RECENT LITERATURE

Reviews by Margaret M. Nice

BANDING

1. Returns of the Chaffinch to a Reef Island. (Ueber die Ortstreue der Buchfinken (*Fringilla c. coelebs* L.) auf einem Schäreninselchen.) Goren Bergman. 1939. *Ornis Fennica*, 16: 95–98. On a forested island 6 hectares in size 15 kilometers from Helsingfors 14 adult Chaffinches were banded, 9 males and 5 females (2 in 1933, the rest in 1934). Two females were present 1 year, one 2 years, one 3 years and one 5 years. Two males were present 1 year, three 2 years, two 3 years, one 6 years and one 7 years—a remarkable record. The return percentage of these breeding birds from 1935 to 1939 was: 64, 43, 21, 21, 7. Two of the birds were recovered in Belgium. One pair nested together for two seasons. One of 18 young returned to its birthplace and nested. The average age of the breeding birds came to at least 2.8 years.

2. Winter Banding of Oklahoma Crows. E. R. Kalmbach and S. E. Aldous. 1940. *Wilson Bulletin*, 52: 198–206. Of 714 *Corvus brachyrhynchos* banded in central Oklahoma during the winter of 1935–36, 143 were recovered—20 per cent. None bred in Oklahoma; recoveries in summer came from the Prairie Provinces. Crows were found to remain in much the same locality in the winter, and to return there the following winter.

Nos. 25 and 59 are also concerned with banding.

MIGRATION

3. The Spring Migration of the Wood-Warbler over Europe. H. N. Southern. 1940. *British Birds*, 34 : 74–79. *Phylloscopus sibilatrix* starts about 2 weeks after the Willow Warbler (*Ph. trochilus*), but makes up most of the leeway by May 1st. A map is given showing the progress of the species every fortnight with the isotherm of 48° for comparison.

4. Migration and Winterquarters of the Red-breated Flycatcher. (Zug und Winterquartier des Zwergfliegenschnäppers (*Muscicapa parva parva* Bechst.)). H. Grote. 1940. *Journ. f. Ornithologie*, 88 : 355–372. This species breeds in northeastern Europe and winters in India.

LIFE HISTORY

5. Further Notes on the Breeding of the Little Blue Penguin. E. W. Hursthouse. 1940. *Emu*, 40 : 121–123. A pair of *Eudyptula minor* in New Zealand incubated for 38 days, the longest period of sitting by one bird being 6 days. The young showed the first sign of molting down at 38 days and left the nest at 90 days.

6. Observations on the Black-footed Albatross. Loye Miller. 1940. *Condor*, 32 : 229–238. *Diomedea nigripes* exhibits a strong social impulse. "Individuals swim close together, frequently rubbing beaks or 'caressing' each other about the head."

7. Some Notes on the Bittern. G. K. Yeates. 1940. *British Birds*, 34 : 98–99. An incubating female *Botaurus s. stellaris* was visited by a male, whereupon there ensued a "battle royal", then coition. "Simultaneously the male fed the hen." The author suggests the male may have been an unmated bird.

8. Production of the Redhead (*Nyroca americana*) in Iowa. J. B. Low. 1940. *Wilson Bulletin*, 52 : 153–164. A study of the nesting ecology of this duck with the fate of 42 nests tabulated according to the nesting cover. Of these 23 were successful, while 38 per cent of the eggs produced young. Flooding was responsible for the greatest loss; Crows accounted for only one nest. An average of 3.8 juveniles were reared to a breeding pair.

9. The Biology of the European Golden-eye. (Beitrag zur Biologie der Schellente (*Bucephala clangula*)). Paul Bernhardt. 1940. *Journ. f. Ornithologie*, 88 : 488–497. *Glaucionetta clangula* breeds near Dresden. Photographs of courtship displays are given. The male guards his mate while she is laying; he attacks only other Golden-eye males. A male, raised in a zoo with Mallards and Pochards courted a Mallard hen, attacking her rightful mate by diving underneath him—a technique that completely baffled the Mallard. The young are cared for by their mother for only two to three weeks; as diving ducks they are much more independent than river ducks, since they escape dangers by diving.

10. From Egg to Eaglehood. Lewis and Marian Walker. 1939. *Natural History*, 43 : 284–289, 307. In San Diego County, California, a pair of Golden Eagles (*Aquila chrysaëtos*) has nested in a sycamore from 1918–1938, but despite the protection afforded by the rancher, only once have eaglets been raised. Two eggs were laid in January; incubation lasted 43 days. The male did most of the hunting, coming about seven in the morning with a ground squirrel or rabbit, and leaving immediately; about noon he would take his place on the nest, staying until about four in the afternoon. Turkey Vultures came towards the nest when on the lee side, but veered off when they saw the baby Eagle; they evidently had been attracted by the smell of the over-abundant food supply.

11. Co-operative Quail Study Association. Eighth Annual Report. H. L. Stoddard. 1940. Thomasville, Ga. 27pp. Excessive rain may be disastrous to young *Colinus virginianus*, but "drought is much more to be feared than excessive rainfall in country of rolling topography. Quail eggs require an abundance of moisture for hatching, and may spoil in large numbers during extended periods of abnormally dry and hot weather." "Owners of quail ground should keep on the safe side by leaving a breeding stock sufficiently heavy to insure quick recovery in the event of one or more disastrous breeding seasons." On tracts of 1000 acres or more in the eastern United States Bobwhites seldom reach an abundance of one bird an acre; possible explanations are discussed. Cotton rats are expected to reach their peak next year. "Large numbers of Marsh Hawks normally appear at the 'peak' of the cotton rat cycle to feed on these rodents."

