, or other small bird is obliged to contribute to their bill of fare.

For many years a pair of these little owls have made their home in a hollow limb of one of our shade trees within 12 feet of our residence. Last summer a pair of Crested Flycatchers appropriated another hollow limb of the same tree and made their nest therein. The opening to the Flycatchers' home was only about eight feet from the owl's front doorway.

For about three weeks everything passed along amicably so far as I could see. I saw the Flycatchers every day many times and heard them oftener. They had already begun to carry food to their young when suddenly something happened. Everything was not peace and tranquility about the Flycatchers' home. I could see only one bird and he was shy and not carrying any food, and in a few days he also disappeared. The location of their nest in the tree was somewhat inaccessible, so I did not attempt to climb up and make a more careful examination. I cannot, therefore, make any positive statement in regard to this case, but it looks mighty suspicious for the owls. It seems they must have had a "swell" dinner at about this time, consisting of a brood of young Flycatchers and one adult ditto.

These are simply a few discordant notes in the grand symphony of Nature. A perfectly good little owl should of course catch nothing but mice, rats, rodents, grasshoppers, etc. But they do not. Government reports show however that not over one-sixth of this owl's food consists of other birds. The balance or five-sixths consists of mice and other rodents and insects, thus indicating that the Screech Owl is mainly a beneficial bird and should be protected, excepting possibly in a few individual cases.

Sigourney, Iowa.

THE WILSON BULLETIN

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EDITORIAL

The Editor will begin his annual automobile trip to the Pacific coast on the morning of June 18. He will return to Oberlin about August 20. Mail should be addressed to him at 143 West College Street, Oberlin, O. The points of especial interest that will be touched are Black Hills, Yellowstone, Glacier and Rainier parks, and the Pacific Ocean at Mora, Washington.

The Bird Banding work, under the able direction of Messrs. Baldwin and Lyon, seems to be much the most active work that is being done at present. We may confidently look for some valuable results from the season's activities. There are many interesting problems that can be worked out single-handed, as Mr. Baldwin has demonstrated, but there are at least as many more that require the coöperation of many workers. Lend your aid.

Time was when a mere enumeration of the birds that were to be found in some political division could be looked upon as a contribution to our knowledge of the science of Ornithology. For a large part of North America that is no longer true. In the case of a very lage proportion of our native birds the general outlines of distribution are well enough known already. What is wanted is specific information about the species—just where in the political division it is to be found, just what its natural environment is, not only during the breeding season, which is by far the most important activity of every species, but also at other times, if there is any difference. It is not possible, at this time, to go into this matter at length. That will be done at a later date. Meanwhile your Editor wishes to say to any contributors who are contemplating the preparation of local lists of birds that he does not believe that mere enumerations of the species warrants the cost of publication.

NOTES—HERE AND THERE

Conducted by the Secretary

On March 7th the Secretary, at the invitation of the Outdoor Art League of Louisville, Kentucky, gave four lectures on Ornithology in that city. In the forenoon he spoke before the Louisville Normal School on "The Educative Value of Bird Study"; before the Male High School on "The Miracle of Migration"; and before the Kentucky Home School for Girls on "The Wonder of the Commonplace". At noon he was the guest of the Outdoor Art League at a luncheon at the Henry Watterson Hotel, where he spoke on "Modern Methods of Bird Study", emphasizing especially bird-gardening, bird-banding, and bird-reservations.

It is a matter of gratification to us of the W. O. C. that one of our good members, George M. Sutton of the Carnegie Museum of Pittsburgh, is making quite a reputation as a bird-artist. There is no field that offers such opportunities for service as that of painting wild life in its native habitat. Much of the older work was too stiff, and reminded one at best only of well-mounted specimens in a museum. Mr. Sutton is continuing his work on his admirable study "The Birds of Florida". We will welcome the publication of this great study.

The Park City Daily News (Bowling Green, Kentucky) had the following as a news item on March 5, 1924: "Erwin, 7, son of Westerfield Dorsey, a farmer living three miles south of Smith's Grove, on the Smith's Grove and Glasgow Road, had a narrow escape when attacked by a large Golden Eagle last evening in the front yard of his father's home. The child was playing in the yard when the eagle flew at him twice. The second time the eagle flew against a wire fence and was crippled. The boy screamed for help and his father came to his assistance. The eagle was captured by Dorsey and is now caged. The eagle measures 52 inches from tip to tip and is a young bird. It is attracting a great deal of attention, being the largest eagle that has ever been captured in the Smith's Grove vicinity".

Franklin P. Metcalf, now teaching in Fukien Christian University, Foochow, China, writes the Treasurer: "The bird situation out here is very unusual, as we have such a large variety that live in or pass through this province. In fact, there are 462 birds reported from this region near Foochow, and I do not suppose that the list could be called complete. A great opportunity for some museum to build up its collection would be found in this region".

Here is a note about one of our members who is now far away: "St. Mary's Ohio, April 12, 1924—A 'whistling monkey' was shot by Professor Walter F. Henninger, former Auglaize County church pastor, now at the head of a school in Rio Grande do Sul, southern Brazil. The monkey treed itself on the comb of Henninger's house, his letter states. After unsuccessful attempts to catch the nimble-footed vagrant, Henninger brought it down by means of firearms. Then his wife declined to cook the carcass for him. Monkey meat is a decided delicacy,

Henninger insists. During a January summer outing at his station in the southern hemisphere Henninger says he and his wife captured 1500 perfect specimens of butterflies and other insects. His students on summer vacation (at Christmas time) caught 2000 bugs, which they donated to the enterprising professor. His collection now exceeds 11,000. A photograph shows Henninger and a woman school teacher holding a six-foot live snake stretched between them. A twelve-foot crocodile is a prize Henninger hopes to capture and bring with him when he returns to the States."

In the second annual bird census made by three members of the San Diego Society of Natural History on January 30 a total of 107 species of birds were counted between the hours of 7 a. m. and 5 p. m., all within a radius of 15 miles of San Diego. This exceeded by 14 the highest previous record, says a dispatch from that city.

Miss Lena B. Henderson, head of the Biology Department of Randolph-Macon College, Lynchburg, Virginia, one of our new members, writes to the Secretary: "We have a very interesting Robin on our campus. Its throat is pure white, there are broken white lines over the eyes, and the under tail coverts are white. Its bill is lighter than normal. There is a great deal of interest manifested by our students in Biology, and I should like to follow it up. I hope it will nest here. I have never done any bird-banding, but it seems that we should keep some record of this interesting bird."

Thomas M. Earl, Columbus, Ohio, the famous taxidermist, has issued on the back of his advertisement a clever series of jingles called "Bird Orders in Rhyme". Here is a sample:

"An-ser-es is Order Five,
In one family they thrive;
Ducks and honking geese and swans,
Wild, likewise domestic ones;
Notice the peculiar bill
With its inner tooth-like frill."

On March 4, 1924, our good friend, Professor Dayton Stoner of the University of Iowa, gave from the university broadcasting station, WHAA, a lecture on "Spring Birds", which has since been printed as a regular issue of the University of Iowa Service Bulletin. Dr. Stoner is always interesting and does himself peculiar credit here in his account of the problems of migration, the different kinds of birds, (permanent residents, summer, winter, and migrants), and the dates of the great migration waves.

Mr. Belden Saur of Norwood, Ohio, writes to the Secretary: "On Friday, April 19, I took several boy friends of mine and set out for a little walk in a small strip of woodland near Newtown, Ohio (about two miles from Cincinnati). We had no particular aims in view, just collecting a few wild flowers, or studying a casual bird that might fly by. After walking a while, out attention was attracted by a group of Black Vultures which were excitedly plunging about over heads in a very un-Vulture-like manner. There are several Owl roosts in this woods; so

I naturally supposed that the Vultures had found an Owl. I suggested that we sit down and watch to see what would turn up. As we sat there, a large group of Crows suddenly appeared from nowhere, followed by two Red-tailed Hawks. Sounds strange, doesn't it? Well, danger, I suppose, also makes strange bedfellows, for the Vultures, the Crows, and the Hawks all flew peacefully about one another for a bit. Then I was given a treat, which I believe was one of the greatest that I have known in my study of birds. A gigantic bird, judged by the size of the Vultures and the Hawks, floated across the sky. It had a smaller bird in its claws which I could not recognize. It alighted in a near-by tree; I instantly recognized it as a Bald Eagle, almost a bird of my city dreams, right before me. He remained but for a minute, as the allies, the hawks, the vultures, and the crows, pounced upon him. That minute was enough, though, for I plainly saw the white head, the yellow beak, and the peculiar roosting position of the Eagle."

Douglas Ayres, Junior, St. Lawrence University, Canton, New York, commenting on his Christmas census in Bird-Lore, says to the Secretary: "I think fifteen species is the highest number ever seen in one day while taking the bird census, but it gives me more pleasure than any other winter trip. Up here in the St. Lawrence country bird life is very scant. On December 8, 1923, I saw a flock of 70 Evening Grosbeaks feeding on sumach cones, the canary yellow of the males contrasting vividly with the maroon of the sumach berries. On January 26 I saw an Artic Three-toed Woodpecker. I rapped on the dead pine on which it was hammering and it flew right down and lit on a log near me and then hitched along the log towards me. It was a female. I saw a male a year ago up here. A pair of Great Horned Owls are residents in a near-by swamp. Some time next month (The letter was dated February 18, 1924) we will see a flock of Red Wings swaying in the treetops and the Canada Geese will honk overhead, and then we will know that spring is here. With the thermometer at 14 below zero continuously, winter grows monotonous."

Miss Emilie Yunker of Louisville, Kentucky, a prominent member of the Kentucky Ornithological Society, is Director of School Gardens for that city. One of her activities is a series of directed hikes with school children to the parks of the city. Captain Fulkerson, the keeper at Cherokee Park, is a great friend of the birds and helps Miss Yunker in her studies with the school children. On April 18, 1923, the pupils of the I. N. Bloom School, who have taken these hikes every Saturday morning this year, gave a dramatization of Longfellow's "Birds of Killingworth" and in addition a number of their observations in the regular hikes.

The April, 1924, "Gull", published at San Francisco, contains a stinging protest from the editor, A. S. Kibbe, against the illegal practices of the Du Pont Powder Company in inciting the people to destroy numbers of species of birds against which there is a general prejudice. The Secretary feels that the point is well taken and believes that ornithologists and sportsmen alike should protest in like manner against this prominent ammunition company.

The Louisville, Kentucky, *Times* for April 24 contained an editorial which quoted the protest of *The American Field* against this very propaganda by ammunition companies, and says, in conclusion, "The purpose behind the crow-killing contests (such as the one in Tilden, Nebraska, which resulted in the destruction of 17,000 crows) which the Federal Department of Agriculture has not indorsed, and which many ornithologists and many mere human beings deplore as a foolish and savage onslaught upon a species probably more useful than injurious, is ammunition selling."

The Hesston, Kansas, Audubon Society has given this year for the benefit of its members a series of lectures on "Birds and Bird Life."

There are always good ways to keep people informed and interested in birds. Our good friend, I. H. Johnston, State Ornithologist of West Virginia, has adopted the method of speaking to the thousands of people in his state through the columns of the Weekly Market Bulletin. "Questions and Answers about Birds", "Request for a Bird Census", "Birds of West Virginia", "Pileated Woodpecker"' and "Red-bellied Woodpecker" are successive articles in the Bulletins.

John B. Lewis, Lawrenceville, Virginia, recently became a member of the W. O. C. For years he was official observer for the Biological Survey at Eubank, Kentucky, his records there being used extensively by the Survey in determining migration routes.

GENERAL NOTES

THE GOLDEN PLOVER AT COLUMBUS, OHIO

The Golden Plover was seen this spring in large numbers for a short period of time in the vicinity of Columbus, Ohio. In Ohio, it is a very, very rare migrant. It confines its migration to the Mississippi Valley and the Atlantic coast, as a rule. Thus, we seldom have it in Ohio, which is several hundred miles from either place. In Dawson's "Birds of Ohio," Mr. Dawson comments upon the fact that it was once seen several years before his writing of that book. To my knowledge, it has not been seen in Ohio since that time until this spring. Although we have several distinguished bird observers who have been in the field observing birds for the last fifteen or twenty years, it has never been seen here before. So we must consider this record as a very rare accident.

It was first seen on April 18 by Mr. C. F. Walker and Mr. R. M. Geist at the junction of a small road with a well-traveled highway, about two miles southwest of Columbus and about one-half mile west of the Scioto River. There was a flock of twelve Golden Plovers there and no other birds. The majority of the flock were in winter plumage, but a few were changing to summer plumage, while several were in full summer plumage. They seemed to have come in for the night for they were running around a little pond which was hardly more than ten feet in length and about half as wide.

The next morning, at sun-rise, Mr. Milton Trautman went down to this little pond and again found them. This time there were eighteen in the flock. He crept up to them and observed them with a 8X glass at a distance of about thirty feet. He saw them bathe and sun themselves right in front of him. They fed quite a bit, but he is under the impression that their prime object of being there was to bathe in the pool of water and to prepare themselves for the day. The afternoon of that same day Mr. E. S. Thomas and a party found a large flock of Golden Plover about twelve miles southeast of Columbus. There were about 500 of them and about the same number of Pectoral Sandpipers together in a field. This number of Plovers was merely a low estimate of the flock of Plovers as the exact number could not be determined. Upon Mr. Thomas' inquiry of the owner of this field, who lived near by, he found out they had been seen there for the last three or four days.

The last time that they were seen was on the afternoon of Easter Sunday (April 20) when Mr. Trautman and I went down for the express purpose of seeing them. We were greatly disappointed for we saw no trace of them. We went on down the road for several miles in order to see other birds. While there, we saw a long string of about fifty birds fly over us. They flew so high, so swift, and so different from any other birds of this general class that we believed them to be Golden Plovers, but this record is dobutful. On our way home we stopped at the pond where they had been seen before, and there were twenty of the Golden Plovers! They stayed there just about five minutes after our arrival, when they flew away for good. We got a fine view of them during that short time, for I used a 33X telescope on them at a distance of about 75 yards. There were not more than three males in summer plumage which were in that flock. Again it seemed that they had stopped at that place merely for a rest or to spend the night.

It is unfortunate that one of the observers could not have collected one of these birds, but the only possessor of a collecting permit among our bird student friends was unable to get out in order to collect one. However, as we are so certain of their identity, we consider ourselves fortunate in having seen them at all, for we shall probably never see them again at Columbus.

[A flock of 25 was seen near Huron, Ohio, on May 5, and one on the 18th, and another on the 23d at Bay Point, Ohio. — L. J.]
in this connection.

F. Dale Pontius.

May 2, 1924.

BIRD BANDING DEPARTMENT

Under the Direction of Wm. I. Lyon, Waukegan, Ill.

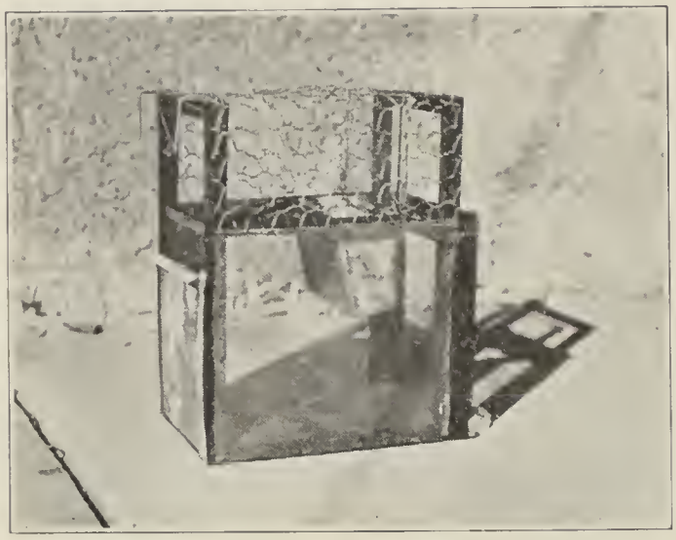
TRAPPING THE TREE CLIMBING BIRDS

There is a way to trap everything if you can only solve the problem. The tree climbers were a real puzzle, as the moment they met an obstruction in going up a tree they would fly, but the way to success is perseverance, so a crude trap was constructed, then we carefully watched the effect and studied the cause. It was discovered that if the obstruction was placed slanting the birds would climb up but keep a little dis-

tance away from the collar or guiding piece of wire netting on the tree. The *illustration* gives you the impression that the collar is nearly horizontal, but that is because the photo was taken from above the trap. The later traps are built with a greater slant to the collar, on a tree that is eighteen inches in diameter. The starting point on the opposite side of the tree is about three feet lower than the upper end of the funnel. As the bird comes into the apex of the funnel, there is an apron that covers the outer side so the only way they can fly, is downward. When they are in the upper compartment, they usually go to the top, and on one side there is an opening into the receiving box, shown in the *second illustration*, and the only obstruction is a clear glass which looks like a

chance for escape and they fly against the glass and slide down the shute into the lower compartment of the receiving box. Some are wise enough to get up the shute, but by opening or closing the bottom of the shute, according to the size of the bird, you can regulate their chances. The bottom of the receiving box has a round piece of wood for a grip so the box can be handled with one hand. Notice the upper part has hooks, so all one has to do is to raise up the box till the hooks are clear and it is ready to come to the ground so it is convenient to get your bird.

The higher you can place the trap on the trunk of the tree the more space you will have for the climbers to get below the trap, but you have to provide some means for climbing; we found some old telegraph pole steps very convenient.



Our first traps were built solid on the tree and took much odd time to construct, but a request to purchase some caused much figuring and rebuilding, and we have a man at present who will make them at $12.00. We have no desire to start a trap factory and we are glad to have you copy our traps for Bird Banding, but for those who do not have the convenience, we have arranged to have local people construct them.

Another trap that has been successful is the "Top Entrance Trap" that works on a balance principle, so when the bird hops on the floor of a small entrance it tilts downward and the only escape is into the lower compartment. As soon as the bird leaves the balance the weight rights the entrance and is ready for the next bird. We have used this trap successfully in bushes up off the ground.

The making of the guard wires at the funnel entrance seems to be the most tedious and annoying to many. We have found a gutter strainer, that can be obtained at a hardware store, can be cut and made to help out in the work; then by taking half or three-quarter inch hardware cloth that is galvanized after made, you can put it over a flame, blow torch or gas stove, and melt it off four or five strands and leave the ends free. A

strip treated in this way around the funnel entrance gives very desirable guard wires. Just try it.—W. I. L.

We need more information and volunteers in our Gull and Tern Banding Campaign. Have you contributed your share of information? Or can you suggest some that can? Have you tried to find a volunteer Bird Bander in your district?

BIRD BANDING — ARE BIRDS FRIGHTENED OR INJURED?

BY S. PRENTISS BALDWIN

Writing to my friends I may be pardoned if I introduce a few lines of autobiography, as it may match that of many others who enjoy birds.

My father, when I was about six years old, taught me an interest in birds and wild flowers. He would take me walking in the fields and woods, then in the evening, at home, he would put down on the floor, for me to play with, that fine old book of Birds, published by New York State in 1845, with its many accurate figures of birds, all beautifully hand colored. Every day of my life I have felt gratitude to that father who was wise enough to put the love of nature into me.

Later I collected birds, learned taxidermy, and made skins of them, but more and more my heart grew tender toward them until I could no longer collect, because I could not bring myself to kill them.

Perhaps that alone is answer to the question whether birds are hurt by trapping and banding, when I add that I have now for ten years or more been actively trapping and banding birds every year, and have handled, I know not how many, but at least some thirty or forty thousand birds from my traps.

But to continue the Autobiography: after years in business in the city I bought a farm, and wife and I lived on the farm each summer; and how we did enjoy the outdoor life.

One feature of the life on the farm disturbed our comfort; just as we were most enjoying the peace and beauty of nature, a bird would cry out in pain, caught by some bird enemy; today perhaps the House Sparrows break up the home life of our Bluebirds; tomorrow it is the home of our Robins destroyed by the red squirrels; constantly tragedy comes to our birds, until this sort of thing worked on my nerves, and I determined to end it.

This was ten years ago, and the change came in the life of the birds on my farm, because I became a bird bander and, finding it so interesting, I have systematically trapped and banded birds on the farm ever since then. Within the last two years several well known ornithologists have visited my farm, and each one has remarked what an extraordinary number and variety of birds I have on the place, and how tame they are. Two of these ornithologists, men of exceptional train-

ing on the subject of bird census, have said they have never seen so many birds per acre, and so many varieties per acre.

There are so many birds on the five acres about my house, and I am kept so busy trapping and banding and observing them during the nesting season from May to August, when I am chiefly doing research work with them, that I have no time to observe the birds on the rest of the farm, which contains in all one hundred acres.

Bird Enemies:

Cats: I allow no cats on the place; I have no grudge against the cat, but I am raising birds not cats.

A friend of mine assures me she has a "perfectly good" cat that does not catch birds, but I would not have such a cat, it is not a healthy, normal cat; when a cat has so lost its spirit that is no longer enjoys the sport of catching live game, and is content to eat out of a dish it is no longer much of a cat.

Red Squirrels: I do not allow them on the place. I believe them to be very destructive of eggs and young birds. Certainly the poorest nesting season in recent years on my place was a season when the place became suddenly over-run with red squirrels before I realized it; and that has not occurred since.

English Sparrow, or House Sparrow: It was trapping them that started me into operating traps and banding the native birds; and it is most evident that the very great increase of native birds on the place has been since the English Sparrow has been eliminated.

But be very sure that the person who operates your traps knows thoroughly how to distinguish the English Sparrows from the several varieties of native sparrows, for the natives are most agreeable little neighbors.

A quiet watchfulness will soon show which are the serious enemies of birds in any garden or locality; the above three have been most serious on my place.

Hawks: The Cooper and Sharp-shinned Hawks are destructive where they occur; the large hawks sailing high overhead are not destructive varieties; but these two smaller varieties come sailing so quickly through the trees, they may do considerable damage before you realize what is going on.

Blue Jays, Crows, Blackbirds: In some places these are said to destroy nests and eggs of other birds, but they have not been sufficiently numerous to do harm for me.

I confess that in trying to protect my bird neighbors I am not much inclined to wage relentless slaughter upon every possible enemy; I mostly like to leave it to nature to work out her own ways.

Screech Owls: Usually represented by one pair on the place; and the Robins do scold at them toward dusk every night, especially when the young owls come out of the nest and scatter all over the place; but I am not yet convinced that the owls should be destroyed.

Cowbird: I do not destroy the birds, but I do remove the egg from

the nests of other birds as I find them, for after all I love the other birds best.

Shrikes: In the bird notes just out from the Biological Survey is a special order of the Department permitting bird banders to destroy shrikes. At my Thomasville, Georgia, trapping station shrikes are so numerous that it is absolute'y necessary to destroy them about the traps, or they put the bird bander out of business, but near Cleveland shrikes are not abundant and seldom come near the traps.

Snakes: I do not destroy snakes; I believe them to be useful and valuable; but occasionally a snake will be found disturbing the birds, or their eggs, or young in the nest. One day when a pair of my Wrens were scolding in great excitement, I searched all about for a cat or squirrel or other cause of disturbance, but could find nothing. They continued to scold and I searched again, and after a long time discovered a tiny snake not ten inches long, coiled up in the vine, ten feet from the ground and within a foot of the wren box.

Children: The old days are gone, we hope, when children, especially boys, made it a general sport in the spring to go on campaigns to destroy nests and eggs. Most children are now taught in school to take some degree of interest in birds as useful and interesting neighbors.

But in bird banding there is the danger that children become interested in seeing and handling birds so closely, and with the best intentions they may undertake to help by removing birds from the traps, with hands not yet trained to know how to combine firmness with gentleness in handling. It is not your neighbor's little rascal, it is your own dear child that may "try to help papa" and is likely to handle birds in the traps, when you are not watching.

The bird bander, or anyone else who hopes to have many birds about, will learn to hear the warning calls and distress calls of the birds, and go at once to investigate when these calls are heard. On the question of injuries to birds in trapping and banding, I have gone into this matter of enemies, because very few birds indeed are injured in trapping except by access of these enemies to the traps; and that access need seldom occur if a careful watch is kept for the enemies.

Ten years ago little was known in this country about trapping wild birds; but we have learned more and more how to use the right traps for birds of different habit; and learned to make the traps to better protect the birds from possible injury. An injured bird is a loss, and a failure, on the part of the bird bander; the very success of the sport depends upon the liberating each bird, with a band, uninjured, and in normal, healthy condition to continue undisturbed his natural life, and to come back to the traps over and over again.

In my ten years' experience I remember, I believe, every incident when I have fatally injured a bird by my carelessness. I have not injured one to each five thousand birds handled, not so many as one to each year of trapping.

Add those that have been killed in or about the traps by natural enemies, or from any cause whatsoever, often not attributable to the

trapping in any way, and even then I save from death a hundred birds, for every one that may be lost during trapping.

Birds frightened away by trapping?

Need one ask, when it is the experience of every bird bander, that in continuous operation of the traps, most of the birds taken from the traps are "repeats" as we call them, birds that have been in before. And my records are full of cases of birds that form the trap habit, and are in the traps three, or four or five times a day; all the time in fact.

In the coming July "Auk" Doctor May will tell of "Old Peg Leg," a Thrasher, who this winter has been in the habit of going to sleep in the trap while waiting to be let out.

On this question of fright let us compare our point of view with the experience and point of view of the birds: probably few of us experience a real fright, that is a fear of immediate death or terrible injury, more than two or three times in a life time. It is a tremendous event in life; we never forget it.

But every wild bird lives a life of daily fright, and daily danger to life; a cat passes near, a hawk sails overhead, a dog comes quickly around the corner, under any bush may be a rat or snake; if a bird took it seriously whenever he escapes only by a sudden dash out of danger his nerves would not last him a month. So, as you approach the trap, a bird in the trap flutters desperately to escape; and in your hand struggles, attempting to escape; release him and likely he flies only to a bush ten feet away, and calmly adjusts his rumpled feathers, or picks at a bug, all fear dismissed at once.

All spring I visit each nesting bird on the place every day, and mark or count the eggs, or perhaps remove and photograph the young each day, the parents becoming so tame that I can almost touch them, and they do not even scold me. It is the joy of bird banding that no matter how many you handle, each bird becomes in your hand an individual, one who has a personal record with you, a personal friend.

He goes out from you to far parts of the world; not all will live to come back, but some will return to your hand another year, yes, and perhaps year after year.

Is it any wonder that the officers of Audubon Societies in many states have themselves taken up Bird Banding, and give it hearty support, and urge it to others; they see in it an agency which is so interesting that it turns the casual bird lover into a rabid enthusiast; and each trapping station becomes a haven of refuge, where birds find safety and food and water and know they can live happily.

Why, even since I started to write, only yesterday, the local club of ornithologists visited me, and wandered over my place, exclaiming, "How very many birds you have!" "Have you ever tried to count up all your nests?" "How tame they are!" And this after I have been trapping for ten years past.

MINUTES OF THE TWENTY-FIFTH ANNUAL MEETING OF THE NEBRASKA ORNITHOLOGISTS' UNION

The Nebraska Ornithologists' Union celebrated the completion of a quarter century of activity at its twenty-fifth annual meeting, which took place at Lincoln, Nebraska, on Friday and Saturday, May 9 and 10, 1924. The sessions opened with a public program on Friday afternoon at 3 o'clock in Room 201, Bessey Hall, University of Nebraska. Dr. R. H. Wolcott, President of the N. O. U., was in the chair. Mrs. G. A. Loveland of Lincoln recounted instances of how membership in the N. O. U. had been of value to her in meeting other bird students when traveling outside of the state. Rev. J. M. Bates of Red Cloud gave a very interesting recapitulation of the results of his twenty-one years of bird study at that place. Mrs. G. A. Loveland then told the story of the successful breeding of the scissor-tailed flycatcher near Lincoln in the summer of 1923. Mr. F. C. Collins of the University of Nebraska Museum staff then spoke on the plans of the Museum for furthering the study of Nebraska birds, and invited those present to accompany him in a tour of the bird exhibits at the Museum following the afternoon program. Mrs. C. W. McCaskill of Hastings, who had recently returned from a trip to Egypt, was called upon to give an account of her bird observations on the trip, and in response gave a very entertaining discussion of some of the English and Egyptian birds observed by her.

At this point President Wolcott suspended the program for a time in order to hold a business session. On motion, the reading of the minutes of the twenty-fourth annual meeting was dispensed with, they having been published in full in the June, 1923, number of the Wilson Bulletin. The President then appointed an auditing committee, consisting of Mr. C. K. Hart, Mrs. Addison E. Sheldon, and Rev. J. M. Bates, to examine and report upon the financial statement of the Secretary-Treasurer, and a nominating committee consisting of Mrs. Lily R. Button, Mr. Leonard Worley, and Mrs. H. F. Hole. These committees were asked to report before the end of the session.

