

## 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.

### MIGRATION EXPERIMENTS

**"The Influence of External Factors on the Daily Rhythm during the Migratory Phase."**<sup>1</sup> The migration restlessness of a number of birds caught at Heligoland was tested in recording cages in relation to hunger, temperature, and light. It was found that sparingly fed birds were much more restless at night than those that had been well fed; that low temperature stimulated the restlessness in the fall and high temperature inhibited it; and that both bright light and absolute darkness induced quiet. The most favorable light for migratory activity for the Redbreast (*Erithacus rubecula*) was one-twelfth "meter candle".

**"The Physiology of the Migratory Instinct. III. Experiments with Artificially Lengthened Daylight."**<sup>2</sup> Four young Redbreasts captured on Heligoland were given additional light from January 18th to May 12th, while four others were kept as controls. Some migration restlessness was shown in February by the irradiated birds, but almost none by the controls; by March 8th the experimentals came fully into the migratory phase, followed in a few days by the controls. The experimentals stopped in late April, but the controls continued. Both sets of birds started singing February 8th, but the lighted birds stopped in late April, at which time two of them started to molt, one control following suit May 8th. On May 12th the controls had large gonads, but those of the experimentals were in the resting stage. All the birds were kept in rooms only slightly heated.

Four adult male Redstarts (*Phoenicurus phoenicurus*) caught September 10th were given increasing amounts of light from September 19th to December 12th; this treatment had *no effect on the gonads* nor on the migration restlessness. But a male that entered the experiment on November 12th showed some increase of gonads and decrease of restlessness. Six male Redstarts given extra light from April 5th to July 2d came into molt on June 13th, while the controls did not do so until August 4th.

**"On the Relationship of the Course of Migration to the Endocrine Glands."**<sup>3</sup> Lesser Black-backed and Black-headed Gulls (*Larus fuscus* and *ridibundus*) that were castrated at Rossitten were later recovered on the normal fall migration route. Seventeen Redbreasts were captured in the fall migration; some of these were lighted for several hours each evening from November 24th on, but their gonads a month later were no different from those of the controls. On March 7th, however, an experimental bird had a testis 423.5 cu. mm. in size, while those of controls were 7.78 and 10.4 cu. mm. The lighted birds started migration restlessness and calls March 23d, the controls not until April 17th, while the first migrant of the season was noted March 26th. The testes of a migrant on April 3d measured 19 cu. mm. and of another on April 17th 148 cu. mm. Rooms entirely unheated.

Hooded Crows (*Corvus cornix*) and Gulls (*L. fuscus* and *canus*) were also subjected to light; on February 1st adults showed enlarged gonads, but young Gulls were unaffected. The relationship of the thyroid gland to migration is discussed, and the conclusion is drawn that it is impossible to judge from sections of the thyroid and gonads as to the migratory stage of an individual bird.

**"Effects of Traffic Disturbance and Night Illumination on London Starlings."**—William Rowan. 1937. *Nature*, 139:568. The author's experiments on the effects of lengthened periods of exercise in dim light on gonads of *Junco hyemalis* outside of the breeding season have been repeated and the former results confirmed. From January 4th to February 28th some of the birds were kept awake for seven and one half minutes longer each night, while the controls slept in an adjoining cage. Testes of the former were considerably enlarged, while those of the controls remained at the winter minimum. Starlings that roosted in London over main traffic routes were kept awake for hours each night by "the din and tumult below them." A dozen birds collected here February 10th showed enlarged testes, in contrast to small testes of country birds taken at the same time. The light at the London roost was too dim to be registered at all by a Weston lightometer.

With Dr. Rowan's introductory sentence the reviewer must disagree on several points. He says, "That the breeding period of birds with a relatively brief annual reproductive season could be shifted to any time of the year by manipulating lighting conditions, regardless of temperatures, was first shown in 1924."

So far as the reviewer is aware, very few birds have been induced to breed through the manipulation of lighting. This was true of Cole's Mourning Dove. (*Auk*, 1933, p. 284), but at a temperature of 70° F. Turkeys mated and laid in January instead of March in response to night-lighting (temperature not mentioned), but no effects were obtained with Guinea-fowl (*Quart. Rev. Biology*, 1936, p. 378). Pheasants, however, did lay in January in outdoor cages in Connecticut "in spite of very severe weather," but an irradiated Quail delayed laying until March 22 (*Science*, 1936, p. 392). Rowan himself says of the Juncos in his early experiments in Alberta, where the birds were exposed to extremely low temperatures: "While these birds attained the breeding condition, they made no attempt to breed. Canaries, subjected simultaneously to the same treatment, did not breed either, though they will do so if transferred to the high temperatures of the house."<sup>4</sup>

As to "any time of the year" both German experimenters cited above (Nos. 2 and 3) obtained no effect from lighting during the fall.

The start of breeding depends on many factors, differing with different species and different localities; with many birds favorable temperature here is an essential element as well as with migration. Rowan's latest experiments throw open again the question of light versus exercise, and challenge investigators to further experiments where the various factors are carefully controlled.

**Does Feeding Change Wild Birds into Permanent Residents?**<sup>5</sup>—Contrary to the ideas of A. Schifferli,<sup>6</sup> who considers migratory habits too deeply ingrained to be lightly changed, but in agreement with W. Haller<sup>7</sup>, U. Bährmann believes that winter feeding is making residents out of normally migratory Titmice. He tells of his experiences in attracting birds with an ample year-round food-supply to the outskirts of a factory town in Switzerland, and of how they remained with him throughout the year—Titmice, a Great Spotted Woodpecker, and Magpies.

<sup>1</sup> Wagner, H. O. 1937. Der Einfluss von Aussenfaktoren auf den Tagesrhythmus während der Zugphase. *Vogelzug*, 8:47-54.

<sup>2</sup> Schildmacher, H. 1937. Zur Physiologie des Zugtriebes. III. Versuche mit künstlich verlängertem Tagesdauer. *Vogelzug*, 8:107-114.