12. Quail and Pheasant Studies in an Orchard County. Frank C. Bellrose, Jr. 1940. *Natural History Survey. Biological Notes*, 13 : 1–11. Urbana, Ill. In Calhoun County in southern Illinois in 1938 orchards were found to be the safest nesting sites. A high mortality of Quail nests resulted from mowing, only 17 of 65 nests (20%) hatching. Alfalfa was the most dangerous location. Suggestions are made as to postponing mowing after July 4 wherever possible and leaving uncut areas along the margins of orchards.

13. Mating Performance of the Sage Grouse. James R. Simon. 1940. *Auk*. 57 : 467–471. A group of some 300 cock *Centrocercus urophasianus* were watched from a car on their display grounds. Each cock stood 25–40 feet from his neighbor; sometimes they fought, mostly with wing-beating. Pictures are given showing stages of the remarkable display. "Coition seemed to occur only on invitation from the female." One "cock was seen to mate with three different hens." Occasionally a cock covering a hen was attacked by other cocks.

14. Notes on the Breeding Habits of the Mallee-Fowl. F. Lewis. 1940.

Emu, 40 : 97–110. Very interesting account of the remarkable nesting habits of the Lowan (*Leipoa ocellata*) in Victoria, Australia. "The preparation and care of the mound is a whole year job for the Lowan." "Vegetable matter is incorporated in the mound, and being wet when buried, the heat resulting from its fermentation quickly raises the temperature of the mound to the necessary degree" —about 92°F. The pair ordinarily open the mound about 10 A.M. and close it about 3–4 P.M., thus conserving solar heat. "When unsuitable weather conditions such as cold, rain, wind or extreme heat, are likely to be experienced, the mound is not opened but built up, sometimes very high, and even thatched with heavy branches." About 20 eggs are laid. The incubation period lasted 7 or 8 weeks, but in a mound covered with fine wire so that the parents could not work on it, the eggs took 11 and 13 weeks to hatch. "After hatching the young chick takes about two hours to reach the surface of the mound and is not assisted in any way by the parents." It is curious to learn of the care lavished on the mound and the indifference of the parents to the goal of their labors—the chicks. The mound would not seem to be a "labor-saving device."

15. Notes on Nesting and Other Habits of the Western White-winged Dove in Arizona. Johnson A. Neff. 1940. *Journ. Wildlife Management*, 4: 279–290. *Melopelia asiatica mearnsi* was abundant near Phoenix in 1937, less so in 1938 and rare in 1939. It nests in colonies and individually. A nest-viewing apparatus was made from a pole cut into three 4-foot sections with a mirror on top. Each nest was marked with a waterproof tag and a bright orange streamer tied to the tree. Where conditions are favorable second broods are raised. The young usually leave at 16–18 days of age.

Despite the author's extensive experience with this species, I believe he is wrong on two points. He says "eggs may be laid on successive days," p. 286. The rule with pigeons that lay two eggs is that the first is laid in the afternoon of one day, the second in the morning of the second day after. It is astonishing to read that the male is believed not to incubate! So far as I know all male pigeons incubate from mid-morning to mid-afternoon. How otherwise could they work out their nesting economy? The female needs to eat and the feeding grounds were five miles distant from the nesting colony; were the eggs left uncovered while she foraged?

Twice immature White-winged Doves were seen with flocks of Mourning Doves (*Zenaidura macroura*); the young birds made no attempt "to pick a kernel of food, but all ran from one to another mourning dove begging."

16. The Wood Pigeon. W. B. Alexander. 1940. *Journ. Royal Agricultural Society*, 100, Part III : 1–9. *Columba palumbus* breeds throughout the British Isles wherever there are woods or plantations; the birds gather into large flocks and do "serious damage to root and green crops." There has been a great increase in the numbers of these birds in the first half of the 19th century coincident with mass plantations of conifers, and also with the destruction of birds of prey by game keepers. The chief enemies of the Wood Pigeon are the Peregrine Falcon (*Falco peregrinus*) and the Sparrow Hawk (*Accipiter nisus*). As control methods, it is suggested that predators on forest areas should be encouraged to keep down th rodents and incidentally the Wood Pigeons. Two rather shocking methods are suggested: shooting on the nest and dissemination of Wood Pigeon diphtheria. Shooting seems half-hearted; the price obtained for the birds does not pay for the cartridges; sometimes "birds killed in shoots cannot even be given away but have to be buried!" In America we have the problem of over-shooting of our doves and in the recent past we exterminated the finest of our pigeons for the market. It seems curious that the large Wood Pigeon cannot be controlled simply by hunting for sport and utilization as food.

17. The Daily Rhythm of the Swift. (Ueber den Tagesrhythmus des Mauerseglers, (*Apus a. apus* (L.).) Lars von Hartman. 1940. *Ornis Fennica*,

17 : 7–11. Twenty-five pairs of Swifts nested in a tower next which the author slept. The birds were most active between 2–3 A.M. and 6–10 P.M. Rising and retiring is correlated with light as shown by a chart where the birds' activities closely follow the times of rising and setting of the sun. The Swifts are almost night birds since they stay awake until midnight or later. "Going to roost is apparently psychologically conditioned, since the Swifts disappear with explosion-like speed."

