RECENT LITERATURE

BANDING

(See also, 12, 16, 19, 25, 26, 27, 29, 36, 40, 45, 55)

1. Third Report of the New South Wales Albatross Study Group (1962) Summarizing Activities to Date. J. D. Gibson. 1963. *Emu,* **63:** 215-223. Two previous reports have been published on this study (*Emu,* **59:** 73-82, 1959; *Emu,* **60:** 125-130, 1960) of banding albatrosses. The present paper not only covers activities since those two reports but also summarizes the data from 1958-1962. A total of 1,238 Wandering Albatrosses (*Diomedea exulans*) have been caught and banded at sea.

A study of data from retrapped birds revealed some interesting facts. "It became evident that when free from breeding commitments at their home islands, these birds returned regularly to an assured natural food supply, contrary to the generally held conception of a free-ranging ocean wanderer unbound by conventional migrations." ". . . at least some pairs remain in contact with one another during the period of off-season roving and . . . a fledgling youngster sometimes accompanies the parents for the first year." (I believe the expression "some pairs" above refers to the members of a pair.) At least 29 birds crossed from Australia to South Georgia, "a great circle distance of approximately 6,300 miles and a minimum sea route distance . . . of well over 7,000 miles." Seven tables give banding and recovery data in detail.—David W. Johnston.

2. The Swedish Bird Station on Capri and its Activities 1956-1961. (Den svenska fågelstationen på Capri och dess verksamhet 1956-61.) Carl Edelstam, Lars Broberg, Boris Engström, Wolf Jenning, and Stig Lundberg. 1961. *Vår Fågelvärld,* **22:** 225-270. (English summary.) In his introduction Edelstam describes how this bird station came into being after an inquiry from the San Michele Foundation set plans moving for its establishment. The reader may recall the famous Story of San Michele by Axel Munthe, the personal physician of Queen Victoria of Sweden, who acquired a considerable area of land, including San Michele and Castello di Barbarossa, and here created a haven for the birds to save them from the ruthless slaughter carried on by natives.

The bird station was opened at Castello di Barbarossa, 1215 feet above the Gulf of Naples, in 1956 and manned by ornithologists and helpers. Situated between Gibraltar and the Bosporus, two locations on the Mediterranean Sea where sporadic migratory studies are currently conducted, the Isle of Capri proved to be of strategic value as a site for a bird station, especially during the spring migration when thousands of migrants, after crossing the sea from Africa, use it as a landfall and resting place.

During the period in question, 24,597 birds of 83 species were banded. Of these the Garden Warbler (*Sylvia borin*) was at the top of the list in numbers, closely followed by the Icterine Warbler (*Hippolais icterina*) and the Spotted Flycatcher (*Muscicapa striata*). A total of 88 recoveries were reported. The most interesting of these were a Garden Warbler recovered in the winter in the Congo and a Golden Oriole (*Oriolus oriolus*) found in August in the Ukraine. A Spotted Flycatcher, banded as a nestling in Finland, was checked and released at Capri in May the following year. Data on weights and measurements are also discussed. The English summary covers three pages.—Louise de K. Lawrence.

3. Exceptional Longevity in Reed Warblers. R. Long. 1964. *British Birds,* **57**(3): 128-129. Two individuals of *Acrocephalus scirpaceus,* banded at the Jersey Bird Observatory, reached at least nine years of age, while two others reached at least 12 years.—M. M. Nice.

4. Blackbird and Starling Movements Traced by Banding and Color-marking. Joseph L. Guarino. 1963. *Inland Bird-Banding News,* **35**(4): 65. In 1962, the Denver office of the Fish and Wildlife Service started to color-mark Redwinged Blackbirds (*Agelaius phoeniceus*) and Starlings (*Sturnus vulgaris*). A plastic strip (1x4" nylon-impregnated polyvinyl chloride) was attached

to the leg, using an oversized band (No. 3). About 15,000 birds were marked by March 31, 1963: white and blue at Sand Lake National Wildlife Refuge in South Dakota, red in North Dakota, orange in Colorado, yellow in Arizona, and red, white, blue, gray, and green in California. After April 1, 1963, white tags were used in Colorado, yellow in South Dakota, and blue in North Dakota. Among 47 individuals retaken 3 to 4½ months later, 81 percent retained the color-marker; several have retained a marker at least 11 months. Sight reports of these color-marked birds should be sent to the Denver Wildlife Research Center, Building 45, Federal Center, Denver 25, Colorado. If the bird is trapped, killed or found dead, the report to the Bird-Banding Office at Laurel, Maryland should include the color-marker.

Returns from redwing banding at Sand Lake suggest that its summer residents winter largely in eastern Texas and western Louisiana. Birds banded as apparent migrants have been reported from Alberta and Saskatchewan.—E. Alexander Bergstrom.

5. A Tern-banding Project at the Dry Tortugas. James Richardson. 1964. *EBBA News*, **27**(1): 5-11. Bush Key in the Dry Tortugas group (in the Gulf of Mexico, about 70 miles west of Key West, Florida) harbors a breeding colony of about 100,000 Sooty Terns (*Sterna fuscata*) and a small number of Brown Noddies (*Anous stolidus*). About 3,000 terns were banded from 1936 through 1941. The project was revived on a larger scale in 1959, with up to 18,000 sooties banded in a season, plus a few hundred noddies. Recoveries of sooties include at least six in or near West Africa, suggesting a regular transatlantic movement.—E. Alexander Bergstrom.

6. Bird Report: 1962 [Malaya]. Ed. Lord Medway and D. R. Wells. *Malayan Nature Journal*, **17**(3): 123-144, Sept. 1963. Detailed reports on netting of birds at 11 locations, followed by a partial systematic list showing how netting in the tropics has indicated many species to be less rare than previously thought. No distant recoveries were obtained, but "a Purple Heron (*Ardea purpurea*) ringed as a nestling by Russian ornithologists at Lake Kanka in Primorski Krai on 26/6/61, was recovered in Kelantan on 15/12/61."—E. Alexander Bergstrom.

7. Banding Notes on the Starling at Meadville, Pa. Robert C. Leberman. 1963. *EBBA News*, **26**(6): 241-246. This report covers 1,092 Starlings (*Sturnus vulgaris*) banded at Meadville in NW Pennsylvania, May, 1958 through December, 1962. Birds banded between mid-November and the first week of February are mostly from a resident population, while spring migrants appear from the second week in February through the first week in April. For example, two birds banded on February 16, 1960 were recovered at a distance: one 115 miles to the north near Hamilton, Ontario on June 6, 1960, the other near Hazard, Kentucky on February 5, 1961, about 350 miles to the SW (the latter is the only distant recovery to date suggesting the SW-NE migratory direction that other banders have found for the species in eastern North America).

Leberman points out the danger of assuming that all birds banded from a given flock are moving together. From a large number banded on April 2, 1961, four were shot locally during the next few days. One was found dead in May about 32 miles NE, another was shot 60 miles to the SE on May 11 (the latter suggests reverse migration).—E. Alexander Bergstrom.

8. An Unusual Return for a Myrtle Warbler. Frank O. Novy. 1963. *Inland Bird-Banding News*, **35**(6): 109. From 40 *Dendroica coronata* banded on May 3, 1962 near Saginaw, Michigan, one was trapped in a bird feeder in Ottawa, Ontario on May 5, almost exactly 48 hours later. The distance is around 450 miles airline, about 125 miles farther north and 400 farther east. The weather at the time of banding was a drizzly morning with northwest wind; it cleared on the 4th, with a brisk wind from the SW.—E. Alexander Bergstrom.

9. A Massive Robin Banding Program at Huron, South Dakota. J. W. Johnson. 1964. *Inland Bird-Banding News*, **36**(1): 12-13. Starting in 1959, 6,956 Robins (*Turdus migratorius*) were netted in five years at Huron, South Dakota, as they came in to roost in a box elder grove. The birds came in low

enough over a river levee to be taken with mist nets. Returns numbered 392 in all, and ran over 20 percent of birds taken in the spring of 1963. Recoveries have been concentrated in Texas, within the triangle of Houston - Austin - San Antonio. —E. Alexander Bergstrom.

