RECENT LITERATURE

BANDING

(See also Numbers 8, 10, 11, 12, 13, 32, 43)

1. A Short Review of Bird Banding in Japan. (Eine kurze Übersicht über die Vogelberingung in Japan.) Nagahisa Kuroda. 1954. *Die Vogelwarte* **17**(3): 201-205. Banding started in Japan in 1924; in the ensuing 20 years 418,825 birds of 80 species were banded, from which 15,926 returns and recoveries had been received by 1948. The raw data for all of these were published annually by the Division of Hunting Affairs of the Ministry of Agriculture and Forestry, under whose jurisdiction the banding was done. (One of the few complete sets of these mimeographed reports available outside Japan is in the library of the Museum of Comparative Zoology, Cambridge, Mass.) In this paper the author lists some of the more significant banding totals, return percentages, and recoveries, most of them prewar, and many of them previously published elsewhere. The only recent recoveries listed are two *Diomedea nigripes* banded in the "United States" (actually Laysan Ids., T.H.), one recovered in the North Pacific half way between Hawaii and Japan by a Japanese fishing boat in November 1949, the other 23 miles off northern Honshu in June 1953.

Most of the birds banded in Japan before World War II were purchased for the purpose by the government from the professional netters who were catching them for market, in much the same fashion that our Bureau of Fisheries obtains the fish it tags. The author concludes: "Since the war banding has been limited to a few species, largely because of the prohibiting of mist-netting of small birds for conservation purposes. What Japan needs for the future is to improve its official ringing system, and to make it available to professional [private] ornithologists (which has already occurred in individual cases through the delivery of bands upon request). The extension of the ringing system internationally throughout the Far East is to be desired, but is very difficult of course under the present situation in Japan."—O. L. Austin, Jr.

2. The Trapping Equipment at the Serrahn Sanctuary. (Die Fangeinrichtungen der Vogelschutz-Station Serrahn.) Hubert Weber. 1954. *Journal für Ornithologie* **95**(3/4): 292-296. A general description of the sanctuary near Neustrelitz, Mecklenburg and the trapping methods employed there for banding, with photographs of the throw nets and tree traps in operation. The banding is done by volunteer collaborators, who ringed 10,104 birds, most of them small passerines, between the autumn of 1949 and March 1953. Among the most interesting species handled were "invasion birds" from the north, Crossbills, Siskins, and Redpolls; some of the more significant recoveries obtained from these bandings are summarized.—O. L. Austin, Jr.

3. Results of Bird Banding in Belgium received in 1953. (Resultats du Baguage des Oiseaux en Belgique Exercice 1953.) R. Verheyen. 1954. *Le Gerfaut*, **44**(4): 309-324. Lists the raw data received in 1953 for some 225 returns and recoveries of some 60 species. To save space, short-term returns have been omitted, and only those of more than passing interest, as for their longevity, are included. Most of the recoveries are from France, Spain, and Portugal, with a few from almost all other European countries outside the Iron Curtain, and a respectable number from North Africa. Of exceptional interest are a *Delichon urbica* banded in June and recovered the following March in South Nigeria, several *Anas crecca* and *Anas platyrhynchos* taken in northern Finland, an *Actitis hypoleucos* banded in May 1952 and reported the following November from French Guinea, and a *Vanellus vanellus* taken after 7 years 13 miles from where it was banded near Antwerp.—O. L. Austin, Jr.

MIGRATION

4. Sun Compass Orientation and Endogenous Activity Rhythms of the Starling *(Sturnus vulgaris* L.). Kenneth S. Rawson. 1954. *Zeitschrift für Tierpsychologie*, **11**(3): 446-452. At Cornell University two Starlings, captured

as adults, were "trained in a small cage to indicate compass directions using the sun as the basis for orientation. The birds indicated the training direction when tested during the time of day when they had been trained. When tested at another time of day, the birds chose directions intermediate between the training direction and the direction having the same angle to the position of the sun as at the time of training." Experiments were also made with artificial days. "One bird continued a 24-hour pattern of activity under constant conditions (light, sound, temperature) for a period of two weeks," but a shifted schedule of light and dark shifted this bird's pattern after 4 days.—M. M. Nice.

5. Studies on the Internal Time-Sense in Birds in Relation to Orientation. (Versuche zu der im Richtungsfinden der Vögel enthaltenen Zeitschätzung.) Klaus Hoffmann. 1954. *Zeitschrift für Tierpsychologie,* **11**(3): 453-475. Three hand-raised Starlings were trained to definite compass directions; in one bird this training was found to last 10½ months. "A central nervous mechanism must be postulated to allow for diurnal changes in the sun's azimuth position. An 'internal clock' must be one of the basic components of this mechanism." Experiments were made with different "artificial days." "Throughout a period of 28 days with constant light and approximately constant temperature the choice of compass direction did not vary, though the activity rhythm seemed to be greatly upset." This important study from Dr. Kramer's laboratory presents 21 charts and an extensive bibliography.—M. M. Nice.

6. The Orientation of Homing Pigeons in Relation to Change in Sun Declination. Kenneth S. Rawson and Anne M. Rawson. 1955. *Journal für Ornithologie,* **96**(2): 168-172 (with German summary). Reviews briefly Matthews' sun navigation hypothesis and his sun occlusion experiment at Cambridge in support of it, and describes a similar experiment carried out at Wilhelmshaven in 1953, the results of which "are not in agreement with those of Matthews and do not support his sun navigation hypothesis."—O. L. Austin, Jr.

7. A Further Experiment to Influence the Orienting of Carrier Pigeons by the Seasonal Change of the Sun Altitude. Simultaneously a Critique of the Theory of the Experiment. (Ein weiterer Versuch, die Orientierung von Brieftauben durch jahreszeitliche Anderung der Sonnenhöhe zu beeinflussen. Gleichzeitig eine Kritik der Theorie des Versuchs.) Gustav Kramer. 1955. *Journal für Ornithologie,* **96**(2): 173-185 (with English summary). To check the discrepancies between the results of the Matthews and Rawson experiments (see No. 6 above) the author repeated the experiment in 1954 at Wilhelmshaven. The results were again negative and failed to support the sun navigation hypothesis. He suggests possible explanations of the conflicting results between the Cambridge and Wilhelmshaven experiments, and attempts a further clarification of some of the astronomical and psychological technicalities involved in the proposed theory. —O. L. Austin, Jr.

