RECENT LITERATURE

(Reviews by Margaret M. Nice)

The articles reviewed 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 books or articles or literal translations of such titles. Other headings refer to general subjects or are abbreviated from titles in foreign languages. References to periodicals are given in italics.

BANDING PAPERS

"Twenty-two Years of Banding Migratory Wild Fowl at Avery Island, Louisiana."—E. A. McIlhenny. *The Auk*, LI, 328–337. This interesting paper summarizes results from banding 21,996 water-fowl of 19 species, 2116 recoveries having been reported—9.6 per cent. An impressive map shows that bands "have been returned from a territory covering the breadth of the land from the Atlantic to the Pacific Ocean, and from the Arctic to the Tropics." Homing experiments were made on a number of ducks trapped in Louisiana. Of 276 liberated on the Pacific Coast 40 were retaken in the Mississippi Valley and 9 along the Pacific Coast. Of 164 liberated on the Atlantic Coast, 30 were "retaken from the Mississippi Valley and two from the Eastern Route, showing that the great majority of the birds sent out of their home range return to the migration route from which they were taken."

One of the most unusual returns was that of a Pintail (*Dafila acuta tzitzihoa*), banded at Avery Island February 14, 1930, liberated on the Potomac River near Washington, D. C., and killed in California, November 2, 1932.

Three birds lived to be at least ten years old—a female Lesser Scaup (*Nyroca affinis*), a male Ring-neck (*Nyroca collaris*), and a Louisiana Heron (*Hydranassa tricolor ruficollis*).

As to sex ratio, McIlhenny has found a great preponderance of males, the ratio of males to females being as follows in five species: in 6159 Lesser Scaup, 2½:1; in 7067 Pintails, 1⅔:1; in 913 Ring-necks, 4½:1; in 992 Blue-winged Teal (*Querquedula discors*), 4⅕:1; and in 461 Canvasbacks (*Marila valisineria*), 4½:1.

The Sex Ratio of Ducks during winter and spring in Germany is discussed by H. Frieling,[1] the observations being based on censuses of flocks. Although in the total counts males predominated, the author believes this is due to differing migrating habits of the sexes. For instance, with the Tufted Duck (*Nyroca fuligula*) and Common Pochard (*Nyroca f. ferina*) the drakes migrate farther south than their mates, then pass rapidly north to the breeding grounds in March, while the female ducks remain in Germany throughout the winter and into April. With the Golden-eye (*Bucephala-Glaucionatta c.clangula*) also more ducks winter there than drakes.

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[1] Statistische Untersuchungen über das Geschlechtsverhältnis der Enten zur Zugzeit. 1934. *Der Vogelzug*, v, 109–115.

"The Migration of the Song Thrush (*Turdus ph. philomelos Brehm*)",[2] Three maps show 392 recoveries of Song Thrushes ringed in Germany, their winter quarters being southwestern France, Spain, and Algiers. "A large number of finds prove that young Song Thrushes return the next year to the vicinity of their birthplace". In two different cases two young of the same brood were recovered in the same place in their winter quarters. Among the 451 records of returns and recoveries there are seven cases of birds four years old and one of five and a half. The ring of a young thrush was found in the stomach of a Hooded Crow (*Corvus cornix*), while many birds were killed by cats.

"The Migration of the Scandinavian Lesser Black-backed Gull (*Larus f. fuscus*)."[3] In this valuable paper Dr. Schüz concludes: "The Lesser Black-backed Gull is an example of a bird that migrates very far south without being forced to do so through feeding requirements. This is evident from the large numbers that remain in the north. One cannot ascribe this failure to migrate to a diseased condition. But even if one does, there remains the fact of tremendously extensive winter quarters, for the journey can end at the Black Sea or in the heart of Africa. A bird of such differing behavior offers an important key for the study of histological and physiological conditions of the migratory instinct."

Recoveries of Black-headed Gulls in Relation to Birthplace.[4] Gulls in their second summer were retaken both near their birthplaces and two thousand kilometers away, but in the third summer all but one record fell within one hundred kilometers of the home colony. As evidence of return to winter quarters, cases are given of eight birds taken at Kiel and recaptured there the following year.