10. Three Years of Operation Recovery at Monhegan. Albert Schnitzer. 1963. *EBBA News*, **26**(4): 129-137. Three years (1960-62) of netting in early fall on Monhegan Island, ten miles off the coast of Maine, yielded 2,675 birds of 70 species. Netting was carried on in a meadow, because on most of the island the trees (largely spruce) are too high for good netting. Netting can be carried on only after the rush of summer visitors leaves in early September, so that the list cannot include some of the August specialties, such as the Lark Sparrow (*Chondestes grammacus*). The numbers taken don't necessarily show relative numbers on the island overall — for example, 12 Dickcissels (*Spiza americana*) to 9 Yellow-shafted Flickers (*Colaptes auratus*). "Nevertheless any observer on the scene would immediately become aware that the Flicker is one of the most common birds on the island, whereas none but a careful searcher would notice any Dickcissels."

One recovery has been reported to date: a Myrtle Warbler (*Dendroica coronata*) banded on October 9, 1961 recovered in Mississippi (coordinates 313-0900) on March 15, 1962. The only return, a Black-capped Chickadee (*Parus atricapillue*), was probably a local resident rather than a migrant. "Thus we are led to the possibility that the migration route of the individuals we banded will not take them to Monhegan more than once, that is that no two migration paths are *identical*." This agrees with Blake's hypothesis ("On the Problem of the Return of Migratory Birds", *Bird-Banding*, **22**: 114-117, July, 1951), which seems a safe general rule despite a handful of recent records of returns of undoubted migrants. —E. Alexander Bergstrom.

MIGRATION

(See also 1, 2, 4, 5, 6, 7, 8, 9, 10, 27, 29, 40, 49, 54, 55)

11. Does Navigation Without Celestial Clues Exist in Robins? A. C. Perdeck. 1963. *Ardea*, **51**: 91-104. The article begins with an instructive resumé of current theories on bird navigation and orientation. The author, using *Kramer-cages* indoors and without visual clues, designed experiments to test Fromme's earlier (1961) assertion that Robins (*Erithacus rubecula*) "were able to find their direction of migration without visual clues from celestial bodies." Three birds were used, each showing pronounced migratory restlessness when caught. None of the three birds demonstrated a consistent orientation pattern, as Fromme had believed, but Perdeck's experimental apparatus was slightly different and, more importantly, the cages were turned frequently. Perdeck questions Fromme's statistics and suggests that orientation in Robins as claimed by Fromme might have been due to auditory stimuli.—David W. Johnston.

12. Altitudinal Migration in the Mountain Chickadee. Keith L. Dixon and John D. Gilbert. 1964. *Condor*, **66**: 61-64. Seasonal altitudinal movements of *Parus gambeli* have been reported by some observers but questioned by others. The authors gathered data on this species in northern Utah by considering (1) observations of wintering birds, (2) marked individuals, and (3) specimen records. Data from a color-banded population showed that adults are sedentary on their breeding grounds and form stable social winter groups. Altitudinal movements were "performed largely if not solely by first-year birds." The authors propose the term "partial altitudinal migrant" for this species, to separate it from other species that vacate most if not all of the breeding range in winter.—David W. Johnston.

13. Falls of Night Migrants on the English East Coast in Autumn 1960 and 1961. David Lack and J. L. F. Parslow. 1962. *Bird Migration*, **2**(3): 187-201. Thirty-three "falls" of night migrants on the coast are discussed in relation to simultaneous radar observations. Most falls coincided with SSW move-

ments from Scandinavia, but only one-third of the observed SSW movements led to appreciable arrivals. With tail-winds the birds usually crossed the coast and continued inland, but with head-winds, strong cross-winds, or rain they often descended at the coast. Several falls were associated with observed westward movements: this direction was unexpected, especially since the species involved were similar to those in the movements from the NNE.—I. C. T. Nisbet.

14. Immigration of Night-migrants into Southern England in Spring 1962. J. L. F. Parslow. 1962. *Bird Migration*, **2**(3): 160-175. Arrivals at two stations on the south coast of England were compared with radar observations. A few arrivals were attributed to drift from the continent, but most comprised British summer visitors arriving on a NNW heading. Two arrivals are attributed to birds departing from southern England but drifted west along the coast by NE winds. The largest movements observed by radar were with tail winds, when the birds crossed the coast without stopping. With head-winds the density of migration was smaller, but more birds stopped at the coast, especially if there was local rain or a cross-component in the wind. There was thus a poor correlation between the numbers of birds seen on the ground and the size of the movement assessed by radar. Parslow discounts, perhaps too hastily, the possibility that this discrepancy could have been exaggerated by bias in the radar method (e.g., preferential detection of high migrants). If a cruder comparison is made, grouping the records into two categories only (some migration and no migration), there is a very good correlation between the two samples.—I. C. T. Nisbet.

15. Migration in Spring Recorded by Radar and Field Observations in Sweden. Jan. W. Mascher, Bengt-Olov Stolt, and Lars Wallin. 1962. *Ibis*, **104**(2): 205-215. A detailed study during one week revealed a poor correlation between visual and radar observations of diurnal migration. At times no migration could be detected by radar when movements were visible in the field: this applied especially to reversed movements. It was concluded that radar sampled the high migration (above 2,000 feet) which consisted mainly of non-passerines, while it missed the low-level migration visible from the ground.—I. C. T. Nisbet.

16. The Migration of European Thrushes: a Comparative Study Based on Ringing Recoveries. M. J. Ashmole (née Goodacre). 1962. *Ibis*, **104**(3): 314-346; (4): 522-559. A remarkably detailed study of the banding recoveries of the six species of thrushes (*Turdus* spp.) which breed in Europe. 3,245 'long-distance' recoveries are analyzed according to species, area and season of banding, and month of recovery. The results are presented on 88 maps, with a detailed but terse discussion. The six species differ considerably in their migratory behavior. The Ring Ouzel (*T. torquatus*) and the Redwing (*T. iliacus*) are total migrants throughout most of their ranges; the Redwing and especially the Fieldfare (*T. pilaris*) are nomadic in winter; the Mistle Thrush (*T. viscivorus*) is resident over much of its range. Several species are partial migrants, especially in western Europe, and several show alternative migration directions (W or SSW) even within the same populations. This 'polymorphism' is attributed to the variability of winter weather, which favors different types of behavior in different years. In general the recoveries follow the familiar European pattern: eastern and northern populations migrate longer distances than western or southern populations, while western populations tend to migrate more towards the south, resulting in a concentration of recoveries in SW Europe. In two species, northern populations tend to "leap-frog" over southern populations and winter further south, but one species exhibits the reverse pattern. In the nomadic species there is extensive mixing (and presumably competition) between different populations in winter. There are two established cases where two populations of the same species cross the same area in markedly different directions. There is only a small area (in southern Norway and western Sweden) where all six species breed, but the species mix much more in winter, and five or six occur together over a wide area in SW Europe. Probably all suitable wintering areas in Europe are exploited, and there is evidently competion for the best.

In view of the vast amount of data deployed, these conclusions seem somewhat colorless. Some of them could have been drawn without banding at all; some of the rest were already illustrated (though not statistically proved) in

Schüz and Weigold's *Atlas des Vogelzugs* of 1931. The migration student nowadays wants to know not only the average pattern of migration, but also the nature of the fluctuations about the average: year-to-year variations in the behavior of the polymorphic and nomadic populations, effects of weather on direction and extent of migration, the rôles of drift and redetermined migration, dog-legged migrations, and reversed movements. Mrs. Ashmole gives examples of all these phenomena, but does not analyze them in detail, and implies that her data were too meager, too uneven, and too biased to do so. If she is right (the reviewer thinks that she was too unadventurous in some cases), the implications are serious. With more than a million thrushes already banded in Europe, some stations are now restricting banding of these species. If a million banded birds are not enough to answer questions of current interest, how many more are needed?—I. C. T. Nisbet.

17. Turtle Dove Crossing the Atlantic Westward on a Ship. Stephen E. Chapman. 1962. *British Birds*, **55**(10): 444.

18. Chaffinches Crossing the Atlantic Westward on a Ship. D. T. Crisp. 1962. *British Birds*, **55**(10): 447. Two interesting records of migrants alighting on ships near the British Isles and crossing the Atlantic on board. The dove reached Newfoundland in May, 1962; at least one Chaffinch reached the Lesser Antilles in November, 1961 after 14 days at sea.—I. C. T. Nisbet.

