On May 25, 1936 a Black-capped Chickadee's nest, containing four Chickadee eggs and two Cowbird's eggs, was found in a nesting box at the Austin Ornithological Research Station at North Eastham, Massachusetts. Chickadee 35-10224, banded here January 14, 1936, was trapped on the nest June 6th. On that date the Cowbird eggs hatched, and one of the Chickadee eggs was missing. Two Chickadees eggs hatched on June 8th, at which time one of the young Chickadees was found dead and the second was missing from the nest on June 10th. The remaining Chickadee eggs did not hatch. The young Cowbirds were banded June 13th, and removed to the laboratory for parasitological study on June 16th.

The opening in this box was one and one-half inches in diameter, much larger than the usual entrance to Chickadee nests, and ample to permit the intrusion of Cowbirds. The presence of the Cowbird eggs may account for the reduced clutch laid by the Chickadee.—FRED M. PACKARD, North Eastham, Cape Cod, Massachusetts.

## RECENT LITERATURE

**(Reviews by Margaret Morse Nice)**

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.

### BIRD-BANDING

**"The 'British Birds'—Marking Scheme. Progress for 1935."**—H. F. Witherby. 1936. *British Birds*, 29:339–344. During 1935, 46,430 birds were ringed in Great Britain, of which 16,066 were trapped, the rest being nestlings. The species that have been ringed in largest numbers since 1909 are: Song Thrush (*Turdus philomelus*) 53,108; Blackbird (*Turdus merula*) 42,469; Starling (*Sturnus vulgaris*) 37,592; Swallow (*Hirundo rustica*) 34,243; Lapwing (*Vanellus vanellus*); 27,928; Chaffinch (*Fringilla cælebs*) 19,684; Greenfinch (*Chloris chloris*) 19,643; Redbreast (*Erithacus rubecula*) 17,008. Fourteen coöperators ringed from 1,007 to 5,205 birds in 1935, H. J. Moon's list being the largest. Dr. Moon's "total this year is the second largest he has ever done and is very remarkable in being made up of nestlings not to be found in colonies. His largest totals are Song-Thrush (1,262), Lapwing (970), Blackbird (877), Starling (379)."

**Banding at Rossitten.**[1] A summary of the varied phases of work of the Vogelwarte, both educational and scientific. During the past year 114,300 birds were ringed and 3000 recoveries and returns reported. An illustration is given of rings carried by five of the oldest banded birds, Herring Gulls (*Larus argentatus*) of 21, 22, 23, almost 25, and 26 years old. The activity of this station and its coöperators is attested by the bibliography of fifty titles of articles published in 1935.

**"Bird Banding."**—1936. Bureau Biological Survey, Washington, D. C. Wildlife Research Leaflet BS-53. 5p. A brief account of banding in North America, telling of its history and methods, describing bands and traps, and concluding with a few words as to the value of the work. Nearly 2,250,000 birds have been banded on this continent.

**"How a Small Banding Station Functions."**[2]—M. Mountfort describes the pleasure and interest derived from trapping in his garden. In two years he has trapped nearly five hundred birds of thirty-eight species. He is gathering data on weights of birds and also on homing. Some individual Titmice are captured

throughout the year, but others visit his garden only in winter, five birds of two species—Crested Tit (*Parus cristatus*) and Blue Tit (*Parus cæruleus*)—being present two winters in succession. Homing experiments with two Blue Tits revealed a strong attachment for the winter home; one returned from the distance of a kilometer in one to three days, the other from three kilometers in two days, and five kilometers in six days. M. Mountfort should use colored bands on some of his regular visitors.

**"Banded Birds as Prey of Raptorial Birds."**[3]—In a region of some five square kilometers near Dresden where considerable banding is being done and many nest-boxes are provided, and where nine pairs of Tawny Owls (*Strix aluco*) live, the author found that forty-one ringed birds had been eaten by five of these pairs in two years. Fourteen species were taken, the majority of individuals being Tit-mice. Cases of cannibalism in families are also cited—one young Long-eared Owl (*Asio o. otus*) and two young Sparrow Hawks (*Accipiter nisus*)—this last event taking place after the mother bird had been shot.

