

populations at comparable levels to those when feeders were in use. In total, it is unlikely that bucket feeders had any marked effect on the Great Island quail population.—R. A. Cookingham, Massachusetts Division of Fisheries and Game, Boston, Mass., and T. H. Ripley, USDA, Forest Service, Southeastern Forest Experiment Station, Asheville, N. C.

Another Nine-Year-Old Chickadee:—On February 21, 1955, I banded a Black-capped Chickadee (*Parus atricapillus*) with band number 23-14953 at my station at Mohonk Lake, N. Y. It returned January 21, 1956; February 27, 1963; and lastly November 18, 1963. On the later date a new band, number 105-37274, was added on the other leg because the original was wearing thin, although otherwise in good condition. The period between first banding and last return is 8 years and 9 calendar months lacking 3 days. (Or lacking one day if we take into account 2 leap years!) Assuming that this bird was probably not born after 21 June 1954, it would make its presumed age to be at least 9 years and 5 months (± 1). Thus, it appears to be about the same age as two of the four "Old Chickadees" reported in *Bird-Banding* 35: 41 and 35: 125. Daniel Smiley, Mohonk Lake, New Paltz, N. Y.

RECENT LITERATURE

BANDING

(See also 23, 31, 58, 61)

1. Bird-Banding at Powdermill, 1962.—Robert C. Leberman. 1963. Research Report No. 10 from the Powdermill Nature Reserve of the Carnegie Museum. 27pp., paper. An active banding program at Powdermill (1500 acres in the Ligonier Valley of Pennsylvania, about 50 miles east of Pittsburgh) involved 6,473 newly banded birds of 111 species in 1962. On July 7, Leberman captured a Yellow-breasted Chat (*Icteria virens*) originally banded during a wave of migrating chats at Island Beach, N. J., September 5, 1960. Powdermill is about 300 miles due west of Island Beach. The belief that the bird was a summer resident at Powdermill was strengthened by its recapture there on May 11, 1963 (1963 report, see review number 2). This fits the hypothesis that the chats taken at coastal bird stations have previously moved north or northeast after the breeding season, with flows of warm tropical air.—E. Alexander Bergstrom.

2. Bird-Banding at Powdermill, 1963. Robert C. Leberman. 1964. Research Report No. 11 from the Powdermill Nature Reserve of the Carnegie Museum. 8 pp., paper. The year's banding totalled 6,710 individuals, of 124 species.

During 1963 no less than 360 Ruby-throated Hummingbirds were banded, 310 between August 1 and September 22, using mist nets. The weight of 32 adult ♂♂ averaged 3.1 grams, with a range of 2.4 to 3.6; 128 immature ♂♂ averaged 3.2 with a range of 2.4 to 3.8; whereas 146 ♀♀ (adults and immature) averaged 3.3, range 2.8 to 4.5. In wing lengths, 48 adult ♂♂ averaged 40.4mm., range 38.0 to 43.0; 128 immature ♂♂ averaged 42.9, range 40.5 to 45.0; 59 adult ♀♀ averaged 46.4, range 45.0 to 50.0; 65 immature ♀♀ averaged 46.8, range 44.0 to 49.5.

"Only one male had a wing measurement of as much as 45mm. while all females measured 44mm. (one bird) or more. In the very few instances where the sex of young hummingbirds could not definitely be determined by plumage characteristics alone (immature males usually have flecks of iridescent red in the throat) this gauge was extremely useful. As the season progressed we also found feather wear, in combination with the amount of buff of the sides, could be employed to indicate the age of females. Young birds of the year appeared to have a greater amount of brown edging on the feathers of the head, neck and back than did adults with more worn feather tips."—E. Alexander Bergstrom. (For additional data on this subject, see Norris, Robt. A., et al., "Notes on Fall Plumages, Weights, and Fat Condition in the Ruby-throated Hummingbird." *Wilson Bull.*, 69(2): 155-163, 1957.)

3. Rules for Using the Bal-chatri on Owls. James D. Weaver. 1964. *Inland Bird-Banding News*, 36(1): 36. From experience with this trap in Illinois, Weaver suggests: (1) mark where the trap is set with a stake with reflecting tape; (2) use sufficient weight on the trap to prevent a bird or mammal from moving it; (3) try to check the trap every hour; (4) consider whether low winter temperatures will make live bait inactive; (5) during the nesting season, don't keep an owl overnight to photograph it.—E. Alexander Bergstrom.

4. Island Beach Operation Recovery 1963. Dorothy L. Bordner. 1964. *EBBA News*, 27(3): 101-106. No less than 31,676 birds, of 157 species, were banded, between August 2 and October 27, a new high for this New Jersey station. Birds were banded on all but four days. Almost 50 banders and helpers were present at some time during the period. The most common species was the Slate-colored Junco, with 6,138 banded.—E. Alexander Bergstrom.

5. Ring Loss and Wear of Rings on Marked Manx Shearwaters. M. P. Harris. 1964. *Bird Study*, 11(1): 39-46. This is a study based upon the earlier use of aluminum, double-ended rings on *Procellaria puffinus*. By studying the rings from recoveries—ring weight and legibility of figures—the author found that the rings were subject to considerable abrasion and corrosion and that some became illegible after two years. The average life-use for a ring was about four years. On other species (fulmar, guillemot, kittiwake, puffin, and razorbill) rings may last longer. The data for the shearwater ring life-expectancy suggest that "ringing recoveries . . . can not very well be used as a basis for the calculation of life tables or mortality rates for a longer period than two years after ringing."—David W. Johnston.