In reporting for his office, President R. H. Wolcott urged that as soon as possible the N. O. U. place greater emphasis on its plans for encouraging high school work in bird study in the state and in sponsoring plans of bird protection and game conservation. He called on the members for volunteers to assume leadership along these lines within the organization. The Vice-President, Rev. J. M. Bates, stated that he had no formal report to make. The report of the Secretary-Treasurer was then presented, consisting of an analysis of the financial condition of the N. O. U., a statement concerning the present membership of the organization, and an extended report on the progress that had been made looking toward the publication of the first part of the proposed "Birds of Nebraska," which the Secretary had been authorized to start at the twenty-fourth annual meeting last year. The discussion which followed seemed to indicate that the members preferred a publication dealing rather exhausively with the subject rather than any abridged treatment, and also preferred to have the publication illus-

trated, if possible, by colored plates. No motion, however, was made in this connection.

Election of new members being in order, the Secretary-Treasurer presented the names of nine persons who had applied for membership in the N. O. U., as follows: Mrs. A. Arnold of Inavale, Mr. F. C. Collins of Lincoln, Mr. Thomas D. Griffin and Mrs. Rosalind M. Griffin of Hardy, Mrs. A. H. Jones of Hastings, Mrs. W. H. McCoy and Mrs. Charles Richardson of Fairbury, Miss Mae Sturner of Beatrice, and Miss Louisa E. Wilson of Lincoln. On motion of Mrs. Addison E. Sheldon all of these persons were unanimously elected to membership in the society.

The Secretary-Treasurer then reported that the Executive Committee had submitted for action by the members of the N. O. U. the names of four persons proposed for honorary membership in the society, under the amendment to the Constitution which was adopted at the twenty-fourth annual meeting last year. The names that had been proposed were those of Professor Lawrence Bruner, the first President of the N. O. U. and active in the society until his removal to California and resignation in 1919; Dr. H. C. Oberholser of the Biological Survey, Washington, D. C., who has repeatedly been of service to the society in its scientific study of Nebraska birds; Mr. Louis Sessions, a charter member and past President of the N. O. U., active until his removal to California and resignation in 1920; and Mr. John T. Zimmer, a member of the N. O. U. and a past President, now on the staff of the Field Museum of Natural History at Chicago. The Secretary-Treasurer reported that the approval of more than the necessary three-fourths of the members voting had been given to each of these names, and then gave the exact figures of the vote. On motion, the ballot as recorded by the Secretary-Treasurer was accepted, and the four persons nominated by the Executive Committee were declared elected to honorary membership in the N. O. U.

New business being in order, Mrs. H. C. Johnston of Superior, extended the invitation of the Nature Department of the Women's Club of Superior to the N. O. U. that the next meeting of the society, in May, 1925, be held at that place. After a brief discussion, a motion by Mrs. Addison E. Sheldon, seconded by Mrs. H. F. Hole, that the N. O. U. accept the invitation of the Nature Department of the Superior Women's Club as expressed by Mrs. Johnston was unanimously carried.

The approaching publication of the first part of the proposed "Birds of Nebraska" brought up the matter of adjusting the income of the N. O. U. from its annual dues so that it might more largely serve in the support of this project. Discussion revealed differences of opinion among the members present as to what would be the best policy. It was moved that the members think over the question for a time, and that within the next few weeks the Secretary-Treasurer send out a mail ballot covering this point to all members of the N. O. U., and that the future policy of the society be in conformity with this referendum vote. The motion was seconded and carried.

A communication from Mr. L. O. Horsky of Omaha, proposing action by the N. O. U. endorsing the proposal to make a wild fowl sanct-

uary of Carter Lake, near Omaha, was read by the Secretary-Treasurer and discussed by some of the members. The discussion brought out that on general principles the members of the N. O. U. favored movements creating bird sanctuaries, but that because of the peculiar location of Carter Lake and the apparent necessity of securing state funds to enable the success of the project, more information was desirable before definite action was taken by the N. O. U. No motion was made on this matter.

The auditing committee then reported that the financial report of the Secretary-Treasurer had been examined and found to be correct. On motion the report was accepted. The nominating committee then reported, suggesting that Dr. R. H. Wolcott and Professor M. H. Swenk be continued in their offices of President and Secretary-Treasurer, respectively, for the coming year, and that Mrs. C. W. McCaskill be elected to fill the office of Vice-President. On motion it was voted that the Secretary cast the unanimous ballot of the society for these officers. The officers for 1924 were then declared as follows:

President—Dr. R. H. Wolcott, Lincoln.
Vice-President—Mrs. C. W. McCaskill, Hastings.
Secretary-Treasurer—Prof. M. H. Swenk, Lincoln.

Sixteen members were present at this business session of the N. O. U., as follows: Mesdames Lily R. Button, Margaret M. Corey, E. A. Holbrook, H. F. Hole, H. C. Johnston, G. A. Loveland, L. H. McKillip, Mary St. Martin, Addison E. Sheldon and Fred W. Tyler, and Messrs. J. M. Bates, Charles K. Hart, M. H. Swenk, Leighton Williams, Leonard Worley and R. H. Wolcott. Later in the sessions Mesdames E. H. Polley and T. H. Wake, and Messrs. L. O. Horsky, Wilson Tout and L. H. Watson were present, making a total representation of twenty-one members at the meeting. Adjournment of the business session at 5:05 p. m.

Following the business session the members, accepting the invitation of Mr. F. C. Collins, visited the University of Nebraska Museum and examined the bird exhibits there, under the leadership of Mr. Collins. Following this the members again reassembled at 6:30 p. m. at the Grand Hotel, 12th and Q Streets, for the quarter-centennial anniversary dinner. Fifty-nine persons, including members of the N. O. U. and of the Bruner Bird Club of Lincoln, and their guests, sat down to this dinner. Appropriate menu cards and the program of the evening had been printed and were distributed at each plate.

Following the dinner, at 7:45 p. m., a symposium was held on the subject, "Sounds and Songs of Nebraska Birds." Dr. R. H. Wolcott explained the structure of the vocal organs and other sound-producing organs of birds; Prof. M. H. Swenk explained the emotional meaning of bird utterances and the theories of the origin and development of bird songs; and Mrs. Lily R. Button explained the value of musical notation in recording bird songs, giving a number of illustrations. The symposium was concluded at 9:40 p. m. Dr. R. H. Wolcott then concluded the program with his President's address on the subject, "Ornithology in Nebraska," in which he gave a review of the twenty-five years of activity of the society, explaining its organization and the various crises and phases of development it had gone through. At the conclusion of the President's address announcement of the plans for the field day on Sat-

urday, May 10, were made, and an invitation from the Nebraska Audubon Society for the members of the N. O. U. and Bruner Bird Club to join with them in their annual field day on Saturday, May 17, was aslo read. Final adjournment at 10:15 p. m.

On Saturday, May 10, the twenty-second annual field day of the N. O. U. was held. One party started for Capital Beach at 6:00 a. m., and another party followed at 8:00 a. m. Other parties visited the marshes near Arbor, the woods along Salt Creek and Wyuka cemetery. The field day was a decided success in spite of the cool and threatening weather that prevailed during the greater part of the day, for by the end of the day 121 kinds of birds had been identified by members of the various parties, thus forming the largest list of birds as yet secured on a field day of the N. O. U. About forty persons participated in the various field parties. The comoposite list of the day follows:

Bluebird, Robin, Olive-backed Thrush, Gray-cheeked Thrush, Wood Thrush, Blue-gray Gnatcatcher, Long-tailed Chickadee, Tufted Titmouse, White-breasted Nuthatch, Long-billed Marsh Wren, Western House Wren, Brown Thrasher, Catbird, Redstart, Maryland Yel'ow-throat, Oven-bird, Black-poll Warbler, Myrtle Warbler, Yellow Warbler, Tennessee Warbler, Orange-crowned Warbler, Bell Vireo, Warbling Vireo, Red-eyed Vireo, Migrant Shrike, Rough-winged Swallow, Tree Swallow, Barn Swallow, Purple Martin, Scarlet Tanager, Dickcissel, Lazuli Bunting, Rose-breasted Grosbeak, Cardinal, Arctic Towhee, Towhee, Lincoln Sparrow, Song Sparrow, Western Field Sparrow, Clay-colored Sparrow, Chipping Sparrow, White-throated Sparrow, White-crowned Sparrow, Gambel Sparrow, Harris Sparrow, Lark Sparrow, LeConte Sparrow, Western Grasshopper Sparrow, Savannah Sparrow, Pine Siskin, Goldfinch, Bronzed Grackle, Baltimore Oriole, Orchard Oriole, Meadowlark, Western Meadowlark, Red-winged Blackbird, Yellow-headed Blackbird, Cowbird, Bobolink, Crow, Blue Jay, Saskatchewan Horned Lark, Traill Flycatcher, Phœbe, Crested Flycatcher, Western Kingbird, Kingbird, Chimney Swift, Nighthawk, Northern Flicker, Red-headed Woodpecker, Northern Downy Woodpecker, Hairy Woodpecker, Belted Kingfisher, Sparrow Hawk, Red-tailed Hawk, Marsh Hawk, Mourning Dove, Turnstone, Piping Plover, Semi-palmated Plover, Killdeer, Spotted Sandpiper, Western Willet, Solitary Sandpiper, Yellow-legs, Hudsonian Godwit, Sanderling, Semi-palmated Sandpiper, Least Sandpiper, Baird Sandpiper, White-rumped Sandpiper, Pectoral Sandpiper, Wilson Snipe, Avocet, Wilson Phalarope, Northern Phalarope, Coot, Sora, Virginia Rail, Black-crowned Night Heron, Bittern, Hutchins Goose, Blue Goose, Lesser Snow Goose, Ruddy Duck, Lesser Bluebill, Redhead, Pintail, Shoveller, Blue-winged Teal, Widgeon, Mallard, Red-breasted Merganser, White Pelican, Black Tern, Forster Tern, Franklin Gull, Pied-billed Grebe, and Eared Grebe.

At noon on Saturday the field parties assembled for lunch in Room 26 of the Home Economics Building of the University of Nebraska, at the College of Agriculture campus. The lunch was served cafeteria style, and just before starting out for the afteroon in the field the composite list stood at 96 species.

REPORT OF THE TREASURER, 1923-24

Receipts

Cash on hand, May 1, 1923	$ 40.89
Annual dues for 1923	60.00
Annual dues for 1924	36.00
Interest on investment	21.25
Sale of publications	3.13
	$161.27

Expenditures

Wilson Bulletin (1 active at $2.50 and 41 associates at $1.50)	$ 64.00
Postage, Office of Secretary	5.70
Balance on hand, May 1, 1924	91.57
	$161.27

HISTORY OF THE KENTUCKY ORNITHOLOGICAL SOCIETY

1923

Several bird-students from various parts of Kentucky met at the Seelbach Hotel in Louisville, Kentucky, on the afternoon of April 19, 1923, to discuss the plans for organizing a Kentucky Ornithological Society.

The Society was organized and the following officers were elected:

President: Dr. L. O. Pindar, Versailles.

Vice-President: Mr. Brache C. Bacon, Madisonville.

Secretary and Treasurer: Gordon Wilson, Bowling Green.

Plans were adopted to seek affiliation with the Wilson Ornithological Club. A membership campaign was planned.

It was agreed that the next meeting would be held in Louisville during the Spring meeting of the Kentucky Educational Association.

1924.

The first annual meeting of the Kentucky Ornithological Society was held in Leather Room of Seelbach at Louisville, Kentucky, at 9:30 a. m., April 25, 1924.

The present officers were re-elected.

Members of Executive Committees were elected as follows: Professor Frank L. Rainey, Centre College, Danville; Miss Emilie Yunker, Director of School Gardens, Louisville; Mr. J. B. Cox, Murray State Normal School, Murray; Mrs. Merit O'Neal, Louisville, Historian of K. O. S.

A fine program was rendered, those taking part being: Mr. Carl D. Herdman, Bowling Green; Mr. Ben J. Blincoe, Dayton, Ohio; Miss Yunker, Louisville; Professor Gordon Wilson, Bowling Green; Mrs. Merit O'Neal, Louisville; Dr. Pindar, Versailles.

The Constitution was read and adopted.

The Society voted to affiliate with the Wilson Ornithological Club under a specified agreement, the articles of this affiliation being perfectly agreeable to both parties.

The Society went on record as being opposed to the wanton destruction of crows and other birds, the wholesale slaughter of which had been reported by a member.

The ammunition companies were held responsible for this deplorable destruction.

A committee was appointed to devise plans for the celebration of Bird Day in the Schools of Kentucky, to be held in connection with Arbor Day.

Mrs. Merit O'Neal.
Historian of Kentucky Ornithological Society.

PROCEEDINGS OF THE KENTUCKY ORNITHOLOGICAL SOCIETY

The first annual meeting of the Kentucky Ornithological Society was held at Louisville Friday, April 25, 1914, in the Leather Room of the Seelbach Hotel. Carl D. Herdman of Bowling Green gave a very unusual lecture on "Human Characteristics of Birds, or Birds as I Know Them." Mr. Herdman has spent several years making his suburban home a bird-paradise and knows birds as real personalities, Ben. J. Blincoe, Dayton, Ohio, Treasurer of the W. O. C., read an exhaustive study of "Birds of Nelson County", giving the records of his long period of years as a resident there. Mrs. Merit O'Neal of Louisville spoke on "Bird Study in the Public Schools" and advocated a Bird Day in the Schools. The society voted to petition the Governor of Kentucky to set such a day, to be celebrated in connection with Arbor Day. Miss Emilie Yunker, Director of School Gardens of Louisville, in speaking on "How School Children Make Friends with the Birds", told of the very successful hikes she has been conducting this year to Cherokee Park. Dr. L. Otley Pindar of Versailles gave an elaborate paper on "Bibliography of Kentucky Birds", reviewing especially the work of Alexander Wilson, Audubon, Pindar, Gordon Wilson, Bacon, Blincoe, and Beckham. Professor Gordon Wilson of Bowling Green told of his experiences in banding and showed several ways of keeping accurate and scientific records.

At the business session it was decided to hold the fall meeting at Bowling Green, on October 9 and 10. The evening of the ninth being given over to lectures and addresses, October tenth to be devoted to an early morning hike and outdoor breakfast, with two day-sessions. The society went on record as being opposed to the ammunition propaganda of the Du Pont Powder Company. The present officers were re-elected: President, Dr. L. Otley Pindar, Versailles; Vice-President, B. C. Bacon, Madisonville; Secretary-Treasurer, Professor Gordon Wilson, Bowling Green. Additional members of the Executive Committee are: Miss Emilie Yunker, Louisville; Professor Frank L. Rainey, Danville; and Mr. J. B. Cox, Murray. Mrs. Merit O'Neal, Louisville, was chosen Historian. In the first year of its existence the society has enrolled 12 affiliate members, 35 local members. The K. O. S. voted unanimously to affiliate with the W. O. C.

IOWA ORNITHOLOGISTS' UNION

First Annual Meeting—Held at Ames, Iowa, March 8, 1924

Our state organization, which is just one year old, held its first annual meeting at Agricultural Hall in Ames on March 8. The meeting was well attended and the very excellent program was carried out just exactly as it was announced.

The forenoon session consisted of reports by the various officers and the following papers:

1. Birds of Southwest Iowa, C. E. Butler, Atlantic.
2. What I See from my Back Window, Mrs. J. L. Adams, Ottumwa.
3. Bird Feeding and Nesting as Studied by the Boy Scouts, E, G. Stowell, Scout Executive of Ames.

The afternoon program started with a paper by Miss Althea Sherman of National, entitled "Down with the Wren Boxes." C. J. Spiker, New Hampton, followed Miss Sherman with a paper on "Recent Winter Bird Records for Northern Iowa." The five-minute open discussion on "My Most Interesting Bird Record in 1923" brought out several good observations, the one by Dr. Weeks of Emmetsburg, being especially notable. The paper of Carl Fritz Henning of Boone, on "The Ledges, the Ozarks of Iowa," was read by Dr. Weeks and was very good. This was followed by a paper by Miss Olivia McCabe of Des Moines, on "Birds of a City Marsh." The exciting number of the afternoon was the lecture by Professor Guthrie of Ames, on "Birds in Their Relation to Snakes." His lecture was illustrated very forcibly by a number of large live snakes, which he brought before us and handled with about the same ease that he would handle a kitten or any other pet. This was an entirely new angle of bird study rarely touched upon and was especially delightful after some of the audience had changed seats and had moved out of range of Professor Guthrie's pets.

The executive session which followed resulted in the election of the following officers for the ensuing year:

President—W. M. Rosen, Ogden.

Vice-President—Dr. T. C. Stephens, Sioux City.

Secretary—Mrs. H. M. Bailey, Sioux City.

Treasurer—Thomas H. Whitney, Atlantic.

Executive Council—Dr. Homer R. Dill, Iowa City; Dr. L. T. Weeks, Emmetsburg; A. J. Palas, Des Moines.

A number of business matters were then disposed of, the principal one being the unanimous vote of the members present to affiliate with the Wilson Ornithological Club and that as many members as possible of the I. O. U. become members of the W. O. C., since the Wilson Bulletin would keep us in closer touch.

Professor Charles R. Keyes of Mt. Vernon, then gave his lecture on "Some Iowa Great Horned Owls," which closed the afternoon session. This lecture was illustrated with lantern slides from photographs taken by Dr. Keyes.

The evening session was given over entirely to Dr. T. C. Stephens and Walter W. Bennett, both of Sioux City. Dr. Stephens first gave his lecture entitled "Two Bird Students on a Vacation Trip in Minnesota." Some very excellent slides were shown. The closing number was by

Mr. Bennett and was entitled "A Few Birds of the Itasca Lake Region." This was also illustrated by colored slides taken by Mr. Bennett last summer and showed many of the Warblers and other migratory birds on their nests in the northern pine woods. Some of the slides were of the natural color process. Iowa can certainly feel proud that we have such men as Bennett, Stephens, Keyes, and Weeks as platform men and lecturers in Ornithology, as they are entertainers worth going far to hear.

The membership during 1923, which was our year of organization, was over 100, and with the enthusiasm shown, I am sure that we will have a much larger membership before the next annual meeting. Iowa has a large number of bird lovers and we hope to build a strong organization and one which will be a credit to our state. Members, let's all boost for the I. O U. and the W. O. C. W. M. Rosen, President.

PUBLICATIONS REVIEWED

ANIMAL LIFE IN THE YOSEMITE VALLEY

Grinnell, J. and Storer, T. I., Animal Life in the Yosemite, xviii plus 752 pages, 60 plates (12 in color), 2 maps (color), 65 figures in text. University of California Press, Berkeley, California, 1924. Buckram $7.50. Carriage extra. Weight, 5 lbs. 9 oz.

This is a book that combines in admirable fashion scientific description of characters and occurrence with accurate but pleasing description of habits. There is unmistakable evidence that the authors have made a thorough study of the region that is treated, and have been discriminating in their selection of the facts presented. The difficulties of identification of some of the forms here treated may be attested by the fact that no less than eight subspecies of fox sparrows are found in the region, and yet the work has been well done. The colored plates are done in Allan Brooks' careful and accurate manner, and the clearness of the impressions attest the care that was taken in the mechanics of printing. The same excellence extends throughout the treatment of the Mammals, Reptiles and Amphibians. We would like to see the same sort of intensive work done in other regions. L. J.

Publications of the Wilson Ornithological Club

The complete series consists of the following publications:

The Ornithologists and Oologists Semi-Annual, three volumes, 5 numbers.

The Wilson Quarterly, one volume, two numbers.

The Journal, two numbers.

The Wilson Bulletin, three numbers in the first volume, two in the second, six numbers in each of the next four volumes, and four numbers in all succeeding volumes including the current volume–34.

Out of print numbers of this entire series are as follows:

Semi-Annual, Vol. 1, No. 1; Vol. 2, both numbers.

The Wilson Quarterly, both numbers.

The Wilson Bulletin, Vol. 10, No. 5; Vol. 16, No. 1.

The available numbers, to Vol. 32, will be sold at the rate of one dollar a volume.

—— ADDRESS ——

THE WILSON BULLETIN

SPEAR LABORATORY, OBERLIN, OHIO

Vol. XXXVI. No. 3 September, 1924

THE WILSON BULLETIN

OFFICIAL ORGAN OF

The Wilson Ornithological Club and The Nebraska Ornithologists Union

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THE WILSON BULLETIN

A QUARTERLY JOURNAL OF ORNITHOLOGY

VOL. XXXVI SEPTEMBER, 1924 NO. 3

OLD SERIES VOL. XXXVI. NEW SERIES VOL. XXXI.

A "TERRITORY" NOTE ON THE BELTED KINGFISHER

BY FREDERICK C. LINCOLN

The importance of "territory" in the life of the individual bird and its probable influence on the successful existence of the different species has not received from American students the attention that is due.* It is to be hoped that this condition will be remedied by systematic studies along this line, and the following note, while undoubtedly elementary, is offered as a possible contribution to our knowledge of the Belted Kingfisher, *Streptoceryle a. alcyon.*

A flock of kingfishers would most surely be considered as an avian anomaly and yet it so happens that I have never in print seen any reference to the close adherence to a definitely circumscribed area that appears to be a character of the individuals of this species. That such conditions exist during the reproductive season is no matter for surprise but it is not so easily explained at other seasons.

In the fall of 1922 (September 27 – December 15) I was engaged in field work in the marshes of the Illinois River, near the junction of the Sangamon River with the larger stream. These marshes are composed of an intricate network of sloughs or channels, most of which have little or no current but which are deep enough to permit the passage of power-boats of average draught. In the prosecution of my work it was necessary to make daily trips up and down these channels and I was early impressed with the large number of kingfishers that were present. That the birds were in migration I have no doubt for the point of greatest abundance was reached about October 5, after which there was a steady but gradual diminution in their numbers to the 21st, when only two or three were seen. After that date I did not see more than one on any day (probably the same bird that was seen with more or less regularity). The last observation was made on Novembr 22.

* See "Territory in Bird Life," by H. Eliot Howard, London, 1920.

During the period of greatest abundance, practically every channel had its quota of birds, each of which appeared to patrol or to hold dominion over a certain well-defined section. To me it was decidedly remarkable to note the regularity with which a bird could be encountered at a certain point and after flying ahead of the boat for a specified distance—frequently stopping until I had again caught up with it—would fly over the trees and circle back to its own portion of the slough. At the point where the first bird turned back, I was almost certain to be greeted by the sight or the rattle of a second bird, which would take up the relay and continue it over another part of the course, the length of which would depend on how near it was to the end of its section when first flushed. I have observed this to continue until eight or ten birds had been encountered and their territory passed through. Occasionally two would be in sight at the same time but such occurances were of but short duration as neither bird would appear to take any notice of the other. No fights were noted, each individual appearing to recognize the domain of the other and to make no question regarding its possession.

In order to augment my own observation I called this curious state of affairs to the attention of one or two of the boatmen—employed at the shooting club that was my headquarters—particularly to the captain of the boats who made at least one round trip daily over the largest slough, known as the Little Sangamon River. His observations tallied perfectly with mine and he took much pleasure in informing club members and others who might be with him in the club launch, just how far the kingfisher then in sight would go and where the next one would be met.

I am unable to advance any theory to account for this habit other than a natural but curious desire for specific solitude. The dead snags, so liked by these birds, were plentiful and there was an abundance of food in the form of fishes, particularly a small species of shad, probably *Pomolobus chrysochloris,* known locally as "skip-jacks."

These birds were, of course, not banded or otherwise individually designated and my observations are therefore subject to later verification. It should also be borne in mind that these and other birds are likely to change their territory if they happen to locate one that is more favorable ecologically, and at the same time unoccupied by a representative of their own kind.

In this connection it occurs to me that cases of this kind might be studied satisfactorily by means of colored celluloid bands. I feel confident that proper traps might be devised for these birds and, in order that the observations might not be in any way influenced by subsequent trappings, each bird could be banded with the usual aluminum band and on the opposite leg with a colored band, the colors—or combination of colors—varying with each individual handled. Spiral celluloid bands are readily obtainable and by softening in hot water they can be easily reduced to the desired size and I believe that with the aid of a good pair of field glasses they would be clearly discernible at ordinary distances of observation.

June 20, 1924.

Biological Survey, Washington, D. C.

ROOSTING HABITS OF GULLS

WM. I. LYON

The members of the Inland Bird Banding Association that live along the South-west end of Lake Michigan have been interested in the question of "where do the Gulls sleep at night." There seemed to be a possibility that the gulls could be captured at night in some way, with flashlights, especially when there are such quantities of them to be seen during the day.

Some of the members were assembled at Mr. Lyon's house one evening watching the Gulls very carefully, with the idea that they were going to make an attempt to capture some that night. Powerful glasses were used to watch the outer breakwater where the Gulls seemed to be assembled in large quantities, and at the last glimpses of daylight, the breakwater seemed to be entirely covered with Gulls. After dinner, the members of the party went to the Lake Shore where they had engaged a good staunch boat, with both oars and paddles, and started for the breakwaters. When they were about a thousand feet away, the oars were taken in and the paddles were used so as to approach the spot in absolute silence. There was not a sound made, yet when we arrived at the breakwater and circled entirely around it, there was not a sign of a single bird to be found. They seemed to have disappeared in some mysterious manner.

On another occasion Mr. Stoddard, of the Milwaukee Museum, visited me at Waukegan. We watched very carefully, and felt

quite positive as to where to find the Gulls, but a trip starting from the south of the city over all the breakwaters, and along the iceberbs on the shore, failed to reveal a single bird. We were armed with powerful searchlights so we could observe, with comparative ease.

Herbert L. Stoddard, Clarence S. Jung, and some other members of the Milwaukee Museum made another trip covering over twelve miles of the lake shore about Milwaukee, and the total result of their night's work was one Golden-eye Duck and one Gull, both of which had been wounded, apparently, and were sleeping on the shore.

On February 3, there was a very strong wind coming to the shore almost directly from the east, which made the waves very high; when the water strikes the outer breakwater it would send the spray completely over the fifty-foot light tower. All along the shore where the waves came against the drift ice, there was a cold spray, and, as far as the eye could reach, out in the lake, there were large, rolling white-caps. Apparently, no bird would be able to live on the lake that night. This seemed to be an ideal time to find out where the Gulls slept. Taking binoculars, blankets, and a box for a seat, my daughter and I went to the lake front. On arrival we made a careful count along the shore covering more than a mile, including all of the harbor basin and slips. We were quite positive that there were over 1,500 Gulls present at the time. At the outer side of the harbor, at the end of an old switch-track, was a coal car, just in the right position for observation. So we climbed into it, using the box for a seat, and wrapped ourselves in the blankets; we waited for the approach of darkness. There was plenty of time for observation and looking over at the shore, to the east of us, was a small strip of sand. Outside of the outer breakwater, we noticed that there was a large flock of birds resting, many of them apparently asleep. In counting them, we found there were from three to five hundred in the flock. There seemed to be many Gulls arriving and leaving, so the flock stayed close to the same size. On the other side of us, up in the north end of the slips, were two hundred Gulls on the ice at the edge of the water; they, too, were sleeping and resting. About in the middle of the inside lagoon there is a coal dock, and on the end of the coal dock were at least one hundred, also apparently resting. In the main basin of the harbor, the balance of the fifteen hundred were

continually flying and hunting for the small minnows that are to be found there in the spring. As darkness approached, the big flock on the shore apparently increased and the smaller flock on the coal docks decreased to about a dozen. The flocks resting on the ice to the north seemed to stay about the normal size, but the flocks on the outer shore seemed to be gradually increasing all the time until there were at least eight hundred birds; apparently that was the spot where they would sleep that night. We were fully satisfied of the fact and were planning how we could best approach the flock to catch them. We had a number of nets put together on poles in different manners, so that they could be handled by either one or two persons, and we speculated on how big a catch we would be able to make; but just at the very last glimpse of daylight, apparently, every bird in the vicinity quietly rose up in the air. We left our car and blankets and started off to find what direction they would take, but they seemed to simply evaporate from our view. Gradually the entire flock disappeared in the darkness without taking any certain direction. We stayed about the harbor for over an hour and searched all the slips and breakwaters with the searchlights, but not a single bird could we find. We are still wondering, "Where do the Gulls sleep at night?"