8. On the Migration and Wintering of *Larus melanocephalus* Temminck. (Sur les Migrations et l'Hivernage de *Larus melanocephalus* Temminck.) Noël Mayaud. 1954. *Alauda,* **22**(4): 225-245. (English summary.) From the many Russian-banded Mediterranean Black-headed Gulls picked up in western Europe during the last few years, somebody has been banding this species regularly in some numbers on Orlov Island in the Dnieper Estuary on the north coast of the Black Sea. Other than the acknowledgements from Moscow to those who reported the bands, no word of this banding or its results has come from behind the Iron Curtain. M. Mayaud has succeeded in gathering from the non-Russian literature and other sources in western Europe the data on about 100 of these recoveries. All were banded at Orlov as juveniles in late June and early July between 1947 and 1953. These records, together with observations on the species in the available literature, allow him to present an interesting delineation of the species' postnuptial movements, which start apparently in late July.

Instead of moving southward, the Orlov gulls migrate westward; none of them has been reported from the eastern Mediterranean. By August and September the main migration reaches the Adriatic, and by October is on its principal wintering

ground in the western Mediterranean between Sicily and Gibraltar. Smaller contingents move northwestward up the Danube as far as Switzerland, and probably across the Ukrainian and Polish Steppes and the Pripet Marshes to the Baltic and North Seas, and thence westward to the Bay of Biscay. The species leaves for its nesting grounds between March and May.

It is a shame that whoever is doing the banding at Orlov is unable to publish the results of his work on this interesting species. He must have a great deal of information to share with ornithologists elsewhere in the world, who would be happy to learn of his findings.—O. L. Austin, Jr.

9. The Passage of Black Terns through Britain in Spring 1954. R. F. Dickens. 1955. *British Birds*, **48**(4): 148-169. A detailed, well-documented study with 7 tables and 2 maps of a large migration of *Chlidonias niger*. It was found that both this and other large passages had "been preceded by a rise in temperature in the Iberian Peninsula and the Biscay area" and took place "in face of easterly or north-easterly winds over the British Isles." It was concluded that the terns "had been carried west of their normal routes by easterly lateral winds in the Biscay area."—M. M. Nice.

10. Migration of the Dunlin in Northern Europe. (Rylens *(Calidris alpina* (L.)*)* traek i Nordeuropa.) Arne Nørrevang. 1955. *Dansk Ornithologisk Forenings Tidsskrift*, **49**(1): 18-49 (from the English summary). Recoveries from the large numbers of Dunlins banded in northern Europe in recent years allow its autumn flight to be traced with fair certainty. From their northern breeding grounds the birds follow several routes southward and southwestward (mapped on p. 34), down the west coast of Europe to the Atlantic coast of Africa, and across central Europe to the Mediterranean. Returns in subsequent years at the banding stations show individuals tend to follow the same routes year after year. Very little is known about the northward movement in spring, other than that the birds dally less on the way and move much more quickly than they do in autumn.—O. L. Austin, Jr.

11. Recovery of Ringed Harriers. J. S. Watson. 1954. *Notornis*, **6**(1): 6-10. The author finds the Australasian Harrier, *Circus approximans*, an excellent subject for study of movements by banding. It is easily caught in a top-entrance trap baited with dead rabbits (no problem to obtain in New Zealand), and as many Harriers are shot for the bounty paid by the local Acclimatization Societies, the rate of recovery is high. Of 142 Harriers banded in 1951 and 1953, 32 or 22.5 percent had been reported by 1954. At the time of writing 206 Harriers had been marked, 35 recovered, and 14 retrapped in subsequent years where ringed. "The returns indicate that the old birds tend to stay within a radius of about five miles but a proportion of the young ones disperse up to several hundred miles from where they were ringed."—O. L. Austin, Jr.

12. The Brambling in Belgium. (Les Pinsons du Nord *(Fringilla montifringilla* L.*)* en Belgique.) R. Verheyen. 1954. *Le Gerfaut*, **44**(4): 324-342 (with Flemish summary). From banding data on the Brambling, including 127 repeats, 65 returns, and 47 recoveries of birds banded in Belgium, and 56 Belgian recoveries of birds banded elsewhere, the author concludes: Most migrant Bramblings reach their wintering grounds in western Europe during the last half of November. Each individual's winter range (50 kilometers) is more extensive than its summer range (4 pairs per square kilometer). When they leave for the north, the Bramblings migrate on a wide front. Because of their tendency to migrate against the prevailing winds, chiefly of maritime origin, individuals may reappear on the wintering grounds of the preceding year if the air currents are identical or nearly so both years. If atmospheric conditions vary in successive autumns, the migrants establish themselves in different winter quarters (Belgian wintering birds taken in later winters in France, Italy, Great Britain). The migrant recognizes the wintering ground of the preceding year by its particular topography, as well as by certain natural obstacles it has to bypass or skirt as it did before. The migrant is not attached to the wintering ground of the preceding year to the same degree as to its birthplace or breeding place, where he

will spend months on end if he must, but seems to give priority to the abundance of food and the companionship of his kind rather than to the configuration of the topography.—O. L. Austin, Jr.

13. The Linnet, a Breeding Bird and Winter Visitor in Belgium. (Les Linottes, *Carduelis cannabina* (L.), Nicheurs et Visiteurs d'Hiver en Belgique.) R. Verheyen. 1955. *Le Gerfaut,* **45**(1): 5-25 (with Flemish summary). From an analysis of 703 banding records of Linnets banded or recovered in Belgium, the author concludes: The Linnet returns to nest in the same place it bred the year before, which is the country of its birth. As the average age of the Linnet is 7 months and its annual mortality above 80 percent, the species must raise two broods annually totalling 10 young to maintain its numbers. (As the "average age of 7 months" is computed by taking the average duration of life in months of 86 recoveries banded as nestlings, it is not a reflection of mortality, and in no way measures the needed replacement!) When the young take wing the Linnets gather in flocks and seek feeding grounds near by, seldom moving more than 100 kilometers. Migration starts in early October, ends towards mid-November. Birds wintering in Belgium are those raised there or in neighboring regions. The rate of migration does not exceed 80 kilometers per day. Belgian migrants return to their nesting grounds toward mid-April, others continue passing through until May. Migrants crossing Belgium are mostly from Sweden, Denmark, northwest Germany, and the Netherlands; a few from southeast Norway, central Germany, and eastern England. The migratory movement is NE-SW, and the path of flight is not wider than 370 kilometers. Linnets prefer to migrate against the wind, and are probably favored by the warm, humid, southwest winds which prevail over southwest Europe in October and November.—O. L. Austin, Jr.

