

GENERAL NOTES

Quebec recovery of White-fronted Goose banded in Greenland.—A recent addition to the few records of the White-fronted Goose, *Anser albifrons* (Scopoli), in eastern Canada is worthy of special note because it is the first return from the mainland of this continent of White-fronts banded at Dr. Finn Salomonson's station in Greenland. Near the end of September, 1946, an unusual goose was shot from a flock of about a dozen similar birds by Mr. Campbell at Metis Beach on the south shore of the St. Lawrence River, near Matane, Quebec. The goose was crippled but remained alive in captivity for several days. When it died, Mr. Campbell removed the band, bearing number 270615 of the Museum of Zoology of Copenhagen, Denmark. Two snapshots of the living bird were sent to Mr. H. D. Kingstone of Montreal, owner of the property where the goose was shot. The snapshots finally reached me, but were of little use for identification. I wrote to Mr. Campbell who sent me the disinterred carcass, which was placed in the collection of the National Museum of Canada. Some weeks later, Dr. Salomonson reported that band #270615 was placed on a juvenile White-fronted Goose on July 29, 1946, at Christianshaab, Disco Bay, West Greenland, at about 69° north latitude.—O. H. Hewitt, Ottawa, Ont.

Eastern Kingbirds Share Nesting Sites with Baltimore Orioles.—Richard Fisher's note (Bird-Banding, 1945, 16 (2):64) describing occasions on which he found Eastern Kingbirds nesting in close proximity to a pair of Robins in one instance and a pair of Chipping Sparrows in another recalled to memory an example of similar tolerance—or armed truce—in my own experience. In 1930, while I was a student at the Winnwood School, Lake Grove, L. I., New York, my dormitory room looked out into an apple tree. A pair of Kingbirds built a nest about six feet from my window and laid a clutch of eggs there. For several days a male Baltimore Oriole perched frequently in the tree, and both of the Kingbirds tried to chase him from it. After their eggs had been laid, however, the Kingbirds showed less irritation about the intrusion, and a few days later the Oriole brought his mate to the tree, where they proceeded to build a nest on a branch tip some six feet or so distant from the Kingbirds' nest. Both pairs of birds reared their young successfully, although not without frequent altercations. There seemed to be agreement among them that each species should not intrude into the part of the tree that contained the other's nest for most of the time they appeared to ignore each other; but if either species overstepped, there would result a brief but noisy flurry. The most amusing feature of the situation was caused by the presence of a large web of tent caterpillars halfway between the nests. Both species used this web as a source of food for their young, and after the insects became active the birds spent considerable time trying to chase the others from this trove. Except for one young Kingbird that fell from the nest and was killed by a cat, all of the young were raised successfully.—Fred M. Packard, 1825 19th Street, N. W., Washington 9, D. C.

 RECENT LITERATURE

Reviews by Donald S. Farner and others

BANDING

1. Results from Banded Black-headed Gulls in Berlin during the Winter of 1943-1944. (Feststellungen an beringten Lachmöwen in Berlin, Winter 1943/1944.) Willi Tettenborn. 1947. *Ornithologische Berichte*, August

1947: 61-71. The results described in this paper were observed by reading band numbers of banded *Larus ridibundus* Linnaeus with field glasses. Ninety-six bands were read by this means; during the previous winter 74 were read; 32 were identified both winters. Among the 138 identified during the two winters, the oldest was at least 11½ years old; one was at least 10½ years; three, 9½ years; 13, 8½; 24, 7½. There are several interesting records of movements of individual birds. One was banded in Zürich 13 January 1935, recovered in Berlin 1 January 1937, retaken in Zürich 27 January 1940 and observed in Berlin 15, 16, 17 January 1944. Another banded 19 December 1938 in Zürich was recovered in Prague 31 March 1939 and observed in Berlin 11 November 1943.—D. S. F.

2. Recovery of Marked Birds. E. P. Leach. 1947. *British Birds*, 40 (12): 360-368. Many interesting records, with the distance and direction of place of recovery given, when in England. A House Sparrow, *Passer domesticus domesticus* Linnaeus, marked as young, was taken the following March 21 miles northeast. As to Barn Swallows, *Hirundo rustica rustica* Linnaeus, one, ringed as young, was found where ringed five years later; two adults, ringed as mates, were retaken the following year in the same place but each with a different mate. A Sand-Martin (Bank Swallow), *Riparia riparia riparia* Linnaeus, ringed as young, was found breeding the next year in its birth-place. A Gannet, *Sula bassana* Linnaeus, ringed as young, was found at its birth-place ten years later. A Lesser Black-backed Gull, *Larus fuscus graellsii* A. E. Brehm, ringed as young, was taken 11 years later 18 miles southeast of its birth-place. Other age records are: Shag, *Phalacrocorax aristotelis aristotelis* (Linnaeus), seven years; a Cormorant, *Phalacrocorax carbo carbo* (Linnaeus), of nearly seven years; four of nearly eight years; a Common Heron, *Ardea cinerea cinerea* Linnaeus, of nearly 14 years. Many data are given on migration, particularly of Starlings, *Sturnus vulgaris vulgaris* Linnaeus, birds of prey and ducks.—M. M. Nice.

3. Results of Bird-Banding Activities under the Auspices of Rijksmuseum van Natuurlijke Historie te Leiden, XXXIII. (Resultaten van het ringonderzoek betreffende den vogeltrek, ingesteld door het Rijksmuseum van Natuurlijke Historie te Leiden, XXXIII.) G. C. A. Junge. 1947. *Limosa*, 20(4):200-213. During 1946 in Holland the total number of birds banded was 11,137 compared to 4,977 in 1945. Most frequently banded species were the Lapwing, *Vanellus vanellus* (Linnaeus) 972; the Black-headed Gull, *Larus ridibundus* Linnaeus 614; Great Tit, *Parus major* Linnaeus 726; Starling, *Sturnus vulgaris* Linnaeus 1494; Chaffinch, *Fringilla coelebs* Linnaeus 1566; Linnet, *Carduelis cannabina* (Linnaeus) 570. A total of 130 different species was banded. Recoveries and returns reported total 265 involving 53 species. Species recovered most frequently were the Mallard, *Anas platyrhynchos* Linnaeus, 15; Teal, *Anas crecca* Linnaeus, 23; Kestrel, *Falco tinnunculus* Linnaeus, 15; Lapwing 29; Black-headed Gull 22; Starling 40 (31 at the banding locality). A Cormorant, *Phalacrocorax carbo sinensis* (Shaw and Nodder), banded 29 May 1931 at Lekkerkerk was found dead at Giethoorn. Sparrow Hawks, *Accipiter nisus* (Linnaeus), regardless of time of year, were recovered in Belgium and the Netherlands (12 records); with exception of a winter recovery in England, the same was true for Kestrels. Lapwing recoveries fall into the migratory pattern southeastward into France and the Iberian Peninsula.—D. S. F.

4. Wing-marking, Investigation with a New Method of Marking. (Vingmärkningsförsök med en ny märkningsmetod.) Gösta Notini. 1947. *Vår Fågelvärld*, 6(1):28-37. The method described involves the use of a wing clip consisting of an aluminum plate bearing the number and return address and a safety-pin-like clip which is attached through the patagium and around the bone. The pin is locked by bending the overlapping edge of the plate across it

with a pair of tweezers. The method is designed primarily for those groups of birds which cannot be banded as young with usual leg bands. Nearly 2000 birds have been marked with these wing clips; included are ducks, geese, grouse, pheasants, swans, grebes, doves, cranes, gulls, owls, and hawks. Among the listed recoveries are those of 21 nestlings of six species recovered at distances of 30 to 1020 kilometers from the marking locality. This appears to be a device which should be tried in the United States.—D. S. F.

5. Wing-marking, a New Method for Marking Gallinaceous Birds. (Siipimerkintä, uusi menetelmä riistalintujen vaelusten tutkimista varten.) Jukka Koskimies. 1947. *Ornis Fennica*, 24(2): 54-58. This is a description of wing-marking, developed in Sweden, which has been adopted by the Finnish Foundation of Game Preservation. The marking clips are 12 x 12 x 0.5 millimeters and weigh 0.66 grams.—D. S. F.

MIGRATION

6. Observations on the Altitude of Flight of Migrating Chaffinches and Starlings. (Waarnemingen over de Vlieghoogte van Trekkende Vinken, *Fringilla coelebs* L. en Spreeuwen, *Sturnus vulgaris* L.) C. L. Deelder and L. Tinbergen. 1947. *Ardea*, 35 (1/2):45-78. During the fall migrations of 1941, 1942 and 1943 the height of flight of migrating Starlings and Chaffinches were determined. In these calculations distance of the bird from observer is calculated by measuring its virtual length in scale in the optics of the binocular. Knowing the actual length of the bird and virtual length as observed in the binocular the actual distance from the observer can be calculated. With the angle of elevation, as determined by a graduated scale on the binocular, and the distance from the observer, the altitude of the bird above the ground can be calculated. Most of the observations were made on a flat meadow, along the dunes, south of the Hague, about 700 meters from the coast. Several factors influence the altitude of flight. (1) *Wind velocity.* In both species migrants ascend when wind velocity is low and descend when wind velocity is high. With wind velocities of less than one meter per second flight altitudes were 50 to 100 meters. ENE and NNE winds had less depressing effect on altitude, hence (2) *the angle between direction of migration and wind direction.* The greater the angle, the higher the flight. (3) Possibly *intensity of daylight.* Chaffinches fly higher in morning, which the authors believe possibly attributable to low intensity of light. (4) *Visibility.* Poor visibility causes lower flight. (5) *Precipitation.* In driving rain both species fly lower. (6) *Nature of terrain below.* Chaffinches fly higher over bare treeless areas. Starlings are unaffected. (7) *Size of flocks.* Starlings in larger flocks fly higher. (8) *Birds of prey.* "Low flying Starlings and Chaffinches immediately rise when a bird of prey appears. Above a wood, however, Chaffinches often fly into the trees, which seems not to be done by Starlings." (p. 74.)—D. S. F.