A HAUNT OF THE GREAT HORNED OWL

F. N. SHANKLAND

The Great Horned Owl is not a very common species in Northern Ohio, nor is it considered a very desirable neighbor. For many years a pair of these birds has lived in the woods just south of Willoughby, but not until six years ago was I able to discover a nest. Since then there have been exceptionally good opportunities for studying their nests, habits, and other life characteristics.

On the morning of April 27th, 1919, two local ornithologists, C. M. Shipman and R. W. Hill, accompanied me to the woods near south Willoughby. We had been informed that there was an owl's nest in this woods and after considerable search we finally located it in a tall beech tree growing at the foot of a steep hillside. The nest was one that had been built many years before by a pair of Red-tailed Hawks. It had been occupied later by Red-shouldered Hawks and Barred Owls so that evi-

dently the nesting place was a quite popular one. From the brow of the hill we could plainly see the old owl and three little owls. All four of them were facing us, and had evidently heard us as we approached, for the ears of these birds are very sensitive.

With our field glasses we could make out every move they made, and although we were as quiet as possible, every little noise that we made was evidently heard by these birds. The old owl stood straight up with ears erect and eyes wide open watching us from behind the three little owls.

There were four or five Red-shouldered Hawks and about twenty crows flying about overhead and scolding at each other as is their custom at such times. The noise made by these birds evidently disturbed the owl more than our presence, for it kept turning its head from side to side in a nervous manner, as if watching the other birds.

Just as we had set our camera to take a picture of the nest, the owl became alarmed and flew away through the hemlock trees, closely followed by the crows amid a tremendous din of calling and screaming. We went away for half an hour, and upon returning found the owl on the nest again.

Two weeks later some local hunters raided the nest, killed one of the old owls and captured all three of the young ones. We regretted this incident very much as we feared we would not get another good opportunity for studying them.

During the next three weeks we had a splendid opportunity for studying the three young owls, which were kept in a cage. They ate raw meat greedily and in large quantities. One evening a boy brought in some Screech Owls and put them in the same cage. In the morning they had all disappeared and it was quite evident that they had been eaten by the young Horned Owls.

The next spring we did not find the owl's nest, but in the spring of 1921 while walking through the same woods, we heard the familiar sound of crows calling excitedly about something. On approaching we discovered that the crows had located another Horned Owl's nest, this time in a hollow limb near the top of a huge Slippery Elm tree that already showed much decay. This nest is shown in the accompanying cut.

It contained two young owls. One of the parent owls frequently was found sitting side by side with the young ones in the opening. When we visited the place on April 30th, the

young owls had left the nest and were roosting in the dead limbs of the same tree.

The 1924 Nest

During the seasons of 1921, 1922, 1923, and 1924, the owls returned to the same hollow tree and each year succeeded in raising their broods. During the winter of 1924, H. S. Bell of the Cleveland Museum of Natural History, and C. M. Shipman, president of the Burroughs Nature Club of Willoughby, determined to make an intensive study of the nest from the time of mating until the young owls should leave the nesting tree. Accordingly they put spikes into the tree so as to enable one to climb up readily in all kinds of weather. Without going into too much detail, their attempts were very successful and the information obtained was the most complete ever recorded about the Great Horned Owl.

In just one point was the record defective. The eggs were laid earlier than expected and consequently the exact date was not obtained, but based on the date of hatching and the usual period of incubation, they must have been laid on February ninth or tenth. The temperature was hovering near zero at that time and the owls must have had a very wintry experience brooding on the eggs while the February and March blizzards were whistling around the nesting tree. The brooding bird did not sit as closely as one would expect, and one cold morning she was absent from the nest for more than thirty-five minutes at one time.

The nesting cavity was fifty-six feet four inches above the ground and was a large irregular cavity in the dead trunk of the tree. On the inside it was nearly as large as a bushel basket and the eggs were laid in a depression in one corner. There were two eggs and in shape they were more round than oval. The young owls hatched on March 8, and March 9, respectively. After that the nest was visited three or four times a week in order to observe what food was provided for the young and how fast they grew.

The food supply was most interesting. For example: On March 22, there were two rabbits and four rats in the nest. On March 31, we found the greatest variety. There were parts of two rabbits, one entire weasel, one field mouse and two rats, besides the remains of a pigeon. The complete record of food

that we found in the nest for the season was as follows: three mice, ten rats, nine rabbits, one weasel, two pigeons, one Robin, one Flicker, and one Sapsucker.

The untimely end of the Sapsucker is easily explained. We saw him drilling holes in a tree only a few feet away from the nesting tree and no doubt he roosted in that vicinity where one of the owls noticed him when starting on its nocturnal hunt.

Early in the season the parent owls showed no disposition to fight, but along toward the last when the young owls were taken from the nest to be photographed and weighed they showed increasing hostility and hooted threateningly from neighboring trees. They never actually attacked any of our party.

During the last few days that the young owls were in the nest their food supply was cut down to such an extent that we inferred that the owls were trying to starve them into leaving the nest. One day there was no food at all in the nest. On April 23 the young owls left the home nest and took up their abode in surrounding trees.

These owls have been condemned so bitterly by the various writers on ornithology, as well as by the State and Government authorities, that this study seems to put them in a better light. Surely the Horned Owl should not be condemned if their depredations are confined to rabbits, rats, and similar vermin. Furthermore from the naturalist's point of view, it seems a pity to destroy what few rare birds of prey are left in the settled districts of Northern Ohio.

Willoughby, Ohio.

THE PHILOSOPHY OF BIRDS' NESTS AND COMPARATIVE CALOLOGY IN CONSIDERATION OF SOME LOCAL NIDICOLOUS BIRDS

By FRANK L. BURNS

(Continued from June Number)

The nest-building instinct of the Owls is less developed, many species laying in cavities without lining, yet of the 34 nests of the Great Horned Owl recorded by Jackson and Pennock in Chester County, 29 were in the open where a nest had to be repaired or constructed. The Long-eared species builds a rather loose structure of sticks, twigs and leaves, in a cedar. The Snowy and Short-eared as ground nesters, dispense with sticks and use a lining of moss and grass. The Cuckoos build a very rudimentary nest of twigs, principally in the thick underbrush, in which both sexes are employed. Both the Yellow-billed and Black-billed deposit a few carelessly arranged twigs, lined scantily with a few leaves, wild grape-vine bark, rootlets or weeds; the latter most often adding an oak, chestnut or maple blossom, perhaps a horse hair, and I have found the former in one instance actually to consist of just a dozen twigs and a few leaves, on which the eggs rested.

Maurice Thompson records a curious habit of the Yellow-bill in carrying material gripped by both bill and foot. The male was silly in some of his performances, time and again removing a stick which had previously been worked in the nest with great care. This work was begun in the morning, then nothing was done for two or three days together, followed by steady labor for two or three hours. Truly the American Cuckoo is but a step removed from the Cowbird in its lack of nesting instinct. In the platform type of nest-builders there are many large, untamable species, experienced in the utter futility of defence against man and in the end they must lose out. Professor Rennie came to the conclusion that this type of builder will continue to make a platform nest to the end and that the facilities of all inferior animals are stationary but it is evident to the writer that the platform nest is admirably adapted to the essentially ground feeder and rather inadept arboreal nester and that scarcely any other type would serve so well as a landing stage, feeding table and gymnasium for the rather clumsy builder and its progeny.

(4) The less advanced tree-cavity nester, species dispensing with all extraneous materials like the Carolina Paroquet, Vulture, Sparrow Hawk and many of the Owls, are comparable to the rock-cavity nesting species only in part, for some species evidently have passed through the platform building stage to the less troublesome method.

The Turkey Vulture nests indifferently in hollow trees, logs, rock crevices, under thick coverts or in abandoned buildings, reasonably remote and darkened, and will return year after year to the same site. Though the species is ordinarily very wild in this locality, it will cling to its nest with remarkable pertinacity, showing great anger when disturbed.

The Sparrow Hawk is equally adaptive to the tree or rock cavity and will sometimes appropriate a box. As a pet it appears very intelligent and playful. One raised in the vicinity would fly after and snatch the cap from a youngster of a family of boys and in turn elude its pursuers. Many of the Owls are confirmed cavity nesters, the smaller species generally occupy the Woodpeckers' burrow, and when the Great Horned Owl (or Duck Hawk) nest in a cavity the usual materials of an open nest are not supplied.

Howitson observed as early as 1828 that the eggs of many if not most birds which nest in holes or even in covered nests, are of a uniform white. This is true of nearly all North American earth burrowers and woodhewers, but the cave and natural cavity-nesting species offer some inconsistencies, and on the other hand there are some open nesters like the Albatross, Flamingo, Gallinae, Pigeon and Hummingbird. Doubtless the pallid or colorless shell is the most primitive type now existing and the pigmentation is a later development useful but not essentual for protection or concealment, but no law has been established.

(5) It is not strange that the highly specialized Woodhewer should not only nest where it obtains its food but should construct its nest by the same method, in which it plies its pickax exclusively and unlike the great majority of nest-builders, carries the debris away. The Flicker prefers the orchard, grove or isolated trees. The entrance is two inches or more, and the hole gourd-shaped, one or two feet deep, the excavation performed by both sexes in a week or two.

The versatility of the *Colaptes* is so great that it would probably survive changes that would exterminate nearly all other

genera of the family, especially if the changes were rapid; since it has shown that it can adapt itself to ground burrows and artificial nesting sites and especially as it is often a ground feeder with an almost omnivorous appetite. A South American form, *C. agricola*, is said to nest habitually in earth banks in treeless plains, and a probable allied species of South Africa, *Geocolaptes olivaceus*, has a similar habit. The Titmouse, Chickadee and Nuthatch sometimes excavate their own nests in rotten wood, in which both sexes, like the Woodpeckers, assist, a week or more being consumed in the process and the abundant lining requiring several additional days.

Knight states that the Red-breasted Nuthatch first makes a series of small holes in the bark so as to remove the central portion entire and leave a bare spot an inch in diameter which is continued straight in for two and downward five to nine inches. In this locality the White-breasted generally cleans out a decayed knothole in a large living tree, and lines it with soft materials like rabbits' fur. The European Nuthatch contracts the entrance with clay, while the Syrian builds a mud nest under rocks.

It is possible for any species with a sharp bill and accustomed to clean out a wood cavity, to peck out a nesting place in decayed wood, hence it is not surprising to learn that the Prothonotary Warbler has been detected in the act.

(6) Gluemaker is most appropriate for the agglutinated type of nest-builder, having highly developed salivary glands secreting a mucilaginous substance, of which the Oriental edible Swifts' nest is entirely composed.

It would seem that the bill and feet of our Chimney Swift are poorly adapted for the construction of a twig nest. I have repeatedly watched the bird break off twigs from a nearby locust while on the wing, but its movements were so rapid that I have been unable to ascertain positively whether it uses its feet or bill in the act; however, its bill is employed in the actual construction in which both sexes assist. Usually 8 or 10 feet down, a bit of the interior wall of the chimney is coated repeatedly with saliva, to which is pressed lengthwise the first well-saturated short twigs, and continued in a semi-circular, shallow, rigid basket firmly attached to the wall by the flat side, until completed in two more weeks, or the eggs may be deposited before it is entirely finished.

I have found the nest 20 feet below the chimney top, just above the open fireplace on the interior wall in colonial houses, and also attached to the interior boards of a belfry. It has recently been reported nesting on the sides of an open cistern.

In pre-colonial days this Swift nested in hollow trees but quickly adapted itself to the stick and clay, and later the stone chimneys of the settlers, and successfully solved the base plane so different from the segment of a circle, obviating the more nearly circular nest possible in a hollow tree.

We are singularly lacking in information on the nesting habits of our Eastern birds prior to the progress of civilization and there is no hint of the Chimney Swift building in rock fissures, but from its easy adaptation to chimney nesting, it is possible that it was at some former period familiar with rock surface, though not with rock crannies since it does not build in chimney angles. The species is not partial to strong sun light and doses in the semi-obscurity of the flue during the greater part of the day, coming forth in the early morn and eve until 9 or 10 o'clock.

Vaux's Swift builds a similar nest in a hollow tree, being a few centuries behind the former species. In fact Jewett recently records it nesting in an unused farmhouse chimney on an island in the Columbia river, and Finley discovered a nest in the base of a sixty-foot iron stack, the first records of this species adapting itself to the ways of civilization.

The White-throated Swift glues its felted nest of feathers and grasses, well coated with agglutinated saliva, to the rock fissures of lofty cliffs, and the eggs of the Black Swift have been found by Vrooman in like situations on the bare earth.

In these four species, representing three genera, we have a most graphic illustration of the progression of the nidification of the family, from that of the primitive nesting Black Swift to that of the progressive Chimney Swift, all of which are of a social nature and colonize whenever practical.

(7) The resemblance of the texture of some of the smaller birds' nests to that of a felted hat or cloth of man's manufacture, as Rennie has long since observed, is striking. It is not interwoven but merely pressed or milled by the birds' feet, chin and breast, and like all good felt, said to be treated with a glutinous substance from the salivary glands, not inferior to the shellac of commerce used in the finest felting, though it must be

confessed that the writer has been unable to detect its presence and thinks the cobweb sufficiently strong as a base for the successive layers of vegetable down, while the lichen-encrusted veneer clings to the silk-bound exterior far better than if affixed by a weak solution of glue.

The Ruby-throated Hummingbird in this locality usually builds its nest entirely of white plant down and the base enveloping the branchlet. I have observed the female, who does all of the work, gather down from the blossom of the Indian tobacco found in patches of barren ground. The lichen with which it is stuccoed is taken from the bark of an ancient oak. The nest is generally saddled well out on a horizontal branch of oak or beech, 12 to 30 feet above the ground and the problem of swaying limb solved by a deep-cupped interior and contracted rim.

There is little variation in the nest throughout its range, "willow, poplar, oak, sycamore, fern or milkweed down"; describers usually mark time in mention of exact source of the materials. Wilson once found a nest attached to the trunk of a tree and others to tall rank weeds. He describes the composition as the downy substance from the giant mullein and fronds of the fern. A well-made Hummer's nest will hold sufficient water to drown the tiny young, per contra John Burroughs. I have known of only one instance of the Ruby-throats' departure from the normal nesting site and that was placed on the sliding block of a hammock on a porch, though some of the Western species sometimes nest on bent hanging wire, rope, etc.

In the Hummingbirds' nest the acme of daintiness and finish is attained. The tiny creature darts into the half-formed cup to pack and mould it by whirling around, sometimes with the throat pressed over the rim. Our smallest Hummer, the Calliope, constructs a nest described as a marvel of ingenuity, with outer veneer of bits of bark and shreds of pine cone, closely placed to a dry cone on a dead limb. It resembles it so closely as to almost defy detection.

Many of the Flycatchers are coarse, inadept feltmakers, usually only in the lining. The Western Wood Pewee offers the best example. It is composed of plant fibre, blossoms, small grey velvetry leaves and finely shredded bark, lacking the lichen-covered exterior of the Eastern species, as well as being deeper and more solidly built.

Wilson found the Kingbird building at no great height in an

apple or sassafras, a bulky nest of small twigs and blossom tops of the yarrow, well compacted with tow and wool, and usually lined with fine fibrous grasses and horsehairs. At this date it has to be content with cotton twine and horsehair in place of tow and wool. A pair nesting in a partly submerged sycamore had developed a Kingfisher-like taste for minnows and I repeatedly observed it making a catch well out in a large quarry hole.

The Goldfinchs' nest is also less typical of the feltmakers' art, though beautifully consistent in the lining of plant down. This species feeds when it can upon the seeds of the thistle and frequently gathers the down for lining. It has even been suggested that the very late nesting dates—July, August and September—has something to do with the late ripening of this plant.

The Yellow Warbler constructs a most excellent example. A nest from Iowa is composed of silvery plant fibre and fine strips of grape-vine bark, lined heavily with down from the cottonwood. This bird sometimes builds a two- or three-storied nest to dispose of the objectional Cowbirds' egg.

Cones describes the nest of the Blue-Gray Gnatcatcher comparable only to that of a Hummer. A truncated cone, remarkably deep-cupped and contracted at the orifice; the walls closely felted with the softest vegetable fibre, in some cases woven with spider's web and stuccoed with lichen.

The occasional bits of wool or plant down found in the lining of the Wood Pewee's nest scarcely admit its inclusion here, though its lichen studded exterior gives it a very poor third place to the Ruby-throat and Gnatcatcher. The stucco work is not for ornamentation but the result of the instinctive desire to hide the too prominent nest, resulting often in a fortuitous imitation of surroundings because the lichen gathered close by is often in harmony.

(8) A superior nest to that of the platform type is the cupped and interlaced brush nest of the Crow, Jay, Cardinal, Cedar Waxwing, Shrike, Mocker and the like, which employ a stick or twig base, and that of the Sparrow, Indigo Bunting and Chat which use grasses for a base, while the Tanager dispenses with a base altogether and builds a frail lining-like nest supported by many-branched vegetation to offset the lack of cohesion.

The Crow builds yearly a large compact nest in which some earth is incorporated. Once I found a nest lined with a quantity

of crimson-dyed bristles from some discarded finery, and again a structure on a beech limb in every way like the nest of a Heron, flat, loose and unlined, doubtless the final effort for the season, in which haste had led to reversion to the platform type.

Slate ridge, the backbone of Chester County, has always been a great breeding ground for the Crow. The nest was commonly placed in the predominate chestnut, but by 1914 this timber was completely destroyed by blight and as the species frequently construct long before the first buds have burst into leaf, for a few seasons leading up to the extermination of the chestnut, many birds built in recently killed trees and were seriously inconvenienced by the subsequent lack of leaf screen. A panic seized the species and for some years following the ridge was almost deserted for small groves and isolated cedar, beech, elm, oak, ash, cherry, pine, and mulberry in the midst of the farm land, where the sitting bird could be flushed with extreme difficulty, in marked contrast to the quick response to a single tap at the base of a forest tree. I banded a young Crow just ont of nest on the hills, May 17, 1914, and it was shot on a farm a few miles away six years later.

I found the Fish Crow nesting in colonies in white cedar and holly groves on the New Jersey coast. It is solitary in Southeastern Pennsylvania.

In the middle of May I observed a pair of Brown Thrashers inspecting a nesting site in our woodbine. The next morning the nest was begun at 6:30, the female hopped about within a radius of 10 feet to collect a full bill of damp and broken leaves; the male followed with fragments of the same material but apparently did not know what to do with it, for he always dropped it short of the nest. The female promptly deposited her material and went through the motions of shaping it with her breast for half a minute or less. The structure was completed at 6:45 the following morning.

The Chipping Sparrow uniformly lines its grass nest with horse hairs, the Field with the same and fine grass stems, and the Song mostly with the latter. The Indigo Bunting favors the Field Sparrow type of lining, while the Cardinal, Scarlet Tanager and Chat prefer a lining of wild strawberry runners. The near future may require the "Hairbird" to seek in suburban towns at least, other lining material than the convenient horsehair.

(To Be Continued)

MIGRATION NOTES FROM STATE COLLEGE, CENTER COUNTY, PENNSYLVANIA

BY THOMAS D. BURLEIGH

(Continued from June Number)

42. Crossbill—*Loxia curvirostra minor.*
One record, five birds seen March 26, 1916, feeding in several pitch pines.

43. White-winged Crossbill—*Loxia leucoptera.*
One record, three birds seen Feb. 22, 1916, feeding in a large hemlock; one an adult male, one an immature male, and the third a female.

44. Redpoll—*Acanthis linaria linaria.*
Abundant during the winter of 1916-17, flocks varying from a few birds to at times fully five hundred being seen at frequent intervals from Nov. 5 through March 22; invariably they were feeding on the seeds of weeds sticking above the snow that covered the ground, and when in large flocks were very restless and constantly shifting about; one other record, a flock of seventy-five birds being seen March 26, 1919.

45. Pine Siskin—*Spinus pinus.*
A very irregular migrant, common one year and then perhaps not seen for several years; recorded for the fall migration only in 1916, but abundant then from Oct. 1 through Nov. 9, when flocks varying from twenty-five to a hundred and fifty brids were seen, feeding almost entirely in the willows that were badly infested at the time with aphids; earliest record for the spring migration March 15, 1919; latest, May 15, 1917.

46. Snow Bunting—*Plectrophenax nivalis nivalis.*
An uncommon migrant, and recorded but twice; in 1916 a flock of possibly forty birds appeared March 19 and remained through the 24th, feeding with a large flock of Horned Larks in the open fields about the town; in 1917 four birds were seen January 24, feeding about a large manure pile with a flock of fifty Prairie Horned Larks

47. Lapland Longspur—*Calcarius lapponicus lapponicus.*
One record, a single bird seen March 22, 1917, feeding in an open field with a flock of two hundred Horned Larks.

48. White-crowned Sparrow—*Zonotrichia leucophrys leucophrys.*
A common migrant; earliest, May 2, 1919; average, May 8; latest, May 21, 1916; plentiful by the 12th; earliest for the fall migration, Sept. 28, 1916; birds usually plentiful by the 10th of October; latest, Oct. 28, 1916.

49. White-throated Sparrow—*Zonotrichia albicollis.*
A common migrant; earliest, April 13, 1916; average, April 24; plentiful by the latter part of the month; latest May 19, 1915; earliest, fall migration, Sept. 19, 1914; plentiful by the latter part of the month; latest, Nov. 19, 1916.

50. Tree Sparrow—*Spizella monticola monticola.*
A common winter resident; earliest, Oct. 28, 1915; average, Nov. 1; plentiful by the end of the first week in November; latest, April 20, 1919; average, April 11; many heard singing after the middle of March.

51. Slate-colored Junco—*Junco hyemalis hyemalis.*
A common winter resident; earliest, Sept. 19, 1914; average, Sept. 22; plentiful by the middle of October; latest, May 9, 1915; invariably very plentiful the latter part of March and the first of April, large flocks being very numerous then.

52. Swamp Sparrow—*Melospiza georgiana.*
A common migrant; earliest, April 8, 1919; average, April 15; latest, May 14, 1917; earliest fall migration, Sept. 19, 1916; latest, Nov. 28, 1916; birds plentiful by the end of the first week in October.

53. Fox Sparrow—*Passerella iliaca iliaca.*
A common migrant; earliest, March 1, 1919; average, March 25; plentiful by the first of April; latest, April 19, 1917; average, April 15; earliest fall migration, Oct. 17, 1915; plentiful by the latter part of the month; latest, Nov. 23, 1915; average, Nov. 20.

54. Rose-breasted Grosbeak—*Zamelodia ludoviciana.*
A fairly common migrant; earliest, May 1, 1915; average, May 6; latest, May 24, 1916; earliest fall migration, Sept. 14, 1915; latest, Oct. 19, 1916; average, Sept. 24.

55. Bank Swallow—*Riparia riparia.*
A scarce spring migrant; earliest, April 19, 1916; latest, May 18, 1916.

56. Migrant Shrike—*Lanius ludovicianus migrans.*
A scarce and irregular migrant; six records, as follows: 1914, Nov. 1, Nov. 7, Nov. 14; 1915, Nov. 17; 1916, March 24, March 25; birds seen in the fall frequently heard singing.

57. Nashville Warbler—*Vermivora rubricapilla rubricapilla.*
A common spring migrant; earliest, April 28, 1915; average, April 30; plentiful by the end of the first week in May and frequently heard singing; latest, May 14, 1916.

58. Tennessee Warbler—*Vermivora peregrina.*
A common spring migrant; earliest, May 6, 1919; average, May 8; plentiful by the 15th, and singing then; latest, May 26, 1916; one record for the fall migration; two birds seen Sept. 19, 1916.

59. Cape May Warbler—*Dendroica tigrina.*
A regular but by no means common migrant; a few are seen during each spring and fall migration, but rarely over one or two at one time; earliest spring migration, May 7, 1916; latest, May 22, 1916; other dates of arrival, May 8, 1915, and May 7, 1919; for departure, May 17, 1915, and May 15, 1919; earliest fall migration, Sept. 22, 1916; latest, Oct. 15, 1916.

60. Myrtle Warbler—*Dendroica coronata*
A common migrant; earliest, April 19, 1917; average, April 26; plentiful by the latter part of the month; latest, May 19, 1915; earliest fall migration, Sept. 18, 1915; plentiful by the first of October; latest, Nov. 14, 1916; average, Nov. 4.

61 Magnolia Warbler—*Dendroica magnolia.*
A common migrant; earliest, May 3, 1916; average, May 8; latest, May 29, 1915; earliest fall migration, Sept. 13, 1914; latest, Oct. 3, 1916.

62. Bay-breasted Warbler—*Dendroica castanea.*
A common spring migrant, appearing in small flocks after the middle of May, when other northern warblers are becoming scarce; unusually plentiful during the spring migration of 1916, one flock being seen May 21, in which there were fully twenty-five birds; arrival May 17, 1915, May 14, 1916, and May 17, 1919; latest, May 27, 1916; three records for the fall migration, Oct. 2, 1915, Sept. 20, 916, and Sept. 24, 1916.

63. Black-poll Warbler—*Dendroica striata.*
A common migrant, and one of the latest to appear in the spring; earliest, May 14, 1916; plentiful by the latter part of the month; latest, June 1. 1916; earliest fall migration, Sept. 14, 1915; latest, Oct. 28, 1915.

64. Yellow Palm Warbler—*Dendroica palmarum hypochrysea.*
A common spring migrant; earliest, April 15, 1919; average, April 30; plentiful by the end of the first week in May; latest, May 15, 1917; average, departure, May 12; two records for the fall migration, Sept. 19, 1914, and Sept. 24, 1916.

65. Northern Water Thrush—*Sciurus noveboracensis noveboracensis.*
A common migrant; earliest, April 24, 1917; average, April 26; plentiful by the first of May; latest, May 27, 1916; average departure, May 19; but two records for the fall migration, the majority of the birds being gone by the middle of September, one Sept. 14, 1915, and one Oct. 14, 1916.

66. Connecticut Warbler—*Oporornis agilis.*
A scarce fall migrant; four records, single birds each time, as follows: 1915, Sept. 28 and Sept. 30, 1916, Sept. 23 and Sept. 24.

67. Mourning Warbler—*Oporornis philadelphia.*
A scarce spring migrant; three records, single birds each time, as follows: 1915, May 17 and May 29; 1916, May 21.

68. Wilson's Warbler—*Wilsonia pusilla pusilla.*
A common migrant; earliest, May 12, 1916; average, May 17; usually plentiful by the 21st; latest, May 27, 1916; latest fall migration, Sept. 19, 1915.

69. Pipit—*Anthus rubescens.*
A somewhat scarce migrant; earliest, Feb. 28, 1917; average, March 30; latest, May 14, 1917; earliest fall mgiration, Sept. 30, 1916; latest, Nov. 28, 1916.

70. Winter Wren—*Nannus hiemalis hiemalis.*
A common migrant; earliest, March 26, 1916; average, April 1; plentiful by the middle of the month; latest, May 14, 1917; average departure, May 4; earliest fall migration, Sept. 19, 1914; average, Sept. 23; birds invariably very plentiful for a few days during the middle of October, being seen everywhere then; latest, Dec. 3, 1914; average departure, Nov. 20; one winter record, a single bird seen Jan. 25, 1917.

71. Long-billed Marsh Wren—*Telmatodytes palustris palustris.*
One spring record, a single bird seen April 26, 1916; fairly common during the fall migration that year, but not seen other years; first, Sept. 19; fairly plentiful by the 26th of the month; last, Oct. 25.

72. Brown Creeper—*Certhia familiaris americana.*
A common migrant; earliest, March 30, 1917; average, April 8; plentiful by the middle of the month; latest, May 14, 1917; average departure, May 8; earliest, fall migration, Sept. 13, 1914; average, Sept. 21; plentiful by the middle of October; latest, Dec. 9, 1916; one winter record, two birds seen Feb. 26, 1917.

73. Red-breasted Nuthatch—*Sitta canadensis.*
An irregular and often scarce migrant; earliest, April 14, 1915; latest, May 13, 1916; other dates of arrival, April 30, 1916, April 26, 1917, and May 6, 1919; for departure, May 1, 1915, and May 13, 1919; earliest fall migration, Sept. 24, 1916; latest, Nov. 14, 1914; other dates for departure, Oct. 21, 1915, and Oct. 24, 1916.

74. Golden-crowned Kinglet—*Regulus satrapa satrapa.*
A common winter resident; earliest, Sept. 25, 1915; average, Sept. 28; plentiful by the first week in October; latest, spring migration, April 30, 1916; average, April 25.

75. Ruby-crowned Kinglet—*Regulus calendula calendula.*
A common migrant; earliest, April 8, 1919; average, April 15; plentiful within a few days after they are first seen; latest, May 16, 1915; average departure, May 15; earliest, fall migration, Sept. 21, 1916; average, Sept. 30; latest, Nov. 1, 1916; average departure, Oct. 31; one winter record, one bird lingering for six days, from the 4th through the 9th of January, 1917, in a short stretch of woods.