14. The Autumn Migration in Eastern Kurdistan. (La Migration d'Automne dans le Kurdistan Oriental.) X. Misonne. 1955. *Le Gerfaut,* **45**(1): 33-67 (with Flemish summary). An interesting paper delineating the probable routes followed by most migrants through Iran, based on the literature and the author's two seasons of observations in the northwest corner of the country, southeast of the Caspian Sea. Of unusual interest is the east-west migration of the Rose-colored Starling, *Pastor roseus,* which breeds in the Turkish and Caucasian steppes and skirts the southern end of the Caspian Sea on its way to its wintering grounds in India. The author's specific notes on numbers and dates of birds observed are even more valuable than his theorizing on the movements of birds through this little-studied region.—O. L. Austin, Jr.

15. The Migration of the Wood Warbler. (Die Wanderungen des Waldlaubsängers *(Phylloscopus sibilatrix).*) Erwin Stresemann. 1955. *Journal für Ornithologie,* **96**(2): 153-167. A detailed study of the Wood Warbler's movements as shown by the literature and 16 recoveries, mostly of nestlings banded in England, Germany, Sweden, and Latvia. The species breeds across Europe from Scotland to the Urals and winters in central Africa from the Gold Coast through the Congo. In the autumn the birds migrate in a "flight funnel" (Zugtrichter) extending from the flanks of the Pyrenees to the west coast of Greece, and centering on southern Italy. Thus the westernmost populations at first move southeast, the easternmost birds southwest. From the Mediterranean they continue southward. In the spring the easternmost and westernmost populations shorten their return flight. They appear in Morocco, Egypt, Palestine, and Syria only in spring (Schleifenzug). The North German Wood Warblers migrate 5,500 kilometers to their wintering grounds. They spend an estimated average of 100 days on the breeding grounds, 62 days in the fall migration, 172 days on the wintering grounds, and 29 days in the spring flight. They migrate about twice as fast in spring, 180 kilometers per day, as they do in fall, 90 kilometers per day. These distances are mathematical averages; actually the migration is performed in great jumps separated by rest periods of several days during which the birds replenish their deposits of body fat.—O. L. Austin, Jr.

NIDIFICATION AND REPRODUCTION

(See also Numbers 26, 30, 31, 36, 38, 39, 41, 43)

16. Incubation Periods Throughout the Ages. M. M. Nice. 1954. *Centaurus* [International Magazine of the History of Science and Medicine—Copenhagen] **3:** 311-359. A historical review from Aristotle to the present. "For the most part the 2300 years during which men have recorded their thoughts on incubation periods make a sad story of the blind leading the blind." An admirable paper, complementing Mrs. Nice's "Problems of Incubation Periods in North American Birds," *The Condor*, **56:** 173-197, which summarized the history of incubation periods in the Old World in less than two pages.—E. Alexander Bergstrom.

17. The Abnormal Breeding of Birds in the Winter 1953/54. D. W. Snow. 1955. *British Birds*, **48**(3): 120-126. The last 3 weeks of November 1953 were very mild with no normal seasonal drop in temperature; December was the mildest in Britain since 1934. The first 10 days of January were cold, the next fortnight mild, the last week unusually cold. Blackbirds, *Turdus merula*, Song Thrushes, *T. philomelos*, Robins, *Erithacus rubecula*, Starlings, *Sturnus vulgaris*, and House Sparrows, *Passer domesticus*, were all reported as nesting. The fate of many of the nests was not known. Of 13 Blackbird nests from November to January only one brood was surely known to have fledged—on Jan. 31. Of 10 Song Thrush nests, 3 were known to have been successful, young fledging the end of December and in January.—M. M. Nice.

18. Further Notes on the Swift, 1944-1954. A. S. Cutcliffe. 1955. *British Birds*, **48**(5): 193-203. A study of a colony of *Apus apus*, all members of which were banded from 1948 on. Some breeding males migrated in the summer before their mates, yet the pair returned together in the spring. Often a banded pair are accompanied by an unbanded male, who closely pursues them; occasionally the female has nested with this new bird instead of with her former mate. A ringed pair of Swifts were removed from their nest in which no eggs had yet been laid, taken 180 miles south by car, and released at 6 p.m.; they returned to the nest together at 8 p.m. the following day.

A total of 122 birds including 39 nestlings have been ringed; 19 ringed as breeders or non-breeders (apparently one-year-old birds that pair and occupy a nest but do not lay until the following year) have returned, but not a single nestling. The only recovery was a 3-year-old bird found dead 14 miles from the place of ringing. The number of eggs laid in the colony was 58, the number of young fledged 31, 53 percent of success. The summer of 1954 was cloudy, cold, and rainy, and the Swifts in the colony were unable to raise a single nestling. These birds are heavily parasitized by the hippoboscid fly *Crataerina pallida*. During periods of starvation as in bad weather, the parasites must contribute to the mortality of their hosts.—M. M. Nice.

19. The Fledging of a Brood of Ravens. E. F. Warren. 1955. *British Birds*, **48**(4): 172-175. Detailed observations on the nest-leaving of a brood of 5 *Corvus corax*, on Skokholm, Pembrokeshire, May 10-12, 1953. The parents "appeared to take no part in encouraging the young to leave the nest but were generally on hand to accompany or defend the young bird at the time of its first flight. The young birds were generally silent on the ledge and appeared not to be fed."—M. M. Nice.

