

the previous day, was hidden by the ice and with two inches of snow and sleet on top. Two Tree Sparrows (*Spizella a. arborea*), shunning the more protected feeding places, were seen to alight where they had apparently found the food on previous occasions. They scratched, but seemed to find nothing to eat in the snow. Then both birds crouched in the snow, half burying themselves. Every few minutes they straightened their legs and scratched the snow only to return again to their crouching position.

From time to time a new Tree Sparrow approached and drove one or both away. The new arrivals at once took up the alternate crouching and scratching of those which had been displaced. It was not long before the regular pecking of the birds showed that they were eating.

A few hours later I examined the spot and found an area of almost a square foot of ground entirely bare of snow and ice. The edges of the bare spot showed snow turned to ice and the ice was melted smooth as if by the warmth of the bodies of the birds. They had apparently melted the icy covering from the millet and had eaten their fill.—G. HAPGOOD PARKS, 141 Branford Street, Hartford, Connecticut.

RECENT LITERATURE

Reviews by Margaret M. Nice and Thomas T. McCabe

BANDING AND MIGRATION

1. Göteborg's Natural History Museum's Ringing of Birds in 1937. (Göteborgs Naturhistoriska Museums Ringmärkningar av Flyttfåglar under 1937.) L. A. Jagerskiöld. 1938. *Göteborgs Musei Årstryck* 1938; 89–114. Since 1911, 92,394 birds of 180 species have been ringed under the supervision of the Göteborg Museum, 9,349 of these in 1937. There have been 3,292 returns and recoveries—3.6%. Birds ringed in largest numbers were Black-headed and Common Gulls (*Larus ridibundus* and *L. canus*), Starling (*Sturnus vulgaris*), Common, Arctic and Sandwich Terns (*Sterna hirundo*, *S. paradisea*, and *S. sandvicensis*), Herring and Lesser Black-backed Gulls (*Larus argentatus* and *L. fuscus*), Lapwing (*Vanellus vanellus*) and Barn Swallow (*Hirundo rustica*).

2. Notes on the Migration of Swedish Birds. E. Lönnberg. 1938. Proceedings 8th International Ornithological Congress, Oxford: 603–619. "Formerly the Hooded Crow was quite a regular migrant, and its return, especially in northern Sweden, was regarded as a sure presage of the approaching spring. Nowadays the Crows commonly remain in the southern parts, and also in an ever increasing number in the north near towns and villages, etc. The Blackbird (*Turdus merula*) is also now much oftener seen in winter-time than fifty years ago." A number of species have lately come in as breeders from the south. If the weather is cold during the spring migration, Redwings (*Turdus musicus*) "may stay and breed much farther south than is normally the case."

3. Reverse Migration. Harrison F. Lewis. 1939. *Auk*, 56 : 13–25. The author describes a brilliant example of a phenomenon now fairly familiar to European ornithologists but rarely recorded in this country. Using the terms of Weigold and of Koch, to which Lewis seems sympathetic, "weather," as opposed to "instinct" migrants are "positively anemotactic" if they fly against the wind, and *cursorus retrovertus* occurs when, owing to reversal of the prevailing seasonal winds, such birds must reverse their customary course. The present case occurred on Pelee Island, in Lake Erie, between May 10 and 14, 1937, where at least 34 species, mostly passerine with at least 12 warblers, were working south through the woods and finally flying south out over the lake against a strong wind. The phenomenon was not common to the total population of the moment. Some fifteen species at least, mostly migratory, were present without participating in the movement.

Other prevalent physical conditions are examined with the usual lack of correlation or apparent application, but, since it is almost necessary to postulate some external dynamic agency, wind does seem the "best bet," if not the only one. Without by any means swallowing it whole, the author is more or less favorable to the viewpoint of Koch. Wind as a factor in migration has of course often been denied, with excellent reasons. Wind as determining the *direction of movement* is even harder to accept. Objections are many and facile, the concept hard, yet with a tendency to strengthen with cogitation. The obvious general criticism is that it is hard to imagine migration occurring with the degree of regularity and accuracy it seems to have attained, yet so susceptible to so capricious an agency. To choose a region familiar to the reviewer, no positively anemotactic spring migrant would ever get north up the Canadian west coast. That is perhaps merely to say, however, that positive anemotaxis could never have evolved there, and it is interesting to note that only one or two of Lewis's long list, even in placement races, do move up that route.—T. T. McC.

4. Birds and the Wind. Neil T. McMillan. 1938. *Bird-Lore*, 40: 397-406. A very interesting article by a Captain of the Eastern Airlines. "Wind is the major influence in the life of a bird. . . . Whenever possible, he rides the wind." "To a bird on the wing, the wind is a vehicle or means of transportation—not a propelling agent." "A bird cannot float like a balloon but he can accomplish the same result at the point where his own air-speed is sufficient to give him enough lift to balance gravity. He moves through the air while the air itself moves, just as a boat on a river moves through the water while the water moves." "It is the way in which he is designed that will govern how much or how little the bird can use the wind. . . . If he can make but little use of the wind his range will be restricted. If he can remain aloft with only slight effort he will roam like the wind from one far corner of the globe to the other." Weather at our level is often very different from what it is at the level at which the birds migrate. "When it is known that wind and weather are practically synonyms, it is easy to run through 'The Season' reports in *Bird-Lore* and change 'cold weather' to 'northerly winds' and 'warm weather' to 'southerly winds' and be pleased to see that migrants arrive with them. When one is looking for just such a similarity it is easy to see the sameness between a map of the migration routes and a map of the prevailing winds."

5. Reverse Migration of Birds as a Result of Unfavorable Weather in Spring. (Rückgang von Vögeln als Folge ungünstiger Witterung im Frühling.) H. Ahlquist. 1938. *Ornis Fennica*, 15: 111-117. On April 20, 1930 and April 17, 1933 heavy migrations of Chaffinches (*Fringilla coelebs*) were seen going *southeast*. A sudden fall in the barometer had brought with it heavy snowfall; in one case there was a drop in temperature, in the other not. The author attributes the reverse migration to food shortage. Nothing is said of direction of wind in the German summary, and the reviewer is unable to read the full article in Finnish.

6. Homing Experiments with Wild Birds. W. B. Alexander. 1938. Proc. 8th International Ornithological Congress, Oxford: 560-567.

A good review of the subject, mentioning English, American, German and other experiments up to 1934.

7. Comments on the Gonads of some European Migrants Collected in East Africa immediately before their Spring Departure. William Rowan and A. M. Batrawi. 1939. *Ibis*, 14th Ser. 3: 58-65. An admirable popular summary of the history of avian gonads in the annual cycle, but going unnecessarily far afield and adopting inadequately prepared material to prove a point the reviewer should hardly have felt to remain in doubt,—*viz.*, that gonadal development may and often does begin before the departure of migrants to their breeding grounds. It is generally admitted today that gross size increase of testes *under natural conditions* in birds may be trusted to indicate the initiation of histological development in the direction of breeding condition. California

winter-visitants may undergo such increase of many volumes before departure. A more spectacular instance is that of the Sooty Shearwaters (*Puffinus griseus*) the reviewer often collects on the north-west Canadian coast in late October or in November, just before their departure for Chile or New Zealand to breed, with testes increased to between fifteen and twenty millimeters length, approaching breeding size.—T. T. McC.