76. Veery—*Hylocichla fuscescens fuscescens.*
A very scarce migrant; two records, both for the spring migration of 1916, single birds seen May 18 and May 24.

77. Gray-cheeked Thrush—*Hylocichla aliciæ aliciæ*
A scarce, and late spring migrant; earliest, May 29, 1915; latest, June 1, 1915.

78. Olive-backed Thrush—*Hylocichla ustulata swainsoni*
A common migrant; earliest, May 6, 1916; average, May 10; plentiful by the middle of the month; latest, May 26, 1916; earliest fall migration, Sept. 14, 1915; usually fairly plentiful within a few days after they are first seen; latest, Sept. 29, 1914; average, Sept. 26.

79. Hermit Thrush—*Hylocichla guttata pallasi*
A common migrant; earliest, April 2, 1917; average, April 7; plentiful by the middle of the month; latest, May 12, 1917; average, departure, May 1; earliest fall migration, Sept. 29, 1914; average, Oct. 7; plentiful by the latter part of that month; latest, Nov. 16, 1916; average departure, Nov. 1.

The scarcity of reasonably large bodies of water, or large streams, causes my migration data on the water birds to be rather meager and incomplete. There is one large pond at

Scotia, some six miles southwest of State College, and a smaller pond at Oak Hall, five miles northeast of the town, but otherwise with the exception of a few creeks there are few inducements for such species as ducks or sandpipers to linger here on their way north or south.

IV. Stragglers

1. Red-bellied Woodpecker—*Centurus carolinus*
   One record, a single bird seen March 12, 1917, in a tree at the side of a road.
2. Purple Martin—*Progne subis subis*
   Two records, single birds, seen Sept. 30, 1915 and May 4, 1916.
3. Carolina Wren—*Thryothorus ludovicianus ludovicianus*
   Two records, single birds seen Feb. 19, 1917 and March 16, 1917, each time in the top of a tree singing.
4. Labrador Chickadee—*Penthestes hudsonicus nigra*
   One bird seen March 18, 1917, near Rouchtown, Lycoming County, a neighboring county lying in this same range of mountains.

Georgia State College of Agriculture,
Athens, Georgia—January, 1924.

WATER BIRDS BREEDING ON PIERCE POND, MAINE

ALLEN H. WOOD, JR., BOSTON, MASS.

Pierce Pond is one of Maine's most beautiful lake-jewels, set eleven hundred feet above sea level in the mountains near the Canadian border. The pond is approximately nine miles long and not over three miles wide at any point.

Only three camps on the shores of the pond disturb the absolute wilderness of the surrounding country; except during the fishing and gunning season, there is seldom anyone in the three camps.

Twenty-two years ago the stream-outlet at the foot of the pond was dammed to provide headwater for logging. This dam caused the water in the pond to rise about six feet above its former level. Thousands of trees which were growing close to the edge of the pond were partially submerged and soon died. Today, thousands of dead and broken stumps border the pond. These stumps vary from three to forty feet in height, and most of them are partly or entirely hollow.

American Golden-eye.

The American Golden-eye Duck breeds in these stumps of dead trees by the hundreds. Joe, my guide, and I found ten nests in one large cove where the stumps were particularly thick. I saw several male Barrow's Golden-Eyes during my four

days' visit, but found no evidence of their breeding on Pierce Pond.

The "whistlers" were very numerous and not very wild. A pair visited me every night about six o'clock. They swam up and down the shore directly in front of my cabin. The male bird had a peculiar habit of bending his neck until the top of his head touched his back. After each contortion he would swim up close to the female and give two hoarse grunts as if asking her approbation of his exhibition. Then they would both dive. I was interested in watching them dive as they both did so at the same instant, and came up at the same instant. I never saw such perfect team work before.

Black Duck.

Anas rubripes also breeds on the shores of the wooded islands in Pierce Pond. Their nests are very difficult to find and I counted myself fortunate in finding one.

Joe and I had landed on a small, heavily wooded island to eat lunch; as I was picking up some dry wood to build a fire, a female Black Duck flew out of the bushes almost between my legs. Snugly hidden under a small evergreen tree I found her nest. The eleven buff eggs were grouped in a feather-lined hollow in the ground—packed in with mathematical precision. A ridge of breast feathers about two inches high surrounded the hollow. The nest as a whole, with its protecting spruce trees and its outlook on the pond, was the most beautiful wild duck nest I have ever seen.

Red-breasted Mergansers.

The Red-breasted Merganser breeds on this body of water, I am sure, as I saw dozens of pairs every day. I was unable to find any nests of this species, but Joe, and another guide assured me that they had often found "Sheldrake" nests under stump roots and in the brush along the shores of the pond.

Scaup Duck.

I make a record here of the "Blue Bills," not because I could find any positive evidence of their breeding in the vicinity of Pierce Pond, but because there is a possibility of their doing so. I saw fourteen pairs of Greater Scaup, and three pairs of Lesser Scaup during my stay; and their presence on the pond during breeding season leads me to believe that they quite possibly do breed here.

Wood Duck.

Several pairs of Wood Duck breed regularly in the vicinity

of the camp where I slept during my stay at Pierce Pond. One pair bred in a huge birch which stood about one hundred feet from the lake directly in back of my cabin. The nest hole was about forty feet from the ground. I saw the female circle about and dive into the hole a dozen or more times, while her beautiful mate would swim in the pond close to shore.

I found one other Wood Duck's nest on the opposite side of the pond in a large pine. Both females were laying and had not begun to set.

Gavia immer is another resident breeder. Joe took me to an island where a pair of these birds have built their haphazard nest for the past three years—on a mud bank about four feet from the water. We saw the Loons four or five times, but they will not commence laying for another two or three weeks.

I saw two pairs of Loons and understand that six pair breed regularly on various islands in the pond.

Herring Gull.

Scattered throughout the pond are numerous rocks of varying sizes. Many of these isolated rocks are occupied by Herring Gulls who build a fairly substantial nest of rock moss, grass and rubbish, in which they lay their three splotched eggs.

I found fourteen Herring Gull nests within four miles of my cabin—all with three eggs in them.

Spotted Sandpiper.

The only other bird which breeds on the pond that I could ascertain by observation and questioning is the Spotted Sandpiper.

They are fairly numerous and lay their speckled eggs under the bushes and grass on the sand spits around the shores of the pond. I was unable to find any nests, as it was too early in the season, but saw photographs of birds, nests and eggs which the guides had taken last year. The identification was positive.

Insectivorous birds, Hawks, Eagles, and Owls also breed around Pierce Pond, but as I was particularly interested in the water birds, and my visit very brief, I paid practically no attention to any other avi-fauna.

I did blunder on a Chickadee's nest in an old birch stump. The nest hole was lined with usnea moss and fine strips of bark. Two eggs had been laid.

My visit at Pierce Pond extended from May 21 until May 26, and all observations recorded above were made in that period.

May 28, 1924.

THE WILSON BULLETIN

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EDITORIAL

The Editor is pleased to report a profitable and interesting summer, the sixth of its kind, touring from Oberlin to the Pacific Coast of the state of Washington, with a party of 20, including himself. One day was spent on a visit to Carroll Islet, in the Olympic Bird Reservation, the scene of previous visits in 1908, 1915, and 1916. He is also pleased to report that this gem among the thousand and more islands that comprise this reservation, shows a marked increase in the nesting inhabitants, although there has been a considerable decrease in the number of living trees. The greatest increase is in the number of nesting California murres. It is very evident that the protection afforded by the setting aside of this group of islands as a Reservation has had a salubrious effect upon the nesting birds.

THE ANNUAL MEETING

The annual meeting of the Wilson Ornithological Club and the Inland Bird-Banding Association will be held this year at Nashville, Tennessee. The latter part of November has been decided on; notice of the exact dates will be sent to members of both organizations just as soon as they have been agreed upon.

This will be the first meeting of the kind ever held in the South and it is expected to add impetus to the study of birds in that section. A two-day program is being arranged by the Secretaries of the two societies, and a third day for a field trip is being set aside for those who can stay over. The Tennessee Ornithological Society will act as host for the two organizations. Begin right now to make plans for the trip to the beautiful Southern city. If you can give a paper or add in any way to the program, send this information to the Secretary **at once.** Let's make the meeting a memorable one.

GORDON WILSON, Secretary.

FIELD NOTES

RED-EYED VIREO MIMICS THE CALL NOTES OF THE CRESTED FLYCATCHER

In "Bird Lore" for September-October, 1920, (vol. xxii, page 287) Mr. E. A. Doolittle calls attention to a Red-eyed Vireo that frequently punctuated its ordinary song with the whistled call of the Crested Flycatcher. On July 24th of this year, while in a narrow strip of woodland near the Stillwater River about eight miles north of Dayton, Ohio, I heard a singing Red-eyed Vireo that imitated to perfection the shrill whistled "quirp" of the Crested Flycatcher. The flycatcher note was uttered at intervals throughout the song but never repeated twice in succession; as many as ten and as few as three of the regular phrases were uttered between repetitions of the flycatcher's call. During a period of about three hours this Red-eye sang three times, each song-period lasting from ten to fifteen minutes, and each time the strange note entered into the song with about the same regularity. On the following day the song was heard again for about five minutes at the same place, the flycatcher's call entering as prominently into the song as on the day before.

At first the flycatcher call was entirely deceptive but after listening to the Vireo for a short time the source of the note was obvious; the steady delivery of short phrases of the typical song was frequently punctuated with the characteristic high pitched whistle of the Crested Flycatcher, and so closely was this note followed by phrases of the regular song, that without a previous knowledge of this peculiarity, the Vireo would never have been suspected. Had not Mr. Doolittle's observation appeared in print, in all probability I would not have distinguished this note in the Red-eye's song, but likely would have passed up the bird supposing there was a Crested Flycatcher nearby also. As this bird does not to my knowledge imitate other birds, the selection of identically the same strange note by individuals in widely separated parts of the country is something more than a mere coincident; as Mr. Doolittle has already suggested, I believe it will eventually be found that this call note of the Crested Flycatcher is frequently employed by this species.

Ben. J. Blincoe.

August 10, 1924.

ROBIN NEST ON GROUND

On May 6th, 1924, my sister in-law, Mrs. T. J. Blincoe told me of finding a robin's nest on the ground under a rhubarb plant in the garden; I visited the place at once and found that the nest was unmistakably of robin construction and contained two typical eggs; a third egg was laid the following day and hatching took place on the 18th and 19th of the month; unfortunately the young were destroyed three days after hatching.

The nest was about midway between two rhubarb plants that stood approximately fifteen inches apart, and fit snugly in a depression that

measured about one and three-fourths inches in depth; there was no vegetation about the nest other than the rhubarb plants. In cultivating, the ground had been thrown toward the row, thus the nest was situated on a slight ridge where hard dashing rains were not likely to flood it, and the large leaves of the rhubarb afforded ample protection from the sun.

I wrote to Mr. Amos W. Butler of Indianapolis, Indiana, regarding this unusual nesting and in reply he stated that he did not recall ever having heard of a similar nesting, and suggested that I publish a note concerning it. However, since receiving Mr. Butler's letter, I find in Bird-Lore for July-August, 1918 (vol. xx, page 302) an account of a robin's nest that was found in an orchard, placed in a clump of clover. I am aware of no other records of ground nest of this species.

Ben. J. Blincoe.

August 13, 1924.

KENTUCKY WARBLER IN NORTHERN MICHIGAN

About the 28th of May, 1921, while going by a small body of water, I heard a musical song coming from a nearby evergreen tree. Up on a horizontal branch of a tree was a male Kentucky Warbler. It was a very active bird feeding on insects among the branches of the trees.

I watched the warbler for a few minutes and then went to another place looking for new arrivals for the year. As I returned to the place where the Kentucky Warbler was, on my way back home, I was successful in seeing the bird again. Also saw it on the two succeeding days near this place.

That was my last observation of the warbler until May 14, 1922, when out on a bird walk, I found one a short distance north of the place where I saw it in 1921.

I have not been successful in finding it since.

It does not seem to go much over 20 feet high in the trees while feeding or any other time during my observation of this beautiful bird.

I was within a few yards of this bird, so had a very interesting observation.

Oscar M. Bryens.
McMillan, Luce County, Mich.

THE WESTERN HOUSE WREN NESTING IN CENTRAL OKLAHOMA

Until the spring of 1924 we had known the Western House Wren (*Troglodytes aedon parkmani*) in Norman, Okla., only as a transient from mid-April to mid-May and again in October. The only breeding records for the State are three from the northern border—Enid and Kenton. This spring we had placed a box for the Texas Bewick Wrens in a plum tree instead of on a pole as usual. On April 16 I saw one of these birds go to the house and peck vigorously at the entrance as if trying to enlarge it. Although I at once changed the size of the hole, I never saw these Wrens return to the box.

On April 21, to our surprise we heard a House Wren singing on the

grounds, something we had never before heard in Oklahoma. The singing was continued for nearly a month. On the 27th we noticed two birds about the woodpile. Soon it was evident that the little house was the attraction; early in May the Wrens were seen examining it, popping in and out, twittering and singing. On May 11 I felt twigs inside; the next day Jennie was observed building assiduously while Jackie sang. May 16 was the last date on which we heard the song and May 21 was the last time we saw Jennie. Upon opening the box a few days later we found eight fresh eggs; these were finally collected when it was evident that the parents had disappeared. Could the birds have deserted their nest and migrated after all at the regular time? Or perhaps they fell victims to the neighbors' cat.

Margaret M. Nice.
Amherst, Mass.

THE CEDAR WAXWING IN TENNESSEE IN SUMMER

As a spring migrant the Cedar Waxwing occasionally lingers into the first week of June at Nashville. However, prior to the present (1924) season I had but one record later than June 7. This was the occurrence of two birds on June 16, 1922.

In 1924, on June 14, a flock of eight flew over my home. No more were seen until the 27th, when two birds appeared. These birds were also seen on June 30 and daily from July 8 to 11 inclusive. On the 13th, 15th and 17th lone birds were seen.

All these occurrences were in the immediate neighborhood of my home, situated in a suburb but thinly settled. It was thought worthwhile to keep a sharp lookout for any evidence of nesting, even though the locality is so far outside the normal range of the species. None was found and the birds themselves did not again appear, though daily watch was kept.

In behavior these stragglers were quite restless and although they remained for days in a restricted area yet they kept continually on the move throughout the day, passing from tree to tree in a manner that reminded one somewhat of migrating warblers. This is the way "singles" of this species act when seen in winter and it has always seemed to me that they were searching for a flock of their kindred.

Harry C. Monk.

Nashville, Tenn., August 28, 1924

THE BLACK AND WHITE WARBLER IN TENNESSEE IN WINTER

On December 3, 1923, while passing through Centennial Park near the boathouse, my attention was attracted by what I thought was the call note of the Brown Creeper. Failing to see the bird I turned to look it up and was considerably surprised to find a Black and White Warbler. The bird was busily gleaning the trunk and larger limbs of an elm tree and was so engrossed that I was able to approach to within six feet of it. It worked with all a warbler's energy and apparently found plenty to eat. The food was taken entirely from the bark (all trees were bare) and no visits were made to the "twiggery." The bird ap-

peared to be in good condition and flew well; the plumage was slightly soiled.

What was probably the same bird was seen on January 1, 1924, when I was walking along West End Avenue east of 25th Avenue. The bird was gleaning in Nuthatch fashion on the trunk of a large cottonwood. Its behavior was much the same and it appeared to be as much "at home" as any Chickadee. The day was clear but bitterly cold, with a strong north wind blowing.

This warbler remains here in the fall into October. My own latest date of departure is October 7th. Return is made in late March. While the above are the only winter records we have for Nashville they do not seem to be so unusual when we reflect that one night's flight would probably suffice to carry the birds to those parts of Florida where numbers of the species winter.

Harry C. Monk.

Nashville, Tenn., August 28, 1924.

NOTES—HERE AND THERE

Conducted by the Secretary

Mrs. C. E. Raymond, Chicago, Ill., a member of the Wilson Ornithological Club for a long time, died in February, 1924.

The great achievement of the year in bird books is the monumental "Birds of California," by W. Leon Dawson, published by the South Moulton Company of Los Angeles. Bird lovers everywhere are delighted with the publication. The heroic way in which the Cooper Ornithological Club is pushing the sale of the volumes is highly commendable. Since nearly the same people are identified with both societies and since Mr. Dawson has himself been long a member of the W. O. C., we take a sort of satisfaction in the new book like a relative in a new-born nephew or cousin.

Our president, Albert F. Ganier, of Nashville, Tenn., is always "up to something." From May 29 to June 6 he, in company with Edgar McNish of Madison, Dr. George R. Mayfield of Nashville, and Professor G. M. Bentley and H. P. Ijams of Knoxville, were in the mountains of East Tennessee studying birds. We expect to hear from this trip in print as well as in letters.

Professor Edwin B. Frost of Williams Bay, Wis., published in the Lake Geneva Tribune of March 20, 1924, a record of the arrival of common birds in the grounds of the Yankee Observatory during the past twenty-three years. It is a brief, but accurate, digest of this valuable information.

Robert Campbell of Keene, Ontario, is trying to promote the better distribution of Ducks by encouraging the planting of suitable ducks food-plants in ponds and marshes. The statistics show, he says, that the increase in the number of Ducks since spring shooting was abolished is fully fifty percent, but that this increase is not properly distributed.

The May, 1924, Gull contains a pertinent article called "Casting Oil Upon the Troubled Waters," which is a reprint of a radio address broadcasted from KPO by C. B. Lastreto, San Francisco, April 10, 1924. It is a protest against oil pollution of rivers, bays, and oceans by crude petroleum from oil-burning steamships and tankers and by manufacturing industries on land.

Howard H. Cleaves of New York City has five outdoor and wild life lectures which have been given in the past ten years to several thousand people. They are called: 1. "Camera Shots from the Far Southwest"; 2. "Experiences with Wild Birds and Animals"; 3. "Bird Studies on the Atlantic Coast"; 4. "Making Friends with Wild Life"; 5. "Modern Conservation."

The American Society of Mammologists in their sixth annual meeting, on April 16, at Cambridge, Mass., adopted resolutions condemning the propaganda of certain ammunition companies against so-called predatory animals and "vermin."

Efforts are being made, and our W. O. C. president, as usual, is helping, to create a great national park in the Great Smoky Mountains of East Tennessee. The plan includes 150,000 acres in the heart of the mountain country which would form a wild-life refuge to be a delight to out-door students for all time to come.

The University of Kentucky, Lexington, announces the establishment of a Zoölogical Field Laboratory in Breathitt County, which will be open to students in the summer of 1925. The laboratory will be located near Quicksand, close to Kentucky River, between Quicksand and Troublesome Creek. The Field Laboratory will consist of about five hundred acres of typical mountain country, which shows almost primeval conditions in native fauna and flora. It is extremely rugged, well timbered and watered, with attractive topographical features and unusual biologic resources. It is very rich in the number of insects, snakes, birds, and mammals represented. Through the courtesy of the College of Agriculture, students at the Field Laboratory will have the privilege of doing collecting, exploring, and research work over nearly fifteen thousand acres of closely adjacent mountain land in Breathitt, Perry, and Knott Counties. Part of the Field Laboratory will be set aside as a Bird Sanctuary.

The Secretary spent his summer in Bloomington, Ind., not exactly taking a vacation, but finishing the necessary work for his A.M. degree. The study of birds was not wholly neglected, however, though it had to take a subordinate position. That is excuse for the brevity of these notes, a deficiency which will be remedied in the December issue of the Wilson Bulletin. And, as a sort of apology for not having more news this time, he may tell of some of his finds.

BIRD BANDING DEPARTMENT

Under the Direction of Wm. I. Lyon, Waukegan, Ill.

GULL AND TURN BANDING ON THE GREAT LAKES DURING THE SEASON OF 1924

BY R. M. STRONG

The genial and enterprising secretary of the Inland Bird Banding Association not only enlisted me in his banding campaign, but he has prevailed upon me to write this report and what has been done with Gulls and Terns about the Great Lakes, the past season. He has also furnished me with most of the data.

Doubtless all of us have wondered at times whether Gull and Tern banding would yield any results. It is a common experience to be asked how we can hope to get any returns. Gulls and Terns are common enough, but they do not enter the traps of bird banders, and they are not game birds. The answer is found in the remarkable results already obtained in Europe.

A recent paper by Thomson[1] contains some exceedingly interesting records, with reference to various publications of results. The recoveries of two British banding projects for both the Herring Gull and the Lesser Black-backed Gull amounted to 4%. Thomson mentions the still more successful Danish work published by Skovgaard.[2] During the period from 1917 to 1921, 1,177 nestling Herring Gulls were "marked" in a colony on the island of Fario near Esbjerb, at the south-western corner of Denmark. One hundred of these were recovered "in the first year of life." Dispersal took place northwards and southward "in approximately equal degree." Many other recoveries of Gulls banded in Europe are mentioned by Thomson.

An attempt to band gulls was made by Mr. M. J. Magee of Sault Ste Marie, Michigan, in June, 1922, but he succeeded with just one young Herring Gull, though he banded a good many other birds that season. Bands were placed on eighty Herring Gulls and forty-four Terns by Mr. W. S. McCrea, in the northern part of Lake Michigan at the Beaver Islands that year.

Better results were obtained in 1923[3] when over 450 Herring Gulls, 600 Common Terns and 200 Caspian Terns were banded in Lake Huron and northern Lake Michigan.

An appeal for information and for volunteers to place bands appeared in the December, 1923, number of the Wilson Bulletin. The number for the following March contained another call for helpers. There was also a report of information obtained, and experiences were given. At the same time, the secretary of the Association sent out much propaganda in letters.

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[1] Thomson, A. S. The Migration of the Herring-Gull and Lesser Black-Backed Gull: Results of the Marking Method. British Birds. Vol. XVIII, No. 2, July 1, pp. 34-44.

[2] Skovgaard, 1921. Maerkede Havmaager. Danske. Fregle. II. p. 65. Reference cited from Thomson.

[3] Wilson Bulletin, Sept., 1923.

As the result of such zealous efforts and the policy of the Biological Survey in prompting a Gull and Tern banding campaign during the 1924 breeding season, a much greater number of birds were banded. This success was obtained in spite of unusually bad weather which greatly curtailed visits to the remote places where the colonies breed.

The following table gives the 1924 results as collected to date. These figures would have been much larger in a normal season. My own trip occured during a week of mostly stormy weather.

	Herring Gull	Caspian Tern	Common Tern
Lincoln and McCrea	300	500	144
W. E. Hastings			1156
W. B. Purdy			100
Rev. Geo. Luther	6		24
Dr. R. M. Strong	33		30
H. E. Wilson	150	126	
W. I. Lyon	383		378
M. J. Magee	1		
	873	626	1832

In spite of a backward spring, the Herring Gulls began to breed early. Hatching of eggs was reported at Big Sister Island in Green Bay the last week of May. I found the breeding not at all delayed when I visited Gull Island in Lake Huron, July 11. Many young were flying, and I found only a few nests with eggs or newly-hatched young. It is my judgment that banding of young Herring Gulls can be best done during the last half of June, though the first half of July is good, especially if the nesting has been disturbed by storms or poachers. Some work can usually be done during the third week of July, but the colonies I have visited in the fourth week were deserted.

The Tern nesting season is later. I was too early on July 10th for the Common Terns at Black River Island about 25 miles south of Alpena in Lake Huron. This small island had hundreds of nests with eggs but only here and there had hatching taken place. I found no young that I thought were more than a week old. During several hours search, I found thirty that I ventured to band. Some of these were probably not more thaan two days old. The latter part of July would have been a better time. It is also the time for Caspian Terns.

Conditions for banding vary greatly at different colonies. When there is much underbrush and dense vegetation, it is often hard to find the young birds, especially if the island is large for the number of birds breeding. The most favorable place for banding I have ever seen is Gravel Island in Lake Michigan, where the gull population is dense and the vegetation too slight to afford hiding places.

Some of the breeding places are disappearing. Captain Ellsworth informed me this summer that the rock composing Gull Island in Lake Superior, west of Marquette, has been removed. Mr. Lyon found that Jack Island, one of the Strawberry group in Green Bay, which has had a fine Herring Gull colony, is to be cleared for a vacation home. Little

Strawberry Island in Green Bay was used by campers this summer, and we found a house occupied by fishermen on Gull Island in Lake Huron. This house certainly does not help the prospects of the Gull colony.

Both Mr. Lyon and myself found Band No. 7 too large for the Herring Gull, even when of adult size. No. 6 is plenty large for this bird.

Thomson mentions the banding of 86 Herring Gulls caught at night on the seashore by approaching them with bright lamps. I found a market basket especially convenient. One or two young gulls could be placed in this, and they would not try to escape while I was getting out pliers, notebook, and bands. It is important, in my judgment, that the birds be released where found because of the tendency of adults to attack young birds on the wrong range.

"The Survey" of August, 1924, reports that two returns of Caspian Terns have been reported from Columbia, South Africa.

It also states that Mr. Henderson was joining the Biological Survey party, which was banding wild fowl at the head of Hoover Bay, south of the Yukon Delta.

SELECTION OF A TRAPPING STATION

Selecting a point at which to set a new trap should be very carefully considered. The study of the successful trapping situations shows that most of them have attractive approaches such as trees or shrubbery, preferably both. The tree with a dead top makes an excellent attraction. In the case of bushes it has been found very advisable to strip the leaves from some of the upper and outer branches so that there will be places for the birds to alight as they approach the trap. If no such place is available you can increase your trapping results by placing a dead sapling in the middle of the bush or close to the trap. In the case of a trap at the base of some bushes, birds flying in the opposite direction might never see it, but if there is a convenient perching place they are tempted to alight and in such case have a good view of the trap and the bait.

In setting traps upon the ground, one should select a place that has a trifle slope, for drainage, especially if you live in the snow and ice district, as during the winter your traps are likely to become frozen in. Keep the bait fresh and the ground clean. These are the main points in attracting and trapping birds.

1925 GULL AND TERN CAMPAIGN

The Inland Association is starting next year's campaign, and we ask all those who gained any information during the past season about the species of birds to be found and their exact locations to aid in the work by sending in the details, thus helping to make a greater success next year.

This department needs an account of your unusual experiences, and we will appreciate any contributions.

PUBLICATIONS REVIEWED

Birds; Their Photographs and Home Life. By A. H. Cordier, M. D.

This is a book of 247 pages and 144 reproductions of photographs. The book apparently embodies the results of the author's playtime. Three chapters are given to photographic technique in the field—the blind, equipment, and hints on operation. Two chapters give brief accounts of visits to bird colonies on the Florida and Texas coasts. The rest of the ninety-odd chapters relate to the author's personal experiences with, and observations on, as many species of birds, both of land and water. In the account of the Brown Thrasher an incident between a blacksnake and a Thrasher is related in which the author thinks the bird was "charmed." In a somewhat similar case witnessed by the reviewer the Thrasher vigorously and repeatedly attacked a garter snake which approached the nest; there was no evidence that the bird was charmed. In this case, however, the snake made repeated efforts to advance in the direction of the nest on the ground. In Dr. Cordier's incident it would seem that the snake was retreating, which might possibly account for the bird's restraint. The House Wren and the Screech Owl are more kindly treated by the author than by some other recent writers.

Although some misspelling and errors in nomenclature have slipped into the final printing this will not mar the book for the majority of readers. The book is written by a confessed amateur, and its charm lies in its originality, and in the revelation of the author's enthusiastic pursuit of his hobby. Perhaps Dr. Cordier is a little too severe in his condemnation of bird collecting. It is likely that comparatively few specimens are taken nowadays that are not used to the advantage of ornithological science. But if the author refers to the accumulation of a large number of specimens of a single kind merely for the purpose of platting individual variations, a pastime of the taxonomist, perhaps his point is well taken.

T. C. Stephens.

Bulletin of the Illinois Audubon Society. Fall, 1923.

The interesting short articles in this semi-annual publication are too numerous to itemize in a very brief review. A particularly interesting article is by Carl F. Groneman on "Birds as Destroyers of Gall Insects." Two very readable short articles are, "The Charm of Ravines," by Mr. O. M. Schantz, and "Where the Meadow begins," by Miss Esther A. Craigmile. The excellent photographic reproductions are especially worthy of notice. A local publication of this kind serves to co-ordinate interest and effort, and affords a splendid example for other state groups.