<sup>3</sup> Putzig, P. 1937. Von der Beziehung des Zugablaufs zum Inkretdrüsensystem. *Vogelzug*, 8:116-130.

<sup>4</sup> *Kongressbericht*, Band I, VI. Weltgefögelkongress 1936. p. 151.

<sup>5</sup> Begünstigt die Fütterung Freilebender Vögel die Standorttreue? 1937. *Der Ornithologische Beobachter*, 34:73-76.

<sup>6</sup> *Der Ornithologische Beobachter*. 1935, 32:62.

<sup>7</sup> *Der Ornithologische Beobachter*. 1934. 31:199.

#### WEIGHT

**"A Preliminary List of Bird Weights."** Paul A. Stewart. 1937, *Auk*, 54: 324-332. A summary and discussion of 1807 weighings of 1353 individuals of 66 species captured in northern Ohio. Daily weight-rhythm is mentioned, but the author does not seem to be informed on recent studies which emphasize seasonal rhythm. The season of capture should be included in lists of weights of birds.

The author is in error when he states, "It is well known that young altricial birds acquire a weight in excess of their parents (Edson, 1930)". As a matter of fact Edson (*Condor*, 32:137-141) found this true only in the case of the Violet-green Swallow, and Swallows happen to be rather exceptional in this regard among passerine birds.

**"Weights of Spotted Towhees."**—J. M. Linsdale and E. L. Sumner, Sr. 1937. *Condor*, 39:162-163. One hundred and sixteen weights of males of *Pipilo maculatus falcifer* (a resident at Berkeley, California) are given from October to May; monthly averages range between 38.07 and 41.66 grams with little seasonal change.

**"Some Measurements and Observations from Bronzed Grackles."**—L. L. Snyder. 1937. *Canadian Field-Naturalist*, 51:37-39. Excellent use was made at the Royal Ontario Museum of Zoölogy of 204 specimens of *Quiscalus quiscula xeneus* captured by Jack Miner at Kingsville, Ontario, March 26, 1930; weights, measurements, plumage-characters and beak-abnormalities were studied. Weights of the 99 males ranged from 105 to 140 grams, averaging 131.4; of the 205 females from 95 to 104 grams, averaging 100.8 grams.

#### LIFE-HISTORY

**"The Red-throated Diver in North East Land."**—David B. Keith. *British Birds*, 31: 66-81. Detailed observations of the breeding behavior of *Colymbus stellatus* (*Gavia stellata*) in the Spitzbergen archipelago. Although 1936 was a "non-breeding year" in the region, "when large numbers of Ducks and Geese failed to nest", these Loons bred freely. Most of the first eggs were taken by Arctic Skuas (Parasitic Jaegers, *Stercorarius parasiticus*), but after two or three weeks the birds re-nested and defended their eggs fearlessly.

**"On the Life History of the Fulmar (*Fulmarus glacialis* L.)."**<sup>8</sup>—This species has greatly increased during the last fifty years and has spread to many new nesting localities. R. Richter, the author, watched a colony in Scotland that is twelve years old; of the two hundred birds only one fifth to one-third of the pairs bred in any one year. When a new colony is to be started, birds come and go for several years without breeding. The birds are peaceable, but there is no trespassing on one another's small territories. The single egg is laid on the bare rock in late May and incubated for 57 days. By means of marking one bird of each of four pairs with black enamel, it was found that each parent usually incubated for four days at a stretch, although with one pair one bird incubated for one to two days only. The incubating bird was not fed by its mate, the latter staying away entirely until the day when the change is to be made. The young bird is probably fed only once each day. The fledging period lasts about 57 days. During the last week or two the young bird is probably not fed, although it is still visited by its parents.

**"With Sea Birds in the Scillies."** John Walpole Bond. 1937. *The Oöloist's Record*, 17:16-20 and 25-29. Descriptions of nests, with some casual

reference to behavior, of *Larus fuscus graellsi*, *Hæmatopus o. occidentalis*, *Alca torda*, *Fratercula arctica grabæ*, *Puffinus p. puffinus*, *Hydrobates pelagicus*, and *Anthus spinoletta petrosus*. Many burrow nests were excavated, and the general picture of a famous sea-bird colony is good.—T. T. McC.

**"Crow-Waterfowl Relationships."**—E. R. Kalmbach. 1937. U. S. Dept. Agriculture Circ. 433:1-35. Of 512 duck nests in the Prairie Provinces of Canada 250 (49 per cent) produced young. "Crows were definitely chargeable with the destruction of 156 nests (31 per cent), though some of these may have been deserted by the female before the eggs were eaten." "On the area studied the crow was probably at its worst." In such areas "rational crow control" with "solicitude for the privacy of every nesting duck" is recommended. "Waterfowl have been the victims of the combined effects of over-shooting, drought, disease, predators and destruction of habitat, but the crow in Canada has suffered little from any of these and has even profited to the extent that agriculture has displaced the bush with open fields, grain crops, and plowed land. In recent years crows that nest in the Prairie Provinces have found also on their winter range in Kansas and Oklahoma an increased and copious food supply in the milo, kafir, and other sorghum crops. These circumstances favor the abundance of the crow at the expense of the waterfowl."

**"The Nesting of Bald Eagles in Southeastern Florida."** Joseph C. Howell. 1937. *Auk*, 54:296-299. This paper is chiefly concerned with measuring decrease in numbers of *Haliaeetus l. leucocephalus*, but has some material on behavior, notably on the building of nests, of which one pair may build and use as many as five in eight years, even though the first remain in good repair. The Florida eagles present an instance of northern hemisphere winter breeding. The earliest eggs were recorded in late October, the latest in early March, with seventy-five per cent of the total in December.—T. T. McC.