8. **The Migratory status of the Heron in Great Britain.** N. F. Ticehurst. 1938. *British Birds*, 32 : 242-246. Another of the short, meaty, papers which are the special distinction of this periodical. Evidently (if the reviewer interprets the obscure second and third paragraphs rightly), there is a regular, or migratory, autumn movement of *Ardea c. cinerea* into the British Isles from the northern and somewhat eastern parts of the continent, as well as one which skirts the western island shores and passes on to more southern climes. The spring return flight is less numerous and less distinct. All this is of special interest in the light of the fact that banding returns show the breeding population of the British Isles to be largely sedentary, with a small wandering fraction whose wandering shows no constancy of direction. It is suggested that while the northern continental populations must still migrate for reasons of climate and food, the habit has degenerated as needless in the British Isles. A list is given of at least ten other birds which are migratory on the continent but not in Great Britain.—T. T. McC

9. **Banded Kittiwake from Russia Recovered in Newfoundland.**—Hoyes Lloyd. 1939. *Canadian Field-Naturalist*, 53 : 29-30. A Kittiwake, *Rissa tridactyla*, banded June 19, 1937 on the Island of Kharlov, 200 miles within the Arctic Circle, near Finland, was taken in Newfoundland September 20, 1937.

LIFE HISTORY

10. **Sea-bird Islands of the South Caribbean.**—B. Guy Harrison. 1938. *Oologist's Record*, 18 : 90-94. Stories of energetic attacks, in late March, 1938, on sea-bird rookeries about the Island of Tobago. Few or many nests with eggs or young were found of *Sula s. sula*, *Fregata magnificens rothschildi*, *Phaeton aethereus*,¹ (*Phaeton americanus*, probably with young, was only seen from a distance),² *Puffinus l'h. l'herminieri* (nesting in quite shallow crevices), *Pelecanus o. occidentalis* (nesting in the tops of low trees), and *Sterna f. fuscata*. More space is devoted to the adventures of reaching the sites than to descriptions of the finds.—T. T. McC.

11. **The Biology and Ecology of the White Stork.**—(Über Biologie und Ökologie des Weissen Storchs (*Ciconia c. ciconia*)). Ernst Schüz. 1938. Proc. 8th International Ornithological Congress, Oxford: 577-591. An interesting discussion with a bibliography of well over 100 titles. First year birds often spend the summer in South Africa. Storks regularly breed at three years; two-year-old females may build nests, and one is reported to have laid. The bond to the nest is stronger than that to the mate. There are many fights over nests, bringing destruction to eggs and preventing the pair in possession from breeding. The mates change places on the eggs about five times a day; the incubation period is 30 days. In unfavorable years the smallest young often perish, being thrown out of the nest either dead or still living; if they are small enough they are eaten by the parents!

12. **Notes on the Breeding Habits of the Common Screamer (*Chauna torquata*).**—C. R. Stonor. 1939. *Ibis*, 14th Ser., 3 : 45-49. The sentence, "They were kept in a large open aviary and there seems no reason to suppose that conditions of captivity modified their behavior to any extent," does not make a convincing beginning. This in spite of the fact that the wild birds are said to build a pile of rushes in a marsh, while these had to use sticks in a cage.

¹ Red-billed tropic bird.

² *P. lepturus catebyi*, yellow-billed tropic bird.

The whole performance seems not only to have been half-completed and unsuccessful but half-hearted and aborted from the beginning. Mutual courtship-preening, copulation, nest-defense, relief on the nest, etc., etc. are merely mentioned or described in a line. The three eggs, probably about half a clutch, were finally broken and eaten by the male.—T. T. McC.

13. A Comparative Study of Nesting Waterfowl on the Lower Souris Refuge 1936-1937.—E. R. Kalmbach. 1938. Transactions 3rd North American Wildlife Conference, Washington: 610-623. On this North Dakota refuge the nesting success of over six species of ducks was studied. In 1936 54% of 351 nests hatched, in 1937, 69% of 566 nests. Crows destroyed only 1.7% of the nestings in 1936 and 3.4% the following year. Skunks destroyed 30% of the nests in 1936; in 1937 (after 423 had been trapped) the survivors took only 6.5% of the sets. In both years later nests succeeded better than earlier ones; the comparative figures for the two years are: 1936, 47% and 63%; 1937, 57% and 79%.

14. Wood Ducks in the Illinois River Bottoms.—Gill Gigstead. 1938. Trans. 3rd No. American Wildlife Conference, Washington: 603-609. A description of the ducklings leaving several nests, jumping out of the holes when coaxed by the mother standing below. Snakes caused the greatest damage to eggs and young. There was considerable illegal hunting and trapping. "Wood ducks should be forever protected. . . . This magnificent creature which nature has adorned, and designed so attractively should be encouraged to represent a symbol of achievement in Conservation."

15. Life History and Management Studies of the Sage Grouse in Utah.—D. I. Rasmussen and L. A. Griner. 1938. Trans. 3rd No. American Wildlife Conference, Washington: 852-864. *Centrocercus urophasianus* is suffering from destruction of its habitat by the over-stocking of the ranges. One hundred and sixty-one nests were watched in 1936 and 1937; the average number of eggs laid was 6.82; "59.70% of nests observed hatched successfully, 26.02% were destroyed by natural enemies, and 14.28% were deserted."

16. Productivity of the Ruffed Grouse in New York.—Frank C. Edminster. 1938. Trans. 3rd No. American Wildlife Conference, Washington: 825-833. A very interesting article giving population changes of *Bonasa umbellus* for four to eight years on three different areas. "Early attributes of productivity—sex ratio, breeding, number of eggs, fertility, viability of eggs, nest survival, have remained remarkably constant—while great variation occurred in both brood and adult survival." Two graphs represent the "Life Equation" of this bird, one on the upgrade of the cycle, the other at its peak. In both, 58 per cent of the eggs hatch. In the former 54 per cent of the chicks perish as immatures, in the latter 62 per cent. On the upgrade 11 of 18 breeders will survive to the following year, or 61 per cent; at the peak only 50 per cent. Fifteen young (1.7 per pair) survive to breed on the upgrade, 9 young at the peak.

"The food and shelter conditions in normal grouse range have a potential carrying capacity far in excess of the actual. Predation usually reduces the winter population well below the ability of the range to sustain and shelter, but, even more important, the species itself will not tolerate crowding beyond a certain point."

17. Some Observations on the Sexual-life, Display and Breeding of the Red Grouse as observed in Inverness-shire.—Caroline and Desmond Nether-sole-Thompson. 1939. *British Birds*. 32:247-254. This is the fruit of relatively casual observation on an abundant, preserved population of *Lagopus s. scoticus* during more intensive work on other forms, which explains the total lack of reference to the rich published sources, such as the 1911 volumes of the Committee on Grouse Disease. As early as December sexual behavior begins to burst forth in splendid exhibitions of the always spectacular *Lagopus* flight. Territory grows around display centers, and some shred of it seems to last through

the year, though, as usual in these British game-bird studies, the annual slaughter so breaks up the population that it is nearly impossible to detect the normal pattern, whether as to territory or mating.—T. T. McC.