"Research on Bird Migration at Heligoland."[5]—This brief résumé of migration research as carried out at Heligoland is illustrated with pictures of the great garden trap, of activity cages, and of the efficient methods of weighing, measuring, and ringing the birds, as well as with maps of recoveries of Guillemots and Redstarts.

Speed of Migration.—An adult male Blackcap banded in Schlesien August 30th was captured September 10th in Cyprus—a distance of 1320 miles in ten days.[6] Lesser Black-backed Gulls averaged 32, 38, and 97 miles a day by air-line—the last for a journey of thirteen days.[3]

Banding in Hungary.—The Hungarians are doing valuable work in banding, some of which has already been reviewed in *Bird-Banding* (iv, 1933, 117–118). In the first[7] of the three papers by Jakob Schenk under

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[2] Vom Zuge der Singdrossel (*Turdus ph. philomelos* Brehm). W. Eichler. 1934. *Der Vogelzug*, v, 135–143.

[3] Vom Zug der schwarzrückigen Heringsmöwen (*Larus f. fuscus*). E. Schüz. 1934. *Der Vogelzug*, v, 123–134.

[4] Ueber Heimatgebundenheit und Ortstreue ostholsteinischer Lachmöwen, *Larus r. ridibundus* L. B. Resühr und W. Albertsen. 1934. *Der Vogelzug*, v, 144–174.

[5] Vogelzugsforschung auf Helgoland. R. Drost. 1934. *Natur und Volk*, lxiv, 152–158.

[6] Mönchgrasmücke (*Sylvia atricapilla* L.) zieht 2200 km in 10 Tagen. W. Trettau. 1934. *Der Vogelzug*, v, 150.

[7] Die Vogelberingungen in Ungarn in den Jahren 1926–27. 1927–1928 *Aquila*, 34–35, 53–85.

consideration, there is a record of a Redshank (*Totanus calidris*) fifteen years old and a Purple Heron (*Ardea purpurea*) sixteen years old. Some nestling Swallows (*Hirundo rustica*) return home, but one was found two years later nesting eleven miles from its birthplace. The Great Titmouse (*Parus major*) is sedentary; two males and a female nested in the same place three years in succession, each bird remating a second year with a former mate. With the Marsh Titmouse (*Parus palustris*) some of the young return to their birthplace to nest. Interesting studies were made by Koloman Warga on the Common Redstart (*Phœnicurus phœnicurus*); he found that both old and young returned to his garden to breed. One male nested for three years, having the same mate during the last two years. Another male had two mates at the same time.

Ringing statistics[8] covering twenty-five years were collected from European countries, particularly Germany, Denmark, and England, with the view to ascertaining whether or not birds return to their homes. Fourteen hundred records involving forty species are dealt with; these all fall within the breeding season, but unfortunately no distinction is made between birds ringed as adults and those ringed as young. Eighty per cent of the birds were taken within six miles of home, 10 per cent between six and thirty miles, 3½ per cent between thirty and sixty miles, and 3½ per cent over sixty miles. The species that showed the highest percentages of dispersal were the Hawks, Storks, and Black-headed Gulls. These are all species that do not breed during their second summer; so it is probable that most of the recoveries were of young, non-breeding birds.

The last paper[9] is a fascinating account of banding in a Hungarian Puszta —a great, uncultivated, treeless plain, inhabited by herds of cattle and large numbers of Waders, Ducks, Skylarks, and many other birds. Dr. Schenk captures the parent birds of a number of species—particularly Lapwings—by means of nets placed over the eggs. It is sad to learn that through reclamation projects this "immemorial paradise of all the wading and water birds" will soon be destroyed.

MIGRATION THEORIES

"Remarks on the Genetics of Bird Migration."[10]—Further details are given here concerning the Mallards (*Anas p. platyrhynchos*) hatched in Finland from English eggs (see *Bird-Banding*, v, 95): ten per cent of the ducks banded in 1931 returned in 1933 to the place of banding; neither in 1931 nor 1933 did their fall migration appear to have been stimulated by unfavorable weather conditions. The authors discuss the matter as to how much of the migratory "drive" is inborn and how much is due to environmental factors. They want Valikangas' experiments repeated "under most careful observation of date of departure, social relationships and meteorological conditions. Also Finnish ducks should be brought to England, and if possible placed in ponds without other ducks." Typical migrating birds should also be experimented with, Storks, for instance.