20. Nest-Boxes Designed for Sand Martins. B. R. Henson and J. D. Johnston. 1955. *British Birds*, **48**(4): 180. To facilitate nesting studies, five nest boxes were constructed for Bank Swallows, *Riparia riparia*, in the top of a high sea-cliff in Hampshire 30 yards from a natural colony of 12 pairs. All were used. A vertical shaft was dug and lined with wood, and a tunnel bored out to the cliff face was lined with wood on the top and sides. A false lid was inserted just over the nesting chamber, and a turf-covered lid on top of the vertical shaft. A sketch illustrates the device.—M. M. Nice.

21. The Incubation Rhythm of the Fulmar. Kenneth Williamson. 1952. *Scottish Naturalist,* **64:** 138-147. One bird at Fair Isle was observed to incubate 32 days out of a total of 53 for the brood; another pair showed a less striking difference; the third pair divided the duty more evenly. Time between change-overs was generally 2½ to 5 days, but in one case, almost 9 days. Fledging periods for three broods were about 50, 54 and 56 days.—E. Alexander Bergstrom.

22. The Fledging of a Group of Young Fulmars. Kenneth Williamson et al. 1954. *Scottish Naturalist,* **66:** 1-12. Aided by several young assistants, Williamson made continuous observations of a number of young Fulmars toward the end of their fledging period. The majority left the cliff voluntarily, but some as the result of accident or adult interference. "Several of the cases suggest that the parent fulmar is eager to reclaim the nesting-ledge, perhaps to deny it to prospecting non-breeders, and in order to recover it will attempt to hasten the departure of the chick."—E. Alexander Bergstrom.

LIFE HISTORY

23. Life History of the Tropical Kingbird. Alexander F. Skutch. 1954. *Proc. Linn. Soc. N. Y.,* Nos. 63-65: 21-38. Detailed observations on *Tyrannus melancholicus*—the race which occurs in the lower Rio Grande valley in Texas is known as Couch's Kingbird.—E. Alexander Bergstrom.

BEHAVIOR

(See also Numbers 19, 37)

24. The Behavior of Birds Attending Army Ant Raids on Barro Colorado Island, Panama Canal Zone. R. A. Johnson. 1954. *Proc. Linn. Soc. N. Y.,* Nos. 63-65: 41-70. Raids by army ants, particularly in their nomadic periods, attract a variety of birds, to feed not on the ants but on the many insects flushed out by the ants. The relationships of the different species of birds to the ant raids vary markedly; some, especially Antbirds, obtain most of their food by following an ant colony in its nomadic period. When a colony enters the less active statary period, the Antbirds transfer their attentions to a different colony.—E. Alexander Bergstrom.

25. Studies on the Releasing of Gobbling in the Turkey. (Untersuchungen über die Auslösung des Kollerns beim Truthuhn *(Meleagris gallopavo).*) Margret Schleidt. 1954. *Zeitschrift für Tierpsychologie,* **11**(3): 417-435. Intensive observations at Buldern on wild and domestic toms. The effective sign stimuli for gobbling were found to be sounds containing frequencies between 200 and 6,000 cycles per second. The innate releasing mechanism appears to be "everything the cock is able to hear and which, by a certain sound intensity, 'contrasts with the background.'" "The gobbling of the turkey-cock is a consummatory act; it belongs to a special sub-drive of the general reproductive drive."—M. M. Nice.

26. Some Observations on the Reproductive Behaviour of Rooks. Derek Goodwin. 1955. *British Birds,* **48**(3): 97-105. Observations at a rookery of some 28 nests of *Corvus frugilegus* at Windsor Castle, Berkshire. Ordinarily male and female cooperate in nest-building, but "An unpaired female built an apparently perfect nest by herself and another female who was paired to a yearling male appeared to do so." A great deal of stealing of nesting material went on. The "Rook shows an homologous innate attacking reaction to the sight of others of its kind copulating, as do pigeons (Heinroth, 1949) and many other birds." A one-legged female was attacked far more often than the normal birds. "An animal in an apparently 'neutral' state often seems *to become enraged* at the sight of the abnormal movements of an injured fellow. It appears to be motivated by some feeling homologous with the 'indignation' that humans often show towards one of their number who behaves in an abnormal or unconventional manner."

Other subjects discussed are the "food-begging, and submissive displays," yearlings at the rookery, and the nesting attempt of an unmated female, who seemed clearly to suffer from hunger with no mate to feed her.—M. M. Nice.

27. The Significance of Voice in the Behaviour of the Little Ringed and Kentish Plovers. K. E. L. Simmons. 1955. *British Birds,* **48**(3): 106-115. Eight notes are described for the adult *Charadrius dubius* and two for the chicks; comparisons are made with notes of *Ch. alexandrinus.* Studies on voice show the presence of both attack and escape tendencies in pair behavior. The alarm-call of the chicks "stimulates intense predator-reactions in the parents."—M. M. Nice.

28. Myrtle Warbler in Devon; a New British Bird. F. Raymond Smith. 1955. *British Birds,* **48**(5): 204-207. During a blizzard January 4, 1955 a male *Dendroica coronata* appeared at a feeding table near Exeter; it established a feeding territory around the table and drove off Blue Tits, *Parus caeruleus,* with great vigor, at times also chasing off Great Tits, *P. major,* Dunnocks, *Prunella modularis,* and Chaffinches, *Fringilla coelebs,* as well as a Bullfinch, *Pyrrhula nesa,* and Pied Wagtail, *Motacilla alba.* On February 10th after a new cold snap the bird was found dead. "One possible explanation of the intense antipathy of the Myrtle Warbler to the resident Blue Tits may be that a colour reaction was set up by the blues and yellows being of similar shades to those of male Myrtle Warblers in full plumage." I can find no accounts of behavior of Myrtle Warblers at feeding shelves in this country. Four beautiful photographs of this wandering individual are reproduced.—M. M. Nice.

29. Buildings as Song-Posts. Derek C. Hulme. 1955. *British Birds,* **48**(5): 211-215. On a 2-mile built-up route in the Midlands the singing posts of all birds were noted throughout 1952; 46 percent of these were on buildings or other man-made structures. One thousand and eight records were on natural perches, 409 on chimney-pots, 171 on the gable end ridge tile of buildings, and 59 on low power electric cables.—M. M. Nice.