MIGRATION

(See also 1, 42, 54, 60, 61)

6. Bobolink Migratory Pathways and Their Experimental Analysis under Night Skies. William J. Hamilton, III. 1962. *Auk*, 79(2): 208-231. The accounts by Chapman and Lincoln of the migrations of the Bobolink are still quoted uncritically in textbooks as a classic illustration of the evolution of a complex migration route. In a new and timely review, Hamilton rightly rejects as unproved speculation the idea that the western populations of the Bobolink are of recent origin and migrate east in autumn. Nevertheless, he accepts without question the equally speculative idea that Bobolinks from northwest and northeast converge on Florida before turning south. He regards a recovery of a banded Maine bird to the southwest in Virginia as supporting this assumption, but in doing so he overlooked the geographical bias to which banding records are subject. For example, if the main migration route of Bobolinks from Maine were due south over the ocean, the only possibility of obtaining recoveries would be of individuals which straggle back to the mainland, and these would necessarily be southwest of Maine.

The main part of the paper is an analysis of the directional tendencies of a small number of Bobolinks which were caught in various parts of the United States, shipped by air to San Francisco, and placed in circular orientation cages under the natural night skies. Birds from South Dakota usually oriented southeast in autumn; a breeding bird from New York oriented due south in autumn; and spring migrants caught in Florida oriented variously north and northeast. These directions agree with those expected from Hamilton's map of Bobolink migration routes: indeed they provide the only good evidence for it. Hamilton concludes that the birds rapidly adjusted their "internal clocks" to local time in San Francisco, and then oriented in their normal directions, without any correction for displacement. It would probably be possible to devise more complicated explanations for the observations, and it would require many more experiments to eliminate all the uncontrolled variables, but it would be hard to reconcile the results with any theory of homing by bi-coordinate navigation.

Like other experimenters, Hamilton found that orientation became random under overcast skies, and was upset by the moon and by searchlights in the sky; "reversed" orientation and vacillation between the normal and reversed directions were frequent. A North Dakota bird kept in San Francisco until November shifted its orientation from SE to SW.—I. C. T. Nisbet.

7. Does the Bobolink Navigate? William J. Hamilton, III. 1962. *Wilson Bull.*, 74(4): 357-366. An adult Bobolink caught in North Dakota was shipped to San Francisco, housed there until late August under artificial lighting coinciding with the light-dark schedule for North Dakota, and then exposed to the natural night sky in a circular orientation cage. It "oriented" northeast during the first night, east during the second night, and SSE during the third night. It then escaped, but it was caught again on its home ground in North Dakota in the following June!. Because the bird had experienced a change in its light-dark schedule as well as a change in star-pattern, the results are difficult to interpret, but they suggest that the bird was able to navigate in some way.—I. C. T. Nisbet.

8. Inertial Navigation as a Basis for Animal Navigation. J. S. Barlow. 1964. *Jour. Theoretical Biol.*, 6(1): 76-117. The successful development in recent years of inertial navigating systems for rockets and submarines has raised the possibility that inertial guidance might be the explanation for the "sense of position" exhibited by animals on migration or in laboratory mazes. In basic form, inertial guidance consists of the measurement of the accelerations experienced by the navigating system, and use of the measurements to compute its velocity at each instant, and hence its position relative to its starting point. In principle, the process depends only on the universal property of inertia, and permits navigation without any external references whatever. In practice, however, gravity and the rotation of the earth complicate the process, so that two-dimensional navigation, over the surface of the earth, is easier to achieve than three-dimensional navigation.

In vertebrates the vestibular organs (in the inner ear) detect and measure acceleration. Barlow reviews what is known of the action of these organs, and concludes that they might be sensitive enough to permit long-distance navigation. He freely admits that laboratory experiments have not yet demonstrated that these organs have even one-hundredth of the sensitivity which is required. However, the figures he gives for the required sensitivity are probably too high: partly because he assumed that inertial guidance would be used for bi-coordinate navigation, whereas it would be useful even for maintaining one-directional orientation; partly because he assumed that inertial guidance would be the only means of navigation. In fact, it is known that birds sometimes require celestial clues for orientation, and, as Barlow explains, an inertial system which can be checked continuously by external cues (a "hybrid" or "inertial-celestial" system) demands less sensitivity than a "pure" inertial system. However, it would be hard to compute the exact sensitivity required of a hypothetical inertial-celestial system without knowing more about the way in which the system would work. For much the same reason, the experiments proposed by Barlow to test his hypothesis seem too unsophisticated to detect the use of inertial guidance in long-distance migration. Probably the most valuable part of Barlow's paper is the clear account which it gives of the principles and practice of inertial navigation, and it will be a very useful basic reference if his ideas prove fertile in the field of animal navigation.—I. C. T. Nisbet.