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[8] Die Siedlungsverhältnisse einiger Vögel der paläarktischen Fauna 1929. Xe Cong. Int. Zool. Budepest, 1927. 1386–1401.

[9] Ornithological Excursions in a Hungarian Puszta. 1932. *The Oologists' Record*, xii, 25–36.

[10] Bemerkungen zur Genetik des Vogelzuges. H. Frieling, J. Valikangas und der Schriftleitung. 1934. *Der Vogelzug*, v, 120–122.

"On the Causes of the Fall Migration Direction."[11]—The Vogelwarte of Heligoland discusses various theories as to what determines the direction of the autumn migration, stating that the idea of an inherited sense of direction is now widely accepted. Although agreeing that this appears to be the only explanation in some cases, the author believes that many migratory birds in the fall are attracted by warm air-currents, *i.e.* they have the instinct to go toward warmer regions.

ECOLOGY

Important bird papers are appearing in *The Journal of Animal Ecology*, edited by Charles Elton and A. D. Middleton,[12] particularly concerned with ecology and the closely related subject of censuses. Since its inception in 1932 there have been five long articles on bird-ecology and seven long ones dealing with bird-counts, besides several short notes on birds. Limitations of space forbid reviewing more than a few of these.

"A Contribution to Tropical African Bird-Ecology."—R. E. Moreau. 1934. *J. Animal Ecology*, 3, 41–69. A critical discussion of the multitudinous environmental factors influencing bird-distribution—altitude, biotic, climatic, and subjective factors, and eco-climates, *i.e.* "the sum-total of meteorological factors within a habitat." The author emphasizes the great complexity of the various problems. As to temperature, he suggests "that the mean maxima of the hottest months and the mean minima of the coldest are at least likely to be more illuminating than the annual mean temperatures, or even the annual mean maxima and minima." (Page 58.) In discussing general climatic factors he states "temperature and humidity are the factors that in combination primarily determine vegetation types, and, generally speaking, the vegetation type determines the light." (Page 59.) As to eco-climates, differences in temperature between the bare ground and in deep foliage may be as great as 10° C. within a distance of six feet! "That is equivalent to the difference involved in more than 5000 feet of altitude." (Page 63.)

In tropical forests, "competition as a direct biotic factor is not likely to be of much weight," since there is a superabundance of fruit, and "coöperation in the pursuit of insect food in great measure replaces competition." (Pages 48, 49.) This important paper deserves careful study by all those seriously interested in the study of the relation of the bird to its environment.

David Lack has recently contributed three papers to the subject of bird ecology. The first[13] is an interesting study of the succession of nesting species in the young pines; the author emphasizes the subjective factor of preference for certain kinds of habitats. In his study of Icelandic birds[14] he states: "Food is at times the factor limiting distribution." "Among the Passerines and sea-birds, selection of a particular type of nesting-site frequently limits their distribution. This restriction is usually only psychological, and, though normally fixed, is found to be overridden when there are

[11] Uber die Ursachen der Herbstzugrichtungen. R. Drost. 1934. *Berichte des Vereins Schlesischer Ornithologen*, xix, 1–9.

[12] London, Cambridge Univ. Press, Fetter Lane, E. C. 4.

[13] Habitat Selection in Birds with Special Reference to the Effects of Afforestation in the Breckland Avifauna. 1933. *J. Animal Ecology*, ii, 239–259.

[14] Habitat Distribution in Certain Icelandic Birds. 1934. *Ibid.*, iii, 81–90.

more birds present than the typical sites can provide for." "Finally, though it often seems to be assumed that the breeding population of birds is at the optimum or maximum permitted by food, this has never been proved for any natural habitat."