7. The Migration of the Teal, *Anas crecca crecca* L., in Western Europe. T. Le Bret. 1947. *Ardea*, 35(1/2): 79-131. This is a thorough analysis of Teal banded in Denmark, the Netherlands, and on the British Isles. The Teal which winter in western Europe breed in Iceland, Scandinavia, Finland, northwestern Russia, and the Baltic States. The winter areas are in the British Isles, France, Iberian Peninsula, northern Italy, and, in mild winters, the Netherlands. Severe weather drives Teal from northern France and the Netherlands. Fall migration funnels through Denmark and the Netherlands. Random winter wanderings over considerable distances may occur. Spring migration is more direct. In general there is a tendency to use the same winter quarters year after year, and to return to the breeding area of origin. Exceptions in both ranges are noted, however. Mortality rate by shooting appears to be about constant in the different age groups, but mortality rate by decoying into traps decreases with age.—D. S. F.

8. The Migration of the Wood Warbler in Denmark and Scandinavia. (Grünsångarens (*Phylloscopus sibilatrix* Bechst.) vårflyttning över Danmark och Skandinavien.) Gunnar Svardson. 1947. *Vår Fågelvärld*, 6(1):1-27. The data on which this treatise is based were obtained by the observations of about 100 cooperating ornithologists. Actual flight per single night is estimated at 200-250 kilometers. Migration consists of successive nightly waves making the establishment of isochronal lines impossible. There may be daytime migration in the form of "feeding-wandering" in a given direction. The course of migration in Scandinavia seems not to be greatly influenced by meteorologic conditions.—D. S. F.

9. A General Survey of the Problem of Bird Migration. (Un aperçu général du problème de la migration des oiseaux.) R. Verheyen. 1947. *Le Gerfaut*, 37(1): 1-14. This is an enumeration, with some comments, of some of the generalizations believed to be true for bird migration.—D. S. F.

PHYSIOLOGY

See numbers 21 and 76.

FOOD HABITS

(See also Numbers 21, 47, 56.)

10. A Study of the Winter Feeding Habits of the Short-eared Owl (*Asio flammeus*) in the Toronto Region. A. W. F. Banfield. 1947. *Canadian Journal of Research*, D, 25: 45-65. The winter feeding habits of the Short-eared Owl, *Asio flammeus* (Pontoppidan), were studied on a golf course in the vicinity of Toronto, Ontario, by means of frequent owl population counts and the collection and examination of pellets in the winters of the period 1936 to 1942. The roosting area was of limited extent. The birds frequented seven clumps of planted conifers, mostly Douglas firs with a few white cedars and tamaracks, but were observed to use only Douglas firs as tree roosts. Winter incursion of this owl appeared to be cyclic, with peaks in the winters of 1935-36 and 1940-41, coinciding closely with cycles of the Meadow Vole, *Microtus pennsylvanicus*, but being independent of meteorological factors. An analysis of about 3000 pellets disclosed that *Microtus pennsylvanicus* made up 82 percent of the winter food; *Peromyscus leucopus*, 17 percent; while birds formed only one percent. The individual Short-eared Owl was estimated (from winter data, however, in which the percentage of birds and certain other animals would presumably be at a seasonal minimum) to destroy between 700 and 1600 mice per year. It was estimated that the winter concentrations studied might destroy ten percent of the vole population in the owls' hunting area, in this case about 200 acres. While the fields remained bare, these owls were found to roost there, on the ground. With the accumulation of snow, usually by January, they roosted in Douglas fir clumps. If, later, protracted winter thaws removed the snow, the owls returned to ground roosting. If this reviewer correctly understands the methods of the author, there would seem to be several minor mathematical errors in the working of the data, (pp. 56-57), but they apparently do not affect seriously the results obtained.—W. Earl Godfrey.

11. The Winter Foods of Some Indiana Owls. Charles M. Kirkpatrick and Clinton H. Conway. 1947. *The American Midland Naturalist*, 38(3): 755-766. This paper summarizes the analysis of "430 complete pellets plus 139 whole or part pellets of the Long-eared Owl," *Asio otus wilsonianus* (Lesson), collected in winter in Tippecanoe County, Indiana. In all four species, *Microtus ochrogaster ochrogaster* was found to be the most important item of food. This is correlated with the abundance of this species at the time of the collection of

pellets. Only the Great Horned Owl, *Bubo virginianus virginianus* Linnaeus, performed extensive predation on game species and this mostly on Cottontails; this, furthermore, was offset by a much more extensive use of Norway Rats as a source of food.—D. S. F.

12. The Food of the Long-eared Owl in Iraq. P. H. T. Hartley. 1947. *The Ibis*, 89(4): 566-569. This paper is based on the analysis of pellets collected beneath a date palm used as a roost by Long-eared Owls, *Asio otus otus* (Linnaeus) near Khan Azad about 15 miles south of Baghdad. Forty-four pellets in addition to several fragments were analyzed. Shrews constituted five percent of the items; rodents, ten percent; and birds 51 percent. Compared to the food habits of this species in Europe, the most striking difference is the larger proportion of birds.—D. S. F.

13. Observations on the Food of the Common Eider. (Några rön angående ejderns föda.) Sven Segerstråle. 1947. *Ornis Fennica*, 24(2): 58-59. A single shot specimen of *Somateria mollissima* (Linnaeus) had fed largely on isopods and bivalves. Examination of the droppings from this species indicate that isopods are of general importance as food.—D. S. F.

14. Observations on the Food of the Goosander Immediately after the Molt. (Lakttagelser över storskrakens, *Mergus m. merganser* L., föda omedelbart efter ruggningen.) P. Grenquist. 1942. *Ornis Fennica*, 19(1): 25-28. This note is based on the macroscopic examination of about 500 droppings from 1 to 16 August 1939 in the treeless zone of Klavskar (Foglo Åland). Earlier droppings had been obliterated by heavy rains. The droppings contained undigestible remains of crustaceans including *Gammarus locusta*, (most common), *Idothaea tricuspidata*, and *Palaemon squilla*. These species were found on or among Fucus bundles which because of the lower water at this time of the year could be reached without actually diving.—D. S. F.

15. The Food of Some British Wildfowl. James W. Campbell. 1947. *The Ibis*, 89(3): 429-432. This paper gives data on stomach analysis from two species of geese and twelve species of ducks.—D. S. F.

16. Food of Game Ducks at Reelfoot Lake, Tennessee. Robert J. Schoffman. 1947. *Journal of the Tennessee Academy of Science*, 22(1): 4-8. Based on stomach examinations during the hunting season of 1944, the most important foods of the Ring-necked Duck, *Aythya collaris* (Donovan), in order of importance (volumetric percentages) are *Potamogeton pusillus* (30.4), *Potamogeton pectinatus* (9.5), and *Zizaniopsis miliacea* (8.3); in "times used" the most important in order of importance (for 1943) are *Potamogeton pusillus* (46), *Cerato phylum demersum* (42), and *Polygonum opelousanum* (36). For Mallards, *Anas platyrhynchos* Linnaeus, taken during the hunting season of 1944, the most important food plants, in order of importance (volume percentages) are *Carpinus caroliniana* (15.9), *Brasilia schreberi* (4.4), *Polygonum pororicense* (3.3) (this item was used more times than any other), and *Vitis* sp. (3.0). For Pintails, *Anas acuta* Linnaeus, the most important (volume percentages for hunting season of 1944) in order of importance are *Potamogeton pectinatus* (17.0), *Potamogeton pusillus* (6.3), and *Taxodium distichum* (6.0).—D. S. F.

NIDIFICATION AND INCUBATION

(See also Numbers 40, 42, 44, 45.)

17. Clutch Size in the Spruce Grouse and Theoretical Consideration of Some Factors Affecting Clutch Size. A. L. Rand. 1947. *The Canadian Field-Naturalist*, 61(4): 127-130. This well-documented paper assembles data,

mostly published, on the size of at least 67 clutches of eggs and more than 15 broods of the Spruce Grouse, *Canachites canadensis* (Linnaeus). These data, from well-separated localities (Nova Scotia to Alaska) indicate that the usual clutch size of the Spruce Grouse is four to seven eggs, rarely less, but occasionally more. It is pointed out that most of the standard texts erroneously indicate, with little definite supporting detail, the usual clutch size as being considerably larger. Data from Nova Scotia, Ontario, Yukon, and Alaska agree well, but Minnesota data (three broods numbering 8, 9, and 11 respectively) admit a possibility of geographical variation in clutch size. Factors which might affect clutch size of birds in general, such as the subtracting of eggs from incomplete clutches (of indeterminate egg layers), availability of food, weather, the stage of the cycle (in cyclic species), and the age of the individual are discussed briefly.—W. Earl Godfrey

18. The Nesting Sites of the Peregrine Falcon (Duck Hawk). (Något om pilgrimsfalkens boplatstal.) K. Thomasson. 1947. *Vår Fågelvärld*, 6(2): 72-81. The author has assembled data on the nesting sites and localities of the Peregrine Falcon, *Falco peregrinus* Tunstall, in the countries around the Baltic Sea excepting the German localities west of East Prussia. The localities are mapped indicating whether the site is on the ground, on a cliff, or in a tree. In areas where all three sites are used there are no morphologic differences among the birds using the different kinds of sites. Slightly more than half of the sites were on cliffs; of the remainder, about equal numbers were in trees and on the ground. South of the Baltic Sea, only nests in trees are recorded.—D. S. F.

19. Three Black Terns Incubate at One Nest. (Drei Trauerseeschwalben brüten ein Gelege.) Kurt Gentz. 1941. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 17 (1):29. At a nest with three eggs two *Chlidonias nigra* (Linnaeus) that were distinguishable by plumage characters, took turns incubating; the following day a third adult that appeared to be starting to molt, took a turn on the nest.—M. M. Nice.

20. Pheasant Incubating 79 Days. (Bruteifer einer Fasanenhenne.) A. Krambrich. 1941. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 17:73. A Pheasant hen was found incubating 15 infertile eggs on 5 May, 1940; she did not give up the nest until 10 August.—M. M. Nice.

