

It seems quite apparent that the intrusion of this unfortunate bird into the territory of a mated pair was the stimulus for violent defensive measures. The male of the pair, even though "trap-wise," entered the gathering cage to do battle. I cannot imagine whether the female assisted him or not; she was on hand as a witness at least. But the intruder, unable to escape, paid the extreme penalty for his folly.—C. BROOKE WORTH, Edward Martin Biological Laboratory, Swarthmore College, Swarthmore, Pa.

RECENT LITERATURE

Reviews by Margaret M. Nice

MIGRATION AND BANDING

1. **Bird-Migration over the Northwestern Part of the Indian Ocean, the Red Sea, and the Mediterranean.** R. E. Moreau. 1938. *Proc. Zool. Soc. London, Ser. A*, 108: 1-26. In this well documented paper the author concludes "that migration between Africa and Eurasia takes place through a great quadrant, one arm of which runs up the Atlantic coast, the other across the Indian Ocean about lat. 10° N.; and that the movement is of an essentially broad-front nature throughout." There are great opportunities for adding to the comparatively meager records "of the sea-crossings of Palearctic birds moving to and from Africa."

2. **Migration in the Mediterranean.** D. A. Bannerman. R. E. Moreau. 1939. *Bull. Brit. Orn. Club*, 59: 124-129. The first ornithologist reported that on April 22, 1939, birds were passing north from dawn to dusk at "the widest spot at which to cross the Mediterranean." The second said that on April 3, 1939 with a northeast wind great numbers of birds were seen, "embarked upon about the longest S.-N. crossing to be found in the Mediterranean."

3. **Population Studies of the European Starling in America.** L. E. Hicks. 1939. IXme Congrès Orn. Int., Rouen: 457-474. From 1920 to 1937 81,000 *Sturnus v. vulgaris* were banded in America, 34,000 of these in Ohio. Of these last the very high percentage of 31.6 was retaken. Returns, 1-7 years after banding, amounted to 14%; repeats, 1-3 months after banding, 14.9%; recoveries, 0.2% up to 32 kilometers, 1.2% up to 320 kilometers, 1.3% from 320 to 1290 kilometers. Fourteen maps are given, most of them showing the northeast-southwest trend of migration. An admirable study.

4. **Results of Researches on the Migration of the Starling in Italy.** (Risultati delle Ricerche sulla Migrazione dello Storno in Italia *Sturnus vulgaris* (L.)) A. Toschi. 1938. *Ricerca di Zoologia appl. alla caccia*, 12: 1-58. Starlings in the neighborhood of Pisa were found through ringing to be stationary. The majority of those nesting in the valley of the Po are stationary, but one was retaken in Tunisia. "The greater part of the starlings which traverse Italy passes the winter in North Africa and especially in Tunisia and Algeria." An interesting map is given showing recoveries of birds banded on Lake Garda and Ancona; those from the former locality occur almost consistently east of those from the latter. Ringed Starlings migrating through Italy come from Germany, Switzerland, Poland, Yugoslavia, Hungary and Russia.

5. **Banding Results with the Goshawk.** (Beringungs-Ergebnisse beim Habicht (*Accipiter gentilis*.) Otto Lüders. 1938. *Deutscher Falkenorden*, No. 4: 38-48. Goshawks are rather sedentary in Germany. Sixty-three per cent of the recoveries of birds banded in the nest came within the first year, leaving one-third of the young to reach adulthood. Eighty per cent of the mortality of ringed birds was due to man, mostly shooting. The greatest age attained by a ringed bird was 10 years.

Banding was an indispensable technique in Nos. 6-12, 34, 35, 41, 47 and 52.

HOMING EXPERIMENTS

6. Researches on Orientation and Speed of Flight with Birds. V. Further Experiments with Storks. (Untersuchungen über die Orientierung und Geschwindigkeit des Fluges bei Vögeln. V. Weitere Versuche an Störchen.) K. Wodzicki, W. Puchalski and H. Liche. 1939. *Journal für Ornithologie*, 87: 99-114. Twelve nesting Storks were caught in Poland, marked with colored rings and paint, and magnets weighing 12 grams fastened on the heads of some, while the rest had similar objects. None returned from Lisbon and Helsingfors (the weather was unfavorable), but three of the four released—separately—near Berlin returned the 860 kilometers, one with a magnet, two without.

7. New Experiments on the Sense of Orientation in Birds. (Nouvelles Expériences sur le Sens d'Orientation chez les Oiseaux.) K. Wodzicki. 1939. IXme Congrès Orn. Int., Rouen: 437-444. Barn Swallows (*Hirundo rustica*) were transported to distances from 148 to 660 kilometers from their nests; many returned, sometimes as many as 90%. The average speed of flight increased from about 1 kilometer per hour when released 6.5 kilometers from home to 42.9 kilometers per hour from a distance of 100 kilometers. For longer distances the speed averaged from 10 to 20 kilometers per hour.

Thirteen parent Storks were transported from 50 to 2260 kilometers; 9 returned (70%), the furthest being from Palestine, 2260 kilometers. All birds when released set off in the direction of their homes.

8. On the Influence of Removing to a Distance the Sparrow Hawk (*Accipiter nisus*) during the Fall Migration. (Ueber den Einfluss vom Verfrachtungen zur Herbstzeit auf den Sperber, *Accipiter nisus* (L.)) R. Drost. 1939. IXme Congrès Orn. Int. Rouen: 503-520. Sparrow Hawks captured on Helgoland are raised in Scandinavia; they migrate southwest to their winter quarters in Holland, Belgium, and northeast France. Some of the birds caught at Helgoland in the fall migration were taken to Silesia and released there 10° east of Helgoland. Adults migrated west to their regular winter quarters. Young birds behaved differently; some wintered in Silesia, while many migrated southwest reaching upper Italy and southern France. Some were found after one or two years in Silesia or the new winter quarters.

9. Experiments on Return to Winter Quarters of Black-headed Gulls and Coots. (Versuche über Winter-Ortstreue an *Larus ridibundus* und *Fulica atra*.) A. Schifferli and W. Rüppell. 1939. *Journal für Ornithologie*, 87: 224-239. Seventy-eight Black-headed Gulls that were wintering in Berlin were sent in December, 1935 to Luzern 700 kilometers southwest. Four returned that winter, one wandered to Barcelona; in the next winter 16-18 were back in Berlin. One of the first four was again sent to Luzern (February, 1936) and returned a second time.

Eight-three European Coots were sent from Zurich and Luzern to Berlin in December, 1935. One returned to Luzern, six to Zurich; some remained in Berlin and one was found two days after release 60 kilometers southwest of Berlin.

The authors conclude that wintering birds have a bond to their winter homes, perhaps based on food.

EXPERIMENTS IN COLONIZING

10. Artificial Colonizing with Birds. (Ueber künstliche Verpflanzung bei Vögeln.) E. Schüz. 1939. IXme Congrès Orn. Int., Rouen: 311-325. Unsuccessful plantings of European Quail (*Coturnix coturnix*) are mentioned, as well as the successful one of bringing back Storks to Rossitten. Two hundred and sixty eggs of the Common Gull (*Larus canus*) were given in 1934 to a colony of Black-headed Gulls near Rossitten 500 kilometers from the home of the Common

Gulls. The young were raised by their foster parents and 79 were banded. A few returned in 1935 and 1936, but did not nest. In 1937 several pairs built nests; the next year two pairs raised young even though local conditions—thick reeds—do not offer the proper habitat for this species.

11. Experiments with Storks. R. Blockey. 1939. IX^{me} Congrès Orn. Int., Rouen : 93–96. Twelve stork eggs were sent from Rossitten to England where they were placed in Grey Herons' (*Ardea cinerea*) nests; the Herons accepted these large white eggs instead of their own without "any apparent disquiet." They incubated for 40 days, the incubation period of the Heron being 26 days, of the Stork 31. All were added except one; the bird died after six days. The next year results were not different except that the one young bird lived for 16 days. Twenty-three young Storks were sent by airplane; these were raised and migrated, two being killed in France.