T. C. Stephens.

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MEMBERSHIP ROLL OF THE WILSON ORNITHOLOGICAL CLUB

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SUMMER BIRDS OF BROWNSVILLE, TEXAS

BY M. W. DE LAUBENFELS

Like many others, I got much of my start in studying birds, as a boy, from Reed's "Bird Guide" with its colored pictures. Perhaps many others have, as I did, gazed fondly at certain particularly gaudy pictures there, and longed to see the originals. Many of us may even have doubted that such odd birds really did exist. The years went by, and we saw most of the others, but this group remained unseen and fabulous. There was the unbelievable green jay, the vivid derby flycatcher, the impossible looking groove-billed ani, the bizarre seedeater, and others with such romantic names as cara-cara and chachalaca. At last my dream of years has come true and I have seen the land where kingfishers are green, and roseate spoonbills are common.

The region of extreme southern Texas is deservedly interesting to the nature-lover. My highest hopes for it were not disappointed. The purpose of this article is to give something of an idea as to what one might expect to find were one to visit the Brownsville area in the summer time.

The valley of the lower Rio Grande is emphatically Mexican in type. One notices a very decided change, ecologically, when coming into it from the north, and little or no further change upon passing across the border south into old Mexico, though there is a big change, of course, in the people and buildings. If one enters this region from the Pacific side of our country, one leaves behind deserts studded with yucca; if from the Atlantic side or from the north,—cultivated country of cotton and corn. In either case one enters a wilderness of mesquite. None of the trees are much over a height of fifteen feet, yet few are much under that height. They are so close together that their gray-green foliage interlaces, and as any one who has ever tried conclusions with mesquite knows, they are thorny. A few other trees occur, second place probably going to a related tree—which is locally called "Ebony"; it has foliage of similar shape but much darker, richer green, and is even thornier; third place goes to yet another related tree, which is called "Crown of

Christ" because it is practically all thorns. The palo verde tree occurs, and is thornless, but the undergrowth is pretty bad. There are great quantities of a cactus, *Opuntia lindheimeri,* which has some of the nastiest little thorns I ever had in me, even worse than cholla. Others present are *Echinocereus longhimatus* and *Mammilaria hemispherica;* these have lovely flowers and thorns that are more easily avoided. Where irrigation water is available, as for instance from the Rio Grande, there are clearings planted to citrus fruit, cotton, etc., which show indications of a very fertile soil. There are occasional heavy rains, but in general the uncultivated plants depend for their water on the very heavy dews of the region. These dews are so heavy that with a metal roof (such as corrugated iron) one can keep a rain barrel filled as though a slight shower fell each night. The nights are very hot, and the humidity is so great that anything that will possibly rust, mold or mildew, does so with great promptness and thoroughness.

There are many interesting mammals here: deer and coyotes are numerous, though hard to find in the mesquite jungles. Armadillos and the banded peccary or javeline occur. Snakes are said to be abundant, but I was unable to find many. The collector of insects, or of snails, will find this a rich field.

There are great numbers of birds, but as well hunt for needles in hay-stacks without a good deal of direction. There is only one man in the locality to whom one can go for this help, but fortunately he is both familiar with the country and with the birds and other wild life; this is Mr. R. D. Camp, a true naturalist. He is the game warden for the vicinity. His advice and guidance had a great deal to do with my success in finding the birds and other points of interest.

On June 25th, 1924, I got off the train in Brownsville, Texas. That date is far too late for best results, but was the earliest possible for me; make your trip there in May or early June if you can. The first thing that impressed me was that the commonest birds in town were in this order:

1. Great-tailed Grackle—*Megaquiscalus major macrourus.*
2. Western Mockingbird—*Mimus polyglottos leucopterus.*
3. English Sparrow—*Passer domesticus.*

The grackles are comical birds, seemingly barely able to drag their gigantic tails through the air. They have a surprisingly large vocabulary of whistles, squeaks and rasping rattles.

The mockers were as full of songs and noises of every description as mockers usually are. Unfortunately we are all too familiar with the English sparrow.

One takes a street car to the west part of town, and here among beautiful lawns and gardens we found many birds, some not often found out of the town itself, particularly

4. Buff-bellied Hummingbird—*Amizilis yucatanensis chalconota.*
5. Red-eyed Cowbird—*Tangavius æneus involucratus.*
6. Sharpe Seedeater—*Sporophila morelleti sharpei.*

None of these three is common enough that one could count on finding it. The hummer, which is the only one ordinarily present in the summer, is much as described, the red color of the bill, however, being much more conspicuous than I had expected. The cowbird is a lustrous velvety individual, with staring red eyes that stand out like jewels in his head. The seed-eater is the one that is called "Morellets" in Reed's Guide. The first one we saw was in the full male plumage as illustrated in the color-key referred to; this was a piece of great, good luck, as the great majority of all our finds are either females or males in the dull immature plumage.

We soon also became familiar with the only two woodpeckers of this region, both of which are common everywhere, and the two thrashers, who were quite as much at home in the yards in town as they were in the "brush" or "forests,"— whichever you call them, out of town.

7. Golden-fronted Woodpecker—*Centurus aurifrons.*
8. Texas Woodpecker—*Dryobates scalaris symplectus.*
9. Sennett Thrasher—*Toxostoma longirostre sennetti.*
10. Curve-billed Thrasher—*Toxostoma curvirostre curvirostre.*

The Mexicans call the woodpeckers "Carpenters." The first of the two is reminiscent of a flicker, especially when showing the rump in flight; it has a big blonde top-piece, like some Scandinavian maiden's long blonde hair. The other is an inconspicuous little fellow of the nuttall-downy type. Sennett's thrasher is very much like the eastern brown thrasher. The curve-billed resembles the dull colored Palmer's thrasher of Arizona, and is far less curved of bill than some others, such as Crissal's thrasher.

11. Sennett Oriole—*Icterus cucullatus sennetti.*

The vivid gold and black of the hooded oriole vied with the brilliance of the flowers in the gardens, and then we found we

had passed out of the city proper into the country, where cultivated fields were set off by tree-shaded irrigation ditches, but the beautiful orioles were still with us.

12. White-winged Dove—*Melopelia asiatica asiatica.*
13. Western Mourning Dove—*Zenaidura macroura marginella.*
14. Mexican Ground Dove—*Chaemepelia passerina pallescens.*
15. Inca Dove—*Scardafella inca.*
16. White-fronted Dove—*Leptotila fulviventris brachyptera.*

Among the ranches, or farms, or plantations,—what you will call them depends on which of the three great sections of the United States you come from,—the most abundant summer bird is the white-winged dove, and doves in general are supernumerous. The stubby little ground doves, hardly bigger than sparrows, are common, and show a pretty bit of cinnamon red under their wings when they fly. The mourning doves are even more common, but their soft "cooing" is rather lost in the chorous of the white-wings. These handsome birds challenge each other loudly, "who cooks for you?" and the others send back the same question as their only reply. I did not find the inca dove, which is said to be a commonplace sight in certain sections of the city itself; it does not venture out into the country much. We did, however, have the treat of finding one of the rare big white-fronted doves.

Before we were back from our first short two hour walk in West Brownsville, we had added the following birds to our lists:

17. Gray-tailed Cardinal—*Richmondena cardinalis canicauda.*
18. Long-tailed Chat—*Icteria virens longicauda.*
19. Couch Kingbird—*Tyrannus melancholicus couchi.*
20. Black-crested Titmouse—*Bacolophus atricristatus atricristatus.*
21. Orchard Oriole—*Icterus spurius.*
22. Yellow-billed Cuckoo—*Coccyzus americanus* (sub-species=?).
23. Small White-eyed Vireo—*Vireo griseus micrus.*

This latter we found very abundant, and its notes seem to me totally unlike those of the white-eyed vireo of the southeastern states. That bird has a rich vireo-like tone, and sings a song of the "Tweedle-oodle-whee-ooh" type; the Brownsville bird has a flat, sparrow-like song of the "Cheep-cheep-chippy-ippy-cheep" type, at its best resembling the vesper sparrow. The titmouse has call notes much like those of the common tits, and habits, and looks, too; his black cap sets him apart, but that is all. The kingbird is like all his relatives in character, but seems even more brightly yellow than the Arkansas kingbird. The

chats of the lower Rio Grande region seemed to me the tamest of any I ever found. The cardinals, indistinguishable in the field from the common cardinal, were here delightfully abundant, an always welcome sight in town and country.

During the following days we found that some of the best places for birds were on the shores of some of the resacas. A professor of Spanish language assured me that resaca meant a swell, or drift of current in the ocean; that is far from being its local usage, however. At various times in the far distant past the Rio Grande has evidently used other exits to the Gulf of Mexico than the present one, and the abandoned courses are still there, full of stagnant water, like rivers that have died. Much of their banks is covered with dense growths of luxuriant semi-tropical vegetation, with vines much in evidence. The air about them is so thick with mosquitoes that one might cut it (or should I say "them") with a knife; but why dwell on the unpleasant? In these jungles occur certain kinds of birds as follows, first what we may call the water birds, then the land birds.

24. Mexican Grebe (San Domingo Grebe)—*Colymbus dominicus brachypterus.*
25. Pied-billed Grebe—*Podilymbus podiceps podiceps.*
26. Black Tern—*Chlidonias nigra surinamensis.*
27. Anhinga—*Anhinga anhinga.*
28. Mexican Cormorant—*Phalacrocorax vigua mexicanus.*
29. Lesser Scaup Duck—*Marila affinis.*
30. Little Blue Heron—*Florida cærulea.*
31. Green Heron—*Butorides virescens virescens.*
32. Black-crowned Night Heron—*Nycticorax nycticorax nævius.*
33. Purple Gallinule—*Ionornis martinicus.*
34. Florida Gallinule—*Gallinula chloropus cachinnans.*
35. American Coot—*Fulica americana.*
36. Killdeer—*Oxyechus vociferus vociferus.*

The least grebes (or Mexican grebes) are rather widely distributed in the resacas, but they can stay under water so successfully, and have so many hiding places, that it is not easy to find them. We did, but it took lots of patience with the clouds of mosquitoes adding their peculiar charm; in the process we found one pied-billed grebe, here less common than the first mentioned. The black terns and anhinga or water-turkey are regular but not very numerous inhabitants of these bayous. We found only one lesser scaup duck, probably unmated, and only one small colony of the little blue herons, but this a very interesting one because

of the varieties of plumage represented: some were in the ordinary maroon and slaty-blue uniform, others in the white phase so that they resembled egrets, while others were in checkerboard mixtures of the two plumages. The green herons were not colonial, but scattered here and there throughout the district. The night herons were nesting in the same clump of trees with the little blues, and out numbered them considerably; I would judge about fifty adults of the former to twenty-five of the latter.

The purple gallinule is a sore subject to me, for though supposedly not rare I was unable to find any, and not for lack of effort. Time and again I patiently stalked or waited out likely marshy spots, finding dozens of Florida Gallinules, even getting some intimate glimpses into the family life of this bird, but with no success in locating its more brilliant cousin. Coots are common, but only one killdeer was found.

37. Chachalaca—*Ortalis vetula mccalli.*

We did some special hunting for the chachalaca, as it is a very shy bird. First we went with a native hunter who was supposed to be a wizard at finding them; we heard their distant laughter, but that was all. With surprising virtue our guide refused pay, having been unsuccessful. Next I tried sleeping out alone in the brush in order to wake up right in their territory—a method which often gives daybreak views of timid birds not to be found later in the day, but it didn't work with the chachalaca. Finally Mr. Camp led me, both of us doing some remarkably patient stalking, in one of the most mosquito-infested places in the United States outside of Florida, and this time the chachalaca was found.

38. Texas Screech Owl—*Otus asio mccalli.*
39. Groove-billed Ani—*Crotophaga sulcirostris.*
40. Texas Kingfisher—*Chloroceryle americana septentrionalis.*
41. Merrill Parauque—*Nyctidromus albicollis merrilli.*
42. Derby Flycatcher—*Pitangus sulphuratus derbianus.*
43. Mexican Crested Flycatcher—*Myiarchus magister nelsoni.*

The only notes I heard from the Mexican screech owl were dove-like, not quite like those of the eastern screech owl, and some conversational calling like that of the southern California bird. The Mexican crested flycatcher is not greatly different from any of the other crested flycatchers.

I was especially interested in the groove-billed anis. I looked in vain for any of the colonial nesting one hears about,

where a large number of females prepare a big nest in common; this, it seems, is not the rule in the United States. I did find them interesting clowns to watch, with amazingly big beaks on which one could see the groove quite plainly. They are as large as the grackles, and as black, so that but for the difference in shape the two species might be confused. The ani looks overloaded in front, while the grackles look overloaded at the other end, and are much the more abundant everywhere.

The derby flycatcher and the kingfisher are two of the most impressive birds, to my notion, in America. The derby seems to fill the landscape, figuratively speaking. He is large, he perches in an exposed place, and he is very conspicuous; the black and white and yellow striping of the head, the vivid yellow underparts, and the venetian red wings and tail are decidedly "loud." A family of four infants that I saw were also loud vocally. The kingfisher, on the other hand, while he perches where he can be plainly and rather easily seen, is rather remarkable for a quiet sort of beauty. His shape is odd, for the head and bill seem larger than all the rest of him put together. The general color is a handsome green, and there is a brick red band, like a vest, across his chest, which is sufficiently patterned with black to keep it from being too gaudy. The parauque is a brown bird of the whip-poor-will type; we found a whole family of them in one place, papa, mama, and three little parauques. They hunt the larger insects at dawn and dusk with the nighthawks.

44. Green Jay—*Xanthoura luxuosa glaucescens.*
45. Dwarf Cowbird—*Molothrus ater obscurus.*
46. Rio Grande Redwing—*Agelaius phœniceus megapotamus.*
47. Audubon Oriole—*Icterus melanocephalus auduboni.*
48. Western Lark Sparrow—*Chondestes grammacus strigatus.*
49. Texas Sparrow—*Arremonops rufivirgatus.*
50. Texas Pyrrhuloxia—*Pyrrhuloxia sinuata texana.*
51. Western Blue Grosbeak—*Guiraca cærulea lazula.*
52. Florida Yellowthroat—*Geothlypis trichas ignota.*
53. Lomita Wren—*Thryothorus ludovicianus lomitensis.*
54. Texas Wren—*Thryomanes bewickii cryptus.*
55. Blue-gray Gnatcatcher—*Polioptila cærulea cærulea.*

The green jay is a guilty seeming bird, and clever at hiding. His bright colors blend with the greens of the foliage, from which he stands out only because of the lemon yellow in his tail, and his jet black bib. His notes, though harsh, are quite different from those of any other jays occurring north of Mexico. They

are hard to describe, being perhaps nearest to certain "chacks" and calls of some of our blackbirds.

The cowbird, redwing, lark sparrow, grosbeak, and gnatcatcher are very much like their relatives with which most American bird students are familiar. The lomita wren is just a sub-species of the Carolina wren, and little different from it; similarly the Texas wren may be compared to the Bewick, of which it is a sub-species.

Audubon's oriole is remarkable, as compared to most orioles, for its pale lemon color instead of golden yellow or orange; it looked to me even paler than the Scott oriole, and more greenish. The pyrrhuloxia is not supposed to be rare, but I saw none, though their notes are near enough like those of the cardinal that they may have been overlooked among the frequent cardinal songs. The Texas sparrow was a bird of which, for some reason or other, I had not heard. It is not obtrusive, but well worth looking for; it may be best compared to the green-tailed towhee, and is of similar general coloration, but lacks the auburn top-piece of the towhee, and of course is smaller, though large for a sparrow.

In taking up the birds as I am doing, by the ecological groups into which they seem naturally to fall, one group may be made of the "over-head" birds, which, because they are flying high, are largely independent of ecological associations within the region, though the region must, of course, be suitable.

56. Turkey Vulture—*Cathartes aura septentrionalis.*
57. Black Vulture—*Coragyps urubu.*
58. Aserri Nighthawk—*Chordeiles minor aserriensis.*
59. Texas Nighthawk—*Chordeiles acutipennis texensis.*
60. Lesser Cliff Swallow—*Petrochelidon albifrons tachina.*

The two vultures are both common, and one about as numerous as the other. It is harder to compare the relative abundance of the two nighthawks. One can tell by the notes that both kinds are present in the groups hawking around, and occasionally find one sleeping in the day-time where careful identification is possible; from these indications it would seem they, too, are about equal in numbers. Chordeiles minor advertises its presence by the nasal "peehnt" so familiar to most of us; the Texas nighthawk has a bubbling note like the murmuring of a screech owl, and a wild clear whistle "whee-whee-whee ooh." Swallows of any kind are, for reasons I cannot understand, rare in the

Brownsville region; the little one they have, supposed to be a sub-species of the cliff swallow, looks very different from any I ever saw. Its head and foreparts are almost solid dark brown; chestnut, the books call it, but it looked almost chocolate brown to me, and the rump is not conspicuously light in color at all. We found it mostly over the Rio Grande.

The area nearer the Gulf of Mexico is an entirely different type from any described above. Here the ruling ecological factor is lack of fresh water. One of the most conspicuous items is the extreme flatness, and elevation of even two or three feet is noteworthy. The soil is between silt and sandy. The most conspicuous plants are a few yuccas (Spanish bayonet), there are various cacti, and harsh, coarse grass. Much of this plain is under water, with a shore-line that doesn't stay put, since a few inches difference in water-level moves the shore-line several feet. Only a little effect of the tide from the gulf is noticed, a matter of inches, though the gulf is the source of this water. Some of these lagoons are gigantic, particularly the Laguna de la Madre, which is over one hundred miles long, and about five to ten miles wide, and yet but little of it is as much as four feet deep, and most of it is quite easily waded.

Laden with canteens of what proved to be all too little water, we ventured out for a two day exploration of this desert. If anyone else plans such a trip, be sure to take plenty of water, and be sure you have your directions where to go, since you will either fail to find the best places for birds, or at best waste a lot of time in finding them, without careful directions, such as Mr. Camp gave us. The following birds are typical of this plain (taking the raptores first):

61. Harris Hawk—*Parabuteo unicinctus harrisi.*
62. Western Red-tail—*Buteo borealis calurus.*
63. Sennett White-tailed Hawk—*Tachytriorchis albicaudatus sennetti.*
64. Aplomado Falcon—*Rhyncofalco fusco-cœrulescens septentrionalis.*
65. Audubon Caracara—*Polyborus cheriway audubonii.*

The commonest of these is supposed to be the Harris hawk, a handsome mahogany colored bird with a conspicuous white rump. The white-tailed hawk is another noble looking, big, showy bird of prey, its name being descriptive. I found the caracaras the commonest of these four; they are at least easy to find! They take no pains to hide, they are glaringly pie-bald in black and white, with bright red face, and though they are somewhat awk-

ward, I thought them decidedly artistic in appearance, at least at a distance. We did not see the Aplomado falcon during my stay in the vicinity, but Mr. Camp showed me a this year's nest.

66. Texas Bob-white—*Colinus virginianus texanus.*
67. Road-runner—*Geococyx californianus.*
68. Scissor-tailed Flycather—*Muscivora forficata.*
69. Texas Horned Lark—*Otocoris alpestris giraudi.*
70. White-necked Raven—*Corvus cryptoleucus.*
71. Rio Grande Meadowlark—*Sturnella magna hoopesi.*
72. Black-throated Sparrow—*Amphispiza bilineata bilineata.*
73. Cassin Sparrow—*Peucæa cassinii.*
74. Painted Bunting—*Passerina ciris ciris.*
75. Cactus Wren—*Heleodytes brunneicapillus couesi.*

This group is less peculiar than most of the others, largely because there are other places rather similar in ecological factors: scant rainfall and heat; this region is noteworthy in that high humidity, instead of aridity, may be added to the list.

The bob-whites that I saw were frequently in pairs, and as I have noted on previous occasions, with other gallinae, often in single file, *with the female always leading;* has this observation been the result of coincidence, or have other observers noted this, too?

We found it necessary to collect one of the Cassin sparrows to be sure of the identification, as the very similar Botteri sparrow occurs here also, though not in large numbers.

At one time curiosity was expressed as to the relation of the songs of the sub-species of meadowlarks, and I have taken pains to observe this carefully, and having lived both East and West, have had opportunity to become familiar with the very different songs of the eastern and western meadowlarks; the birds of the lower Rio Grande region sing exactly like the Ohio birds, but those of extreme southern Arizona, which I understand are supposed also to be the Rio Grande meadowlark, sing a song which is a perfect blend of the tunes and tones of magna and neglecta.

Much could be written about the other birds of this litte group, but as they are typically birds of other regions, I don't believe the details are necessary here.

There are islands in the lagoons of this plain, and to avoid the coyotes, the water-birds nest on these islands in crowds. While a man can wade out to these islands rather easily, this shallow water is usually, though not invariably, as safe a barrier as deep water would be. The water is literally swarming with

fish, apparently mostly of the mullet type, and this accounts for the presence of the fish-eating birds in such numbers. Crabs are exceedingly numerous too, on the land as well as in the water, and judging from their excrement, the coyotes live almost entirely on these crabs. Several of these above-mentioned islands have already become famous for their bird life, especially Green Island and Bird Island (The "Condor," Jan-Feb., 1922, and Sept.-Oct., 1922). With directions from Mr. Camp we found an island, nameless, but at least as interesting, if not more so. As one must charter a sail-boat at considerable expense to reach the other "bird islands," the fact that wading a mile or so was all we had to do to reach this one made it worth the long walk over the plain.

When we reached the shore, we found several marshy areas, with characteristic birds, as follows:

76 Mottled Duck—*Anas fulvigula maculosa.*
77. Black-necked Stilt—*Himantopus mexicanus.*
78. Western Willet—*Catoptrophorus semipalmatus inornatus.*
79. Long-billed Curlew—*Numenius americanus americanus.*
80. Wilson Plover—*Pagolla wilsonia wilsonia.*

The stilts and curlew were probably not breeding, but just left over, unmated, from the migration; the others breed here, though we did not find any nests, being too anxious to get out to the island to look for them. On the island there were present and breeding:

81. Laughing Gull—*Larus atricilla megalopterus.*
82. Gull-billed Tern—*Gelochelidon nilotica.*
83. Caspian Tern—*Sterna caspia imperator.*
84. Royal Tern—*Sterna maximus.*
85. Cabot Tern—*Sterna sandvicensis acuflavidus.*
86. Forster Tern—*Sterna forsteri.*
87. Least Tern—*Sterna antillarum antillarum.*
88. Black Skimmer—*Rynchops nigra.*
89. Reddish Egret—*Dichromanassa rufescens.*
90. Louisiana Heron—*Hydranassa tricolor ruficollis.*

As we stood on the shore our guide pointed out the location of the island, and then we could make it out with binoculars, as a streak over which thousands of terns were hovering, and to which streams of them were flying in a very business-like manner carrying fish in their bills. While watching I made my notes as to the vocabularies of the various species, for when we reached the nesting grounds the noise was too deafening to distinguish individual birds and species.

After wading the mile or so of water, nowhere knee deep (there was enough sand mixed with the mud so that one did not sink in far), we found several small mud islands, with a general elevation of about four inches, ponds within their own limits, and a total area, including the ponds, of scarcely eight acres apiece. This year all the nesting was on one island; some years others are used, or even two or all three islands. There were few plants present, any as much as twelve inches high were noteworthy; they were of the type common to salt-soaked areas, with few, or very small, or no leaves, thick succulent stems, and rather tough epidermis.

The blazing sun was reflected from the water, so that we felt its effects doubled, and our shortage of water left us suffering with thirst which we only dared partially abate with grudging sips from our canteens, but, thank the Lord, there were no mosquitoes. The birds, especially the skimmers, dove at our heads alarmingly, but in a little while we observed that they always swerved up enough to miss us, each time, just before impaling our skulls,—then we walked about more comfortably. One last hardship needs mention, the need of constant care lest we step on eggs or young; for all our care occasionally an egg would go "pop."

J. R. Pemberton, in the "Condor" for Mar.-Apr., 1922, took up in detail the nesting of terns in Texas; most of what I might say would only be duplication, as my observations merely confirmed this. For the benefit of those who have not seen his article, however, I will give brief notes.

The terns were commoner than the gulls, but there were more of the laughing gulls than of any one kind of tern. A count of a fraction of their nesting area, multiplied by the estimated extent of their field, (the safest way to get trustworthy estimates of numbers) gave their census as about 2,500 nests, that is to say, about five thousand adults. Their notes do not sound at all like laughter to me, they are loud nasal cries or whines, somewhat like the syllables "queer" or "kay-ear." Many individuals showed hardly any red in the bill at all. They hid their nests in the thickest part of the vegetation, and their infants hid there too, and so efficiently that it was necessary to "paw over" the plants to find them. For all I know, we may have stepped on some in walking around, though we tried hard not to.

The skimmers went to the other extreme, and seemed to try to nest as far as possible from cover, which placed them in two groups by themselves near the north and south sides of the island. Their notes are varied, are almost like the call of the crow, but instead of just "caw," they say "charrp" or "harrk," etc. To say they had nests is hardly accurate, for they merely deposit the eggs on the ground: full sets were of three or four. We found places where their eggs were just scattered around promiscously and many of them spoiling. Had other birds, perhaps some of the young terns that were running around, jostled them into this disorder? There was no sign of any attempt having been made to eat them. As there has been a little discussion as to the feeding habits of this species, I spent quite a little time watching the adults "skimming" to see how they ate. The more recent articles state that they do not eat while skimming, but while standing in shallow water. I am convinced to the contrary. I saw none of that either in Texas or Florida, but did see a good deal of what was clearly, unless my eyes deceived me, catching of objects while flying as they do, with the lower mandible cutting the water. The whole operation is performed so quickly that close attention is necessary: the object is first seized as by a pair of scissors, then with the same motion (started by the upward snap of the lower mandible) the object is given a slight toss, and caught in the mouth proper. Note that to leave conjecture as far as possible, the words "small object" are used; I think they were eating small fish, but am not sure. They were certainly not eating any fish over two or three inches long while I watched them.

The terns' nests were scattered all over, and as I am no oölogist, I could not tell from the eggs which was which: they all vary greatly within the species, and all the different kinds have variations similar to those of the other kinds. This may have affected the accuracy of our count of nests. The gull-billed terns were the most numerous (see table of estimates below) and while never quite as demonstrative as the skimmers, they began making a fuss about our arrival the longest time before we reached the nesting area, and kept it up the longest after we started away. The least terns, too, kept about us so assiduously that we made estimates of their numbers far above what the count of nests indicated; this may be due to the presence of other nearby small colonies of this bird, from which the mob about

us was partly recruited; in this case the estimate given below should be increased. With all the terns the large size of the fish brought by the parents was noted, I found four-inch fish in the nest with nestlings only six inches long. I didn't succeed in seeing these youngsters wrap themselves around such meals, though they pecked at the fish when I started to remove said fish from the nest.

Think of stepping over herons' nests! We had been accustomed in other parts of the country to finding them high in trees. Well, at that, they did the best they could and still stay within easy flight of this wonderful food supply. They had the very highest locations available, sometimes as much as fourteen inches off the ground! Like the terns, the inclement season had put back their nesting, so that weeks after all the young should have been flying, some were still in the egg, and others barely hatched. I have seldom had so many fine subjects for the camera just waiting to be "took," and the high school boy who accompanied me on this trip snapped at view after view. Alas for our hopes, after we were far away we found that an accident to the camera had rendered every picture a little out of focus, so that not one was suitable for reproduction in half-tone. Some of the pictures of the dignified army of young terns, just not quite able to fly, and seemingly well drilled by some army sergeant, were very interesting, as well those of the ludicrous young herons and egrets of various ages.

Our estimates of the population of the island follow:

Laughing gull	5000	Gull-billed tern	3000
		Caspian tern	1000
Black skimmer	1000	Royal tern	500
		Cabot tern	300
Reddish egret	50	Forster tern	1500
Louisiana heron	400	Least tern	50

These figures are for adults, and are based on the method indicated in the remarks concerning the counting of the laughing gulls.

Some of the very most interesting to me were not breeding on the island, either being non-breeding individuals left behind in migration (the pelicans) or being strays from other breeding places, attracted here by the abundance of fish:

91. American White Pelican—*Pelecanus erythrorhynchos.*
92. Roseate Spoonbill—*Ajaia ajaja.*
93. Wood Ibis (Stork)—*Mycteria americana.*

94. Ward Heron—*Ardea herodias wardi.*
95. Snowy Egret—*Egretta candidissima candidissima.*

The last mentioned was here the most timid of all: in Florida and California I have found them almost stupidly tame. The Ward herons, too, were quite wild. The spoonbills were to me a decided treat, and as the saying is, I "feasted my eyes" on them. In life they are far richer in color than museum specimens would lead one to expect; specimens must evidently fade much. They were gorgeous, lovely, spectacular. We saw seventy-seven in one flock, and later saw one of about half that size, presumably, but not certainly a second bunch.