21. House Sparrow with Deformed Bill Nests Successfully. (Verkrüppelter Hausspatz brütet mit Erfolg.) E. Reissig and H. Dathe. 1940. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 16:229. In late May a male *Passer domesticus* Linnaeus with upper mandible bent to one side and projecting 1½ cm. beyond the lower mandible was seen feeding young in the nest. His prey consisted mostly of large, long-winged insects. That his deformity was a disadvantage to him was shown by the fact that he had not yet completed the spring molt of head and throat feathers.—M. M. Nice.

22. Egg within Egg. (Ägg i ägg och andra underliga ägg.) K. V. Ossian Dahlgren. 1947. *Fauna och Flora*, 1947 (1/2): 28-40. This is an interesting discussion of several examples of eggs occurring within eggs.—D. S. F.

23. Nest Shared by a Mallard and a Pheasant. (Brutgemeinschaft Stockente-Fasan.) Aug. Schönholzer. 1947. *Der Ornithologische Beobachter*, 44(3): 95-96. A record of a nest in the Thurvorland, Switzerland, which contained eleven Mallard, *Anas platyrhynchos* Linnaeus, eggs and eight Pheasant, *Phasianus colchicus* Linnaeus, eggs.—D. S. F.

24. Oölgic and Biologic Notes on some Galliform Birds in the Western Section of Borneo. (Oölogische en biologische aantekeningen over eenige

hoendervogels in de Westerafdeeling van Borneo.) L. Coomans de Ruiter. 1946. *Limosa*, 19(3/4): 128-140. This is a very interesting set of observations including eight photographs, on seven galliform species of Borneo including the Long-billed Partridge, *Rhizothera longirostris longirostris* (Temminck); the Green Wood Partridge, *Rollulus roulroul* (Scopoli); the Black Wood Partridge, *Melanoperdix nigra borneensis* Rothschild; Blue-breasted Button Quail, *Excalfactoria chinensis lineata* (Scopoli); the Rufous-tailed Fireback Pheasant, *Houppifer erythropthalmus pyronotus* (Gray); the Bornean Fireback Pheasant, *Lophura ignita ignita* (Shaw and Nodder); and the Bornean Argus Pheasant, *Argusianus argus grayi* (Elliott). In a case of the Bornean Fireback Pheasant this appears to be the first record and description of the nest and eggs.—D. S. F.

25. Five Days with a Pair of Nesting Canada Jays. Louise de Kiriline Lawrence. 1947. *The Canadian Field-Naturalist*, 61(1): 1-11. This is a very interesting series of observations on the nesting of *Perisoreus canadensis* (Linnaeus), a species whose nesting habits and behavior are much too poorly known. For most of the incubation periods both male and female incubated simultaneously. "They brooded on top or partly covering one another, the bottom bird being the chief brooder and the top bird more free of movement." (p. 10.) The male and female alternate positions in brooding several times during the day. Eggs were left uncovered for no more than six minutes.—D. S. F.

BEHAVIOR

(See also Numbers 31, 34, 35, 36, 38, 41, 73.)

26. Notes on Territory in the Coot. S. Cramp. 1947. *British Birds*, 40(7): 194-198. Territorial behavior in *Fulica atra atra* Linnaeus was studied in St. James's Park, London, from June 1943 to June 1944. In July 1943 six pairs were concentrated at one end of the lagoon and two at the other, with a large neutral area between holding some 18 non-breeding birds. Normal territories were about one acre in size. A pair that hatched two young in a territory of only 0.3 acre were so busy fighting neighboring Coots and Mallards, *Anas platyrhynchos platyrhynchos* Linnaeus, that the young perished and the parents left the region. Two pairs were double brooded. Most pairs defended their territories throughout the year except for a short period in winter; this was true of one pair that attempted to breed both seasons but failed. Young were first seen to dive for food at four weeks to 32 days, but were fed by parents till they were 54 days old; they left the territories at 68-72 days except for one backward bird with a malformed wing that stayed till 98 days of age.—M. M. Nice.

27. Sexual and Social Habits of Mallards and some other Species of Ducks. (Moeurs sexuelles et sociales des Canards colverts et de quelques autres anatides.) Renaud de Laveleye. 1947. *Le Gerfaut*, 37(3): 116-139. The observations on which this paper is based were derived from two groups of Mallards, *Anas platyrhynchos platyrhynchos* Linnaeus: (1) Wild Mallards from the Forêt de Soignes and the parks located along the Dyle in the neighborhood of Louvain (Belgium) and (2) tame but not domestic Mallards "living in Brussels on the ponds in the Square Marie-Louise and in the Parc d'Anderlacht." The permanency of pairs was tested by behavior in flocks. Several characteristic behavior patterns, including "flight gesture," "hostility gesture" and *jeux d'ensemble*, are described and possible functions ascribed to them. The author believes that many of the battles ascribed by others to territorial defense are rather to be associated with exogamous copulation. The behavior of unpaired females in relation to paired males is described. "In the *jeux d'ensemble*, in the maneuvers of unpaired females, and in many other situations, the reaction of the male is

conditioned by that of the female, when she acts on her own initiative. The males act independently when they quarrel among themselves or when they are involved in exogamous copulation; but here the females remain indifferent or merely flee. Thus then in the maneuvers where both sexes have an active part the initiative comes from the females. Even in the displays of hostility, the female reacts spontaneously to the simple presence of strangers which do not play an active role. At least this rule is applicable to the situations where many birds, strangers to one another, are present. On the contrary in that which concerns nuptial welfare and the activity of the pair, that is to say the situations which interest only the members of the pair, the conditioning is made in both sexes. In other words, a spontaneous reaction of the female is provoked only by her mate and in conditions where the pair is functioning alone. Even in this case it happens that females take the initiative completely . . . Up to now, I do not know any case where the absolute initiative comes from the male. On the other hand the paired female is always hostile or indifferent to strange males. . . . On the other hand the paired males have no hostility for strange females; furthermore, in the *jeux d'ensemble* and in exogamous copulation, they seek them. In general the female appears to occupy the dominant position." (pp. 134-135.) Cases of bigamy were not rare; a single case of trigamy was observed. Polyandry was observed several times; one case involved a tame female which was seen with three males for more than six months. Cases of male and female homosexual pairs are recorded. There are brief notes concerning eight other species.—D. S. F.

28. Notes on the Behavior of a Slender-billed Nutcracker. L. F. de Beaufort. 1947. *Ardea*, 35(3/4):226-230. These are observations made on a captured *Nucifraga caryocatactes macrorhynchus* Brehm with an injured wing. It was kept in an open cage with access to the room. From the first it showed no fear of the author or his family and fed from the hand. It regarded the fox terrier as an enemy. This bird fed avidly on small mammals eating the intestines first. Food was consistently hidden as is the natural habit of Nutcrackers. The bird was not attracted by bright objects. "He was very sensitive to noises from the outside, and he began to 'sing' when he heard the gravel paths being raked, or when the vacuum-cleaner was working. When I played softly on a harmonium (American organ) he joined the music with soft babbling, following every crescendo with louder sounds and screaming at the top of his voice at a fortissimo," (p.228)—D. S. F.

29. Observations on Probable or Definite Non-breeding Birds during the Breeding Season. (Beobachtungen über zur Brutzeit angetroffene, sicher oder wahrscheinlich nichtbrütende Vögel.) Alpi Pynnonen. 1942. *Ornis Fennica*, 19(4): 117-120. These are interesting notes on non-breeding birds of 15 species during the breeding season. Included are brief observations on six species of ducks—Mallard, *Anas platyrhynchos platyrhynchos* Linnaeus; European Widgeon, *Anas penelope* Linnaeus; Pintail, *Anas acuta acuta* Linnaeus; Old-squaw, *Clangula hyemalis* (Linnaeus); Common Scoter, *Oidemia nigra nigra* (Linnaeus); and Smew, *Mergus albellus* Linnaeus.—D. S. F.

30. "Anting" of Tame Jay. D. Goodwin. 1947. *British Birds*, 40(9): 274-275. A hand-reared Jay, *Garrulus glandarius rufitergum* Hartert, was offered ants and pupae of a large wood-ant; it ate the pupae and tried two ants, but flung them aside. But when several started to climb up its legs, the bird "spread and dragged its tail on the ground, grovelling along and seemingly trying to bring its vent and abdomen in contact with the ants, lifting its drooped wings to peck underneath them and at the primaries in a hurried way. The tail was pressed so far forward that several times it came between the bird's legs and caused it to overbalance and literally 'sit on its tail'." There was no attempt to place ants among its plumage by the use of the bill.—M. M. Nice.

LIFE HISTORY

(See also Numbers 19, 25, 26.)

31. Observations on the Purple Heron. (Beobachtungen über den Purperreiher *Ardea p. purpurea*.) Otto Steinfatt. 1939. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 15: 191-198; 240-251. Interesting study of the nesting behavior of this beautiful bird. Dr. Steinfatt spent 102 hours on 13 days in May and July, 1932 and 1933, in blinds in the midst of colonies on the Kis Balaton in Hungary. Purple Herons nest in groups of 20 to 50 pairs, the nests being built eight to 15 meters apart; their feeding areas may lie from one to three kilometers distant. (Of the native Ciconiiformes that live in the reeds only the Bittern, *Botaurus stellaris* (Linnaeus), and Little Bittern, *Ixobrychus minutus* (Linnaeus), nest singly; they obtain their food in the immediate vicinity of their nests.) The nest is built by both adults of dead reeds on top of old reeds. Three to four eggs are laid at two day intervals and incubated from the start, so that there may be a week's difference between the ages of the chicks. Each parent incubates for two to three hours at a time. Young are fed about six to eight times a day. The parents brood them till they are two to three weeks old; if the weather turns cold and rainy after that, the young are apt to perish. The youngest of the brood usually dies from inability to compete with its larger nest-mates; sometimes young fight each other fiercely with at times probably fatal results. Outside the nest young use a kind of "appeasing ceremony" on meeting each other, thus ensuring neutrality. Young know their own parents and parents their young. The adults are not permanently mated, nor do they return to the same nest a second year, but always build new nests. Apparently they do not breed until three years old, spending their second and third summers in their West African wintering quarters. Nine calls of the adults are described, four of the young.—M. M. Nice.