LONGEVITY

12. Some Bird-Banding Notes. M. J. Magee. 1939. *Jack-Pine Warbler* 17 : 73. Of 33,410 birds banded since 1922 over 2,000 have returned. The oldest birds are: Northern Flicker (*Colaptes auratus luteus*) at least 12 years, Purple Finch (*Carpodacus p. purpureus*) at least 10 years, three Evening Grosbeaks (*Hesperiphona v. vespertina*) at least 9 years, and Yellow Warbler (*Dendroica a. aestiva*) 7 years.

13. Further Notes on the Duration of Life in Animals. IV. Birds. S. S. Flower. 1938. *Proc. Zool. Soc. London*, Ser. A. 108 : 195–235. Records were examined of 5,535 birds of 1,294 species known to have lived 6 or more years. Sources were judged critically and both "reputed" and proved ages given; I will quote only the latter. There is a bibliography of 35 titles, banding records being used, but most of the data comes from captive birds. Unexpectedly long lives have been recorded for many passerines (in captivity unless otherwise noted): Raven (*Corvus corax*) 24 years; Crows (*Corvus sp.*), 16, 17, 22; European Jay (*Garrulus glandarius*) 17; Starling, 17 (ringed 15 years, 10 months); Jackson's Whydah-Bird (*Drepanoplectes jacksoni*) 19; Italian Sparrow (*Passer italiae*) 20; House Sparrow (*P. domesticus*) 23 (ringed 5½ years); Greenfinch (*Chloris chloris*) 19½; Cardinal (*Richmondia cardinalis*) 22, (ringed 13); Chaffinch (*Fringilla coelebs*) 22; Redpoll (*Acanthis linaria*) 25; Siskin (*Spinus spinus*) 25; European Goldfinch (*Carduelis carduelis*) 27; Canary (*Serinus canarius*) 15, 22; Red-crested Cardinal (*Paroaria cucullata*) 30; Purple Sunbird (*Cyrstostomus asiaticus*) 22; Great Titmouse (*Parus major*) 9; Garden Warbler (*Sylvia borin*) 17, 24; Hedge Sparrow (*Prunella modularis*) (ringed 8½); Spotted Flycatcher (*Muscicapa striata*) (ringed 11 years, 9 months). A Golden-fronted Woodpecker (*Melanerpes formicivorus*) lived for 15 years "a great pet"; a ringed Swift (*Apus apus*) 14 years. The oldest "proved" ages are the following: Eagle Owl (*Bubo bubo*) 68 years; Cockatoo and Bateleur Eagle 56; Condor (*Vultur gryphus*) 52; White Pelican (*Pelecanus onocrotabus*) 51; Parrots, 54, 51, 43; Australian Crane (*Grus rubicunda*) 47; Golden Eagle 46; European Crane (*Grus grus*) 43; Caracara 42; Herring Gull (*Larus argentatus*) 41; California Condor 37; Canada Goose 34; Domestic Pigeon 30. There are, however, records of two Herring Gulls that reached at least 45 and 49 years of age in captivity (T. G. Pearson, 1935. *Bird-Lore*, 37 : 412–413.)

WEIGHT

14. Egg Weight and Body-weight in Some Chinese Birds. (Notulae Circa Sinensis Aves. (1).) Tsen-Hwang Shaw. 1937. *Bull. Fan Memorial Inst. Biol. (Zoology)*, 7 (5) : 187–198. The mean body weights and mean egg weights of 15 species of 5 orders are given. "The average body-weight ranges

from 8.9 grams to 380 grams, and the average egg-weight from 1.4 grams to 21.6 grams." The relative egg-weight decreases from 15.6 per cent in the lowest body weight (*Acrocephalus bistrigiceps*) to 5.68 per cent in the highest (*Gallinix cinerea*).

15. Daily Weight, Increase of Nestlings of the Great Tit, Common Redstart, Blackcap, Serin and Starling. (Tägliche Gewicht-Zunahme während der Fütterungs-Zeit bei *Parus m., major-, Phoenicurus ph. phoenicurus-, Sylvia atricapilla-, Serinus canarius serinus-* und *Sturnus v. vulgaris.*) K. Wurga. 1939. IXme Congrès Orn. Int., Rouen: 523-534. Daily weights in grams for each bird of seven broods are given along with brief notes on feather development and the opening of the eyes. The small young were marked with anilin dyes, for when colored tags were attached to their legs, the parents (titmice) removed the tags and the young along with them. The young Titmice reached the weight of their mother at 12 days, the Redstarts at 7 and 8 days; both showed some loss afterwards. The Serins and Starlings did not reach adult weight. The Redstarts left when 12 days old, the Serins when 14, the Titmice when 17 and 18 and the Starlings when 19 days old.

MOLT

16. Notes on the Moults of the Rock Ptarmigan (*Lagopus mutus*). F. Salmonsén. 1939. IXme Congrès Orn. Int., Rouen: 295-310. The main winter molt starts at about 2°C. and stops at 0°; the complete molt starts at about 3°-8°, and is finished at -2.5°- -8.3°. The colder the weather, the more rapid the molt.

In the Willow Grouse and stoat there are races without the white winter dress—*Lagopus lagopus scoticus* and *Mustela erminea hibernia*; "the temperature is so high that in the autumn it does not reach the threshold stimulus for inducing the development of the white dress." Tables and charts give the author's findings in detail.

LIFE HISTORY

17. Investigations on the Nesting Birds among the Islands West of Helsingfors. (Untersuchungen über die Nistvogelfauna in einem Schärengebiet westlich von Helsingfors.) G. Bergman. 1939. *Acta Zoologica Fennica*, 23: 1-134. Observations from 1931-1937 based on 1100 trips to the islands and reefs, a region seventeen kilometers long and seven wide, with over 140 islands and reefs, many of the former being wooded. The birds are carefully protected. Eighty-one nesting species were found, 25 on the outer portion. Nesting dates of some early nesters seems to depend more on the breaking up of the ice than on the current temperature; the date of the breaking up of the ice depends primarily on the thickness of the ice and this depends on the temperature in the winter. The Tufted Duck (*Nyroca fuligula*) and Turnstone (*Areolaria interpres*) are influenced by the spring temperature.

The mortality of young Eider Ducks (*Somateria mollissima*) from hatching to flight reaches 35%. As to the Velvet Scoter (*Oidemia fusca*), of 130 eggs laid in fourteen nests, thirteen were added, and thirty young died directly after hatching due to storms and Lesser Black-backed Gulls; while counts of broods showed 50-75% mortality of the ducklings before they were fledged. The Red-breasted Merganser (*Mergus s. serrator*) has much better success, 90% of the young being fledged. In July, 2 flocks of 49 and 56 young were seen each led by a single female; on September 5 in the same region there were two flocks of 41 and 54 young.

As to the gulls, the author thinks they do more good by protecting from Crows than harm by the young birds they eat. On a reef where no gulls nest 10 of 33 Eider nests were robbed; on reefs with gulls only 5 of 53. Many birds prefer to

nest along with gulls: Tufted Duck, Velvet Scoter, Eider and Turnstone. Velvet Scoters nest on little islands with gulls and terns without the usual protection of grass and bushes. If gulls and terns decrease on an island, there is no effect on the shorebirds and ducks, but if they disappear entirely, the others leave. The Great Black-backed Gull (*Larus marinus*) does not rob near its nesting place but does on other islands. The author considers nest robbing largely an individual matter; one Common Gull (*Larus canus*) destroyed seven tern nests in twenty minutes; the Lesser Black-backed Gull (*Larus fuscus*) robs the Red-breasted Merganser—both old and young birds—of fish, and Herring Gulls (*L. argentatus*) sometimes do likewise. Common Terns (*Sterna hirundo*) in flocks rob Great Crested Grebes (*Podiceps cristatus*) of fish.