There is a happy ending to this that is not always the case. Texas has recently set this island apart as a sanctuary, so that with legal protection, good wardens on the job, few predatory birds, comparative safety from beasts of prey, and abundant food, these birds should thrive. I understand that much credit for all this belongs to Dr. Pearson of the Audubon Society, and to Mr. Camp, "patron saint" of the Brownsville birds.

THE RELATION OF THE CROW TO PECAN CULTURE

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The common crow is a widely-distributed and well-known bird. Literature is replete with references to this black denizen of forest and field. It is one of the first birds for which we have critical food-habit studies, but in spite of this fact, its real economic status is still a mooted question. On first thought it might seem surprising that the bird's beneficial and injurious traits have not been listed, and a balance declared either for or against it. When, however, we consider the fact that over 650 specifically different items of food have been identified in the stomach contents of the crow, we can see wherein the solution of the problem might not be as simple as at first thought. If we find grain present in the diet, our principle concern is whether the grain was waste grain or utilizable grain. Even if at times it be other than waste grain, we still might object provided the crow's services throughout the rest of the year compensated for it. But when we come to consider the crow's destruction of the smaller mammals, batrachians, reptiles, insects, and crustaceans the question is not so simple. Our knowledge

of the exact inter-relations of each of these forms in the complex of nature is too incomplete for us to more than hazard a guess as to the ultimate effect of the destruction of any one of them. We find this same difficulty presenting itself when we consider measures for conserving the wild life of both land and water. Consequently the need is great for life-history and food-habit studies of all our animals excepting those already well known. Any careful observations which help us to understand the relation of a given animal to the other animals or to the plants of the community may be considered a contribution toward the ultimate evaluation of its economic status.

With this aim in view the writer wishes to record some of his observations on the habits of the crow. These observations were made for the most part in the northeast corner of Grant County, Oklahoma, and cover a period of several years. A monetary interest rather than an ornithological one prompted the study. When crows began to make serious inroads upon the pecan crop, the problem became an urgent one. Up to 1912 or 1913 crows were not numerous in this locality and were seldom seen during the summer. About this time, however, they became more noticeable during the summer months and an occasional nest was found. During the winter good-sized flocks of them could be seen feeding in fields and pasture lands, especially those near wooded areas. A year or so later it was learned that upstream a distance of about three miles, "as the crow flies," a roost had been established. Just when this occurred nobody seems able to say. We were aware of an upstream movement of the crows at night, and had noticed their return the following morning, but had not given the matter much thought. The crow roost is separated by perhaps a mile of wooded territory from the nearest human habitation. The nearby farmers were aware of the fact that the crows were spending their nights in a certain clump of trees, but never actually investigated the spot until after the roost was well established. The roost has accommodated more birds year after year and has accordingly increased in area.

It would be valuable to know just what factors caused the crows to establish a roost at this place, to commence breeding in greater numbers in the general vicinity, and to greatly increase in numbers during the fall and winter. Before this territory was opened up for settlement the land had been practically

deforested by people living across the line in Kansas, because they found here a convenient place to get their building material, fence posts, and fire-wood. The area had also been swept by fire. After homesteads were filed, the forest was cared for and allowed to reëstablish itself. The native pecan grows slowly and does not bear early, consequently it has only been within the last few years that the nut crop has become large. It seems probable that in the gradual increase in the pecan crop, and the discovery of the nuts by the crows, we have important factors leading to the present situation.

As early as 1888 the crow was reported as doing considerable damage to the pecan crops in parts of Louisiana and Texas. In the locality under discussion, however, feeding upon pecans seems to be a habit recently acquired, because the few crows seen here in earlier years were never observed paying attention to the pecans.

In the past few years, however, crows have become numerous about two weeks before the ripening of the pecans (middle October) and commenced carrying away the green nuts. They arrive at the pecan groves before sunrise, while it is still too dark to see the sights on a gun, and settle on the trees. The first ones to secure pecans fly to the ground or nearby fence posts and eat them. When the flock moves those which have not finished eating carry their pecans with them. Usually there are one or two crows in the flock that do not have a pecan, and since these individuals are busy cawing, it would seem to be a part of the general plan, and not an accident. On one occasion all but two of a flock of 200 crows had pecans. In flight their paths cross and recross so many times that it is impossible to decide whether the one or two without pecans are functioning as leaders or not. After securing a pecan each the crows leave for the time being, following in a general way down Bluff Creek valley to the southeast, but return in a half to three-quarters of an hour for another round. If they are successful in this second attempt they do not return as a flock until about four-thirty in the afternoon, when they secure another helping of the nuts on their way to the roost. A few stragglers often remain in the grove, or near it, throughout the day. If when passing over in the morning the crows are frightened, they will drop their pecans, but will return as soon as the danger is apparently over, each to secure another pecan. On several oc-

casions the writer has tried frightening the birds as soon as they began circling the grove to see how long it would take to discourage them. Each time they would remain away for a longer period, but would make about a dozen return trips in the course of the forenoon. When not allowed to feed they became discouraged about noon and with much cawing flew away to the southeast. On several occasions the crows were followed in an attempt to ascertain where and how they spent their days. Care was taken to select days that seemed to be like the average, as it was thought stormy days might alter their regular routine somewhat. On such occasions they were not molested during their early morning feed, the idea being to let the day's events take a normal course. For a distance of five miles or more they remained pretty well together and flew rather rapidly. Those dropping out of the line of flight seemed to be the ones which were carrying pecans with them. Pecans have been found five miles from the grove, but the majority of those noted were at a distance of about three and a half miles.

After covering the first five miles the crows resumed cawing and circling, but to a lesser degree than when feeding at the grove. This seemed to be the signal, "as foragers" (to copy an army term), for the crows then scattered a great deal. Some retraced their flight, some went ahead, while others flew at right angles to the course of the flight. They would alight in trees to survey the territory and then descend into the fields. Here they were busy picking up food, but it was for the most part impossible to get close enough to determine its nature. Only occasionally could the writer slip up close enough to one or two crows, feeding among trees and shrubs, to observe them secure beetles from beneath fallen leaves. The major portion of the flock worked its way in a general southeasterly direction. By noon they would be some fifteen miles from the grove, or eighteen miles from the roost. At this point crows from a different locality, (perhaps a pecan grove some eight or ten miles farther on) were encountered, and the identity of the flock under observation could no longer be traced. Beginning the return trip to the grove, crows were observed along the way, in groups of two or three, feeding and flying about. By three o'clock the same afternoon at a point about twelve miles from the grove it was noted that the general direction of flight taken by the feeding crows had changed from the south east to the

northwest. The flights between stops to feed were becoming longer and less leisurely than they were in the morning. About four o'clock the first crows reached the pecan grove. Some of these were observed to secure two pecans, but the greater number of the flock secured only one before wending their way on upstream to their sleeping quarters.

The crows waste more nuts than they eat. If frightened they often drop them. Especially is this true when they are attempting to open the shell. A fence at the south edge of the grove afforded a good place for the crows to feed. They would alight on the posts, hold the pecans with their feet and peck at them until the shells split, or until they pecked a hole through them. When a hole was made they inserted the bill and beat the pecan against the post. The long, slender nuts seemed to afford better leverage and split more readily. Daily during the height of the pecan season a handful of nuts could be picked up at the base of each fence post. The predominance of the longer nuts at the posts seemed to indicate that the crows purposely selected this type. The crows seldom flew to the ground for the pecans they dropped while feeding on the posts, and never for those dropped in flight. Instead of so doing they circled the grove and secured another nut from the trees.

The fence posts were also used as look-out posts by the crows as they returned to feed in the late afternoon. They would alight on the posts and watch and listen for signs of disturbance. If nothing unusual was in sight they would fly to a tall tree at the edge of the grove for a second reconnaissance. If the advance guard thought the coast was clear and entered the wood, the main flock would follow with but little preliminary investigation.

One morning about four o'clock the writer secreted himself on the northeast edge of the grove to witness the morning invasion of crows. While it was still too dark to take aim with a gun the crows commenced to arrive. A flock of about a thousand alighted in a green wheat field, while a half dozen crows flew ahead and perched on the fence which runs along the north side of the grove at a distance of about 400 yards. During the arrival of the flock an occasional caw was heard, but while the crows on the posts were testing the advisability of entering the grove, all was quiet, save for a few low gurgling sounds made

by the crows in the field. When viewed at a distance the crows seemed to be feeding, but those nearby were apparently making false motions. Is it possible that they were trying to appear disinterested in the pecans? This observation was made after the crows had been shot at on several preceding mornings. Feigning a lack of interest would seem to indicate that the crow was pretty smart, but smart he is. When a crow will fly past its intended destination with no apparent interest, pass almost beyond sight, make a wide circle, and then fly with precision back to the object passed up a few minutes before, you will have to concede his cunning. By the time the flock had nearly reached the fence where the sentinels were stationed, the latter "declared" the territory safe for invasion, and with much cawing they entered the grove.

The following morning an attempt was made to hide at a place over which the bulk of the crows had passed the previous morning. The first crow to alight on a post made the discovery, gave a short, jerky, one might say angry caw, and flew back toward the flock. The flock as a whole took warning from this danger call and was on the wing before he reached them. They flew across the wheat field to some trees three-quarters of a mile distant. Curious to know their next move, the writer remained quiet awaiting their return. Half an hour later the crows entered the grove simultaneously from the east and west ends, the flock having divided since the first attempt. The writer remained hidden until the two parts of the flock united in the center of the grove. At this juncture he fired into the flock and it departed to the southeast.

At the beginning of the season it was not difficult to get within shooting range of the crows. Soon after they were shot at they would return, each time a little more cautiously. One day a crippled crow was tied to a bush with a five-foot string, to serve as a decoy. By hiding in a clump of walnut trees the writer was able to shoot a good many crows during the day. The crow was taken home over night, given food and water and used as a decoy the second day. After waiting an hour or so it became evident that the crows would not again come within shooting distance. They would circle high above the decoy or alight in trees at a safe distance. Lone crows flying high and much to one side would occasionally fly directly to the decoy. This to my mind pointed out two facts, first that the crow has

very keen vision, and second that these individual crows were not members of the main flock. The decoy was then moved to a new location. This time a second string was fastened around a wing and at intervals the string would be pulled with the result that the crow would give out a very distressed caw, caw. This call of a member in distress seemed too much for the crows to resist and several flew to the ground nearby. The new device, however, worked only two or three times. After that all the pitiful caws that could be obtained from the captive would not induce the crows to come within gun-shot. They did not leave the field but alighted on trees beyond the reach of lead.

There is every reason to believe that crows soon learn the range of a gun. The writer has repeatedly had crows encircle him just a little beyond the effective range of a shotgun. Then after being fired at a few times with a rifle widen the circle described accordingly.

Crows also exhibit a remarkable amount of cunning in their reaction to scarecrows. Almost any scarecrow will work for a time, some functioning much longer than others, but eventually even the most clever will fail to frighten them away. The writer was very proud of a "stuffed man" holding a wooden gun to his shoulder, but his pride fell at the end of a week when the crows began to alight upon it, and use it for a lookout. Scarecrows which moved, which had shiny surfaces, or which made a noise were most effective. A lid from a syrup pail was converted into a very successful frightening device. Parallel incisions were made in the tin and connected at one end, the resulting squares were pushed out so the wind would catch them and make the lid to revolve on the bolt used as a spindle or shaft. A large shaft hole caused the contrivance to squeak with each revolution. As the various devices became useless, they were moved to new locations, where they again became effective.

In order to save the pecan crop it is necessary to commence patroling the grove about two weeks before the pecans are ready to harvest. Shooting at this time does not cause them to leave the grove, but only to move to another part of it. It takes about an hour of walking and shooting to get them to abandon the pecans. Later they will attempt to come back, and another shot or so is necessary. As the season advances they are more easily discouraged and a few shots early in the morning will drive them out for the day. In the evening when they return a few shots at

the first crows will cause the main flock to detour, or go higher, flying across the grove without attempting to pilfer the nuts. At the beginning of the season the crows pay very little attention to the report of a rifle, but as the season advances it becomes as effective as that of a shotgun. At this time a few shots fired early in the morning from the house at the edge of the grove will send the crows on their southeastward journey. During those seasons when the pecan crop is not sufficient to warrant the time and expense of fighting the crows, and they are accordingly unmolested, they soon learn to spend the entire day in the pecan grove. On such occasions the crows are in all their glory, and remind one of an old-fashioned, last-day-of-school basket dinner.

The pecan crop on the farm in question varies in annual worth from nothing to $4,000, with the average well above $1,000. When unmolested the crows soon destroy the entire crop. Even when the time and expense is taken to combat them, they eat a good many nuts. Formerly leisure time could be utilized during the winter in gathering stray pecans which could not be profitably picked up at harvest time. The value of this supplement to the regular harvest often amounted to more than a hundred dollars. At present the crows get this portion of the crop, for after the pecans are no longer available on the trees, they search on the ground among the leaves for them.

Counting the actual reduction of the crop and the time and ammunition necessary for fighting the crows it becomes evident that they present a serious economic problem in this locality. Further than this, the crow menace caused the abandonment of plans to introduce the much more valuable, cultivated, or paper-shelled pecan, because it was evident that these would be even more readily plundered by the crows. Chestnuts, almonds and other nuts are also destroyed by them.

As at first suggested, the fact that the crows have become more numerous in recent years as the pecan trees have become large enough to produce good crops makes it appear as though the pecans are the chief cause for the concentration of crows in this locality. In addition to the roost thus far alluded to, a second one has more recently been started only three miles from the original site. Since the first mentioned roost is yearly increasing in size, one may well conclude that the new location is being established to accommodate additional crow visitors, rather than the old being abandoned for a new one.

The old roost is in a mixed growth of trees including pecan, walnut, elm, cottonwood, oak, and perhaps others. It is situated near a stream at quite a distance from houses and roads. The new roost, across the state line in Sumner County, Kansas, is even more ideally located. It is along the banks of a river, and except for one house, far removed from habitations. Here to some extent the crows roost in the old and very large cottonwood trees, but to a greater extent in a locust grove. This grove, covering a plat of perhaps fifteen acres, is a veritable thicket. The trees were planted originally for the production of fence posts and were planted very close to prevent the formation of lateral branches. After the trees had been cut for posts, new growth sprouted out from the stumps. This growth is now about sixteen to twenty feet high and extremely dense. Here the roosting crows are absolutely immune from human interference.

According to Mr. E. R. Kalmbach, of the Biological Survey, roosts known to have been occupied during the winter of 1911-12 in Oklahoma, were located in Ottawa, Craig, Noble, and Payne counties. Bulletin No. 128 of the Oklahoma Agricultural Experiment Station, published in October, 1919, records crow roosts in Lincoln, Logan, Garvin, Grant, Kay, Oklahoma, and Garfield counties in addition to Payne county which was listed by Mr. Kalmbach. The crow roost noted for Grant county is situated near Honeyville and is a different one from that referred to in this paper as occurring in the northeastern corner of the county. Mr. Kalmbach records crow roosts in eleven counties in Kansas, but does not include Sumner County, where the above mentioned roost has been recently established in the locust grove.

In the Oklahoma bulletin it was estimated that the crow cost the state between $1,200,000 and $1,424,000 during the winter of 1918. This estimate was made largely on the basis of grain consumed or destroyed. No account was taken of the injury to the pecan crop, which, as has been pointed out above, may amount to as much as a thousand dollars per year in a single pecan grove. If the crows should turn their attention to the large paper-shelled pecans grown extensively in the south, the monetary loss would be enormous.

Friends of the crow have often maintained that any grain, other than waste, which the crows get is secured due to the farmer's carelessness. The writer, however, is not able to concur in this opinion. He distinctly recalls a forty-acre field of

milo-maize which was completely stripped by the crows during a time when the weather was too wet for harvesting or even pasturing the crop. He has also seen standing corn, as well as that in the shock, taken by the crows.

Another very important economic problem in connection with the abundance of crows is the effect upon other bird life of the community. Much has been written about this subject, and while it is not the purpose of this paper to discuss the question, attention is invited to the fact that in this locality the crow has certainly become numerous enough to modify the balance of nature. Not only do the crows get many eggs and young of our game and other birds but they consume a great deal of the food needed by these species. Mr. Joseph Kalbfus, secretary to the Pennsylvania Game Commission, has said that the destroyers of our game, song, and insectivorous birds include wild cats, house cats, foxes, weasels, skunks, mink, common rats, owls, crows, blue jays, and blackbirds. The investigations of the Game Commission indicate that the crow belongs at the head of this list. Evidently the crow presents a big problem in connection with the conservation of wild life. That the wild life of our country should be conserved, along with other natural resources, goes without saying. Mr. Hornaday has said, "If game birds and game quadrupeds had been properly conserved they would now be yielding ten million dollars worth of food annually." The food value of these animals is not the only consideration, for they are also of aesthetic, educational, and recreational value. It has been estimated that the residents of Kansas carry ten million dollars out of the state every year while on the mad scramble to find hunting, shooting, and other recreational sports. The State Fish and Game Department is doing all in its power to provide suitable recreational facilities within the confines of the state, and during the past year distributed 280,000 young fish, 5,714 bob-whites, 288 Chinese ring-necked pheasants and 206 imported Hungarian partridges. What effect will the presence of thousands upon thousands of crows have upon these birds? The writer fears for the quail, pheasants, and partridges when they have to compete with the horde of hardy, omnivorous, and predatory crows.

A NIGHTHAWK'S ROOSTING PLACE

BY THOMAS MASON EARL

It is my purpose in this sketch to describe a nighthawk's roosting place which came under my observation for five successive years, a very humble spot for a domicile, to which, no doubt, this particular bird was as much attached as any one, beast or human, could be to more elaborate quarters. The story I wish to narrate is a simple one, but withal so full of food for thought, that readers may well give it more than a passing perusal.

One fine summer morning in July in the year of our Lord 1915, I had arisen just about the time the golden sun in the east was reddening the horizon. Stepping to the door to get a breath of the pure morning air, I heard the "peent" of a couple of nighthawks about overhead. Looking up to obtain a sight of the birds, I was surprised to see one of them dart headlong down and alight on the bough of an elm tree that grew not more than twenty feet from where I was standing. The other bird continued on its overhead journey, whither I knew not. The descending bird, I thought, had come down to rest. So it had, but the rest was to continue all day until the sun had run its course across the heavens and was bidding adieu to the immediate landscape amid the rosy blushes of the west.

Many times during that day my eyes wandered to the half-rotten bough which the nighthawk, evidently a female, had selected for sleeping quarters. The bough was some forty feet from the ground and projected directly outward over the street. It was unprotected by foliage from the sun or rain. The bird perched or rather squatted lengthwise of the limb, according to nighthawk fashion, and faced outwards from the trunk of the tree. Had I not seen the bird alight, it is quite probable I would not have noticed it at all, so much did it appear like a knot or "bump on a log" and so motionless that one's eye would have passed it by as a natural excrescence. Punctually at sunset it flew away to join its companions in an evening quest for such food as might be found invading the twilight atmosphere.

You may be sure I was anxious to know whether its roost had been but transiently selected, or that it was indeed "home, sweet home," to this strange bird of the dusk. Day after day, however, the nighthawk occupied the same spot, never deviating apparently an inch in its slumbering place.

Right here I must state that our street was being repaired that summer and part of the time a steam shovel and half a hundred men were working directly under the bird's bedroom, making all the uncanny clangor that such work calls into being, but the nighthawk paid no more attention to the noise than though it had been the whistling of a wren in a sylvan glade. Much rain fell too, and sudden storms broke the serenity of nature, but nothing daunted, the bird shook its wings sometimes of the water and crouched again for further slumber. On several occasions sudden heavy squalls lifted the goatsucker from its bed and blew it, I know not where, but it was always back the next morning, smiling and happy just as though nothing had happened.

As the fall approached I knew the time was near when my little sister of the air would bid adieu to the scenes of her summer sojourn, and with others of her kind would set out upon a long journey southward. The opportunity was open to me to learn the very date of a nighthawk's leave-taking, as migration records of this bird had not been fully determined. I wished sometimes I could have struck up a mutual friendship with the little minx that had made her summer home so near and yet so far from me. But if she really ever noticed me giving her more than ordinary attention, she had never indicated that there was any reciprocal feeling of interest. No doubt she regarded all earth-walkers as worms of the dust, far inferior to her own kind that could mount like spirits to the vault of heaven.

On the fourth day of September she had a companion, a large male nighthawk that passed the day on the same bough, some two feet further out. One bird paid no attention to the other,—seemingly oblivious of each other's presence. The newcomer left his perch about half an hour before sunset without even a husky "goodbye" to the little owner of the ranch whose hospitality he had shared for the day. I concluded that his presence was quite incidental, that he was probably on his migration from some point farther north. He did not return the following day, but the little nighthawk was in her accustomed place on the fifth and on the sixth, always leaving the perch at sunset. On the seventh she was gone, and repeated search failed to discover any further traces of her that fall. The weather was mild, so she was not forced to leave on account of stormy conditions, but in her little heart she knew the fullness of time had

come to depart. Would she return in the spring? Would she find her way back to the old elm after a journey of a thousand miles or more over mountains and valleys to the land of her winter sojourn? I was anxious to know, and was eager for the time to come when I knew her return could be looked for with others of her kind.

The first week of May came; other nighthawks were in evidence, but the one for which I was looking had not arrived. The second week of May passed, still the home on the bough had no tenant. It was a mere notion on my part that the bird would return, and as the time now seemed past for her vernal arrival, I grew disinterested and gave over watching. One day, however, in the last week of May I chanced to look up at the old elm bough, and there sat my nighthawk in the very spot where I had last seen her in the fall. Unfortunately I was unable to tell the exact time she returned to her old domicile, but thereafter for the balance of the summer she never missed a day from her accustomed roosting place. When September came she was in evidence until the evening of the eighth (1916). On the ninth she was gone, no more to appear until the following May. If she ever had any incubation duties, I do not know when she attended to them. I am thinking she was a spinster; she never entertained male company, and perhaps had a poor opinion of the opposite sex anyhow. Who knows but she might have welcomed some Prince Charming to her heart and home, and looked forward to the date when fate would send to her the nighthawk she could love, honor, and obey.

I again watched for her return the following May (1917), but was again in doubt as to when it occurred. When I found her, she was on a bough some six feet below the former one. She had chosen a new site, and during the rest af the summer was sometimes seen in one place, sometimes in the other. She had now two homes, yet in the main the old bough was the favorite one.

The fall proving stormy, the goatsucker left on its migrations about the first of September, reappearing in the following May (1918). There was little deviation in its choice of roosts from the preceding summer, but on one occasion I found her roosting on the facade of a row of flats which stood just back of the big elm.

In 1919 the roosting was very irregular; a number of days at

intervals the bird was not seen, but occasionally the old roost was occupied. The fall migrations were started in all of the years the bird was observed, before the ninth of September. In the summer of 1920 the little goatsucker did not return so far as I was able to discern. Had it met with mishap on its long journey — fallen prey perhaps to some hawk, or shot down by some fowler? Or had it fallen in at last with her Prince Charming and gone off with him to an equally humble domicile on the top of some city building, there to deposit her two speckled eggs from which would eventually come a progeny of baby nighthawks.

How remarkable it seems that the love of home is so strong in a bird's heart that it will return year after year to the very spot which has become endeared to it. But even more remarkable is the instinct implanted in its little brain to return without deviation to its former abode, and without an apparent effort in determining its proper course over hills and valleys, forests and streams. As Bryant says of the waterfowl:

"There is a Power whose care
Guideth thy way along the pathless coast,
The desert and illimitable air,
Lone wandering but not lost."

THE PHILOSOPHY OF BIRDS' NESTS AND COMPARATIVE CALOLOGY IN CONSIDERATION OF SOME LOCAL NIDICOLUS BIRDS

FRANK L. BURNS

(Continued from September, 1924, Bulletin)

(9) Among the Passerine birds, such species as the Horned Lark, Bobolink, Ipswich and Lark Sparrows, Ground Warblers and Pipits are natural walkers and ordinarily build countersunk nests (i.e., hollows scratched in the earth or leaves).

The Lark Sparrow and Towhee occasionally nest in bushes. The Cowbird is also a walker and this may account for its preference for ground or near ground nests in which to drop its eggs.

Reference has been made elsewhere to the atavistic tendency of the Starling to nest upon the ground in some localities. The Starling is a walker. The Brown Thrasher and Robin are

both hoppers and runners, and both occasionally build a countersunk nest, though normally arboreal nesters.

The Black and White Warbler lines its nest with black rootlets and horsehairs, while the nearby Worm-eater may have its nest in much the same situation but does not have the same beat in feeding habits; lines its nest with the characteristic reddish flower stems of the hair moss. This species shows a remarkable love for its chosen haunts, though it will desert burnt over or poultry infested areas; an undisturbed carpet of forest leaves being essential to its existence. Probably no other bird in this section is more independent of civilization. Rarely even a horsehair is found in its nest and in more than 100 nests examined the lining was as above described.

This bird always removes the leaves from the site, sometimes scratching a slight hollow in the mound and the partly decayed-leaf nest is sunk to the rim, protected by the leaf drift above, if built on the side of a ravine, in appearance a miniature cave.

The Oven-birds' nest is usually domed, the substructure sunken in the carpet of leaves to the level of the lower edge of the entrance. The manner of construction varies little from that of the ordinary bird architecture. The outer framework of the superstructure is bent over and continued around the nest proper from the interior. I have observed the first frail straws of the tumbling weed erected by 11 a. m. and the whole edifice completed in two days.

It is noteworthy that so many nests of this type are frequently covered; those of the Junco, Water-Thrush, Black and White, Worm-eating and Kirtlands' Warblers, naturally by means of the site, and the Meadowlark, Grasshopper and Bachmans' Sparrows and Oven-bird, arched or domed by the exertions of the birds themselves. The Meadowlark pulls down and entangles the tops of the meadow grass above its nest and sometimes raises a covered way or grass tunnel some two or three feet from its nest probably by lowering its head and skulking.

Hopping is a natural mode of progression of the arboreal birds, but an unsatisfactory form of locomotion on the ground, hence it may be argued that ground nesting and feeding of this type must have continued a long time to produce walkers, and that the same habits of the Vultures, Marsh Hawk, Burrowing Owl and Flicker, would indicate a comparative recent date.

(10) In the Blue-winged, Golden-winged, Nashville, Kentucky and Mourning Warblers and the Maryland Yellow-throat, we have species a little less terrestrial perhaps than the average confirmed ground nester and more given to bush hopping. All of these species are accustomed to raise their nests ever so little above the ground and to build a more bulky and more or less loose nest in which forest leaves form the base. For want of a better designation I shall call this the husk type.

Of this the nest of the Blue-wing is typical, of broad blades of coarse tussock grass, clean dead forest leaves pointing upward and inward, occasionally coarse strips of wild grape-vine bark, forming a deep cup-like nest in which the bird's head and tail almost meet over its back; lined with shreds of the same bark, finest on top, and laid across instead of bent in a circle.

The golden gleam of the Kentucky Warbler as it threads its dainty way midst the luxurient swamp vegetation, coupled with its full, musical whistle, so unlike that of any other of our local Warblers, impresses one of its Southern origin.

Neither Bartram, Barton, Wilson, nor Audubon met with it in all this region where in the past 50 years it has become so abundant. In its recent extension of range did it push up along the Atlantic coast or infilterate through the mountain passes from the Mississippi? There seems to be little geographical variation in the composition of its nest. It builds a rather bulky nest of somewhat ragged forest leaves, usually followed by an inner shell of bright, clean leaves, lined with black rootlets. I have observed a bird in the female plumage singing as lustily as the male.

The Maryland Yellow-throat is most at home near an oozy bog, though it sometimes haunts the cool borders of an upland thicket. In the former situation the cornucopia-like nest is usually a few inches above the mud in a clump of boneset, gentian, goldenrod or swamp grass. The cornucopia shape is inevitable in all instances where a tall plant growth is selected. The first layer of coarse swamp grass and weed stems pushed between the close standing stems forms the mould of an inverted cone. A less common type is a rather flat basket affair built and lined with grass and is always built in meadow grass which affords no support for the usual type. A male frequenting my berry patch for three summers always sang: "Fred! Where's sister? Where's sister?"

(11) The arched or domed nest effected by many of the smaller terrestial birds for the purpose of concealment may not be a very high type, but the domed or gobular nest of the rather low-ranging tree-hoppers doubtless expresses the higher type of the essentially ground-feeding species, and the facility with which some of its builders turn to cavity nesting shows that this type is more closely connected with the latter than the pensile type.