32. A Contribution to the Knowledge of the Biology of the Coot, *Fulica atra* Linnaeus. (Bidrag till kännedomen om sothönans biologi.) Paul Nylund. 1945. *Ornis Fennica*, 22(4): 100-121. This paper is based on investigations on a small eutrophic lake, Lappträsk, near Karis in southern Finland in the summer of 1943. The population consisted of eleven pairs of which two were studied carefully. In 1943 the Coots began to arrive on 10 April coincident with the breaking up of the ice; by 30 May the eleventh pair had arrived. Territories were established immediately, occupying 40-50 meters of shore line. Until the beginning of nesting males and females displayed no interest in each other. Daily activity begins at sunrise and ends at sunset; prior to nesting most of the time is spent in seeking food. In diving Coots seldom exceed a depth of 0.8 meters; normal diving time is two to five seconds, sometimes as much as eight seconds. Both the male and female Coot drive ducks from the territories although the Great Crested Grebe, *Podiceps cristatus* Linnaeus, is tolerated or at least not attacked. Nest building lasts one to two days before the first egg is laid and continues for some time thereafter. The female builds although the male carries material. Incubation begins with the laying of the first egg and lasts 23 to 24 days. Six hours after hatching the young are able to follow the parents. In event of danger the adults abandon the young; there is no defense or injury feigning. Diving begins at three to four weeks and flight at seven to eight weeks. Departure in autumn was gradual by small numbers.—D. S. F.

33. Further Observations at the Nests of Peregrine Falcons in Westphalia. (Weitere Beobachtungen an Horsten westfälischer Wanderfalcken.) C. Demandt. 1940. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 16(1): 3-6. At a nest in 1939 the male brought prey to his mate while she was laying and again after the young were hatched, but very little during incubation. On 16

April the male incubated for three hours in the afternoon; on the 20th the female incubated for 4½ hours near the middle of the day. The young hatched the last of April and left the territory about the first of August.—M. M. Nice.

34. The Breeding of Avocets in England in 1947. P. E. Brown and E. Lynn-Allen. 1948. *British Birds*, 41(1): 14-17. Nine pairs of adult *Recurvirostra avosetta* Linnaeus settled in East Anglia in 1947; except for two pairs that nested in Ireland in 1938, this seems to be the first instance of a number of pairs breeding in Great Britain for more than a century. At least seven pairs nested and 16 young were fledged. "The weather during the incubation-period was exceptionally warm, and it was observed that the birds spent very little time on the nests during the hours of daylight. Major Lynn-Allen, watching a nest for a whole afternoon, saw a parent return to it only twice; and these visits were, apparently, only to see that all was well and to turn the eggs." The adults attacked intruders "promptly and with vigour. Lesser Black-backed Gulls, Herring-Gulls, Crows and even Marsh-Harriers were mobbed and driven away."—M. M. Nice.

35. Observations on the Nesting of the Sparrow Owl. (Brutbiologische Beobachtungen beim Sperlingskauz (*Glaucidium passerinum* L.)) Sten Bergman. 1939. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 15: 181-189. Little has been published on the life history of this rare Pygmy Owl, a relict of the Ice Age; in recent years it is becoming more and more uncommon in Sweden. The author watched for a whole night a nest in which the six young were about a week old; the male brought prey during the first half of the night and again at 7:17 in the morning. A week later the author took the young to raise by hand. At four weeks they flew and at five weeks first showed the characteristic tail wagging. At six weeks they first dismembered mice. During the winter four died; the other two nested, the female laying five eggs and incubating them four weeks, but the chicks died in the shell at the point of hatching.—M. M. Nice.

36. Nesting Life of the Middle Spotted Woodpecker. (Das Brutleben des Mittelspechts.) Otto Steinfatt. 1940. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 16: 43-50; 93-99. A nesting of the rare *Dryobates medius medius* (Linnaeus), was watched in the Rominter Heide for 132 hours on 17 different days between 17 April when the hole was begun and 26 June when the young flew. The male excavated the hole in 20 days. He undertook the major part of the incubation, and as in other woodpeckers spent the night on the nest. The six eggs hatched in 11 days; the young were fledged in 22. Both parents fed about equally. When they were five days old 86 meals were brought during the day of 16 hours and 21 minutes; two weeks later 232 meals, 122 by the male and 110 by the female. The young were fed by their parents for two weeks after leaving the nest. This species very seldom drums, but instead has a loud courtship call used by both sexes; the female pursues the male. Nine different notes of the adults are described.—M. M. Nice.

37. The Growth of a Young Cuckoo. Irene Werth. 1947. *British Birds*, 40(11): 331-334. Daily weights of two nestling *Cuculus canorus canorus* (Linnaeus), at Oxford compared with those of one in Switzerland (Bussmann, 1947, *Der Ornithologische Beobachter*, 44: 41-49). By the thirteenth day young Cuckoos become precociously covered with feathers on the head and upper necks, the secondary region of the wings and the scapular region, while the primaries are arrested and the back and sternum remain bare, possibly as an adaptation to fitting inside a small nest. "After the sixteenth day the primaries and their coverts developed quickly and the bird left the nest on the twenty-first day."—M. M. Nice

38. The Winter Biology of the Great Tit. (Zur Winterbiologie der Kohlmeise, *Parus m. major* L.) Leo Lehtonen. 1947. *Ornis Fennica*, 24(2): 32-47.

These observations were made near Helsinki during the winter of 1946-1947. Sometimes the call of the Great Tit was first heard in the morning five to 20 seconds after leaving the sleeping hole; other times it was heard before the bird emerged from the sleeping hole. The song began on an average 3.5 minutes after the beginning of other sounds and 3.5 minutes after the bird first began to move in the morning. In the evening calls ceased 0-21 minutes before sleeping. Song ended 0-20 minutes before cessation of calls. In relation to sunrise and sunset, awakening and going to sleep are relatively early and late respectively during the period of shorter days. The night is spent in holes in trees, in the shelter of buildings and perhaps in the crowns of coniferous trees. "In daily rhythm a strong morning maximum of a variable length of zero to four hours after awakening is to be observed, and an evening maximum—which does not always appear in fall—which is shorter and less developed than the former, two hours to one half-hour before going to sleep. Between 11 a.m. and 4 p.m. there is a relatively passive period . . . Song becomes more common after the middle of January, at which time it is heard only mornings and evening." (p. 46). After mid-February song is heard at other times of the day.—D. S. F.

39. The Breeding Biology of the European Nuthatch. (Zur Brutbiologie des Kleibers.) Otto Henze. 1940. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 16(1): 23-27. Data on 26 nests of *Sitta europaea* Linnaeus found throughout Germany. Of these, 21 (80.8 percent) were successful. Sets ranged from six to nine, averaging 7.7 eggs. Of the total of 200 eggs, 126 young were fledged, 63 percent. Incubation is by the female and lasts from 13 to 18 days, averaging about 15. Young Nuthatches stay in the nest until fully grown; occasionally this takes only 18 to 19 days, occasionally 28 days, but averages 24 days. In one case a very early nesting pair attempted a second brood.—M. M. Nice.

40. Notes on the Breeding Cycle of the Thrush and Blackbird in New Zealand. P. C. Bull. 1946. *The Emu*, 46(3): 198-218. This is an interesting study of the breeding cycle of the Song Thrush, *Turdus ericetorum* Turton, and the Blackbird, *Turdus merula* Linnaeus; both are introduced European species. The observations were made in a dairy-farming area ten miles south of Auckland during 1943. In the case of the Song Thrush, eggs were laid from 26 June to 12 December, *i.e.* in winter and spring; 143 clutches were observed. Two and one half percent of the eggs were laid during the period of winter laying (26 June to 3 July). The winter laying period was followed by a non-laying interval (4 July to 10 August) which, in turn was followed by the "main laying" period (11 August to 12 December). Clutch sizes were from three to five, those laid in September and October averaging larger. Fertility was 91 percent and did not vary with the season. Twenty-two percent of the eggs produced young which left the nest. Incubation period was 12 or 13 days. The garden part (four acres) of the study area supported a population of 350 pairs per 100 acres; the farmland part (96 acres), 31 pairs per 100 acres; and a parkland at Melbourne, Australia, in 1941, 30 pairs per 100 acres.

In the case of the Blackbird, eggs were laid from 27 August to 19 November; 60 clutches were observed; 70 percent were in the farmland and 18 were in the garden. There was no "winter laying." Clutch size varied from two to five. Fertility was 85 percent with a tendency towards more infertile eggs early and late in the season. Thirty percent of the eggs produced young which left the nest. The farmland supported 22 pairs per 100 acres; the garden, 225 pairs per 100 acres; and an area in England, comparable to the garden area, supported 128 pairs per 100 acres. The incubation period was 12-14 days. In discussing his data the author points out that in New Zealand introduced species form *two thirds* of the total species, and "a far higher proportion still of the total individuals."—D. S. F.

41. Observations on the Icterine Warbler. (Beobachtungen am Gelbspötter.) E. Neumann. 1940. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 16: 117-125. Observations on seven nesting pairs of *Hippolais icterina* (Vieillot) during four years. Territories ranged from 800 to 1100 square meters. In 1936 a female first joined the tirelessly singing male in the garden on 19 May; on the 22nd the male had stopped singing and late in the afternoon the female tried out a nest site in a lilac; the next two days both birds built here zealously, at times bringing material every 30 to 50 seconds. As a rule the female incubates alone, but occasionally a male will take a few turns on the nest. He brings food to her every hour or half-hour. One shy individual refused to deliver the insects to his mate in the presence of the observer until the latter had covered his face with a cloth! One nest with its eggs was destroyed by a Great Reed Warbler, *Acrocephalus arundinaceus* (Linnaeus). In several cases deserted nests were pulled apart by their owners and the materials used in a new nest.—M. M. Nice.