18. Report on the Stork in the Netherlands in 1938. (Gegevens over den Ooievaar (*Ciconia c. ciconia* L.) in Nederland in 1938.) Fr. Haverschmidt. 1939. *Ardea*, 28 : 4-5. The season of 1938 was even more unfavorable than that of 1937. In 1937 188 nests averaged 1.78 young raised, 35% raising no young. In 1938 180 nests averaged 1.29 young, 51% raising no young.

19. A Case of Bigamy in Montagu's Harrier. G. Dent. 1939. *Brit. Birds*, 33 : 51-52. The two mates of a male *Circus pygargus* nested within 70 yards of each other. At first there was some fighting between the two females. For a few days "hen no. 2" showed a tendency to come off the nest out of her turn, and would rise when the cock called hen no. 1 off to take the pass. "On these occasions the cock drove her back to her nest, before feeding hen no. 1." Hen no. 1 laid four eggs and raised four young; hen no. 2 laid five eggs, but hatched only three, the others being infertile. One of the three did not "leave the nest until a fortnight after the others had flown. . . . Neither of the hens hunted much until their young were well grown, and both broods were reared almost entirely by the efforts of the one cock bird, no mean achievement on his part."

20. The Nesting of the Hen Harrier. (Zur Brutbiologie der Kornweihe.) G. Hass. 1939. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 15 : 137-146. Three nests of *Circus cyaneus* were watched, one from a blind, the others from a perch in an alder. Considerable difference was found in the behavior of the pairs. Daily weights were taken on three young that hatched June 20, 25, 27; the youngest (believed to be a female)—grew fastest. When they were 29, 24 and 22 days old they weighed 400, 393 and 510 grams respectively. The three were peaceful together, the female being more sluggish than her brothers. The oldest tried to walk at 13 days, the youngest not before 19 days. Wing exercises and preening were started at 14 days. At three weeks the middle bird went through bathing movements at sight of water and the 26 day old took a regular bath. The two older birds flew at 31 days, the youngest at 35. The female fed the young for two more weeks.

The adults were courageous in defense of their broods, in contrast to the Marsh (*C. aeruginosus*) and Montagu's Harrier; the parents attacked the author on the head when he weighed their young. One female distinguished him from fishermen. The young always begged to a flying parent, never to a sitting one.

21. A Study of Wisconsin Prairie Chicken and Sharp-tailed Crouse. F. N. Hamerstrom, Jr. 1939. *Wilson Bulletin*, 51 : 105-120. *Tympanuchus cupido americanus* is less abundant than *Pediocetes phasianellus campestris* on the Central Wisconsin Game Project, where the area has largely grown up to aspen. Booming behavior of the Prairie Chicken is influenced both by light and temperature. Fertility in both species is high; the average size of clutch is twelve, and there is no difference in different phases of the cycle. There is a 50 per cent mortality of nests. Most of the nests of both species are placed "in cover mixtures rather than pure stands."

22. The Nesting Biology of the Crane. (Zur Brutbiologie des Kranichs.) E. Christoleit. 1939. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 15 : 1-8, 63-71, 119-124, 151-162. A long discussion of the behavior of *Grus grus*. The author fears this fine bird will soon be extirpated as a breeding species from Germany because of the "present untamable madness for improvement."

23. Observations on the Purple Sandpiper in North East Land. D. B. Keith. 1938. *Proc. Zool. Soc. London*, 108A : 185-194. *Erolia m. maritima* defends its territory, but when the receding tide reached a certain point the male allowed other pairs to come and feed. There were many non-breeders. "These birds occupied territories, and in some cases the male constructed cock-nests, but the females seemed to have undergone scarcely any sexual development."

Much space is devoted to the wing ceremony: one or both wings were raised straight up, while the bird was standing or running. The wing next to the mate or the observer was raised, showing the white plumage. The mate seldom responded in any way.

24. The Least Tern in Iowa. B. F. Stiles. 1939. *Iowa Bird Life*, 9 : 19-21. *Sterna a. antillarum* breeds freely on the sand bars in the Missouri River. The birds arrive the last week of May and mating takes place shortly. "Copulation takes place as soon as they are paired and continues through June and July." The ceremony is described in detail, the male giving his mate a fish just before the act. Nesting "does not take place until the river has receded sufficiently to expose suitable sand-bars," i.e. the last week in July. "The young are not all a-wing until the first week in September." "At the time of nesting the southern migration of many shorebirds is well under way" and that of "swallows is at its height."

25. Passenger Pigeons in Northwestern Pennsylvania. L. E. Scherer, Jr. 1939. *Cardinal*, 5 (2) : 25-42. Much information was obtained from an old pigeoneer who had kept diaries of his experiences. *Ectopistes migratorius* followed the beech-nut crop. "It was either a big nesting or none." Such a nesting was called a "city". During incubation, "the toms always started out with a rush to leave the city in the morning before it was even light enough to see them. This outward flight of the males continued for about half an hour." Most of the toms returned about 9 o'clock and then "there was a heavy flight of hens going out to feed." "Shortly before sundown the toms usually went out on a short flight."

26. Territory and Population in the Great Horned Owl. F. M. Baumgartner. 1939. *Auk*, 56 : 274-282. *Bubo virginianus* was found to hold territories with a radius of one-quarter mile; in this area the pair does its hunting.

27. The Flight of Hummingbirds. C. H. Blake. 1939. *New England Naturalist*, No. 3 : 1-5. Excellent description and pictures of flight of *Archilochus colubris*. Professor Edgerton's special camera takes several hundred frames a second. The Ruby-throated Hummingbird was found to take 55 wing strokes a second.

28. The History of a Family of Black Phoebes. G. Oberlander. 1939. *Condor*, 41 : 133-151. Detailed observations on several individuals of *Sayornis nigricans* at Berkeley, California, the author describing at length the "method of feeding", "feeding areas", pellet casting, "routine of leaving and moving to roost" and "habit formation for specific routes." The female roosted earlier and left later than did the male. The male sang a great deal and wandered widely after his mate had been shot on the nest; another mate appeared in three and one-half days and adopted the nest. The incubation period was about 17 days, fledging 21-22 days. The young were still being fed occasionally by the parents at the age of 36 days. A summary would have been helpful.

29. Parental Care by Some African Swallows and Swifts. R. E. Moreau. 1939. *Bull. Brit. Orn. Club*, 59 (424): 145-149. Three thousand hours of observation have been spent at nests of Hirundinidae and Micropodidae at Amani. In the only species where the sexes are plainly distinguishable—*Hirundo smithii*—the female alone incubates. In the Bank Martin (*Psalidoprocne holomelaena massaica*) only one of the pair incubates, but both do so in *Hirundo abyssinica*, in the Rock Martin (*Ptyonoprocne rufigula*) and the Swift (*Micropus caffer struebellii*). Eggs were covered 30-70% of the daylight hours in all species but the Rock Martin where the percentage varied between 50 and 90. There was no evidence "of tighter sitting in any species as hatching approaches, and no correlation between percentage of time incubated and 'standard' temperature." Periods on the nest for *H. abyssinica* were 1-4 minutes, off 1-6; for *H. smithii*, on 2-7, off 2-7; for the Rock Martin, on 2-12, off 2-7; for the Bank Martin on 8-24, off 4-20; for the Swift on 11-30, off 4-30. Young were brooded as much as eggs for the first three or four days; then at least 20 per cent of the time for "about half the fledging period in each species." The rate of feeding "increases steadily during the first half of the nesting period," while in the last week "a surprising degree of stability is attained."