ECOLOGY

(See also Number 24)

30. Ecological Relations of Jaegers and Owls as Lemming Predators near Barrow, Alaska. Frank A. Pitelka, P. Quentin Tomich and George W. Treichel. 1955. *Ecological Monographs,* **25**: 85-117. A fine study from 1951 to 1953 of avian predation on *Lemmus sibiricus,* that were at a low during the first year, and then increased, becoming abundant in 1953. The chief predators of the brown lemming followed the same pattern. The Pomarine Jaeger, *Stercorarius pomarinus,* enjoyed less nesting success "in the dense population of 1953 than in the sparse one of 1952." These birds are strongly territorial throughout the nesting cycle of 10-11 weeks. "Each pair occupies an all-purpose territory, as in many passerines. In the densely occupied area of 1953, minimal territory size was estimated at 15-20 ac., where in 1952, territory size on the most densely occupied area was approximately 110 ac." The Snowy Owl, *Nyctea scandiaca,* and Short-eared Owl, *Asio flammeus,* are also very important lemming predators. The authors point out what an unusually fertile field for study is offered by the jaegers. The Pomarine Jaeger appears to be a highly mobile species, concentrating for breeding purposes where the lemming population is high. The authors suggest that it seems impossible that "this species could maintain itself if two- and three-year intervals of non-breeding were regularly inevitable," and that "it may prove possible to maintain that the concept of regional synchrony in the lemming cycle is spurious." They conclude that "Avian predators successfully depress lemming populations at least in the upswing portion of the cycle to the extent that the fluctuations of the prey are dampened and protracted."—M. M. Nice.

31. Temperature Regulation in Young Pelicans, Herons, and Gulls. George A. Bartholomew, Jr. and William R. Dawson. 1954. *Ecology,* **35**(4):

466-472. Very interesting work on a desert island in the Gulf of California where air temperatures are moderate but solar radiation intense. The naked, black young of the Brown Pelican, *Pelecanus occidentalis californicus* were profoundly affected by environmental conditions; when their parents were prevented from brooding by the presence of the observers, their diurnal temperature range was from 21.4 to 43.7° C. "Homeothermy increased with development of down; total diurnal range in large downy young was 37.8 to 41.° C." The pelicans were the most attentive parents of all three species. Newly hatched Great Blue Herons, *Ardea herodias treganzai*, with their long fine down showed somewhat better temperature regulation, their diurnal range being 32.2 to 43.3° C. Their parents were somewhat less attentive. The chicks of the precocial Western Gull, *Larus occidentalis livens*, are well insulated, and at a very early age are able to seek shelter from the sun in crevices. The temperatures of these young chicks ranged between 34.6 and 43.3° C. Their parents were the least attentive of all. "The successful nesting of these three species in the same area at the same time despite their differences in capacity for temperature regulation emphasizes the importance of behavior as a supplement for physiological mechanisms in birds."—M. M. Nice.

WILDLIFE MANAGEMENT

(See also Numbers 34, 38, 39)

32. Investigations of Woodcock, Snipe and Rails in 1953. Special Scientific Report—Wildlife No. 24, U. S. Fish and Wildlife Service and Canadian Wildlife Service. January, 1954, 68 pp., photo-offset. This is the third report of its kind (for the others, see *Bird-Banding*, **23**: 183-84, October, 1952, and **24**: 119-120, July, 1953). It includes: "Summary of 1953 Woodcock, Snipe and Rail Investigations," by John W. Aldrich; "Wintering Woodcock Populations in West-Central Louisiana, 1952-53," by Vincent H. Reid and Phil Goodrum; "Observations of Woodcock Breeding in Certain Southeastern States," by Vincent H. Reid and Phil Goodrum; "Woodcock Singing Counts, Eastern Canada, 1953," by Victor E. F. Solman; "Woodcock Census Studies in Northeastern United States, 1953," by Howard L. Mendall; "Woodcock Singing Ground Counts in Central-Eastern United States, 1953," by P. F. English; "Woodcock Breeding Ground Counts in Central-Northern United States, 1953," by John W. Aldrich; "Summary of Massachusetts Woodcock Studies, 1953," by William G. Sheldon; "Investigations on Woodcock in Michigan," by Lytle H. Blankenship; "Wilson's Snipe Wintering Ground Studies, 1952-53," by Chandler S. Robbins; "Wilson's Snipe 'Winnowing' Counts in Eastern Canada, 1953," by Victor E. F. Solman; "Further Investigations on Winnowing Method of Measuring Wilson's Snipe Populations," by Chandler S. Robbins; and "Wilson's Snipe and Sora Rail in Yampa River Valley, Colorado," by Hal M. Boeker.

The 1953 season was marked by the general adoption of a method of obtaining an index to woodcock numbers on the breeding ground, rather than attempting to make an exact count of all birds calling along the route. Definite stopping points no closer than .4 mile are established, with intervals increased as much as necessary to avoid "non-woodcock habitats."

Robbins notes 963 Wilson Snipe banded in North America prior to the winter of 1952-53, with 34 recoveries (3.4%—cf. 5% for the same species in England, based on over 2,000 birds). There have been four interstate recoveries: Newfoundland to Guadeloupe, French West Indies; Massachusetts to North Carolina; New York to Ontario; and California to British Columbia.—E. Alexander Bergstrom.

33. Investigation of Woodcock, Snipe and Rails in 1954. Special Scientific Report—Wildlife No. 28, U. S. Fish and Wildlife Service and Canadian Wildlife Service. February 1955, 62 pp., photo-offset. Contents are: "Summary of Investigations of Woodcock, Snipe and Rails in 1954," by John W. Aldrich; "Wintering Woodcock Populations in West-Central Louisiana," by Vincent H. Reid and Phil Goodrum; "Woodcock Singing Ground Counts in Canada, 1954," by R. D. Harris; "Woodcock Census Studies in Northeastern United States, 1954," by Howard L. Mendall; "Woodcock Singing Ground Counts in Central-Eastern

United States, 1954," by P. F. English; "Woodcock Investigations in the Central-Northern United States, 1954," by John W. Aldrich; "Massachusetts Woodcock Studies, 1954," by William G. Sheldon; "Wilson's Snipe Wintering Ground Studies, 1953-54," by Chandler S. Robbins; "Wilson's Snipe Populations and Hunting Pressure in the Northwest," by Thomas D. Burleigh; "Some Observations on Nocturnal Activity of Wilson's Snipe—Newfoundland (1953)," by Leslie M. Tuck; "Distribution and Abundance of the Wilson's Snipe in Western Canada," by Chandler S. Robbins; and "Sora Rail Populations in Alberta, 1953-54," by Allen G. Smith.