**"The Evaluation of Nesting Losses and Juvenile Mortality of the Ring-necked Pheasant."**—P. L. Errington and F. N. Hamerstrom, Jr. 1937. *Jour. Wildlife Management*, 1:3-20. A reworking of the data on 503 nests of *Phasianus colchicus torquatus* found in Iowa from 1933 to 1935 by Hamerstrom (see *Bird-Banding*, January, 1937, p. 37, for review). Loss of an incomplete clutch "may mean little or no delay in the starting of another clutch," but if a clutch is lost when well advanced in incubation, "the succeeding clutch will probably not be begun for some time." (This was not true with my Song Sparrows, where new sets, no matter what the stage of the eggs or nestlings, will be started 5 days after the disaster.) Mortality of the hens in the nesting season comes chiefly through mowing machines. A few birds will incubate "unhatchable eggs for most of the summer." Although 59 per cent of 234 clutches failed to hatch, it is calculated that "from 70 per cent to 80 per cent of the hens finally succeed in bringing off broods." Regardless of season of hatching, the average number of young per brood showed a surprisingly regular decline from 8.7 young at hatching to 5.92 at four to five weeks and 4.92 at eight weeks or older. The severe winter of 1935-36 caused heavy losses among the Pheasants; broods in 1936 appeared to be consistently larger than before, in a dozen cases averaging nine young at the age of four weeks.

**"Least Tern Studies—1935 and 1936."**—J. A. Hagar. 1937. *Massachusetts Audubon Bull.* 21 (May) : 5-8. A colony of two hundred pairs of *Sterna antillarum* were studied on Plymouth Beach, each nest being marked and visited every day. Eggs were laid at intervals of two days; incubation lasted 19 to 24 days, usually 20 to 23 days; young flew when 17 to 19 days old. Adults losing their nests re-nested in about three weeks. The two hundred pairs had 428 nests; 308 (72 per cent) were lost before hatching. Of 820 eggs only 212 hatched (26 per cent); of 212 chicks "only about 75 reached flying age or 9 per cent of the total eggs

laid." The birds insisted on nesting "only on the barest and flattest part of the beach, just above ordinary highwater mark, so that any unusual storm tide washes away the eggs." There was 19.4 per cent loss from this cause. Rats ate 66.5 per cent of the eggs, and nearly 50 per cent of the young. When eggs are washed by a high tide, the bird makes a considerable effort to salvage them; it hovers close by, resumes sitting, and makes a nest around one egg and collects the other. If more than fifteen to eighteen inches away, the parent abandons them, but some other bird may add them to her nest, or, if she has lost her own eggs, adopt them. In nests on moving dunes, the parents were constantly digging out the eggs; one such nest was moved forty feet from its original position.

**"Notes on the Breeding of the Ground Dove in Florida".**—D. J. Nicholson. 1937. *Wilson Bull.*; 49: 101-115. The most interesting item in this paper is the evidence that the birds did not follow the typical routine of most Doves, where the female stays on the nest from late afternoon till some time in the morning, when the male takes her place for six to eight hours at a stretch. With *Columbigallina p. passerina* the parents took turns during the day in sessions of perhaps one and one-half to two hours. The young were fed pigeon milk many times a day. Soon after the young hatched, the parents repaired the nest, which was sagging from a heavy rain, the male bringing materials and stepping on his mate's back to give them to her. A summary at the end of the paper would have been helpful.

**"Life History of the Greater Spotted Woodpecker."**<sup>9</sup>—A continuation of Dr. O. Steinfatt's thorough and detailed study of *Dryobates major*, the first part of which was reviewed in *Bird-Banding* for July, 1937, p. 131. Hole-nesting birds do not need to brood small young as much as do birds building open nests. A nest with 5 young was watched from the distance of one meter for eighty hours on eight days during the later half of nest life. An all-day session (from 2 A.M. to 8 P.M.) when the young were 11 and 12 days old gave 139 feedings and another eight days later, 136, in both cases by the male alone. Excreta were removed 83 times on the first day, 28 on the latter day, and twice in thirteen and one-half hours on the following day. The average number of feedings per hour ranged from 6 to 15, with no increase in frequency with the age of the nestlings. Since an average of four insects was brought at a time, these birds must be exceedingly beneficial to the forests. The young left when 21 to 23 days old, and were fed by their father for 8 days longer. The male spent every night in the hole with the young; his rising time depended on the clearness of the sky; on a clear morning June 19th he left at 2.36, but on a stormy morning, June 10th at 4.45. As to the part played by the female, at one nest she was noted feeding nearly grown young, but at three others the male was taking sole charge. N. Tracy (*British Birds*, Oct. 1933, p. 171) found both parents feeding equally, and one of the young was fed by its father for three weeks after leaving the nest. The only detailed study of an American Woodpecker that has been published is that of Miss A. R. Sherman on *Colaptes auratus* (At the Sign of the Northern Flicker, *Wilson Bull.*, 22:135-171, 1910).

An interesting table on incubation and fledging periods of hole-nesting birds shows that the total period for Titmice, Pied Flycatcher, and Spotted Woodpecker is about the same—some 38 days—although the incubation period is 13-15 days with the two former birds and only 12 with the Woodpecker.

**Martin Family Remaining Together.**<sup>10</sup>—Four young of a pair of *Delichon urbica* in Switzerland were banded June 26th; the young of the second brood were not banded, but on September 4th the three young of the third brood were banded. On September 13th no less than thirteen Martins were found spending the night in the roomy nest—the two parents, the four young of the first brood, four unbanded young, and the three youngest, which were not yet fledged.

**"Grand Manan's Acadian Chickadees."**—Eleanor R. Pettingill. 1937. *Bird-Lore*, 39:277-282. Seven young of *Penthestes hudsonicus littoralis* about

ten days old were fed 362 times in one day, from 4.46 A.M. to 7.40 P.M. One parent feigned injury when a red squirrel approached the nest.