18. A Moorhen Calling for a Mate.—(Weibchensuche beim Teichhuhn.) H. Baron Geyr. 1939. *Beiträge Fortpflanzungsbiologie der Vögel*, 15 : 28–29. Moorhens (*Gallinula chloropus*) were driven out of their nesting area by drainage; a male took up his territory by a brook, built a foundation for a nest, and spent his evenings calling uninterruptedly. After a few nights a female joined him and the calling ceased.

19. Courtship and Nesting of the Great Horned Owl.—Frederick M. Baumgartner. 1938. *Wilson Bulletin*, 50 : 274–285. There is no more welcome thing in American ornithology than a hard fact to toss into the whirlpools of discussion of the notes, seasons, clutches, and sexual behavior of *Bubo virginianus*. When the present author boiled down his thesis the reviewer wishes he had told us a great deal more about his own work and less about other people's. Admittedly, literature is a necessary evil in ornithology, but too much respect for it reduces a man to what a great French critic called "the pallid business of criticizing criticism."

The author achieved the feat of night-watching by moonlight and established the fact of relief on the nest. The female was off ten nocturnal hours, and in the middle of this period brought food to the male, without relieving him. It is implied that no exchange was seen by day, and that during the early incubation period simple day and night shifts prevailed. Later in the incubation the female was relieved only for short periods towards morning.

The character of nest sites, and latitudinal differences in mean dates of full clutches are very fully treated. Full clutches vary from November to January in Florida, from March to May in the northern parts of the Canadian provinces. It is too bad that no attempt is made to correlate egg-number with latitude, an often-hinted but seldom-demonstrated principle of still questionable validity. Certain data suggest an increase northward, but the author seems more interested in the larger clutches of western, as opposed to eastern, races.—T. T. McC.

*See No. 38 for data on the relation between egg-number and latitude.—M. M. N.)

20. Some Saw-whet Owls in Central Iowa.—Thomas G. Scott. 1938. *Wilson Bulletin*, 50 : 239–242. A few field observations, with pellet analysis, of *Cryptoglaux acadia acadia*, which is a rare winter visitor in Iowa. Two or three birds used a few chosen roosts in a hawthorn thicket by day during all or part of the time between December 28, 1936 and February 28, 1937, and found 97% of their food in the local shrew and mouse population and only 3% among the song-birds, probably Juncos. The author speaks of flocks of Chickadees close to the roosting owls but says nothing of mobbing, which would be rare luck for the owls in the more northern ranges where the reviewer has known them.—T. T. McC.

21. Behavior of the Saw-whet Owl on its Nesting Grounds.—R. Santee and A. Granfield. 1939. *Condor*, 41:3–9. A banded female nested two years in succession in San Mateo Co., California, choosing a box a third of a mile away the second year. She would strike visitors attempting to take photographs of the young. Another female was found incubating sterile eggs.

22. Observations on the Nesting of the Allen Hummingbird.—Robert T. Orr. 1939. *Condor*, 41 : 17–24. A nearly finished nest of *Selasphorus aleni* was found May 6; the eggs were laid the 11th and 12th. It was watched from 9–12 on May 13; the average length of periods on the nest was 2.8 minutes, the longest 6; the average period off was 1.4 minutes, the maximum 3; during these intervals the female obtained nectar from a nearby tree, preened, rested, and chased other Hummingbirds. A male was perched 40 feet away; he also chased off other Allen Hummingbirds. In the afternoon the female incubated much more steadily. On May 14, from 9–12, the average period on was 4.1 minutes,

the longest 8; the average off was 1.1 minutes, the longest 2.5. On the 21st the female no longer paid attention to other Hummingbirds; from 9-12 the average period on lasted 7 minutes, the maximum 9.5; the average off 1.6 minutes, the longest 3 minutes.

The young hatched May 27. They were brooded until they were 12 days old, at which time their eyes had opened. They became active at 15 days and left at 22 and 25 days.

23. Nest Observations on the Lesser Spotted Woodpecker.—(Brutbeobachtungen beim Kleinspecht.) Otto Steinfatt. 1939. *Beiträge Fortpflanzungsbiologie der Vögel*, 15:9-14. *Dryobates m. minor* is a permanent resident in East Prussia, remaining on its territory throughout the year, male and female having adjoining territories. The female drums as well as the male. A nest was watched all day the day before the young left; the male fed 76 times, the female 11. From 2-5 insects were brought at each trip. The male spent the night with the young. The family stay together 8-14 days after leaving the nest. The young then wander about and take up permanent quarters their first winter.

24. The First Rearing of Pittas in Captivity.—J. Delacour. 1938. Proceedings 8th International Ornithological Congress, Oxford: 717-719. In Pittas the sexes are alike, the "male and female have the wretched habit, like many Thrushes, of quarrelling at all times except in the actual breeding season." Two Hooded Pittas (*Pitta cucullata*) from southeastern Asia were kept in a tropical aviary with Hummingbirds, Sunbirds, Sugar-Birds, and Chinese Painted Quails "of which the Pittas take no notice." Both were tame, each kept to its own corner. April 10 the cock "started calling loudly from some high perch" and "serious fights took place," yet the birds carried nesting material. From April 20-30 both built a nest, "the size of a football, with a large opening in front". The cock fed the hen. Four eggs were laid, and both parents incubated, changing places every hour or so. One egg hatched May 18, two others by the 20th; by the 31st the older could fly well. The female now started to lay again in the old nest, but the male built a new nest and would not go to the old one. M. Delacour put 8 of the 10 eggs in the new nest, and both birds started to incubate. In the meantime they continued to feed the young bird, that had been feeding itself since June 12.

25. A Note on the Nesting of the Andalusian Long-tailed Titmouse (Irby's Titmouse), *Aegithalos caudatus irbii*.—H. C. Bridges. 1938. *Oologists Record* 18:73-74. An irreducible minimum of information on four nests of a rare bird found in the "Sotos" of the Almoraina district of southern Spain, near Gibraltar.—T. T. McC.

26. Bicknell's Thrush, Its Taxonomy, Distribution, and Life History. George J. Wallace. 1939. Proceedings Boston Society Natural History, 41 (6): 211-402. Two summers were spent on Mt. Mansfield, Vermont, studying this rare thrush (*Hylotichia m. minima*), which is the most characteristic bird in the evergreen zone near the summit. There is a morning peak of song shortly before sunrise, little during the day except in rainy, misty weather, while the climax is reached 15-30 minutes after sunset "with flight performances as the culminating feature." "Intensity of song reaches its culmination during the mating period," wanes during incubation and care of young. "Song is renewed when nesting ends," regardless of whether the young are safely fledged or eaten by red squirrels." A young bird raised in captivity started to sing at 15 days; in the winter his song had the same "tonal quality" as that of the wild birds, but was "not broken into the proper sequence of phrases"; when taken back to Mt. Mansfield the following summer, he "learned to imitate the wild birds with perfection." Females sing occasionally while incubating and brooding. "The notes of the female were of a somewhat inferior quality, being very low, whisperingly thin, and hoarse."