30. The Long-tailed Tit. (Von der Schwanzmeise.) G. Dieselhorst. 1939. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 15: 169-170. Four adults were found feeding at a nest of *Aegithalos caudatus*, evidently two pairs, for each pair stayed close together and flew in opposite directions. Four weeks previously the author had observed only one pair at this nest, and another pair 100 meters away with a nest; this had been destroyed and the extra pair always flew in that direction.

31. A Sociable Breeding Habit among Timaliine Birds. Marquess Yamashina. 1939. IXme Congrès Orn. Int., Rouen: 453-456. One of the Babbling Thrushes—*Yuhina brunneiceps*—is found in the mountains in Formosa; it is a sociable bird, living on insects and nectar. Five adults (two males and three females) were feeding five young in one nest, while six different birds were incubating eight eggs at another.

32. Notes on Savi's Warbler. (Notes sur *Locustella luscinioides luscinioides* (Savi). A. Dirx. 1939. *Le Gerfaut*, 29: 1-31. This appears to be the second nesting study of this reed-dwelling bird with its grasshopper-like song. G. Schiermann (*Orn. Monatsber.*, May, 1923; *Journ. f. Ornith.* Jan. '24, July '26, Oct. '28) found in Germany the males building the nests (not the "hens" as reported in *The Handbook of British Birds*, II, p. 33), the female incubating alone, and the male doing no feeding of the young until after they were fledged. Mr. Dirx found a different situation near Hoboken; both sexes built, incubated and cared for the nestlings. Incubation lasted 12 to 14 days. One nest, where the birds could be distinguished by peculiarities of the plumage was watched from a blind for six hours on four days in July; the female incubated 232 minutes, and the male 33, while the eggs were left uncovered for 95 minutes, 27 per cent of the time—the weather was hot. The birds stayed faithfully in their territories even although there were only a few pairs for a large area.

33. The Biology of the Japanese Paradise Flycatcher. (Zur Biologie des japanischen Paradiesfliegenschnäppers *Terpsiphone a. atrocaudata* (Eyton).) H. Jahn. 1939. *Journal für Ornithologie*, 87: 216-223. A small nest is built. Both sexes incubate, but the male of one pair helped very little with the feeding of the young; he was molting at the time. The nest was watched six hours when the young were two days old; the male fed once, the female 20 times. When the young were ten days old two left at 11.00 A.M., flying quickly and surely; the female was much excited, feeding the two outsiders 30 times in the next hour and ignoring the begging baby, till it also flew. As soon as they left they started

giving a loud sharp *tjipp*. Strangely enough, only the *wing feathers* were fully developed, the rest of the body being still covered with down. They were not half as large as their mother. Twenty-one days later they were still in the region of the nest, full grown, yet with some down on the belly; they were still being fed, but also snapped occasionally after insects. The three year old male had two very long tail feathers and a purple iridescent back. The author observed one nest where the male was a year old bird.

34. Biological Data from the Ringing of Starlings. (Biologische Beringungsergebnisse bei Staren, *Sturnus v. vulgaris* L.) G. Creutz. 1939. *Mitt. Ver. sächs. Orn.* 6 : 18-26. The author regrets that the majority of coöperators are content with merely ringing birds, rather than working out biological problems. From 1931-1938 on the Elbe near Dresden he has ringed 884 Starlings, breeding birds and their young, the adults caught at night in the nesting boxes. One young bird returned to nest in the box it was hatched in, one settled 60 meters from its birthplace, one 300 and two two kilometers. Females bred at one year. An early beginning of nesting was accompanied by larger broods and more second broods.

Year	Average Beginning	1st Brood		2nd Brood		
		Number of Nests	Average Number of Young	Average Beginning	Number of Nests	Average Number of Young
1935	May 9	22	4	June 19	3	4
1936	May 1	24	4.5	June 9	13	3.8
1937	Apr. 29	49	4.6	June 9	34	3
1938	May 14	20	3.7	—	—	—

Number of days elapsing between the hatching of first and second broods of six females in 1937 ranged from 33 to 43 days. One used the same nest for both broods, three used neighboring boxes, while two moved 100 and 300 meters. The second brood is largely raised on fruit.

35. Additional Information on the Prothonotary Warbler. L. H. Walkinshaw. 1939. *Jack-Pine Warbler*, 17 (3) : 64-71. A very fine paper, based on color banding. Results on the nesting of *Protonotaria citrea* near Battle Creek, Michigan, are compared for 1937 and 1938. Nesting started two weeks earlier in 1938 than in 1937, thanks to high temperatures in the last 20 days of April, 1938. "During both years, two warm days preceded the arrival of the first observed male, the high temperature in each case being 75 degrees Fahrenheit. Egg laying followed a similar warm wave during each year, the temperature in each case reaching into the eighties for one or more days during the period of four or five days previous to the first laid eggs. The high temperatures for May 18, 19 and 20, 1937, were respectively 65, 81 and 79 degrees, and for May 2, 3, 4 and 5, 1938: 79, 88, 85, and 81 degrees. The first eggs were laid during 1937, in different nests, on May 22, 23, 23, 25, 26, 28, 29 and 31 while during May, 1938, they were laid on the 8, 9, 10, 11, 11, 11, 12, 13, 19, 20, 22, 23, 23 and 26. The period between May 9 and 13 during 1938 had nights much cooler than the average, and a similar lull in eggs laid in new nests was noted from May 14 to 18."

In 1937 11 pairs built 27 nests, laid 98 eggs, and hatched 24 young, of which only nine were fledged—9% of the eggs laid. In 1938, 12 pairs built 30 nests, laid 111 eggs, hatched 35 young and fledged 21-24, or 19.8%. High water and House Wrens were the chief causes of mortality. The size of sets was larger in 1937 than 1938, May sets averaging 5.85 eggs in 1937 and 5.2 in 1938. In 1938 when nesting started early, two pairs attempted second broods after raising one. The average weight of fresh eggs was 2.11 grams, of young at hatching 1.97 grams, at nine days 12.27 and ten days 11.88. Adult females averaged 17.53 grams, males 15.25. One female made five attempts at nesting, laying 13 eggs, but raising no young. Incubation lasted 13 days, fledging 9-10. All four young of one brood were still with the father and being fed by him 19 days after leaving the nest. Eggs were laid four, five and seven days after the destruction of a set.

36. Territorial Studies on the Eastern Goldfinch. Margaret Drum. 1939. *Wilson Bulletin*, 51 : 69-77. Contrary to the experience of Dr. Walkinshaw (*Jack-Pine Warbler*, '38, '39), Miss Drum found *Spinus t. tristis* holding territories 50 x 100 feet, although procuring food together at a distance. Males circle over their territories with the *per-che-che* song. The author recognized several by their flight songs. Maps are given showing eight territories in 1937 and 1938. Males drive off other males from their territories and females drive off other females. Once a real battle between two males was seen, but there was "little or no defence of the territory after the males began to feed the females at the nest." "Some males begin feeding the females by regurgitation when incubation begins, others not until the eggs hatch."

37. "Territorial Song" and Non-territorial Behavior of Goldfinches in Ohio. M. M. Nice. 1939. *Wilson Bulletin*, 51 : 123. A short, unmusical song, suggesting in its form and rate of delivery a typical "territory" song was noted from mid-April to mid-May, two months before nesting started. The birds tended to nest in groups.

38. Nests and Broods in Whipsnade Sanctuary in Two Successive Years. J. S. Huxley. 1938. *Proc. Zool. Soc. London, Ser. A*, 108 : 445-452. An elaborate treatment of data on 68 nests of Great and Blue Titmice and Starlings. In 1936 242 eggs were laid, 193 hatched (79.8%), and 181 fledged (74.8%). In 1937, 209 eggs were laid, 165 hatched (81.3%), and 145 fledged (71.8%).