Arctic Terns (*Sterna paradisæa*) on lakes less than two miles apart started nesting at decidedly different times, corresponding to the dates at which their nesting-grounds became available.[15] Lack quotes similar instances with Cormorants, Australian Pelicans, and several African species, also stating that in the Arctic "there is wide-spread non-breeding in a late summer." He concludes that "though laying is primarily dependent on the state of the gonads, it is immediately controlled by the nervous system, through which nesting conditions, sudden cold, and perhaps other factors can limit breeding."

Effects of Drought Upon Breeding are reported by W. Hoesch,[16] who states that under these conditions in southwest Africa many species fail to breed at all, others leave the stricken area, a few build nests but do not lay, while some birds are unaffected. In the first category are a Francolin, Doves, a Turoco, Crowned Lapwing Plover, four species of Weaverbirds, and all species of *Passer*, while in the last are Woodpeckers, Goatsuckers, Shrikes, Bulbuls, and Thrushes.

CENSUSES

The close connection between ecology and bird-counts is shown by O. Meylan's paper[17] on the number of species and individuals in typical habitats in Switzerland. The author employs a new method of indicating the numbers of pairs present, namely by a "coefficient of abundance" representing the number of pairs to a square kilometer: 1 = rare, less than a pair; 2 = uncommon, about one pair; 3 = rather common, two to five pairs; 4 = common, six to twenty pairs; and 5 = abundant, more than twenty pairs. This is suggestive, perhaps, for a rough survey of a wide region, but the great range in the significance of items 4 and 5 makes it inapplicable for careful censuses.

Counts of Nesting Raptores.[18]—The abundance of Raptores in northern Germany is strikingly shown in these censuses of wooded areas in the Mark Brandenburg since 1929. In a region of ten square kilometers from seventeen to twenty pairs of eight species of hawks have nested each year since 1929, and in another of seven square kilometers fourteen to fifteen pairs of nine species have nested. The number has remained practically unchanged from year to year, the birds returning to their homes with great faithfulness.

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[15] Nesting Conditions as a Factor Controlling Breeding Time in Birds. 1933. *Proc. Zool. Soc.*, 231–237.

[16] Nester und Gelege aus dem Damaraland. I. 1934. *Jour. f. Ornithologie*, lxxxii, 325–339.

[17] Les Cèvennes et le Massif central. Contribution à l'ètude avifaunistique d'une règion montagneuse. 1934. *Arch. suisses d'Ornith.* i, 113–140.

[18] Fünf-und sechs jähriger Beobachtungen über die Raubvögel zweier norddeutscher Waldgebiete (mit Berücksichtigung ihrer Siedlungsdichte). V. Wendland. 1934. *Beitr. z. Fortpflb. d. Vögel*, x, 130–138.

A disheartening picture, on the other hand, is shown by an automobile census of hawks in this country,[19] where over a distance of 6858 miles only 53 hawks were seen.

White Storks[20] have greatly increased since 1928 in Oberschlesien and other regions in the eastern part of their range, although steadily decreasing in the west. The weather during the breeding season through its effect on the food-supply has a great influence on the numbers of young raised. Stork censuses have proved a fine means of interesting people in the protection of these splendid birds.

"Bird Population Studies: a Preliminary Analysis of the Gold Coast Avifauna."—J. M. Winterbottom. 1933. *J. Animal Ecology*, ii, 82–97. Interesting analyses of counts from train and automobile, and also of "sample censuses," *i.e.* the numbers of birds heard from a particular point during a stated period of time. The author compares the wealth of Raptores on the Gold Coast with their paucity in England.

LONGEVITY

"Wren-Tit Banded in 1925 Again Trapped."—E. L. Sumner, Sr., 1934. *The Condor*, xxxvi, 170. The Gambel's Wren-Tit (*Chamœa f. fasciata*) mentioned in the January number of *Bird-Banding*, p. 52, banded March 25, 1925, has been recaptured February 21, 1934, and so must be nearly ten years old and perhaps older.

