

## RECENT LITERATURE

Reviews by Margaret M. Nice and Thomas T. McCabe

### BANDING AND MIGRATION

**1. Göteborg's Natural History Museum's Ringing of Birds in 1938.**—(Göteborgs Naturhistoriska Museums Ringmärkningar av Flyttfåglar under 1938.) L. A. Jägerskiöld 1939. *Göteborg's Musei Årstryck*, 1939; 91–108. In 1938 7,428 birds were ringed, making a total of 99,822 since 1911, with a retake figure of 3,482—3.5 per cent. Those ringed in greatest numbers were Black-headed and Common Gulls (*Larus ridibundus* and *L. canus*), Starlings (*Sturnus vulgaris*), and Common, Arctic and Sandwich Terns (*Sterna hirundo*, *S. paradisæa*, and *S. sandvicensis*).

**2. Results from Ringing Birds in Belgium.**—(Oeuvre du Bagueage des Oiseaux en Belgique.) Charles Dupond. 1939. *Le Gerfaut*, 29: 65–98. With the Brambling (*Fringilla montifringilla*) seven individuals returned to the same place in later winters, while others did not: six banded in October were found in Spain, France and Holland the same winter or the next; one was taken in Sweden the following winter 900 kilometers northeast of the place of banding; and one in Norway 1300 kilometers northeast. "Individual Migration" was found in the case of three species—Stock Dove (*Columba oenas*), Blackbird (*Turdus merula*) and Song Thrush (*Turdus ericetorum*), for some birds banded in the nest were sedentary while others migrated.

**3. Fourth Banding Report of the Czecho-Slovakian Ornithological Society for the Year 1938.** (IV. Beringungsbericht der Tschechischen Ornithologischen Gesellschaft für das Jahr 1938.) Otta Kadlec. 1939. *Sylvia*, 4: 33–55. Seventy-three coöperators ringed 10,478 birds of 125 species in 1938. The species banded in largest numbers were: Black-headed Gulls 2,213; Barn Swallows (*Hirundo rustica*) 1,383; Martin (*Delichon urbica*) 837; Blackbird 539; Song Thrush 495; and Great Tit (*Parus major*) 370.

**4. Longevity in Raptorial Birds as Indicated by Banding Records.**—E. L. Sumner, Jr. 1940. *Condor*, 42: 39–40. There were 25 recoveries from 161 hawks and owls—12 per cent—; most of them were probably shot. The oldest hawk reached four years, the oldest owls ten with a Barn Owl (*Tyto alba pratincola*) and thirteen with a Pasadena Screech Owl (*Otus asio quercinus*). One female of this species raised a brood in the same hollow sycamore four years in succession. A Long-eared Owl (*Asio wilsonianus*) had travelled 49 miles north of its birthplace. Barn Owls scattered in all directions from 12 to 85 miles, while Red-tailed Hawks (*Buteo borealis calurus*) were taken 10, 20 and 235 miles north of the place of banding.

**5. The Crow in its Relation to Agriculture.**—E. R. Kalmbach. 1939. U. S. Dept. Agri. Farmers Bull. 1102. 21 pp. Of 714 Crows banded at Norman, Oklahoma during the winter of 1935–36, 125 (17.5 per cent) were recovered, 51 in the summer, 39 of them in Alberta, Saskatchewan and Manitoba. The bulletin gives an account of the food habits of *Corvus brachyrhynchos*, beneficial and harmful, and a discussion of means of control.

**6. Migration according to Age and Sex at Lighthouses in the Netherlands.**—(Zug nach Alter und Geschlecht an niederländischen Leuchttürmen.) W. H. Van Dobben and M. F. M. Bruyns. 1939. *Ardea*, 28: 61–79. A study based on birds killed from 1933 to 1937, about 800 each year. The authors calculate that the annual kill is about 1,500, a much smaller number than there would be without protective devices in the way of lighting the towers. In fall adults

migrated on the average somewhat earlier than young in the Lark (*Alauda*), Redwing (*Turdus musicus*), Fieldfare (*Turdus pilaris*), and probably the Song Thrush. With Starlings the young migrated earlier, and the same seemed to be true with the Blackbird. As to sexes, only in *Alauda* was there a noticeable difference, the females passing earlier. In spring adult Starlings and Larks arrived before the young, and males before females.

**7. Seasonal Distribution and Migration of Ducks (subfam. Anatinae) on the Base of Bird Ringing in the U. S. S. R.—III.** W. Wuczeticz. 1939. Council of People's Commissars of the R. S. F. S. R. Game Preserves. Cent. Bur. for Bird Ringing. 101 pp. (Russian with English summary.) Recoveries of the Gadwall (*Anas strepera-Chaulelasmus streperus*), Shovellers (*Spatula clypeata*) and European Wigeons (*Mareca penelope*) are discussed and maps given showing the wide ranges, especially of the last species, birds recovered in Russia that had been ringed in Iceland and England. "The most remarkable fact discovered by bird ringing is the *emigration* of single individuals of this species from northwestern Europe, particularly from Iceland, England and Holland, into new breeding ranges, which lie far away from their native land, namely in East Europe and West Asia. It must be noted that Wigeons from Iceland do not emigrate straight from their island, but from some intermediate wintering area, generally from Ireland, England or Holland." p. 80.

**8. Sixth Return of a Castrated Hooded Crow (*Corvus cornix*) after Migration to its Home.** (Sechste Rückmeldung einer kastrierten Nebelkrähe (*Corvus cornix*) in Heimzugrichtung.) P. Putzig. 1939. *Vogelzug*, 10: 171-172. Evidence that the northern migration is not dependent on enlargement of gonads is furnished by the history of an adult male Hooded Crow, captured in Rossitten, East Prussia Oct. 31, 1936, castrated and released; on April 23, 1939 it was shot near Viborg, Finland near a nest, 745 kilometers northeast of Rossitten. Examination of the specimen showed no remains of testes nor regeneration.

## HOMING

**9. Homing Experiments with Leach's Petrels.**—Donald R. Griffin. 1940. *Auk*, 57: 61-74. We of course know that petrels can return to their nests from considerable distances without the use of landmarks. There remain, barring somewhat improbable results from rather slight toying with such esoteric technicalia as rotating machines and magnetic fields, practical problems of the speed, manner, and range of return. For these the petrels, as media, have three very serious drawbacks; they cannot be fed in captivity or kept in condition for distant transport, the nest reliefs are several days and nights apart, which probably weakens the incentive to immediate return, and they are prone to desertion. In the present project some 222 breeding individuals of *Oceanodroma l. leucorhoa* were caught in burrows on the islands of the Bay of Fundy, and used in what are recorded as five different experiments. As most of these, however, involve many different groups, which are carried to different points and subjected to different treatments, it would be more fair to say that the 222 birds were divided into twenty-four different experiments, which does not leave very high statistical validity, the more so because, from the reports of releasers, and for other reasons, a considerable non-survival, owing to condition of the birds on arrival at points of release, is taken for granted. Yet the basic method of analyzing returns, that of plotting percentages retaken against days elapsed, is one that depends for its very conception on statistical numbers. The outstanding fact which emerges is that a rather large percentage of birds returned from various distances up to 360 miles from land and 470 from the nest. It seems probable that several flew overland for at least eighteen miles. Speed and distance do not correlate. It seems to the reviewer that, if the whole number of birds had been used for two carefully framed and contrasting experiments, the total gain would have been greater.—T. T. McC.