9. Dawn Ascent and Re-orientation of Scandinavian Thrushes (*Turdus* spp.) Migration at Night over the Northeastern Atlantic Ocean in Autumn. M. T. Myres. 1964. *Ibis*, 106(1): 7-51. In late autumn thrushes leave Norway on headings between SSW and West. Especially if the wind is between east and south, causing drift, they pass the Shetland Isles from 11 P. M. onwards, on tracks between SW and NW. The numbers passing Shetland are not well correlated with the strength of southeast winds, perhaps because the birds tend to avoid migrating when there is serious danger of drift. In the later hours of the night the birds fly progressively lower, until by dawn all, or nearly all, are so low that they cannot be detected by radar. Around dawn, however, they suddenly ascend to heights of several thousand feet, and after a short period of confusion they re-orient in one or more well-marked directions; these directions vary greatly from day to day.

Most of this paper is a detailed justification of the above statements, based on daily observations at a radar station. Although using records from only one season, the conclusions are fully convincing. Myres goes further, however, and claims that the observed directions of re-orientation could be divided into three clear-cut groups (ESE and SE, N and NNE, S and SSW), but his data (figures

2-4) show that this division is not statistically significant. If rough allowance is made for the effect of wind-drift (which Myres dismissed as negligible), the directional pattern actually becomes rather uniform, with directions near SSE the most frequent and directions near NNW the least frequent. This interpretation of the observations still agrees well with Myres's main conclusion, that the function of re-orientation is to bring the birds back, on the average, toward land. He gives reasons for believing that re-orientation is a simple, stereotyped reaction in Norwegian thrushes, and does not reflect a form of bi-coordinate navigation. The function of the "dawn ascent" is less clear, however, for only a few birds thereby see land and head for it.—I. C. T. Nisbet.

10. Orientation Experiments with Northern Waterthrushes Wintering in Venezuela. Paul Schwartz. 1963. *Proc. XIII Intern. Ornithol. Congr.*: 481-484. *Seiurus noveboracensis* establishes winter territories in Venezuela of 400 to 5,000 square meters. When 4 adult and 14 first-year birds were experimentally moved 10-65 km away, only the adults returned. It is postulated that orientation ability is learned at the time the first-year birds start northward in their spring migration. (Author's summary).—I. C. T. Nisbet.

11. Sensory factors in migration. H. E. Adler. 1963. *Animal Behaviour*, 11(4): 566-577. Laboratory tests were made of the light sensitivity and dark adaptation of the eyes of the Starling and American Robin. After reviewing other experiments on the visual acuity of birds, Adler concludes that a bird's eye has, if anything, less acuity than a man's, especially at night. He also quotes evidence that birds do not perceive movement very precisely, and that their "internal clocks" are not very accurate. If the experiments which are quoted do in fact test the limits of discrimination in migrant birds, it is extremely unlikely that they could navigate by means of the sun or stars alone.—I. C. T. Nisbet.

12. The Effectiveness of Aircraft-type (APS) Radar in Detecting Birds. Richard R. Graber and Sylvia Sue Hassler. 1962. *Wilson Bull.*, 74(4): 367-380. An ingenious adaptation of a relatively cheap radar set to study migration. The paper is primarily technical and quotes only a few sample observations, but it merits detailed notice as it is the technical basis for more specifically ornithological studies.

The radar beam was found to detect small birds at ranges between 1,000 and 6,400 feet, whereas larger birds such as waterfowl were detected at much greater ranges. The direction of migration could be determined by inclining the beam at a fixed angle to the ground and rotating it in a horizontal plane, so that some birds were detected repeatedly on successive sweeps of the beam. However, a better indication of the density of migration, especially at the highest and lowest altitudes, was obtained by rotating the beam in a vertical plane, from west to east. Both methods had to be used alternately to build up a complete picture of migration.

In spite of its limited spatial coverage, and the indirect visualization of migration which it gives, the APS radar has two advantages over the powerful coastal defense radars used elsewhere to study migration: it avoids the uncertainties which arise from observing dense migrations at long ranges (see review number 13), and it provides a direct measure of the height of each echo. However, its results are even more biased than those of the coastal defense radars toward the detection of high-flying birds, mainly because its cone-shaped beam is wider at high altitudes. At the bottom of page 378 Graber and Hassler outlined a sound method of eliminating this bias by evaluating the density of migration separately for each range of heights. However, when they applied this method to a specific example in the next paragraph, they appear to have simplified the calculations by summing the numbers of observed echoes before (instead of after) calculating the height-specific densities. For geometrical reasons, this simplification leaves the results almost as biased toward high-flying birds as the unmodified counts. Hence it seems probable that the authors' detailed studies of migration (see review in *Bird-Banding*, 35: 128. 1964) were subject to this bias.—I. C. T. Nisbet.

13. A Radar Study of the Flight Directions of Nocturnal Migrants. Frank C. Bellrose and Richard R. Graber. 1963. *Proc. XIII Intern. Ornithol. Congr.*: 362-389. Radar observation in Illinois during spring and autumn 1960 led to the following main conclusions.

1. Most observed movements were east of north in spring, and east of south in autumn. It is suggested that many species follow elliptical migration routes, adapted to take advantage of the prevailing (upper-air) westerly winds north of 40°N and the prevailing easterlies south of 30°N.

2. "It is quite evident that birds correct for wind drift but that correction is never quite complete. The stronger and more abeam the wind the greater the drift off course."

3. On several occasions migrants were well oriented in spite of fully overcast skies over a wide area. On some of these occasions birds flew above low-lying clouds, but on others most birds flew below the cloud-ceiling or even within the clouds. There was evidence that thrushes in spring oriented better if they had seen the sky at sunset than if they had taken off under overcast skies.

