usually known as the English call duck, which are commonly used for decoys. These ducks are smaller than the wild Mallard (*Anas p. platyrhynchos*) and considerably more noisy. The trap was set in the afternoon of the 18th and visited the morning of the 19th.

Sometime during the night an alligator, which must have been a very large one, went into the trap through the "V" (the "V" being two lines of wire extending from an opening eight feet wide in the side of the trap, ten feet inside, and having an opening only one foot wide into the trap), completely destroyed the decoy pen, which was built of new two-inch mesh poultry wire and covered, and ate six of the English call ducks, and killed two others. It then tore a hole fully six feet long through the two-inch poultry-netting in the side of the trap, escaping in this way. As there was water in the trap and all around it, there was nothing by which the size of the alligator could be judged, but from the strength exhibited it must have been a large, heavy one, probably ten feet or more in length.

In all my duck-banding experience, these are the only two instances in which alligators have ever interfered with my trapping.—EDWARD A. MCILHENNY, Avery Island, Louisiana.

A CORRECTION

In an article which appeared in the last issue of *Bird-Banding* (Vol. VII, No. 4) on page 163 the second line of the fourth paragraph should read: "which has *not* been authentically reported from mammals."

CARLTON M. HERMAN

RECENT LITERATURE

(Reviews by Margaret M. Nice and Thomas T. McCabe)

The articles have been selected and arranged under subjects of importance to students of the living bird, and also for the purpose of suggesting problems, or aspects of problems, to those banders who wish to make the most of their unique opportunities.

Headings in quotation marks are the exact titles of articles or literal translations of such titles. Except in the case of books, which are always reviewed under their titles, headings not in quotation marks refer to general subjects, or are abbreviated from titles in foreign languages. References to periodicals are given in italics. Reviews by Mr. McCabe are signed with his initials.

BANDING AND MIGRATION

Banding in North America.[1]—On June 30, 1936, the list of coöperators numbered 2077, while the number of birds banded during the previous twelve months reached 274,695, making a grand total since 1920 of 2,181,150. The ten species that were banded in greatest numbers during the year were: Common Tern (*Sterna hirundo*) 23,429; Herring Gull (*Larus argentatus*) 19,298; Junco (*Junco hyemalis and oreganus*) 18,054; White-throated Sparrow (*Zonotrichia albicollis*) 15,344; Mallard (*Anas platyrhynchos*) 14,526; Chimney Swift (*Chætura pelagica*) 14,432; Pintail (*Dafila acuta*) 11,894; Starling (*Sturnus vulgaris*) 9,891; Robin (*Turdus migratorius*) 6,912; Song Sparrow (*Melospiza melodia*) 6,670.

Longevity records are: Mallard twelve and a half years; Black Duck (*Anas rubripes*) 10; Herring Gull 11; Crow (*Corvus brachyrhynchos*) 11; Blue Jay (*Cyanocitta cristata*) ten and a half; and Chimney Swift 9 years. A Pintail was banded in California March 6, 1935, and shipped to Hawaii; it was shot in California, December 4, 1935.

Banding in Belgium.[2]—In 1935, 628 recoveries of birds ringed in Belgium were reported. Bramblings (*Fringilla montifringilla*) sometimes winter in the

same locality, but one ringed in Belgium December 16, 1933, was taken in the Haute-Loire, France, November 11, 1935, between 600 and 700 km. to the south. An adult House Sparrow (*Passer domesticus*) was found 8 months after ringing 14 km. distant. Two birds ringed in September were released 10 km. to the south; one was found 3–4 km. east of the place of releasing 51 days later, and the other 2–3 km. west 3 months later. One bird reached the age of 4 years and 3 months.

Banding in Czecho-Slovakia.[3]—In 1934, 5445 birds of 120 species were ringed, and in 1935, 4489 of 116 species. A Lapwing (*Vanellus vanellus*) nearly 10 years old was reported.

"Results of the Removal of East Baltic Starlings into the Interior."[4]—Three thousand and thirteen migrating *Sturnus vulgaris* captured from June 21 to August 15, 1934, in East Prussia were transported to Saxony and Silesia and there released. Recoveries came for the most part from the winter quarters of the Saxon and Silesian Starlings rather than from those of the Baltic birds. One individual was found the following breeding season in the place where it had been released.