"Recoveries of Marked Birds," *Brit. Birds*, 1934, xxviii, 36–48, gives a number of longevity records of interest: Blackbirds (*Turdus merula*) of five, six, and nearly eight years, a Yellow Bunting (*Emberiza citrinella*) of eight and one-half years, and Starlings (*Sturnus vulgaris*) of six and nine years.

A male Cardinal (*Richmondena c. cardinalis*) believed to be at least eight years of age[21] has been in the Gillespies' yard "practically every day for over six years." "He is by far the finest singer of all the numerous Cardinals in the vicinity."

Other records of longevity will be found under "Banding Papers" in McIlhenny's article, and also in [2] and [7].

WEIGHT

"Winter Weights of Golden-crowned and Fox Sparrows."—J. M. Linsdale and E. L. Sumner, Sr., 1934. *The Condor*, xxxvi, 107–112. This is a continuation of the work reviewed in the July number of *Bird-Banding*, page 142, which was concerned with four captive Golden-crowned Sparrows; the present paper deals with wild birds trapped during the winter and

[19] A Hawk Census from Arizona to Massachusetts. M. M. Nice. 1934. *Wilson Bulletin*, xlvi, 93–95.

[20] Die Veränderungen im Bestande des Weissen Storches (*Ciconia ciconia*) in Oberschlesien. M. Brinkmann. 1934. *Jour. f. Ornithologie*, lxxxii, 420–434.

[21] Banders Can Easily Specialize on Longevity Problems. J. A. Gillespie. 1934. *Eastern Bird Banding Quarterly*, i, 8–9.

spring, 1422 records having been obtained on 286 *Zonotrichia coronata* and 711 records of 91 *Passerella iliaca*. "Both species reached one peak in weight in mid-winter and another, considerably higher one just before the spring migration. Supplementary records . . . indicate that high weight is maintained until arrival on the breeding grounds." "The seasonal changes are, we think, mainly the rhythm of the internal changes in the bird's metabolic activities which accompany the rhythm of the breeding cycle, including migration. But there is also weight change which is sometimes great and which comes from external influences."

LIFE-HISTORY STUDIES

The Nest Life of the Night Heron.[22]—Hungary has been a wonderful nesting-place for thousands of water-birds, but now most of the swamps have been drained, and Hungarian nature-lovers must act quickly if even a remnant of the former glories is to be saved. The present paper is the result of three seasons' study of the bird-life in the Kis Balaton. With the Night Heron the nest is the bond between the mates, who pay no attention to each other away from it. When incubating, they change places every two to three hours (more or less), depending on hunting success. At the age of one week the young defend themselves from strangers, later attacking their nest-mates returning home from short flights and even their own parents. At the age of three to four weeks they begin to make little expeditions from the nest and try to capture broken twigs or bits of reeds, sometimes succeeding in getting water-beetles or leeches. At about six weeks they go out with companions to the feeding-grounds and there gradually learn by further experiment to feed themselves, becoming independent at eight weeks.

Incubation Rhythm in the Lesser White-Throat.[23]—A male and female *Sylvia c. curraca* relieved each other very regularly every seven minutes—the shortest period with which the reviewer is acquainted. On one occasion, when the male stayed away a little longer, his mate looked about, hopped on the nest-rim, and called.

The Biology of the Inca Dove.[24]—In Mexico City this little dove breeds from October to July. The male incubates from 11 A.M. to 3 P.M.—a shorter period than with most doves; the incubation period is eighteen to nineteen days, while the fledging period lasts fourteen to fifteen days, in one case seventeen.

Nesting Studies on the Willow Grouse (*Lagopus lagopus*).[25]—In this Norwegian pamphlet with an English summary records are given on one

[22] Ein Beitrag zur Kenntnis der Naturgeschichte, inbesondere des Brutlebens des Nachtreihers, *Nycticorax n. nycticorax*. O. Steinfatt. 1934. *Beiträge zur Fortpflanzungsbiologie der Vögel*, X, 85–96.

[23] Zähmungsversuch an der Zaungrasmücke. A. Löpmann. 1934. Baiträge zur Fortpflanzungs biologie der Vögel X, 96-98.