18. A Nest of the Arctic Three-toed Woodpecker. E. G. England. 1940. *Condor*, 42 : 242–245. Notes on a nest of *Picoides arcticus* in Sierra County, California. The young kept up a buzzing except when a Red-breasted Sapsucker "flew past the nest tree just as one of the parents sounded a harsh, clicking alarm call some distance away." Both parents fed about equally, usually 3 or 4 visits by one parent, then 3 or 4 by the other. "On leaving the nest both birds frequently flew to the dead top of a tall lodgepole pine about a hundred yards away and drummed loudly. The female's drumming was noticeably softer and slower than the male's." Excellent pictures are given of each parent at the nest.

19. Numerical Data on African Birds' Behaviour at the Nest. II. *Psalidoprocne holomelaena massaica* Neum., the Rough-wing Bank-Martin. R. E. Moreau. 1940. *Ibis*, 14th Ser., 4 : 234–248. A valuable paper. This Bank-Martin is a small bird, weighing only 10 grams; the sexes are alike. The nest is a pad of lichen on a ledge or in a tunnel that is not excavated by the bird. Eight nests were watched by Africans for 800 hours on 125 days. The percentage of time spent in incubation ranged from 31 to 58; periods on and off the nest were much longer than with *Hirundo smithii* (see *Bird-Banding*, Apr., 1940), usually ranging between 8 and 20 minutes. "There is no proof that both members of a pair share brooding or feeding duty. The incubation period is 19 days, the fledging 24–27." "For the first week after hatching the young are brooded as much as the eggs, but after that date the amount of brooding they get varies widely from nest to nest. During the last half of the fledging period the normal brood of two young receives 12 to 20 visits, presumably with food, per 200 minutes (only one-fifth as many as a brood of two *Hirundo smithii*). A solitary *Psalidoprocne* nestling got 80 per cent. as much attention as a pair." The young "fly in the absence of their parents, and efficiently from the first moment." One young flew "continuously for at least six minutes."

Two problems are raised by this study. The first is the part played by the parents in the care of the young; once it is stated that "the old birds visited the nest," p. 246. The other is the young bird's "apparent independence of the parents" when it leaves the nest. The young leave in the absence of the parents, go off through the forest and "the members of a brood did not even try and keep touch with each other. Under such conditions it could not be easy for the parents to find them again, especially as the call of *Psalidoprocne* is extremely feeble." p. 247. Yet all other Swallows with whose family life we are familiar care for their young for an appreciable period after the latter leave the nest.

20. House-Martins Rebuilding Broken Nest and Feeding Young. B. B. Riviere. 1940. *British Birds*, 34 : 87–88. Half of a nest of *Delichon u. urbica* containing feathered young was washed away; the adults built up the nest again completely, "bringing mud and insects to the nest more or less alternately."

21. Scrub Jay Reminiscenses. S. A. Grimes. 1940. *Bird-Lore*, 42 : 431–436. Three adult *Aphelocoma caerulescens* were seen caring for young at one nest. This interesting species—the Florida Jay—is being driven out by the clearing of land and the destruction of its habitat to make room for more beach houses.

22. Note on the Western Spinebill. S. R. White. 1940. *Emu*, 40 : 169–170. *Acanthorhynchos superciliosus* is markedly territorial, as observed in King's Park, Perth. The male is the bolder of the two parents in feeding the young.

23. Some Observations on the Nesting of Hemipus picatus leggei, the Ceylon Black-backed Pied Shrike. W. W. A. Phillips. 1940. *Ibis*, 14th ser., 4 : 450–454. Very small nests are built of lichens in inaccessible positions on bare boughs. The incubating female was rather conspicuous, but the nest was so small that "it was not immediately evident that she was on her nest." The male helps incubate. The fledglings are mottled drab-grey and sit facing one another with their beaks pointing upwards. They did not make "the slightest movement until their parents returned and were actually ready to place food in their mouths." The "coloration and the curious attitude adopted by the young has the effect of producing, while they are on the nest, a truly wonderful example of natural camouflage."

NESTING STATISTICS

24. Populating a New Territory. (Besiedlung eines neues Gebietes.) J. Bussmann. 1940. *Ornithologische Beobachter*, 37 : 69–74. The author moved into a house on the outskirts of Hitzkirch, Switzerland, started a feeding shelf and put up nesting boxes. Nine species used the boxes. By means of the terragraph (see the author's article in *Bird-Banding*, Jan., 1933) records of 13 complete days of feeding were obtained for the Great Tit (*Parus major*) and 12 for the Common Redstart (*Phoenicurus phoenicurus*). The number of meals brought to the 9 young Titmice from the 3rd to 15th day were: 350, 272, 400, 586, 686, 530, 740, 641, 793, 694, 723, 728, 600—a total of 7,743. The young left three days later. There was a steady increase in the number of feedings for the first seven days, then a level reached at about that of the 6th day (really 9th day of nestling life). Often two or more caterpillars were brought at a time. The five young of the Redstarts received the following number of meals from the 5th through the 16th day at which date they left: 172, 232, 240, 220, 374, 334, 340, 360, 357, 365, 246, 236—a total of 3,467 meals in 12 days. The rate increased until the last two days when it dropped down to the level shown at the 7th day of nestling life.

25. The 1939 Nesting Season of Bluebirds at Nashville, Tennessee. Amelia R. Laskey. 1940. *Wilson Bulletin*, 52 : 183–190. The nesting season of *Sialia s. sialis* begins in February and lasts into September; there are three rather distinct nesting periods; the early nests are the most successful. Incubation lasts 13–14 days, fledging usually 16 days. In 1938 February and March were mild, in 1939 cold. In the former year nesting started in February, in the latter in March. One banded female started building on February 23 in 1938, and laid the first eggs of three sets on March 21, April 28, and June 9. The next year she started building March 21, and laid her first eggs on April 15, June 5 and July 29. Tables are given showing that in 1938 the size of the average set was 4.4. eggs, the average number of young fledged per nest was 2.54, and the percentage of success of 460 eggs laid was 57.6. In 1939 the size of the average set was 4.3, the average number of young fledged was 2.18, and the percentage of success of 576 eggs was 50.3. These percentages are lower than those of Musselman in Illinois: 78, 67 and 67; and Low's on Cape Cod: 86 and 65. There was considerable interference from cats, House Sparrows and people. Fifteen females and several males banded as nestlings returned to nest in the vicinity.