"The Invasion of Siberian Nutcrackers (*Nucifraga caryocatactes macrorhynchus*) **in 1933."**[5]—One wonders why, along the North-Temperate parts of two such equi-latitudinal continents, Eurasia *seems*, at least, more commonly characterized by nonperiodic large-scale movements of northern birds, on wide fronts and to great depths. Movements like those of the Crossbills and Nutcrackers are phenomena of so different an order from our local movements of Snowy and Horned Owls and Evening Grosbeaks that it is permissible to wonder whether post-Pleistocene settlements and migratory habits are not, in general, less fixed than in the Nearctic. It would be hard to improve upon this treatment of the last, relatively small, invasion of Siberian Nutcrackers, which swept from east to west across north and central Germany at a measurable rate in September and October, 1933, to withdraw once more in a less orderly or less well-observed sequence by April, 1934. The far greater invasion of 1911 was some three weeks earlier in arrival, presumably the effect of a nearer source, for the evidence is good that the 1911 movement had its origin in south-eastern Siberia, while that of 1933 came from the more distant northeast. Many minor movements, involving either the Siberian or the European (alpine) races, with rarely a suggestion of both, occurred in the intervening years, sometimes only perceptible in eastern Russia. The *Dünnschnabel*, or Siberian, race were known to occur in Germany in winter fifteen times between 1896 and 1933. The Siberian, more than the European, race is known to depend to some extent on cones, mainly of *Pinus cembra sibirica* and *Pinus pumila*, and the present and previous studies clinch the correlation of the invasions with bad crops, ultimately attributable to climatic factors. The last paragraph deals speculatively with possible effects on distribution, though no definite instances of stragglers can be shown.—T. T. McC.

[1] *Bird-Banding Notes.* 1936. 2, No. 14:219–245. Washington, D. C.
[2] Dupond, Ch. 1936. Œuvre du Baguage des Oiseaux en Belgigue. Exercise 1935. *Le Gerfaut*, 26:69–125.
[3] Richter, Karl. 1936. 21. Bericht über die Tätigkeit der ornithologischen Station "Lotos" in Bohm.-Leipa (vormals Liboch a.d. Elbe) für die Jahre 1934 und 1935. *Lotos* 1936:1–16.
[4] Krätzig, H. und E. Schüz. 1936. Ergebnis der Versetzung ostbaltischer Stare ins Binnenland *Der Vogelzug*, 7:163–175.
[5] Heidemann, J. and Schüz, E. 1936. Der Massenzug des Sibirischen Tannenhähers (*Nudifraga caryocatactes macrorhynchus*) im Jahre 1933. *Mitteilungen über die Vogelwelt*, 3:37–44.

HOMING

"Further Notes on Orielton Decoy, 1935-36."—C. W. Mackworth-Praed and H. A. Gilbert, 1936. *British Birds*, 30:159–161. A Moor-hen (*Gallinula chloropus*) returned from a distance of 15 miles, and a Coot (*Fulica a. atra*) from 25 miles.

For other items on homing see Nos. 1, 2, and 4.

LONGEVITY

"Recovery of Marked Birds." 1936.—*British Birds*, 30:125–130. A Teal (*Anas c. crecca*) at least 11 years old is recorded as well as a Redshank (*Tringa t. totanus*) and a Black-headed Gull (*Larus ridibundus*) almost 9 years old.

For other records see Nos. 1, 2, 3, and 6.

LIFE-HISTORY

"A Study of the Nesting Habits of the Ring-necked Pheasant in Northwest Iowa."—F. N. Hamerstrom, Jr., 1936. *Iowa State College Journal of Science*, 10:173–203. Of 445 nests of *Phasianus colchicus torquatus*, 76.9 per cent were unsuccessful. Man was responsible for 52 per cent of the failures, predators 19 per cent, and flooding 6 per cent. Crows destroyed only 6 per cent of the total number. Of well-concealed nests, 29 per cent hatched; while of fairly and poorly concealed nests, 22–26 per cent. The average clutch in 1933 was 12.3 eggs; in 1934, 10.1, and in 1935, 12.4; the author does not offer any explanation for the smaller number in 1934. The size of set decreased with the advance of the season. Fertility averaged 93 per cent.