42. Observations on the Nest Life of the Icterine Warbler in the Rominter Heide. (Beobachtungen über das Brutleben des Gelbspötters, *Hippolais i. icterina*, in der Rominter Heide.) Otto Steinfatt. 1940. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 16: 197-203. Discussion of published material on this species and summary of 67 hours of observation at one nest. During the last three days of incubation the female's behavior was as follows: during 10 hours on 20 June, she left 10 times, staying off 4-19 minutes, averaging nine; she stayed on from 16 minutes to over two hours, averaging 49 minutes; during 9½ hours on 21 June she left 11 times, staying off from three to 13 minutes, averaging six minutes and staying on from 10 minutes to over two hours, averaging 48 minutes; during eight hours on 22 June she left five times, staying off 1-11 minutes, averaging five minutes; and staying on from 16 to 173 minutes, averaging 83. Thus during the two days before any young hatched the percentage of time spent on the nest was 82 minutes. Incubation lasted 13 days, the three young left at 13 to 14 days. Two all-day observations were made: when the young were three to four days old the female spent much of her time brooding them; she brought 10 meals, the male brought 51. When they were eight to nine days old the female brought 107 meals, the male 106; she carried off excreta 22 times, he 12 times. She brooded them at night until they left.—M. M. Nice.

43. The Problem of Parasitism in the African Whydahs. (Kritische Betrachtungen zum Problem des Brutparasitismus bei den afrikanischen Viduen.) W. Hoesch. 1939. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 15: 200-214. The Viduinae (*Vidua*, *Steganura*, and *Hypochera*) are parasitic, they do not breed until two years old, the males molt every year into henny plumage, and they are apparently polygamous. Like their hosts, the Waxbills (Estrilidinae), their eggs are white and their nestlings possess "reflecting pearls" inside their throats. The author does not consider these resemblances as adaptations to parasitism, but as evidences of close relationship between the two groups. Instances are given where the long tails of male Whydahs in breeding plumage have served to intimidate enemies; a *Vidua macroura* (Pallas) chased hens, doves, and dogs from the vicinity of his mates, while birds of prey shrink from attacks of *Steganura paradisea* (Linnaeus) and *Vidua regia* (Linnaeus).—M. M. Nice.

44. A Study of the Cape Weaver. C. J. Skead. 1947. *The Ostrich*, 18(1): 1-42. This is the summary of observations made on breeding pairs of *Hyphantornis capensis olivaceus* (Hahn) in the Kariega River Valley near Highlands in the Albany District, Cape Province. Males arrive in breeding areas and construct nests before the arrival of the females. The female then arrives, inspects the nest accompanied by much excitement on the part of the male, and then sleeps in it for several nights. After several nights the female begins to line the nest and the male adds the spout to the nest. On one occasion two females took up two

nests of a single male. Both laid and hatched eggs. The male builds other (spare) nests sometimes before, sometimes after, the female arrives. He sleeps in one of these nests during the incubation period. After the young have become large the female may sleep in one of the spare nests. Incubation and the first feeding of the young is by the female. The young left the nest about 17 days after hatching. Males tear down the nests of the previous season. Sometimes a male demolishes his nest of three or four weeks and promptly builds another. Incubation period is $13\frac{1}{2}$ days. Although males quarrel in spring, there appears to be no true establishment of territory. However one male may take over the nests of another. The principal enemy is the Boomslang, *Dispholidus typus* (Smith), which can easily reach the nests.—D. S. F.

45. Some Notes on the Breeding Habits of the Chaffinch. J. H. Barrett. 1947. *The Ibis*, 89(3): 439-450. This is an interesting series of notes made under great handicap by the author during his imprisonment in Dössell, Germany, during 1942. Nest building was performed by female only. Incubation period was 14 days; the female did all of the incubating, increasing gradually her percentage of time on the nest. The male was not seen to feed the female. Both parents fed the young. The young were fed 21 and 22 days (two broods) after leaving the nest. Considering the conditions under which the observations were made, this is truly a remarkable paper.—D. S. F.

CENSUSES AND POPULATIONS

46. The Breeding-Bird Population in the Woodland Parts of "Het Bosch" in Amsterdam in 1943, 1944, and 1945. (De broedvogelbevolking in de boschgedeelten van het Amsterdamsche Bosch in 1943, 1944 en 1945.) J. E. Sluifers. 1947. *Ardea*, 35 (3/4): 183-221. This paper is an interesting and important sequel to that of 1943 (*Ardea*, 32(3/4): 139-163. See *Bird-Banding*, 17(2): 81-82) in which the author presented data collected in 1942. "Het Bosch" is an area of about 2300 acres ("ongeveer 900 ha.") which occupies parts of three polders. Of this area about 75 hectares have been planted with trees and shrubs from 1936 to 1940. The data used in this paper were obtained in the same manner as those on which the earlier paper was based. In 1943 the same 75 hectares were used as in 1942; in 1944 a part was unavailable because of occupation so only 50 hectares were censused; in 1945 the original 75 hectares were again used. In the fall of 1942 and during the following winter the brush was thinned out, particularly the alders. "Contrary to my expectations this has had entirely no influence on the breeding-bird density . . . In the structure and nature of the vegetation as a whole no important changes occurred. Only the increase in height and thickness of the woods caused an increase in the possible nesting places for birds." (p. 186.) Densities in territories per 100 hectares for 1943, 1944, and 1945 respectively and, in parentheses, mean area of territories in square meters for 1943, 1944, and 1945 respectively for some of the more common species are as follows: Song Thrush, *Turdus ericetorum ericetorum* Turton, 75, 130, 143 (13,393, 7,692, 7,009); Blackbird, *Turdus merula merula* Linnaeus, 57, 130, 123 (17,442, 7,692, 8,152); Whitethroat, *Sylvia communis communis* Latham, 33, 40, 57 (30,000, 25,000, 17,442); Garden Warbler, *Sylvia borin* (Boddaert), 95, 234, 253 (10,563, 4,273, 3,947); Willow Warbler, *Phylloscopus trochilus fitis* (Linnaeus), 40, 48, 87 (25,000, 17,241, 11,538); Icterine Warbler, *Hippolais icterina icterina* (Vieillot), 133, 218, 240 (7,500, 4,587, 4,167); Linnet, *Carduelis cannabina cannabina* (Linnaeus), 27, 38, 28 (, 26,316, 35,714); Greenfinch, *Chloris chloris chioris* (Linnaeus), 25, 48, 47 (38,476, 20,833, 21,429). Species which more than doubled their densities during this three-year period are the Blackbird; Nightingale, *Luscinia megarhyncha megarhyncha* Brehm (first appeared in 1944); Lesser Whitethroat, *Sylvia curruca curruca* (Linnaeus); Garden Warbler; Chiffchaff, *Phylloscopus collybita collybita* Vieillot; Willow Warbler; Reed Warbler, *Acro-*

cephalus scirpaceus scirpaceus (Hermann); Marsh Warbler, *Acrocephalus palustris* (Bechstein); Wren, *Troglodytes troglodytes* (Linnaeus); Spotted Flycatcher, *Muscicapa striata striata* (Pallas); Golden Oriole, *Oriolus oriolus oriolus* (Linnaeus) (bred first in 1943); Chaffinch; and Turtle Dove, *Streptopelia turtur turtur* (Linnaeus) (bred first in 1944). In 1943 there were 22 breeding species with a combined density of 580 per 100 hectares, an increase of 80 percent over 1942; in 1944 there were 30 breeding species with a density of 1,118 per 100 hectares, an increase of 113 percent over 1943; in 1945 there were 28 breeding species with a density of 1284, an increase of 15 percent over 1944.—D. S. F.

47. The Stork Population in the Neusiedlersee Region from 1934 to 1939. (Der Hausstorchbestand in Burgenland (Gau Niederdonau) 1934-1939.) Alfred Seitz. 1940. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 16: 87-92. At the beginning of the century the White Stork, *Ciconia ciconia ciconia* (Linnaeus), was uncommon in Lower Austria; in 1934, 47 active nests were counted in the region of the Neusiedler Lake, and in 1939, 78. Tables are given showing the number of nests each year, the number that raised young and the number of young fledged; the average number per successful pair ranged from 2.5 in 1934 to 3.4 in 1939. The increase in the Stork population during these six years has coincided with an increasing water level in the lake. In 1939 a severe drought came in the early summer and at the same time a mouse plague in the fields; the Storks turned their attention to the rodents, the author at one time seeing 130 Storks—old and young—following tractor plows in absorbed mouse hunt. Two banded young were recovered in North and South Rhodesia. A nesting Stork was found to have been ringed as young four years earlier in the province of Brandenburg, Germany, 490 kilometers northeast.—M. M. Nice.

48. How Long Does the Crested Lark Require to Recoup its Population Losses after Suffering from Hard Winters? (In welchen Zeiträumen holt die Haubenlerche Bestandsverluste, die sie in harten Wintern erlitten hat, wieder auf?) Ludwig Schuster. 1944. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 20: 60-61. A succession of three severe winters, 1939-40, 1940-41, 1941-42, decimated the numbers of *Galerida cristata* Linnaeus in German cities, but the birds seemed to have rebuilt their populations in two summers, helped by the mild winter of 1942-43.—M. M. Nice.

49. The Bobwhite Quail in Dunn County, Wisconsin. Irvén O. Buss, Helmer Mattison, and Frank M. Kozlik. 1947. Reprint from *Wisconsin Conservation Bulletin*, 12(7). 8 pp. During six winters of trapping on a 9,900-acre study area, 910 Bobwhite Quail, *Colinus virginianus virginianus* (Linnaeus), were trapped; 56 percent were males. Of 593 aged in 1945-1946 and 1946-1947, 83 percent were immature. Shifting of individual birds from one to three miles from one winter to the next was noted. "Turnover studies showed a high mortality rate to adult quail following the winter trapping period, and preceding the summer hatching time."—D. S. F.