From these experiments and those of Watson and Lashley (1915) and Dirksen

(1932) with Terns, and Lack and Lockley (1938) with Manx Shearwaters, the author concludes, "These results certainly indicate strongly a power of absolute orientation capable of guiding these three genera of birds over totally unfamiliar territory." p. 72.

#### LONGEVITY

**10. How Long do Black-headed Gulls Live.**—(Wie alt werden Lachmöwen (*Larus ridibundus*)?) Walter Černý. 1939. *Vogelzug*, 10: 170. A Black-headed Gull, banded as a young bird, May 24, 1914 in Northern Bohemia was caught March 31, 1939, nearly 25 years later. The ring was as thin as paper, but still legible. The bird was in full molt, feet and bill had their breeding colors. On April 22 a Gull was seen that apparently was too old to go through the spring molt.

**11. Jackdaw Nesting in its First Year.**—C. Wontner-Smith. 1939. *British Birds*, 33: 194. A Jackdaw (*Coloeus monedula spermologus*) ringed as a nestling in June, 1935, hatched four young in May, 1936. Jackdaws do not ordinarily breed until their second year.

**12. Fecundity of Blue Tit and Tawny Owl in Relation to Age.**—J. A. S. Barnes. 1939. *British Birds*, 33: 195. A Blue Tit (*Parus coeruleus obscurus*), sex not known, ringed in December, 1930, brought off a brood in 1938. A pair of *Strix aluco sylvatica* have nested in the same tree since 1917 or earlier; they are not banded, but are believed to be the same birds. In 1937 the female sat for at least four weeks on a tennis ball; in 1938 two eggs were laid; one was infertile; the other hatched but the nestling soon died. In 1939 she "sat for about three weeks on an empty nest-hollow." "This may be a case of infertility due to old age."

See No. 4 for some longevity records of raptorial birds.

#### LIFE HISTORY

**13. Some Notes on the Breeding Habits of the Dabchick.**—A. G. Buddle, D.S.O. 1939. *Emu*, 39: 77-84. The most peculiar aspect of the breeding of *Podiceps rufopectus* in New Zealand is its long duration throughout the southern spring, summer, and fall, nest following nest when the young are two or three weeks old, or within a few days of destruction. This, in the author's locality, at least, correlates with an extremely low degree of efficiency, so that hardly more than one young to a pair is likely to be produced on the average. The possibility that the number of attempts was unusual owing to the difficult environment chosen by the birds under observation is not suggested,—perhaps the species is so well known elsewhere that it is precluded. The paper is rich in observations of many nests and nest-sites and descriptions of breeding behavior. The style is casual, the observations scattered. There is a fine series of four photographs showing the preparation for and the act of copulation, and others of the nest, eggs, and brooding bird. It is a surprising fact that there is no suggestion of any of the striking performances of Julian Huxley's classical account of *Podiceps cristatus*, so many elements of which the reviewer has seen reproduced to the life in the courtship of *Colymbus nigricollis*.—T. T. McC.

**14. Courtship and Display of the Slavonian Grebe.**—E. J. Hosking. 1939. *British Birds*, 33: 170-173. Good photographs and descriptions of behavior of a pair of *Podiceps (Colymbus) auritus*, or Horned Grebe, nesting in Scotland.

**15. The Heath Hen of the South.**—V. W. Lehrmann. 1939. Bull. 16. Game, Fish and Oyster Comm. Austin, Texas. 11 pp. The Attwater Prairie Chicken (*Tympanuchus cupido attwateri*) is almost extinct in Louisiana; in Texas

there are some 8000; its range has decreased 93 per cent and its numbers 99 per cent in the last 75 years. Females come to the display grounds and may mate with several males. Twelve eggs are laid; incubation lasts 23-24 days. Many chicks are lost because the birds do not have a "highly developed 'scatter', or assembly call." Heavy rains are disastrous to the chicks. Range is destroyed by overgrazing, burning, and plowing for rice. "Primarily because of overgrazing hundreds of thousands of acres of once open prairie are now covered by dense brush; because of the brush this land is practically worthless as prairie chicken range." Natural enemies, and wild house cats do some damage, but "Except where cover is deficient, however, predation apparently is insignificant." The "only reasonably certain way to save the Attwater prairie chicken is by government purchase and government management of at least one, and preferably three, refuges, each at least 10,000 acres in size."

**16. Observations on the Breeding Habits of Some Nigerian Rallidae.**—William Serle. 1939. *Oologists' Record*, 19 : 62-70. This paper is based on field observations in the semi-arid belt of Nigeria in the valley of the Sokoto River during the last part of the dry season and the whole season of the rains, which extend from June to September. The breeding season of all the rails discussed is in the late rains, and nests with eggs were found of all but *Limnocorax flavirostra*. The species treated are *Crecopsis egregia*, *Limnocorax flavirostra*, *Porzana marginalis*, *Porphyrio madagascariensis*, *Porphyryla alleni*, *Gallinula chloropus brachyptera*, and *Gallinula angulata*. In most cases there is a paragraph of casual notes of behavior and surroundings, and one or two paragraphs on the nest and eggs. In this group it is not easy to see even so much of the behavior of the birds, and the notes are well worth while.—T. T. McC.

**17. The Breeding of the Oyster-catcher.**—E. J. M. Buxton. 1939. *British Birds*, 33 : 184-193. Observations on the island of Skokholm. After the chicks left the nest, territory changed "according to the movements of the chicks." p. 189. Of 51 eggs 45 hatched—88.24 per cent. Incubation was by both sexes, and lasted 25-26.5 days. There is no reference to studies by J. M. Dewar, 1915, *Zoologist*, 19, or Rolf Dirksen, "Die Insel der Vögel," 1938.