AWAKENING AND ROOSTING

39. Some Notes on the Diurnal Song of Birds. G. Marples. 1939. *British Birds*, 33 : 4-11. The first and last songs of the Song Thrush (*Turdus eritorum*) and Robin (*Erithacus rubecula*) from January to October are shown in a table. Unfortunately no distinction is made between clear and cloudy weather. Earliest records for the Thrush (in relation to sunrise) came in May and June—73 and 83 minutes before sunrise—and for the Robin in May—69 minutes. Average start of singing is given for a number of other species ranging from six minutes before sunrise for the Jackdaw (*Coleus monedula*) to 80 for the Black-headed Gull. Thirty-three records for the House Sparrow average 16.62 minutes before sunrise.

The Skylark (*Alauda arvensis*) averaged 98.52 minutes before sunrise, the earliest being 124 minutes, while the latest records were 64, 82 and 124 minutes after sunset. Some were never heard before sunrise; the earliest song of the Starling being noted "at 9.5 minutes after sunrise", while the Goldfinch (*Carduelis c. britannica*), Greenfinch (*Chloris ch. chloris*) and Nuthatch (*Sitta europaea affinis*) were later still. The Cuckoo (*Cuculus c. canorus*) was one of the earliest to start and latest to finish. "A reverse order of singing occurred at close of day."

My own notes on the House Sparrow (16 cases in March and April) average almost the same as Mr. Marples—15.9 minutes before sunrise. W. E. Schantz of Columbus, Ohio gave me eight records from Mar. 11 to May 8 that average 22 minutes before sunrise, the three records from March 11—April 8 averaging 17 minutes, the last five 25 minutes. My records show somewhat earlier awakening on clear days than cloudy, and earlier awakening after the middle of March, but one needs records throughout the year, with the state of the sky noted, before these matters can be evaluated. V. Haecker (*Biol. Zentralblatt*) 1916, 36 : 403-431 found the first notes from this species averaged 10-11 minutes before sunrise in clear weather in February and 12-17 in July.

As to the Starling, I have notes on an individual at his nest from March 22 to April 22; his first songs varied from 4-15 minutes before sunrise; on eight cloudy mornings they averaged 9.6 minutes before, on five clear mornings 12 minutes, the average of the 13 being 10 minutes before sunrise.

40. Rising and Roosting of a Pair of Resident Starlings in Winter and Early Spring. A. Morley. 1939. *British Birds*, 33 : 39-43. The pair rose about sunrise in January to mid-March on clear mornings. Bed-going was quite a ceremony; the male showed excitement by "bill-wiping, wing-flicking, plumage-shaking", "but however restless he was, never going in before the female. She, usually without any display, would suddenly glide to the gutter, stare fixedly at the hole for half a minute, then dart in, the male following very shortly." The author considers that roosting together furthers "that 'togetherness' which seems necessary for a winter-formed pair who, with no obvious physiological urge to seek each other out, appear to depend on psychological influences for the permanence of the bond."

41. What Determines the Time of the Song Sparrow's Awakening Song? M. M. Nice. IXme Congrès Orn. Int., Rouen : 249-255. The "awakening song" of *Melospiza melodia* varies around civil twilight (when the sun is 6° below the horizon, occurring from 27 to 31 minutes before sunrise according to the time of year), and is correlated with light, temperature and the stage of the nesting cycle. On clear mornings in January and February it comes about five minutes before civil twilight, but from March to June it is given from three to six minutes before civil twilight.

42. The Vocal Activity of Blackbirds at a Winter Roost. M. K. Colquhoun. 1939. *British Birds*, 33 : 44-47. Calling of *Turdus merula* was negatively correlated with wind. From 30 minutes after sunset to complete darkness there were 68 calls on a windless evening, 22 calls with a wind five miles an hour and no calls with wind fifteen miles an hour.

BIRD BEHAVIOR

43. On the Courtship Display of the Goldeneye. D. Gunn. 1939. *British Birds*, 33 : 48-50. Detailed description of certain features in the display of both male and female *Bucephala c. clangula*.

44. Association of Drake Mallard with the Duck and Young Brood. C. Oldham. 1939. *British Birds*, 33 : 53-54. A male, female and newly hatched young *Anas platyrhynchos* were startled by the author; the ducklings rushed in one direction, while the adults went at right angles, the female "squatting", while the male flew four or five yards, then dropped to the side of the duck, then springing "a couple of feet into the air only to flop clumsily on to the water at her side." He was evidently confused. Ordinarily when danger threatens the female rises first followed by the drake. His "impulse to fly was frustrated or deflected by the failure of the duck to give him a lead, and possibly by the, to him, unwonted behaviour of the duck." This squatting is not "anything but an evolved and perfected instinctive routine."

45. Unusual Behaviour of Duck Mallard and Brood. C. F. Tebbutt. 1939. *British Birds*, 33 : 83-84. Startled by the author in a small pool with no cover, a duck and her brood "all instantly froze", the ducklings with "heads turned towards their parent." After some crumbs of earth were thrown near them, the ducklings moved hesitatingly towards the author and "gained the main stream of the dyke," whereupon the female followed and "squattered down it in the normal way."

46. Posturing and Related Activities of the Common Tern (*Sterna hirundo* L.). H. N. Southern. 1938. *Proc. Zool. Soc. London, A*, 108 : 423-431. Results of a study for three weeks on the Isle of May about hatching time. The author approached "the study by analyzing behaviour into simpler component trains of activity." He states, "there are probably two fundamental activities in tern breeding behaviour: one of which is the self-assertive posture, varying in

its intensity from the simple call to the full performance, and establishing both a positive bond with a mate and a negative one with neighbours (*i. e.* aggression against trespass); and the other the crouching of the bird head-down soliciting copulation." Much "of this normal posturing is self-exhausting." Posturing is "a generalized expression of emotion arising as an intensified form of the simple call." It is given in many different social situations, some "a sort of territorial assertiveness useful in limiting fights", others "a kind of assertiveness putting the bird into reference with its surroundings, whether with its mate only or the colony around."

47. Observations on a Common Tern Raised by Herring Gulls. (Beobachtungen an einer durch Flusseeeschwalben (*Sterna h. hirundo* L.) aus vertauschtem Ei erbrüteten und aufgezogen Silbermöve (*Larus a. argentatus* Pontopp.). P. Kuhlemann. 1939. *Zeit. f. Tierpsychologie*, 3 : 75-84. Herring Gulls weigh 1000-1200 grams, and their eggs 90 grams; Common Terns weigh 135 grams, their eggs 20. The author gave six pairs of terns one egg apiece of the Herring Gull instead of their own eggs; two hatched; one soon died during a spell of bad weather, but the other was raised. The Terns fed it for 79 days; with no parent to warn, it was fearless toward people. The foster-parents were zealous in defending it, at such times being joined by others of their kind, although ordinarily the other Terns swooped at the young Herring Gull. The bird was much stunted and slow in starting to fly and swim. Its voice was not like ordinary Gulls, for it failed to develop the usual scream. It was much attached to the region of its nest, but it failed to hide as normal young gulls do. From nine days on it knew its foster parents by their voices. Since the usual feeding methods of gulls and terns are different, it is unfortunate that the early stages in the adaptation of the terns and their changing could not have been observed.

48. Skylark Carrying a Young Bird. G. R. Mountfort. 1939. *British Birds*, 33 : 79. While photographing a nearly fledged brood of *Alauda arvensis* at a distance of twenty feet, the author "was astonished to see the hen rise from the nest carrying a young one." It flew fifteen feet at a height of eight feet when the young bird fell and was found unharmed by the author. It appeared to have been carried by the "neck or a wing, in the parent's claws."

49. The Social Psychology of Vertebrates. M. P. Crawford. 1939. *Psychological Bulletin*, 36 : 407-446. A review of the subject with a bibliography of 177 titles. Social facilitation, imitation, family life, communication, etc. are discussed. Territorialism is defined thus: "A limited geographical area is settled upon and defended by an animal, usually a male, and is used by him for mating and rearing of a family." "Dominance status is indicated by superior fighting ability of one individual over one or more species mates."