**"Abnormalities in Birds."**—H. and J. R. Michener. 1936. *Condor*, 38:102–109. A valuable article summarizing the cases of tumors, sickness, injuries, and albinism in the thirty thousand Passerine birds banded by the authors in Southern California during the last ten years. There have been one hundred fifty cases of tumors, mostly on the feet and legs. An "injured leg is no major loss to a bird." "Deformed bills are almost as common as injured legs." Instances of albinism, except with English Sparrows (*Passer domesticus*), amounted to only ".05 of one per cent of the total."

[1] Schüz, E. 1936. XXIX. Bericht (1935) der Vogelwarte Rossitten der Kaiser Wilhelm-Gesellschaft zur Förderung der Wissenschaften. *Vogelzug*, 7:68–78.
[2] Mountfort, G. R. 1936. Comment fonctionne une petite station de baguage. *L'Oiseau et la Revue française d'Ornithologie*. 6:321–326.
[3] Lüders, O. 1936. Beringte Vögel als Raubvogel-Beute. *Vogelring*, 8:44–53.

## HOMING EXPERIMENTS

**"Homing Experiments with Starlings and Swallows in 1935."**[4]—Dr. Rüppell has obtained even more striking results on homing than in his earlier studies, having sent his subjects by airplane to Sweden and London, and to points in Germany at distances of more than four hundred miles. Fifty-two of 97 nesting Starlings (*Sturnus vulgaris*) were known to have returned to their homes after having been sent to localities from 275 to 707 kilometers distant (one station being in Sweden). *The best percentage of return (75.9 per cent) was from the greatest distance.* Of seven Swallows (*Hirundo rustica*) sent to London (690 kilometers) five were recaptured at their nesting place. Of six Martins (*Delichon urbica*) sent to Gleiwitz (725 kilometers) five returned. In order to test the theory that homing is a matter of kinaesthetic memory, some of the Starlings were rotated during the journey on clockwork some forty-five times a minute; nevertheless these birds returned better than the others. We eagerly await further developments of these brilliantly planned and executed experiments.

**Homing experiments with Tree Sparrows** (*Passer montanus*).[5]—Of six European Tree Sparrows released in winter near Gronau in Hannover, 2.5 kilometers from home, three returned; of six released 11 kilometers away, one returned; but of three released 15 kilometers away, two returned.

Other homing experiments are mentioned in No. 2.

[4] Rüppell, W. 1936. Heimfindeversuche mit Staren und Schwalben 1935. *Journal für Ornithologie*, 84:180–198.
[5] Simon, E. H. 1936. Verfrachtungen von Feldsperlingen (*Passer montanus*). *Der Vogelzug*, 7:78–79.

## LONGEVITY

**"Age Determination in the American Crow."**—J. T. Emlen, Jr. 1936. *Condor*, 38:99–102. First-year birds have more pointed tail-feathers than adults, and their flight and tail feathers show more wear. The author implies, but does

not definitely state, that first-year birds do not breed. He says the *younger* birds generally weigh more than adults, an observation contrary to the data of L. E. Hicks in *Bird-Banding*, 6:65–66, 1935.

**An Eight-year-old Hairy Woodpecker** (*Dryobates villosus*) is reported by R. H. Carter, Jr., from Muscow, Saskatchewan, in *Inland Bird Banding News*, Mar., 1938, 8(1):10.

Several records of long life in banded birds are given in *News from the Bird-Banders*, 11, No. 2, May 1936, Berkeley, Calif.; California Towhees (*Pipilo c. crissalis*) of almost seven and almost nine years, and House Finches (*Carpodacus mexicanus*) of six and seven years, while a third was banded nine years ago.