19. Robin Recaptures on Fair Isle. Peter Davis. 1962. *British Birds*, **55**(6): 225-229. A useful study based on 96 recapture records. Robins (*Erithacus rubecula*) trapped on Fair Isle after long sea-crossings usually do not start to regain weight until the second day after arrival, and many lose weight during the first day. The losses are attributed to territorial friction among newly arrived birds, but to be fully convincing this suggestion should be tested on species which do not exhibit this friction. Most individuals regain weight rapidly after the second day and leave before the sixth day, usually earlier in spring. The individuals which remain longest gain, on average, 17-18 percent of their arrival weights, the largest recorded gain being 44 percent. Birds which might have been on the island for several days before the first capture were excluded.—I. C. T. Nisbet.

20. Radar Evidence on Migratory Orientation. David Lack. 1962. *British Birds*, **55**(4): 139-157. This paper attempts to evaluate the significance of radar observations in reference to current theories of orientation. Lack's final conclusion is pessimistic ("the problems raised can be solved only by experiment"), but he gives an unusually clear statement of the problems and poses some new ones.

There is a brief but lucid review of experimental work on homing and migrating birds. Lack accepts Kramer's distinction between the navigational processes of consulting a "map" to determine position in relation to a goal, and of using a "compass" to select the right direction. He takes the cautious view that experiments have so far linked the sun and stars only with the compass-process, and not conclusively with the map-process. While noting Merkel and Fromme's evidence that birds can sometimes orient in closed rooms, Lack believes the compass-sense is upset by overcast skies.

Lack's own radar observations add the following facts:

1. Migrants usually fly on straight tracks, over sea as well as over land, and their tracks are usually maintained at dawn and dusk.

2. Migrants over the southern North Sea do not compensate for drift.

3. Migrants rarely set out with strong cross-winds in autumn, but they do so more regularly in spring.

4. Migrants follow coasts by night to a negligible extent, and to an unimportant extent by day.

5. Disorientation occurs under overcast skies (but Lack does not explain why it is so rare in a country famous for its cloudiness).

6. Norwegian thrushes reorient to the SSE at dawn after westward drift over the North Sea in autumn.

A crucial question is whether birds which have been drifted off course correct for drift by adjusting their heading in their next migratory flight. Apart from the peculiar behavior of the Norwegian thrushes, Lack only quotes one definite observation (in spring) of such a "redetermined" movement. (He does not mention the analysis in one of his early papers (*Ibis*, **102**: 49-51, 1960) which suggested that birds leaving England in spring do not redetermine their migration after drift, an analysis which could profitably be repeated now that he has more data.) In a new analysis of British banding recoveries, he shows that the convincing cases of redetermined migration were either in spring, or of birds of unknown age in autumn. There is, therefore, no conclusive evidence for the widespread belief that juveniles can correct for drift in autumn. Lack here understates his case, because some of the recoveries he quotes as equivocal, such as that of the Red-backed Shrike, seem to be good evidence *against* redetermined migration.

Lack's final conclusion is that radar observations agree best with Perdeck's hypothesis that juveniles migrate merely on a direction-and-distance basis, without correcting for lateral displacements, whereas adults commute between learned areas. While this hypothesis is attractively simple (rendering complex theories of navigation superfluous), it seems to conflict with Lack's observation (2) that autumn migrants are frequently drifted off-course by the wind. Lack explains this by means of observation (3), which implies that migrants are never drifted very far, but this explanation is not fully convincing without some estimates of the amount of lateral drift actually experienced by the average bird. Nor is it easy to see how this explanation could apply to long-distance migrants which winter in restricted areas. Lack's conclusion is necessarily based on negative evidence, but it emphasizes that the evidence for innate navigational ability in wild migrants is very flimsy.—I. C. T. Nisbet.

21. Nocturnal Migration of Thrushes and Their Orientation. (Über nächtlichen Zug von Drosseln und ihre Orientierung.) D. A. Vleugel. 1962. *Vogelwarte*, **21**(4): 307-313. Herein further discussion of the author's hypothesis that thrushes orient at night by maintaining a constant angle relative to the wind. Examples are given which suggest that birds can orient under overcast skies, that disorientation occurs with variable winds, and that changes in wind lead to changes in track. None of the examples, however, excludes other interpretations, and more systematic evidence for the main hypothesis is needed.—I. C. T. Nisbet.

22. The Spring Departure of Common Gulls *Larus canus* from Scotland. W. R. P. Bourne and I. J. Patterson. 1962. *Scottish Birds*, **2**(1): 1-15. Visual and radar observations are presented for an intense spring migration from winter quarters in Scotland and Ireland towards breeding grounds in Scandinavia. In each year the main passage was confined to a few days in April. The birds sometimes waited two or three weeks for favorable weather, usually departing in transiently fine weather with favorable winds following the passage of a front. When they overtook the front they either settled or were drifted northwards. The rapid spring migration was hard to see from the ground. The more leisurely autumn migration was difficult to detect by radar, but resting birds were much more numerous.—I. C. T. Nisbet.

23. Migration and Orientation: Autumn Observations in Southwest Europe. (Migración y orientación en aves: observaciones en otoño en el Sur-Oeste de Europa.) H. G. Wallraff and J. Kiepenheuer. 1963. *Ardeola*, **8**: 19-40. (English summary.) Banded birds from many parts of Europe are recovered in autumn in southwest France and Portugal, far to the west of a direct line between breeding areas and winter quarters in tropical Africa. This concentration of recoveries suggests that many species detour west through the southwestern corner of Europe, but it could also arise from a concentration of bird-catchers. Moon-watching in the autumn of 1961 detected large movements (several thousand birds per hour per mile calculated by Lowery's method) through the extreme southwest of France and Portugal, thus supporting the first interpretation. The direction of migration was more to the west in France than in Portugal, supporting the hypothesis of a detour, but the difference was not significant because cloudy weather restricted observation. Deviation of migration to avoid the sea and the high Pyrenees was observed. The navigational problems raised by dog-legged migration are discussed.—I. C. T. Nisbet.

24. A Tower for T V : 30,000 Dead Birds. Charles A. Kemper. 1964. *Audubon Magazine,* **66**(2): 86-90. The thousand-foot T V tower at Eau Claire, Wisconsin, brought death to some 30,000 migrants on two nights — September 18-20, 1963. The species that suffered most were the Red-eyed Vireo (1, 121 identified) and Magnolia, Tennessee, and Bay-breasted warblers, and Ovenbirds (over 900 each). Dr. Kemper warns that *something must be done* to curb the increasing "high tower mania" of the T V stations and to lessen this appalling slaughter of our choicest birds at the present high towers.—M. M. Nice.

25. Travels of Common Terns. Mabel Gillespie. 1963. *EBBA News,* **26**(4): 160-165. Between 1923 and 1941, 2,258 fledgling Common Terns (*Sterna hirundo*) were banded by the Gillespies and friends, mostly on the southern New Jersey coast. Twenty-five recoveries were obtained, other than birds found close to the point of banding. Nine were recovered within three months of banding, before migrating southward; "all went north, the distances ranging from forty to seventy-five miles," in post-breeding wandering.

Ten birds were recovered from the winter range, generally from the same area as the Cape Cod birds banded by the Austins, concentrating in the vicinity of Trinidad and British Guiana. However, a tern banded in New Jersey on August 5, 1923 was recovered in January, 1924, from Campeche, at the northern bend of the Yucatan peninsula. Only three specimens for the region were listed by Paynter (*Ornithography of the Yucatan Peninsula,* 1955), not including this Gillespie bird, but including two banded by the Austins.

Six terns banded in New Jersey were taken in later seasons from Ocean City, Maryland north to Martha's Vineyard, Massachusetts, with four outside New Jersey. This indication of a weaker attachment to the natal site than was noted in colonies studied by the Austins seems reasonable since the New Jersey colonies were generally much smaller and more transitory at any one site.—E. Alexander Bergstrom.

26. California "Crowned" Sparrows Return from Maryland. L. Richard Mewaldt. 1964. *Western Bird-Bander,* **39**(1): 1-2. In the winter of 1961-62, White-crowned Sparrows (*Zonotrichia leucophrys*) and Golden-crowned Sparrows (*Z. atricapilla*) were displaced from San Jose, California, about 1800 miles ESE to Baton Rouge, Louisiana (*Bird-Banding,* **34**: 224-225). In the winter of 1962-63, 574 white-crowns and 164 golden-crowns were displaced to Laurel, Maryland, about 2400 miles east.