The first and third of these conclusions are fully convincing and are important additions to our knowledge of migration. However, in lumping together observations of many different species, Bellrose and Graber may have oversimplified the problem of wind-drift. Their figure 3 shows that in spring the high-flying birds tracked more to the east than the low-flying birds, and they attribute this difference to drift by the more westerly winds at high altitudes. Their figure 5 however, shows that when data from all heights were combined there was no evidence for drift at all. This suggests that the high-flying birds may have been of species whose preferred direction was more easterly than average, so that by flying high they were taking advantage of the upper-air westerlies. The evidence for drift in autumn, though better than that for spring, is similarly equivocal.

Similar objections can be made to several other conclusions made in the paper—that "birds" fly higher in autumn than in spring, that they fly higher under overcast skies than under clear skies, and that they fly no higher with tail-winds than with head-winds. None of the implied comparisons is necessarily valid, because it is possible (indeed probable) that the observations which were compared referred to different groups of species. These objections cannot be overcome without more detailed analysis, but the reviewer hastens to add that they do not cast doubt on the major conclusions of the paper.—I. C. T. Nisbet.

14. Migration in the Outer Hebrides Studies by Radar. S. L. B. Lee (edited by D. Lack). 1963. *Ibis*, **105**(4): 493-515. Two seasons' observations in the remote, stormy, northwest corner of the British Isles, tragically curtailed by Lee's death in a cliff accident. The observations were fragmentary but contained many points of interest. Most of the movements could be attributed to a few species—Wheatears from Greenland; Meadow Pipits, Redwings and Wheatears from Iceland; various thrushes from Scandinavia. Wheatears which alighted on arrival from Greenland in autumn continued east in their next migratory flights, instead of turning south toward their African winter-quarters. Some thrushes, however changed direction immediately after alighting. All migrants flew too low over the sea in the later part of the night to be detected by radar, but they rose sharply at dawn. In autumn birds were much less reluctant to migrate against head-winds or cross-winds than are migrants in southern England, but in spring, at the outset of a long sea-crossing, most migration took place with tail-winds or light winds.—I. C. T. Nisbet.

15. Radar Films of Migration over Eastern England. David Lack and E. Eastwood. 1962. *British Birds*, **55**(9): 388-414. This study forms a supplement to Lack's intensive radar study of migration, this one being made from a different radar station which covered a slightly different area. Since the observations were intermittent, the paper is largely anecdotal, but the excellent photographs and 20 clear diagrams give an admirable picture of the phenomena observed by radar in eastern England, and can be strongly recommended as an introduction to Lack's more formal analytical study. There is an extensive discussion of "hard-weather" movements in winter, and it is emphasized that these to-and-fro movements in response to fluctuating weather in winter are closely related to the to-and-fro movements in spring and autumn, which are usually termed "normal" and "reversed" movements. A final section describes records of changes in direction during flight. Most of these occurred at the coast, and are attributed to tendencies for birds to follow the coast against the wind before or after a sea-crossing, or to change height, or to be drifted more over the sea than over the land.

A special phenomenon, however, occurred over the English Channel, where birds frequently left the French coast heading south of west, but gradually swung around to WNW or even to NW as they crossed the Channel to England and continued inland. In October this change of heading was attributed to Chaffinches *Fringilla coelebs*, and there is evidence that it was an innate tendency, only slightly affected by the sight of land.—I. C. T. Nisbet.

16. An Attempt to Measure the Ability of Four Ornithologists to Spot and to Record the Migration of Birds at Falsterbo. Report No. 25 from Falsterbo Bird Station. (Ett försök att mäta fyra ornitologers förmåga att uppfatta och registrera flyttfågelsträcket i Falsterbo.) Anders Enemar. 1964. *Vår Fågelvärld*, **23**: 1-25. (English summary.) Answers to three main questions are sought: (1) On an average, how much of the migration available to one observer is recorded? (2) With what degree of accuracy are the birds counted? (3) Is there any consistent difference between the observers' abilities to identify species?

During the test the observers were placed at ten meters' distance from each other and separated by burlap screens so that none could see the movements of his neighbors. The experiment comprised two 2-hour watches, one timed to coincide with the early morning movement of passerines and the other with the forenoon migration of the raptors. These watches were subdivided into 10-minute periods. Calculations were based on the average values obtained during these 10-minute periods and translated into percent effectiveness of the combined total record. After all possible factors that could influence results were taken into consideration some significant variations emerged. These were most noticeable in the total number of individuals and species spotted by each observer. In the first case, the percent effectiveness varied from 48 to 63 with an average of 55, and in the latter instance from 48 to 69, average of 59 percent. With the exception of a few minor aberrations, individual counts tallied surprisingly closely, and so did the variations recorded of migratory intensities.

As to the value of the test, the author admits the inadequacy of a single assessment involving only four observers and he emphasizes the need for control groups in future tests. Nevertheless, the results undeniably cast some doubt on the potential value of much of the recorded migration material painstakingly assembled by fallible human eyes and ears without the assistance of modern equipment including radar. In other words, the actual efficacy of even the best trained observer is probably never fully reliable. With special reference to the migration work of the Swedish Bird Stations, the author writes: "In certain cases the analyses can surely be far advanced, but how far naturally depends on the size of the sources of error. And the extent of these both can and should be determined. To leave this undone would be, to say the least, bad economy when the cost of the total collected material in the form of straight money, effort of observation, and voluntary contribution, is taken into account."—Louise de K. Lawrence.