50. Influence of Injected Male Hormone on the Social Hierarchy in Small Flocks of Hens. W. C. Allee and N. Collias. 1938. *Anat. Record*, 72, No. 4 and Suppl: 60. Hens low in peck-order, after injection of testosterone proportionate, successfully revolted against superiors, and "social positions of injected birds, once won, were retained." Injections stimulated comb-growth; four injected birds "crowed at least once", while "laying usually stopped."

51. The Role of Dominance in the Social Life of Birds. G. K. Noble. 1939. *Auk*, 56 : 263-273. An interesting paper covering a great deal of ground in short space. "The dominance drive in some form or other appears widespread throughout the vertebrate series. In fishes, as for example in the common sword-tail, *Xiphophorus helleri*, a 'straight line' system, as rigid as that of the fowl, occurs." "This aversion for one another is a manifestation of the dominance drive." He says that "a territory is any defended area", but distinguishes sharply between various types. "Sexual territory is a direct consequence of the nest-building habit in vertebrates." "The future parents must associate together,

react in common if bonds are to be formed which will hold them as a pair during the breeding season."

"A non-breeding pigeon low in the pecking order, if allowed to remain in a small area, becomes dominant over a superior pigeon which is introduced into this area for the first time. Obviously a territory so useful to a subordinate bird has nothing to do with a sexual territory." To me the last sentence is not obvious; it seems to me on the contrary that the two kinds of territory have much in common.

52. The Social Kumpan and the Song Sparrow. M. M. Nice. 1939. *Auk*, 56 : 255-262. A close study of wild and hand-reared birds showed a surprising number of social reactions in this typical territory-holder. "Some of these are of undoubted survival value: the so-called imitative tendency that assists in location of food supplies, the reaction to evidences of fright in companions, the social defense against enemies, and territorial behavior that affords protection of individual rights."

53. The Releasing and Orienting Stimulus Situations of Gaping Movements in Young Thrushes. (Ueber die auslösenden und richtung-gebenden Reizsituationen der Sperrbewegung von jungen Drosseln (*Turdus m. merula* L. und *T. e. ericetorum* Turton).) N. Tinbergen and D. J. Kuenen. *Zeit. f. Tierpsychologie*, 3 : 37-60. A great many experiments with a large number of ingenious cardboard models were made on 31 young Blackbirds and 11 Song Thrushes, brought into the laboratory at the age of five days, and also on eight broods in the wild. These young birds gape (*sperrn*) vertically for the first ten days, but after that direct their mouths to the head of the adult. For the optical releasing of gaping three characters are necessary: an object, larger than 3 mm. must move above the level of the eye.

As to orientation (*taxis*), the head of the adult has the following characteristics: it is higher than other parts of the adult, it is nearer, it is a convex interruption in the contour, and it is divided from the body by an indentation. The authors conclude that the releasing and orienting innate perceptual patterns for gaping with these thrushes are certainly inborn. The changes in reaction do not correspond to learning processes that concern the patterns belonging to gaping, but rather are maturation phenomena or learning processes of another kind. A brilliant piece of pioneer work.

ECOLOGY

54. The Relation between Latitude and Breeding Seasons in Birds. J. R. Baker. 1938. *Proc. Zool. Soc. London*, A, 108 : 557-582. Many charts and a vast amount of data are given from which the author concludes that going north from temperate latitudes there is a tendency for egg-laying to start later at the rate of 20 to 30 days per 10° of latitude. South from temperate latitudes to the equator Accipitres, Coraciiformes and Passeres tend to begin laying earlier; but Charadriiformes, Grallae, Herodiones and Anseres in the northern hemisphere breed later in the tropics than in the temperate latitudes.

In the tropics the height of the breeding season comes somewhat before the sun passes overhead, hence there are often two breeding seasons. "The main proximate causes of the breeding seasons of birds in nature are thought to be temperature and length of day in the boreal and temperate zones, and rain and intensity of insolation near the equator. The time of arrival from migration is often an important factor. . . . Much egg-laying occurs when days are getting shorter," and much when the day is between eleven and twelve hours, but little when it is shorter than eleven hours.

55. The Breeding Seasons of Southern Hemisphere Birds in the Northern Hemisphere. J. R. Baker and R. M. Ransom. 1938. *Proc. Zool. Soc. London*, A, 108 : 101-141. Most Southern Hemisphere birds breed in spring and summer in their native lands and most of them, when imported, breed in the

northern spring and summer. Some breed in winter or very early spring in the south; imported specimens breed in the northern winter—Emu and Cape Barren Goose. Some with a restricted breeding season in the south breed all year in the north—Black Swan. Some tend to breed in the same calendar months as in the south, some parrots and the Gouldian Finch (*Poëphila gouldiae*). These “exhibit an internal rhythm in breeding seasons not easily influenced by the environment.”

56. The Habitat Distribution of British Woodland Birds. D. Lack and L. S. V. Venables. 1939. *Journal of Animal Ecology*, 8 : 39-71. Another excellent cooperative project of the British Trust for Ornithology in which 152 woods were investigated in summer and 120 in winter.” Winter “habitat distributions are mainly similar to those of the breeding season.” In general “particular habits or adaptations could not be found.” “But the restriction of certain species to conifers or birch or both, and of others to oak woodland could definitely be correlated with geographical distribution, the former being mainly northern and the latter southern species. It is tentatively suggested that this is correlated primarily with habitat limitations on a psychological plane associated with the past history of the species.”

57. Winter Losses from Starvation and Exposure of Waterfowl and Upland Game Birds in Ohio and Other Northern States. M. B. Trautman, W. E. Bills and E. L. Wickliff. 1939. *Wilson Bulletin*, 51 : 86-104. Winter mortality generally takes place in connection with “severe sleet or snow storms when low temperatures freeze the surface water shutting off the usual food supply.” Partly due to the mildness of the fall and winter of 1931 and partly due to “enormous amount of baiting and feeding” large numbers of waterfowl wintered in Ohio; very cold weather came in March and many died. Feeding at such times will often save many birds.

FOOD

58. Food Consumption of a Sparrow Hawk. L. W. and A. H. Wing. 1939. *Condor*, 41 : 168-171. A male *Falco sparverius* was found December 11, wounded and weighing only 86 grams. He was fed mice, House Sparrows and beef, and January 31 his weight was 113.8 grams. The weight in grams and also the value in calories of his food are given for 25 days; the average is 24.8 grams (about 21% of his body weight) and 43.6 calories.

59. A Laboratory Study of Pellet Formation in the Short-eared Owl (*Asio flammeus*). D. Chitty. 1938. *Proc. Zool. Soc. London*, A; 108 : 267-287. A study on a captive adult owl for four and one half months giving bio-chemical analyses of pellets. The author calculates that in one year 2000 ($\pm 50\%$) voles or mice would be eaten by one bird, the weight ranging between 95 and 142 pounds.

60. How Far Does the House Sparrow Carry Food? H. Baron Geyr. 1939. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 15 : 169. The distances parents carry food to their young ranges from centimeters with the domestic hen, to kilometers with swallows, 25 kilometers with Peregrine Falcons and herons and much greater distances with seabirds and many great vultures. The House Sparrow does not ordinarily travel far with food for its young but in one instance insects were being carried over a kilometer.

SEX RATIO

61. The Sex Ratio in Wild Birds. E. Mayr. 1939. *American Naturalist*, 73 : 156-179. An excellent treatment of the subject showing a wide acquaintance with the scattered literature of the subject. There are many cases where unequal sex ratios occur and many of them “have been found to be correlated with peculiarities in the life history of the birds.” Dr. Mayr suggests that “unequal primary sex ratios” may “occur in connection with an increased demand for one sex during adulthood, in all species with special habits such as polygamy, polyandry, etc.”