By the end of 1963, eight had been retaken at San Jose. The four birds of *Z. l. gambelii* which returned, out of 246 transported, were among the eight *gambelii* (out of 79 transported) which had returned from Louisiana a year earlier. Two of the golden-crowns which returned from Maryland, out of the 164 released, were among seven which had returned from Louisiana the previous year (out of 102 released in Louisiana); two other golden-crowns returned from Maryland. These data seem to indicate the value of experience in returning from displacement, and suggest that these returns were not the result of random search.—E. Alexander Bergstrom.

POPULATION DYNAMICS

(See also 10, 31, 32, 39, 40, 45, 46, 54)

27. The Biology and Population Structure of Starlings at an Urban Roost. William L. Thompson and Ellen L. Coutlee. 1964. *Wilson Bull.,* **75**: 358-372. For two years the authors studied a roost of Starlings in and on a metropolitan building in Detroit, Michigan. In the course of the study 1,872 birds were banded, from which the returns amounted to only about nine percent; from these data the authors concluded "that the roost is occupied by a constantly changing assemblage of birds from night to night." Several bar graphs indicate monthly age composition at the roost, but the data include large percentages of "indeterminates." Both sexes appeared to be heavier in winter; some of the variations in weight might have been due to differences in the times of night when birds were weighed.

Considerable discussion is devoted to the communal roosting habit of Starlings. Among the factors involved are protection against the wind, the reduction of heat loss "by having so many warm bodies close by," protection against predators, and "strongly social behavior" in this species. Their assertion that "the most energy-demanding periods in the annual cycle of most birds are the rearing of young and the annual molt . . ." is a moot point, especially insofar as long-distance migrants are involved.—David W. Johnston.

28. Observations on the Mississippi Kite in Southwestern Kansas. Henry S. Fitch. 1963. *University of Kansas Publications; Museum of Natural History*, **12**(11): 508-519. It is indeed a pleasure to read of one raptor that is thriving; *Ictinia misisippiensis* is increasing in numbers in southwestern Kansas in response to the growth of planted trees. "The kites are social in all their activities and do not maintain territories. . . . Food consists almost entirely of flying insects, and these are usually eaten while the kite is in flight."—M. M. Nice.

29. Popsquash - the Crowded Island. Bruce Adams. 1964. *EBBA News*, **27**(1): 25-26. This island, "about half a mile from the Vermont shore in St. Alban's Bay, Lake Champlain," is occupied by Ring-billed Gulls (*Larus delawarensis*) and Common Terns (*Sterna hirundo*). In 1957, Normand St. Jacques banded 220 terns there but no gulls. Gradually the balance shifted, so that by 1963, 176 gulls were banded to one tern, and only a handful of terns were present. This shift may be related to an increase in Herring Gulls (*Larus argentatus*) and a decrease in ring-bills at the Four Brothers Islands, about 40 miles south on the New York side of the lake.—E. Alexander Bergstrom.

30. Evening Grosbeaks in Northeastern Ohio during the Winters of 1960-61 and 1961-62. Ralph W. Dexter. 1964. *Inland Bird-Banding News*, **36**(1): 8-9. The species (*Hesperiphona vespertina*) was almost entirely absent in the winter of 1960-61, but had one of its greatest invasions in this area in 1961-62, with a maximum flock size of 130, and 73 individuals banded. A ♂ on July 14, 1962 in Portage County provided the first summer record for northeastern Ohio, but breeding was not shown.—E. Alexander Bergstrom.

NIDIFICATION AND REPRODUCTION

(See also 39, 41, 43, 50)

31. Preliminary Studies on the Breeding Behavior of the Tree-Sparrow (Passer montanus saturatus). Chia Hsiang-kan, Bei Tien-hsiang, Chen Tia-yung, and Cheng Tso-hsin. 1963. *Acta Zoologica Sinica*, **15**: 527-536. (English resumé). Summary statements indicate the following:

1. First eggs are laid at the beginning of May, except in upland regions they are laid about two weeks later.
2. Nest sites and construction are given — height, spacing, etc.
3. Average clutch-size was 5(3-8). Linear measurements and weights of eggs are given.
4. Incubation period is 10-12 days. Hatching success was 85 percent.
5. In gathering food for nestlings, parents range up to 300 m from the nest.
6. Young birds are largely insectivorous (many agricultural pests being eaten), and, at time of fledging, averaged 16 g in weight.
7. In the regions studied Tree-Sparrows are double — or even triple-brooded, a pair being capable of producing about 13 young each year.
8. "The number of the Tree-Sparrows in the fall increased about 5 times their number estimated in the spring."—David W. Johnston.

32. Researches on a Village Population of House Martins. (Untersuchungen an einer dorfgemeinschaft con Mehlschwalben, *Delichon urbica*.) Kurt von Gunten. 1963. *Ornithologische Beobachter*, **60**(1): 1-11. In the Swiss village of Merlingen the author started in 1951 to offer artificial nests to House Martins to

forestall the disappearance of these birds in the wake of increasing paving of the streets. From eight breeding pairs the number rose rapidly; since 1959 there were between 60 and 70 breeding pairs in the village. From 1956 to 1961 all nestlings were banded; from 1959 to 1962 more and more adults were captured. From 1960 to 1962 55 percent of the breeding birds in the village had been hatched there, 45 percent hatched elsewhere. Of the former the percentages according to age were 63.4 in their first year; these percentages diminished rapidly year by year to 23.5, 7.8, 4.6, and 0.7 by the fifth year. The author concludes that this means 37 percent survival of the House Martins that have lived through their first winter.

Young from the first brood survived better than those from the second, for 93 of 779 (12 percent) returned from the former, 20 (6.2 percent) from 321 of the latter. Four birds banded as nestlings were found breeding from 3 to 11 kilometers from their birth place. Pairs usually stayed together throughout one season, but 5 of 32 pairs changed mates for the second brood. No cases were found of remating a second year. A thorough, valuable study.—M. M. Nice.

33. A Nesting Study of the Catbird in Southern Michigan. John L. Zimmerman. 1963. *Jack-Pine Warbler,* **42**(4): 142-160. A careful study of activities of *Dumetella carolinensis* at 23 nests in 1958. "Both adults carried nest material, but only the female was seen to build .... Only the female incubated .... The average attentive period was 18.4 ± 2.71 minutes and the average inattentive period was 12.0 ± 1.25 minutes." Incubation lasted 13 days, fledging 10.5 ± 0.26. The male often called the female off the nest, then usually guarded the nest during her absence. Both parents fed the young. Of the 23 nests 14 (60.9 percent) fledged young; of the 47 eggs laid 36 (48.7 percent) produced fledglings.—M. M. Nice.

34. The Visitometer, a Simplified Mechanical Counter. Donald J. Hendrick. 1963. *Passenger Pigeon,* **25**(2): 60-68. An ingenious, home-made counting device is illustrated and described and results given from its use on two nests of Robins (*Turdus migratorius*). At the first nest during six days of incubation the female was shown to have left from 15 to 23 times a day, the average being 18.5. At the second nest during the last nine days of nest life for the four young, the total visits per day of the two parents ranged between 120 and 271, averaging 206.—M. M. Nice.

35. On Body Development and Growth of Primaries in Young South African Button-Quails. (Ueber die Körperentwicklung und das Schwingenwachstum junger Spitzschwanz-Laufhunchen, *Turnix sylvatica dussumier.*) Ernst Sutter and Niklaus Cornaz. 1963. *Ornithologische Beobachter,* **60**(6): 213-223. Observations on a brood of five of these tiny precocial chicks raised in the zoo at Basel. The father fed them and brooded them two-thirds of the daylight hours for the first three weeks. From their third day they joined him in his sand bath. At five weeks they reached independence. Their hatching weights ranged from 1.67 to 1.86 grams, averaging 1.78 grams. At two weeks they reached 30 percent, at four weeks 70 percent, and at six weeks 90 percent of adult weight. A detailed study was made of feather development; the juvenile primaries started to grow at two days and began to molt at three weeks, the replacements being both longer and wider. At 19 days the chicks were flying well. Three curves and seven photographs illustrate this interesting paper.—M. M. Nice.