"Hawking with the Eagle in Turkestan."[6]—A popular sport at the present day, the Golden Eagle (*Aquila chrysaëtos intermedia*) being used for hunting wolves and foxes. The men show much affection for their birds, valuing them as high as their best horses. A good Eagle can serve twelve, fifteen, sometimes twenty years, which, according to the "Encyclopædia Britannica," is what may be expected of Peregrines. The article is illustrated with fine photographs.

"The Bustard in Queensland."—F. L. Berney. 1936. *Emu*, 36:4–9 Fragmentary general information on habits, especially display and "roaring," as well as on the widespread destruction, by men in automobiles and by the imported foxes, which has brought *Eupodotis australis* into the danger zone.—T. T. McC.

"Some Observations on the Nesting of the Lesser Spotted Woodpecker."[7]—Detailed notes on a nesting pair of *Dryobates minor hortorum*. The male did the major part of the excavating, and, as in many other species of Woodpeckers, incubated at night as well as most of the day, the female relieving him twice during 10 hours for 70 and 95 minutes at a stretch. The male left the eggs at intervals of 2 to 73 minutes (averaging 18 minutes), staying off from 1 to 11 minutes (averaging 5 minutes); during 11 hours he spent 79 per cent of the time on the nest.

"Report on the Swallow Inquiry, 1935."—A W. Boyd. 1936. *British Birds*. 30:98–116. *Hirundo r. rustica* lays larger sets in the Lowlands of Scotland and northern England than in the southern half of England. "This suggests an association between longer hours of daylight and larger broods," although "actual hours of sunshine do not seem to have the same effect." The averages for the two regions are not given. Only 10 per cent of the eggs in 118 nests in 1934 and 117 nests in 1935 failed to produce young—a very high percentage of success. "A few pairs raise three broods in the season and the young of the last brood may occasionaly be found in the nest till late in October." The average brood in Great Britain is a little over four birds. The results in 1935 are closely similar to those in 1934. A fine example of coöperative ornithology.

"Some notes on Hypotaendia philipensis."—P. A. Gilbert. 1936. *Emu*, 36:10–13. Short but rather substantial information on the nesting and the incubation period of the Banded Landrail, of which the race observed was *H. p. australis* in eastern New South Wales.—T. T. McC.

"The Daily Activity of Wintering Long-tailed Tits (*Ægithalos c. caudatus*)."[8]—A charming account of observations on a flock of nine of these

Titmice from November 25th to March 6th. This species flocks by itself, not associating with other Titmice. At bedtime two perched side by side on a twig, a third came and pushed between, then all the others followed suit, till the original two were on the ends of the row. They always chose the same twig, until the end of December, when they found a more protected spot. Their roosting-time was closely correlated with light; on clear evenings they came 15 minutes after sunset; on cloudy ones 11 minutes before sunset. In one day they flew a distance of 3 km. from their sleeping-place. No particular bird acted as leader of the flock.

"Ménage a Trois in the Mute Swan."—J. M. Dewar. 1936. *British Birds*, 30:178–179. Six examples are given from the literature where one male *Cygnus olor* had two mates at the same time. In the present case a male in Edinburgh has had two mates for several years; he shares incubation with one of his mates, but ignores the other, although her nest is within a few yards.

"The Courting of the Bosun Birds."—Norman Chaffer. 1936. *Emu*, 36:38–39. This brief description of the flight courtship, off the cliffs of Malabar Head on Lord Howe Island, of the Red-tailed Tropic Bird (*Phaëthon rubricauda*) may well be the only record of a great display. While one bird floats on outspread wings the other hangs above it with body held vertical by rapid wingbeats and with the amazing tail-plumes erected and switched from side to side. The reviewer was interested to find that Matthews quotes Hull's enthusiastic description of the same birds at the same time of year, on the same island, and at the same or similar sea-cliffs, which does not mention such behavior.—T. T. Mc.

Polygamy in the Pied Flycatcher.[9]—Two female *Muscicapa h. hypoleuca* sat on eleven eggs in one nest in Germany; later three adults fed the nine young.

Unmated Thrush-Nightingale Again Nesting.[10]—An unmated female *Luscinia luscinia* again nested close to the house of the Vogelwarte in Pommerania, incubating her five eggs for weeks before deserting. Interestingly enough, each evening this bird sang a brief song.