**18. The Upland Plover at Faville Grove, Wisconsin.**—Irven O. Buss and Arthur S. Hawkens. 1939. *Wilson Bulletin*, 51 : 202-220. This is a good routine investigation of the salient facts of the summer sojourn of *Bartramia longicauda* on a 1600 acre grain-and-grazing area in Jefferson County, Wisconsin. The birds were abundant in the old days, practically disappeared between 1890 and 1920, and have returned and increased since. The authors counted eight pairs in the spring of 1935 and twenty-five and twenty-two pairs in 1938 and 1939 respectively. Description of the main events of arrival, reproduction, and departure, rather than intimate preoccupation with the refinements of psychology, is the purpose of the paper, and such ground-clearing is well done and clearly and briefly reported. The spring arrival is a two-week infiltration, the nesting territories are more or less colonial, distinctive notes and a profoundly interesting modification of manner of general flight are the outstanding aspects of courtship behavior; hatching dates in 1938 ran from May 29 to June 28, with a peak about June 4; brooding birds are temperamentally very variable, but often sit tight enough to be touched, and rarely desert unless the eggs are injured. The greatest density in any field was 1½ acres per nest. The incubation period is twenty-one days. The word territory is used both of the nest site, without surrounding area, and of an interesting communal loafing ground. "Last bird" dates extend from August 14 to September 10 on different years.—T. T. McC

**19. The Biology of Bourke's Parrakeet.** (Zur Biologie des Bourkesittichs, *Neophena bourkii*). Helmut Hampe. 1939. *Journ. f. Ornith.* 87 : 554-567. The pair are not especially devoted to each other. The female often incubates through a molt; occasionally a molt has begun, but will be broken off if the birds start to

breed. Males began to sing at 27, 28 and 34 days. At 46 days a male tried to feed a male Song Parakeet; another at 54 days tried to feed his sister; while a third did the same at 107 days with a Redwinged Parakeet. Incubation lasts 17, 18, 19 and 23 days. When the young are 10 to 14 days old, the female no longer broods them at night and they may suffer if the weather turns cold. They leave the nest at 27, 28 and 32 days; they can feed themselves 10 days later, but may be fed by the parents until they are 50 to 62 days old.

**20. Some Observations on Horned Owl Nests.**—Henry S. Fitch. 1940. *Condor*, 42 : 73-75. Censuses of *Bubo virginianus* on 1920 acres in California were made by counting the hoots: 20 individuals (6.6 per square mile) were heard in October, 25 in April and 24 the following November. Five nests were found, of which three were failures. Two young were killed by a sudden cold rain on the night of April 2, but new prey had been brought to the nest when the author visited it on April 6. Curiously enough, at one nest the parents brought so much food that the young died from "unsanitary conditions created by the mass of decaying flesh in the nest." The food consisted entirely of rabbits and other rodents.

**21. More Hummingbird Notes.**—Carl W. Schlag. 1940. *Cardinal*, 5 (3): 57-65. Interesting observations made in Pennsylvania. The male *Archilochus colubris* arrived May 8, 1939, the female "A" on May 19: she was recognized by a small black spot on her throat as a return from 1938. The male courted her and the same evening a second female "B" appeared. Both females started building on May 28 only seven feet apart. They paid no attention to each other, except that "A" took material from "B's" nest. Both deserted these nests. On June 17 "A" was discovered incubating in a new nest; she was still adding material June 25-29. She spent half her time driving "B" and two males from the feeding station. On July 2 she was feeding young; one left at the age of 20 days, the other at 25 days. "B" built a nest 30 feet from "A's" second nest.

**22. The Grey Warbler and New Zealand Cuckoos.**—R. H. D. Stidolph. 1939. *Emu*, 39 : 84-93. This pleasant, cursory, paper disposes of the tradition that the tiny *Pseudogerygone igata* broods or feeds, or both, parasitic young of the large Long-tailed Cuckoo (*Urodynamis tailensis*), an interesting case of an impossibility which has lived and been propagated in the literature since the time of Buller. It does incubate, often with ruination of the nest, eggs and young of the Shining Cuckoo (*Lamprococcyx lucidus*). Actually the paper is an enthusiastic and excellent picture of the life, especially during the breeding cycle, of the Grey Warbler, which is one of the most abundant and adaptable of New Zealand birds—T. T. McC.

**23. Numerical Data on African Birds' Behaviour at the Nest: *Hirundo s. smithii* Leach, the Wire-tailed Swallow.** R. E. Moreau. 1939. *Proc. Zool. Soc. London*, 109A : 109-126. Results of 500 hours of observation (mostly by Africans) on *H. smithii*. This bird weighs 13 grams, builds a shallow "half-cup nest of mud", and lays three eggs; incubation is by the female and lasts 14 days; fledging lasts 18-21 days.

"The daily percentage of time the eggs were brooded varied from 43 to 66, with no tendency to rise at lower air-temperatures or towards the end of the incubation periods. . . . About 70 per cent. of the spells 'on' lasted 2-7 minutes and 70 per cent. of the intervals 'off' 2-5 minutes. Few intervals uncovered exceeded 15 minutes and none 37. . . . For the first three days the young in all the nests were brooded much as the eggs had been, but after that the amount of brooding varied greatly between the nests." p. 125. The temperature ranged between 10.7° and 26.5° C. The parents removed faecal pellets. The young "defaecated once for every 10-13 feeds." p. 119.

Charts are given on incubation, brooding and feeding. The female fed somewhat more than the male. The feeding day lasted 12½ hours. The largest number of

meals brought by both parents in an hour were 89 and 61 to three young, 41 and 36 to two young, and 34 and 27 to one young. All day records during the last week at the nest with two young were: 282; 320; 295; 309; 300; 296; 328. The male's daily record ranged from 129-150 and totaled 996; the female's ranged from 150-179 and totaled 1,164.

The single young "received most meals" and "had the shorter fledging period." p. 125. There was no marked peak in feeding activity, but it was lowest in the early morning. The eyes of the young in Nest 1B opened on the 10th day; at 11 days the birds evacuated over the edge of the nest; at the 16th they began to stretch their wings, and on the 20th they flew.

An impressive and admirable study.

**24. Supplement to "Discussion on Swallow Ringing and its Results."**—(Nachtrag zu "Ratschläge zur Schwalbenberingung und Ergebnisse). Gerhard Creutz. 1939. *Vogelring*, 11 (2): 77-83. Of 22 adult Barn Swallows (*Hirundo rustica*) that returned, 14 came back to the former nest, one to a new nest on the same farm, and seven to other farms in the same village. As to young, one returned to the nest in which it was hatched, nine settled less than 5 kilometers from their birthplace, one 7 kilometers, one 10 kilometers and one 30. About half the pairs raise second broods; of 36 such broods 32 were in the same nest as the first. Hatching dates of the two broods ranged between 33 and 73 days apart, the average being 50-54. The young of the first brood have a better chance of surviving the fall migration than the second; returns of the former came to 2.6 per cent, of the latter 1.1 per cent. Returns of adults came to 15-20 per cent—a rather low figure.