See No. 1 for longevity records of Herring Gulls.

## WEIGHT

**"The Number of Contour Feathers in Passeriform and Related Birds."**—A. Wetmore. 1936. *Auk*, 53; 159–169. Actual counts of the feathers of some one hundred fifty birds are given, and also the weights of plumages and of the birds. The maximum number of feathers was found in winter, "the complete, dense plumage" of winter being acquired in late fall.

## LIFE HISTORY

**"Habits of the Rook."**—J. W. Campbell. 1936. *British Birds*, 29:306–309. In a rookery in Essex courting and "love-flights" are conspicuous throughout October and "may also occur throughout the winter months whenever the weather is fine and sunny. Autumnal courting displays are not confined" to *Corvus frugilegus*, the author having often seen them indulged in by Ravens (*Corvus corax*) and Jackdaws (*Coleus monedula*). Territorial jealousy increases after incubation starts, the female hampering "the construction of new nests near her own." "Any disturbance among the nesting birds in the earlier stages of the breeding season has an apparently irresistible attraction for neighboring birds." When a male feeds his incubating mate, other females beg. "Such attempts are resented strongly by both members of the rightful pair, but in 1933 a male was seen on several occasions, after feeding his mate, to fly to an adjoining tree, where he fed another female. This was not a true case of polygamy, for this second female had certainly a mate of her own."

Immature birds are seldom seen at the rookery. "One or two pairs, however, construct nests each year which they usually eventually abandon. In 1934 and 1935 a pair of birds with nasal bristles successfully raised a brood of young."

**"Young Rooks, Their Survival and Habits."**—J. P. Burkitt. 1936. *British Birds*, 29:334–338. By means of careful counts at different times of the year, the author estimates that an average of 1.2 to 1.5 young birds are fledged from each nest; but by September the young appear to be only one-tenth as numerous as the adults, hence a great mortality must take place among the young birds in July and August, a number of young dying equal to one-third or two-thirds the population of adults.

**Nesting of the Black Kite.**[6]—In two pairs of *Milvus m. migrans* the males shared incubation, but quite irregularly, as may be seen from the following records:

Pair A. May 25th; watched from 3.15 A.M. to 12.30; at 4.06 male relieved female and was still on nest when observer left. May 28th; watched 3.30 A.M. to 4.35 P.M.; at 3.54 male relieved female and incubated with short pauses until 3.15, when he left, the female returning to the nest at 4.20. June 6th: watched from 2.45 A.M. till 8 P.M.; female incubated till 11 A.M., when she left and the eggs were left uncovered until 4.08, when she returned, and she was still on at 8 P.M.

Pair B. June 12th: watched 6.20 to 3 P.M.; at 6.50 female relieved her mate and was still on when observer left. June 21st: watched 3.10 to 8 P.M.; at 6.42 the male was relieved by his mate.

During incubation, the amount of food consumed seemed to be surprisingly little.

**Nesting of the Honey Buzzard.**—Three articles on this strange hawk (*Pernis apivorus*), which lives to a large extent on wasp and bumblebee larvae, appeared in 1935, two by German authors,[7, 8] and one by a Frenchman.[9] The birds arrive late, and the eggs are not laid until late May or early June, the young hatching when their food is abundant. Both parents incubate and brood the young. The latter are fed at long intervals—four and a half to six hours in some instances. Fresh twigs are brought until the young leave at the age of 38 to 40 days. The birds are gentle and quiet, and the young do not quarrel in the nest, as do most young hawks. At the age of a month they start to *scratch* in the bottom of the nest, an instinctive act, by means of which they will later procure their food. In the Vosges, M. Claudon reports finding several nests on which birds appeared to be incubating, but no eggs were laid.

**The Nesting of the Kestrel.**[10]—The female *Falco tinnunculus* incubates and the male brings food to her. The eggs hatch at practically the same time. The female at first stays constantly with the young, only leaving them to receive food from her mate. The food of one pair consisted largely of lizards.