17. The Migrations and Winter Quarters of the Swedish Mute Swan. Viking Olsson. 1963. *Acta Vertebratica*, Nordiska Museet and Skansen, Stockholm, **2**: 270-277. The range of the Mute Swan (*Cygnus olor*) now extends over the greater part of southern and central Sweden as far north as the provinces of Dalecarlia and Gästrikland. The species is highly sedentary and does not leave the breeding grounds until forced by ice forming on the inland waters and the inner bays of the coast. Successful banding with from 3 to 23 percent recoveries has helped to map the winter movements. The swans move in a general southwestward direction, with no deviation by the birds breeding inland in the northernmost part of the range. This carries them to wintering grounds in open waters on the Swedish west coast and in the northern parts of the Danish Isles. The birds which breed farther south in the areas bordering on the Baltic Sea, on the other hand, move south and west along the coast to winter in the waters south of Sweden and in the sounds between the islands of Denmark and Germany. Open water and good feeding conditions, such as exist for example in Stockholm's harbor, inhibit migration. Two main factors, the rising mean temperature and artificial feeding facilities, appear to have contributed significantly to the recent increase in the Mute Swan's populations in Sweden and to the northward extension of the range.—Louise de K. Lawrence.

POPULATION DYNAMICS

((See also 35, 39, 45)

18. Ecological Aspects of Irruptive Bird Migration in Northwestern Europe. Staffan Ulfstrand. 1963. *Proc. XIII Intern. Ornithol. Congr.*, 780-794. The term "irruptive" is analysed and it is suggested that its use be restricted to species whose movements are demonstrably dependent on the fluctuations of certain critical foods. A list of 13 "definitely irruptive migrants" and their critical foods are given, of which the species of *Loxia* are the most prominent. Eight birds, including two species of *Carduelis*, are considered "questionable irruptive migrants." The influence on the birds' movements of the crop abundance of their respective critical foods, however, varies considerably not only with respect to time and place but also relative to the different species. Other factors that may influence movement in varying degrees are also discussed.

The author makes five statements based on hitherto gathered evidence: 1) eastbound movements of irruptive birds from Scandinavia have not been proved; 2) the density of the breeding populations after irruptive movements is generally low; 3) the extension of the wintering grounds of irruptive birds is far larger than their breeding ranges; 4) variations in population densities of irruptive birds in Scandinavia are not due to productivity but to immigration; 5) the species of *Loxia* differ from all other irruptive species by their highly specialized food requirements and their dependence on this special food also during the breeding season. Upon these five points the author bases his hypothesis of a more or less circular (as opposed to pendulum earlier proposed by Svårdson in 1957) migratory movement of irruptive birds. This presumably takes them from the east in certain years westward and southward, according to the food supplies and following topographical lines to some extent, then eastward, through areas south and east of Scandinavia, back again into their more constricted breeding zone. This movement apparently extends over more than a year with halts for breeding wherever habitat and food supply prove to be adequate.—Louise de K. Lawrence.

19. Observations on Black-backed Gull Predation at the Cape Kidnappers Gannetries: 1959-1963. C. J. R. Robertson. *Notornis*, 10: 393-403. Within a radius of 30 miles of large gannet (*Sula bassana serratior*) colonies are four major Black-backed Gull (*Larus dominicanus*) colonies. Up to 20 gulls at a time were observed "patrolling" the gannetries, especially immediately after dawn and just before dusk. On at least one occasion a "patrolling" gull was seen to approach an unattended gannet nest, remove an egg, and carry it outside the nesting area to consume its contents. The Cape Kidnappers gannetries are visited by hundreds of tourists each year, their presence, while photographing and watching birds on the edge of the colony, producing ideal situations for predation by gulls. Nonetheless, contemporary gull populations and their predations are evidently not having a serious depressing effect on gannet numbers.—David W. Johnston.

20. Behavioral Responses of Song Sparrows to Different Environmental Conditions. Frank S. Tompa. 1963. *Proc. XIII Intern. Ornithol. Congr.*: 729-739. A three-year study of *Melospiza melodia* on an archipelago along the Pacific Coast of Canada showed very high densities on Mandarte Island in comparison with neighboring islands. All basic requirements for this species on Mandarte Island were satisfied with abundance of food outside their usual habitat. "Grasslands and the area of cormorant colonies were utilized as common grounds throughout the year." On other islands the territories were large and feeding normally occurred within territories. These territories averaged from three to seven times the size of those on Mandarte Island, while those of my Song Sparrows in Ohio (Nice, 1937) averaged about seven to nine times as large. "The situation suggests that the Mandarte Island Song Sparrows do not hold feeding territories, and that for the species in general the food value of territories is only secondary, the primary function being to minimize interference with mating and nesting."—M. M. Nice.

21. Studies of Less Familiar Birds: Collared Dove. I. J. Ferguson-Lees. 1964. *British Birds*, 57(4): 170-175. The Collared Turtle Dove or Indian Ring-Dove (*Streptopelia decaocto*) has staged an extraordinary increase and

spread since 1930 from southeastern Europe to practically the entire continent. Its conquest of Great Britain since 1950 is summarized in this paper. It "is everywhere essentially associated with villages, town parks, suburban gardens and farmlands." Excellent photographs illustrate the article.—M. M. Nice.