Thirteen nests were found, six with four eggs, seven with three. Twenty-two of the 45 eggs hatched, and 11 young were fledged—only 24.4 per cent of success.

Red squirrels probably destroyed 6 of the 13 nests. May it not be that these rodents are unduly abundant due to the persecution of hawks? The females incubate leaving at 10-15 minute intervals. (The data on incubation rhythm are meager. Some attempts to deal with this subject graphically are recommended to those interested: that of Baldwin and Kendeigh with the House Wren, *Auk*, 1927 : 206-216; of Hann with the Ovenbird, *Wilson Bulletin*, 1937, p. 227, and of the Nices with the Black-throated Green Warbler, *Bird-Banding*, 1932, pp. 101, 159.) The young are brooded nearly half the time until they reach the age of 5-6 days; they are brooded "continually during rains, even when the young are old enough to leave the nest." Incubation period was about 13 days, fledging about 12-14.

A curious incident was that of an extra male helping feed the young at one nest on the 5th day, pp. 340, 348, 351; we would like to hear more details—how the sex of the "helper" was determined, how long he was present, etc. Territory is mentioned only incidentally (p. 340); that males spend much of their time on the boundaries, yet "controversies between males have never been observed"; "a territory may apparently cover an acre or more." There is no index.

27. Nesting and Territory Studies with *Lanius collurio*.—(Brut—und Revierstudien an *Lanius collurio* L. (L.)) W. Rüppell. 1938. *Ornithologische Monatsberichte*, 46 : 161-163. Observations on color-banded Redbacked Shrikes in the Botanical Garden at Berlin. A male nested within 500 meters of his birth-place. In two successive years a nest was built in the same crotch in a bush, but both pairs were different. A male returned and nested within 300 meters of his former territory; females nested within 310 and 330 meters. One female incubated addled eggs for at least 42 days.

28. Nest building Behavior in the Loggerhead Shrike Group.—Archibald Johnson. 1938. *Wilson Bulletin*, 50 : 246-248. Tabulations of the results of some ten hours' total observation of the nest-building activities of *Lanius ludovicianus* in Stutsman County, North Dakota, between May 6 and 15, 1937. The principal point is the occasional, though rare, participation of the male in nest-building.—T. T. McC.

29. Some Breeding Habits of Marsh-warblers in South Worcestershire.—A. J. Hartlan. 1938. *British Birds*, 32 : 230-232. *Acrocephalus palustris* usually breeds in water-thickets, and the author's attention was drawn to this group of five territories and nests in a dry bean field as a rare aberration. The concentration of the ensuing picture of the breeding behavior into about a thousand words is a brilliant achievement, and might well form a model for such records. Occupation and later usurpation of territory, close-up "face to face" singing contests between males, sexual pursuit, building by the female while the male sings or flutters above her,—in fact the whole complete and telling miniature, suggests an admirable subject for a large canvass.—T. T. McC.

30. The Comparative Breeding Ecology of Two Species of Euplectes (Bishop Birds) in Usambara.—R. E. and W. M. Moreau. 1938. *Journal of Animal Ecology*, 7 : 314-327. The Zanzibar Red Bishop (*Euplectes nigroventris*) and Crimson-crowned Bishop (*E. h. hordacea*), weavers of the subfamily Ploceinae, nest in Tanganyika Territory, East Africa; both are polygamous, the males holding territory and building foundation nests which are completed by their mates. "In neither species does the size or the position of the territory bear any relation to the availability of food for adults or young, or to topographical features." In *E. hordacea* "size of territory is possibly specific. *E. nigroventris* on the other hand is almost indefinitely compressible." Its territories vary in size "from 9 to at least 1,000 sq. yd." "At the height of the nesting season there is always suitable ground unoccupied. But territories containing no food and suffering the maximum of disturbance from other species can be found crowded together more closely than territories in areas possessing neither of these disadvantages."

"Irrespective of the size of his territory, a male *E. nigroventris* has up to five breeding females active in it at once and may raise eight families in it during the

season. In a territory of *E. hordacea* not more than three breeding females have been found at once."

The authors conclude that "in one species the specific territory size can, on present evidence, be regarded as a limiting factor in population density, while in another, closely allied and with generally similar habits, this possibility is excluded. In the 'compressible' species the suggestion of any food motive in the territorial habit can be ruled out with exceptional conclusiveness. Finally, the smallest territories of the 'compressible' species are not obviously less successful than any others of either species."

31. Proportion of Sexes in Roosting Chaffinches.—Guy Charteris. 1938. *British Birds*, 32 : 230-232. A most interesting little paper. At four quite separate roosts of *Fringilla coelebs* for four winters the percentage of males lay between 62% and 69% of the whole. Yet at a fifth station, for three winters and a fourth complete year, near-equality (51% of females in the grand average) is found, with even narrower extremes (49% to 53%). It is less the facts of equality or inequality of numbers than the local constancy of the relation which is interesting and lends validity to the results.—T. T. McC.

32. The Chestnut-collared Longspur in Colorado.—A. M. Bailey and Robert J. Niedrach. 1938. *Wilson Bulletin*. 50 : 243-246. *Calcarius ornatus*, as was discovered in 1932, just enters Colorado as a nesting bird in a valley south of Cheyenne. In the late summer of 1936 and during the breeding season of 1937, the authors made several visits to the locality, and write briefly of the behavior of this bird as opposed to McCown's Longspur, (*Rhynchophanes mccowni*) which is also common. The nuptial flights are distinguishable. For nest sites, *Rhynchophanes* prefers flatter prairies, *Calcarius* more rolling country. The nests appear to be alike.—T. T. McC.

33. Studies of Breeding Birds in the Allegheny State Park.—A. A. Saunders. 1938. N. Y. State Museum Bull. No. 318 : 1-160. In July and August, 1932, 1933 and 1934, birds were observed on 225 acres of forested mountain slopes in cherry-aspens, maple-beech-birch-hemlock, and maple-beech associations. By a count of singing males the nesting population was recorded as 186, 175 and 159 pairs respectively during the three years; these were of 42 species; other species undoubtedly bred earlier in the season. An interesting table is given of the cessation of song of 45 species recorded from 4 to 12 years. Some of the dates correspond very well with my own observations in Pelham, Mass. Under the accounts of the species the most interesting items are those concerned with Mr. Saunders' speciality, namely song. He tells of a remarkable Catbird, "a wonderful singer and imitator" that was found in 1933 at some distance (we are not told how far) from his territory in 1931. Hermit Thrushes show much individuality in song, as do Blue-headed Vireos, where both sexes sing and incubate. One Song Sparrow had 18 different songs, while two birds with territories within hearing of each other had two songs alike.

A young Catbird frightened from the nest "alighted in the water of the lake. It swam out on the lake surface till about nine feet from shore and then turned and swam back."

A table on p. 153 lists miscellaneous nesting habits; the House Wren's incubation period is stated to be only 10 days; in reality it lasts 12 to 13 days, according to information given me by Eugene Odum as to the results of studies at the Baldwin Bird Research Station at Gates Mills, Ohio.