**"Life-history of the Boat-tailed Grackle in Louisiana."**—E. A. McIlhenny 1937. *Auk*, 54: 274-295. The life-history of *Cassidix mexicanus major* is built on a most unfamiliar pattern, like something read of in Asia or Africa rather than seen in the United States. Rarely in the mating of passerine birds is the factor of choice so freely operative. Promiscuity rather than polygamy seems to be the rule. The males of breeding age (which is two years) with elaborate displays of plumage and behavior, are simply on show like so many toys in a window, at a distance from the nest colony, whence the females, definitely and for each mating, come to select from them, isolating their choice in the course of a sexual flight or pursuit. More strangely still, while no males take the slightest interest in any individual nest, eggs, or young, certain of them (one for the small colonies, several for the larger) take up commanding positions and become the nuclei around which the rookeries are formed. They show great solicitude for the welfare of the nests as a group, but mate with none of the females of the rookery. What is shadowed forth is what McIlhenny calls the position of "master-protector," though it is not clear wherein lie either the mastership or the protection, especially since these males often kill and eat the young.

As might be expected under the circumstances, the sex-ratio is strongly in favor of the females. The author tied history cards to a large number of nests. In some eighty-nine of the broods which reached sexable age the ratio was over two females to one male. Large trap records indicate a similar ratio, and in the fall, when the sexes flock separately, the female flocks are much larger.—T. T. McC.

**"Behavior of the Pine Siskin."**—T. L. Rodgers. 1937. *Condor*, 39:143-149. Flocks of *Spinus p. pinus* in California used "location notes" only when foraging in dense foliage, but were silent in open situations. A nest was so badly tilted by the wind that three young were lost out, yet the parents "made no effort to strengthen or repair it." The female brooded constantly; the male regurgitated food to her, which she then fed to the young. Excreta were eaten for the first eight days and after that none were removed. Definite dates as to length of incubation and fledging are not given.

**Life History of the Chaffinch.**<sup>11</sup>—In Brittany banding has shown that male *Fringilla caelebs* that have nested are permanent residents, whereas young males migrate, reappearing in early February. Resident birds molt much earlier in the spring than do the transients. The female builds and incubates, the male helps feed. Nests weighed from 11 to 17 grams, averaging 15.4 grams.

**"Leconte's Sparrow Breeding in Michigan and South Dakota."**—Lawrence H. Walkinshaw. 1937. *Auk*, 54:309-320.—A large part of this paper on *Passerherbulus caudacutus* is devoted to history, distribution, eggs, and weight changes, but certain nesting habitats in rush-grown marshes, unlike the sites in fine grass or sedge described in earlier records, are carefully analyzed, and the characteristic nesting behavior as seen from a blind in Chippewa County, Michigan (we are not told for how long or how regularly) is described. The incubation period is "at least thirteen days." The general pattern is one in which it is the male's job to sing, which he does some two or three hundred feet from the nest, with no other share in the incubation, brooding, or feeding. It is interesting that in such a case the song itself should be famous for its insect-like insignificance. It is carefully recorded. There is a bibliography of forty-one titles.—T. T. McC.

**"Food and Feeding Habits of the Tree Sparrow."**—A. Marguerite Baumgartner. 1937. *Wilson Bull.*, 49: 65-80. The male *Spizella arborea* at first feeds the young almost as much as the female, later nearly twice as much. "While the amount of feeding per hour advances conspicuously after the first few

days, it maintains thereafter a more or less constant rate of about sixteen feedings per hour." Although at Fort Churchill in summer there is almost full daylight from 2 A.M. to 10 P.M., these birds do not begin feeding until 3.15 and cease shortly before 9.00, making a working day of seventeen and three quarter hours. A male, collected while feeding young, was found to have 41 adult insects and 4 larvae in his bill.

**"The Hatchability of Chicken Eggs as Influenced by Environment and Heredity."**—W. Landauer. 1937. Storrs Agri. Exp. Station Bull. 216:1-84. Detailed study of the subject, but without a summary. The most interesting points that are applicable to wild birds are those in relation to temperature. Resistance of eggs to cooling is greater during the first week of incubation than in the last two weeks. "Periods of severe cold led to a decline of hatchability," the maximum loss occurring in "eggs laid a short time after the minimum temperature had been reached." "Infertility, due to depressed mating habits" is excluded, since only *fertile* eggs were counted.

**"Flight Speed of Birds."**—May T. Cooke. 1937. U. S. Dept. Agr. Circ. 428. 13 pp. A good summary of the literature on the subject with a bibliography of 86 titles.

<sup>8</sup> Einiges über die Lebensweise des Eissturmvogels (*Fulmarus glacialis* L.). 1937. *Journal für Ornithologie*, 85:187-200.

<sup>9</sup> Aus dem Leben des Grossbuntspechtes. 1937. *Beiträge zur Fortpflanzungsbiologie der Vögel*, 13:144-147.

<sup>10</sup> W. Haller and J. Huber. Ueber das Nächtigen der Mehlschwalben. *Ornithologische Monatsberichte*, 45:81-82.

<sup>11</sup> E. Lebeurier and J. Rapine. Ornithologie de la Basse-Bretagne. *Fringilla caelebs caelebs* L. 1758. Le Pinson des Arbres. *L'oiseau et Revue Française d'Ornithologie*, 7:294-310.

#### BIRD BEHAVIOR

**"The Companion in the Bird's World."**—Konrad Z. Lorenz. 1937. *Auk* 54:245-273.—The ornithological Good Deed of the decade was performed by Francis H. Herrick (who writes the introductory note) by persuading Lorenz to boil down his *Kumpan* concept into a relatively brief essay in English. The original was reviewed in *Bird-Banding*, 6:113-114, April, 1935.—T. T. McC.

**"On the 'Honey-Guiding' of Indicator."**<sup>12</sup>—The Honey-guide (*Indicator indicator*) leads men to honey with its fierce bees, and also to animals of prey or great snakes. Many birds are "snake-guides," and many *lead away* from the nest by "injury-feigning" or other methods of making themselves conspicuous. W. Hoesck believes that the Honey-guide was originally a "bee-guide," and secondarily became a "honey-guide."