LAYING AND INCUBATION

26. On Re-laying and Continuing to Lay. (Ueber Nachlegen und Weiterlegen.) H. Laven. 1940. *Ornithologische Monatsberichte*, 48 : 131–136. A review of the literature. The period of starting to lay again after losing a set of eggs is fixed in some birds (5 days with the Song Sparrow), but with others the period is shorter near the beginning of the destroyed set than towards the end. A table is given of published instances of attempts to induce birds to continue to lay by removing all eggs but one (usually); the classic instance of the Flicker

holds the record with 71 eggs, but is closely followed by a Wryneck with 62 eggs. The European Dipper laid 28 eggs, a Magpie 21, a Jackdaw 18 and a Green Woodpecker 17. Experiments on other species have given conflicting results or no evidence of further laying. More experiments are needed.

27. Birds Brooding on Empty Nests. J. H. Owen. 1940. *British Birds*, 34 : 105–106. Instances are given of brooding before laying in the Peregrine Falcon, Kestrel, Buzzard (*Buteo buteo*) and Owls. Other birds have brooded on nests in which no eggs were laid: Rook, Hedge-Sparrow, Long-tailed Tit and Green Woodpecker. A Great Tit, robbed of her eggs by boys on May 24–25, continued to occupy the nest until June 10.

28. Factors Effecting Length of Incubation. S. C. Kendeigh. 1940. *Auk*, 57 : 499–513. A physiological study of rate of oxygen absorption, gaseous exchange, rate of moisture and weight losses of eggs, etc.

BIRD BEHAVIOR

29. Some Aspects of Central American Bird-Life. I. Family Life in a Non-migratory Bird Population. A. F. Skutch. 1940. *Scientific Monthly*, (Nov.) : 409–418. In Central America a great many birds live in pairs throughout the year; some, however, usually go in flocks, while Hummingbirds, Manakins, certain Cotingas and "forest-haunting flycatchers fail to pair." In the Oropendolas, Caciques and Great-tailed Grackles females outnumber males; they build nests in crowded, populous colonies, the males keeping watch and sounding the alarm at threat of danger. There is little quarrelling between either males or females. "Where birds have the entire year in which to adjust conflicting territorial claims, to settle amorous disputes, they may gradually come to an understanding without resort to violence." The author suggests that hummingbirds, instead of being the "most pugnacious" of our birds may be the "most playful." "Mildness of temper, then seems to be a characteristic of the Central American birds, as a result—so I interpret it—of their leisurely, unhurried manner of life."

30. Pair-Formation in Birds. David Lack. 1940. *Condor*, 42 : 269–286. An important paper with an extended bibliography. "In some species of birds, the sexes meet solely for copulation, in some they form a very temporary pair-bond, in most they pair for the brood or the breeding season, in some they pair for life." In many species the isolation of male (occasionally of female) assists in pair-formation, but in many species "pair-formation occurs in the flocks." "Throughout some families of birds the type of pair-formation is similar, but considerable variation is found within the Icteridae, Paradiseidae and some other groups. [Ploceidae for instance.] Some individual *Podiceps cristatus* and *Haematopus ostralegus* form pairs when in the flocks, others through isolated territories." A distinction is made between social and sexual dominance; this certainly should be done; nevertheless the male Song Sparrow is not merely sexually dominant and the female socially dominant—each is socially dominant in certain situations. The same is true with relatives or friends of the same sex among people; one dominates in some situations, the other in others. Mr. Lack writes, "To conclude, I would not deny the importance of sexual dominance, but it needs clearer definition, and it is not nearly so widespread in birds as Allen (1934) implies. I cannot say more since I have not studied at first hand any species in which it occurs."

"One should not speak of 'sex-recognition', but of the external situations leading to pair-formation, copulation, etc., situations which are often different for different phases of sexual behavior." Tinbergen's "First and later reactions" are discussed, and the need for much more study stressed. As to copulation in contrast to pair-formation, "The external situation provided by the female leading up to copulation is different again, and the releasers are evidently much simpler

than those involved in pair-formation. The major stimulus in most species is simply that the female keeps still." The matter of sexual selection is also discussed. A paper that merits careful study.

31. The Inner Territory of the Black-headed Gull. E. A. Kirkman. 1940. *British Birds*, 34 : 100–104. The "inner" or nest territory of *Larus ridibundus* was the subject of investigation. Nests were never placed by the birds nearer than 18 inches to each other (from center to center); when moved nearer by the experimenter "The same bird that in one experiment played the part of the territory owner, full of assurance and pugnacity, became in the next, as intruder, all hesitation and timidity." In the gulls "territory follows the nest-egg situation." The bird whose nest had been moved near that of another rolled one or two eggs outside and sat on them. In another test two nests, four feet apart were moved next each other. There was "reluctance on the part of the bird *off* the nest to face the bird *on*. The latter, although it had ceased to feel itself a bird in its territory, nevertheless retained that meaning for the former. . . . As soon as the bird *off* overcame its hesitation to get *on*, the other went *off*. Both were regressive."