50. The Results of a Bird Census along the Dalälven in the Province of Uppland in 1947. (Redogörelse för en fågelbonitering vid nedre Dalälven 1947.) Viking Olsson. 1947. *Vår Fågelvärld*, 6(3/4): 93-125. The study area of 8.67 square kilometers consisted of forest (spruce, pine, with some deciduous trees), pine moors, clearings, cultivated ground, *Carex-Myrica* areas and other shores. Counts are based on singing males, observed birds, nests and young. The results are tabulated by habitat; the data for forests are compared with similar surveys by Finnish investigators. For the entire area the most abundant species were the Chaffinch, *Fringilla coelebs* Linnaeus, 40 per square kilometer; and the Willow Warbler, *Phylloscopus trochilus* Linnaeus, 21 per square kilometer. A total of 89 species was recorded. The distribution by habitat with densities was as follows: forest, 51 species, 212 birds per square kilometer; pine moor, five

species, 15 per square kilometer; clearings, ten species, 73.5 per square kilometer; cultivated ground, 25 species, 142 per square kilometer; shores, 19 species, 64 per square kilometer; total, all areas, 89 species, 169 per square kilometer.—D. S. F.

51. Observations on the Bird Populations in Sea Zone of the Rocky Islands of Southwest Finland. (Vogelbestandsaufnahmen in der Meereszone des Schärenhofs Südwest-Finnlands.) P. Grenquist. 1942. *Ornis Fennica*, 19(2): 45-61. Data are given on dominance (percentage of numbers of the species in total bird population) of 33 species for eight islands. Principal dominant species (dominance greater than five percent) are the Common Eider, *Somateria mollissima* (Linnaeus); Razor-billed Auk, *Alca torda* Linnaeus; Black Guillemot, *Uria grylle* (Linnaeus); Common Tern, *Sterna hirundo* Linnaeus; Arctic Tern, *Sterna macrura* Naumann; and the Turnstone, *Arenaria interpres* (Linnaeus).—D. S. F.

52. Bird Censuses on the Rocky Shores of Blekinge, Sweden. (På fågelräkning i Blekinge skärgård.) Folke Hanström. 1946. *Fauna och Flora*, 1946(3): 107-117. These are the results of a census of a few days duration made during May 1945. Quantitative data are given for 26 species, eighteen of which were recorded as breeding. The areas surveyed included Spjutsö Island (about 12 hectares), Eneskäret Island (about two hectares), Frostensskäret Island (about 6.5 hectares) and 11 small islets and rocks with areas less than a hectare each. Totals of 2,524 adult birds, 965 nests, and 2,708 eggs and/or young. The most abundant species were the Common Gull, *Larus canus* Linnaeus, 1,757 adults, 704 nests, 1,919 eggs and/or young; and the Lesser Black-backed Gull *Larus fuscus* Linnaeus, 436 adults, 159 nests, 456 eggs and/or young.—D. S. F.

53. The Distribution of the European Blackbird during the Breeding Season in Zürich, 1946. (Die Verbreitung der Amsel, *Turdus m. merula* L., zur Brutzeit in Zürich, 1946). W. Epprecht. 1946. *Der Ornithologische Beobachter*, 43(5): 97-104. The European Blackbird is now one of the most abundant passerine birds in the Zürich area although it has become a breeding bird there only within the last 100 years. The author believes that the Blackbird was not originally linked with coniferous forests, citing the observations of Gessner in 1563 and Schinz in 1842 and 1854. By 1880, according to Keller, Blackbirds had settled in many places in Zürich, particularly in cemeteries and gardens and grounds of large estates. Since then they have become more accustomed to man although they are still shy. In 1946 the six-hectare park around the Schweizerisches Landesmuseum had at least 13 pairs with young. It is calculated that the entire city had 3,540 breeding pairs. Densities vary from 0-6 per square kilometer in industrial areas, 71-75 in densely developed areas with small gardens, to 261 in the park of the Landesmuseum.—D. S. F.

ECOLOGY

(See also Number 53.)

54. The Hungarian Partridge in the Palouse Region, Washington. Charles F. Yocum. 1943. *Ecological Monographs*, 13: 167-202. This study was conducted on a 1,395-acre study area of typical Palouse country just north of Pullman, Washington, during 1940 and 1941. Additional observations came from elsewhere in Whitman County, Asotin County, and Stevens County. Whitman County is intensely agricultural, 97 percent of the land being in farms; principal crops are wheat and peas. Examination of 137 Hungarian Partridge, *Perdix perdix* (Linnaeus), indicated the sex ratio to be one. Average weight for maels was 386 grams, for females, 367 grams. Most winter coveys have a cruising range of one quarter-mile. There is a tendency in summer and early fall to concentrate

along hedge rows and draws with cover particularly, near water. "Bunchgras areas, waste land, pastures, and edges of brushy patches along the main valleys are used . . . more during the winter months than at other times." (p. 199). Winter coveys break into pairs about the first week in February, about three months before the beginning of nesting activity. Clutch size was found to vary from 10 to 22 although the possibility of two females contributing to the larger clutch appears not to be completely excluded. Some nests were parasitized by Ring-necked Pheasants, *Phasianus colchicus* Linnaeus. Incubation was performed exclusively by the females, 23 days probably being the usual incubation period. "The average distance of nest from permanent cover was 323 feet. Sixty-three percent of the total nests found were situated in hayfields, which comprised only 3.28 percent of the land in farms . . . The following causes have reduced the desirable permanent nesting cover: (1) overgrazing of pastures, (2) continual elimination of fence rows, (3) destruction of permanent cover sites by action of rodents, (4) changes in farming practices." (p. 198.) More than 67 percent of observed nests were unsuccessful; about 85 percent of these unsuccessful nests were due to farming activities. Hay cutting coincides with the latter part of the incubation period. The average brood decreased from an initial seventeen to eight by the end of the fourth week. Principal juvenile losses were attributed to (1) unnatural accidents such as by mowing machines, (2) exposure to environmental factors, not including predators, and (3) predators. Winter diet consists of 100 percent vegetable matter. Animal matter increases to about 25 percent in spring and continues to be of some importance until fall. Most of the food is secured in open fields. Principal deficiency in the Palouse country is lack of adequate cover. Recommendations to remedy this are given and emphasis is placed on the use of flushing bars on mowers. The range occupied by the Hungarian Partridge in Canada and the Pacific Northwest occurs primarily in the grain belt; however there are instances of success in more arid areas. It is suggested, with apparently sound logic, that the displacement of the Columbian Sharp-tailed Grouse, *Pedioecetes phasianellus columbianus* (Ord), by the Hungarian Partridge is due primarily to the inability of the former to adapt itself to the changes brought about by agriculture.—D. S. F.

55. Influence of Weather on the Beginning of Courtship or Singing of Some Species of Birds. (Vom Einfluss der Witterung auf den Beginn der Balz oder des Gesanges einiger Vogelarten.) C. Demandt. 1941. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 17(1): 9-11. A table giving dates of the start of singing of the Blackbird, *Turdus merula* Linnaeus, and Chaffinch, *Fringilla coelebs* Linnaeus, in Ludschied from 1928 to 1940, as well as notes on the accompanying weather, shows that the former species was influenced by weather, the latter not. Dates of the start of singing of the Blackbird extended over 22 days from 31 January to 21 February, the median date being 14 February; of the Chaffinch over four days from 12 to 16 February, the median being 14.5. Although snow on the ground cannot affect the nourishment of Goshawks, *Accipiter gentilis* (Linnaeus), and Peregrine Falcons, *Falco peregrinus* (Tunstall), it does appear to inhibit their courtship flights. On the other hand, a pair of Buzzards, *Buteo buteo* (Linnaeus), "courted like mad" on 21 March 1940 under a cloudy sky with a cold northwest wind, while the neighboring pair of Goshawks made no display.—M. M. Nice.

56. Three Years in the Life of a Berlin Tawny Owl. (Drei Jahre aus dem Leben eines Berliner Waldkauzes.) Otto Schnurre. 1940. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 16: 79-87. Observations on the behavior and food of a male *Strix aluco* Linnaeus living in a chapel in a cemetery; his first mate came to her end in December 1936 and it was not until a year later that a new mate arrived; the pair raised young in 1938 and 1939. The prey found in the pellets is listed for each winter and each summer; there were 351 birds of 40

species, 870 mammals of 11 species, 141 amphibia of four species, and an undetermined number of insects.—M. M. Nice.

57. The Ruffed Grouse in Early Wisconsin. A. W. Schorger. 1945 (Issued April 1947). *Transactions of the Wisconsin Academy of Sciences, Arts and Letters*, 37: 35-90. This is a painstaking analysis of all possible sources of information on the Ruffed Grouse, *Bonasa umbellus medianus* Aldrich and Friedmann and *Bonasa umbellus togata* (Linnaeus) in Wisconsin. Originally the Ruffed Grouse was an uncommon bird in the state although occurring in all of the counties. For a time settlement was important in the increase of the species through increasing tremendously the available cover. About 1870 the decline of the species, attributable principally to removal of cover by grazing, began in southern counties. Despite this long continued decline the species is not extinct in more than six counties. Data on cycles are not clear cut; it appears that the fluctuations in populations operate on a seven to eleven year basis.—D. S. F.

58. The Avifauna of the Plantations of Western Jutland South of the Limfjord. (Fuglene i Vestjyllands Plantager Syd for Limfjorden.) C. M. Poulsen. 1948. *Dansk Ornithologisk Forenings Tidsskrift*, 41(4): 237-266. "About the middle of the last century the planting of trees began in desolate and sandy heaths of western Jutland and therewith began a new era in the faunal history of this area. In 1840 only two percent of Jutland was covered with forest; in 1940 it was about eight percent and the increase had occurred mostly in the open and treeless country. Ringkøbing was then (in 1840) the most treeless county in Denmark; now it is the most forested with 37,500 hectares of plantings. Those parts of the country which were previously made barren by drought and sandstorms, now are covered by thousands of plantations covering 160,000 hectares." (p. 237.) These profound changes in ecologic conditions were the causes of equally profound changes in the avifauna. These changes are noted for 56 species and subspecies.—D. S. F.