**"Egg Laying of the Cowbird During Migration."**—T. D. Burliegh. 1936. *Wilson Bulletin*, 48:13–16. Eggs and young of *Molothrus ater ater* were found in nests of the Red-eyed Vireo (*Vireo olivacea*) in Asheville, North Caroloina, although no adults have been recorded in the nesting season after May 4th.

**Experiments with Egg-Laying in the European Tree Sparrow.**[11]—The removal of eggs from the nest of *Passer montanus* did not result in the laying of extra eggs, the female starting to incubate on as few as two eggs. The addition of other eggs did not cause the bird to lay a smaller set than otherwise. Three broods are raised; incubation lasts eleven to thirteen days, and the young stay in the nest thirteen to sixteen days.

**"Three Broods of Red-backed Juncos in One Season."**—L. L. Hargrave. 1936. *Condor*, 38:57–59. A banded pair of *Junco caniceps dorsalis* together raised three broods near Flagstaff, Arizona. The young of the first two broods left as soon as independent, but the last brood remained till after the parents had left.

**Behavior of Lesser Spotted Woodpecker.**[12]—The author took two of four female young from a nest and raised them at home. He had some difficulty in teaching them to eat in daylight, as they had been used to expect food only when the nest-hole was darkened by a parent. The sisters quarrelled constantly, *the smaller one dominating the larger*.

**"Variation in the Song of Male Mockingbirds."**—H. and J. R. Michener. 1936. *News from the Bird-Banders*, XI (1):5–7. A comparison of two males at the same stages in the nesting-cycle showed that one sang a very great deal and the other hardly at all. This agrees with Mrs. Laskey's experiences (*Auk*, 1935. 52:370–382).

**"Starlings Fighting for Nesting Sites."** G. Marples. 1936. *British Birds*, 29:321–323. Detailed descriptions of fierce fights between two males May 4th and January 26th.

**"Report on the Arnett, Oklahoma, Experimental Quail and Prairie Chicken Management Project."**—V. Davison. Bur. Biological Survey. Washington, D. C. Wildlife Research Leaflet BS-39. A fifty per cent loss was found in the Lesser Prairie Chicken (*Tympanuchus pallidicinctus*) "from hatching to the end of the growth period." "The male takes no part in care of the young. The sex ratio of young birds trapped for banding at five to fourteen weeks was 140 males to 100 females. Capture of banded birds usually revealed moderate but continued

movement from the original locality within a radius of one to one and a half miles. One bird was shot at a point eighty miles from the ranch."

[6] Schuster, L. 1936. Zur Brutbiologie des Schwarzen Milans. *Beitr. Fortpflanzungsbiologie der Vögel*, 12:69–73.
[7] Wendland, V. 1935. Der Vespenbussard (*Pernis apivorus*). *Journal für Ornithologie*, 83:88–104.
[8] Gentz, K. 1935. Zur Brutpflege des Wespenbussards. *Journal für Ornithologie*, 83:105–114.
[9] Claudon, A. 1935. La Bondrée apivore *Pernis apivorus apivorus* dans le département des Vosges. *Alauda*, 7:541–545.
[10] Mouillard, B. 1935. Notes sur la biologie du Faucon crécerelle *Falco tinnunculus*. *Alauda* 7:522–534.
[11] Eisenhut, E. and W. Lutz. 1936. Beobachtungen über die Fortpflanzungsbiologie des Feldsperlings. *Mitteilungen über die Vogelwelt* 1936.
[12] R. de Thomaz de Bossierre. 1935. Un Nid de Pic Épeichette, *Dryobates minor hortorum* Brelm. *Le Gerfaut*, 25:196–201.