Dr. Aldrich comments, "It is becoming apparent that the main weakness in our present effort to obtain a breeding ground index of woodcock abundance is that we are attempting to measure populations in areas of suitable habitat but without consideration of how much change is taking place in the total amount of this habitat."

Tuck made a detailed comparison of post-sunset and pre-dawn winnowing of snipe. Partly through a field trip as far as the Yukon, Robbins drew up a tentative map of the breeding distribution and abundance of the species throughout Canada. Smith found indications of wide fluctuations in the abundance of the Sora on the Alberta prairies, with very large numbers in peak years.—E. Alexander Bergstrom.

CONSERVATION

34. Bird Preservation in Greenland. (Fredning af fuglelivet i Grønland.) Finn Salomonsen. 1955. *Dansk Ornithologisk Forenings Tidsskrift,* **49**(1): 3-11 (from the English summary). A plea for more stringent hunting regulations and enforcement to restore and maintain the populations of several species now in danger in Greenland. The Eider, which was almost exterminated early in the century by wholesale shooting and egging, is now increasing gradually under protection given it in 1924. The Ptarmigan is also protected in summer in southwest Greenland, and new regulations were passed in 1951 protecting all geese on their breeding grounds. Most seriously threatened at present are the Arctic Tern, Puffin, Murre, and Cormorant, mostly by egging rather than by shooting. In the Grønne Islands in Disko Bay at least 100,000 Arctic Tern eggs are collected each summer, and the species has decreased considerably in recent years. Dr. Salomonsen makes specific recommendations for the protection of these four species.—O. L. Austin, Jr.

35. A Medical Aspect of the Population Problem. Alan Gregg. 1955. *Science,* **21**(3150): 681-682. If the life on the earth is likened to an organism, then it might be considered that "the world has cancer, and that the cancer cell is man." The extinction of endemic forms of life on islands by "the murderous invaders" is compared to the fatal growth of cancer in the skull. "To what degree can colonization of the Western Hemisphere be thought of as metastasis of the white race?" "Cancerous growths demand food; but, so far as I know, they have never been cured by getting it. . . . The analogies can be found in 'our plundered planet'—in man's effect on other forms of life." Our slums resemble the necrosis at the center of a cancer—"the death and liquidation of the cells that have, as it were, dispensed with order and self-control in their passion to reproduce out of all proportion to their usual number in the organism." An illuminating diagnosis of the greatest problem facing the world, both in the realm of conservation and the future of mankind.—M. M. Nice.

PARASITE AND DISEASES

(See also Number 18)

36. Additional Records of Protocalliphora (Diptera) in Birds' Nests. D. F. Owen. 1955. *British Birds,* **48**(5): 225-229. Of 351 nests of 46 species of birds examined, 61 nests of 13 species were found infested, about 17 percent. These were largely hole-nesting species. A list is given of all nests examined, as well as details on the nests affected by the flies.—M. M. Nice.

PHYSIOLOGY AND PSYCHOLOGY

(See also Numbers 4, 5, 6, 7, 25, 28)

37. Experiments on the Visual Field of Ducks. (Versuche über den Gesichtskreis der Enten.) Carlheinrich Engelmann. 1954. *Zeitschrift für Tierpsychologie,* **11**(3): 436-445. Experiments were carried on with 6 Pekin Ducks from the age of 1 week to 10 months, with 6 others aged 6 to 12 weeks and with 2 birds of undetermined race a year and a half old. Adult ducks recognized the food dish — a white plate — at 10 meters, young ducks at 5. "Groups of maize grains were recognized at 4 meters, of wheat at 2½ meters, single maize grains at 3, single wheat grains at 0.7 meters." Fellow members of the species were recognized at 60-70 meters in open country. In contrast to chickens, ducks prefer open country, avoiding bushes, undergrowth and woods; they seem to need an unobstructed view above them. So far as possible they follow known paths, and they do this so intently that they ignore such important objects as known comrades. In unfamiliar surroundings, they are very alert to the presence of comrades and at once attempt to join them. "The visual reactions of ducks are considerably handicapped by their characteristic shyness and propensity to escape reactions and also by the fact that they pay little attention to things in their immediate neighborhood, a property which, perhaps, can be explained by their life on the water. Compared with chickens, ducks have a considerably wider field of vision. They see distant goals better than chickens do, but they are not as good at recognizing objects quite near to them."—M. M. Nice.

38. Preliminary Studies on the Use of a Specific Sound to Repel Starlings *(Sturnus vulgaris)* from Objectionable Roosts. Hubert Frings and Joseph Jumber. 1954. *Science,* **119**(3088): 318-319. An amplification of the distress call of Starlings has been very successful in clearing flocks of this species from roosts in trees and on buildings. This call seems to be quite specific, as it does not effectively repel Grackles, *Quiscalus quiscula,* or Robins, *Turdus migratorius.* The authors conclude: "much further work is needed on the habits of starlings and other pests, for this knowledge is the key to ultimate success in controlling them."—M. M. Nice.

39. Recorded Calls of Herring Gulls *(Larus argentatus)* as Repellents and Attractants. Hubert Frings, Mable Frings, Beverly Cox, Lorraine Peissner. 1955. *Science,* **121**(3140): 340-341. Herring Gulls do not have a distress call when captured, but they do have an alarm call, consisting of an attention call of 2 notes, followed by the alarm cry of 3 notes. Gulls at dumps, canneries and a fish-meal factory were driven away by broadcasts of these notes with a repeating tape player. This call was found effective for other gulls—Great Black-backed, *L. marinus,* and Laughing, *L. atricilla.* A food-finding call, recorded and played to gulls, proved to be highly attractive. "If habituation to the alarm call sets in, a shift to the attractive call, away from the area to be cleared, may give the desired result."—M. M. Nice.