NIDIFICATION AND REPRODUCTION

(See also 35, 45)

22. On the Biology of the Long-billed (Marbled) Murrelet. A. P. Kuzyakin. 1963. *Ornitologiya*, 6: 315-320. (In Russian.) At length the long-sought for nest of *Brachyrhamphus marmoratus* has been discovered. Searched for in vain from Oregon to Alaska, one has now been found in Siberia, some six to seven kilometers inland from the city of Okhotst on the Sea of Okhotst. On June 17, 1961, the author, a Russian ecologist of some note, observed a bird on a "nest" 6.8 meters above the ground on the limb of a larch. He collected the slightly incubated egg and the "nest" which was a natural cushion of dendroid lichen (*Bryopogon*) to which no material had been added by the birds. He fashioned an artificial lichen nest on the site and set a trap within it; the next morning he had captured the male Marbled Murrelet. The egg measured 63.6 x 39.3 mm.; its color corresponds to that of the egg taken by Sutton and Semple (*Auk*, 58: 580, 1941.) from the oviduct of a bird of this species.

The taiga of large larch trees, heavily draped with lichens, did not occur nearer to the sea coast than six to seven kilometers. Examination of the area between the taiga and the sea disclosed no suitable trees nor dendroid lichens nor even old nests of thrushes or crows which might have offered nesting sites for the murrelets. Dr. Kuzyakin speculates on how a downy chick might make the long journey to the sea by means of a small stream 200 meters from the nest.—Leon Kelso.

Is it not more reasonable to suppose that since both members of this genus *B. marmoratus* and *brevirostris* nest at a distance from the sea that the chicks stay in the nest until they can fly?—M. M. Nice.

23. Pairing of Reed Warblers from Same Brood. G. L. Webber. 1964. *British Birds*, 57(6): 253. A pair of *Acrocephalus scirpaceus* at Coate Water, Swindon, Wiltshire on June 6, 1963, were found to have been banded from the same brood at Coate Water two years earlier.—M. M. Nice.

24. Evolution of Nest-Building in the Weaverbirds (Plodeidae). Nicholas E. Collias and Elsie C. Collias. 1964. *Univ. Calif. Publ. Zool.*, 73: 1-162. Berkeley, California. Price \$5.00. A notable study based on two years of field work, one in Africa, the other in India, Ceylon, Nepal, and Thailand. The first 119 pages of the monograph are devoted to a survey of nests and nest-building techniques of some two dozen representative species of six subfamilies in the Ploceidae with most emphasis on the Ploceinae—the True Weaverbirds. It is only members of this subfamily that truly weave their nests, i.e., interlock loops of flexible material.

The second part of the book deals with the "Evolution of Nest-Building in Weaverbirds." The subjects treated are: "Origin of the domed nest;" "Materials used in construction;" "Nest form and predation;" "Origin and evolution of 'weaving';" "Gregarious breeding and the compound nest;" and "Loss of nest-building ability."

In their summary the authors state that the Ploceidae "show a greater range of variation in their nests than any other family of birds in the world." They point out that "In the nonwoven nests the evolution of colonial and gregarious breeding with relative security from predation culminated in the compound nest of *Bubalornis* [a Buffalo Weaver] and *Philetarrus* [a Sparrow Weaver], affording additional security by special communal peculiarities of nest structure." Many of the Ploceidae and other essentially tropical families of small passerines build domed nests, which serve as protection from predation, heavy rainfall, and high solar radiation.

In many Ploceinae the male builds the outer shell of the nest out of green grass stems; he continues building new nests, at times as many as two dozen in a season, destroying each as it turns brown, "until a female signals her acceptance of the nest by starting to line it with soft grass heads."

This impressive volume has a seven-page bibliography, 15 text figures, and 38 plates of photographs showing a wide variety of nests.—M. M. Nice.

25. Little Ringed Plovers in Britain during 1960-62. E. R. Parrinder. 1964. *British Birds*, 57(5): 191-198. *Charadrius dubius* first nested in Britain in 1938; it has increased and spread steadily since then. In 1962, 157 pairs bred, an increase of 60 percent since 1959. "The spread has been aided by a parallel increase in the number of 'artificial' habitats, especially gravel pits, as a result of the boom in building."—M. M. Nice.

26. Sociability of the House Martin During Nesting. (Nistzeitliche Geselligkeit der Mehlschwalbe, *Delichon u. urbica* (L.)) Esko A. Lind. 1964. *Annales Zoologici Fennici*, 1, (1): 7-43. (Summary in English.) In this, his fifth paper on the House Martin, the author tells of the high sociability of the species that commonly nests on cliffs or buildings in large, compact colonies and performs many of its activities in common. These include feeding, resting, defense against enemies, gathering of nesting materials, singing, preening, hovering, etc. At times adults help feed young of other families. Luring of the young out of the nest was a communal affair, often being performed by 10-20 individuals. "Fights were more numerous in large than in small colonies." "The larger the colony, the commoner was the stealing of nest-lining material." This detailed study is well-organized, well illustrated with charts and photographs and well documented with a large bibliography.—M. M. Nice.