BIRD BEHAVIOR

34. Field Observations on Birds in 1937.—James Fisher and David Lack. *Bulletin of Animal Behaviour*, 1: 8-17. A review citing 89 titles from 18 journals, on life history topics, including territory, courtship, incubation, individual variation, individual recognition, injury feigning and 15 other subjects. A very useful résumé.

This new journal is published by the institute for the Study of Animal Behaviour, whose secretary is J. Fisher, Esq., Zoological Society, Regent's Park, London, N.W. 8. This first number contains five articles, one a review of ecological literature, two on psychology, the last on "Monkeys and Apes." The editorial says "where convenient the language has been simplified so that the Bulletin should be of interest to lay as well as to scientific readers."

35. A Contribution to the Comparative Sociology of Colonial-Nesting Birds.—K. Lorenz. 1938. Proceedings 8th International Ornithological Congress, Oxford: 207-218. Jackdaws (*Coleus monedula*) and Night-Herons (*Nycticorax nycticorax*) are both colony-nesters, but their sociology is strikingly different. The former defend their common territory from "strange Daws coming near the nesting colony during the breeding season." They have a peck order, but by a special reaction weak birds are protected from a would-be tyrant. The sight of something black carried by a predator stimulates them to attack. When "one bird is observed to be missing," "all the birds appear nervous and alarmed." If an "inexperienced member of the flock loses its orientation," it "is at once sought out and led home by some bird which knows the way, very often by the despot of the colony himself, who seems to have some special 'responsibility' in such cases." An essential element of their sociology is personal acquaintanceship with each member of the flock.

With the Night-Herons Lorenz could not find evidence of personal acquaintanceship. "The nesting territory of a pair of Night-Herons has an area of but a few cubic feet, yet it retains all the characteristic features of the typical territory of other birds." "The Night-Herons, like very many other birds, do not recognize the sex of another individual of their own species on seeing it," and so fiercely territorial are they on their small nest areas, that a male will not at first admit to the territory a female when she arrives in answer to his constant calling. He has gradually to become used to her proximity and finally allows her to come on to the nest, when she erects her plumes in the "appeasing ceremony." An exceedingly interesting paper.

36. Why Do Birds Behave as They Do?—N. Tinbergen. 1938-'39. *Bird-Lore*, 40: 389-395; 41: 23-30. A very fine exposition of bird psychology in simple, clear style with plenty of examples. All animals cope with the environment by means of both innate and learned reactions. Parental "behavior is caused, not by 'knowledge' of its end-effect, but rather by certain stimulations from within and without, to which the birds react 'blindly'." Birds "react to only part of the conditions we see in their surroundings." "It should be made clear that not only the behavior pattern is inborn, but also its connection, through the nervous system, with the special sense-impressions that release the behavior pattern."

"Many movements serve as a primitive kind of language and, while not intended by the bird that displays them to be communicative, have profound influence on a companion's behavior." These "signal movements . . . often display conspicuously colored parts of the body. These bodily 'signals' may have the same functions as the movements, and serve as a form of language. This is so general a rule that one is certainly justified in assuming such a function for every conspicuous structure of any bird, using that assumption as a working hypothesis for research."

37. Threat and Warning Coloration in Birds with a General Discussion of the Biological Functions of Colour.—Julian S. Huxley. 1938. Proceedings 8th International Ornithological Congress, Oxford: 430-455. Hingston's book "The Meaning of Animal Colour and Adornment" (See *Bird-Banding* January, 1935) is discussed and some aspects of its thesis accepted. Huxley distinguishes between *threat*—associated with combat, and *warning*—associated with the possession of unpleasant properties. He mentions *recognition threat*, that "serves to advertise the presence of a potential combatant at a considerable distance, and so saves its possessor many actual combats." He heartily disagrees with Hingston's notion that courtship is threat. "The correlation of certain colours and struc-

tures with display-action directed towards the opposite sex is as obvious as that of others with threat-action directed towards the same sex."

The brilliant plumage of some males is called "deflecting colouration" when it serves to call attention of an enemy to the father of the family and away from the mother and brood.

In this abstract I have used the English terms and not the confusing epithets—phaneric, aposematic, pseudoproaposematic, etc.—employed by E. B. Poulton.

ECOLOGY

38. Influence of Climate upon the Origin of Races of Birds, with Especial Attention to Wing-Form and Egg-Number.—(Einwirkung des Klimas bei der Ausprägung von Vogelrassen, mit besonderer Berücksichtigung der Flügelform und der Eizahl.) B. Rensch. 1938. Proceedings 8th International Ornithological Congress, Oxford : 285–311. By examination of many specimens of large *Rassenkreise* inhabiting both cold and warm regions, the author substantiated Bergmann's, Allen's and Gloger's Rules, and discovered that birds in colder regions have narrower, more pointed wings than their allies in warm countries. Egg number is compared in 25 species; in 21 it is higher in the Temperate Zone than in the Tropics, in two it is equal, and in two lower. The number of sets per year is not greater in the Tropics than in the Temperate Zone. The increase of the size of set in races in colder regions is an adaptation to the greater loss of individuals in such regions. The author considers these phenomena as "probably caused by natural selection."

39. Size of Sets of Eggs of the American Eider.—Harrison Lewis. 1939. *Journal Wildlife Management*, 3: 70–73. On the north shore of the Gulf of St. Lawrence, Quebec, *Somateria mollissima dresseri* averages 4 eggs to a set. In 1938 the sets averaged 4.25 eggs, while the proportion of 5 egg sets was larger than in any other year of observation. Spring came very early and food was abundant. Predation ceases about mid June, partly due to growth of vegetation, and partly due to the "arrival in shallow coastal waters of large schools of small fish, the capelin (*Mallotus villosus*), which furnish an abundant supply of food for predators."

40. Starlings in Relation to a Spruce Planting. (Over Spreeuwen, *Sturnus vulgaris* L., in een dennenbeplanting.) H. N. Kluijver. 1938. *Limosa*. 11 : 92–97. The nearer to this planting the nests were, the larger was the proportion of boxes used, the larger the sets, the greater the percentage of sets with 7 eggs, and the earlier the start of nesting. The nearest boxes were at a distance of 200–600 meters, the farthest 1400–1800.

41. The Importance of the Starling in Agriculture.—H. N. Kluijver. 1938. Proceedings 8th International Ornithological Congress, Oxford : 719–725. The "Starling does not hunt a special insect species, but captures what it can get most easily by its instinctive hunting-method."

In a nest with 6 young the number of feedings started with "118 on the first day, but gradually rose to 350 on the eighth day. Once 525 feedings were registered in one day. The total number of feedings during a fledging-period amounted in two nests to 6,895 and 7,668 respectively. . . In 1930 we were able to fix the number of individual insects brought to one nest at 16,000 and in 1931, when the prey was on an average much smaller in size, to another nest there were brought 27,000."

When Starlings are in flocks they may exercise beneficial influence by preventing insect plagues in gardens and forests.