36. The Breeding Biology of the Orange-breasted Sunbird Anthobaphes violacea (Linnaeus). G. J. Broekhuysen. 1963. *The Ostrich,* **34**(4): 187-234. A detailed study from 1951-1961, based on banding as well as measuring and weighing nestlings. Male and female are very different in appearance. They are territorial during their breeding season (winter), and year after year rejoin each other in their territory. Both sexes sing a "rather high pitched warble." The female builds the nest; she incubates her two eggs for 14½ days and broods the chicks during the 19 days of their nestling life. Both parents feed the young, the female somewhat more than her mate. During 11 hours at 10 nests the feeding rate averaged 5.9 times an hour with a standard deviation of 2.8. Of 319 food items identified 56 percent were insects, 42 percent spiders. Figure 7 summarizes day by day development of the young—growth of culmen, tarsus, and feathers,

and increase of weight from 1.2 to 9 grams. After leaving the nest the young were led back to the nest by their mother every evening for the first 5-16 days; for the first six nights she slept with them. As to survival of the eggs, of 142 laid, 56 (39 percent) produced fledged young.

This excellent paper presents 7 figures, 32 tables, 7 sketches of postures of male and female, 10 photographs of the birds, and a beautiful color plate from a painting of both sexes.—M. M. Nice.

37. A Study of the Karoo Prinia. M. K. Rowan and G. J. Broekhuysen. 1962. *The Ostrich*, **33**(2): 6-30. This paper combines independent studies of Mrs. Rowan on the western slopes of the Table Mountain massif and of Dr. Broekhuysen on the eastern slopes of the same range. In the Cape Wren-Warbler (*Prinia maculosa*), the nest is built by both sexes, incubation is performed by only one of the pair (presumably the female) and lasts 14 days. Fledging takes 14-16 days. Nesting success was low. Of 291 eggs laid in 97 nests 129 hatched (44 percent) and 84 (28 percent of total eggs laid) fledged.—M. M. Nice.

38. Studies of Less Familiar Birds: 126-Parrot Crossbill. Viking Olsson. 1964. *British Birds*, **57**(3): 118-123. Two nests of *Loxia pytyopsittacus* were studied in Sweden from hides at distances of less than a yard for about 100 hours. The nests are built by the females, the eggs incubated and the chicks brooded by them. The incubating bird receives all her food from her mate at intervals of 2 to 2½ hours. One female left the eggs and chicks only for short intervals, but the other left her three- and six- day young for 60 and 90 minutes in almost freezing weather; on the latter occasion the chicks seemed to be dead on her return but revived after seven minutes of brooding. Yet they survived and left the nest at the same age as another brood—25 days. Many other details as to behavior of parents and young are given in this most interesting paper. For further information on this species see Louise de K. Lawrence's review (*Bird-Banding*, **31**: 229. 1960) of a paper by Dr. Olsson in Swedish.—M. M. Nice.

LIFE HISTORY

(See also 32, 36, 37)

39. Observations on the Barn Owl (Tyto alba Guttata) in the Netherlands in Relation to its Ecology and Population Fluctuations. M. R. Honer. 1963.. *Ardea*, **51**: 158-195. This is a significant contribution to knowledge of this species' biology. Topics discussed in detail include habitat selection, body weight and starvation, burst mortality, disease and parasites, distribution, and population and declines. In discussing mortality, the author suggests that "mortality bursts cannot be caused by *coccidiosis* . . ." and that "parasites are important only when the owls have become weakened due to other causes."

Some additional interesting figures are given. Between 1937 and 1957, 5,076 Barn Owls were known to be handled by taxidermists in the Netherlands, some of the "peak years" indicating mortality bursts. These data are correlated with banding records and literature records of annual population estimates. About 600 breeding pairs occur in 20 percent of the country; this means about 3,000 breeding pairs in the Netherlands.—David W. Johnston.

40. The Antarctic Skua. Carl R. Eklund. 1964. *Scientific American*, **210**(2): 94-100. This popularized article, published posthumously, contains many interesting observations in the life of the skua. [See *Bird-Banding*, **32**: 187-223 for a more technical paper.] The author claims that "most ornithologists divide the skuas into two species: the south polar skua, called *Catharacta maccormicki*, and the great skua, which has three subspecies . . . ." *Catharacta* is currently considered by most taxonomists to be a monotypic genus, but even if *maccormicki* is a distinct species—and Eklund gives no evidence for this conclusion—, there would still be *six* subspecies of the "great skua." Indeed Eklund, at least inadvertently, points out that the taxonomy of skuas is badly in need of careful study.

In conjunction with this report some 6,000 skuas have been banded, returns from which indicate that (1) individuals tend to return to their natal sites for

breeding, (2) the skua tends to mate with the same partner in successive years (though separated in winter), perhaps even for life, and (3) "the bird spends its entire lifetime within the Antarctic region . . ." (there are questionable records from the Japanese coasts).

Other observations in the paper relate to the skua's food (red krill, penguin eggs, and chicks), territory size (50 feet in diameter), incubation, body temperature (106.1 °F), and egg temperatures (96.6 °F average). Of particular interest were the homing experiments. On one occasion, six skuas were released at the South Pole, 825 miles away from their nests; within ten days one bird had returned to its nest. "What is most remarkable about this feat is that there were no landmarks within hundreds of miles of the release point and at the South Pole every direction is north! It was the first time in history that a test of a bird's navigational ability had been made at either Pole."—David W. Johnston.

BEHAVIOR

(See also 38, 54)

41. On Diversionary Behavior of the Snowy Plover in Relationship to Man. (Sur le Comportement de Diversion du Gravelot a Collier Interrompu *Charadrius alexandrinus* L. a l'Égard de l'Homme.) Christian Errard. 1963. *Alauda*, **31**(4): 262-284. A detailed description of the behavior in the Camargue of a pair of Snowy Plovers with young. Numerous sketches illustrate: bobbing, rodent-run, crouch-run, lure-display, and displacement-activities, such as preening, "incubating," false-feeding with jerky movements. When the observer imitated the bird's alarm note, the birds appeared confused. The paper closes with a seven-page discussion, in which references are cited from English, German, French, and Dutch ornithologists.—M. M. Nice.

42. Comparative Behavior of the Yellow-headed Blackbird, Red-winged Blackbird, and Other Icterids. Robert W. Nero. 1963. *Wilson Bulletin*, **75**(4): 376-413. A detailed description of the vocalization and agonistic behavior of both sexes of *Xanthocephalus xanthocephalus*. These are compared with those of *Agelaius phoeniceus* (of which species Dr. Nero made an intensive study in 1956) and also of other icterids. "Song-spread was given by both sexes, being directed mainly to members of the same sex. Flight Bill-tilting replaced typical icterine Bill-tilting as a common threat display given especially by males in territorial disputes." "Symbolic-nesting" is of especial interest within this family where nest-building proper appears to be almost wholly confined to the female. It occurs in redwings and Common Grackles (*Quisculus quiscula*) and was often practised by my hand-raised male Eastern Meadowlark (*Sturnella magna*). This admirable paper is illustrated with excellent sketches by Ralph D. Carson from photographs by the author.—M. M. Nice.

ECOLOGY

(See 51)

PARASITES AND DISEASES

(See also 39)

43. Cuckoo Hosts in England. David Lack. 1963. *Bird Study*, **10**: 185-201. **Cuckoo Hosts in Japan.** T. Royama. 1963. *Bird Study*, **10**: 201-202. These two articles, both providing tables of hosts and references, are valuable compilations of records from various sources. Lack proposes, among other things, "that the Cuckoo has evolved specific host — selection because, though indiscriminate laying allows more eggs to be placed, a much higher proportion of them are rejected, because specific host-selection allows the evolution of egg-mimicry."—David W. Johnston.

CONSERVATION

(See also 57, 58)

44. Insecticides and Scottish Golden Eagles. J. D. Lockie and D. A. Ratcliffe. 1964. *British Birds*, **57**(3): 89-102. In a wide area of the western Highlands of Scotland the number of pairs of *Aquila chrysaetos* rearing young has dropped from 72 percent during 1937-60 to 29 percent during 1961-63. "The recent high rate of nesting failure has included both the breakage of eggs by the eagles themselves and the inability of the females to lay eggs." Peregrines (*Falco peregrinus*), Kestrels (*F. tinnunculus*), and Sparrowhawks (*Accipiter nisus*) in Britain and Ospreys (*Pandion haliaëtus*) and Bald Eagles (*Haliaëtus leucocephalus*) in America have shown similar pictures and the evidence points to pesticides as the explanation. Ten eggs from seven eyries in the present study were found to contain chlorinated hydrocarbons. The chief source is believed to be from sheep carrion, the sheep having absorbed the insecticides from sheep dips. Methods are described for the analysis of eggs for these poisons.—M. M. Nice.