"The Egg-Breaking Habit of the Kingfisher."—Robert L. Brown. 1936. *Scottish Naturalist*. No. 221:135–138. A brief and most irritating paper which fails to make use of abundant material on an important subject. We seem to be expected to understand that *Alcedo atthis ispida* makes a practice of entering neighboring nest-holes of the same species and deliberately breaking and carrying out the eggs, which would be a very interesting habit, especially in a bird whose numbers are necessarily much limited by a narrowly limited environment. But the whole account is so vague and so overlaid with discussions of various other incidents, accidents, and fatalities to clutches and broods, that it is impossible to tell what the author believes the situation to be. At any rate we have the case of a bird which is more or less regularly three-brooded but which hardly ever brings off all three, and very rarely two.—T. T. McC.

[6] Dementiev, Georges. 1936. Le Vol à l'Aigle au Turkestan. *L'Oiseau et la Rev. franc. d'Ornith.* 6:361–365.

[7] Schuster, L. 1936. Einige Bemerkungen zum Brutgeschäft des Kleinspechts. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 12:221–225.

[8] Paechnatz, Hermann. 1936. Aus dem Tageslauf über-winternder Schwanzmeisen (*Ægithalos c. caudatus*). *Der Vogelzug*, 7:175–179.

[9] Pollkläsener, Georg. 1936. Beobachtungen beim Trauerfliegenschnäpper. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 12:210.

[10] Robien, P. 1936. Brutstudien an pommerschen Vögeln. *Ornithologische Monatsberichte*, 44:153–156.

BIRD BEHAVIOR

"Courtship of the Little Stint (*Calidris minuta*)".[11]—The fall courtship activities of a flock of young Little Stints in the Königsberg zoo are described and a long discussion of bird courtship in general follows. The author believes that "lower forms" have "mutual courtship," while in "higher forms" the sexes have different roles. The article is difficult reading with involved sentences and

forty-two footnotes, some of them a half-page in length. The author fails to mention the most significant contribution in this field, Lorenz's "Kumpan" (*Journal für Ornithologie*, 1935; reviewed in *Bird-Banding*, July and October, 1935).

"Bird Courtship."—H. N. Southern. 1936. *Natural History*, 38:349–352. The courtship of the Great Skua or Bonxie (*Catharacta skua*) has been described as "mutual," but the author by watching from a blind in the Shetlands found out that the male "puffed out his neck feathers until they looked twice the normal thickness, and strutted with head in the air in front of the female," which played a comparatively passive role.

Sociology of a Herring Gull Colony.[12]—A fuller account of the social behavior of *Larus argentatus* than that given in *Beiträge zur Fortpflanzungsbiologie der Vögel* in May, 1936 (see *Bird-Banding*, July, 1936). Interesting new material is given on methods of territory establishment. If a new Gull comes on to the territory, the owner assumes the "threat-attitude" and walks slowly towards him as if he were exercising great self-control not to fly at him. If the intruder leaves, the owner stretches out his wings for several seconds—"a proud picture of might." But if the other answers him in the same attitude, then the first crouches down and makes a scrape and the other does likewise, the two sitting opposite each other. They pick up material, rise, try to get the material from each other's beaks, then try to get hold of wing or beak and start to fight.

Birds in immature plumage may pair, nest and copulate, but fail to lay eggs.

"The Winter Behaviour of Moor-Hens."—Averil Morley. 1936. *British Birds*, 30:120–124. An interesting account of territorial and courtship behavior in *Gallinula ch. chloropus* in Sussex. In early October there was one pair (A and B) on a small pond; on the 17th "there appeared a young bird (C), easily distinguished by its almost dwarfish size, which began to pester A and B." On October 21st the first courtship activities were seen. "C, as it swam towards A, calling the 'Coot-cry', rapidly pecked the water." On this day another young bird (D) arrived, and in early November lured B away from A—presumably the male of the pair. "In this month (November) A, now quite alone, made distressed attempts to get back B, which had paired off with D. It would swim across the pond to the stream-mouth by C's beat, clucking anxiously," but its efforts were in vain. "At the end of November A disappeared, and C became the tyrant of the place, claiming the stream-mouth as its beat and confining B and D pair to the pond; it was a most irascible little bird and would chivvy and chase the pair over the pond and follow them in flight across the rush-bed if they ventured too near its haunt." In winter the birds were seldom on the pond. "From March 22d, however, the Moor-hens appeared again on the water, but the fighting was much fiercer and more intense because B and D were come for the purposes of nest-building and strongly resented the presence of the other birds. Bobbing and water splashing were only performed by unmated birds, one of which was strangely enough C." One interesting item here is that the smallest bird was the tyrant.