**25. Parasitism of the English Sparrow on the Northern Cliff Swallow.**—Dayton Stoner. 1939. *Wilson Bulletin*, 51: 221-222. This is a brief account of a single nest of *Petrochelidon a. albifrons* which contained, along with its three swallow eggs, a single egg of an English Sparrow (*Passer domesticus*). The nest was visited some six times between June 2 and 25, 1937. The Sparrow hatched about a week before the first of the Swallows. On the last visit the English Sparrow nestling had reached the weight of 23 grams, but the swallow brood had perished, two at least after hatching. Both foster parents fed the parasite, and repaired each breakage of the nest by the observer, sometimes even while the examination was still in progress.—T. T. McC.

It is evident that the Swallows raised an English Sparrow practically to the fledging stage, but after it left the nest would the instinctive actions of the two species prove to be too different? It seems doubtful whether the Swallows would care for a House Sparrow for the ten days of further parental attention necessary.—M. M. N.

**26. Observations on the Behavior of Color-banded California Thrashers.**—Grace T. Sargent. 1940. *Condor*, 42: 49-60. A male *Toxostoma redivivum* claimed three-quarters of an acre of gardens in back yards in Pasadena as his territory; he never fought other Thrashers, merely chased them. His "right to attack was never disputed." Birds of other species were largely ignored, but occasionally there were disputes over food. This male and his first mate raised two young in November 1935; a week after the disappearance of this mate another female arrived, but was not accepted for some time, the male chasing her. She sang when he chased her and also the following spring while she chased a strange female. He sang throughout the year, singing most while nest-building, after the young left the nest, and while chasing his second mate. Male and female build, incubate and care for the young. The young were driven off the following spring.

**27. On Breeding Habits and Feeding Frequency of Flycatchers.**—R. H. Brown. 1940. *British Birds*, 33: 251-252. A nest of the Spotted Flycatcher (*Muscicapa s. striata*) was watched on the 8th day of incubation from

10 A.M. to 8.30 P.M. "The hen was off the eggs twice each hour from 10 A.M. to 6 P.M., then once each hour. At 8.30 P.M. the cock took over the incubation. The cock usually fed the hen at the nest. . . . Whilst the hen was off the eggs the cock would stay on a branch near the nest until the hen returned. . . . The most the hen was fed in one hour was four times, 2 to 3 P.M. The average duration of the hen off the eggs was three minutes. Once she was off for twelve minutes."

**28. Bigamy in the Yellow Wagtail?** (Bigamie bei der Grünköpfigen Schafstelze, *Motacilla flava rayi* (Bonaparte)? R. Drost. 1939. *Vogelzug*, 10 : 169. On Heligoland all the Yellow Wagtails have been color-banded in the nest; some of the adults have also been caught. In 1939 a male, banded as a nestling in 1936, had two mates; one of which had been banded as a nestling in 1938. One of his families was banded June 23, the other July 3. The nests were 45-50 meters apart, separated by a building and a path.

**29. The Starling's Family Life and Behaviors.** H. A. Allard. 1940. *Journ. Washington Acad. Sciences*, 30 : 34-46. An observation box with a glass top was placed in the attic and the activities of the nesting birds watched. "Even throughout the wintertime the parent birds hold their boxes" and fight off other Starlings. Material is brought throughout the nesting period. When the young were about 7 days old the manner of feeding changed from slow to rapid. Near the beginning of the third week the young defecated in a fecal zone between the nest and the entrance to the hole. Charts are given showing the time of arrival in the morning from September to March, and from April to June, and also of roosting in the spring, in relation to sunrise, civil twilight, sunset and temperature.

**30. Bertram, a Backbird with Personality.**—Amelia R. Laskey. 1940. *Bird-Lore*, 42 : 25-30. A nestling Bronzed Grackle (*Quiscalus quiscula aeneus*) was brought to the author in late May; he was soon given his freedom, but remained closely attached to his foster mother throughout the summer. In mid-August he developed adult songs; at this time he courted a young hand-raised female Cardinal by puffing himself out and picking up a dead leaf; occasionally he pecked her. He also courted Mrs. Laskey. He showed a strong curiosity and a close bond to human beings, even flying to strangers. From September 17 he spent the nights in a Grackle roost; on October 6 he migrated.

**31. Report on the Nesting Biology of the Snow Finch.**—(Beitrag zur Brutbiologie des Schneefinken, *Montifringilla nivalis nivalis* (L.)) Ernst M. Lang. 1939. *Ornith. Beob.* 36 : 141-145. Snow Finches nest around the hotels and barracks in Andermatt, Switzerland, nests being situated within 10 to 50 meters of each other; five or more adults are often seen together in the breeding season. In winter they come to feeding shelves early in the morning and again about 4 o'clock. On fine February days they visit their nesting holes. In 1939 they nested in June; the female carried material; incubation started when the set was complete and was by the female alone; it lasted 15-16 days in one case; fledging 20-21 days. The young are noisy in the nest; they are fed by both parents. These findings differ somewhat from the rather meager data reported in Niethammer's *Handbuch* and Witherby's *Handbook of British Birds*.

**32. Foraging Behavior and Survival in the Sierra Nevada Rosy Finch.**—Howard Twining. 1940. *Condor*, 42 : 64-72. In Yosemite National Park *Leucosticte tephrocotis dawsoni* "retain the flocking habit throughout the year." *Whit-whit* is uttered continually and "may serve to keep the birds together. A nasal *tee* or *peuw* seems to serve as a sort of rallying all." Lone birds will answer and sometimes join the flock. "A bird when alone appears to be more wary than when it is one of a flock, although there seem to be certain birds in every flock which are more sensitive to danger than others, or that act as sentinels to warn the flock of the approach of an intruder." p. 69.

Various methods of feeding on seeds and insects are described. Birds in summer move much more frequently than necessary from the amount of food available; perhaps this technique is necessary in winter and they do not readjust. They often quarrel, pursuing each other, first one bird being pursuer, then the other. The Finches pursue Nutcrackers, chipmunks are the worst enemies of the Rosy Finches and White-crowned Sparrows.

### BIRD BEHAVIOR

**33. Analysis of Gaping and Pecking in the Development of the Starling.**—(Analyse des Sperrens und Picken in der Entwicklung des Stars.) Monika Holzapfel. 1939. *Journ. f. Ornith.* 87: 525-553. A notable study on the problem of instinctive behavior. If the "food reaction" or "gaping" of the young bird occurs spontaneously and if it is released by different, unspecific stimuli, then gaping would fall into the category of instinctive rather than purely reflex behavior. Sixty young Starlings were used, some taken from the nest at the age of two days; they were fed every 20 minutes with a two hour interval at noon; the food consisted of curds, ant eggs, liver and heart mixed with water.

As to spontaneous appearance, 9 hatching eggs were put in a darkened room where sound and vibration were excluded; the birds were watched for 1-2 hours after hatching; one did not gape, the other showed from one to 43 reactions. They also peeped. Spontaneous gaping disappeared after the age of 4 to 5 days if the bird was alone, but when in groups they stimulated each other to gaping up to the age of 11 days.