45. Effect of Sprayed Pesticide on Evening Grosbeak Nesting Area. G. Hapgood Parks. 1963. *EBBA News*, **26**(6): 221-222 (see also, *ibid.*, **27**(1): 12, 38-39). In eastern Quebec, a high population of Evening Grosbeaks (*Hesperiphona vespertina*) coincided with a heavy infestation of spruce budworm (see *Bird-Banding*, **34**(1): 22-30, and **34**(2): 73-86). After aerial spraying with DDT in the 1962 breeding season, the grosbeak population in the area dropped to almost nothing. In 1963 5 birds were trapped, as compared with 747 in 1962, comparable effort. Parks has prepared a technical report in collaboration with Dr. J. Robert Blais, forest entomologist for the Quebec Dept. of Forestry.

M. Thomas Brousseau, the Quebec woodsman who shot many grosbeaks under the mistaken impression that the Fish and Wildlife Service wanted information obtained that way, and who later was of great assistance to the Parks and other ornithologists, died in August, 1963 of injuries suffered when hit by a car.—E. Alexander Bergstrom.

46. Spring Mortality of Birds Following Fall Spraying of Elms. G. J. Wallace, A. G. Etter, and D. R. Osborne. 1964. *Massachusetts Audubon*, **48**(3): 116-120. Fall spraying of elms has been suggested as a means of minimizing mortality of Robins (*Turdus migratorius*) and other birds. However, studies on the Michigan State University campus in the spring of 1963, following fall spraying in 1962, still showed heavy mortality. The results were affected by accumulated residues from spraying in past years, but even on an area not previously sprayed at all, fall spraying would build up contamination comparable overall to that from spring spraying. The effect on different species of birds is not quite the same. Fall spraying has a greater effect on bark-foragers (woodpeckers, nuthatches, chickadees, titmice, and brown creepers), while spring spraying has a greater effect on foliage-gleaners (orioles, warblers, and vireos). Robins and many other species are severely affected by spraying at either season.—E. Alexander Bergstrom.

47. Pesticides and the Biological Control of Insect Pests. A. D. Pickett. 1963. *Massachusetts Audubon*, **48**(1): 5-8. Originally published in a longer version by *World Review of Pest Control*. Experience in the Annapolis Valley of Nova Scotia led to an "apple insect control program . . . based on the use of pesticides which are somewhat selective. Screening tests are made in small orchard plots to determine the pesticides which will control the pests and leave the parasites and predators substantially unharmed. Enough progress has been made to provide a fairly effective program at a minimum cost. In 1955 the average cost of insecticide per acre per year in Nova Scotia was $4.80. In 1953 . . . the cost in Massachusetts . . . was $35-$44 plus $40 or more for fungicides, *not* including machinery and labor." This "integration and harmonization of biological and chemical control" deserves much wider use, for the benefit of the farmer as well as of the rest of us.—E. Alexander Bergstrom.

WILDLIFE MANAGEMENT

48. Evaluation of Pheasant Liberations in New Zealand Based on a 12-year Banding Study. Kaj Westerskov. 1963. New Zealand Dept. of Internal Affairs, Wildlife Publication No. 71, 67p. Pheasants (*Phasianus colchicus*) were first introduced into New Zealand in 1842. Liberation of game farm birds is still carried on actively. However, reports published in 1953 and 1956 led the Department of Internal Affairs to conclude that in New Zealand, as in Europe and North America, such liberation was not worthwhile. The Department therefore gradually discontinued these liberations with none after 1960. Many pheasants are still released by acclimatisation societies, which have been rather slow to respond to these studies. However, band recoveries (and thus utilization of the birds released) have increased appreciably since 1956, because of "a better bird released, better liberation techniques, and release in better selected and more suitable habitats." To illustrate the high cost of liberating birds for the results obtained, "the annual kill of cock pheasants in the North Island is estimated at some 50,000—. The annual liberation as at present of approximately 7,000 cock pheasants provides less than 1 per cent of the total kill based on recorded recovery rates."—E. Alexander Bergstrom.

MORPHOLOGY AND ANATOMY

49. Weights from Five Hundred Birds Found Dead on Skomer Island in January 1962. M. P. Harris. 1962. *British Birds*, **55**(3): 97-103. Thousands of birds, mainly thrushes, descended on this small island in the Irish Sea during hard weather, and many died there. 564 corpses were weighed and measured and the results analyzed according to age and sex. "It would appear from the death weights that larger birds, such as thrushes, can lose approximately 50% of their normal weights before dying, while the smaller birds may be able to lose only about 35%." However, the "normal" weights quoted for the larger birds were obtained on migration and in winter, and so presumably included some fat; the smaller birds, although also weighed on migration, were mainly short-distance diurnal migrants and may not have been as fat.

Similar mortality and loss of weight in thrushes during the same spell of hard weather was described by P. Hope Jones (*British Birds*, **55**(5): 178-181, 1962).—I. C. T. Nisbet.

PHYSIOLOGY

50. Regulations of Nesting Time and Distribution in the House Wren. S. Charles Kendeigh. 1963. *Wilson Bulletin*, **75**(4): 418-247. An analysis of the temperatures at which the first eggs of *Troglodytes aedon baldwini* appeared during 18 years at Cleveland, Ohio and comparison of these with pertinent temperatures at the southern and northern breeding ranges of this race. After discussing the rate of growth of the oocyte in several species as found by other investigators, Dr. Kendeigh tells us that the average temperature of the three days preceeding the laying of the first egg in his House Wrens was 14.8 $\pm$ 2.7 C. He concludes that: "Low temperatures, particularly during May when the development of the gonads puts the birds in breeding condition, may limit the breeding range northward and high temperatures may limit the breeding range southward. Limitation of the breeding range appears thus to be determined by the lack of synchronization between the occurrence of favorable temperature and photoperiods—northward because the onset of favorable temperatures is too slow, southward because it is too fast."—M. M. Nice.

PLUMAGES AND MOLT

(See 35)

ZOOGEOGRAPHY

(See also 30, 50)

51. Studies on Birds of Mount Omei and their Vertical Distribution. Cheng Tso-hsin, Tan Yao-kuang, Liang Chun-yu, and Chang Chun-fan. 1963. *Acta Zoologica Sinica*, **15**: 317-335. (English resumé). 256 species of birds have been found on this mountain. The authors divide the mountain into five vertical zones: (1) hill-foot zone (below 600 m), (2) low-hill zone (600-1,000 m), (3) mid-hill zone (1,000-1,800 m), (4) high-hill zone (1,800-2,800 m), and (5) hill-top zone (above 2,800 m). Apparently these are purely altitudinal zones, and do not correspond to Life Zones of classical American ecology. Some breeding birds are "unizonal" in their distribution, others "polyzonal." "There is evidently a vertical replacement of families among the different zones."

Of particular interest to the student of avian zoogeography are the statements suggesting relationships between faunal affinities and geographical distribution. "In the mid-hill zone and below, species showing an Oriental affinity occupy more than 50% of the total number of breeding species recorded for these zones, while those of Palaearctic affinity less than 25%. In the hill regions above the mid-hill zone, the condition is exactly the reverse . . . ." ". . . one may argue with reason that the mountain belongs to a transitional area between the oriental and Palaearctic realms, being apparently more similar to the former in its avifaunal characteristics . . ."—David W. Johnston

FOOD

(See also 28, 54)

52. Oystercatchers and Mussels. N. Tinbergen and M. Norton-Griffiths. 1964. *British Birds*, **57**(2): 64-70. A pair of *Haematopus ostralegus* nested in a small sandy area surrounded by dense growth of nettles which prevented the chicks from wandering off. The authors watched the feeding methods of the adults from a blind. "The Oystercatchers obtained the large mussels in tidal pools, probably by stabbing them through the adductor muscles and then pulling them loose. On the territory they further prepared them by very efficient chiselling movements, by prizing the valves open and, finally, by shaking the shell off the animal." Different methods of Oystercatchers' dealing with mussels, worms, and crabs are discussed.

"When about three weeks old, the young Oystercatchers began to perform the chiselling movements, but they aimed them at a variety of objects and did not orient them well. The prizing movements were also seen a few times; these were aimed at mussel shells, but were not oriented at right angles to the shells' axes."