**"The Function of the Goldcrest's Crown."**—David Lack. 1937. *British Birds*, 31:82-83. Description of the display of the Kinglet's (*Regulus regulus anglorum*) crown in a territorial quarrel. The author discusses the function of bright colors as warning devices in *some* cases, giving seven references.

**"Activity of the Screech Owl."**—Harry C. Allard. 1937. *Auk*, 54:300-308. The reviewer believes in the insistence, by ornithological editors, upon the results of scientific research raised to a form capable of interesting intelligent readers, as opposed to the raw material which suffices for academic publications. But this should not mean that anything so important should, in the interest of easy reading, be shorn of its evidence. The duration of the investigation, only from late March to late May of a single year, is very short, and one would wish to judge of the validity of the figures. In general, a very close relationship was found between sunrise and return to the nest (box), a less close one between sunset and departure—just as the author, with diurnal birds, has found far closer correlation of movement with sunrise. Variations correlate with cloudiness or

incidental modifications of the light curve. During incubation and care of young, the male *Otus asio* makes a consistently longer night of it, leaving earlier and returning later. "The data and curves which have been constructed show with no shadow of doubt that the time of arrival at the box at dawn and the departure around sunset follow with nicety the sun's curve of rising and setting." "The temperature curve shows little or no relation. . . ." Allard suggests as a reason for the greater precision at dawn of diurnal birds the condition of the eye, rested, relaxed, non-adjusted, and highly sensitive to values of light-intensity, and evidently believes that even the owls may retain less fine sensitivity at the day's end. The results parallel those of S. E. Ashmore in England (*British Birds*, 28:259-260, 1935) on the singing times of a nocturnal goatsucker.

Scientific natural history consists largely in the demonstration of the obvious (provided it does not turn out the very soul of error). It is not surprising that birds should "get up" with the light of dawn, but proof of the degree of correlative precision, and its modification by local conditions, is a concrete and essential step in the study of light and the annual cycle, just now a prevalent, probably over-prevalent, doctrine.—T. T. McC.

**"Some Activities of Resident Blackbirds in Winter."**—Averil Morley. 1937. *British Birds*, 31: 34-41. A very interesting paper showing how little we know of our commonest birds. Communal gatherings of *Turdus merula* take place from early winter to spring in a no-man's land between territories, six or eight birds indulging there in pursuits on the ground. The rôles of pursuer and pursued are frequently reversed, showing that social dominance is not rigidly fixed. The resident female drove off females and males, all except her own mate. Females came and tried to attract attention of males. The duty of getting rid of superfluous females lies on the female in possession; if they remain they may later interfere between her and her mate. Some males "appear too weak to ensure the sanctity of their homes, and their unfortunate mates are harried by interloping males when in the very act of building the nest. I have known only two cases of this but in both the female showed anger and intense dislike of the intruding male, though in one case he was physically a far more splendid bird than her puny, almost female-coloured mate."

**"Behavior of Black Skimmers at Cardwell Island, Virginia."**—Olin Sewall Pettingill, Jr. 1937. *Auk*, 54: 237-244. These excellent, if somewhat random, observations of the latter part of the breeding season of *Rhynchops n. nigra* substantiate the fishing-flight and actual fish-catching with the lower mandible shearing the water, but detect no advantage in the process, as an additional stroke is needed in any case to catch the fish. From the instances noticed during brief observation, there must be common, perhaps general, mixing of broods, for the downies wander early and far, often to find shade, and adults readily accept strange young. Good details are the freeing of eggs from drifted sand by the parents, and the freeing of themselves by the young, a variety of injury-feignings, and a stick-passing ceremony leading to immediate copulation.—T. T. McC.

**"Biology of the Rosella Parrot, *Platycercus eximius*."**<sup>13</sup>—Daily feeding tests of three kinds of Parrots gave the following results: a Rosella weighing 83 grams ate 10 grams, a *Forpus viridus* of 23 grams ate 7.5 grams and *Melopsittacus undulatus* weighing 35-45 grams ate 11 grams. Rosella mates do not sit beside each other and preen each other; a young bird raised alone from the age of three weeks had his reactions transferred to people, but showed no friendliness except that he tried to feed his master. If the food was not immediately accepted the parrot became furious and attacked the man.

**"The Flocking of Birds, with Particular Reference to the Association of Small Insectivorous Birds."**—K. A. Hindwood. 1937. *Emu*, 4:254-261. This rapid discussion of the theory of the mixed flock is worth reading, as a review



of the subject or for the account of the organization of a small mixed insectivorous flock studied near Sydney, in which the five species had a definite order of procedure from tree to tree (which of course means that one species provided the stimulus to movement), and in which it appeared that, in spite of the noise and superficial confusion, the individuals "were under some form of mass suggestion." The feeding habits of the species showed no overlap, but there probably was disturbance of insects and hence help of each species by the rest. As the author quotes John Burroughs: "Together they made a pretty thorough search,—fine, finer, finest." Possible factors of security and companionship are dwelt upon.—T. T. McC.

**"The so-called Injury-feigning in Birds", II and III.**—The Reverend F. C. R. Jourdain. 1936 and 1937. *The Oölogist's Record*, 16: 62-70 and 17: 14-16. These are the second and third parts of a paper not at first intended to be continued, of which the original part, (*Oölogist's Record* 16:25-37) was reviewed in *Bird-banding* 7:181. The present parts are largely filled with records of kindred phenomena in new species, published or sent to the author in the wake of the interest stimulated by the first publication. At first content to criticize adversely conceptions of conscious "feigning" or of "paralysis" or "incapacitation" by fear, the author in the second part is more constructive. He divides behavior on disturbance from the nest into three phases: (1) When the only course is flight, silent or otherwise; (2) when there is a chance to lead away the intruder by slow movement, just out of reach (all injury-feignings belong here, but apparent feigning is probably the result of limited range of gesture and action); (3) when an attackable enemy threatens harm to the nest—the case of the curlew flying in the face of the sheep. In all these cases the element of fear for itself is believed both absent from the bird's mind and unnecessary.—T. T. McC.