27. Parental Feeding in Ring Doves (*Streptopelia roseogrisea*): Innate or Learned? Erich Klinghammer and Eckhard H. Hess. 1964. *Zeitschrift für Tierpsychologie*, 21(3): 338-347. (Summary in German.) A critique of Daniel Lehrman's conclusion that parental feeding in Ring Doves is learned. In his experiments he had presented seven-day squabs to incubating Ring Doves, some of which had been injected with prolactin. The present investigators, using newly-hatched squabs, showed that Dr. Lehrman's hypothesis is "untenable." "The conclusion is then that parental feeding in inexperienced ring doves is innate, and that an explanation in terms of trial and error learning is not acceptable."—M. M. Nice.

28. Brood Parasitism of the Viduines as an Ethological Problem. Imprinting Phenomena as Factors in Race and Species Formation. (Brutparasitismus der Viduinae als ethologisches Problem. Prägungsphänomene als Faktoren der Rassen- und Artbildung.) Jürgen Nicolai. 1964. *Zeitschrift für Tierpsychologie*, 21(2): 129-204. (Summary in English.) Since 1949 Dr. Nicolai has kept over 500 Estrilids of 48 species, and since 1955, 82 Viduines of 10 species and about 50 Ploceids of 5 species. Songs and calls were spectrographed. The Viduines are parasitic on the Estrilids, each species of the former specializing on one species of the latter. The highly specialized feeding technique of the Estrilids, "differing from that of all other Passeres, has forced the Viduinae to extreme adaptations, which make it impossible for them to parasitize other bird groups. Parallel with the differentiation of the gape markings of the young, the adult Estrilids have developed a high selectivity of response." Normally they do not feed any young but their own and those of their particular parasite. The young Viduines become imprinted to all the songs and other notes of the host species; the male Viduine uses this repertoire to attract a mate and also to show her a nest-building pair of their joint host species. "Thus the songs of the Viduinae reveal the identity of the host species on which they parasitize."

A colored plate shows five Viduines with their five host species—adult males and females of the respective species markedly dissimilar to each other, nestlings and young strikingly alike. There are numerous black and white photographs, maps of Africa with ranges of species of hosts and parasites, and sonograms of calls and songs of hosts and parasites. A remarkable paper.—M. M. Nice.

29. Ontogeny and Evolution in the Megapodes (Aves: Galliformes). George A. Clark, Jr. 1964. *Postilla, Yale Peabody Museum of Natural History*, No. 78: 1-37. A thorough investigation into some of the puzzling features of megapode embryonic development, based on 30 embryos of *Talegalla jobiensis* and *Leipoa ocellata* (the latter collected by the author in Australia), 82 juvenile speci-

mens of megapodes in museums, and over 140 embryonic and juvenile specimens of 22 genera of non-megapode Galliformes. Contrary to many published reports, "megapodes at hatching bear juvenile remiges and natal downs on the body." Moreover egg teeth were found in younger embryos, but had disappeared by hatching time. Dr. Clark finds no evidence that megapodes, as claimed by some authorities, are "the most primitive of living birds;" rather they are "evolutionarily specialized." He also concludes that the genus "*Megapodius* is specialized among megapodes." The pamphlet contains 7 tables and 11 figures.—M. M. Nice.

LIFE HISTORY

(See also 54, 55, 56, 61)

30. The Red-necked Grebe. (Der Rothalstaucher (*Podiceps griseigena* (Boddaert))). Ulrich Wobus. 1964. 103pp. Die Neue Brehm-Bücherei. A. Ziemsen Verlag. Wittenberg. This is an excellent monograph on a species about which little has been published. After pointing out 11 differences in anatomy and behavior of grebes and loons, the author lists the 19 species of 4 genera of the Podicipediformes. The phases of the life history of the Red-necked Grebe are discussed in detail; comparisons are made with the behavior of other grebes and problems still to be investigated are pointed out. There are 52 illustrations in the book, both sketches and photographs, and a bibliography of five pages. This comprehensive history study can be warmly recommended.—M. M. Nice.

BEHAVIOR

(See also 20, 24, 27, 28)

31. The Integration of Agonistic Behavior in the Steller's Jay *Cyanocitta stelleri* (Gmelin). Jerram L. Brown. 1964. *Univ. Calif. Publ. Zool.*, 60 (4); 223-328. An impressive study based on 730 hours of observation on 316 mornings from March, 1957, through April, 1960, on a group of 114 color-banded jays. Mated pairs remained on their territories throughout the year, yet territories were not strongly defended. The sexes were differentiated by calls and behavior. The angle of the crest was an important indicator of internal states of the birds.

Agonistic behavior comprises defense, offense, and escape. Dr. Brown found it difficult to fit his jays' notes and displays into these categories. "For instance," he writes, "*Shook* was both the most frequent call during aerial chasing (attack) and during flight from the bander's hand (escape). Such difficulties can be overcome with the use of other data; nevertheless, they suggest that extreme caution is required in attempts to characterize particular behavior patterns in terms of a combination of attack mechanisms and escape mechanisms. Indeed, in this study, the more data became available, the less heuristic such attempts became."

There are 25 tables, 13 figures, and 2 plates which show sonograms of 9 of the principal calls of these jays.—M. M. Nice.