Stimuli that released gaping were at first markedly unspecific. Touching the flange of the bill was one of the strongest. Gentle shaking worked positively, rough shaking negatively. Sounds were important up to 12 days; scratching sounds were most effective from 7-14 days. Cold air and sudden change from light to darkness brought no reaction. The eyes are fully open at 10 to 12 days; from then on optical stimuli become the most important releasers. The birds reacted to movement at 11 and 13 days. From the 20th day the birds responded only to the pincers or to something resembling them. As to orientation, the 10 day bird with eyes open will not follow the pincers, but will do so from the age of 14 days.

The Starlings began to peck at objects at 20 days. Gaping normally lasts about four weeks; it can disappear earlier in birds taken late from the nest, or can be artificially prolonged. With 11 birds that were fed by hand every hour or two gaping lasted to the age of 77 days in one bird, the median age of its last appearance being 51 days. With 14 birds that were fed by hand only once a day, starting at 23-27 days, gaping was last seen at the age of 35 days, the median age of last appearance being 27 days.

The author suggests that gaping is not exclusively a juvenal phenomenon, but that it is suppressed by picking up food and becomes latent, to reappear in adult life in those forms where the female is fed by her mate.

**34. Observations on the Behavior of a Young Cowbird.**—Margaret Morse Nice. 1939. *Wilson Bulletin*, 51: 233-239. Discussion of observations made on a Cowbird (*Molothrus ater*) found at the age of one day in a Chipping Sparrow nest at Augusta, Michigan, transferred to a Song Sparrow nest in the house at the age of seven days, returned to its foster parents for only six hours on the ninth day, then retrieved, taken indoors, and observed until the twenty-fourth day. The first appearances of some thirty instinctive activities are tabulated, with a running comment. The chief "learned reaction" to be discussed is the "parent Kumpan" reaction to human beings, which certainly does not occur in wild Cowbirds of like age, whose fear of human beings, since alarm notes of foster parents are not heeded, is no less mysterious than the untaught attractiveness of cattle. Mrs. Nice gives good reason for her belief in the absence of special adaptation to parasitism in the young Cowbird. The egg size is normal (*contra* sundry



authors), its incubation period is like that of its non-parasitic and like-sized relatives, it does not (*contra* Friedmann), try to trample or evict other young, nor show any type of early hostility to nest-mates of other species. The question of its extraordinary and broadcast capacity for begging is left in abeyance, as perhaps conditioned by the experience of this individual bird. This is the richest account of a nestling the reviewer has read.—T. T. McC.

**35. Egg Recognition by the Laughing Gull.**—G. K. Noble and D. S. Lehrman. 1940. *Auk*, 57 : 22–43. The findings of this paper accord in general with the anticipations of common sense, by which the reviewer thinks he means that psychological stimuli usually coincide with economic values, while recognition of physical objects depends upon some indefinable totality of effect, texture, character, rather than upon any crudely isolated factor, such as shape, pattern, or color. One might, indeed, emend an introductory sentence thus: "A bird's point of view in regard to what may be significant is often [not] very different from our own." It is of the keenest interest that "this study shows that the constellation of significant sensory data varies from species to species within the genus *Larus*." It would be more interesting were there not doubts and contradictions in the comparative material, and still more if the interspecific variations did not rationally parallel interspecific differences in habit and organization, as in the case of dominant sensory reactions to the nest in species in which the nest is more elaborate and probably of more actual importance.

The cleverly-framed and crisply-reported series of thirty-two experiments were carried out in a 500-bird colony of *Larus atricilla* at Stone Harbor, New Jersey, during May and June, 1938, and were observed from blinds. The purpose, if I understand it rightly, was the detection of the special external, physical, elements most likely to release incubation reactions. The methods were the usual ones of separation, transference, duplication, and transformation, of nests and eggs. The basic conclusion is that in this species, which makes a very simple nest, the power of the eggs is greatest, that of the site second, that of the nest third. Eggs may be modified and deformed to a great extent without being abandoned, but may not be punctured, at least with a hole of any size. A gull can distinguish, or at least shows its distinction of, the most careful replicas of its own eggs sooner than other real eggs of very different tone and pattern.—T. T. McC.

**36. On the Formation of Dialects in the "Rain-call" of the Chaffinch.**—(Ueber die Dialektbildung beim "Regenruf" des Buchfinken.) H. Sick. 1939. *Journ. f. Ornith.*, 87 : 568–592. The "rain-call" or *Rülschens* of *Fringilla coelebs* differs from one district to another. With the Chaffinch neither its song nor some of its calls are inborn. This rain-call often expresses discomfort, anxiety, perhaps a primitive need for communication; it is often heeded by others. It is heard only in the territory, a special expression of territory advertising, something like clearing the throat in a person who does not feel himself sufficiently noticed. (Most of this applies equally to the Song Sparrow's characteristic note—*tchunk* or *tsack*). Dialects are not inherited, but learned.

**37. The Experimental Animal from the Naturalist's Point of View.**—G. K. Noble. 1939. *Am. Nat.* 73 : 113–126. Some interesting generalizations on the bases of social life. The author states, "at the fish level at least four of the principal components of social life in the highest vertebrates had already developed: (1) group attraction, (2) dominance-subordination behavior, (3) suggestion, and (4) parental service." p. 120. "An improvement in the social organization has included: (1) a species attraction to a learned group attraction, (2) from a dominance behavior, recognizing only the individual, to one recognizing groups, and (3) from a subordinate, that considers the dominant individual only as a despot, to one that considers the latter a protector and guide." p. 129.

## EGG SIZE AND LENGTH OF INCUBATION

**38. Egg Volume and Incubation Periods.**—C. Brooke Worth. 1940. *Auk*, 57 : 44–60. It is a great pity that the author missed the most important contribution that has ever been made to this subject, namely Oskar Heinroth's "Die Beziehungen zwischen Vogelgewicht, Eigewicht, Gelegegewicht und Brutdauer." 1922. *Journ. f. Ornith.* 70 : 172–285. In connection with his great undertaking of raising from the egg all the species of Central Europe, in many cases Dr. Heinroth hatched eggs in the incubator; he also inspected critically information furnished by others.

Dr. Worth has been misinformed in many cases as to lengths of incubation. It is a sad fact that there is no reliable source to which we can go to find out such elementary facts as the correct incubation period of many of our commonest American birds, although some of this information can be discovered scattered through the journals.

Dr. Worth's thesis is that egg size is the chief factor determining length of incubation, and he gives a formula for "calculating the probable incubation period of any egg simply from its dimensions." He does this for the Black Vulture's egg, the answer being 30.5 days and observes that "Forbush gives 30 days as the incubation period of the Black Vulture." p. 52. Unfortunately Forbush was mistaken as he was on many incubation periods. Heinroth gives 40 days, and E. S. Thomas, who studied *Coragyps urubu* found that "the incubation period is between 39 and 41 days." (Short Papers on Ohio Birds. *Ohio State Mus. Science Bull.*, 1 (1) : 35, 1928.)