Here is an opportunity for banders to analyze their data and give figures on the sex ratio. "The most interesting family for a study of sex ratios is probably that of the Icteridae (American blackbirds) because it contains some genera with an equal sex ratio, some with a surplus of males [Cowbirds] and some with a surplus of females [Oropendola, Boat-tailed Grackle]. "There is considerable doubt about the sex ratio of the Red-winged Blackbird (*Agelaius phoeniceus*)."

PROTECTIVE COLORATION

62. The Relation of Some Observations upon Predation to Theories of Protective Coloration. J. E. Cushing, Jr. 1939. *Condor*, 41: 100-111. Interesting observations on the methods of hunting of various hawks, the birds watching from "ambush." The point that "concealing coloration" is not necessary for predators is well taken, but the facts do not warrant the assertion that "it is not probable that the coloration of animals is actually protective." It is true that many "protectively-colored" animals become conspicuous when they move, but how about the many hours some incubating birds, for instance, are motionless and invisible? This would surely give an advantage to the protectively colored individual over the conspicuously colored one. Mr. Cushing does not refer to four sets of experiments that have shown that protectively colored species are taken by predators in smaller numbers than the non-protectively colored ones: Jones, F. M. 1932, *Trans. R. Ent. Soc. London*, 80: 345-386; Carrick, R. '36, *Trans. R. Ent. Soc. London*, 85: 131-139; Isely, F. B. 1938, *Ecology*, 19: 370-389; Sumner, F. B., 1934, *Proc. Nat. Acad. Sci.*, 20: 559-564.

CONSERVATION

63. Ornithological Chronicle from Tunis. (Chronique ornithologique tunisienne pour l'année 1937 et notes sur l'avifaune tunisienne.) G. de Guirtechich. 1939. *L'Oiseau*, 9(2): 287-297. Tunisians are bad zoologists, the Jews indifferent, Arabs full of superstitions. Nests and birds are destroyed on every hand. Owls are feared as bringing sickness to children. The Crow used to be white; Mohammed gave him two packages, one with gold for the Faithful, the other with fleas for the Infidels; the Crow did the opposite of what he had been told and Mohammed turned his feathers black. Swallows are respected because they come from Mecca and because God made them to amuse Adam after he had been driven from Paradise.

64. Soil Conservation. Wildlife Issue. March, 1939. 205-232. Ten cents from the Superintendent of Documents, Washington, D. C. The whole issue is devoted to fourteen articles on different aspects of wildlife conservation from the practical point of view of methods of saving the soil and the native fauna with it. There is also a list of Wildlife Management Publications.

65. Water—The Orphan Step-Child of Conservation. Kenneth Reid. 1939. *American Nature Association Quarterly Bulletin*, 2(1) 1-34. 25 cents. This issue is devoted to an authoritative discussion of this all important problem.

There is much of interest and value, as always, in the July-August *Bird-Lore*, in particular, "Swamps and Marshes" by Roger T. Peterson, and "Canadian Conservation Problems, II, by J. R. Dymond.

BIRD DISEASES

(Reviews by Dr. Carlton M. Herman)

66. Equine Encephalomyelitis Virus (Eastern Type) Isolated from Ring-necked Pheasant. H. van Roekel and M. K. Clarke. *Journ. Amer. Vet. Med. Assoc.*, May, 1939, 94: 466-468. A natural infection of equine encephalomyelitis is reported from a Ring-necked Pheasant. The English Sparrow

(*Passer d. domesticus*) was found highly susceptible to this infective agent through experimental inoculation.

67. A Fatal Disease of Pigeons Caused by the Virus of the Eastern Variety of Equine Encephalomyelitis. L. D. Fothergill and J. H. Dingle. *Science*, December, 1938, 88 (2298) : 549-550. A natural infection with virus of the eastern variety of equine encephalomyelitis is reported from a pigeon. This brain disease of horses has reached alarming proportions during the past few years. Recently reports of its occurrence in humans has increased the importance of this disease. It has been reported from wild birds (see *Bird-Banding* 10 : 59-60 and above). This disease may prove to be of great importance in birds both as a cause of death among avian species and perhaps also as a reservoir source of the disease in horses and man.

68. Hippoboscid Flies from North American Doves. J. Bequaert. *Science*, March, 1939, 89 (2308) : 267-268. A brief discussion of the status of the five species of hippoboscid flies—*Microlychnia pusilla*, *Stilbometopa podopostyla*, *Ornithoctona erythrocephala*, *Ornithoica confluenta* and *Pseudolychnia canariensis*—which have been collected from North American doves. It is suggested that *M. pusilla* is the most likely natural vector of dove Haemoproteus (a type of malaria) in North America.

69. A Survey of the Blood Parasites of Birds Caught for Banding Purposes. C. G. Huff. *Journ. Amer. Vet. Med. Assoc.* June, 1939, 94 : 615-620. A survey of the parasites of the blood of wild birds made upon smears taken over a period of ten years. Most of the smears examined were made by banders and sent to the author for examination. The greatest proportion of the smears were made by Mr. W. Taber of Kansas, Ill. Over 900 birds representing eighty-one species of birds were examined; blood parasites were found in 324 birds of 32 species. The findings are summarized in detail in the text of the paper as well as in the three tables. Some of the birds found to be negative at one examination were infected at a later date. In his concluding paragraph the author urges further coöperation between banders and parasitologists as a means toward solving many interesting problems.

70. Psittacosis from Fulmar Petrels. Eric Pockley. *Emu*, July, 1939, 39, p : 66. Psittacosis is reported from 174 humans in the Faroë Islands with a mortality of 20 per cent. The infection is thought to be caused by the inhalation of dust from the feathers of young Fulmar Petrels (*Fulmarus glacialis*). Pockley has previously reported psittacosis from man, contracted in Australia from Cockatoos, Budgerigars and other members of the parrot family (*Emu*, 36 : 51).

BOOKS

71. The Handbook of British Birds. III. Hawks to Ducks. H. F. Witherby, F. C. R. Jourdain, N. F. Ticehurst, and B. W. Tucker. 1939. Witherby. London. 387 pp. 25 shillings. The third volume of this notable series (See *Bird-Banding*, July, 1938, Jan. 1939) is fully up to its predecessors. The diurnal birds of prey, storks, herons, swans, geese and ducks are treated, all species being beautifully illustrated in color with two to five plumages shown. Pictures of all the British species of geese were expressly painted for this volume by Peter Scott. There are color plates showing the specula of river ducks, and feathers from nests of ducks and geese, and plates in black and white giving pellets of hawks, and hawks and ducks in flight as well as maps of migration and distribution.

The list of topics covered briefly, yet in detail, under each species include: habitat, field-characters and general habits, voice, display and posturing, breeding, food, distribution, distribution abroad, description, characters and allied forms. Many of the species are of holarctic distribution while others occur occasionally in North America, for instance, Duck Hawk, Golden Eagle, Rough-

legged Hawk, American Goshawk, Osprey, Night-heron, American Bittern, eight species of geese and some twenty ducks.

This book cannot be too highly recommended to American ornithologists, both for the high value of the information it contains and as a model giving us a goal to strive for in the study of most of our birds. An excellent choice for a Christmas present for an American bird student.

72. Food Habits of North American Diving Ducks. Clarence Cottam. 1939. U. S. Dept. Agr. Tech. Bull. No. 643. 140 pp. 30 cents. An admirable account of the subject giving detailed records of plant and animal food of the different species, and including four charming plates in color by Allan Brooks. The author says: "Perhaps without exception all the diving ducks have noticeably decreased in numbers during recent years, some of them, including the Redhead and Ruddy Duck, to an alarming degree. Outstanding factors responsible for their unfortunate decline include drought, encroachment of civilization into their hereditary breeding grounds, and over-shooting."