<sup>12</sup> Ueber das "Honiganzeigen" von Indicator. 1937. *Journal für Ornithologie*, 85:201-205.

<sup>13</sup> Hampe, H. 1937. Zur Biologie des Rosellasittichs, *Platyercus erimius*. *Journal für Ornithologie*, 85:175-186.

#### ECOLOGY AND POPULATION PROBLEMS

**"A Review of Bird Census Work and Bird Population Problems."**—David Lack. 1937. *Ibis*, 14th Ser. 1:369-395. Excellent review with 165 titles. A valuable table of breeding-bird populations in different habitats from Lapland, Finland, England, Germany, Africa, and the United States shows extraordinary variations in the numbers of birds. The author discusses methods, food, predators, fecundity, mortality, territory, etc. He states, "In many countries today the normal effects of predators can no longer be determined as their numbers have been so heavily reduced." He recommends the use of the number of adults to one hundred acres as the unit for censuses in England and America. He concludes: "The study of bird ecology must be regarded as in its infancy, and this survey chiefly indicates the gaps in our knowledge."

**"Food Habits of Marsh Hawks in the Glaciated Prairie Region of North-central United States."**—P. L. Errington and W. J. Breckenridge. 1936. *Am. Midland Naturalist*, 7:831-848. An excellent detailed study. The authors conclude that "the accumulating data from other researches show a trend of thought away from the idea that predation has a dominant influence on animal numbers collectively," and that there is evidence "that a great deal of predation may not be so much in proportion to population as to *over-population*."

**"The Heathland Birds of South Haven Peninsula, Studland Heath, Dorset."**—David Lack and L. S. V. Venables. 1937. *The Journal of Animal Ecology*, 6:62-72. This is a preliminary publication of the British Trust for Ornithology, leading toward an intensive survey of the ecology of the plants and animals of this small peninsula of heath and moorland. Densities of populations of Meadow Pipets (*Anthus pratensis*), Skylarks (*Alauda a. arvensis*), Stone-

chats (*Saxicola torquata hibernans*), and Wrens (*Troglodytes t. troglodytes*), are measured and correlated with plant communities and geological factors. For example, among the positive correlations is the following: dunes, commonly, are populated by Skylarks; these dunes have none. These dunes are also unique in low calcium carbonate content and consequent lack of certain low-turf associations, favorable to Skylarks.

Too much cannot be said to encourage any technique for *describing country* and correlating its character with avian distribution or density. The only languages capable of this, it would seem, are those of geology and botany.—T. T. McC.

**"Bird Distribution on Surrey Greensand Heaths: the Avifaunal-botanical Correlations."**—L. S. Venables. 1937. *The Journal of Animal Ecology*, 6:73-85. "The most important factor influencing bird-distribution, and indeed the actual species make-up of the breeding community, is the particular phase which any piece of heath has reached in the botanical succession following, usually, a fire." After a detailed analysis of this dynamic succession in its relation to birds a variety of lesser factors are discussed, of which the most interesting are "ecoclimates," those still generally ignored, minutely local variations in temperature or other factors which may be all-important in determining, for instance, a nest site, and song-posts, of which the specifically inherent character is considered a principal determinant of the territories of most of the group of birds in question. The ground thus cleared, an attempt is made to tabulate territory requirements under two headings, first the phase in the dynamic succession, second the "limitations and common factors" shown by the species within the phase. These papers propose the most consistent and purposeful approach to the problem of local distribution which has been published.—T. T. McC.

**"The Immigration of Waxwings in Spring 1937."**—Evelyn V. Baxter and Leonora Jeffrey Rintoul. 1937. *The Scottish Naturalist*, 226:93-101. This event was so spectacular and so carefully recorded that, speaking for "foreign" readers, it is a pity not to have analyzed and plotted it on a map instead of in crackling lists of glorious Scottish place-names it would take a day to look up. Late last winter *Bombycilla garrulus*, working north on the continent toward its breeding grounds, encountered phenomenal snow and lack of food as its vanguard approached Scandinavia, along with heavy cyclonic storms creating east winds over and to the east of Scotland, which probably helped deflect the flight to westward. Such invasions of Scotland (the last great one occurred in 1921) have usually come in the late fall and early winter; this began in early February and ended in early April. There is much information on food, and emphasis on the birds' extreme tameness, which appears to exceed that of the Canadian population, as known to the reviewer, under normal conditions. It is disturbing that while both sporadic invaders from the north, crossbills and waxwings, are endowed with superstitious attributes, the crossbill is auspicious, while waxwings are birds of evil omen, presaging bad weather, war, pestilence, or sudden death.—"the devil's own bird!"—T. T. McC.

**"Ruffed Grouse Management."**—Ralph T. King. 1937. *Jour. of Forestry*, 35: 523-532. Of this valuable paper with its sane suggestions for improvement of cover and other conditions for *Bonasa umbellus*, there is space to mention only a few points. The highest breeding density on good range is one bird to four acres. There is 75 per cent mortality of the young from hatching to fall; winter mortality of the birds comes to about 20 per cent. "The allowable shootable population is the excess over the maximum breeding population plus 20 per cent."

"No species can be rightly included on the game list unless we know enough about that species to enable us to produce surplus populations and until we can demonstrate that such surplus populations actually exist. It is understood that shooting should always be limited to these surpluses."

What appeal can there be from the logic of this statement? Here is the criterion to use in disputed questions as to the shooting of other species, for example Ducks.

**Effect of Drought in Tunis.**<sup>14</sup>—The very severe drought in 1936 was disastrous both to men and wild life. *Perdrix gambra* failed to breed, while three species of larks—*Rhamphocoris coltbey*, *Alæmon alaudipes*, and *Galerida cristata*—laid only two to three eggs instead of the usual five or six. An interesting account is given of collective fishing by hundreds of Cormorants on a bleak day. Wintering Starlings do so much damage to the olive crop that the government destroys them with dynamite, and men collect them from their roosts in the marshes and sell them for food; yet such measures make little impression on their numbers. Some of these had been banded in Poland, Germany, Bulgaria, Austria, and Italy. Cold weather in late April killed migrating Swallows and Martins.