32. Social Nesting Habits of Guira guira. David E. Davis. 1940. *Auk*, 57 : 472–484. The scarcity of trees in Argentina encourages the flock habit. This species lives in pairs within the flock; there is a flock territory that may be more than a mile in diameter, and sometimes within this a nest territory of one pair. There is "typical but brief chasing" of intruders. In one territory there were two nests, one owned by a pair, the other by 5 birds. The birds huddle together for protection from the cold; mutual preening occurs. Eight distinct calls are listed, "all possessing social significance." The birds are "indolent" in their care of eggs and young, often dropping eggs on the ground. At a nest with 6 young 2 days old, food was brought 6 times in an hour; at another with 4 young 3 days old only 4 times in 5 hours! Juveniles remain with the flock for months.

33. A Behavior Study of the White-tailed Kite. John G. Watson. 1940. *Condor*, 42 : 295–304. Detailed observations on two adjacent pairs of *Elanus leucurus* in the San Joaquin delta, California, weekly visits being made from February 4 to March 31. Territorial fights involving both sexes and courtship display flights of the males were seen. "Work on the nest is done by both members of the pair, but the female alone incubates." [With the Mississippi Kite (*Ictinia misisppiensis*) both sexes incubate (Sutton, *Condor*, 41 : 48) and this is true with some of the European Kites.] "White-tailed Kites are strictly territorial, the main function of the region controlled being to provide the required food supply which consists of small mammals. During the courtship and incubation periods the female does not hunt; the male supplies the food for both. The female concerns herself only with those functions directly connected with reproduction, although if necessary she will aid in territorial defense." It is strange the author does not refer to the papers by Pickwell (*Condor*, 32 : 221–239) and Hawbecker (*Condor*, 42 : 106–111).

34. Additional Notes on the Roosting Habits of the Tree Creeper. M. N. and D. H. Rankin. 1940. *British Birds*, 34 : 56–60. *Certhia familiaris brittanica* roosts in holes in the bark of Sequoias. Times of roosting and of leaving are given, but no data on cloudiness, etc. A stuffed Creeper placed in or near the hole was violently attacked [roosting territory!], but a Stuffed Wren (*Troglodytes t. troglodytes*) was avoided, the Creeper roosting elsewhere. Wrens and Coal-Tits (*Parus ater hibernicus*) deepen the natural holes and then use them for roosting.

35. Threat and "Injury-Feigning" Display of Lapwing. D. Nethersole-Thompson. 1940. *British Birds*, 34 : 138–139. A male *Vanellus v. vanellus*, incubating "chipping" eggs, was watched through field glasses as a sheep and

lamb approached his nest. "The Lapwing rose and, with wings fully raised and shaken, he ran right up to the sheep. All the time he called persistently a shrill *peet-peet-peet*, normally associated with sexual excitement. In this display, as in the 'injury-feigning' performance, the white underwing surface with its dark edges contrasts vividly with the darker plumage." As the sheep took no notice the bird rose and several times struck the lamb. "This also failed to move the sheep, and the Lapwing next squatted and employed the 'injury-feigning' antics" —"one wing was outstretched and shaken as if broken while the other was alternately raised, shaken and lowered." "One thus had the remarkable experience of seeing three different methods of nest-defence—threat, deflection and attack directed by the same bird within the space of a few minutes." The "threat-display" sometimes "precedes leapfrog fights between males," and once was "directed at me by a bird with young which I surprised while cycling." The "injury-feigning" display several times led astray the author's spaniel.

36. "Anting" by the Song Sparrow. M. M. Nice and J. ter Pelkwyk. 1940. *Auk*, 57 : 520–522. Description of this behavior in *Melospiza melodia* with sketches of attitudes assumed.

37. On "Drawing Water" by Some Titmice. (Ueber das "Putten" einiger Meisen-Arten.) Wolf-Rainer Herter. 1940. *Ornithologische Monatsberichte*, 48 : 105–109. Attempts were made to teach Titmice trapped for banding, to draw up a pail containing a mealworm; photographs are given of the Blue Tit (*Parus caeruleus*) pulling it up from a distance of 64 cm. A Great Tit (*P. major*) was partially successful, but did not use its foot to hold the string; a Nuthatch (*Sitta europea*) failed entirely.

38. Studies on Nest-building. (Nestbaustudien.) H. Laven. 1940. *Ornithologische Monatsberichte*, 48 : 128–131. A review of the subject; little has been done except by Francis Herrick.

EFFECT OF LIGHT

39. Spring Development of the Gonads of the Starling (Sturnus v. vulgaris L.) W. S. Bullough and R. Carrick. 1939. *Nature*, 144 : 33–35. Three males collected in a quiet residential spot in Leeds March 7–14 were found to have enlarged testes; of 31 birds taken from a roost of 10,000 Starlings in the country March 7–14, only one was sexually developed. The authors believe that the majority of the country birds were from the Continent (9,000 of them suddenly left on March 15) and were winter residents only, while the city birds were pernanent residents. "The onset of maturation in the starling is almost certainly conditioned by the increase of daily light in the early months of the year, and it would appear that these two types of birds possess different reactions to the same environmental changes. The British birds react early and do not migrate. The Continental birds react more slowly and migrate before reaching their full sexual development."