The Magpie of Europe and America builds a large, gobular nest of coarse sticks in tree or bush, plastering it well up the sides with mud and lining it with rootlets, grasses, bark, hair, or pine needles. The House Sparrow only occasionally builds its bulky nest of trash on the branches of trees, for it is a backslider, preferring cavities or covered sites. The nest, however, even if only consisting of the ordinary hen feather lining, generally conforms to the domed type. It is a most virile species. I shot a newly mated male daily for a week in order to prevent a single female from nesting in a Martin's box, and only succeeded at last by killing the much-mated female.

The House and Bewick's Wrens also have yielded to the lure of cavity or sheltered nesting, though often retaining the domed feature.

The Marsh Wrens build a round ball of rushes or grasses, with side entrance, some three or four feet above the water, fastened to the growing reeds, and line it with cattail and willow bloom, or fine grasses, sometimes feathers.

(12) The mason-birds according to some European authorities moisten the earth with saliva to make it adhesive. While it is probable that the gobs of mud receive more or less tempering in the mouth of the builder, yet the small amount of saliva employed carries much viscosity.

The *genera Sayornis* contain notable masons while retaining something of the felt-making habits of some of the Flycatchers. The Phoebe builds a mud nest with an admixture of grasses or mosses, occasionally black rootlets; lined with hair, bristles, cotton, thistledown or plant fibre.

In the writer's own time the Phœbe has spread out from the spring-houses and wooden bridges to the railroad culverts in the Chester valley. Porch plates, deserted buildings, quarry shelves and claybanks, also, have largely supplanted the ancestral nest plastered upon the face of the cliff.

The shape and construction varies according to position: if

attached to the side of an overhanging rock it is semicircular and mainly composed of mud pellets mixed with moss; if on a flat beam or post it is more nearly circular and flat, and sometimes little mud is used. Perhaps the most difficult and inexplicable situation noticed was balanced nicely on the edge of a thin board forming the cross brace over a small, roofed reservoir spring. For several previous seasons the nest had been attached to the smooth walls, the birds finding entrance only by means of the slightly ajar door.

Another pair nesting on the plate of the cellar wall of a deserted cabin, where the joists divided it into several compartments; like John Burroughs' Phoebes, these birds seemed unable to relocate the exact site chosen and laid the foundations of several nests, completing and laying in two, exhibiting an inferiority in this respect to the Purple Martin, Domestic Pigeon and perhaps other species nesting in compartments.

Doubtless birds locate their homes by means of familiar objects, and this is also true of other animals. The apiarist finds it advisable to group hives in multiples not exceeding five, with a bush or tree near each group, to give each hive an individuality and prevent the bees from "drifting."

The Magpie exhibits more of the plasterers' skill in the application of mud to its structure, and mud is only incidental to the Jays, which as a rule belong to the brush-making type. Once I discovered several yards of white satin ribbon stolen from the wash, festooned about a Blue Jay's nest in a lilac bush. Contrary to the general description of those who have made only a superficial examination of the Crows' nest, it uses mud binder similar to the European Crow.

The Blackbirds and Grackles use mud in large quantities. The Florida Grackle varies in the incorporation of twigs, Spanish moss and cow manure, or flags, sphagnum moss and pine needles.

The Barn Swallow's domicile is not unlike that of the Phœbe. Formerly a cave or crevice nester, early in the history of Colonial times it became an inhabitant of the great barns, fixing its nest to the interior walls, beams and rafters of the mows, and later excluded from the interior, nesting on the overshoot plates or in open sheds.

Ridgway found its nests in Nevada attached to the ceilings of small caves. Coues observed a small colony in the Northwest occupying little holes and crevasses in the face of a bank, and re-

marks upon its preference in artificial situations for a corner or angle as a modification of the primitive hole-nesting habit.

The Barn or Chimney Swallow (*H. rustica*) of Europe, probably originally nested in rock caves, possibly hollow trees, adapted itself in early times to the wide, old-fashioned chimney and later to the interior of buildings. Its nest is similar to that of our own Barn Swallow. The Phoebe and Barn Swallow secure a very durable nest by mixing mud and straw. I have examined man-made walls of similar composition — clay, chopped straw, and of course stone — in buildings fully 200 years old and can testify as to its durability.

The Cliff Swallow is the master builder of this type. Formerly an inhabitant of the cliff to which it attached its bottle nest of mud or clay, it now selects the exterior walls of a barn or mill and plasters its nest close up under the eaves. Both sexes gather the bits of mud, temper it well by working the jaws and deposit it in pellets to form its peculiar nest in a matter of less than a week's time. It prefers unpainted surfaces and it has been suggested that a scantling nailed up near the eaves will aid it materially, especially on painted boards. Dr. Coues pretends to trace the most elaborate retort-shaped receptacle back through less perfected purse-like structures to a primitive walling up of chinks or crannies on the face of cliffs and in materials employed notes the progressive steps from a mere deposit of soft material in a hollow to the projected walls beyond the base of support.

The Wood Thrush builds in a crotch or out on a limb of a forest tree at an average height of eight feet. The female works in the early morning, completing in about five days. A layer of damp leaves, then a layer of mud, weed stalks, grasses or bark strips, occasionally some twigs; lined generally with dark rootlets. This species as yet has been little affected by civilization and in consequence has revealed little versatility.

The Robin ranges from the ground to 30 feet in fruit or shade trees and frequently nests on porch plates, window sills, sheds and open boxes. The female does practically all of the work with mud and grasses; the male sometimes offers to help her with a straw which she is very apt to reject, and it is a pretty sight to see her standing in the partly finished nest all aquiver, moulding the structure by breast pressure and partly raised wings as she whirls like an animated potter's wheel. I

have observed an individual make 21 trips for material in two hours and complete the nest in three days.

The Robin is proverbially among the most intelligent of birds, yet it is so much the creature of instinct that when it has barely completed a nesting cycle and commenced a new, it will sometimes thrust in the open mouth of a clamorous fledgling a bit of grass gathered for the new nest; the cry of the young momentarily aroused the feeding instinct and the parent behaved like a very absentminded person.

(13) The Red-winged Blackbird builds an interlaced basket in clumps of reeds or rushes, or occasionally in forks of bushes; composed of coarse grasses and bark strips, lined with fine grass.

The Chestnut-sided Warbler is rather more of a fibre-felter of superior workmanship without getting the same result as the vegetable felter, since the felting is on the exterior only. I have found here only two nests, one in a wild huckleberry and the other in a blackberry bush. The nest is made of stalks and fibre of the silverleaf, lined with split strips of same and some horse hairs. The Tennessee, Myrtle, Bay-breasted, Magnolia and Prairie Warblers build a similar nest near the ground.

A law governing the elevation of the nesting site has been offered by Averill, in which birds with long pointed wings may nest high or low, but the short and round winged are low nesting, seems to bear the test in most instances.

(14) The pendant basket felters include all of the Vireos as typical arboreal feeders. Our four local species all build pensile nests of similar construction, deep-cupped and slightly contracted at rim. The Red-eye is by far the most abundant, generally building in the terminal fork of a long branch, 3 to 10, sometimes 30 feet up. The nest is of fine strips of the inner bark of oak or chestnut, and of wild grape-vine bark, sometimes a few forest leaves; studded externally with bits of paper from hornets' nests, bleached and punky wood, plant fibre, pieces of dead leaves or egg cases of the geometrical spider, secured with spiders' silk, lined with finer shreds of grape-vine bark, occasionally fine stems of the tumbling grass; the whole interwoven and compressed into a usually thin, compact shell remarkably inconspicuous in nesting time and durable enough to withstand the weather for two years. I found one nest in the yard lined with white hen feathers. The Yellow-throat in some localities studs its nest with lichen, though I have not found it so here;

and the White-eye makes use of more paper, both of hornets' and man's manufacture, than the "Preacherbird," which led Wilson to dub it the "Politician," and it supplies a grass lining a little more frequently.

The Warbling Vireo nests in old maples about homes, averaging considerably higher and uses a greater quantity of grasses.

The Vireo group is consistant in the hanging nest; some species vary according to locality in the more or less fibre, or in materials like birch bark, pine needles or horsehair. It has been asserted that the male carries the material for the female to arrange and that the nest is complete in three days.

The local Acadian Flycatcher, now so scarce, builds a frail semi-pensile nest of fine grass and weed stems, occasionally bark strips, hickory and black oak blossoms, maple blossom stems and bark fibre, bound with spiders' silk; a small, conspicuous, semi-transparent cup with loose ends hanging down untidy; lined with fine grasses or blossoms, and placed in the forks of a beech sapling, 8 - 10 feet. In Hardin County, Iowa, the nest is made of the vetching vine interwoven with a few grasses and oak catkins. It is evident that this species has not thoroughly learned the art of pendant nestbuilding.

Bendire describes three types of nests, the first and most common decorated with male aments of different forest trees; second, in which these blossoms are dispensed with, and last where the nest is built entirely or in large part of different kinds of tree moss.

(15) The nest of the Baltimore Oriole has been rightly considered one of the most ingenious examples of North American bird architecture, not only because of the lines of beauty in its deeply-pouched and pendulous structure and its exposition of the natural art of weaving, crude though it be in comparison to the handicraft of man; but also because of the difficulties overcome in the adjustment of the pliable fibre to meet the strain incident to a partial overhead attachment and the whipping of the bough.

The nest is placed near the extremity of slender branches of the sycamore, walnut, willow, maple or apple trees, mostly 20 to 40 feet up in practically inaccessible situations, though one was found only five feet above the ground.

Sometimes the structure is suspended by the rim between

forked branches; others may be attached to some twigs extending part way down the side, but the rim partly or wholly unsupported.

A nest of superior workmanship, taken in 1921, was supported in the rear by two contiguous branchlets, to which it was attached by loops of twine and horsehair, the rim unsupported. The material is almost entirely of long black horsehairs, with a few strands of cotton twine and silvery-white vegetable fibre.

The pre-colonial nest was doubtless composed of the fibrous bark of decayed native plants, which in this section gave place in Wilson's time to flax, hemp, tow, hair, and wool, partly felted and partly interwoven into a kind of cloth, sewed through and through with long horsehairs; much better material on the whole than now available, since the average nest is of bark fibre of dead plants like the milkweed, silverleaf, poke, nettle, etc., together with cotton, worsted and silk twine—black, white, red, yellow, and blue—and the diminishing supply of horsehair. String is of course a comparatively new and somewhat refractory substance productive of snarls and unsightly entanglements. The nest is lined variously with shreds of grapevine bark, split grass stems or horsehairs.

The color of the exterior is of little moment though experiments have demonstrated that the bird is not color blind. Many of our older ornithologists seemed to foster the belief that the best constructed nests are the result of older and more experienced birds, an observation very important if true. The male sometimes carries material and makes a show of helping, but the female is the real builder and usually completes the nest in a week.

The nest of the Bullocks resembles that of the Baltimore Oriole, but as a rule is less pensile. Audubon's, Scott's, Hooded, and Arizona Hooded more nearly approach that of the Orchard; all containing green, wire-like grass, dry fibre of the yucca or the like.

The semi-spherical, green wire-grass cradle of the Orchard Oriole swings from the boughs of the apple, pear, or willow at a lower level than that of its more brilliantly plumaged relative, and surpasses it in pristine beauty, if not in the ingenuity displayed in overcoming the numerous engineering difficulties. Scarcely two situations are exactly alike, ranging from the horizontal crotch in which the nest is supported from the bot-

tom, to the twig-encrusted fork in which the nest swings free from its hammock-like lashings at the rim.

Wilson remarked that when it is located in the long pendant branches of the weeping willow, the nest is made much deeper and of slighter texture, the circumference is marked by a number of these pensile withes that descend on each side like ribs, supporting the whole. These branches being sometimes 12 or even 15 feet long, have a long sweep in the wind and render the first of these precautions necessary. This Oriole disdains the refuse of civilization, for it plucks from the living grass the long flexible stems to build its stout walls and to knit and sew in a most substantial manner until the texture is similar to that of a grass mat. It is lined with feathers, thistle down, or according to Wilson, the down from the seed of the sycamore. In the South it is said to be less bulky and occasionally of gray tree moss, lined however with the green wire-grass so frequently found elsewhere in the body of the nest. Both sexes assist and complete in three or four days.

The Baya Weaverbird fabricates a nest of uniformly interwoven tendrels or fibrous roots, starting with a solidly-woven rope, opening into a gobular chamber and contracting to a perpendicular entrance tube, and an Indian Tailorbird unites two growing leaves by stitching the edges together with fibre to form a pocket for its nest.

Conclusion: It is not to be expected that the constructive work of our birds would agree in more than a general way with any system devised for classification. but it should reveal something of phylogenesis, the origin or ancestry of the various groups.

It may be assumed that the nests assembled under the heads of earth and rock cavities, earth burrow and platform (part), probably represent early or original terrestrial types. The platform (Pigeons and Raptores), agglutinated (Swifts), felted (Hummingbirds), were probably early cliff dwellers, though the assumption that the latter originated in the vast rock piles of Tropical America may not be well founded. The Woodpeckers may belong to this division also, though the evidence favors the arboreal, to which evidently belong all other types described here; the countersunk nest especially being a departure from the arboreal habit.

It will be observed that while much is to be learned of the

domestic economy of all species, it is evident that there is a similarity in position and composition of nests according to families, especially of the lower orders. Progressive upward there appears an increasingly great deviation in position, construction, composition, and architecture of nests. In the great families of Flycatchers, Sparrows and Warblers, especially, great diversity exists, though the species of a genera are very apt to construct similar, and subspecies, indistinguishable nests taking into consideration individual and geographical variations. Species associated in colonies with the same environmental conditions naturally conform to a certain standard, while solitary species seem to develop more individuality in the local sense.

Civilization is responsible for changes in the nesting habits of many of our birds, while others have not been affected appreciably. It is not the love of civilization that has induced so many birds, especially those building open nests, to breed near the abode of man, but the quite natural desire to escape better-known or more feared enemies. It is a misfortune that we have no account of the nesting habits of a number of our birds most affected by the settlement of the country, before the change was practically effected. It must be remembered that this part of the country had been cultivated a century and more before Alexander Wilson and John Audubon attempted the biographies of our most familiar birds.

When the first settlers leveled the great forest and the Chimney Swift lost its ancestral home, the change in its domestic economy must have been as abrupt as it was obligatory. The transformation of the nesting habits of the Barn and Cliff Swallows was probably more gradual and agreeable, since the species must have been very local and restricted to the few available nesting sites. It is strange that although many individuals of several species of the natural cavity sort early adopted man-made substitutes, only one other species, the Purple Martin, has entirely forsaken its natural nesting site.

The great West is most fortunate in having intimate studies of many species and subspecies before civilization effaced so many of the natural harbors. Awaiting the inevitable changes of the breeding habits of Vaux's Swift, Western Martin and other species to conform with changes long since made by allied Eastern species, we may expect further adaptations in our local birds, especially the Osprey, Swallow, Creeper, and the like,

identical or only subspecifically distinct from the European, to demonstrate that great versatility is the common heritage of domestic as well as foreign birds.

In America the Osprey can afford to colonize as its food is yet unlimited. In the West it sometimes places its nest on rock spires, but nowhere has it been compelled to seek a site upon disused chimneys or ruined walls, such as the European form sometimes adopts. The European form of the Brown Creeper, also greatly surpasses the American form in nesting adaptability.

There recently appeared in a popular bird magazine an apparently authentic record of a Hermit Thrush building upon a porch plate, the first instance known to the writer of this wood-loving species departing from type. We know positively that 300 years ago there was not a single Robin in Pennsylvania to thus situate its nest because there were no buildings. The earlier ornithologists of a century past regarded a departure from the tree site very unusual; yet a goodly number now build yearly in all available building sites; in fact it has become so common that a pseudo ornithologist once informed the writer that he was confident that we had two kinds locally, the "House" and the "Field" Robin, because they built entirely different nests.

No doubt the tops of hollow trees and the Colonial chimneys had something in common from the viewpoint of the Swift. Certainly the Robin does not mistake the dressed and painted building timbers for the natural limb.

I cannot see that the use of the bill as a building tool greatly handicaps the bird in building, but on the contrary, I believe that the eye at the base of the tool itself is a great convenience to the bird in building as well as in feeding.

The size, shape and structure of the bill correlates with the food habits and with the exception of such groups of the Woodpeckers, bears little or no relation to the character of the nest. Examples are common enough of the great diversity in working tools productive of similar results: the Puffin, Kingfisher and Bank Swallow are equally expert burrowers; the Heron, Eagle and Cuckoo all produce the platform type; the needle-like bill of the Hummingbird, the flat bill of the Western Wood Pewee and the short conical bill of the Goldfinch, regularly manufacture the felted nest; the Broad-bill, a rather primitive type of the Passerine order, found in the Indian region, is said to construct a pendulous nest not inferior to that of the Oriole. The Hum-

mingbird, Gnatcatcher and Wood Pewee with very unlike bills, manage to thatch their nests with tiny bits of lichen very satisfactorily.

It is evident even in the inadequate descriptions of the nests of a single locality that the birds as a class display a wide range of constructive ability; many are as primitive as that of the reptiles; others more elaborate than the best quarters of the mammals and comparable only to the wonder-work of the inferior class of insects. It is constantly assumed in this paper that ground, earth and rock cavity- nesting is usually the most primitive, and that earth burrow, felted, woodhewn, and agglutinated types are in most instances more closely correlated with the first forms than with the cupped brush, its variations, and the pendant and woven types; though the arboreal platform may be in some instances a modification of the extraneous materials or lining of a ground or burrowing nest, and in other instances the primitive type of the arboreal nester which in all probability never built upon the ground.

It would appear from numerous instances given that the nesting cycle is not the result of individual reason but largely of purely instinctive impulses in orderly sequence leading logically from one to another until the cycle is broken or runs its entire course. Many though not all, apparently eccentric or inexplicable actions during the nesting time become clear if this is kept in mind.

Perhaps the reasons already advanced for nest-building seem inadequate when applied to the male and it may well be that his part is performed with no other object in view than to be near his mate.

The rather dogmatic generalizations of Conklin, who learnedly remarks that instincts are complex reflexes, which like structures of an organism, have been built up, both ontogenetically and phylogenetically, under stress of the elimination of the unfit, so that they are usually adaptive; is comprehensive.

Adaptability (flexibility or plasticity, as some prefer to write it) as applied to the nesting habits of so many of our birds is an established fact, yet no one who has studied the living bird intimately is in a position to deny the consciousness of the individual, since it has, as Finn points out, much the same faculties for acquiring knowledge as ourselves.

WINTER BIRDS IN EASTERN ARKANSAS

DR. L. OTLEY PINDAR

(Foreword)

(May I make a short preliminary statement to those who may read this paper, and others which, I hope, will follow it?)

I commenced my ornithological work, study, observation, taking notes, writing and, for a short while, collecting, early in 1884.

In October, 1889, I entered medical college and my ornithological activities were restricted. Then, the establishing myself in practice and many other things continued to interfere and it is only in the past year or so I have been able to resume anything like systematic work. During all the time, however, my interest continued unabated and I kept notes with more or less regularity and had opportunity to cover quite a scope of country, much of it little known ornithologically. I am now totally disabled as far as any active work is concerned and I purpose (D. v.) devoting my time to the arrangement and dissemination of the facts I have been able to gather in the past years.

One thing I feel should be made clear, in fairness both to the reader and myself: in addition to the notebooks in which daily entries were made (of course there were lapses and intervals in which none were made), I had other books in which were set down in more condensed form the principal facts in regard to each species or locality, a sort of ledger, so to speak. During my service in the M. C. U. S. A. (World War), my wife accompanying me nearly all of the time, our household goods, temporarily in storage, were destroyed by fire. My desk and a combination desk and bookcase were about the only things saved. In these were my "ledgers," as I have referred to them. The "day books," to continue the comparison, were lost. The consequence, as to my written work, can be readily seen. The basic facts are there and I know them to be accurate and positive, as probabilities, speculations and doubtful identifications were not entered in the books preserved, but the details, minutiae, in many cases the exact dates, etc., are gone, and if this is not known and taken into consideration my articles might appear careless and inacurate.)

This paper is based upon notes taken during two visits to

Arkansas, Oct. 23rd–Nov. 10th, 1888, and a few days in January, all of February and a short time in March, 1889.

On my first trip I made headquarters at Helena, Phillips County, reaching there by river from Memphis, Tenn., taking walks and drives over the surrounding territory, which is mostly low land except for some hills to the north-west, nearly all the above being well wooded, and quite an extensive area of prairie land beginning thirty miles west and lying between Helena and Pine Bluff.

On the second visit I was the guest of the Superintendent at a sawmill camp several miles from Marked Tree, Poinsett County, in the valley of the St. Francis river and not far from the "Sunk Lands," a depression believed to have been caused by the same earthquake that made Reelfoot Lake in Northwestern Tennessee.

The country is low, swampy, full of little lakes, sloughs and bayous, heavily timbered with cypress, sweet gum and sycamore and subject to overflow by the Mississippi river every year and often twice a year.

On slightly higher grounds, farther back from the river, are found white oak, hickory and thick cane brakes.

Black bear, deer, wild cat, beaver, otter, mink, muskrat, raccoon, opossum, squirrels and rabbits were plentiful, and snakes of several varieties, including the "cotton-mouth" moccasin were seemingly the most abundant form of life.

A list of the birds found and identified during these visits follows. Where Helena is not specified the notation refers to Poinsett County:

1. Holboell's Grebe—*Colymbus holboellii.*
   Rare.
2. Horned Grebe—*Colymbus auritus.*
   Fairly common.
3. Eared Grebe—*Colymbus nigricollis californicus.*
   Very rare.
4. Pied-billed Grebe—*Podilymbus podiceps.*
   Common.
5. Loon—*Gavia immer.*
   Rare.
6. Red-throated Loon—*Gavia stellata.*
   Very rare. Found only in the "Sunk Lands."
7. Herring Gull—*Larus argentatus.*
   Common on the Mississippi river at and near Helena.
8. Ring-billed Gull—*Larus delawarensis.*

9. Bonaparte's Gull—*Larus philadelphia.*
Rare. Only seen at Helena.
10. Water-Turkey—*Anhinga anhinga.*
Rare; becoming more common towards the first of March.
11. Double-crested Cormorant—*Phalacrocorax auritus auritus.*
Fairly common.
12. White Pelican—*Pelecanus erythrorhynchos.*
Rather common.
13. Red-breasted Merganser—*Mergus serrator.*
Common.
14. Hooded Merganser—*Lophodytes cucullatus.*
Rare.
15. Mallard—*Anas platyrhynchos.*
Abundant. Common at Helena.
16. Black Duck—*Anas rubripes.*
Fairly common.
17. Gadwall—*Chaulelasmus streperus.*
Fairly common.
18. Green-winged Teal—*Nettion carolinense.*
Common.
19. Blue-winged Teal—*Querquedula discors.*
Common.
20. Pintail—*Dafila acuta.*
Common.
21. Wood Duck—*Aix sponsa.*
Common.
22. Lesser Scaup Duck—*Marila affinis.*
Common. Other ducks than the Mallard were also seen at Helena, but not at a range that made positive identification possible.
23. Canada Goose—*Branta canadensis canadensis.*
Common. Same at Helena.
24. Brant—*Branta bernicla glaucogastra.*
Fairly common. A few at Helena.
25. Whistling Swan—*Olor columbianus.*
Some twelve or fifteen in the Sunk Lands.
26. Trumpeter Swan—*Olor buccinator.*
Very rare, and only in the Sunk Lands.
27. Bittern—*Botaurus lentiginosus.*
Rare.
28. Least Bittern—*Ardetta exilis.*
Rare.
29. Great Blue Heron—*Ardea herodias herodias.*
Rather common. Several noted near Helena.
30. Egret—*Herodias egretta.*
Fairly common.
31. Snowy Egret—*Egretta candidissima candidissima.*
Rare. Two were seen on the Arkansas side of the Mississippi river, about twenty miles below Memphis, Oct. 23rd.
32. Little Blue Heron—*Florida caerulea.*
Common.

33. Green Heron—*Butorides virescens virescens.*
Common.
34. Black-crowned Night Heron—*Nycticorax nycticorax naevius.*
Rare.
35. Whooping Crane—*Grus americana.*
Very rare, and only in the Sunk Lands.
36. Sandhill Crane—*Grus mexicana.*
Rather common latter part of February and first of March.
37. Virginia Rail—*Rallus virginianus.*
Fairly common.
38. Florida Gallinule—*Gallinula galatea.*
Common.
39. Coot—*Fulica americana.*
Rare.
40. Woodcock—*Philohela minor.*
Very rare.
41. Wilson's Snipe—*Gallinago delicata.*
Rare in Poinsett County except during a few days about the first of March. Common around Helena. While I was there one hunter brought in a bag of eighteen.
42. Pectoral Sandpiper—*Pisobia maculata.*
Rare.
43. Least Sandpiper—*Pisobia minutilla.*
Fairly common.
44. Spotted Sandpiper—*Actitis macularia.*
Common.
45. Killdeer—*Oxyechus vociferus.*
Fairly common.
46. Bob-white—*Colinus virginianus virginianus.*
Rare in Poinsett County. Abundant around Helena.
47. Ruffed Grouse—*Bonasa umbellus umbellus.*
Rare in Phillips County. Said to have formerly been common. Not found in Poinsett.
48. Prairie Chicken—*Tympanuchus americanus americanus.*
Common on the prairie lands between Helena and Pine Bluff. Not found elsewhere.
49. Wild Turkey—*Meleagris gallopavo silvestris.*
Common. Fairly common in Phillips County.
50. Passenger Pigeon—*Ectopistes migratorius.*
Common.
51. Mourning Dove—*Zenaidura macroura carolinensis.*
Rare in Poinsett County. Fairly common in Phillips.
52. Turkey Vulture—*Cathartes aura septentrionalis.*
Common. Same at Helena.
53. Black Vulture—*Catharista urubu.*
Common. Same at Helena.
54. Marsh Hawk—*Circus hudsonius.*
Rare.
55. Sharp-shinned Hawk—*Accipiter velox.*
Rare.

56. Red-tailed Hawk—*Buteo borealis borealis.*
Common.
57. Red-shouldered Hawk—*Buteo lineatus.*
Not quite so common as the preceding.
58. Swainson's Hawk—*Buteo swainsoni.*
Still less common than the preceding.
59. Broad-winged Hawk—*Buteo platypterus.*
Fairly common.
60. Rough-legged Hawk—*Archibuteo lagopus sancti-johannis.*
Rare.
61. Bald Eagle—*Haliaetus leucocephalus leucocephalus.*
Not uncommon in either of the counties visited. A magnificent adult male was killed about two miles north of Helena and brought into town while I was there.
62. Pigeon Hawk—*Falco columbarius columbarius.*
Rare.
63. Sparrow Hawk—*Falco sparverius sparverius.*
Fairly common. Common in Phillips County.
64. Short-eared Owl—*Asio flammeus.*
Rare.
65. Barred Owl—*Strix varia varia.*
Common.
66. Screech Owl—*Otus asio asio.*
Common in both counties visited.
67. Great Horned Owl—*Bubo virginianus virginianus.*
Fairly common.
68. Belted Kingfisher—*Ceryle alcyon.*
Rare.
69. Ivory-billed Woodpecker—*Campephilus principalis.*
A fine male was frequently seen in a low, wet, heavily wooded strip about two miles from the camp. This was presumably the same bird as it was always seen in the same place, a territory approximately one-half by one-quarter mile in area. On one occasion a female was seen in the same section and they were probably mates, although they were not seen together or even on the same day.
70. Southern Hairy Woodpecker—*Dryobates villosus auduboni.*
Rare.
71. Downy (?) Woodpecker—*Dryobates pubescens ?.*
Common. Probably the Southern. They were not differentiated at the time these notes were made.
72. Yellow-bellied Sapsucker—*Sphyrapicus varius varius.*
Rather common.
73. Pileated Woodpecker—*Phlocotomus pileatus pileatus.*
Common.
74. Red-headed Woodpecker—*Melanerpes erythrocephalus.*
Common. Same in Phillips County.
75. Red-bellied Woodpecker—*Centurus carolinus.*
Common. Same in Phillips County.
76. Flicker—*Colaptes auratus auratus.*
Common. Same in Phillips County.