There are other mistakes. P. 45. The Western Mourning Dove is said to be "a decidedly larger bird" than the eastern subspecies; yet five weights of the eastern form ranged from 138–153 grams, averaging 143; six of the western from 103–121, averaging 108 grams (*Bird-Banding*, 1938 : 8). P. 50. Heinroth gives 56–60 days as the incubation period of the Fulmar in contrast to 30 days accepted here. P. 52. Heinroth gives the incubation periods of *Dromiceus novae-hollandiae* as 56–58 days in contrast to 38.5; of the Rhea as 35 instead of 47.5, of the Ostrich as 42 instead of 55.

On p. 51 it is stated that "no change of incubation period has been noted among any of man's domesticated birds." Yet Dr. Heinroth found the incubation period of the Jungle Fowl to be 18 days, and that of the domestic Fowl  $20\frac{1}{2}$ ; that of the Mallard is  $25\frac{1}{2}$ –26 days, of the domestic duck 28.

As to Table I I have checked some of the incubation periods in different sources, including Witherby's Handbook of British Birds, and Niethammer's Handbuch der Deutschen Vogelkunde, both of which are reliable sources of information on this and many other subjects. Many of Dr. Worth's figures in the table are too low, especially for Hawks; other corrections are: Barn Owl 30–34 days instead of 22.5; Spotted Sandpiper 21 instead of 15 (Nelson, *Bird-Banding*, 1 : 8; Mousley, *Auk*, 54 : 445); Yellow Warbler 12 instead of 10 (*Gross*, *Bird-Lore*, 36 : 158); Ruby-throated Hummingbird at least 16 instead of 14 (Hinman, *Auk*, 45 : 504; Heydweiller, *Bird-Lore*, 33 : 233). The chart on p. 48 needs some changes.

It seems a pity to use a laborious and only 85 per cent correct formula for finding egg volume from the measurements, when Schönwetter's method of calculating egg weight is so much simpler and more accurate (*Beitr. z. Fortpfl. d. Vögel*, 1 : 49–52, 1924; also described in *Trans. Linnæan Soc. N. Y.* 4 : 113–118, 1937).

Heinroth tells us that the following birds have very long incubation periods: Procellariiformes, Falconiformes, Alcidae, Psittaciformes and Trochilidae. The following have rather long periods: Phalacrocoracidae, Ardeidae, Ciconiidae, Charadriiformes, Coraciiformes, Strigiformes, and Micropodidae. Anatinae have short incubation periods and so do Picidae despite their protected nesting sites. He points out that the Rhea with an egg weighing 600 grams incubates for 35 days, the same length of time as a Swan with its egg of some 200 grams. The Ostrich hatches its egg in 42 days, the same time needed by the Gannet for its egg one-fifteenth the size or Leach's Petrel with its egg one-fortieth the size.

Dr. Worth is correct in pointing out that predacious birds have longer incubation periods than those preyed upon, and he is also right when he deplores "the lack of information on the incubation periods of very many birds."

Dr. Heiroth concludes: "Very long incubation periods, especially with altrices, are always to be regarded as somewhat primitive, and have persisted where the brood is subject to few dangers. Long incubation periods are usually correlated with slow development of the nestlings", p. 285 (my translation.)

#### CENSUSES AND ECOLOGY

**39. The World Distribution and Numbers of Breeding Gannets.**—James Fisher and H. G. Vevers. 1939. *Bull. Brit. Orn. Club*, 40 (427): 39–41. In 1939 "a team of ornithologists made an attempt" to count all the breeding *Sula bassana* and "was successful in counting all but 2 per cent of the birds." The present breeding population is about 167,000 birds of which two-thirds breed in the British Isles, the rest in Iceland, Canada and Newfoundland.

**40. Report on the 1938 Survey of Black-headed Gull Colonies.**—P. A. D. Hollom. 1940. *British Birds*, 33 : 202–221; 230–244. About 160 observers assisted in this survey that covered all of England and Wales and much of Scotland and Ireland. Six hundred and thirty-four colonies are listed. It is estimated that 75–80,000 pairs are nesting in England and Wales. "A great decrease occurred during the nineteenth century, but recolonization had begun by the end of the century."

**41. Ten Stork Censuses in East Prussia.** (Zehn ostpreussische Storch-Zählungen.) F. Hornberger. 1939. *Ornith. Monatsb.*, 47 : 166–170. In Kreis Insterburg the number of pairs rose from 356 in 1931 to 750 in 1936, decreasing the next two years, but recovering to 693 in 1939. Both 1937 and 1938 were unfavorable years; the birds arrived late and at different times and the fighting for nests broke up families, but conditions improved in 1939. In the last four years the average number of young raised per pair was 2.3, 0.8, 1.3 and 1.8; the percentage of pairs raising no young was 15, 59, 43 and 13; the percentage of pairs raising 3, 4 or 5 young was 52, 8, 23 and 26. In 1939 the last young Stork had left by August 10, the last old Stork the second week in September.

**42. The 1939 September Pheasant Survey.**—Lawrence E. Hicks. 1939. Ohio Wildlife Research Station, Release 119 : 1–20. In censusing the *Phasianus colchicus torquatus* population in eleven counties in northwestern Ohio in September, 62 man-days were spent, 2,780 miles were covered and 2,398 Pheasants seen, "indicating an average population of 109 birds per square mile." In the evening 68 per cent as many birds were seen as in the morning. Of 750 adults, 28.7 per cent were cocks; of 1,376 juvenals 49.6 per cent were cocks; of the entire population 44.3 per cent. "For every 100 pheasants seen the staff saw 25 bobwhites, 4.3 rabbits, 2.1 Hungarian partridges, 135 crows and 6.1 hawks."

In 1,075 acres of alfalfa the average loss per 100 acres was "41 nests destroyed, 25 pheasants killed and 11 crippled." Of the hens surviving to September, 72 per cent had young; the average brood at 2–3 weeks consisted of 9.7 chicks, at 13 weeks of 5 chicks. The mortality of the hens during nesting about balances that of the cocks that are shot. "Our experience indicates that a reproductive season has been satisfactory if the brood stock of April results in a doubled population by October 1 (a net increase of 100%)." p. 10.

**43. Local Distribution of Eastern Canadian Arctic Birds.**—J. Dewey Soper. 1940. *Auk*, 57 : 13–21. A description of the wealth of birds in grass tundra and their dearth in desert tundra. Different types of habitats are discussed, their geology and ecology. Three censuses are given, ranging from 280 to 676 breeding birds per square mile.