40. Male Behaviour of the Female Starling in Autumn. W. S. Bullough and R. Carrick. 1940. *Nature*, 145 : 629. The yellow bill color is induced by male sex hormone. In October the bills of both sexes begin to turn yellow and both sexes sing. "Although in the breeding season the male alone sings, in autumn the habit is also developed in the female." This was checked by collecting singing Starlings. The authors compare this behavior to that of the female Redbreast that may hold territory in fall, and also to the singing of female Canaries that were injected with male hormone. Resident male and female Starlings (not winter resident) sing in October and November; in February the male begins again. "At this time the ovary is growing and is probably secreting female sex hormone

in such quantity that any effect on behaviour due to the presence of male sex hormone is obscured."

41. Light and Molt in Weaver Finches. Frank A. Brown, Jr. and Marie Rollo. 1940. *Auk*, 57 : 485–498. Equatorial Whydahs and Weavers, *Steganura*, *Pyromelana* and *Vidua*, were induced by daily light periods of 16 hours to come into nuptial plumage during their first year instead of second year as is normal. These birds "can be kept in nuptial plumage and breeding behavior throughout the year" by exposure to light. Different intensities of supplementary light affected the type of feather regenerated.

CENSUSES

42. The Midwinter Distribution of the Crow in California. John T. Emlen, Jr. 1940. *Condor*, 42 : 287–294. A survey, based on observations of over 1,000 persons, of the winter population of 1937–38 of *Corvus brachyrhynchos hesperis* in California showed some 82,000 Western Crows in 68 population centers. It was found that "wintering crows adhere year after year to a rather definitely prescribed range despite the presence of preferred foods, cover, water and other attractive environmental features elsewhere. It is not likely that the birds have simply failed to discover these apparently suitable areas beyond their range, for crows migrate through and even nest on many of them. Some definite restraining factor seems to be involved. It is conjectured that this factor is an innate drive to return each winter to established (familiar) territory."

43. Bird-Lore's Fourth Breeding-Bird Census. J. J. Hickey. 1940. *Bird-Lore*, (42 Suppl.) : 474–492. Thirty-five censuses are given, usually for three years in succession, one for nine; these are grouped under bogs and marshes, fields of various types, coniferous woodlands, maple-beech woodlands in Ohio, and other deciduous woodlands. A mine of valuable information.

44. Bird Population Studies. The Avifauna of Fort Jameson, Northern Rhodesia, 1935-38. J. M. Winterbottom. 1940. *Journal of Animal Ecology*, 9 : 68–75. The author considers that "techniques of sample counting and daily lists of species afford reliable indications of the relative abundance of individual species in different places and at different times." Data are analyzed according to Raunkaier's formula.

45. A Bird Census on Taranga (The Hen). E. G. Turbott. 1940. *Emu*, 40 : 158–161. A count from November 25 to December 4 of land birds on 75 acres of this forested island near New Zealand gave a total of 273 pairs of 17 species, or a density of 728 birds per hundred acres.

ECOLOGY

46. Ethology as an Assisting Science to Ecology. ("Die Ethologie als Hilfswissenschaft der Oekologie.") N. Tinbergen. 1940. *Journal für Ornithologie*, 88 : 171–177. A report of a lecture given at the meeting of the German Ornithological Society. An animal's relations to its environment are influenced by its behavior. Problems of the choice of food are discussed: what the species eats; what the relation of this menu is to the general food supply; protective coloration; warning colors; mimicry; etc. Inborn patterns are filled in by experience. Many experiments are cited on birds and evil-tasting insects.

47. The Status of Migratory Game Birds: 1939-40. 1940. Bur. Biological Survey Wildlife Leaflet, BS–165 : 1–22. In January there were some 65,000,000 waterfowl in the United States, nearly two and a half times as many as in 1935, but still far below the numbers earlier in this century. "Alaskan

nesting grounds are still greatly underpopulated . . . drastic regulations, including curtailing baiting and using live decoys, have borne fruit." The duck population of Mexico was much below that of the previous winter and far below the potential carrying capacity of the country. There is little starvation of ducks except those that are crippled, parasitized or suffering from lead poisoning. One fourth of the total annual kill are crippled, largely due to long range shots. Natural enemies are usually of little importance.

Woodcock suffered greatly from the severe winter; populations decreased 37.5 and 40 per cent over those of 1939. The same was true of Mourning Doves in the southeast. "Literally thousands of dead doves were found, apparently victims of starvation and cold." With this species nesting is active during September over most of the southeastern region. Shooting should not start before October 1 "for all areas south of the 36th or 37th parallel."

48. The Birds of Lord Howe Island. K. A. Hindwood. 1940. *Emu*, 40 : 1–86. Situated about 450 miles northeast of Sydney, Australia, this was an early bird paradise populated by fearless endemic birds. In the 150 years since the discovery of the island eight species have become extinct. The Lord Howe Pigeon, White Gallinule, and a Parakeet were exterminated by man; a Flycatcher, Fantail, Vinous-tinted Blackbird, Robust Silvereye and Lord Howe Island Starling were exterminated by rats that came from a wrecked ship in 1918.

49. Birds of Anaho Island, Pyramid Lake, Nevada. Richard M. Bond. 1940. *Condor*, 42 : 246–250. Examination of fish regurgitated by White Pelicans (*Pelecanus erythrorhynchos*) showed that these birds "are no more harmful to the fishing in Pyramid Lake than they were in 1924." Brown Pelicans (*Pelecanus occidentalis californicus*) were more concerned over their young than were the White Pelicans.