40. The Daily Energy Requirements of a Wild Anna Hummingbird. Oliver P. Pearson. 1954. *The Condor,* **56**(6): 317-322. At Berkeley, California, a wild male Anna Hummingbird, *Calypte anna,* was observed to spend in flight an average of 18.7 percent of the 13 daylight hours of each of 3 and 8 September 1953. The remaining 11 hours of each day were spent at his roost. Metabolic rates of captive male Anna Hummingbirds at temperatures of 12°C and 24°C were employed to calculate (by interpolation) daily energy requirements for temperatures prevailing (ca. 18°C) on the days of observation. From 7.55 Calories (assuming torpidity at night) to 10.32 Calories (assuming sleep at night) of energy exchange are estimated for a 24-hour day of which about 13 hours are "active." Assuming sleep at night, about 33 percent of the daily energy was expended on the night roost, while if torpidity is assumed, about 9 percent of the daily energy was expended on the roost. Of daytime energy exchange (6.88 Calories), 56 percent was spent in perching, 36 percent in nectar-feeding flights, 1.3 percent in insect-catching flights, 4.5 percent in defense of feeding territory, and

the remaining 2.2 percent in miscellaneous activity. A *Fuchsia* having slightly over 1,000 blossoms provided this daily energy requirement except for insects taken on wing.—L. Richard Mewaldt.

41. The Annual Gonad and Thyroid Cycles of the English Sparrow in Southern California. John Davis and Betty Schuck Davis. 1954. *The Condor*, **56**(6): 328-345. English Sparrows, *Passer domesticus*, were collected from 3 June 1952 to 15 July 1953 at Pasadena, California. The testes of 95 males and the thyroid glands of 91 males and 64 females were examined microscopically. The ovaries and oviducts of 69 females were examined macroscopically. Testicular activity was determined by assignment to one of six stages (after Bartholomew) ranging from stage 1 with resting spermatogonia only, to stage 6 exhibiting full spermotogenic activity. The female reproductive tracts were simply indicated as inactive, with low development, or in breeding condition. Thyroid activity was evaluated by using five numbered stages of follicular epithelial development. The arithmetic mean of the stages of randomly selected cells from a thyroid gland of each bird provided an index of thyroid activity.

Testes of adult males regressed from breeding condition and reached stage 1 in late July and early August. By early October testes were in stages 2 and 3 (spermatocytes present), in which condition they remained until January. Males reached breeding condition in mid-February. Leydig cells were detected in testes in all stages. The ovaries of adult females, after regression in July and August, remained inactive until early January. Females reached breeding condition in mid-March. Breeding time at Pasadena is apparently determined by the ovarian rather than the testicular cycle. Although variation is considerable, indices to thyroid activity (similar in males and females) suggest a high in July prior to the molt and a low in April and May at the height of the breeding season. Gonadal cycles at Pasadena, when compared to findings of other investigators in Oklahoma and in Minnesota, show differences which cannot be explained solely on the basis of different day lengths. Temperature appears to be an important factor in these differences.

The authors speculate at some length on possible temperature-thyroid-pituitary-gonadal interactions. They fail to cite many pertinent works including those of E. Polikarpova, Léon Vaugien, F. H. A. Marshall, A. L. Thomson, J. W. Burger, and D. S. Farner.—L. Richard Mewaldt.

MORPHOLOGY AND ANATOMY

42. Gross Anatomy of the Wing Muscles in the Family Corvidae. George E. Hudson and Patricia J. Lanzillotti. 1955. *The American Midland Naturalist*, **53**(1): 1-44. The authors studied and describe in detail the musculature of the pectoral appendage of the Crow, *Corvus brachyrhynchos*. They were also able to dissect specimens of 18 other species of 14 genera of Corvids for comparison, in which they noted small differences that "do not suggest any taxonomic groupings."

In addition to describing (and picturing) the morphology of each muscle, they show its action and its innervation, as far as their researches permit. They point out the need for further studies on the functioning of bird muscles, preferably by means of controlled experiments, and the need for further comprehensive studies of innervation in other taxonomic groups for "comparative homologies." The work is valuable not only for its anatomical detail, but for the authors' attempt to standardize the nomenclature of the muscles, with which previous students have taken unwarranted liberties.—O. L. Austin, Jr.

FOOD HABITS

(See Number 24)

SONG

(See Numbers 25, 27, 38, 39)

BOOKS

43. The Pocket Guide to Nests and Eggs. R. S. R. Fitter. 1954. Collins Publishers, St. James's Place, London. xv—172 pp., 48 plates, 40 of them in color. Price 21 shillings. The stated purpose of this unique handbook is "to enable people to identify any nest with eggs or young that they may find in their garden, in the open country, or by the seaside, in the British Isles." It is not meant as an egg collector's guide, nor to encourage egg-collecting, which is condemned today in England as strongly as it is in this country: "The further advances to be expected from the continued indiscriminate collecting of eggs do not justify any general license to do so."

From the emphasis given to banding throughout the text, the publishers evidently expect the book to have a considerable sale among the British bird ringers. "Whereas forty or fifty years ago those bird enthusiasts who specialized in the finding and identification of nests were egg collectors almost to a man, nowadays they are nearly all bird ringers." The introduction contains a section on ringing which tells how one may take part in the British ringing scheme and gives some excellent suggestions on the technique of handling nestlings for banding, emphasizing the best times and ways to do so with least disturbance to the birds. The descriptions of the young of each species are followed by the band size it takes, and such warnings as "not to be ringed until young bird well feathered" for the waterfowl.

Several species, the Wren, the Kinglet, the Sand Martin, and the House Martin are "not to be ringed as nestlings" because they cannot be handled without destroying the nest. This makes sense, but I am at a loss to understand why the several gallinaceous game birds "may not be ringed at all." The reasons given (p. 14), "because they are not migratory, often live under artificial conditions, and are habitually shot," are anything but valid, particularly for the Quail *(Coturnix)*, about whose considerable migratory movements much too little is known. Banders are well aware that high recovery rates are obtainable only in species that "are habitually shot," and the practitioners of game management are at last beginning to realize that banding is one of their most useful and dependable research tools, invaluable for investigating all aspects of game bird biology.