44. **Studies on Hole-nesters in a Park in Northwest Saxony.** (Siedlungs- und brutbiologische Studien an Höhlenbrütern in einem nordwestsächsischen Park.) R. Berndt & F. Frieling—1939. *Journ. f. Ornith.*, 87: 593-638. A large population has been brought in by an abundance of nest boxes. There are ten times as many pairs in Park Prödel as in the Unterspreevald studied by Schiermann (*Journ. f. Ornith.*, 1930), who found 2.84 pairs per hectare; in Prödel there are 2.81 pairs of Pied Flycatchers (*Muscicapa hypoleuca*) per hectare. The highest total population found by Schiermann was 10.18 pairs per hectare; this was surpassed in Prödel in 1937 by the box nesters alone—10.35 pairs. In 1936 and 1937 many Starlings nested twice, but in 1938 with a late beginning of nesting there were almost no second broods. With the Tree Sparrow (*Passer montanus*) second sets are larger than first sets.

45. **Predators—Human and Wild.**—P. A. Taverner. 1940. *Bird-Lore*, 42: 5-9. "The successful predator is regarded as a blood-thirsty ravenier; the successful human hunter, either with gun or the coin of the realm, is admired as a good provider. . . . With the scales of prejudice removed from our eyes, predation should be looked upon as a normal and necessary process of nature."

46. **Food Habits of the Herring Gull in Relation to Fresh-Water Game Fishes in Maine.**—Howard L. Mendall. 1939. *Wilson Bulletin*, 51: 223-226. An analysis of fifty full stomachs of *Larus argentatus* from the inland waters of Maine. Fish food represents 77 per cent by bulk of dry material, other animal food about 7 per cent, vegetable about 8 per cent,—the rest is refuse. Trout and salmon represent only 2 per cent, bass only 4 per cent, and the vast proportion of other fish are drawn from valueless or over-abundant species.—T. T. McC.

#### PHYSIOLOGY

47. **The Relation of Metabolism to the Development of Temperature Regulation in Birds.**—S. C. Kendeigh. 1939. *Journ. Exp. Zool.*, 82: 419-438. A description of methods and results of experiments on House Wrens.

48. **Physiological Variations in Wild Turkeys and their Significance in Management.**—R. Gerstell and W. H. Long. 1939. Penn. Game Comm. Research Bull. No. 2: 1-60. Poults of Game Farm Wild Turkeys and those fathered by wild toms were compared; the latter were more nervous and more active, especially in the dark. Part II by Long is on Heat Production and Muscular Activity and compares the physiology of wild and domestic birds and mammals, giving interesting tables that compare the heat production per square meter of body surface, respiration rate, heart rate, weight, etc.

49. **Apparatus for Measuring Metabolism and Activity in Wild Animals.**—Wm. H. Long. 1939. Univ. Michigan, School of Forestry and Conservation. Circ. 5. 35 pp. 25 cents. Description with illustration of this apparatus devised for the study of small mammals and wild game birds.

50. **Sexual Photoperiodicity in the Blue Jay (*Cyanocitta cristata*).**—T. H. Bissonnette. 1939. *Wilson Bull.*, 51: 227-232. Six hours night lighting from December 3-31 brought "almost, if not quite, complete spermatogenesis and activation of the epididymis to breeding condition." "Females also respond, but more slowly and less completely."

#### SEX RATIO

51. **Sex Ratio in Wild Birds.**—E. A. McIlhenny. 1940. *Auk*, 57: 85-93. In over 25 years at Avery Island, Louisiana, the author has banded more than 150,000 birds with the very high number of 15,000 returns. Two resident Icterids are abundant throughout the year; the normal clutch of eggs is three; sex can be

told before the young leave the nest; the males "do not breed until the second year after hatching"; the females breed the first year; in one males outnumber the females, while in the other the opposite is true. With the Boat-tailed Grackle (*Cassidix mexicanus major*) the ratio in 137 nests was one male to 2.29 females and that of 5,333 trapped birds one male to 2.01 females. With the Gulf Coast Redwing (*Agelaius phoeniceus littoralis*) the sex ratio in 140 nests was 3.3 males to one female; and with 6,480 trapped birds it was 5.43 males to one female. With Cowbirds (*Molothrus ater*) 74 per cent of 4,281 banded birds were males—2.82 males to 1 female. Of 319 Cardinals (*Richmondia cardinalis*) 66 per cent were males. Of nine species of ducks banded (from 332 to 23,000 of each species) in only the Mallard (*Anas platyrhynchos*) has the sex ratio been even; in the others it averages about two males to each female. In the returns among ducks four years or more old, the proportion of males is even larger.

**52. Sex Ratio and Weights of Crows Wintering in Oklahoma.**—R. H. Imler and F. B. McMurry. 1939. *Wilson Bull.*, 51:244. A large roost was bombed Dec. 6, 1938; 18,000 Crows were killed, both *Corvus b. brachyrhynchos* and *C. b. hesperis*. One hundred were picked up from ten areas throughout the roost and weighed and sexed; there were 526 males and 474 females. The average weight of the males was 1.05 pounds, of the females 0.93 pounds.

#### BOOKS

**53. A Bibliography of Birds with Special Reference to Anatomy, Behavior, Biochemistry, Embryology, Pathology, Physiology, Genetics, Ecology, Aviculture, Economic Ornithology, Poultry Culture, Evolution, and Related Subjects.**—Parts 1 and 2. Author Catalogue. Reuben Myron Strong. 1939. *Field Mus. Nat. Hist. Publ., Zool. Ser.*, 25:1-937. \$11.00. Every serious student of birds will welcome the appearance of the first two parts of this monumental work in which some 30,000 articles and books on the biology of birds are listed. Fifty-six pages are devoted to the Key List of Abbreviations for Periodicals Cited—about 2,000—and ten pages to a list of about 450 periodicals not cited, many of "which have little value to the investigator, but which have the spirit of the true naturalist or may be useful in aviculture."

"The comprehensive search ended with literature for 1926", but "other references were added as they came to attention, even as late as 1938." "Though a majority of the publications listed are in Chicago libraries, thousands are not. It was necessary to make many trips to libraries in other cities, sometimes for extended periods."

The scope of the bibliography is world wide and its accuracy of the first order, for Dr. Strong expended every effort to verify each reference. An especially helpful feature is that of indicating the "library in which each publication not commonly distributed in libraries was found."

Useful as these first two volumes will be, the third volume—the Subject Index—will be of even greater value. Ornithologists owe a great debt to Dr. Strong for his tireless efforts devoted through many years to this notable undertaking.