50. The Great Horned Owl and Its Prey in North-Central United States. P. L. Errington and F. and F. N. Hamerstrom, Jr. 1940. *Agr. Exp. Sta. Iowa State College Research Bull.*, 277 : 757–850. A detailed study of the food habits of *Bubo virginianus* partly based on six years' experience with 84 nests and the examination of 4,815 pellets. The authors conclude: "On the whole, it seems doubtful if north-central horned owls and associated predators exert a dominant influence upon populations of prey animals taken. The predators, even in numbers as great as many may themselves tolerate or can maintain locally, seldom appear to utilize more than a small proportion of the staple foods, i.e., rabbits and mice, conveniently available to them and, as a rule, turn to other mammals or to birds when these temporarily become more available than the prey staples. Overpopulation of habitats by nonstaple prey species has been accompanied by some of the most pronounced rises in representation of these types in diets of such flesh-eaters as the horned owl; crises precipitated by weather, destruction of environment, human activities, etc., were often reflected, as well, by response of predators to increased vulnerability of given prey animals." A paper that will well repay careful study.

51. Seasonal Food Habits of the Marsh Hawk in Pennsylvania. Pierce E. Randall. 1940. *Wilson Bulletin*, 52 : 165–172. By means of pellet examination at roosts of *Circus hudsonius* and by tethering of the young, it was found that mice were the staple food for ten months, while juvenile birds were taken freely in June and July, in connection with exposure by mowing and harvesting. The effect of the Marsh Hawk upon Pheasants is negligible; on the whole this species is a "decided asset to an agricultural community."

52. How do Large Raptorial Birds Hunt Their Prey? Willoughby P. Lowe. 1940. *Ibis*, 14th ser., 4 : 331–333. Instances are given from African species: harriers picking up flying fishes on the Red Sea; African Harrier-Hawk (*Gymnogenys*) clinging to tree trunks to get grubs from beneath the bark ro

stalking locusts and giving "a series of huge jumps before gripping the insect in its claws."

53. How Do Larger Raptorial Birds Hunt Their Prey? R. Meinertzhagen. 1940. *Ibis*, 14th ser., 4 : 530–535. Golden Eagles "usually hunt in pairs and cooperate in tactics." They "pounce without checking, even when the victim is on the ground." On the Victoria Nyanza Fish-Eagles (*Haliaeetus vocifer*) rob the Ospreys (*Pandion*) of their fish, but also fish for themselves. Though larger Raptores always attack prey much smaller than themselves, "some of the smaller Hawks will attack objects much larger than themselves." A cock Sparrow-Hawk (*Accipiter nisus*) ragged a cock Capercailzie (*Tetrao urogallus*), which "struck the most astounding attitudes with neck-hackles and tail to impress the Hawk. But the Sparrow-Hawk was not impressed and continued his attacks."

54. Northern Great Plains Region. The Season. C. J. Henry. 1940. *Bird-Lore*, 42: (Suppl.): 469–470. Great mortality from hail stones was suffered by Ducks, Coots, Franklin's Gulls and Pelicans. There was also loss from botulism. "Gull Island in Medicine Lake is a natural island composed principally of gravel and rock, and comprising approximately an acre. Eight-hundred and twenty nests of eleven species of birds were found on the island this summer, making a nest density of one nest per two square yards."

55. Minnesota Region. The Season. Thos. S. Roberts. 1940. *Bird-Lore*, 42 (Suppl.): 467–469. A pair of Cardinals were killed by arsenical poisoning after an orchard was sprayed; arsenic was found in the livers. A Pheasant nested 21 feet up in a mulberry tree in an old nest of another species; five of the eight young were "killed by the fall to the hard earth." Twelve species are mentioned as extending their ranges northward.

56. Reflections on Bird Protection—the Neglect of Habitat Preservation. D. L. Serventy. 1940. *Emu*, 40 : 153–158. "The essence of bird conservation should be . . . habitat preservation first and foremost. . . . In the past naturalists have been altogether too complacent in regard to the thoughtless destruction of natural cover which has been allowed to go on for so long under the name of progress." "The smallest units of natural cover, such as single trees, or narrow strips of scrub alongside a road, should be defended against the tampering of those well-intentioned but dangerous people, the civic 'improvers' whose dream of the ultimate in surburban beauty is strips of lawn and bitumen."

BOOKS

57. A Waterhen's Worlds. Howard Eliot. 1940. Cambridge University Press. (N. Y., Macmillan). 84 pp. $2.50. An intimate study of territorial and nesting behavior in *Gallinula chloropus*. Mr. Howard's problem is that of analyzing the bird's mind. He discusses four "worlds" of perceptions—Territory, Sexual, Platform and Family. I will quote from the chapter on Platform World:

"They collect stuff early in February and finish in the middle of April. Nine weeks they spend with their heap of stuff: hour by hour they devote themselves to it . . . the cock is chief murmurer, chief builder, chief sitter. . . no Waterhen crows on his platform: he murmurs in a particular way, lays his head on the platform, nibbles his mate's head, and offers his own to be nibbled." p. 41.

The birds are silent while incubating, but murmur again when the chicks hatch. "When he squats and murmurs he is doing something, and the something is related to the young. Let me consider these two points settled. But since six weeks will pass before an egg is laid; squatting and murmuring are manifestly ahead of their time." p. 53.

We are given very little in the way of statistics on nesting routine. I will quote from Family World:

"Sometimes I think the time of change is inwardly determined. It is not a matter of chance, not five minutes now and now fifty. But whether it is exactly determined, as the frequent thirty-eight minutes which my watch reports would have me believe, is still in doubt. At any rate they change, and do it regularly." p. 56.

"Twenty days they sit. But to-day, the eighteenth day, there is a change—they hurry. Formerly when one left the nest it left to feed, or preen, or wash, doing all things at normal speed; all things now are done hurriedly. There is a particular kind of hurry which signals directed action; but not the kind I see now, not quick movements anywhere and everywhere as if there were little time to spare. Is that strange? Well, yes. To behave as if the young were out two days before they are due, and for both of them to do it, is strange. To-morrow there will be no hurry, the next day much; for when the young begin to hatch they begin to hurry." p. 57.