42. The Feeding Habits of Cormorants in South-western Australia.—D. I. Serventy. 1938. *Emu*, 38 : 293–316. A most sensible investigation, most gratifying to ornithologists in that it not only demonstrates one more case in which "the more sluggish surface-feeding or shallow-water species not utilized by man" (Cottam and Uhler) are those chiefly preyed upon by the birds, but

that there is little reason to suspect much interference with the food chain which leads to the commercial species.

The investigation was undertaken by official request after many years of complaint by the fishermen of the Swan River estuary. The four species involved are *Phalacrocorax varius*, *melanoleucus*, *sulcirostris*, and *carbo*. After reviewing the methods of treating stomach contents the author chooses the unpopular numerical technique,—*i.e.* the counting of numbers of individuals in the separate stomachs. It was not, however, his intention to do so regardless of size. Length measurements were made, to be converted into gravimetric data on the basis of size-weight averages, since the information ultimately desirable is the mass of the different species consumed. This information, however, has not yet been presented.—T. T. McC.

43. Adaptability of Birds to Changed Environments.—Logan J. Bennett and George O. Hendrickson. 1939. *Auk*, 56 : 32-37. It seems to the reviewer that this paper might have been more satisfactory had more attention been devoted to definite cases of that persistence of birds under changing environment which the authors believe to be so common. The burden is that primitive faunas may be better able to endure the coming of intensive agriculture than is generally supposed. Out of some 45 breeding birds listed by Tinker in 1907 in an Iowa prairie region since greatly modified by human activities, a great majority persist, and not one marsh-nesting bird has been exterminated. Parallel descriptions of the region written in 1907 and 1937 show the old associations vastly reduced, but not, it appears, eliminated, in most cases. What might be expected is great change in abundance, of which little or nothing is said, rather than extermination. The principal concrete point is that Teal "and other land-nesting birds" have been able to change from native to cultivated grasses.—T. T. McC.

44. Report on the Lapwing Habitat Enquiry, 1937.—E. M. Nicholson. 1938, 1939. *British Birds*, 32 : 170-191, 207-229, 255-259. Because a habitat enquiry involves better-trained observation than a census, this one was undertaken not less with the purpose of developing a technique and training a corps of observers than with that of working out the habitats and determining factors for *Vanellus vanellus*. For the sake of uniformity, the organizers worked out a schedule of forty-five habitat types for the fifty-five observers (individuals and societies) to base their returns upon. These turned out to be adequate, and were deviated from only in freak cases. It may be said in passing that while no parade is made of these, nor claim of scientific basis or finality, yet in them lies the true problem;—the postulates are also the *ultima ratio* to which the devious argument must return. Observations were required during four short periods in different seasons. Neither distribution, numbers, nor questions of decrease or increase were involved. In the analysis of returns, number one habitat was "newly plowed land," next, "fallow or stubble," third, "fair permanent pasture above alluvial level," and so on down to number forty-five, "rocky tidal beach." As a unifying agency, Nicholson himself checked over, in the summer of 1938, over 100 Lapwing stations, while more elaborate locality-studies were carried out by M. D. Lister (reviewed in this issue) and J. H. Thomas.

The results so far present a magnificent body of information, and parts, such as the section on "The Relation of Habitat and Habits" are as interesting ornithology as has often been written. Yet one is conscious throughout of the prevailing *negative* tone of the preliminary conclusions. Whether it be a question of geology or climate, of narrowed nest-site requirements, of modifications by enforced change of habitat, elimination by agriculture, or susceptibility to other human or animal disturbances, the answers are prevailingly *no*. Furthermore, for all the deep satisfaction derivable from skillfully-elicited and carefully organized facts, one is left with a hidden suspicion that the results are not much more than an experienced ornithologist who knew the bird might have written down at the outset. Granted that just such crystallization of knowledge is a large part of the job of science, it is permissible to wonder whether, as far as habitat is concerned, the numerous and successful forms, of great persistence and versatility within

broad and somewhat obvious ecological ranges, reward examination as richly as those more exigent, sensitive, narrow-ranged, and difficult. To choose a concrete illustration, one wonders whether the abundant numerical data the present enquiry has assembled or will assemble will ever reach as near the center of the complex of a bird's relation to its environment as Erikson's minute study of the excessively difficult Wren-tit in California. Naturally, such more subtle forms are less suited to the grosser methods of group research.—T. T. McC.

45. An Account of the Lapwing Population on a Surrey Farm.—M. D. Lister. 1939. *British Birds*, 32: 260-271. A careful record, kept during almost daily walks for four years across a Surrey farm, of the numbers of Lapwing and the types of ground and of crops frequented. It may be said to shadow forth the existence of more or less regular changes in population, in numbers, and in preferred terrain, without being able to reveal their significance. It leads one to suspect that the Lapwing Enquiry, when the whole tale comes to be told, will find difficult nuts to crack in the matter of local or extended migratory movements.—T. T. McC.

CENSUSES

46. Bird-Lore's Second Breeding-Bird Census.—Edited by J. J. Hickey. 1938. *Bird-Lore*, 40: 350-365. "The second Breeding-Bird Census follows its predecessors in a rich variety of habitats scattered over half a continent from Quebec to Texas and from California to Maine. Once again the reports emanate largely from Ohio, as it becomes increasingly obvious that the survey of local bird-life by the Cleveland Bird Club is by far the most comprehensive ever attempted—and actually being carried out." Two Ohio censuses showed three times as high a density in ungrazed sugar maple forest as in pastured. A total of 38 of these interesting censuses are published; they come from ten states.

47. The Relative Abundance of Winter Birds at Nashville.—Albert F. Ganier. 1938. *Migrant*, 9: 89-93. A study of Christmas censuses published by *Bird-Lore*. Omitting four highly gregarious species Starlings, Grackles, Cowbirds and Robins—that may be present in very large numbers or entirely absent, the most abundant birds were Juncos, Cardinals, White-throated Sparrows, Crows, Horned Larks, Mockingbirds, Field Sparrows, Meadowlarks and Song Sparrows.

48. How Valuable are Woodland Clearings to Birdlife?—Daniel W. Lay. 1938. *Wilson Bulletin*: 50: 254-256. Thirty-minute counts in different types of habitats in Texas to investigate the value of "edge". "The margins of clearings have 95 per cent more birds representing 41 per cent more species than the interiors of corresponding woodland."

49. Gannet Colonies of Shetland.—James Fisher, Malcolm Stewart, and L. S. V. Venables. 1938. *British Birds*, 32: 162-169. An amazingly concentrated and lavishly illustrated (photographically and by maps and diagrams) series of counts and histories of the two colonies of *Sula bassana* of the Shetlands which harbor about 3500 pairs between them. The Hermaness colonies were established in 1917 and those of Noss had only one pair in 1914. The whole story is told in tabular or diagrammatic form, and for once the reviewer regrets the excessive concentration, so readable might the material have been made.—T. T. McC.

50. Censusing Quail in Early Fall.—L. J. Bennett and G. O. Hendrickson. 1938. *Journal Wildlife Management*, 2: 169-171. Good results from the use of bird dogs.