**54. Bio-Ecology.**—Frederick E. Clements and Victor E. Shelford. 1939. N. Y. Wiley. 425 pp. \$4.50. This correlation of the fields of plant and animal ecology deals largely with general concepts, but devotes the last chapters to the North American Grassland, Aquatic Climax Communities and Marine Biotic Communities. The number of new terms employed is confusing to the uninitiated, and a glossary is greatly needed. As to birds, a brief, inadequate section on territory is included, and a whole chapter devoted to migration, 21 pages of it to bird migration. The authors correctly stress the *irregularity* of arrival and departure. They find "little support to the hypothesis that spring arrivals are earlier at sun spot maxima and minima", yet, curiously enough, they give Delury's (1923) chart showing with smoothed curves the coincidence of the arrival of the Cuckoo,

Lark and Swallow with sunspot maxima. They reject the theory that migration depends on day length, saying, "As to the northward migration, the chief factor appears to be high air temperature in the form of the daily maximum." p. 216. They point out that the leafing and "blooming of plants, which are known to be directly connected with temperature, exhibit much the same degree of fluctuation" as bird migration, p. 221. Following Kendeigh (1934) they say "From the synthetic and objective approach to the problem of migration it appears manifest that metabolic condition is the crux of the matter, especially as influenced by hormones, vitamins, blood physiology, temperature, and food consumption in terms of length of daylight and darkness." p. 216.

The reviewer is in essential agreement with the foregoing, but in the last section "Orientation and Sense of Direction" the authors have missed the point of Ruppell's classic experiments. The extraordinary thing about these is that *over one-third of the birds returned over unknown country and from great distances*, even from Spain, Greece and Scandinavia to Germany! This is also true of the experiments by Watson and Lashley (1915), Dirksen (1932), Lack and Lockley (1938), Griffin (1940)—see No. 9. Some birds certainly have a sense of absolute orientation.

**55. Hawks in the Hand.—Adventures in Photography and Falconry.**—Frank and John Craighead. 1939. Houghton. 289 pp. \$3.50. An enthusiastic book telling in straightforward style the excitement, hardships, disappointments and hard-won successes in photographing hawks, owls, eagles and ravens at the nest and in raising many of the young birds and training the hawks—Cooper's, Duck Hawks, Prairie Falcon and Sparrow Hawks. Entertaining stories are told of these birds, of a most engaging Burrowing Owl, pet Screech Owls and Long-eared Owls. Most of the birds were allowed complete freedom; some eventually left, while others came to their ends through their lack of fear. An especially interesting story is that concerning the friendship of a Skimmer and an Osprey raised together. There are 57 excellent photographs. This book with its eager enthusiasm for hawks and owls should interest many people, especially young people, in these birds that are so greatly in need of friends.

**56. Birds in the Garden and How to Attract Them.**—Margaret McKenny. 1939. N. Y. Reynal & Hitchcock. Qto. 349 pp. \$5.00. An attractive book designed for Garden Club members with 16 color plates of passerines from Roberts' Birds of Minnesota, and 32 pages of halftones. Most of the emphasis is on attracting birds by planting, winter feeding and bird boxes, protection from cats, care of stray birds, etc. It is a pity that in Chapter 17 in the descriptions of birds seen in the garden and country places, birds from all over the U. S. A. are presented (in alphabetical order) *with no indication as to the region in which they occur*. In her chapters on Bird Song and Migration Miss McKenny has touched lightly on very large subjects and the resulting picture is somewhat confused. In the plate opposite p. 155 we are not informed what species of "baby birds" were "thrown out of a nest."

The book concludes with a useful list of plants suitable for different regions and the birds that feed upon them, sections on planting to attract water-fowl and a list of "berried shrubs and vines tolerant of city conditions", and finally an index. A list of references is given, books and bulletins from the government and National Association of Audubon Societies, but no mention is made of *Bird-Lore*, nor the ornithological associations and their journals.

**57. The Beeps. The Flights and Cruises of Three Missouri Tree Sparrows.**—Virginia Holton. 1939. N. Y. John Day Co. 192 pp. \$2.00. A story of three *Passer montanus* that followed the author and her husband as they drove from Kansas City to New York and back; then followed them on the train to San Francisco, stowed away on the boats to China, accompanied the Holtons hither and yon in the Far East and finally returned—at least their grandchildren

did—to California and at length New York, in both of which places they took unto themselves wives (i.e. of English Sparrows) and “begat sons and daughters.”

The pictures of the Beeps in China are of Tree Sparrows; an examination in the Field Museum of skins of *Passer m. montanus* and the three subspecies that occur in China showed no appreciable difference in the size of auricular patches, so there is no reason to believe that the Beeps in China were not Chinese Tree Sparrows. Moreover, Tree Sparrows (*Passer montanus*) do not occur within 180 miles of Kansas City, hence the original Beeps must have been English Sparrows. Apparently wherever the Holtons went, they must have believed that any friendly English Sparrow in this country or Tree Sparrow in China was a Beep. The Beeps were not banded; if they had been, there would have been no story.

**58. Canadian Land Birds. A Pocket Field Guide.** P. A. Taverner. Illustrated by Allan Brooks, F. C. Hennessey and P. A. Taverner. 1939.<sup>1</sup> Philadelphia. David McKay Co., small 8 vo. 277 pp. \$2.50.

**59. Canadian Water Birds. Game Birds: Birds of Prey. A Pocket Field Guide.** P. A. Taverner. Illustrated by Allan Brooks, F. C. Hennessey and P. A. Taverner. 1939<sup>1</sup>. Philadelphia. David McKay Co., small 8 vo. 291 pp. \$2.50.

These two companion books, uniform in all respects are designed for the use of amateur ornithologists and beginners in bird study. As the titles indicate, they are primarily for use in Canada.

In order to deal with so many species in so small a compass both books contain only the bare essentials, but these, together with the many small (2½ x 3¼ in.) colored plates should enable the beginner to identify a considerable portion of the species in his vicinity.—J. L. P.

**60. The Birds of Denver and Mountain Parks.**—Robert J. Niedrach and Robert B. Rockwell. December, 1939. The Colorado Museum of Natural History, Popular Series No. 5, 8 vo. 196 pp. 1 map. This admirable local list embraces an area within a radius of twenty-five miles from the State Capitol Building and in addition that portion of the mountains west of the city which includes the Denver Mountain Parks System, an area with a vertical range 5,000 to 13,000 feet and including certain types of the Upper Sonoran, all of the Transition, Canadian, Hudsonian and a part of the Arctic-Alpine Life Zones.

Each species known to occur in the region is listed under both common and scientific names, followed by a paragraph devoted to field marks, a statement of its states, whether migratory or resident, abundance and zonal distribution. An additional paragraph of text amplifies some of the data given in the preceding paragraphs.

The authors display a commendable conservatism in not giving too much credence to sight records of rare species, but where an unusual record is supported by a specimen full details, including the location and museum number, are given. A valuable feature is a key to locations mentioned in the text. A full bibliography and a comprehensive index complete the work. There are many photographic illustrations. Those planning to attend the American Ornithologist's Union meeting at Denver in 1941 would do well to provide themselves with a copy of this book.—J. L. P.

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<sup>1</sup> Review copies received 29 January, 1940.