## ECOLOGY

**"Nesting Ecology of Birds in High Mountains."**[13]—Birds in the Alps at fifteen hundred to seventeen hundred meters above sea-level start nesting on southern exposures, but by June prefer northern exposures. Although considerable snow may fall in late June, yet the nests are usually in such well-protected situations that they come to no harm. A female Bonelli's Warbler (*Phylloscopus b. bonelli*) had been incubating eggs in an arched-over nest for four days when a snow of twenty centimeters fell; she left her eggs uncovered from 7 A.M. till 12 M. A snow of thirty centimeters fell four days later, but she continued to incubate, leaving the nest as usual at intervals of forty-five minutes to an hour, thus keeping a passage-way open. The eggs hatched in due time.

**Breeding Birds in the Arctic.**[14]—In northern Siberia shorebirds arrive with eggs almost ready to be laid; they nest at once, and if the weather turns very cold, the eggs may be frozen. The birds leave in August when the weather is warm and food abundant.

**"Habits and Nest Life of the Desert Horned Lark."**—A. D. Dubois. 1936. *Condor*, 38:49–56. In a four-year study of *Otocoris alpestris leucolæma* in Montana, larger sets were found during a very rainy season than in the other years: in the former there were seven sets of four eggs and two of three eggs; in the other three years seven sets of four eggs were found and thirty-one of three eggs. The birds are destroyed by weasels, skunks, ground squirrels, and poisoned bait.

**"Redshanks Nesting at Tring Reservoirs. An Effect of the Drought."**—C. Oldham. 1936. *British Birds*, 29:381–383. The drought in England in 1933 and 1934 greatly lowered the water-level of the Tring Reservoirs, so that Great Crested Grebes (*Podiceps c. cristatus*), Coots (*Fulica a. atra*), Pochard (*Nyroca f. ferina*) and Tufted Ducks (*Nyroca fuligula*) failed to nest. Swampy conditions appeared in 1935, and two pairs of Redshanks (*Tringa totanus*) nested for the first time since 1922.

**"The Burrowing Owl and Dust Storms."**—J. F. Brenkle. 1936. *Inland Bird Banding News*, 8 (1):2. Dust-storms filled the burrows of *Speotyto cunicularia* in South Dakota, and the droughts of 1933 and 1934 dried up the ponds, so that prey became scarce. A colony of sixteen pairs of these owls settled by a filling-station lunch-room, the attraction being a tub of water and kitchen scraps. However, in this exposed situation about a third of the adults were killed, and only nine pairs raised young, the total reaching twenty-one, an average of 2.3 per pair. The usual number of young under normal conditions is from six to twelve. In 1935 "word was received from Iowa and Minnesota that Burrowing Owls were nesting eastward where they had not been noticed before."

**"Coloration of Downy Young Birds and of Nest Linings."**—J. M. Linsdale. 1936. *Condor*, 38:111–117. Judging from experiences largely in western Nevada, the author concludes: "Apparently those kinds of birds which nest in exposed situations and which live in hot regions have pale or pallid nestling plumages and

nest linings which reflect and counteract the harmful effects of sun rays. Kinds which live in opposite conditions are dark in both these respects and thus are able to take advantage of warmth from the sun."

**"A Tree Nesting Quail."**—H. L. and R. Crockett. 1936. *Condor*, 38:97–99. In the Salt River Valley, Arizona, "at the end of the second dry year," Gambel Quail (*Lophortyx g. gambeli*) "had gathered in great numbers in irrigated places, where they found food, water and protection, but very precarious nesting places" owing to changes in water-level. One pair solved the situation by building a nest four feet from the ground in the center of a sour orange tree. "It was well constructed, of sticks, and was better lined than ground nests we have seen. We believe it was built entirely by the quail."

**"Climographic Studies of Certain Introduced and Migratory Birds."**—A. C. Twomey. 1936. *Ecology*, 17:122–132. By means of climographs showing the average rainfall and temperature for each of the twelve months for different localities the author points out that only where these factors are fairly similar in two localities, particularly in the breeding season, is there hope of successful introduction of any but the most adaptable of alien birds. He also shows climographs for several species for summer and winter ranges, and believes that birds "with a restricted summer range tend to seek the summer optimum of temperature and rainfall in their winter range."