51. Censusing the Ringneck Pheasant in Iowa.—L. J. Bennett and G. O. Hendrickson. 1938. Transactions 3rd North American Wildlife Conference, Washington: 719-723. Counts made from 6-8 A.M. in September and October along gravel roads were used as a basis for computing the Pheasant population; 8 birds per mile meant one bird to 4 acres, 2 birds one to 8 acres, one bird one to 18 acres. In 1936 the population was reduced to one bird to

12 acres due to the severe winter and subsequent drought; in 1937 it fell to one bird to 18 acres because of nesting losses from floods and mowing.

WILDLIFE AND CONSERVATION

52. The Essentials of a Wildlife Range.—Ralph T. King. 1938. *Journal of Forestry*, 36: 457-464. Excellent discussion of the subject. The five range essentials are "(1) foods, (2) coverts, (3) water, (4) juxtaposition to fit the cruising radii of all ages of all the species at all seasons, and (5) interspersions such as will enable each species to attain its saturation point."

53. Hawks vs. Quail Preserves.—H. L. Beadel. 1939. *Journal Wildlife Management*, 3: 42-45. "My experience indicates that an above-average quail population can not only be maintained, but is more easily maintained by leaving hawks unmolested than by killing them." The author writes from Tallahassee, Florida.

54. "A Climographic Analysis of the Problem of Introducing Three Exotic Game Birds into the Tennessee Valley and Vicinity.—A. R. Cahn. 1938. Transactions 3rd North American Wildlife Conference, Washington: 807-817. Attempts at transporting species to regions with radically different climatic conditions are not likely to succeed. Climographic analysis indicates that the Tennessee Valley is unsuitable for the Hungarian and Chukar Partridges and the Ring-necked Pheasant.

55. Quail Management in Maryland.—K. A. Wilson. 1938. Transactions 3rd North American Wildlife Conference, Washington: 709-718. "Where optimum escape cover exists, other things being equal, predator control is not necessary."

56. The Farne Islands as a Bird Sanctuary.—T. R. Goddard. 1938. Proceedings 8th International Ornithological Congress, Oxford: 706-713. These islands, off the Northumberland coast, made into a sanctuary in 1923, have shown a great increase in bird life. "In maintaining a bird sanctuary, I believe the less Nature is interfered with the better." As to the Gull problem, although practically all the eggs of the Herring and Lesser Black-backed Gulls have been collected each year for a long time, the numbers of adults have not diminished at all. The watchers are instructed to shoot with air-guns those individuals that are the worst marauders.

57. What is the Status of Waterfowl?—H. Lloyd, J. Zinser, and F. C. Lincoln. 1938. Transactions 3rd North American Wildlife Conference: 161-171. The authors warn against optimism. Although "there is a gratifying increase in most species of our migratory waterfowl, this increase is relative only to conditions a year ago. The continental population even now probably does not equal half of what existed only a decade ago." Surely a dangerous situation.

58. Too Many Squirrels.—Ezra J. Poulsen. February, 1939. *Harpers Magazine*: 302-305. A telling picture of the unhappy struggles of settlers in Idaho to protect their crops and gardens against the hordes of ground squirrels. The biological moral is not drawn. If people will kill the natural predators—the Hawks, Eagles and coyotes that prey upon the squirrels, they must take the consequences.

Bird-Lore has a number of excellent articles on conservation in the last three numbers:

"Some Values of Natural Areas," by V. W. Lehmann.

"The Good Earth", by R. T. Peterson, and "The Scourge of Poison Bait," by Tony Lascelles, in the September-October issue.

"Water—Life-blood of the Earth," by Roger Peterson is carried in the November-December and January-February numbers, while Frances Hamerstrom has a good article on "What Eats What."

The Transactions of the Third North American Wildlife Conference, 1938. American Wildlife Institute, Investment Building, Washington, D. C. \$1.00, have many interesting articles besides those reviewed above. Most of them are abstracted in No. 17 of the Wildlife Review, Bureau of Biological Survey, Washington, D. C., edited by W. L. McAtee.

BOOKS

59. The Island of Birds. A Book of Oystercatchers, Terns and Plover.—(Die Insel der Vögel. Ein Buch von Aüsternfischern, Seeschwalben und Regenpfeifern.) Rolf Dirksen. 1938. Essener Verlaganstalt. 112 pp. 70 photos by author. 4.80 RM. In simple, charming style, the author tells us of his summer spent alone on the little island of Norderoog in the North Sea. Eggers used to plunder this group of islands, selling the eggs in the market either as taken or blown and filled with a candy mixture, the original contents being fed to cows! Since 1909 the islands have been protected as bird sanctuaries.

Oystercatchers (*Haematopus ostralegus*) stand quietly much of the time, but suddenly go through strange courtship dances accompanied by trilling. Later they pair and both drive off intruders; they place mussel shells in the nest mold; incubation is shared by both sexes and lasts 27 days. The young are fed with worms and snails, the baby taking the food from the tip of the bill of the parent, or from the ground, the old bird pointing his bill at it until it is eaten. The parents lead the young on to the flats and here many perish, caught by the returning tide. A nesting bird had been ringed on the island as a nestling 19 years earlier. The author calculates that of one hundred eggs only ten Oystercatchers reach maturity—which means the age of $2\frac{3}{4}$ years. Since 3 eggs are usually laid each year, in order to replace themselves a pair must breed for 6 or 7 years.

Great flocks of Sandwich Terns (*Sterna s. sandvicensis*) settled on the island—7,000–8,000 nesting in 7 groups. The author placed his blind in the midst of one of the largest colonies. The birds were very quarrelsome with their nearest neighbors and also with birds coming to relieve their mates. An unfortunate pair of Oystercatchers had their nest surrounded by the Terns; they could not move without being attacked and when the young hatched, they were killed by the Terns. Sometimes Tern nests were so close together and the birds fought so constantly that one would be deserted. The eggs show a striking variety in color, yet the parents do not find their nests by recognition of their eggs; they accepted Oystercatcher and even hen eggs placed in their nests. They do know their own young, and entice them back into the nest hollow. Some adults fly aimlessly about trying to feed young, but are always driven off by the parents.

The nesting of other species is also described, especially that of a pair of the rare Gull-billed Terns (*Gelochelidon nilotica*); they were persecuted by the other Terns and with reason, for their food consisted of mice, and baby Terns and Larks.

A delightful book with its truthful description of the life of the sea birds and its distinguished photographs.

60. I Know an Island.—R. M. Lockley. 1938. London. Geo. Harrap & Co. 300 pp. 10/6d. A fascinating book telling of the author's experiences in pioneering on a deserted Welsh island—Skokholm—, as well as of visits to many other islands both near and far. His descriptions of the islands themselves, the people, the flora and fauna, are written vividly and sympathetically, for he has a sincere liking for simple folk as well as a deep love for nature. He settled on Skokholm, he writes, because, "I wanted to forget the hustling world and live in peace and solitude with the things that most mattered to me—wild birds, animals, and flowers." One chapter is devoted to Grassholm, that kingdom of Gannets. "We knew that Grassholm was small, but we were the better prepared therefore to relish every bird and flower, every stone and blade of grass on it."