"The Courtship Display of the Flightless Cormorant."—M. Davis and H. Friedmann. 1936. *Scientific Monthly*; 42:560–563. Description and sketches of courting display of a pair of *Nannopterum harrisi* in an outside cage in the zoo at Washington, D. C.; at one stage the birds entwine necks.

"Analytical Studies of Group Behavior in Birds."—W. C. Allee. 1936. *Wilson Bulletin*, 48:145–151. Good résumé of the subject with a brief bibliography of fourteen titles. "The social order among chickens . . . is of the relatively firmly fixed, despotic sort originally described by Schjelderup-Ebbe." "In pigeons, shell parrakeets, ring doves, and canaries, the social order, while distinctly recognizable, is less firmly fixed; subordinate individuals normally 'win' a minority of their pair contacts." The first social hierarchy is based "on an almost absolute peck-right," the second on "what may be called peck-dominance."

"In shell parakeets the two sexes are closely similar in coloration and size." The female *Melopsitticus undulatus* is "distinctly dominant except during the breeding season when the dominance shifts to the other sex."

Territory and Courtship in Lizards.—Very interesting work has been done by L. T. Evans on the American chameleon (*Anolis carolinensis*). In males the "urge to acquire and to hold a certain restricted territory is very marked. The resident male (that has been in a particular cage for twenty-four hours or more) wins in 91 per cent of the combats, not only because he is heavier than the non-resident (42 per cent of such combats being won by lighter males) but also because he fights harder to defend territory than the non-resident does to acquire it." "The fighting pattern consists of eight reflexes," the first four producing "what might be called an intimidating mechanism which has apparently evolved to cause the males to appear as large and imposing as possible to each other. As a bluffing device it is certainly successful since many encounters end at this point in the fighting pattern."[15]

"Those living reptiles which are undoubtedly vocal are either crepuscular or nocturnal (the geckos) or live in muddy jungle rivers where vision is equally obscured (the crocodilia)." They lack the "special structures, such as neck-frills, crests, dewlaps or bright colors, which diurnal reptiles frequently use as a means of visual intimidation of rivals," but exhibit great "propensity of rivals to fight viciously, often mutilating or killing one another."[14]

Male *Anolis carolinensis* distinguished males from females and also between different males.[13] The normal female rarely fights, but castrated females do; with males castration seems to have no effect on pugnacity.[16]

As to courtship behavior, "Observations made in the present study suggest that the mere flight of the female from the performing male quite probably signifies acceptance of the male and is therefore a very definite part of the complete courtship pattern and should be considered as an important phase of the mating instinct."[13]

[11] Christoleit, E. 1936. Zur Balz des Zwergsträndlaufers (*Calidris minuta*). *Beiträge zur Fortpflanzungsbiologie der Vögel*, 12:177–187; 239–251.

[12] Tinbergen, N. 1936. Waarnemingen en Proeven over de Sociologie van een Zilbermeeuwenkolonie. *De Levende Natuur*: 1–24.

[13] Winter Mating and Fighting Behavior of *Anolis carolinensis* as Induced by Pituitary Injections. 1935. *Copeia*, No. 1, April 10:3–6.

[14] The Development of the Cochlea in the Gecko, with Special Reference to the Cochlea-Lagena Ratio and its Bearing on Vocality and Social Behavior. 1936. *Anatomical Record*; 64(2), and Sup. 2:187–201.

[15] A Study of a Social Hierarchy in the Lizard *Anolis carolinensis*. 1936. *Jour. Genetic Psychology*, 48:88–111.

[16] Behavior of Castrated Lizards. 1936. *Jour. Genetic Psychology*, 48:217–221.