**"Why We Need Wild Birds and Mammals."**—J. Grinnell. 1935. *Scientific Monthly*, Dec.: 553–556. Also **"Up-hill Planters."**—1936. *Condor*, 38:80–82. Delightful articles showing the interdependence of the forests and birds and squirrels. The trees supply a bountiful supply of food, while the animals distribute the acorns in new localities, and particularly up-hill.

**"Wild Life and Erosion Control."**—H. H. Bennett. 1936. *Bird-Lore*, 38:115–121. "Since colonial days we have, unquestionably, been guilty of the most colossal soil-wastage the world has ever witnessed in a like space of time." Already erosion "has essentially ruined for further practical use not less than 50,000,000 acres of once-fertile land, and has put another 50,000,000 acres in about as bad a condition." The Soil Conservation Service is doing splendid work in stopping erosion and bringing back habitats for wild life in their demonstration areas. A striking article on a subject of paramount importance.

[13] Heilfurth, F. 1936. Beitrag zur Fortpflanzungsökologie der Hochgebirgsvögel. Beitr. Fortpflanzungsbiologie der Vögel. 12:98–105.

[14] Scalon, W. N. 1935. Les Oiseaux du Sud du Taimir. Suite. *Le Gerfaut*, 25:201–217.

## BIRD BEHAVIOR

**"On the Sociology of the Herring Gull,** *Larus a. argentatus* **Pont."**[15]—Each pair has a pretty sharply defined breeding territory even before the nest is built. Both birds defend the territory, the male more vigorously than the female, and each usually drives off birds of its own sex. While the male is incubating, other males may collect in his territory, but as soon as he is relieved of nest duty by his mate, he at once attacks the strangers. The territory is defended until the young are fledged. It is thus evident that "a colonial bird can also very well be a territorial bird."

Fourteen nesting birds were captured in 1934 and given colored bands; in 1935 nine were back in their old territories.

By careful observation it was ascertained that the birds of a pair know each other personally, no matter where they happen to be. That they distinguish their own young from the fifth day, was established by experiment. They do not, however, know their own eggs, but locate the nest by position. If the eggs are removed, the bird will be disturbed, but in many cases will resume "incubating" in the empty nest. "Even if the eggs are placed only 20 centimeters from the nest, the Gull hesitates, when it comes near the nest, but usually settles in the empty nest!" Yet the eggs hold a strong interest for the bird, which goes to them, settles

on them for a little, but then returns to the nest. Gulls seldom show the reaction that Terns do of pulling the eggs back into the nest. (An Arctic Tern (*Sterna macrura*) incubated an egg of an Old-squaw (*Clangula hyemalis*) in its otherwise empty nest, although when the nest was entirely empty, she preferred her own eggs, which had been placed near.) If a nest was made by the experimenter twenty centimeters from the real one and the eggs placed in it, the Gull preferred this to her own empty nest. If the eggs of a Tern are moved to the distance of a meter, the bird usually incubates the eggs and not the nest.

Herring Gulls know their mates and their young personally; these do not remain in one locality, "so *must* be known personally." "But the eggs do not leave their position and hence can be recognized by position."

**"On the Winter Habits of the Green Woodpecker** (*Picus viridis viridescens*)."—F. C. R. Jourdain. 1936. *Proc. Zoölogical Soc. London*, 1936. Part I. 251–256. A female Green Woodpecker roosted in a nesting-box from October 1, 1933, to April 28, 1934, but the following year she, or another bird, did not remain after February 12th. Her arrivals in the afternoon and departures in the morning were closely correlated with light-intensity, being earlier on dark afternoons than on clear, and later on dark mornings than on bright ones. The average times of retiring in 1934 were: January 14th to 20th, 4.20; January 21st to 30th, 4.23; February, 5.12; March, 5.48; April, 6.46. No information is given as to the times of sunrise and sunset. Bussmann (*Bird-Banding*, 4:33–40, 1933) reports some observations on the sleeping-habits of Black Woodpeckers (*Dryocopus martius*) with the terragraph.