59. The Waikanae Estuary: An Ecological Survey of New Zealand Birds. K. A. Wodzicki. 1946. *The Emu*, 46(1): 3-43. This survey deals with a typical unspoiled area of the west coast of the North Island of New Zealand. Because of the detailed data on numbers of various species at different times of the year, this is an important paper, one that will provide comparative data for many future investigations. There are notes concerning abundance, breeding status, and other information, quantitatively expressed whenever possible, for 61 species. "Summing up, may it be stated again that the Waikanae River estuary still presents one of the few places in the south of the North Island where a large amount of unspoiled bird life has been preserved . . . Unfortunately, even when comparing the records of different observers within the last ten or fifteen years, several unwelcome changes cannot pass unnoticed. For example, the Oyster-catchers and Stilts do not nest there now, even nests of the ubiquitous Banded Dotterel have become rare, and Arctic migrants do not rest any more on the white dunes of the spit. Two main factors have been responsible for these changes—the steady progress of building of new houses and holiday huts close to the estuary and extensive shooting during the season . . ." (p. 39.) The manifold problems of conservation are world wide.—D. S. F.

60. Mantis Eating a Bird. J. M. Vrydagh. 1946. *The Ostrich*, 17(3): 201-202. This is a record of a Mantis capturing a live Common Waxbill, *Estrilda astrild occidentalis* (Fraser and Jardine).—D. S. F.

CONSERVATION

(See also Number 54.)

61. The Snow Goose in the Russian Arctic. (Die Schneegans (*Anser c.*

caerulescens L.) in der russischen Arctis.) H. Grote. 1939. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 15: 229-236. The breeding grounds of the Lesser Snow Goose, *Chen hyperborea hyperborea* (Pallas), have become very restricted due to relentless persecution through egg taking and slaughter of the molting birds; the author quotes many Russian sources telling of the great abundance of these birds in the past, their merciless treatment and disappearance. Two Russians found them still abundant on Wrangell Island 1929-34. They nest in colonies, and in each colony there is a nest of Snowy Owls, *Nyctea scandiaca* (Linnaeus).—M. M. Nice.

AVIFAUNAL DYNAMICS

62. Breeding Birds of the Wieringermeer in 1945 and 1946. (Broedvogels van de Wieringermeer in 1945 en 1946.) A. L. J. van Ijzendoorn. 1947. *Limosa*, 20(1-3): 143-159. The Wieringermeer was the first polder to be drained in the reclamation of the Zuider Zee. This paper contains notes on the 45 species observed to breed in the area during 1945 and 1946 and a comparison with the records given by Schaank ten years previously (*Limosa*, 10(1): 22-32 and 11(1): 7-8). The area was flooded by the German Wehrmacht in 1945. A small island remained unsubmerged and was a breeding area for several species including a pair of Gull-billed Terns, *Gelochelidon nilotica nilotica* (Gmelin); Common Terns, *Sterna hirundo hirundo* Linnaeus; Black-headed Gulls, *Larus ridibundus ridibundus* Linnaeus; Avocets, *Recurvirostra avosetta* Linnaeus; Oyster-catchers, *Haematopus ostralegus* (Linnaeus); Ringed Plovers, *Charadrius hiaticula hiaticula* Linnaeus; Little Ringed Plovers, *Charadrius dubius curonicus* Gmelin; and Kentish Plovers, *Charadrius alexandrinus alexandrinus* (Linnaeus). The polder was drained and after five months the water was gone. Many shore-birds nested again in 1946. The Quail, *Coturnix coturnix coturnix* (Linnaeus), nested again in 1946. Comparison with 1937 reveals that nine species listed then as breeding have disappeared. Six of these are normally uncommon and sporadic breeders in any area in the region. Of interest, however, is the disappearance of the Moorhen, *Gallinula chloropus* (Linnaeus), the Little Grebe, *Podiceps ruficollis* (Pallas); and the Ruff, *Philomachus pugnax* (Linnaeus). The Linnet, *Carduelis cannabina cannabina* Linnaeus, has increased gradually; the Skylark, *Alauda arvensis* Linnaeus, has increased markedly. There has been a marked decrease in the breeding population of the Meadow Pipit, *Anthus pratensis* Linnaeus. There has been an increase in the breeding populations of the Icterine Warbler, *Hippolais icterina* (Vieillot), and the Whitethroat, *Sylvia communis communis* Latham.—D. S. F.

63. Inhabitants of the Northeast Polder during the Breeding Season of 1946. (Noordoostpolderbewoners, 7e bericht, broedseizoen 1946.) G. van Leeuwen. 1947. *Limosa*, 20(1-3): 164-176. This is the seventh annual report on the breeding birds of the Northeast Polder. This important series began the year after the drainage of the polder and has traced the colonization of the area by birds and changes in the components of the avifauna. The western part of the area in 1946 was covered with reeds (400 to 500 stems per square meter) which is unique in the Netherlands and western Europe. The eastern part is in cultivation. There are notes on 44 species with special attention to the two most common in the reed-covered areas, the Reed Bunting, *Emberiza schoeniclus schoeniclus* (Linnaeus), and the Sedge Warbler, *Acrocephalus schoenobaenus* (Linnaeus), their distribution and method of colonization. The Reed Warbler, *Acrocephalus scirpaceus scirpaceus* (Hermann), shows a decrease which seems not attributable to decrease in available biotope.—D. S. F.

64. Specific Data Concerning the Changes in the Avifauna of Finland during Recent Decades. (Artenstatistische Daten über die Veränderungen

in der Vogelfauna Finnlands während der letzten Jahrzehnte.) Lauri Siivonen. 1943. *Ornis Fennica*, 20(1): 1-16. This is another of the important papers dealing with modern avifaunal dynamics in Finland and the meteorologic and ecologic factors associated therewith. As indicated in other papers by this author and others, there has been a marked elevation of mean April and May temperatures. The present paper is based on a comparison of the avifaunae of the "cold period" prior to 1885 and the "warm period" since 1885 without regard to the relative numbers of the different species and their distributions. The data are derived from A. J. Mela's "Suomen luurankoiset" (1882) and K. E. Kivikko's "Suomen selkärankoiset" (1940). The total number of species for the "cold period" was 262; for the "warm period" 298. This represents, on the basis of Stegmann's faunal types, an increase of two arctic species, two Siberian species, 15 European species, ten Mediterranean and Mongolian species, and 12 others. Expressed in percentages the changes may be indicated, Arctic, -1.59; Siberian, -1.22; European, +2.14; Mediterranean and Mongolian, +1.21; others -0.54. Effectively, then, the "warm period" is characterized by the intrusion of European species. The results are similar if restricted to breeding birds and more pronounced if the analysis is restricted to migrants and accidentals.—D. S. F.

65. Is the Finnish Owl Fauna Assuming Boreal Character? (Ist unsere Eulenfauna im Begriff, einen hochborealen Charakter anzunehmen?) Lauri Siivonen. 1943. *Ornis Fennica*, 20(1): 16-21. Comparing data for the period 1928-1934 and the period 1940-1942, there have been marked changes in the degree of dominance (percentage of numbers of a species in relation to total number of all owls) of the species of owls. During this interval there has been a marked increase (36 percent) in Siberian species; arctic species and European species have decreased 25 and 27 percent respectively; so that the present owl fauna is close to that of the "cold period" of the last part of the last century. The changes, which include a very marked decrease in the Tawny Owl, *Strix aluco aluco* Linnaeus, are correlated with the colder weather and increased snow fall since 1930. The author raises the question as to the possibility of the beginning of another "cold period."—D. S. F.

66. A New Breeding Colony of Black-headed Gulls in Neeracher Marsh. (Eine neue Brutkolonie der Lachmöwe im Neeracherried.) 1947. Julie Schinz. *Der Ornithologische Beobachter*, 44(5): 183-186. This paper presents in considerable detail the conditions surrounding the establishment of a new colony of Black-headed Gulls, *Larus ridibundus* Linnaeus, in the Neeracher Marsh. A total of 29 nests were found, not all of which were known to have been used. Clutch-size varied from one to three. The author's statement of the difficulties involved in finding the young once out of the nest strike a responsive chord in the heart of one who has hunted for the young of our closely related species, the Laughing Gull. Several of the young were banded. A most entertaining description of a colony of these gulls.—R. O. Bender.

ZOOGEOGRAPHY AND GEOGRAPHIC DISTRIBUTION

(See also Number 77.)

67. Birds of the Reunion Islands. (Oiseaux de la Réunion.) Jacques Berlioz. 1946. *Faune de l'Empire Français* IV. 84pp. Librairie Larose, 11 rue Victor-Cousin, Paris. This monograph consists initially of a consideration of the ornithological observations of Du Bois (1674) as a source of evidence as to the nature of the original avifauna of Réunion. To separate man-made introductions from Madagascar from species which arrived by other means is difficult if not impossible. The annotated systematic list of the present avifauna contains 61 species. "In résumé the present avifauna of Réunion Island has the character

of an impoverished and very isolated insular fauna containing among its sedentary elements a strong percentage of species of exotic origin, introduced and acclimated by man in the course of recent centuries. The most strictly characteristic genera discernable in the primitive avifauna (*Victoriornis*, *Mascarinus*, *Fregilupus*) have disappeared completely." (p. 71.) In general the following groups may be recognized in the avifauna; (1) sedentary continental forms, autochthonous or imported, (2) powerful flying oceanic species which nest in the region, (3) boreal migrants, (4) accidental visitors. There is an interesting tabular comparison with the related forms of Madagascar and Maurice Island.—D. S. F.

68. The Occurrence of the Canada Goose in the Netherlands. (Over het voorkomen van de Canadese gans, *Branta canadensis* (L.) in Nederland.) C. G. B. ten Kate. 1947. *Limosa*, 20(1-3): 159-163. Before 1945 there were only seven records of the Canada Goose in Holland. Since then this species has appeared along the coast of IJsselmeer each year. In the winter of 1946-1947 more than eighty were seen. This species is often seen also in Denmark, where they come partly from semi-domesticated stocks within the country and partly from Sweden as shown by banding data. Presumably the Dutch records are of Scandinavian birds.—D. S. F.