<sup>14</sup> De Guirtchitch, G. 1937. Chronique Ornithologique Tunisienne pour l'Année 1936. *L'Oiseau et la Revue Franc. d'Ornithologie*, 7:450-472.

### BOOKS

**Bird Behaviour. A Contribution Based Chiefly on a Study of the Black-headed Gull.**—F. B. Kirkman. 1937. London. Nelson. 232 p. 7sh. 6d. In this fascinating book based on studies on *Larus ridibundus* from 1905 to 1935, the first eight chapters are devoted to a "plain tale" of nesting behavior, the next four to the "mentality of gulls", and the last four to their emotions. Several appendices, an index, and a bibliography on animal psychology citing one hundred eleven authors, with many titles under some names, complete the volume. The account of the careful scientific observations and experiments is illustrated with many photographs, and written in an entertaining style. That the Gull does not plan out its nesting-cycle is plain from the fact that it will incubate a ball or a box instead of its eggs. Some Gulls grow to be too old to breed, being "easily recognized by their dilapidated plumage and general air of feebleness."

Significant data are given on social life: the birds nest in groups of four to fifteen pairs, all the birds knowing each other personally, and although not any too amiable to members of the group, they are far more hostile to "outsiders". They defend one another's nests from depredations by strangers, and they never suck the eggs of their own group. This little flock within the mighty flock of thousands would seem to be a defense unit and the device by which the birds can function socially and not be overwhelmed by sheer numbers. This is an important book containing a vast amount of material on Gull psychology, but the author fails to weave the different parts of the pattern into a comprehensive whole.

**Handbook of German Birds. (Handbuch der Deutschen Vogelkunde.) Vol. I. Passeres.**—Günther Niethammer. 1937. Leipzig. Akademische Verlagsgesellschaft M. B. H. 474 p. 13.50 reichsmarks. This excellent guide gives in brief form description of plumages, molts, size, and weight; field marks; range; migration (much information from banding); habitat; breeding, treating all essential points including share of sexes in building, incubation, etc., length of incubation and fledging, etc.; food; parasites. The only improvement the reviewer can suggest is that references on life-history matters should have been given with sufficient fullness, so that they could be found; space for this could have been made by treating the parasites in abbreviated form, perhaps in an appendix. This volume will prove invaluable as a reference book, and will also serve to point out gaps in our present knowledge. It is a sad fact that such a book could not be satisfactorily written for either the East or the West of our country, because we still know too little of the most elementary facts about the life-history of our birds, even the most common species.

**Concord River.**—William Brewster. 1937. Cambridge. Harvard Univ. Press. 259p. \$3.50. This second volume of selections from the diaries of William Brewster is handsomely got up with attractive pictures by Frank Benson (although

the frontispice of Wood Ducks is disconcertingly purple), and is a much more usable book than the first volume, because of its extensive index, which sometimes serves in the place of explanatory notes.<sup>15</sup> Many happy experiences with birds and beasts are told, revealing this naturalist's powers of keen sight and accurate description and his mastery of distinguished prose.

<sup>15</sup> The later impressions of Brewster's *October Farm* are also equipped with an index—EDRROS.

**Crooked-Bill. The Life of a Quail.**—I. H. Johnston. 1937. Philadelphia. Dorrance. 179p. \$2.00. Written in Thornton Burgess vein with Peter Rabbit's place taken by the Bob-white "Crooked-Bill," this is a pleasant book for children, giving accurate information, and being well calculated to arouse the sympathies of young readers for wild birds.

**The Natural History of Magpies.**—Jean M. Linsdale. 1937. Pacific Coast Avifauna 25. 234p. \$3.50. The aim of this large monograph is "to give a résumé of all that is known about magpies", and with this in view Dr. Linsdale has searched the literature and offers an impressive array of quotations about the genus *Pica* from western North America, Europe, and Asia. The reviewer feels, however, that there is not enough of a nucleus of original observations to justify the labor and expense of such a compilation. Unfortunately one of the most illuminating contributions to the sociology of Magpies was missed—Konrad Lorenz's account of the behavior of his tame bird (Beiträge zur Ethologie sozialer Corviden. 1931. *Jour. f. Ornith.*, 79: 80-86); in which important observations are given on courtship, territory, and, of particular interest, on an instinctive social reaction of tormenting predatory animals.

**A Survey of the Resident Game and Furbearers of Missouri.**—Rudolf Bennitt and Werner O. Nagel. 1937. Univ. of Missouri Studies, 12 (2): 1-215. \$1.25. An excellent report giving the present status of game species of the State and excellent suggestions for their "management". Bob-whites and Mourning Doves have increased, but Ruffed Grouse, Prairie Chickens and Wild Turkeys have greatly decreased. Some of the chief adverse factors are grazing of woodland, plowing of wild grassland, illegal shooting, and depredations of the cat. It is estimated that 50 per cent of the Bob-white population is shot each fall; the authors consider that 40 per cent would be safer. The drought of 1934 did not affect the Doves, but had disastrous effects on Prairie Chickens and Bob-white, many of the former dying from thirst, while with the latter many deserted nests were found, and some birds did not pair off till the rains in mid-August. Over \$100,000 has been spent on introducing Pheasants into Missouri, but this species has failed to become established. "It is worth noting that a few thousand dollars spent on finding out at the outset of this whole performance would have accomplished one of two things: (a) it would have given us pheasants, or (b) it would have saved the waste of ten times the amount of money spent on the investigation."

The value of native predators is set forth and the seriousness of the cat problem emphasized. "With the exception of the cat, the weight of evidence is heavily in favor of the predators. To date every comprehensive scientific study has indicated the general and positive value of predators as a class."