Surely this is no time to relax hunting restrictions; our ducks need more safeguards if they are to survive.

73. Bent's Life Histories of North American Woodpeckers.—Arthur C. Bent's twelfth volume¹ in his series of Life Histories of North American Birds includes the Woodpeckers, Order Piciformes.

Certain species in this group occur over a very extensive area of country—over many degrees of longitude and latitude, in some instances from the Atlantic Ocean to the Pacific, in the case of *Colaptes auratus* (the flickers) from "the Gulf States to the limit of trees." Variations in plumage in birds of some of these species, breeding in widely separated parts of their vast range, necessitated recognizing many races. Mr. Bent has been obliged to consider in the volume, in more or less detail, sixty-four sub-species, and has fully pointed out the variations in habits which were brought about by differing environment. We note with interest that it is mainly the feeding habits, and to a less extent the nesting habits, that show the greatest change, but that voice and courtship behavior often run true in a genus—in *Colaptes* for example.

As we read systematically through the 308 pages, watching the story of the North American Woodpeckers unfold and develop, we realize that the book contains more than Mr. Bent's characteristically scrupulous account of the birds' behavior. The avifauna of the North American Continent was investigated to a large extent from East to West, and in our mind's eye, sometimes reading between the lines, we can follow the expeditions of the early naturalists pushing across the country, over the plains, and on to the Rocky Mountains, finding on their way new forms of our eastern birds and discovering strange new species never before studied by white men.

Mr. Bent describes scenes some of which seem odd to us Easterners, such as a pair of Lewis's Woodpeckers coursing about, half an hour at a time without alighting, catching insects with a flock of swallows, or fifty of them "circling through the air, at an elevation of about 500 feet with all the ease and grace of the Falconidae."

An interesting observation on the California Woodpecker describes a young bird, "presumably a fully grown member of an earlier brood" which helped the old birds feed young in the nest.

Mr. Bent enlivens his text (p. 191) by quoting from Bendire a description of an amusing, as well as interesting experience Dr. Ralph had at the nest of a Western Pileated Woodpecker,—"on rapping on the trunk of the tree the bird which was at home, stuck his head out of the hole and dropped some chips, naturally causing the Doctor to believe that the nesting site was still unfinished. The same performance was repeated on several subsequent visits, and finally he

¹ U. S. Nat. Mus. Bull. 174. Life Histories of North American Woodpeckers, Order Piciformes. Smithsonian Inst., Washington, D. C. pp. 1-334, pls. 1-92. Supt. of Documents, Washington, D. C.

concluded to examine the nest anyhow, when he found nearly full-grown young. This pair of birds must have had eggs at the time he first discovered the nest, and the chips were simply thrown out as a ruse to deceive him."

For a woodpecker to assume that a man will be misled by such a ruse implies a bit of very clever reasoning,—almost unbelievable in a bird—yet D. E. Brown (p. 49) reports that Gairdner's Woodpecker frequently resorts to exactly the same trick.

Thinking over the matter, searching for a more probable explanation, the story comes to mind of the thief in the hen-coop. "Who's there?" challenge the police. The reply comes back, "Only us chickens."

More in accord with the limited mental equipment which we generally ascribe to birds is the account (p. 202), humorous also, of the attempt of a young Red-headed Woodpecker to fill a hole in a telephone pole: "Finally he found a hole to his liking, and, chattering as he worked, he drove the acorn in. Imagine my surprise when I saw a couple of acorns fall out on the other side of the pole! The hole was bored straight through the pole, and the woodpecker was wasting his time by pushing the acorns through. He seemed to know that something was wrong, but couldn't quite reason it out."

Of the several life histories contributed to Mr. Bent's book by other writers, that of the Northern Pileated Woodpecker by Bayard H. Christy comes very close to perfection in graphic delineation.

Mrs. Margaret Morse Nice informs me that she has good reason to doubt the authenticity of the published record of the Red-cockaded Woodpecker in Oklahoma, and hence did not include the species in her birds of that State.

When we look at a full set of the Life Histories of North American Birds, a row of bound volumes on our shelves sixteen inches long and comprising 4024 pages of text, we begin to realise the magnitude of the task Mr. Bent undertook more than a generation ago, and we have only to read the volumes to learn how superlatively well he has succeeded. Mr. Bent was by nature exactly fitted to succeed in this work. A life-long student of birds, enthusiastic, quietly earnest, he has stimulated the interest of other ornithologists who, in answer to his appeal, have sent him valuable notes from all over the country.

While he is writing the forth-coming volumes on the passerine birds, I am sure he will welcome any notes of importance which we can find hidden away in our journals. It is the pleasant duty of all of us to aid Mr. Bent as much as we can.—WINSOR M. TYLER.

74. The Migration of American Birds. Frederick C. Lincoln. Illustrated by Louis Agassiz Fuertes. New York, Doubleday, Doran and Co., Inc., 9 June, 1939, pp. I-XII+189, sm. 4to, \$4.00. This is a book of facts, not of theories or generalities on the origin of the migratory habit. There is a certain amount of information that would apply with equal force to non-American birds such as the chapters on Mechanics of migration, Influence of the weather on migration, Dangers in migration etc. but for the most part Mr. Lincoln keeps very close to the title. This is a volume of great interest to all bird students, dealing as it does with one of the most fascinating phases of ornithology in an authoritative and readable fashion, in fact even the better than average amateur could considerably increase his learning by acquiring a good working knowledge of the contents of Mr. Lincoln's Book. Twenty-two full page maps in black and white illustrate migration routes, flyways, breeding and winter ranges and isochronal arrival lines. The twelve full page colored plates by the late Louis Agassiz Fuertes appeared originally in Eaton's Birds of New York thirty years ago; they are not well reproduced and detract from rather than enhance the appearance of an otherwise first class piece of work.—J. L. P.

75. Birds of Canada. P. A. Taverner. Illustrated in color by Allan Brooks and F. C. Hennessey. Toronto. The Musson Book Co. Ltd.,¹ 1938. pp. 1-445.

¹ Review copy received May, 1939 from David McKay Co., 604-608 South Washington Square, Philadelphia, Penna.

\$4.00. This important book is virtually a new and consolidated edition of the *Birds of Eastern Canada* and the *Birds of Western Canada* by the same author. A number of new colored plates have been included in the present volume and the work has a profusion of text figures. The classification follows that of the A. O. U. Check-List 4th ed. instead of the 3d edition order which was used in its predecessors. The scientific name is always binominal; "in the treatment of subspecies, species have been treated as an aggregation of subspecies, each of equal rank and importance, and not, as is customary, as species with subordinate subspecies dependent upon them." Each species is briefly described, followed by a paragraph noting the distinctions between it and species with which it might be confused; another paragraph is devoted to field marks. The distribution is but briefly stated. A concluding paragraph lists the subspecies occurring in Canada together with their distinctions and ranges. Some of the common and more important species have additional paragraphs of text and a statement of the economic status of the bird. While this book is designed primarily for Canadian use "to awaken and stimulate an interest, both aesthetic and practical, in the study of Canadian birds" it would make a serviceable handbook for the birds of the northern tier of the United States and Alaska and could be carried to advantage by the bird lover making a transcontinental tour of this country by a northern route.—J. L. P.

ANNOUNCEMENTS

Dr. C. Brooke Worth requests that from September 1, 1939, to September 1, 1940, bird banders ship dead birds for post mortem examination to him at the Rockefeller Institute for Medical Research, Department of Animal and Plant Pathology, Princeton, New Jersey. As in the past, he will send the bird bander a report of the examination.

Mr. Richard L. Weaver has consented to write up the account of the Purple Finch invasion of last winter. All correspondence and reports on this subject have been turned over to him for this purpose.

Any further information should be sent direct to Mr. Weaver at Dartmouth College, Hanover, N. H.