**"Some Diving Notes on Young Tufted Ducks, Young Velvet Scoters and Young Eider Ducks."**—P. Grenquist. 1936. *Ornis Fennica*, 13:6–23. Observations on depth of dives and length of time spent under water by young and adult *Nyroca fuligula*, *Oidemia fusca*, and *Somateria mollissima*.

**"Why Do Birds Migrate by Night?"**[16]—Dr. Palmgren does not think that the habit of migration by night is due to the necessity of feeding by day. "In daylight the attention of the bird is fixed on the environment by means of the sense of sight. These sense impressions and the consequent stimuli to more or less involuntary reactions in response to the environment (especially feeding) dominate over the internal stimuli to migration. . . . But at night, when sight perceptions and the periodic stimulus to daily activity are lacking, the migration drive can operate unhindered."

**"Nest-building Instinct in an Immature Double-crested Cormorant** (*Phalacrocorax auritus auritus*).—H. L. Mendall. 1936. *Auk*, 53, 202–203. At a colony in Maine an immature male established territory and built a nest in July, 1935, although "he was greatly hindered by the fact that each time he left his territory, a certain amount of nesting material was stolen by other members of the colony." "Having completed the nest, the Cormorant guarded it jealously, and was as particular of his territorial rights as were the mature adults around him. The bird went through many of the true courtship maneuvers whenever a female flew overhead or walked by the nest."

[15] Tinbergen, N. 1936. Zur Soziologie der Silbermöwe, *Larus a. argentatus* Pont. *Beitr. Fortpflanzungsbiologie der Vögel*, 12:89–96.

[16] Palmgren, P. 1936. Warum ziehen die Vögtsel des Nach? *Ornis Fennica*, 13:41–49.

## BOOKS

**Birds of America.**—Edited by T. Gilbert Pearson. 1917. Doubleday, Doran & Co., New York, Quarto, 289 pages, $3.95. The outstanding features of this reprint in one volume of the three volumes published nineteen years ago are: Fuertes' plates of the Birds of New York; inclusion of the majority of Western birds by description and drawings; the low price. Some of the plates are not so good as their predecessors, No. 33, for instance, having too little red, while No. 47 has too much. The text lacks the modern viewpoint., the descriptions do not stress

field-marks, while the inclusion of pictures of mounted specimens was a sad mistake. Ranges are given, as well as data as to nests and eggs, and also feeding habits, while many of the "biographies" are well and interestingly written. Many excellent photographs by Finley, Job, and others are included. All in all, a very good buy.

**Birds of the Green Belt and the Country Around London.**—R. M. Lockley. 1936. H. F. & G. Witherby, 326 High Holborn, London, W.C.1, 236 pages, 5s. A splendid guide to the birds in the vicinity of London, telling just where to go and how to get there to find birds of a dozen different habitats. In informal, charming style the author conducts us through each type of country, telling of the habits, appearance, and notes of the characteristic birds, as well as mentioning adders, toads, and other creatures. His descriptions of songs are excellent, and his comments on various phases of natural history are always interesting. Line drawings by Doris Lockley of birds and flowers add much to the usefulness of the book. A more helpful guide to the visitor from abroad could hardly be imagined.

**How to Know British Birds.**—Norman H. Joy. 1936. Witherby, London, 136 pages, 5s. A field guide illustrated by sketches and colored plates. The descriptions are very good, emphasizing field marks and characters, while information as to nesting and distribution is given in a few words. This book, as well as those by Mr. Lockley and Miss Turner, belongs to the admirable series of Bird-Lovers' Manuals being published by H. F. and G. Witherby.