ECOLOGY

"The Cycles that Cause the Present Drought."—H. P. Gillette. August, 1935. *Water Works and Sewerage*. A concise statement filled with impressive figures and followed by a bibliography of twenty titles; it gives us no hope for a speedy return to "normal" rainfall. "The main cause of the present drought is a cycle of 152 years," but another cycle of 70 years has assisted this major cycle in bringing on the drought "and will continue to assist it for many years." "Peaks of shorter cycles will effect relief from the drought, but only for short periods. Hence it will be a waste of public funds to plant the proposed shelter belt of trees from Canada to Texas. The seedlings will never reach maturity. . . . We are in the middle of one of those long dry periods so often mentioned in history, which in olden times caused famines, migrations and wars. Averaged by decades, rainfall in general will be subnormal for about 40 years."

The Food of Australian Birds with Reference to Protective Adaptation in Insects."—Keith C. McKeown. 1936. *Emu*. 36:21–30. McKeown's list of insects, formicids, myriapods, etc., believed to possess protective adaptations (coloration, odor, secretions, weapons), together with the birds known to feed

upon them, suggests to the author the conclusion that certain forms, notably the Robins and their near allies, specialize upon organisms so protected. Whether, as a corollary, we are to understand that the number of other kinds of birds preying on such insects is smaller than would be the case for an equal number of unprotected insects, remains doubtful. The author does not say so, though such a conclusion seems called for by the opening pages which constitute one more highly theoretical attack on McAtee's "So-called Protective Adaptations" (*Smiths. Misc. Colls.*, 85:1–201, 1932).—T. T. McC.

"Fluctuations in Numbers of Ruffed Grouse, *Bonasa umbellus* (Linné), with special reference to Ontario."—C. H. D. Clarke. 1936. Univ. of Toronto Studies, Biological Ser. No. 41:1–118. A study based on censuses, questionnaires, and the examination of 162 specimens. The cycle of this species is about ten years. "Meteorological and astronomical conditions, such as sunspots, are not considered to be the causes." Disease is the "immediate cause of the periodic dying-off of grouse," a blood protozoan, *Leucocytozoon bonasae*, being responsible for heavy mortality of young birds. The Ruffed Grouse is territorial and is believed to be usually monogamous

"The Relation of Field Characters to the Question of Species and Subspecies."—A. A. Saunders. 1936. *The Auk*, 53:283–287. Attention is called to cases (Thrushes, Flycatchers) where nesting-habits, call-notes, and song are far more distinctive than plumage, and to other cases (Red-shafted and Yellow-shafted Flickers, Golden-winged and Blue-winged Warblers), where with somewhat different coloring, yet similar habits and voices, the birds readily hybridize. The author suggests the latter are geographical forms of the same species. Differences "in breeding habitat and nesting habit are more important in keeping related species apart than differences in plumage and song." "The instinct to choose a habitat probably has more to do with the abundance of a particular species than any other factor. If a bird breeds in a variety of habitats, like the Robin, it is common."

For an important book on ecology see the review of "Deserts on the March."

CENSUSES

"Frequency of Occurrence of Summer Birds in Northern Michigan."—J. Linsdale. 1936. *Wilson Bulletin*, 48:158–163. Analyses of bird populations of localities in Michigan, Kansas, and California according to Raunkiaer's Law of Frequence. The author shows how records of birds observed in restricted localities may be summarized so as to be of scientific value. He points out that the species of "low frequence may be among the most important in the make-up of the wild animal population" and are apt to "contribute most to the attractiveness of wilderness areas and the outdoors in general for the person who watches birds. It is the natural proportions between species, as revealed by analyses of populations, that we should strive to maintain in our conservational activities." The unfortunate result of "the ordinary kind of human occupation of land is to remove the species of low frequence or to lower their frequency of occurrence and to increase the frequency of occurrence of a few species, usually ones already common."

"Report on Great Crested Grebe Sample Count, 1935."—P. A. D. Hollom. 1936. *British Birds*, 30:138–158. A sample count of slightly less than half the population of *Podiceps c. cristatus* in Great Britain showed 1300 birds, an increase of 3 per cent over the complete census of 1931. Breeding pairs decreased 6 per cent, while non-breeders increased. Regions with smaller populations were those that had been most affected by the drought. This census is one of the admirable projects of the British Trust for Ornithology.