69. The Avifauna in Sarqaq, Northern Greenland, during the Winter of 1946-1947. (Fuglelivet i Sarqaq, Nordgrønland i Vinteren 1946-47.) Hannibal Fencker. 1947. *Dansk Ornithologisk Forenings Tidsskrift*, 41(3): 161-168. This is an important series of observations recorded in fall, winter, and spring in the Jakobshavn Distrikt at lat. 70° 06' N and long. 52° 08' W in Greenland. In addition to winter records there are important arrival and departure dates. There are notes on 26 species. Of interest is the note that "a small number" of Mallards, *Anas platyrhynchos* Linnaeus, wintered at Sarqaq.—D. S. F.

SYSTEMATICS

70. Some Recent Terms and Tendencies in Bird Taxonomy. R. E. Moreau. 1948. *The Ibis*, 90(1): 102-111. A review of recent opinion on categories of taxonomy up to the level of genus as used in ornithology. "There is no doubt that the recent trend is against the multiplication of very small, and often monotypic, genera." Most ornithologists seem disinclined to use subgenera, but Moreau points out their value in large genera such as the weavers of the genus *Ploceus*. Certainly the use of subgenera is preferable to genus-splitting. The biological concept of species as populations that do not normally interbreed in nature (though sometimes fertile if crossed) is accepted; subspecies are geographical subdivisions of species that interbreed where their ranges meet. In completely isolated populations the criteria become subjective. Moreau correctly opposes the tendency to name weakly characterized "microsubspecies"; the use of Huxley's concept of clines plus insistence that only well differentiated populations be named will correct this. Moreau accepts Mayr's term superspecies for a group including geographical representatives of common origin but too distinct to be safely treated as subspecies. The species composing a superspecies are often called semispecies. Regarding some terms proposed by Ripley and others, Moreau seems more concerned with rejecting the terms than in examining the concepts behind them. Closely related species groups in which some of the members overlap in range (and hence cannot be treated as superspecies) are of common occurrence and perhaps deserve a name, even if the term interspecies used by Ripley is "inadmissible." This is a useful summary of present concepts of the species and related categories.—D. Amadon.

FALCONRY

71. Falconry in Russia. (La Fauconnerie en Russie.) Georges Démentieff.

1945. *L'Oiseau et la Revue Francaise d'Ornithologie*, 15: 10-39. This is a very interesting account of falconry and its history in Russia. Contrary to the prevalent belief that falconry was introduced by the Mongols, it has obviously a much older origin. It seems possible that it was introduced by the Scandinavians in southwestern Russia during the ninth century. The first judicial code in Russia (11th century) in three articles established responsibility in the case of the flight of birds used in falconry. Falconry flourished until the nineteenth century, when, as in other European countries, it declined. Only among the inhabitants of the Caucasus, Turkestan, and areas south of the Volga is it practised extensively at the present time.—D. S. F.

MORPHOLOGY AND ANATOMY

72. Studies on the Muscles of the Pelvic Appendage in Birds II: The Heterogeneous Order Falconiformes. George Elford Hudson. 1948. *The American Midland Naturalist*, 39(1): 102-127. This is an important careful analysis of musculature of the pelvic limb of two genera of American Vultures, *Cathartes* and *Coragyps*; a secretary bird, *Sagittarius*; as well as *Accipiter*, *Buteo*, *Aquila*, *Circus*; the Osprey, *Pandion*; and three species of falcons, *Falco*. The results of this analysis indicate strongly that the Osprey cannot be properly included among the American vultures; it is suggested that *Pandion* be placed in a separate suborder in the *Falconiformes*. "It appears quite possible that the American vultures, secretary bird and the hawk and falcon tribe represent entirely different lines of avian evolution and are no more closely related to each other than to the owls which have long been separated from the Order Falconiformes . . . I strongly suspect that the 'hawkish' appearance of *Sagittarius* has been developed through convergent evolution." (p. 127).—D. S. F.

BOOKS AND MONOGRAPHS

73. Bird Display and Behaviour. An Introduction to the Study of Bird Psychology. Edward A. Armstrong. Lindsay Drummond Limited, 2 Guilford Place, London W. C. 1. 431 pp. 21/-. This treatise is an enlarged and considerably altered revision of the author's earlier "Bird Display. An introduction to the Study of Bird Psychology" (Cambridge at the University Press. Macmillan, New York. See *Bird Banding*, 14: 55-56. 1943.) As is characteristic of all of the Rev. Mr. Armstrong's books, this also reads easily and interestingly; it is richly anecdotal. As a compilation of almost countless anecdotes and observations it is energetically thorough. Interspersed are sufficient generalization, theory, and philosophy to make the book a valuable introduction to the field for the layman and the novice, although in many instances such readers may be jolted, on further study, by the different interpretations which others may place on the same observations. An indication of the richness of the material is the bibliography of more than 1100 titles; however, one is occasionally inclined to be concerned about the reliability of some of the accepted observations. As a contribution to scientific ornithological literature this compilation is of fundamental importance in recalling the vast numbers of problems of bird behavior and their complexities. As such it has real value even though the reader may eventually find himself occasionally not in agreement with the interpretations of the author. For example, in the final chapter, "The Relationship between the Physiological Aspects of Display," there is considerable discussion concerning the relation of the gonads and reproduction to migration and yet scarcely an inkling of a suggestion that both of these phenomena may be controlled largely by the pituitary gland, and that the correlations do not mean cause and effect. This and other disagreements in no way affect the opinion of the reviewer that this book will prove itself to be a valuable asset to ornithologists and to zoologists in general.

The final chapter is followed by a list of scientific names, the bibliography, an index to birds and other organisms, a subject index, and an author index. There are 32 excellent plates and thirty figures in the text.—D. S. F.

74. Black Wings. The Unbeatable Crow. Joseph W. Lippincott. Illustrated by Lynn B. Hunt. 1947. Lippincott. New York. 144 pp. \$2.50. A factual story of a pet Crow of high intelligence and strong character, well told with many dramatic events. I wonder, however, whether the author did not represent his bird as maturing too quickly. Does *Corvus brachyrhynchos* Linnaeus breed at one year? I do not believe he would have been "old and rheumatic" at seven years; a Carrion Crow, *Corvus corone* Linnaeus, bred for at least 13 years. A fine book on the "king of birdland," that should help to counteract the persecution propaganda against the species.—M. M. Nice.

75. Rufous Redtail. Helen Garrett. Illustrated by Francis Lee Jaques. 1947. Viking Press. New York. 158 pp. \$2.50. Rufous is a little Redtail in a great hurry to grow up and impatient of his mother's sensible counsel; after many adventures he attains maturity. The birds speak English and mothers teach their young to fly, but in general the book gives a good picture of hawk life and should do much to interest children in these splendid and much abused birds. Mr. Jaques's drawings are a fine feature of the book.—M. M. Nice.

76. Studies on Carbohydrate and Fat Metabolism with Especial Reference to the Pigeon. Oscar Riddle and Associates. 1947. *Carnegie Institution of Washington Publication* 569. 128 pp. Paper cover, \$1.85; cloth binding \$2.25. This is a series of six papers dealing primarily with the relationship of several endocrine glands and their hormones to the metabolism of fat and carbohydrate, using pigeons as experimental animals. This series is not only a contribution to the physiology of intermediary metabolism in general but, in an important way, also to our inadequate knowledge of fundamental avian physiology. In this respect, perhaps the most important of the series is the third paper, "The action of pituitary and other hormones in carbohydrate and fat metabolism", by Oscar Riddle and David F. Opdyke (pp. 49-96), which summarizes the results of an extensive and ingenious series of experiments directed towards ascertaining the roles of various hormones in the regulation of blood, muscle glycogen, liver glycogen, liver fat, ketosis, and heat production. The long series of significant findings is too extensive for summary and comment here. The concluding paper, "Differences in the carbohydrate and fat metabolism of bird and mammal", by Oscar Riddle (pp. 127-8), despite its brevity, is of real significance, both in avian and comparative physiology. "The results described in the preceding sections of this volume clearly demonstrate that mechanisms which regulate carbohydrate and fat metabolism in birds and mammals present many more similarities than differences." There are several interesting differences nevertheless. The concentration of blood sugar in birds is approximately twice the concentration in mammals. A moderate cyclic increase in blood sugar occurs in female birds (at least pigeons and doves) at the time of ovulation; a similar phenomenon has not been demonstrated in mammals. Hypophysectomy in pigeons is followed by an increase in liver glycogen, whereas in mammals it causes a decrease. Increase in blood sugar following the removal of the pancreas is less pronounced than in mammals. Birds tolerate larger doses of insulin than mammals. Blood lipids increase at time of ovulation in birds; this has not been demonstrated in mammals.—D. S. F.

77. The Razor-billed Auk, Its Breeding Biology and Occurrence in Denmark. (Alken, dens Ynglebiologi og dens Forkomst i Danmark.) Knud Paludan. 1947. Einer Munksgaard, Nørregade 6, Copenhagen K, Denmark. 107 pp. 12 Dan. cr. This interesting little book opens with a brief history of *Alca torda* Linnaeus in Denmark. The first records are bones from the kitchen

middens of the "older or more recent Stone Age." The early recorded history beginning in the 1700's, is developed in some detail. During the nineteenth century Auks bred on Bornholm in the Baltic Sea. During the present century a colony has become established on nearby Graesholm. This colony reached its maximum size in 1939 (318 eggs and young); in 1944 it had declined to 60. This decline is a part of the general pattern of decline among the Baltic Auk populations. Most of the book (pp. 24-82) is devoted to a description of the reproductive activities; this is illustrated by more than twenty unusually excellent photographs. Auks banded on Graesholm have been recovered only along the Baltic coast and in the Kattegat, indicating a restricted random northward movement during fall and winter. This is an important contribution.—D. S. F. ♪