[24] Zu den Lebensgewohnheiten von *Scardafella i. inca* (Lesson) in Mexiko. F. Heilfurth. 1934. *Ornithologische Monatsberichte*, xlii, 103–110.

[25] Undersokelser over Lirypens Forplantningsforhold. O. Olstad. 1932. Statens Viltundersokelser, Meddelelse nr. 1. 1–71. Oslo.

hundred and twenty-five nests found over a period of nine years. By means of banding this species has been found to be "extremely stationary," and "the individual birds appear in the main to occupy the same tract of land spring after spring." "In all cases examined the nest has been fashioned after the first egg has been laid." "In one case where all the eggs of a hen were sterile, the bird continued sitting long after the usual number of days necessary for hatching had passed." In 38 per cent of the nests all the eggs hatched, in 25 per cent some hatched, while in 37 per cent none hatched. Of 1068 eggs, 687 hatched—64.3 per cent. The chief enemy is the Hooded Crow, which destroyed from 16 to 26 per cent of the eggs.

TERRITORY

"The Breeding-habits of the Corn-Bunting as Observed in North Cornwall: with Special Reference to its Polygamous Habit."—Lieut.-Col. and Mrs. B. H. Ryves. 1934. *Brit. Birds*, xxviii, 2–26. A very interesting detailed study on twenty-four males and forty-five females of *Emberiza c. calandra*, the birds being distinguished by position and not by bands. Many of the males occupied "tracts of suitable territory in close proximity to each other, and yet each holding a very distinct 'individual territory'. The distance between the 'pitches' of any two such males varied between about 45 to 180 yards."

About the middle of May the males "take possession of a suitable territory, hold it against all comers and advertise themselves by constant singing." The singing perch may be anywhere "from 20 to 100 yards or even more" from the nest, but it must "command a view of the nest site." "Where a male has more than one mate and the lie of the country is such that no one perch will command all the nests, he will so place himself as to command at least one nest and the route or routes to the feeding grounds of his other hen or hens."

The nest is built by the hen in one or two days, and laying usually starts after one day's interval. "The hen usually spends some hours in site-selection and is closely accompanied by the male, which frequently perches near her and indulges in vigorous bursts of song, scoldings and wing-quiverings." The female alone incubates, staying on the nest from forty to ninety minutes and off it from fifteen to forty minutes. When she leaves, the male stops his song and follows her "to her feeding ground, which is almost always a long way off (600 yards or possibly more), and escorts her back, watching her down to her nest from his perch." "Rarely, he calls her off her eggs with a low '*zip*', and then accompanies her to her meal." If she is reluctant to return, her "mate will flutter to a perch close to her, stretch out his body and with quivering wings and lowered head, scold her" with a raucous note.

"The indefatigable hen, practically alone, undertakes the work of rearing the young," although when "the nestlings have attained a fair size, the male is occasionally seized with a fit of energy and helps the hen for a short spell which rarely exceeds half an hour. During this short burst of activity he works really hard and we have recorded 20 visits paid in thirty minutes. Whereas the hen goes far afield for food, the male, oddly enough, finds grubs close at hand."

From three to five eggs are laid in a set, and some, but not all the hens raise two broods. Two hundred and nineteen eggs were laid in 53 nests and 126 young were fledged—58 per cent of success. Fifteen of the twenty-four males were polygamous, four of them having three mates and one four!

"The relationship between the hens owned by one male is one of amity. There appears to be no jealousy, even when the male, at certain times, shows marked favouritism." Only once did the authors observe a male attack a neighbor's mate. The males often desert their mates the middle of August, while the latter "rear their nestlings unwatched and unhelped."

Although the nests are placed within the male's territory, feeding takes place at an astonishing distance, hence territory with these Corn Buntings seems to be something intermediate between the nest-territory of colonial birds and the typical territory of Reed Buntings, Redbreasts, Song Sparrows, many Warblers (both Old World and New), etc. These territories can have no food value, but the male's preoccupation with watching his mates makes it appear as if territory with these birds were largely conditioned by sex jealousy.