77. Nighthawk—*Chordeiles virginianus virginianus.*
Several seen at Helena the latter part of October. Said to be very common during the spring and fall.
78. Blue Jay—*Cyanocitta cristata cristata.*
Rare in Poinsett County except in the immediate vicinity of Marked Tree. Common in and near Helena.
79. Crow—*Corvus brachyrhynchos brachyrhynchos.*
Almost rare in Poinsett County. Common in Phillips.
80. Fish Crow—*Corvus ossifragus.*
Rare, and only found along the St. Francis river.
81. Red-winged Blackbird—*Agelaius phœniceus phœniceus.*
Rare in Poinsett. Common in Phillips.
82. Meadowlark—*Sturnella magna magna.*
Same as above.
83. Bronzed Grackle—*Quiscalus quiscula aeneus.*
Abundant in both counties.
84. Purple Finch—*Carpodacus purpureus purpureus.*
Rare in the vicinity of Helena. Not seen elsewhere.
85. Goldfinch—*Astragalinus tristis tristis.*
Noted only in or near Helena. Common there.
86. Vesper Sparrow—*Poœcetes gramineus gramineus.*
Rare in Poinsett and only near Marked Tree. Common in Helena.
87. Harris Sparrow—*Zonotrichia querula.*
Same as above but rather more common.
88. White-crowned Sparrow—*Zonotrichia leucophrys leucophrys.*
Only noted at Helena and vicinity, and rare there.
89. White-throated Sparrow—*Zonotrichia albicollis.*
Common in Phillips County. Not found in Poinsett.
90. Tree Sparrow—*Spizella monticola monticola.*
Rare and only around Helena.
91. Chipping Sparrow—*Spizella passerina passerina.*
Very rare. Phillips County only.
92. Field Sparrow—*Spizella pusilla pusilla.*
Rare in Poinsett County. Fairly common in Phillips.
93. Slate-colored Junco—*Junco hyemalis hyemalis.*
Fairly common at Helena after the 5th of November.
94. Song Sparrow—*Melospiza melodia melodia.*
Rare in Poinsett. Common in Phillips.
95. Lincoln's Sparrow—*Melospiza lincolni lincolni.*
Fairly common in Phillips. Not found in Poinsett.
96. Swamp Sparrow—*Melospiza georgiana.*
Rare in Poinsett. Common in Phillips.
97. Fox Sparrow—*Passerella iliaca iliaca.*
Same as the preceding.
98. Towhee—*Pipilo erythropthalmus erythrophthalmus.*
One seen at Helena Oct. 25th.
99. Cardinal—*Cardinalis cardinalis cardinalis.*
Fairly common in Poinsett. Common in Phillips.
100. White-rumped Shrike—*Lanius ludovicianus excubitorides.*
Rare.

101. Mockingbird—*Mimus polyglottos polyglottos.*
A few seen near Marked Tree. Common in and near Helena.
102. Carolina Wren—*Thryothorus ludovicianus ludovianus.*
Common, especially in Phillips County.
103. Bewick's Wren—*Thryomanes bewicki bewicki.*
Rare, in both counties.
104. Winter Wren—*Nannus hiemalis hiemalis.*
Fairly common in both counties.
105. Brown Creeper—*Certhia familiaris americana.*
Rather common in both counties.
106. White-breasted Nuthatch—*Sitta carolinensis carolinensis.*
Common in both counties.
107. Red-breasted Nuthatch—*Sitta canadensis.*
Very rare, and only in Poinsett County.
108. Tufted Titmouse—*Bacolophus bicolor.*
Fairly common in Poinsett. Common in Phillips.
109. Carolina Chickadee—*Penthestes carolinensis carolinensis.*
Common in both counties.
110. Golden-crowned Kinglet—*Regulus satrapa satrapa.*
Common in both counties.
111. Hermit Thrush—*Hylocichla guttata pallasi.*
Rare in both counties.
112. Robin—*Planesticus migratorius migratorius.*
Common in both counties.
113. Bluebird—*Sialia sialis sialis.*
Rare in Poinsett. Common in Phillips.
114. English Sparrow—*Passer domesticus.*
A few at Marked Tree.

Versailles, Ky., Aug. 14, 1923.

Introduction re-written and slightly amended, April 30, 1924.

NOTES—HERE AND THERE

Conducted by the Secretary

THE NASHVILLE MEETING

While it will be impossible, because of lack of time and space, to tell of the recent meeting of the W. O. C. at Nashville, Tennessee, it seems advisable to mention briefly some few facts. The meeting of The Wilson Ornithological Club was held jointly on November 28-30 with The Inland Bird-Banding Association, The Kentucky Ornithological Society, The Tennessee Ornithological Society, and The Tennessee Academy of Science. The first two days were devoted to programs, the last one to a field trip under the direction of The Tennessee Ornithological Society. Members were present from West Virginia, Kentucky, Tennessee, Florida, Georgia, Iowa, Texas, Minnesota, Washington, D. C., Michigan, Ohio, Illinois, Indiana. Friday evening was devoted to a banquet at Hotel Hermitage, attended by 51 members. Saturday evening, after the program, the visitors were entertained at the home of Mrs. James C. Bradford, "Woodstock." Officers elected for 1925 were as follows:

President—A. F. Ganier, Nashville, Tennessee.
Vice-President—Thomas H. Whitney, Atlantic, Iowa.
Secretary—Gordon Wilson, Bowling Green, Kentucky.
Treasurer—Ben. J. Blincoe, Dayton, Ohio.
Councillors—
W. M. Rosen, Ogden, Iowa.
Wm. I. Lyon, Waukegan, Illinois.
H. L. Stoddard, Beachton, Georgia.
Lynds Jones, Oberlin, Ohio.

A full account of the meeting will appear in the March Bulletin.

Mr. H. B. Bailey, Newport News, Virginia, listed as an associate member in the September membership list, should have been listed as an active member.

In a recent test, says an item in a Nashville, Tennessee, paper, English Sparrows showed an ability to resist fumes of mustard gas and other deadly chemicals. The experiment was tried to determine what would be the most effective way of getting rid of animal and bird pests.

Mr. G. D. Hibbs, Cox's Creek, Kentucky, says, in a letter to the Secretary: "I have worked with the birds about twenty years, building houses, and watching bird habits. On my place I have about seventy-five drop-hole boxes of different sizes and forms, of which four or five were unoccupied this season on account of Red and Flying Squirrels. The Bluebird is my best tenant, the Tufted Titmouse coming second, the Carolina Chickadee third. I have in my garden and orchard several open and bracket boxes and a few old gourds, which are occupied during the nesting season by Robins, Wood Pewees, Mockingbirds, Blue Jays, Brown Thrashers, and Wrens."

Here is an interesting item from one of our members: "A Crow banded by me, old American Bird Banding Association No. 23021, Tabu-

sinca, New Brunswick, Canada, June 22, 1917, was reported found dead at Paterson, New Jersey, October 21, 1924, by Tice C. Lobbregt. An interesting coincidence is that this bird, banded so far from my home in Demarest, New Jersey, a little more than seven years later had come within twenty miles of that home 'as the crow flies,' to die."—Beecher S. Bowdish.

The annual meeting of the British Association for the Advancement of Science was held at Toronto, Canada, August 6-13. The society hoped by this meeting to tie much more strongly together the scientists of the Old and of the New World.

The Iowa Academy of Science has published several papers by our own Professor Dayton Stoner, formerly Vice-President of the W. O. C. Though a comparatively young man, Professor Stoner has already done much for science in his state and has secured an enviable national reputation for his researches in the Fiji Islands and for his numerous smaller studies.

The London *Morning Advertiser*, of London, Ontario, for November 3, reports that thousands of Swans passed over the city recently in migration, identified by our member, W. E. Saunders. Many of the birds got lost in flying over the city at night and were seen at close range by Mr. Saunders.

Our President, A. F. Ganier, and several of our Tennessee members, George R. Mayfield, P. L. Cobb, A. C. Webb, Mrs. Sanford Duncan, and others, have interested themselves in the project to make a national or state park of the Great Smoky Mountains. Committees from the national government have investigated the location and the Tenneseeans are hopeful about the prospects. A whole sheet of the Sunday edition of The Nashville *Banner* for September 21 was devoted to pictures made by President Ganier and his party in their trip this year to the Great Smokies. A large section of the *Banner* was given to the proposed park and its advantages and beauties.

Mr. William G. Fargo, of Jackson, Michigan, spent the period from August 18 to September 8, 1924, on Isle Royale, Michigan. In a letter to the Secretary he says: "Numbers of Sharp-shinned Hawks were seen after September 1 in the clearings at the west end of the island, evidently following migrations of warblers and sparrows. These Sharp-shinned Hawks attempted to drive the Sparrow Hawks off the clearings, where the latter were feeding solely on grasshoppers. Owing to pursuit by hawks the Savannah and Song Sparrows developed a zigzag manner of flight whenever flushed, which would do credit to a Woodcock. No Grouse of any sort were seen on the island. The numbers of Great Horned Owls and Coyotes probably account for this. The Great Horned Owl perches over the Moose runs along the margins of the swamps or other trails and picks up many a rabbit or hare at dusk. In the dense forests birds were seldom seen. The only clearings were seen around Washington Harbor and the small clearings at the four resorts. It was in these clearings that much of the bird life was observed. In the future

development of the island for park purposes more clearings should be provided."

Captain Donald Baxter MacMillan, who in early September, anchored his vessel, the Bowdoin, in the harbor of Sydney, N. S., on his way home from the exploration of northern Greenland and Ellesmere Land, brought with him, from his fifteen months in the far north, much new scientific data in the fields of geology, meteorology, and ornithology. Among the most unusual ornithological specimens he has are three White Gyrfalcons, never before successfully brought south. Captain MacMillan plans to return to the arctic region next summer.

A record of remaining nearly nine hours in the air in a motorless aeroplane, or Glider, has been recently established in France. This seems to be solving the problem of soaring flight, a subject which has been given much study by certain advanced ornithologists.

Among a number of rare ornithological works being offered for sale by Treat's Book Shop of Atlanta is a set of the rare *Birds of America*, by John James Audubon. This set is in the Edinburgh 1831-1839 edition, in elephant folio size. The price asked, $3150, makes these probably the most expensive of all books on birds now being offered for sale by any dealer or collector.

Carl R. Smith, writing in *The Gull*, September, 1924, says: "It is often said that all things come to him who waits. Although they are no longer common, I have found the Road Runner from the Upper Lake to Santa Barbara, in the Coast Range; near Hanford in the San Joaquin Valley, and in the Sierra foothills near Woodlake. Curious as to their speed, I have often chased them in a machine, only to have them dodge off the road into the brush or ditch, and the question of speed was left in doubt. On December 6, 1923, as I came out of King City and approached the long concrete bridge over the Salinas River, a Road Runner jumped off the guard rail along the approach of the bridge and started for the west bank, about a half-mile away. At 26 miles per hour the bird jumped to the side rails and I nearly ran by it, but by swerving in close and using the horn I had it going again. The pace it would stand without trying to dodge was around 20 miles per hour. A blast of the horn would increase this to 22 miles, but it soon dropped back to 20 miles. On reaching the further end of the bridge, the bird turned off and stopped in the open, showing no sign of distress or fear."

One of our new members is Mr. Archie Mumma of Dayton, Ohio, who does one of the most unique things ever attempted by bird-lovers: he has transferred to the piano the songs of several common birds. Mr. Mumma's lecture-recitals are highly commended. His interpretations have been recorded by the Duo-Art Piano and can be secured from that company. There are three records, including the songs of the Purple Martin, the Screech Owl, the Cardinal, the Song Sparrow, the White-throated Sparrow, the Wood Pewee, the Warbling Vireo, the Dove, and the Carolina Wren.

One of our new but most loyal members, Mrs. Frank M. Thomas,

Bowling Green, Kentucky, died October 20, 1924. Though a semi-invalid for several years, she was a great inspiration to the bird lovers who knew her.

Mr. Wm. I. Lyon, our Vice-President, who always does interesting things, brought along to the Nashville meeting a cage containing five Fox Sparrows and a Harris's Sparrow, which he had caught and banded at his station. After they had been inspected by the members of the W. O. C. and the I. B. B. A., they were released. It would be interesting to know what will become of them, especially the Harris's Sparrow, which is unknown in that section. Mr. Lyon also brought along several traps and devices he uses in his trapping of birds.

Our good friend, Johnson A. Neff, of Marionville, Missouri, who is now doing graduate work in the Oregon Agricultural College, has chosen for his thesis *The Economic Status of the Common Woodpecker in Relation to Oregon Horticulture*. In collecting material he is traveling all over the state. After he has finished his M.S. degree, Mr. Neff plans to return to his old home and devote his life to horticulture and ornithology.

Mrs. Lewis Mounts, whose husband teaches in the Ballard Normal School of Macon, Georgia, reports that she has organized two bird clubs in that school which are thriving. Two trips are taken afield weekly. All their work is tied up with journalism, since items are published weekly about the activities of the club.

Mr. Frank Bruen, Bristol, Connecticut, who is still active in spite of approaching age, reports that on October 25, while out with the Hartford Bird Study Club, he found two Snow Buntings, a record-breaker for earliness. All native species, he says, are exceptionally scarce this year.

Mr. Harry Applegate, Deputy Game Warden of Kentucky, is "on the job." A number of times recently he has brought to trial violators of the Kentucky game laws, particularly those affecting hunting birds and trapping fishes.

A news item from Shreveport, Louisiana, dated November 14, says that hundreds of wild ducks of several species have met death because of flying into open oil tanks. The streams and lakes have been reduced in number by the prolonged drouth and this is the reason for the birds' seeking the oil tanks, which from the air look so much like ponds.

Mr. Leonard W. Wing, East Lansing, Michigan, one of our newest members, reports the capture in one of his trips of an immature Harris Sparrow, positively identified by Mr. W. G. Fargo of Jackson, Michigan. Both of these bird men think this is the easternmost record of this plains species.

Mrs. Lena S. Milles, who lives in the very heart of Detroit, Michigan, reports that Yellow-billed Cuckoos nest within sight of her window, that Wood Thrushes nest in an adjoining block, and that other so-called "wild" birds are common.

The Audubon Association of the Pacific, of which the President, A. S. Kibbe, is one of our members, publishes monthly a leaflet called *The Gull.* This little paper is always full of interesting items and nearly always contains a complete paper of great interest, not alone to the Pacific bird lovers but to our own members in the Middle West.

The Division of Ornithology of the Massachusetts Department of Agriculture, has issued a bulletin called *Bird Migration and Distribution during the Year Ending November 30, 1923.* Since it was prepared under the direction of Mr. Edward H. Forbush, further words of commendation are needless.

The United States Biological Survey is sending out a questionnaire in an endeavor to ascertain the present status of the Golden Plover. The species has decreased enormously and is now apparently rare inland. Records of its occurrence should be reported to the Survey.

The Sioux City Bird Club issued at the beginning of the present school year a program for their entire year's work. They meet monthly, either for programs indoors or for field trips. Many of our most active members appear on this prospectus: Charles J. Spiker, Walter W. Bennett, Mrs. W. J. Hayward, Dr. T. C. Stephens, and others.

The Forty-second Stated Meeting of the American Ornithologists' Union was held in Pittsburgh, Pennsylvania, November 11-13. Quite a large number of our members in that area were in attendance and several appeared on programs. Four of our members on the Local Committee of Arrangements were W. E. Clyde Todd, Bayard H. Christy, George M. Sutton, and Lynds Jones.

Mr. R. C. McGregor, the only one of our members living in the Philippines, says in a note to the Treasurer that he spent the months of May and June on a collecting trip in Samoa.

Professor W. E. Praeger of Kalamazoo College, Michigan, has been chosen president of the chapter in his town of *The Friends of Our Native Landscape,* an organization designed to aid and protect all phases of wild nature.

Mrs. A. S. Putnam of Manistique, Michigan, who was with Professor Sherzer's Alaskan party this summer, reports many interesting things on her trip: "On an iceberg just broken off from Taku Glacier were two dozen Ducks taking a free ride and enjoying it. Another iceberg carried a load of Gulls. One of my pleasantest memories of the trip was the wonderful singing of Veeries on the high wooded hills back of Juneau and Katchikan, close to the business section. I am sorry to report cats in Alaska. It is especially bad to introduce them into a new country. The birds are at their mercy there even more than here."—Condensed from Michigan Audubon Society *Quarterly News-Letter.*

THE WILSON BULLETIN

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EDITORIAL

With this issue the present editor concludes a service as the editor in chief of The Wilson Bulletin and its several forbears, of thirty-six years — quite long enough, certainly, for one man. Dr. T. C. Stephens, of Sioux City, Iowa, takes up the work with the 1925 volume, and therefore all communications which relate to the editorial management should be addressed to him, at Morningside College. Requests for back numbers should continue to be addressed to Lynds Jones, Oberlin, Ohio.

Both the A. O. U. meeting at Pittsburg and the joint meetings of the Wilson Ornithological Club, Inland Bird Banding Association, and The Tennessee Ornithological Society, were eminently worth the effort and expense that were involved in attendance upon them. The value of these meetings lies more in the personal associations made possible than in the program that is presented. Therefore every member ought to begin now to plan to attend the next meeting. Every organization must have at least a nucleus of its members who enjoy personal association with each other if it is to be worthyc of continuation, and the larger this nucleus is the more vigorous will the organization be and the better work it will be able to accomplish. Let's make this matter of regular attendance upon meetings our personal business.

GENERAL NOTES

STARLING IN MICHIGAN

On September 14, 1924, the writer found a flock of ten Starlings (*Sturnus vulgaris*) near Ann Arbor. An adult female was collected from this flock by J. Van Tyne on September 17.

Claude H. Van Tyne II.

ENGLISH SPARROW EATEN BY SHRIKE

While going over some of my field notes I noticed a record of my having observed a Shrike eating an English Sparrow, and since in this connection I recalled Mr. B. F. Mounts' article in The Bulletin, December, 1923, p. 221, I am submitting my notes, which were taken at Norman, Oklahoma, March 23, 1915.

I saw a Shrike (presumably the White-rumped, *L. l. excubitorides*) eating the rear half of a small bird and since I had never witnessed this supposedly frequent performance I was very much interested. Presently the Shrike hung the remains of its victim on a thorn of the hedge tree in which it was perched and flew to another bough about a foot away. As I drew nearer the scene the Shrike evidenced a desire to regain its prey, and before I could interfere it siezed the remains of the bird in its claws and was about to fly away with it. By this time I had picked up some small stones which I threw at the Shrike and caused it to drop its prey. I lost no time in picking up the mutilated carcass and to my surprise I found that it was the remains of an English Sparrow which had been so recently killed that its flesh was still warm. While I was thus engaged, the Shrike sat nearby and watched me very closely. When I tossed the remains of the Sparrow on the ground by the bush in which the Shrike sat, it immediately regained its prey and mumbling a few discordant notes bore the mutilated body away in its claws.

E. D. Crabb.

Public Museum, Milwaukee, Wis.

LITTLE BLUE HERONS IN MONTGOMERY COUNTY, OHIO

The presence of the Little Blue Heron (*Florida caerulea*) in Montgomery County, Ohio, throughout the month of August, was the most interesting local ornithological event of the summer of 1924. I first saw this species, eight birds in the white plumage, at a small artificial lake about eight miles north of the city of Dayton, on the 2nd of August. Ten visits to this lake were made during the month, and on each occasion from three to twelve of these herons were seen; the last were observed on the 31st of August.

Never as wary as the Great Blue Herons, these birds became tamer at each visit, and toward the end of their stay often would allow me to approach within a hundred feet without showing signs of fear; the con-

stant presence of many fishermen about the lake was probably the cause of the increasing confidence of these naturally shy birds, and during their whole stay they were not fired upon, as far as I knew. The greenish-yellow color of the legs was the chief mark of identification, although the dusky tips of the primaries were observable on a few occasions as a bird sailed on set wings preparatory to alighting; otherwise, in every individual, the plumage appeared entirely white. They fed boldly in the open, walking at a fairly even gait through the shallow water, frequently striking at fish, and, as attested by a silvery flash, were often successful in their hunting.

It seems strange, indeed, that these beautiful creatures, accustomed to the quiet swamps and lagoons of the south, should desire to take a summer trip northward; and stranger still that they should elect to spend a month at a rather public artificial lake, in a thickly settled locality, where noisy electric cars, humming automobiles, and buzzing airplanes are in nowise suggestive of the wilds of their southern habitat. The fact that no birds in adult plumage accompanied their white kin is cause for even greater wonderment.

Ben J. Blincoe.

October 30, 1924.

COMMUNICATIONS

A NATIONAL PARK IN SOUTHERN MOUNTAINS

That a splendid new National Park will be established, in the high Appalachian Mountains of North Carolina and Tennessee, now seems assured. Dr. Work, Secretary of the Interior, has appointed a commission and charged them with selecting the most beautiful and otherwise suitable area in these mountains in order that he may recommend its purchase to Congress. This commission, composed of five nationally known park experts, has spent much time afield during the current summer and fall, inspecting the various sites offered and have expressed themselves as being impressed with the scenic values of many locations far beyond their expectations. Ornithologists and nature lovers generally are keenly interested in the plan of conserving intact a large area in these mountains where primitive faunal and floral conditions are still extant and where they may be so kept for all time. Much of this rugged mountain area has already been destroyed by lumbering activities and the time for saving a large primitive area cannot be further delayed. The peaks in this area are the highest in America east of the Rockies, rising to more than 6700 feet. Their slopes are clad with the most beautiful and varied forests in the world and here may be found birds, animals and other forms of animate life which have been extirpated elsewhere. It is an area of exceeding interest to the naturalist, as the writer can testify after a number of field trips there. Apparently the most desirable section from all standpoints is that portion of the Great Smoky Mountains, which includes Mt. LéConte (6678), Mt. Guyot (6636), Clingmans Dome (6666), and the Balsam Mountains as far eastward as Waynesville, N. C. Such an area would perhaps include a thousand square miles and would be entirely different from any other National Park. Other areas being carefully considered are the Lindville Mountains, east of Asheville, and the Blue Ridge Mountains near Highlands, N. C., frequently spoken of as "The Sapphire Country."

Many other park sites have been considered in the eastern U. S., but the concensus of opinion is that the site referred to above should come first. After the precedent of acquiring this has been established by the Government it is likely that the acquisition of other Parks will rapidly come about until all those of outstanding merit will be made available to the public.

ALBERT F. GANIER.

Nashville, Tenn., Sept. 1, 1924.

BIRD BANDING DEPARTMENT

Under the Direction of Wm. I. Lyon, Waukegan, Ill.

REPORT FROM THE BIOLOGICAL SURVEY

Mr. Lincoln has made three field trips for the purpose of doing bird-banding work in your district. The first one during March, 1923, resulted in the banding of 489 ducks at the Sanganois Club near Browning, Illinois. The second trip, made during the fall of the same year, resulted in the banding of 1,338 ducks, while the third trip to the Beaver Islands, in northern Lake Michigan, in the month of July, 1923, resulted in the banding of 658 Caspian Terns and Herring Gulls. The following list indicates the number of banded birds that have been reported from the different states in the territory of the Inland Association from July 1, 1923, to February 1, 1924:

Michigan, 1452; Minnesota, 1175; Illinois, 1088; Ohio, 821; Wisconsin, 715; Iowa, 580; Sask, 560; Manitoba, 549; Indiana, 444; Missouri, 378. Texas, 278; So. Dakota, 243; Tennessee, 50; Kansas, 48; Alberta, 32; Oklahoma, 33—Total, 8,446.

HELP US FORM CHAINS

A suggestion comes from the Biological Survey that we urge every co-operator to endeavor to secure the interest of some person in his neighborhood who might establish a station that would form a connecting link with his own. In this way the basic idea of a chain of trapping stations would be carried out and you will readily see that if a suitable number of persons may be interested, it should ultimately be possible to establish a well connected chain of banding stations.

In selecting this person to co-operate with you, you should be very careful to find someone who has the ability as well as the suitable grounds. If you know of someone that is a desirable and would like to have the Inland Secretary take up the matter by mail, I will be glad to assist in any way that I can. If every co-operator will make an effort to find another person who is interested, or if they will just attempt to get some publicity in their local papers, it will all help the work very much.

We need more matter on Bird Banding. We are not getting enough support from the Banders, themselves, and would like more of the interesting incidents that happen at each banding station. We are very sorry that we are unable to get reports from all of the Banders so that our district total would be larger. As it is now, our district total is only of those that are willing to co-operate with us. Many of those that we write to, do not answer at all, but we feel that we have a report of all those who are interested in the work. If we try to make another report next year, we will have to have more support. In the meantime, please send in the interesting happenings of each season, and help us make this department a success.

"Many specimens of bird and marine life in the Miami, Florida, district," says a newspaper dispatch from that city "have been captured

and preserved for the Cleveland, Ohio, Museum of Natural History by Ernest G. Holt and Dr. George W. Crile, representatives of the museum. The birds will be mounted in and around the nests to reproduce the conditions under which they were secured. The scientists have, in most cases, three of the adult specimens, one male and one female, for mounting, and another adult for dissection and study. They also have a number of the small birds which were taken from the nests. The birds range in size from two tiny Hummingbirds to the huge Pelicans. Included in the display are a Man-o'-war Bird, Terns, Herons, Pelicans, Cormorants, Herring Gulls, and others. The scientists have three species of the Heron; the White Heron was especially difficult to take, as it required great patience on the part of the hunters. Mr. Holt is still in Miami collecting."

Professor Dayton Stoner has had published by the Iowa Academy of Science an article on "Behavior of Trapped and Banded Birds." Professor Stoner, as usual, has given here a delightful and very readable record of his experiences in this new and pioneer field of bird study.

Wm. I. Lyon, Waukegan, Illinois, reports the following: In December of 1921, Chickadees, Nuthatches, and 2 Downy Woodpeckers, were trapped and banded in two very crude traps. During the year of 1922 the traps were much improved but only 13 Chickadees, 8 Downy Woodpeckers, and I think, no Nuthatches were trapped. Nineteen twenty-three was a great year for improvement in the tree-trap business, and when the fall months arrived we were able to trap so many (9) Yellow-bellied Sapsuckers, 3 Black and White Creeping Warblers, and 92 Brown Creepers, but only 2 Chickadees, 9 Woodpeckers and 2 Nuthatches. During our observation on the Waukegan Flats, we had noted many Red-breasted Nuthatches, but never a one at the trapping station. For some strange reason, the Chickadees and the Nuthatches seem to have been absent from our district during the last two years.

Adolf L. Holm, Lundar, Manitoba, reports the following: "We had an occasion to move a house, of which a window was broken. On a ledge just inside the window was a Robin's nest with four young in it. I nailed a box on its side on a tree fourteen feet away and put the nest in it. For two days the parent Robins did not give their young anything to eat, although they were near-by with food for them. But somebody else gave them food. A wren had his nest a few feet away; when feeding his own babies he saw the hungry little Robins with their open mouths when he passed by. He also cleaned their nest, and the funniest of all he tried to sit on them, but as he was no larger than the Robins themselves he could not cover more than a small part of them. After the two days the parent Robins got enough courage to start feeding their young themselves, and chased the wren away from them, although the wren fed them once in a while when the Robins were not near; but soon quit when he got no 'thanks' from them for saving their young. No doubt the wren would have continued feeding the little Robins had their parents left them, but I am afraid that he would have had a hard time to get enough for them as he had eight babies himself to care for."

PUBLICATIONS REVIEWED

Observations upon the Bird Life of Death Valley. By Joseph Grinnell. Proc. Calif. Acad. Sci., XIII, pp. 43-109. 1923.

This paper is a report of another investigation by the Museum of Vertebrate Zoölogy, under the patronage of Miss Annie M. Alexander. Death Valley lies in a north and south direction between high mountain ranges. Its deepest part is below sea-level, and presents extreme desert conditions. This sparse vegetation reacts directly on the animal life, and the bird life is relatively meager because of lack of food and shelter. Dr. Grinnell's present study, together with that of Dr. A. K. Fisher (1893), furnishes a pretty complete survey of the avifauna of this very unique region.

Only 124 species are admitted to the present list, notwithstanding the fact that it is regarded as a migration highway. Of these 25 are considered as casual visitants; forty-five as regular transients; thirty-two as winter visitants. Of the ten summer visitants only one is known to breed below the sea-level. There are twelve permanent residents, all of which are believed to nest in the below-sea-level area. The ecological discussion of the region and the authentic catalogue of species are the outstanding features of this paper.

T. C. Stephens.

Herons of the United States. Bulletin No. 5, of the National Association of the Audubon Societies. 1924.

This is a 38-page pamphlet, which has for its purpose the resume of the present status of all of the herons that are native to North America in comparison to their status before the Audubon Society began its intensive campaign to save these interesting birds from threatened complete extinction because of the trade in feathers for millinery purposes. Each of the species is represented in color by Louis Agassiz Fuertes, besides several half-tone cuts of several of the species. It will prove to be a useful piece of literature.

L. J.

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