The visit to Helgoland is of special interest to bird banders, with the large number of migrants caught in the "Fanggarten," and the description of the birds circling in the rays of the lighthouse. "The outside of the tower is lit up by lan-

terns set in the ironwork of the gallery solely to show birds their danger." The same provision is made in Holland.

In contrast to this humane scheme, it is shocking to read of the slaughter of birds at the North Ronaldsey light; for five hours the tower "resounded to the thuds of birds hurling themselves at the light." "It is the flashing white light that is so fatal." The author suggests, "What is needed is some form of wire-netting tray of close mesh spread six feet—at least—from the edge of the floor of the gallery which runs round beneath the lantern."

It is strange to read of the young fisherman who went out from Helgoland to shoot seabirds for food. "It was possible to shoot 200 Kittiwakes in a day." Most of the islanders eat seabirds, catching them at their nests, but the people on the Faroe and Westmann Islands "regard the few small birds on the island with tenderness." The concluding chapter takes us back to Skokholm, telling of the visiting ornithologists who come to study and ring birds, and of the homing experiments with Manx Shearwaters (*Puffinus puffinus puffinus*), birds returning to the Faroes when taken to Skokholm, and even from Venice, a 3,000 mile journey by sea.

"I Know an Island," is one of the most delightful and rewarding books that the reviewer has read in a long time.

61. Z-i-i-h—the Penduline Tit.—(Z-i-i-h—die Beutelmeise). Hans Franke. 1938. Vienna, Franz Deuticke. 94 pp. 3 RM. A charming account, illustrated by 132 admirable photographs of the home life of a charming bird—*Remiz pendulinus*. The author describes his rambles in the swamps near Vienna in search of the extraordinary nests that resemble woven bags and their builders. Steinfatt (*Beiträge Fortpflanzungsbiologie der Vögel*, 1934) reported that males do most of the building, but have no interest in eggs or young, and like some Weaverbirds they may build a second or even third nest for extra mates. Dr. Franke, however, found a male doing the major part of incubating and feeding. Anecdotes are also told of other birds of the region and illustrated with excellent photographs.

62. Bird Life in Swamps. (Sumpfvogelleben. Eine Studie über die Vogelwelt des Linthriedes Schweiz.) Hans Noll. 1924. Vienna, Leipzig, New York. Deutscher Verlag für Jugend und Volk. 276 pp. A detailed account of the migration and nesting of the many species inhabiting the Linthried region in Switzerland—Lapwing, Curlew, Snipe and Redshank, Rails, Ducks, Black-headed Gulls and several Passerines. The book is full of excellent observations. Much space is devoted to *Larus ridibundus*; colony nesting is a necessity for this conspicuously plumaged bird; any enemy is attacked by the whole company and usually routed. When parents leave the nest the young rush away into hiding, returning when called back by the adult, but occasionally a baby gets tangled in weeds or lost in the water. Sometimes a parent "helps" a baby back to the nest by pecking it severely on the head. Many photographs of nests, eggs and young, as well as adults are included. A valuable book.

63. Erp, the Story of a Mallard. (Erp, die Geschichte einer Wildente.)—Werner Hagen. 1938. Berlin Lichterfelde. Hugo Bermühler. 158 pp. 3 RM. The life story of a Mallard drake, told objectively and well calculated to interest the laity in nature.

64. Ti-it, the Story of a Kingfisher. (Ti-it, die Geschichte eines Eisvogels.)—Kurt Knaak. 1938. Berlin Lichterfelde. Hugo Bermühler. 157 pp. 3 RM. Popularization of natural history, telling the adventures of one of the beautiful little European Kingfishers. Poor paper and German script in both these books do not make for easy reading.

65. Wildfowl Food Plants. Their Value, Propagation, and Management.—W. L. McAtee. 1938. Collegiate Press. Ames, Iowa. 141 pp. \$1.50. An excellent handbook. The table of contents covers: Productivity, value and utilization of Wildfowl food plants; Account of Wild-duck food plants by families; Environmental limitations on the growth of aquatic plants; Planting suggestions; Construction of ponds; Control of undesirable plants and animals; Vernacular

names of wildfowl food plants; Literature cited; and Index. There are 17 plates giving photographs of various wild-duck food plants. The only improvement that occurs to the reviewer is the inclusion of outline sketches of the more important plants discussed.

66. A Laboratory and Field Manual of Ornithology.—O. S. Pettingill, Jr. 1939. Minneapolis, Minn. Burgess Pub. Co. Mimeoprint. 127 pp. \$1.70. The first 111 pages of this manual are devoted to Laboratory Studies—Anatomy, Characters of Birds, Classification, Plumages and Coloration, Distribution and Migration, Measurements and Weights, while 11 pages are taken up with "Identification and Study of Birds in the Field," and 5 with References. The author has brought together a great deal of valuable material here, comprising a comprehensive and "stiff" course. In the opinion of one who never had a course in ornithology, the manual seems better adapted to graduate than to college or summer school students. With two-fifths of the book taken up with anatomy with an imposing load of technical terms, is there not danger of a beginner growing discouraged before he ever reaches the live, wild bird?

67. Wild Country. A Highland Naturalists's Notes and Pictures.—F. Fraser Darling. 1938. Cambridge. University Press. 104 pp. \$2.75. Eighty-two splendid photographs and delightful text to accompany them. The author's philosophy is well expressed when he tells us "to acknowledge the parent-hood of nature is, it seems to me, better than to glory in the conquest of nature, or what is thought to be conquest." He tells us of many birds and animals, of seals and cormorants, lost forests and red deer. He warns off from his island "those human crows, the egg collectors." Apropos of the Herring Gull, he says, "The flock habit in feeding develops a quick grab and swallow." In one place he has made a slip; he speaks of the incubating Common Sandpiper as "she," when, like our Spotted Sandpiper, it is "he" that does the mothering. (See Stein's papers in *Ornithologische Monatsberichte*, 1926 : 163-169; 1928 : 129-135.)

The conclusion of this Sandpiper chapter is well worth quoting. "It is a subject of interest and wonder to me why certain members of this large sandpiper-plover-curlew family should be so tame and others so wild. The purple sandpiper is positively confiding. [Witness the charming picture on p. 7.] . . . But the redshank is deplorably wild." The greenshank "is the very spirit of avian timidity." "The notes of this family of birds have a strange emotional quality for all who love the hill and the sea's edge. . . . their plaintive cries are part of the landscape which is still untamed, more homely to me than the kindly voices of garden, hedgerow and orchard."

68. Life in an Aircastle.—Frank M. Chapman. 1938. N. Y. Appleton-Century. 250 pp. \$3.00. Another of Dr. Chapman's delightful books. In this he carries on the tale of "My Tropical Air Castle," telling us of coatis, monkeys and peccaries as well as of many birds—some of them winter visitors from the United States—Summer Tanagers and Turkey Buzzards, but most of them residents of Barro Colorado. The accounts of the nesting behavior of the communal Anis and of the incredible courtship of Gould's Manakin are among the most absorbing of the many exciting chapters in this most readable book. An appendix gives a list of Barro Colorado birds.