"A Winter Bird Community in Western New York."—W. C. Van Deventer. 1936. *Ecology*, 17:491–499. The average number of each of four species

met per trip on forty acres was: Downy Woodpecker (*Dryobates pubescens*) 2.33; Chickadee (*Penthestes atricapillus*) 8, White-breasted Nuthatch (*Sitta carolinensis*) 2.12, and Tree Sparrow (*Spizella arborea*) 14, or 26.5 birds in all; this gives a population of 423 birds per square mile. Two or more species were found associated on 31 per cent of the occasions, which is "six times the amount of association which would occur through the operation of chance."

EXPERIMENTS ON THE EFFECTS OF LIGHT

"The Effect of Controlled Illumination on the Reproductive Activities of Birds."—William Rowan. 1936. *Kongressbericht* Band I, VI. Weltgeflügelkongress 1936. Pp. 142–152. A summary of the author's pioneer experiments and a discussion of Bissonnette's work. In mentioning the contrary results obtained by the latter with Starlings from his own with Juncos in the matter of increased periods of exercise, the author says, "Bissonnette's contrary results on a different species actually disproved nothing." Dr. Rowan is repeating these experiments on this unsettled point this winter.

"Sexual Photoperiodicity."—T. H. Bissonnette. 1936. *Jour. of Heredity*, 27:171–180. An interesting résumé of the subject, mentioning some of the chief results of experimental work with varying quantities and qualities of light on sexual activity in plants, mammals, and birds, and giving a bibliography of ninety-nine titles. The author suggests "that the stimulus of added length of day, acting through the eyes and optic nerves, stimulates the anterior hypophysis. . . . Possibly migration in birds may be directly related to the cycles of the anterior hypophysis, as well as (or rather, *instead of*) to the state of activity of the sex-glands, as a part of the urge toward spring mating of migratory birds, or of the reaction from mating in the autumn."

CONSERVATION

"The Empoverishment of Faunas."[17]—The author deplores the relentless persecution of Raptors, both diurnal and nocturnal, in Europe. At the Congress of London in 1905 W. Rothschild gave a list of 139 species of birds completely exterminated and of 98 that were disappearing. Forty-six had been destroyed by natural causes, and 191 by man and his domestic animals.

"The Shortage of Waterfowl."—E. D. Lumley. 1936. 2d Ed. Teaching Unit 1; Emergency Conservation Com. Pub. 58. 17 p. An excellent statement of the perilous situation of our waterfowl.

"Finishing the Mammals."—R. Edge. 1936. Emergency Conservation Com. Pub. 59. 24 p. A stirring appeal to call a halt in the wanton destruction of our wild life.

"Excluding Birds from Reservoirs and Fish ponds."—W. L. McAtee. 1936. U. S. Biol. Surv. Leaflet 120:1–6. Methods of wiring reservoirs and hatchery ponds "at moderate cost, in some cases for less than the cost of patrolling property and killing the birds."

[17] Madon, P. 1936. De l'Appauvrissement des Faunes. *L'Alauda*, Ser. III, 8:194–197.

BOOKS

More Songs of Wild Birds.—Albert R. Brand. 1936. New York. Nelson. 116 pp. $2.50. The credit of the pioneer work in the recording of bird voices belongs to Mr. Brand, who in 1934 brought out "Songs of Wild Birds" (Nelson) with records of thirty-five species. The first book describes the technique of recording and gives a brief bibliography of American and foreign titles. The present one has an excellent treatment of "the significance of bird song," showing a good acquaintance with the work done in this country and abroad. Half of the book is devoted to descriptions of the forty-three birds whose voices are

reproduced; range, field characteristics, dates when song is abundant, usual location when heard, calls and songs, are all skilfully treated, each species being illustrated by a sketch by George Sutton. The records themselves are very good. It is fascinating to listen to the one entitled "A Spring Morning on a Woodland Pond," and one only regrets that the spring peepers were not given more space. The Chuck-will's-widow, like the Whip-poor-will of the earlier records, is perfect; the Mourning Dove and the Killdeer very fine, while the honking of a great flock of Canada Geese is nothing short of magnificent.