Young Black-headed Gulls (*Larus ridibundus*) were always ready to rob the Oystercatchers of their prey, a behavior that resulted in lively encounters. Six splendid and informative photographs illustrate this interesting contribution.—M. M. Nice.

SONG

(See also 56)

53. Bird Songs from the Tropics. Paul Schwartz. 1963. Instituto Neotropical, Caracas, Venezuela. High fidelity, 12-inch record, 33 1/3 r.p.m. Price $7.75. Available in the United States from the Laboratory of Ornithology, Cornell University, Ithaca, New York. In this record of "the voices of 40 tropical American birds recorded in the fields and forests, lowlands and highlands of Venezuela," the author has exhibited extreme care in both the recording and choice of material presented. Eight orders and 21 families of birds are represented, five of the latter being ones confined to the American tropics. A remarkably full array of individual, specific, generic, and familial variation in vocalizations is presented, particularly in the case of the wrens (five) and the nightjars (four). Other particularly interesting songs on the record are those of the Crested Oropendola, Great Kiskadee, Copper-rumped Hummingbird, Lance-tailed Manakin, and Laughing Falcon. Many of the recordings are of seldom-seen or nocturnal species and thus the record would be a great identification aid for workers or visitors unfamiliar with the voices of tropical birds.

The recordings are extremely clear, often more so than the songs as usually encountered in the field. The narration is generally interesting and enjoyable although a bit over dramatic near the finale when introducing the song of the Common Potoo. However, when such a fascinatingly beautiful call is involved, perhaps this is an allowable freedom. This record compares favorably with any presently available recording of bird vocalizations from other parts of the world. It will be a valuable teaching aid as well as the source of much personal enjoyment for any ornithologist.—Charles T. Collins.

BOOKS AND MONOGRAPHS

54. Studies on Wild Geese in Southernmost Sweden. Gunnar Markgren and Sven Mathiasson. 1963. *Acta Vertebratica*, **2**(3): 295-533. According to Kai Curry-Lindahl, who wrote the preface to this report, the main problems for clarification included: "1. The effect of grazing by wintering geese on cultivated fields. 2. Migratory movements of geese within Scania. 3. Behaviour of wintering geese during day and night. 4. Taxonomy and geographical origin of bean geese wintering in Scania." The first of these problems, resulting in the long-standing condemnation of and warfare against geese by farmers, is succinctly and definitely solved in the preface by the statement that "investigations on regrowth of grazed crops indicate that no lasting damage on cultivated ground can normally be ascribed to the geese."

The studies were concentrated in Sweden's southernmost province, Scania, and the report is divided into two portions: Part I, Migrating and Wintering Geese in Southern Sweden (by Markgren); Part II, The Bean Goose, *Anser fabalis* (Latham), in Skåne, Sweden, with Remarks on Occurrence and Migration through Northern Europe (by Mathiasson). Included within Part I are data on the seven species of geese in the study area. The great majority of wintering geese were Bean Geese, followed in number by White-fronted Geese, and much of the subsequent information necessarily refers to these two forms. Topics discussed in detail are migratory movements, choice of fields and foods, activity rhythms, flocking behavior, social relations, and predation.

Part II begins with an analysis of the races of Bean Goose in Scania - *Anser f. fabalis, A. f. rossicus*, and, rarely, *A. f. brachyrhynchus*. General distribution and numbers of Bean Geese are given. Diurnal rhythms, grazing and sleeping habits, and flock size are discussed: "the majority of the geese (33, 241) thus flew in flocks of more than a hundred specimens. No fewer than 21,018 geese moved in flocks of more than 500 birds." The migration picture given by the recoveries of marked Bean Geese are presented, maps being drawn from 56 ring-recoveries. This part is concluded with details of migration routes, numbers observed in different areas, and migratory behavior.

The paper is well documented with photographs, maps, tables, graphs, and two lengthy sections on Literature.—David W. Johnston.

55. Report on Bird-Ringing for 1962. Robert Spencer. 1963. *British Birds, Ringing Supplement*, **56**: 477-524. A total of 389,475 birds were ringed in Great Britain in 1962 and 11,689 were recovered. The number of recoveries increased 26 percent over those in 1961, due partly to two weeks of a sudden, severe cold spell and partly to the concentration of ringers on particular species—Mute Swan (*Cygnus olor*), Sand Martin (*Riparia riparia*), Swallow (*Hirundo rustica*), and Swift (*Apus apus*). Before long they begin to catch each other's birds. In the selected list of recoveries eight maps show the recovery locations in foreign lands of 42 species. Interesting age records are: Blue Tit (*Parus caeruleus*), 10 years; Chaffinch (*Fringilla coelebs*), 10 1/12 years; Woodpigeon (*Columba palumbus*), 11 1/12 years; and a Black-headed Gull (*Larus ridibundus*), 19 years. "Among the sea-birds, evidence of remarkable overland movements is to be seen in the recoveries of a Great Skua (*Catharacta skua*) and an Arctic Tern (*Sterna macrura*) in the U.S.S.R. and a Kittiwake (*Rissa tridactyla*) in Czechoslovakia. Another Arctic Tern, which came aboard a Japanese whaling vessel operating near the pack ice in the South Atlantic, provided us with our most southerly record to date for any species." This was on 8 December, 1961, in the Antarctic Ocean, at 56° 20′ S. 39° 30′ E. "Finally, there is the extraordinary record of a Snow Bunting (*Plectrophenax nivalis*) on the shores of the Adriatic, where the species is an occasional visitor only."—M. M. Nice.

56. A Study of Bird Song. Edward A. Armstrong. 1963. Oxford University Press, New York. xv + 335 p., 16 plates, 43 figures, 14 tables. Price, $10.50. Bird songs have long been of interest to biologists, but the conviction that songs could not be studied objectively has retarded investigation in this field. Developments in the last two decades in tape recorders and instruments for the analysis of sound have ushered in a new era of investigation in the field of bioacoustics; research on bird song is now proceeding apace, and one has difficulty in keeping up with all that is being done. This book fulfills a need for a detailed summary of the work to date, and should be of interest to all biologists.

The general theme of the book is that "song should be regarded as one aspect of a delicately integrated complex of behavior" (p. xiv), and the author has attempted to consider a great many aspects of bird song. The scope of the book is indicated by the chapter titles: Bird Utterance as Language; Structure and Components of Bird Song; The Development and Learning of Song; Sub-song; Vocal Mimicry; Song Dialects and the Relationship of Vocalization to Speciation; Territorial Song and Related Forms of Song; Song-flight and Non-vocal Song; Song and the Annual Cycle; Female Song, Duetting, and Corporate Song; The Influence of Light, Weather, and Temperature on Song; Song and Adaptations to Habitat; Bird Song as Art and Play. An appendix includes an account of acoustic communication in the animal kingdom and the organs involved. The book concludes with a bibliography of some 1,030 references, and a series of indexes (to birds, other organisms, authorities, and a general index).

In the chapter on the structure and components of bird song, the author describes some of the general features of song as shown by the sound spectrograph, and presents a terminology for the components and forms of song. Some workers may not agree with all the terminology outlined, but at least a terminology is presented and the terms defined.

Throughout the book are numerous references to the work of many different investigators, and many illustrations of the points discussed; the author has covered the literature in this field quite thoroughly. The latest references cited in the text are 1961, but an "Addenda" section (pp. 257-268) cites more recent work (including a 1963 reference by Thorpe, p. 260, that is not in the bibliography). There was evidently a considerable period of time between the completion of this book and its publication. It covers very well the work done in the field of bird vocalizations through 1961, with some reference to later work.

The plates are photographs of birds showing various aspects of singing behavior. About half of the text figures are sound spectrographs of various bird vocalizations; these are reproduced in black and white, with the result that many low amplitude sounds are lost and amplitude variations in the song are not indicated. The book contains many references to American birds, but the coverage is world-wide, many species unfamiliar to readers in this country being discussed.

The chief impression the reader gets from this book is the very broad scope of the treatment, the many aspects of bird song that are discussed, and the extent to which each point is illustrated by references to particular species. The book is well written, and has been carefully edited. Each chapter contains a series of subheadings, which help in the organization of the material presented, but there are no summaries (as such) in any of the chapters. This book will be of great value to all biologists interested in behavior, and of particular value to anyone interested in bird song. As the author states (p. xv), the reader should "here find encouragement to explore further a realm of inexhaustible interest and delight."—Donald J. Borror.