The 48 plates show the females of every species (189) known to have bred in the British Isles, pictured "at its nest against its habitual background," with the egg of each, and the downy young of many of the precocial species. The text gives additional details for each species under the headings: Habitat and Range; Nest (position and construction); Eggs and Young (number in clutch, shape, color, incubation period, description of nestling, length of nestling period, ring size); Season (with number of broods).

For descriptions of each bird the reader is referred to the author's "Pocket Guide to British Birds"—which implies of course that he carries both books in his pocket. Because the book's emphasis is on "identification in the field" by "the bird watcher in the street," the author has abandoned the standard systematic order and arranged the species in a size sequence, from the smallest to the largest, under three habitat categories, land, waterside, and water. This makes for some strange companions—the Quail sandwiched in between the Pied Wagtail and the Barn Swallow for instance, and leaves the reader quite as puzzled where to look for a particular species as was the author when he tried to determine each species' habitat category. Among the land birds we find the Stork, Woodcock, Lapwing, Golden Plover, Dotterel, and Pied Wagtail; among the waterside species are the Yellow Wagtail, Sand Martin (our Bank Swallow), Rock-Dove, Marsh Harrier, Greylag Goose, and the seven British terns; among the water birds are all the gulls and ducks, the Canada and Egyptian Geese, Whooper and Mute Swans. There may be some logic to this, but I can't figure it out. Most people who may have use for the book, even the amateurs for whom it was ostensibly written, are no strangers to the standard systematic order, and all this weird sequence does

is force them to locate in the index each species they want to look up. I find this quite annoying in any bird book I have to consult regularly.

Of more use in running down an unidentified nest, egg, or nestling in the absence of the parent bird are the series of keys at the end of the book, which give convenient clues to the various species by their nesting sites, nest construction, nest materials, egg shape, egg color, and the down and gape color of altricial nestlings. The keys are cleverly done as far as they go, and worth carrying out in further detail. However, no key is provided to the downy young of precocial species, because they "can run about almost as soon as they are hatched and so can rarely provide a clue to the identity of a nest." Neither, may I add, can the size of the bird that makes it!

Unexplained is the strange omission of any reference whatever to egg size, which oologists have always used as a standard diagnostic character. Also the book might be of more use to the ringers if it listed the colors of the soft parts of the young, which are often diagnostic among otherwise similar juveniles. In a mixed tern colony, for instance, the black legs of the young Roseates and the flesh-colored legs of the young Commons make confusion between the two impossible.—O. L. Austin, Jr.

44. Bird Recognition, Volume 3. James Fisher. 1955. Penguin Books Ltd, Harmondsworth, Middlesex, England. (In the U. S., Penguin Books Inc., 3300 Clipper Road, Baltimore 11, Md.) 159 pp., 68 ill. and 71 maps. Price 85 cents. This volume covers the British pigeons and sand grouse, crakes and rails, game birds, non-passerine perching birds, and the larger passerines. The previous volumes have treated the sea birds and waders, the birds of prey, and the waterfowl. A fourth and final volume, also to be published this year, will include the smaller passerines. Possibly to stimulate sales as well as conserve space, the author refers to the first volume for an explanation of the general system, and for such introductory material as a bibliography, a key vice-county list and map, an explanation of the year-cycle charts, and a diagram of a bird's external features.

Each lefthand page treats of a species with sections on identification, breeding, distribution, and migration. Of great interest are the comments on territorial and population changes over the years. The opposite page carries a picture of the bird in black and white with scale indicated, a map of the British Isles showing its distribution, and an ingenious circular chart reminiscent of a compass rose, within which on a series of progressively smaller circles denoting the seasons, the months, and the weeks, pertinent data on such features as song period, egg dates, young, and migration are spaced according to the times they occur.

Price limitations restrict the size of a volume of this type, and the omission of 37 "Extreme Rarities" is understandable. When, however, these "Rarities" include species such as *Lanius senator* with 82 records, *Nucifraga caryocatactes* with 70, and nine other species recorded more than 10 times each, the value of the book becomes somewhat restricted for advanced use. It is, further, unfortunate that economics of price and color plates do not harmonize. Nevertheless, within the limitations imposed by price, this pocket-sized book contains an almost incredible amount of information on the life and habits of British birds, presented in a manner interesting to the beginner and with a scientific accuracy that warrants its use by the expert.—Wendell Taber.

45. Travels of William Bartram. Edited by Mark Van Doren. 1955. Dover Publications, Inc., 1780 Broadway, N. Y. 19, N. Y. pp. 1-414, ill. Price $3.95 cloth, $1.95 paper. An unabridged reprint of this rare classic, first published in 1791 under the title: "Travels through North and South Carolina, Georgia, East & West Florida, the Cherokee Country, the Extensive Territories of the Muscogulges, or Creek Confederacy, and the Country of the Chactaws; Containing an Account of the Soil and Natural Productions of those Regions, together with Observations on the Manners of the Indians."

This is an excellent book for the ornithologist's bedside table, to be picked up and browsed in at random. Though primarily a botanist, Bartram was a well-rounded naturalist, keenly interested in all living things, and he had a nice gift for description. I find particularly intriguing his casual, matter-of-fact, yet accurate and ample comments on the wildlife he encountered. It is hard to believe how

abundant, only 175 years ago, were the birds we know only as rarities today. And a bit shocking and sobering.—O. L. Austin, Jr.

NOTES AND NEWS

In connection with studies on the phenomenon of sudden death, Dr. Curt P. Richter of the Johns Hopkins Hospital, Baltimore 5, Maryland, would like to receive specimens of birds that die during the banding process provided they are in reasonably good condition. Such specimens could be sent to him in dry ice.

Oliver L. Austin, Jr., *Bird-Banding's* Review Editor, is now on his way to the Antarctic, as Air Force observer on Operation Deepfreeze, with May 1, 1956 the probable date of return. Meanwhile, we are fortunate in having the help of Dr. Donald S. Farner (Laboratories of Zoophysiology, State College of Washington, Pullman, Wash.), who handled the review section for more than nine years, down to 1952. Correspondence on reviews should be directed to Dr. Farner, as should publications for review *except* regular exchanges and books from publishers who include *Bird-Banding* on their regular review lists. It is simpler for us to forward such exchanges and books than to attempt to use a new address for a relatively short period.