Songs of Wild Birds.—E. M. Nicholson and Ludwig Koch. 1936. London. Witherby. 216 pp. 15 shillings. This book, with the same title as the 1934 volume of Mr. Brand's, is distinctly British, no mention being made of the important work that has been done on the subject in America and Germany. There are many good things in it—the Chart of Bird Song, the chapter by Koch on how he got the songs, the descriptions of songs of different species, and a suggestive "Preliminary Classification of British Bird Songs." The main chapters, however, on "What is Bird-Song?" and "Why do Birds Sing?" are a disappointment, coming from the author of "How Birds Live"; they do not give a clear, well-organized presentation of the subject. Frieling and Christoleit (See *Bird-Banding*, April, 1936, p. 94) in Germany deplore the deterioration of bird song in centers of population, attributing it to the lessened need for territory-defense due to augmented food in gardens and parks. Nicholson, on the contrary, says that the increase in food, warmth, and nest-sites brings "plenty of birds of the same species into close contact, often in an unusually well-fed condition and with plenty of time on their hands, a state in which they are—as centuries of keeping caged birds have shown—likely to sing against one another and to develop both a longer song-period and a more advanced song." Even "their high losses through nest robbery and destruction . . . help to compel them to sing." "In such ways, without intending or knowing it, we have made our English gardens the scene of an extraordinary flow of bird-song, which continues during seasons of the year when woods and fields are nearly silent, and which swells in spring to a torrent of sound."

The records of 15 species are excellent; one is devoted largely to the Nightingale, while the songs of the Turtle Dove, Wood Pigeon, and Chaffinch are especially good.

Bird Migration. A Short Account.—A. Landsborough Thomson. London. Witherby. 224 pp. 5 shillings. An admirable concise treatment by the foremost living authority on the subject. It is an achievement of high rank to have condensed into brief and readable form this tremendous subject and to have made a fascinating book as a result. This "short account" can be heartily recommended to all bird-students, beginners and seasoned ornithologists alike.

Green Laurels: The Lives and Achievements of the Great Naturalists. Donald C. Peattie. 1936. New York. Simon and Schuster. 368 pp. $3.75. This gay and fascinating tale of the great naturalists will reach a large audience who never would open a less alluring history of science. With its pictures of the times and the emphasis on many little-known men, its index and bibliography, it is well worth reading by scientists also. Mr. Peattie has a flair for dramatic values and a gift of expression that at times reaches great beauty. If, in addition to his facility in writing, he would inform himself more thoroughly of what present-day naturalists are doing, he would be a great power for good in educating the public to an awareness of nature.

Deserts on the March. Paul B. Sears. 1935. 2d printing, Norman, Oklahoma. Univ. of Oklahoma Press. 231 pp. $2.50. A compelling picture of "Man, Maker of Wilderness"—in China, India, Europe, and—bigger and better —America. "The story on the older continents has been a matter of millennia. . . . In North America it has been a matter of not more than three centuries

at most—generally a matter of decades." "Bare ground left by the plow will have as much soil washed off in ten years as the unbroken prairie will lose in four thousand," (page 3).

Man "is the first example of a single species to become predominant over the rest" (page 193). And what has been the result? "Soil has been exhausted or depleted, forests and grasslands destroyed, topography injured, and conditions produced which facilitate the activities of these pests which compete with man for survival" (page 194).

After describing the horrors of the dust-storms, Professor Sears says: "With the turf gone and the cycle of moisture past its peak, with the winds maintaining their normal behavior, the country literally started to blow out of the ground. For this great catastrophe the individuals directly responsible have paid in bitter coin, and we shall all have to pay in a measure. No work of ignorance or malice is this, but the inevitable result of a system which has ever encouraged immediate efficiency without regard to ultimate consequences" (page 168).

The great seriousness of the situation is clearly set forth. The only hope for the future is in the application of the findings of biology and ecology. For this there must be generous governmental and institutional support. Moreover, the scientist must educate the public.

"His findings once made belong to the world, and his is the charge to make them known. Perhaps if the scientist were given, not less of technical training, but a great deal more of liberal training than he usually gets, it would make him more directly useful to the rest of us than he frequently is. Effective publication, no less than investigation, is an obligation which rests upon the man of science" (page 26).

Professor Sears is doing his part in writing in vivid, readable style this important book on the most vital question confronting mankind. It is deserving of the widest circulation.