A charming account of family life follows, to my mind the choicest part of the whole book. Here is a sample:

"Brooding is a feeling which depends not upon the sight of the nest or the feel of it, nor upon the sight of the young or the touch of them. For see, now that the young are a fortnight old and run about the field to tug worms, how the cock, at a distance, sinks down in a hollow, preens and pretends to preen, and broods the grass; and how the young, when they see him do this, run and burrow beneath him." p. 59.

A Waterhen's Worlds is not easy reading. Nevertheless the book is well worth careful study, both for the sympathetic account of the life history of the Waterhen and the thought-provoking presentation of problems of bird psychology.

58. Audubon's America. The Narratives and Experiences of John James Audubon. Edited by Donald Culross Peattie. 1940. Boston. Houghton. $6.00 An extraordinarily interesting picture of American pioneer life is presented here—the best stories form Audubon's "Delineations of American Scenery and Character," from his "Mississippi and Ohio Journals," and his diaries of his trip up the Missouri, his experiences in New England and New Orleans, and his explorations in Florida and Labrador; each chapter preceded by an illuminating and sympathetic introduction by Mr. Peattie. There are selections from the "Quadrupeds" and the four life histories of extinct birds. Mr. Peattie tells us:

"And the materials of history are, in the last analysis as in the first place, the accounts of eye-witnesses. . . . Now of all those who ever lived here, traveled and greatly adventured, none could bear more fascinating testimony than John James Audubon. He had the advantage of being a foreigner. . . . So that he took nothing for granted, and in the perspective of a more mature culture, all things American struck him as fresh. He had the further advantage that he was a genius, and a genius of art at that, so that to observe, to depict what he saw, was habitual and instinctive.

"But Audubon had, too, a genius for the art of living. He lived with zest for the adventure, and with personal ardors. He savored everything, even the unsavory. He saw almost everything, from 1803 to 1849, from Florida to Labrador, from New York City to Fort Union on the borders of Montana."

This is a superb volume, in its make-up, its splendid reproductions in color from Audubon's paintings (seven from the Quadrupeds), its thrilling narratives and its masterly editing.

Wings at my Window. Ada Clapham Govan. 1940. N. Y. The MacMillan Co. pp. I–XIV.+ 198. $2.50. As we read the pages of "Wings at my Window", we hear a lady's voice telling us a fascinating story. At first it is a sad story, and her voice is full of the pain she suffers, for she in an invalid. Then the voice quickens and grows happier as birds come to her window, and a great,

new interest enters her life, and the love of birds drives away her pain, and she becomes well again.

That is Mrs. Govan's story, and she tells it admirably. Physicians and psychologists will accept it as literally true, and when she speaks of her birds, all who are interested in ornithology will be charmed.

Mrs. Govan makes very modest claim for her knowledge of birds. Indeed she says that most of her studies have been made from her window. With little aid she established a feeding-station in her back yard, and during the past few years has fed thousands of birds there. When she had learned to identify the birds accurately, she began to band them and has obtained remarkable results of true scientific importance. This, in a word, is what Mrs. Govan has done at her home —no small accomplishment. But in a broader field, through her writing in newspapers and magazines, she has stimulated an interest in birds among a multitude of readers, and now, in "Wings at my Window", summarizing her experience of half a dozen years, she is spreading her message still farther.

Mrs. Govan writes with engaging, contagious enthusiasm. Her story sweeps along, enlivened both by her vivid, sparkling style and her gift of apt description —almost a "trick of singularity", e.g. the woodpeckers' "tails that were natural camp stools", p. 26. All through the book her love for birds shines out, often for a single banded individual which has been her friend for years. Apparently as a result of her warm affection for them, some of the birds become very tame, and she, alone of all bird-banders, is sometimes able to band birds without trapping them, by taking them gently into her hand. One passage relates a remarkable experience of having a roomful of pine siskins day after day in her bedroom.

Flashes of delicate poetic writing charm us as we read along. As an example on page 50: "Twice each day throughout June and July a shy nymph emerged from the woodland for her bath. I could almost hear the rustle of crispy starched petticoats as my little Oven Bird came stepping through the Tangle she loved so dearly. Then, discarding her demure demeanor as she would have laid aside her petticoats, she splashed the happy moments away—a dryad of the woods at play within ten feet of my window."

Mrs. Govan's sense of color is so discriminating and exact that she makes the whole book glow. Her word picture of a female purple finch, as she holds it in her hand, is a masterpiece of delightful description.

"Wings at my Window" contains a great deal of information about birds, and gives much sound advice about feeding them, but above all it is a book to read again and again for the joy of reading lovely English prose.

Here and there is a hint of fear that the adjoining woodland will be sold as house-lots and thereby destroyed as a cover and breeding-ground for Mrs. Govan's birds, but in the last chapter she exultingly tells us that through the intervention and aid of her many friends and readers, the woodland has been rescued and made into a permanent sanctuary.

The final scene shows Mrs. Govan standing at dusk in her sanctuary, with a flock of migrating Hermit Thrushes all about her. She says: "At once the soft, throaty notes rose on every side, enclosing me within a magic circle, though I could not distinguish even one dappled breast in that hallowed dusk. Perhaps the feathered throng were only voicing reproach for my intrusion—but in my heart I knew that they, too, were saying: 'Thanks, Lord! Thanks!' "—WINSOR M. TYLER.