"Notes on Territory in the Dartford Warbler."—L. S. V. Venables. 1934. *British Birds*, xxviii, 58–63. Thirty-nine pairs of *Sylvia undata dartfordiensis* nested on about one thousand acres in Surrey. The author says that if his observations had been confined to places where the pairs nested about two hundred yards apart he "might well have considered that the bird was strictly territorial, that this territory was used as a feeding area and that territorial behaviour set a limit to the density of the breeding population. But these conclusions are completely invalidated by the observations made where the birds were thickly distributed." . . . "If one may term the 'anxiety area' and the feeding area a territory, the territories are not compressed when the birds are thickly distributed. Instead, they remain about the same size, but are shared, apparently without any friction, between two or three pairs."

The author concludes: "It is clear that in the Dartford Warbler, territory does not limit the population density and does not restrict the feeding area. Perhaps, therefore, the species should not be termed territorial."

These two papers show the great complexity of the problem of territory—the Corn Bunting with its intermediate type that does not seem to have been described before, and the Dartford Warblers that are so friendly together. The study of territory is plainly a limitless field.

BIRD BEHAVIOR

"Rambles through the Worlds of Animals and Men."[26]—An exceedingly interesting introduction to animal psychology in simple language with a wealth of illustrations. We discover how the world looks to a fly, a periwinkle, and a paramecium, and we learn of territory defense in sticklebacks and moles, dogs and bears. The hen's reactions to the sight and sound of her chicks are analyzed, and the problem of the "known path" is discussed—both the route learned through experience and the inborn one of many migratory birds. In order to understand bird behavior one must know something of the psychology of other animals, and this little book offers us some fundamentals.

"The Social Order in Flocks of the Common Chicken and the Pigeon."—R. H. Masure and W. C. Allee. 1934. *The Auk*, li, 306–337.

[26] Streifzüge durch die Umwelten von Tieren und Menschen. J. v. Uexküll und. G. Kriszat. 1934. Berlin, Springer. 102 p. RM 4.80.

This careful, detailed study supports the work of Schjelderup-Ebbe in most respects with the Chickens, but a much less definite organization was found with Pigeons, where the social order "was based on peck-dominance worked out after many contacts rather than upon an initial combat with one member of any given contact-pair regularly dominant thereafter. The latter relationship is characteristic for Chickens."

COÖPERATIVE ORNITHOLOGY

Two fine starts in this direction have been made, one in eastern North America and the other on the West Coast. A new journal, the *Eastern Bird Banding Quarterly*,[27] has been started as a medium of exchange of experiences between the 422 banders in the Eastern Bird-Banding Association The importance of stimulating interest in banding in the South is stressed; information is asked in regard to recoveries of Ospreys, and the habits of Turkey Vultures, while the first definite project planned is a study of the White-throated Sparrow.

Inder the caption "Help Wanted, Ornithological" the able editor of *News from the Bird-Banders* (1934, 27–30) states, "The scientific results of bird-banding, and the interest of all ornithologists in this work, would be greatly enhanced were there more coöperation both between banders, and between banders and other people who work with birds." He then mentions fourteen persons and the special problems on which they are working and on which they would like information from other students. Most of the questions asked are both specific and suggestive.

The Vogelwarte of Rossitten and Heligoland (July *Vogelzug*) are asking coöperators to turn their attention to the number of broods raised by Starlings; in eastern and northern Europe this species raises but one brood, in the west and south two. How do the birds in intermediate regions behave?

REFERENCES AND ABSTRACTS

Ornithologische Monatsberichte[28] is publishing a useful list of current articles on birds in non-ornithological journals, omitting Parasitology, Pathology, Migration, and Breeding-Biology, but including among more technical subjects the topics of Heredity, Physiology, Food, Psychology, and Ecology. This is to be a regular feature appearing three times a year.

In the *Journal of Animal Ecology* the British literature on the subject is abstracted, and a duplicate set of these notices supplied, conveniently arranged for pasting on to five-inch index cards. These can be obtained separately for 3s.6d a year for about two hundred notices.

[27] Editor, W. Batezel, 139 E. Wayne Terrace, Collingswood, N. J.

[28] Editor, E. Stresemann, Berlin N. 4, Invalidenstr. 43.