**Round About the Crane. (Rund um den Kranich.)**—Georg Hoffman. 1936. Oehringen. Schriften des Deutschen Naturkundevereins. 176p. 3.85 reichsmarks. A beautifully written book on the life of the birds in a bog in West Prussia, in which the great Cranes (*Megalornis grus grus*) hold the center of interest; we learn of the close association between the mates, the incessant calling of a bereft bird for a new mate, the bond between the family even in the great fall flocks. Valuable studies were made of the nest life of the Marsh Harrier (*Circus æruginosus*) and particularly of the Spotted Eagle (*Aquila clangula*). Accurate

observations and superb photographs by the author combine to make this a notable book.

**Ecological Animal Geography.** An authorized rewritten edition based on *Tiergeographie auf oekologischer Grundlage* by Richard Hess. Prepared by W. C. Allee and Karl P. Schmidt. 1937. N. Y. Wiley. 597p. \$6.00. "Zoögeography is the scientific study of animal life with reference to the distribution of animals on the earth and the mutual influence of environment and animals upon each other." In this fascinating book a wonderful picture is presented of life and its adaptations. To the ornithologist the first and last sections will be of greatest interest: "Ecological Foundations of Zoögeography" and "The Distribution of Land Animals." Here he can find broad foundations for his own science, a view of basic relations of the whole community, and the methods by which animal life adapts itself to different conditions and different regions of the world. He reads of effects of temperature on metabolism, of effects of humidity, light, and many other factors. Each subject can be followed up by means of the abundant references—over fifteen hundred in number.

The final chapter is devoted to the Effect of Man on the Distribution of Other Animals, which gives a dispassionate account of the profoundly disturbing effect that civilized man has had upon nature. "Special biotopes are more and more sacrificed to civilization." Under conditions of cultivation a "small number of species goes hand in hand with a great number of individuals in environments of this uniform type, as so often occurs elsewhere under partially adverse conditions." The authors point out disadvantages of forests of a single species, and the menace of stream-pollution, and protest against the "mass destruction of animal life" through the "indiscriminate broadcasting of poisons" by the Bureau of Biological Survey of the United States. It is a terrible indictment of civilized man that at this stage in the earth's history the following statement can be made: "The original faunal conditions are to be found only in distant wildernesses, in high mountains, in tropical forests, and in the depths of the sea."

**Bent's 'Life Histories of North American Birds of Prey (Part I).** The present volume,<sup>16</sup> the tenth in the series of Life Histories of North American Birds, follows, in the main, the "order of arrangement of families and species as given in the old (1910) check-list", from the California condor through the northern bald eagle. The osprey is added, leaving the caracaras and the falcons to be considered with the owls in the next volume.

The method of describing the birds' habits is the same as that used in the previous volumes. The life history of each bird is divided into headings which together round out the yearly cycle of the bird's activities. This method, necessary for quick reference, rarely causes confusion or duplication, and does not, as handled by Mr. Bent with the aid of his correspondents, often interrupt in the least the smooth unfolding of the picture of the bird before our eyes. Perhaps the best biography, from this point of view, is the neat history of the white-tailed kite.

Ornithologists have long and impatiently awaited the publication of Mr. Bent's life histories of the Raptores, realizing that he has devoted himself to the study of this group ever since his boyhood, half a century ago; that he has travelled extensively, from Florida to Alaska, in order to become familiar with the rarer species; and that, viewing these birds through the vista of long years of experience, he can write of them with unquestioned authority.

There is no doubt that the present volume, with the volume to follow, much of which the present reviewer has had the pleasure of reading in manuscript, will be accepted as the classic work on the American Raptores.

Certain of the life histories are extended into virtual monographs of the birds as studied in south-eastern Massachusetts, where the author has had certain nests and successive pairs of birds under observation for a long series of consecutive years. In these articles he brings out interesting facts which could not have been

discovered by study for only a few years, no matter how thorough. For example, under the Cooper's Hawk he says (p. 112): "I have frequently found one of these Accipiters nesting in the same tract of woods with one of the Buteos, but I have never found the two species of *Accipiter* nesting in the same tract; and several times I have known *cooperi* to replace *velox* in a tract where the latter had repeatedly nested. It is a curious fact that the solitary vireo (*Lanivireo solitarius*) has so often been found nesting in pine woods occupied by a pair of Cooper's hawks as to suggest some significance in the ecology; I find six such cases recorded in my notes, and once the vireo's nest was within 50 feet of the hawk's nest; we have also noted that we never find the vireo in similar woods occupied by sharpshins; the reason seems obvious." Again (p. 160) he says: "Great horned owls habitually occupy old nests of the eastern redtail, probably preempting them before the hawks are ready to use them. I have always regarded these two as supplementary species, one hunting by day and one by night in similar regions and preying on similar victims."

In the consideration of "the complicated relationships in the *Buteo borealis* group" Mr. Bent shows the toleration and the absence of dogmatism which mature judgment brings. He says (p. 174): "I . . . have examined an immense amount of material in various museums and private collections; but I must confess that there are many perplexing problems yet to be worked out before the relationships can be fully understood."

As we read the 379 pages of the text, not picking out the best bits, but reading from cover to cover as we would read a novel, the scene changes many times; we visit inaccessible cliffs on the Rocky Mountains, depths of dark southern swamps, barren deserts, and the dense growth of the northern forests. We follow the intimate family life of the inhabitants of these solitudes, the characters in Mr. Bent's story. We see among them giants, great birds with a hint of royalty, strong, fearing nothing; and others, secretive, striking as from ambush, like a knife in the dark. They all seem to glory in their power and speed, or in their mastery of the air, and most of them are self-sufficient characters—lone wolves—preying on living animals which they overpower by their fleetness and strength, and when they strike, they kill.

Mr. Bent shows us tragedy, but in his story we look at the struggle through the fierce eyes of the hawk, the hero of the book.—WINSOR M. TYLER.

<sup>16</sup> *U. S. Nat. Mus. Bull.* 167. Life Histories of North American Birds of Prey. Order Falconiformes (Part I.) Smithsonian Inst., Washington, D. C., pp. 1-398, p. 1-102. Supt. of Documents, Washington, D. C.