**Every Garden a Bird Sanctuary.**—E. L. Turner. 1935. Witherby, London, 190 pages, 5s. The title of this book is an inspiration in itself. In this sane, readable little volume, Miss Turner, well known bird-photographer and student of life-history of birds, gives excellent advice, not only for garden sanctuaries, but also for woodland and marsh sanctuaries. She points out the ruthless advance of present-day civilization against the few remnants of wild life.

"Both directly and indirectly man is after all the greatest enemy of birds." The cultivation "of enormous tracts of hitherto waste land; huge engineering schemes for the control of water and the drainage of the marshes; . . . bungalows stretching far out into what was once pleasant country; . . . all these schemes, the inevitable result of what we call progress, are gradually strangling wild life in every land."

We very much need to take heed to her warning: "Many people do not realize how fast the net is closing around birds, nor how necessary it is to preserve our heritage."

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## DAVID LACK ON TERRITORY AND POLYGAMY

### (Review by Thomas T. McCabe)

**"Territory and Polygamy in a Bishop-bird, *Hordeacea hordeacea* (Linn.)."** —David Lack, B.A., M.B.O.U. Ibis. October, 1935. 817–836. It is reassuring to find a recent and sweeping critic using the language of orthodox territorialism as confidently and in as absolute a sense as a "realtor" could use the jargon of his title-deeds. That "territory is as well developed in the male *hordeacea* as in any known bird" is true only as pending further information or as considering the phenomenon as exclusively a phase of reproduction, for there are beyond question birds of even more strict year-round territorial behavior in both sexes.

The paper draws an admirable and a spectacular picture of a dense settlement of Bishop-birds on three and a half acres of reverted tall grass land near Amani, Tanganyika Territory. At the risk of isolating and pigeon-holing elements of behavior in preconceived packages, it will give the clearest summary in briefest space if we first follow the familiar strands of the pattern, then the less familiar variations.

The territorial boundaries are rigid, and seem to be maintained through the long season, without natural markings, enclosing an average of about 925 square yards. The male finds its food inside, never leaves except to find water, "parades" the boundaries, never tolerates strangers of the same species, whether adult or immature, fights and pursues when necessary. The female does not defend the territory and incubates and feeds her young alone.

So far the familiar outlines. On the other hand the female shows no sense of boundaries whatever and is not aided by the male's defense of them in the matter of food for the young, which she seeks far and wide, under frequent attack *en route* by neighboring males. Polygamy is general but not universal. It is common for a male to have up to four females in different stages nesting in his territory at once, and more in the long breeding period between May and September, yet he does most of the nest-building, using, curiously enough, different materials from the females which assist him. While the author does not consider the matter settled, and discusses it at some length, he is inclined to believe, not that the male maintains a permanent harem, or goes forth to seek new mates when ready for them, but rather that free females are continually on the lookout for mates and territories, so that there is always a new one ready to be accepted. Nothing is said of the distribution of the females within the male's territory, except that inter-female jealousy is rare. The male has a special call which is uttered when one of his own females enters, and sometimes when she leaves, the boundaries. All birds, even the males, must go to a water-hole a few hundred yards away at least once a day, and here complete inter- and intra-specific tolerance prevails. The male is magnificently colored and continually indulges in display, which does not appear to be directed at the females but is believed to constitute territorial advertisement, taking the place of the ill-developed voice. Various widely different forms, such as Warblers and Shrikes, are tolerated in the territories. In the case of the Yellow-shouldered Bishop-bird (*Euplectes capensis sabingo*) whose territories may be superimposed on the same ground, the resident pair is tolerated but strange individuals are chased by *hordeacea*.

Here vigorous territorial behavior is obviously divorced from food-supply. It is worth noticing that the warm climate permits the female to seek food far afield with little risk to the nestlings. Yet the author inclines to find the function of the territorial organization in the regulation of mating. He remains very close to Howard as to two major aspects of the reproductive cycle—the manner of the seeking of mate by mate, and the function of territory therein.