57. Gardening Without Poisons. Beatrice Trum Hunter. 1964. Illustrated by Bob Hines. Houghton Mifflin, Boston. 314 p. Price, $5.00. Two pages of acknowledgements to entomologists, other scientists, industrialists, and gardeners give the reader a feeling of confidence at the start. The fundamental importance of humus-rich soil is stressed and a long list given of a variety of waste products obtainable for enriching one's soil. The chapter on weeds discusses the values of some of these hardy and aggressive plants; many weeds with their vigorous roots are soil-improvers, while others are indicators of poor soil. The use of blanket herbicides is deplored; the gardener should "aim at *controlling* weeds rather than eliminating them." Mrs. Hunter warns us: "Whenever hedges, brush, or roadside vegetation are destroyed, we should be aware that we are destroying preserves and covers for small animals, birds, and insects."

In Chapter 7 we read of an amazing array of "botanical" insecticides from ancient Chinese, Greek, and Roman times to the present. In "Controlling Unwelcome Birds and Animals," after many helpful suggestions the author wisely says: "We need to develop a willingness to share a portion of our harvest with other living organisms who also inhabit our community." The chapter on "Biological Control" is of great interest in telling of past fruitful experiments and present day researches. The final chapter recounts a bewildering number of possible methods of attacking our problems without the use of dangerous pesticides.

At the end of the volume are a number of useful appendices: a 20-page "List of Suppliers of Materials," ranging from helpful insects and earthworms to organic soil conditioners and squirrel and cat guards; a list of "Organizations Interested in Gardening Without Poisons" in the United States and English-speaking countries abroad, a 20-page bibliography; and a 28-page index.

This book is a veritable mine of information, the logical sequence to Rachel Carson's *Silent Spring*, for it tells us how to apply both natural and highly sophisticated controls in our struggles with pests without poisoning ourselves and most of our fellow creatures.—M. M. Nice.

58. Interagency Coordination in Environmental Hazards (Pesticides)/ Hearings before the Subcommittee on Reorganization and International Organizations of the Committee on Government Operations/ United States Senate Eighty-eighth Congress First Session/ Part 1. 1964. ix + 390p., paperbound. $1.25 from the Supt. of Documents, U. S. Gov't Printing Office, Washington, D. C. 20402. Following the release of the pesticides report of the President's Science Advisory Committee, this Senate subcommittee held hearings in May and June, 1963, at the suggestion of Senator Ribicoff. This volume contains a transcript of testimony at those hearings, supplemented by detailed exhibits covering present statutes and regulations and recent technical studies. This is a most useful collection of source material, with a broad range of opinion included. No formal evaluation of each exhibit has been included, but the questions asked by subcommittee members are quite illuminating — particularly in testimony by representatives of chemical manufacturers. Anyone with a serious interest in the pesticides problem should have this volume.

It is by no means light reading, and doesn't simplify the issues to the degree that some ardent advocates on either side would prefer. However, it is characteristic of conservation problems in presenting shades of gray, not a simple black and white picture. Real progress in conservation comes in small steps — such as in making it plain that current regulations for the registration of agricultural chemicals require care for the effect on wild animals as well as domestic animals. It comes in such simple steps as Sen. Ribicoff's demand that the Department of Agriculture release to the press details of chemicals being used under a "protest registration" (in use after being ruled dangerous, pending a final hearing), enforced by his willingness to quote details on the floor of the Senate. As this review is being written, his bill (S. 1605) to eliminate this "protest registration" loophole has passed some hurdles, but still awaits final action. These steps toward more rational control of pesticides are not as dramatic or sweeping as some would wish. However, they attempt to tackle the problem at a primary level, generally far more effective than any amount of complaint after some local spraying begins. It is comparable to the efforts in several states to preserve more of our salt marshes by requiring state permits for dredging in tidal waters; this indirect, legal technique is far more effective than any amount of public complaint in the absence of state controls.—E. Alexander Bergstrom.

59. Naming the Birds at a Glance. Lou Blachly and Randolph Jenks, with drawings by Sheridan Oman. 1963. Alfred A. Knopf, New York. xvii + 334p. Price, $3.95. The average beginner in watching birds describes a bird by color, and has little or no idea of size or shape. The authors have attempted to convert this principal weakness of the beginner into an asset, by basing the key to identification on very simple points of color or markings. They are to be commended for a good try, though how effective the result may be is another matter. Most reviews of the book will be written by those who find it difficult or painful to use a checklist or guide which isn't in standard systematic order, while the book has its chief appeal to beginners. It is sobering to notice that even birdwatchers of

several years experience and great interest look in the index of a standard field guide, instead of opening the guide to the approximate page almost automatically. The more experienced observer can occasionally recapture this feeling if he has the opportunity to go afield in an area so new to him that many families and genera are unfamiliar; then he too may resort to the index at times. All in all, there is more scope for a non-systematic guide than the expert birdwatcher may appreciate.

However, just how good is this one? What limitations does it accept in order to put its special approach into practice? First, it deals only with the eastern land birds from South Carolina west to the Rocky Mountains (with some high-plains species omitted), and north to the Arctic. Next, if you look in the section on brown birds for the ♀ Rose-breasted Grosbeak or Purple Finch, you will find neither, as the key doesn't include ♀ ♀. Once you find a reference to the ♂ of the species, you will find a few words describing the ♀ — the preface comments that during spring and summer you can usually identify the ♀ by its association with the ♂! Third, the key omits immature or winter plumages, with the comment: "Almost all birds whose plumage changes in the fall go south in winter and so are of no concern to people in the Northeast" (the authors would have done better to acknowledge that this restriction sharply reduces the value of the guide during the last half of the year). Beyond these three major limitations, the guide has difficulty with some of the less obvious or striking plumages — for example, the Blue-gray Gnatcatcher appears under the heading "Blue combinations," while the Tufted Titmouse appears under "Gray, Olive-gray, or olive-green combinations" in quite a different part of the guide. It passes up most of the obvious field marks based on shape, such as the bill difference between the vireos and wood warblers. If the guide were to cover even this geographical area more thoroughly, by including ♀ and immature plumages, the user would have even greater difficulty in finding his bird under the headings shown.

The new guide is not to be recommended to anyone (including children) with a really active interest in bird-watching, as it doesn't cover the whole subject as the standard guides do, and doesn't give the reader an easy transition to more technical guides. However, it may prove useful to the numerous people with a casual interest in birds, who are likely to be looking more at spring plumages than the full range of avian variety.—E. Alexander Bergstrom.

NOTES AND NEWS

NEBBA will absorb the appreciable increase in U. S. parcel post rates which became effective this spring. Purchasers who need nets in a hurry should keep in mind that most handling of parcel post on Saturday has been ended — just a month after the rates went up! — and allow for "special handling" charges if necessary.

We are receiving limited supplies of a new type H net, 4-shelf, 12-meter, with 30mm. ($1\frac{1}{4}$" - stretched) mesh, halfway between present types A (36mm.) and F (24mm.). It is clear that many netters would like a mesh smaller than 36mm. to minimize tangling of smaller birds, but some object to the lower percentage of birds captured (of those hitting the net) in the 24mm. mesh. Price: same as type C (see the July, 1963 issue of *Bird-Banding*, p. 176). Inquiries for type H, or for the other seven types stocked by NEBBA, should be addressed to: Mr. E. A. Bergstrom, 37 Old Brook Road, West Hartford, Conn. 06117.

The *Proceedings* of the 13th International Ornithological Congress is in two volumes, of more than 1,250 pages, bound in hard covers. It includes 110 of the papers presented at Ithaca in 1962, to give a broad cross-section of contemporary world research on birds. The price of $20.00 for the two-volume set includes postage if remittance accompanies the order. It may be obtained from the Treasurer, American Ornithologists' Union, Museum of Zoology, Drawer MU, Louisiana State University, Baton Rouge, La. 70803.

Applications for the 1965 Student Award of the Eastern Bird-Banding Assn. should be sent, before January 1, 1965, to: Mrs. Stanley S. Dickerson, EBBA Memorial Award Fund, 1490 Long Road, Somerville, N. J. 08876. The award, of $100 in memory of deceased members of EBBA, is open to college juniors or seniors