32. Studies on the Behavior of Castrated Mallards and the Influence on Them of Testosterone. (Untersuchung über das Verhalten kastrierter Stockenten (*Anas platyrhynchos* L.) und dessen Beeinflussung durch Testosteron.) Ariane Etienne und Helga Fischer. 1964. *Zeitschrift für Tierpsychologie*, 21(3): 348-358. (Summary in English.) Seven drake and seven hen Mallards, castrated at five months of age and kept with normal Mallards in water-cages, were watched for two hours every day from fall to spring. In February six drake and three hen castrates were treated with testosterone propionate. Before injection the males had been sluggish but the females were much more active. After injection the males showed increased aggression, alertness, and flight readiness. The females "showed intense female sexual behaviour . . . except the direct invitation to copulate." "They also made masculine warning cries, and one of the three females also showed masculine fighting and sexual behavior."—M. M. Nice.

33. The Mangrove Finch. (Vom Mangrovenfinken (*Cactospiza heliobates* Snodgrass und Heller)). Eberhard Curio and Peter Kramer. 1964. *Zeitschrift für Tierpsychologie*, 21(2): 223-234. (Summary in English.) Despite the lengthy

studies of Darwin's Finches by Lack (1945, 1947), Bowman (1961), and others, facets of their life histories continue to attract ornithologists. The present report is one of the results of a German Galapagos Expedition in 1962-1963. On Albemarle Island, where the avifauna was not investigated extensively by Bowman, the authors studied in detail feeding habits and social behavior of the Mangrove Finch (*Cactospiza heliobates*). It has long been known that the Woodpecker Finch (*C. pallida*) on Indefatigable and Chatham islands uses a stick or spine in its probing for insects out of the reach of its bill. Now, it is reported that *heliobates* has a similar tool-using habit. Both of these finches feed principally on insects and spiders; in addition, *heliobates* feeds on pieces of mangrove leaves.

Curio and Kramer suggest that the tool-using habit "confirms the close relationship of the two species and, at the same time, distinguishes them from all other Darwin's Finches." Yet the authors wonder if the stick probing habit is a universal phenomenon in all members of these two species of *Cactospiza*.—David W. Johnston.

34. Notes on the Behaviour of the Red Grouse. Adam Watson and David Jenkins. 1964. *British Birds*, 57(4): 137-170. A report on *Lagopus lagopus scoticus* from the Nature Conservancy Unit of Grouse and Moorland Ecology, Natural History Department, University of Aberdeen. Red Grouse live in pairs on territories; the cock helps lead the chicks. His role lies chiefly in defense of the territory, mate, and chicks. The birds crouch below falcons but fly before eagles and harriers. They bathe in dust, snow, and water. Fifteen different calls are given by both sexes; these include one warning against ground enemies and another against flying predators. The comb is elevated in aggression, depressed in submission. "Young grouse learn within a day or two that the 'titbitting' call of poultry foster-mothers signifies food, though grouse have not been heard giving a titbitting call nor seen dropping food in front of their chicks." The bibliography contains 16 titles, but one was missed—Krätzig's paper (*Jour. für Ornithol.* 88: 139-165, 1940) on the development of young Willow Grouse (*Lagopus l. lagopus*). Four sets of sketches illustrate this interesting article from Scotland.—M. M. Nice.

ECOLOGY

(See also 18, 40, 52, 60)

35. Ecological Factors Affecting Distribution of a Nesting Royal Albatross Population. Kaj Westerkov. 1963. *Wildlife Publication*, No. 69: 795-811. New Zealand Department of Internal Affairs. This interesting reprint from the *Proceedings XIII International Ornithological Congress* is concerned with the main breeding population of the Southern Royal Albatross (*Diomedea e. epomophora*) that nests on Campbell Island some 400 miles to the south of New Zealand. Sheep, introduced in 1896, have seriously damaged the vegetation, grazing out much of the tussock (*Danthion, Poa*) which forms an essential nesting medium for the albatrosses. Fortunately the government has agreed to remove these introduced mammals. About 2,300 pairs of the albatrosses nested in 1957-58 on Campbell Island where the strong winds, necessary for the birds to take off, averaged 30.9 mph for the year. Nesting success was high—75 percent from the laying of the egg to the departure of the young. The author estimates that "the annual adult mortality rate is 9 percent and that the total population of this subspecies is about 19,000 birds, almost half of which are nonbreeders less than 8 years of age."—M. M. Nice.

36. Corrosive Action of Thermal Water on the Webbing of Waterbirds in Lakes around Rotorua [New Zealand]. M. J. Daniel. *Notornis*, 10: 386-392. Harmful effects of hot acidic and alkaline waters on the webbing of birds are reported here. A significant number of gulls of several species "had either no webbing at all or only webbing on one foot," this defect being the apparent result of the birds' wading in highly corrosive water. "It would be interesting to learn whether similar corrosive effects on palmate species have been observed and recorded in the thermal regions of Italy, Iceland and California."—David W. Johnston.

PARASITES AND DISEASES

(See also 28, 58)

37. Diseases of the Skin and Soft Parts of Wild Birds. I. F. Keymer and D. K. Blackmore. 1964. *British Birds*, 57(4): 175-179. The authors suggest that lesions of skin, legs, and bill, though noted frequently by field ornithologists (including banders), are examined only rarely by competent veterinary pathologists. They describe briefly the regions of the body which may be affected: (1) skin — alopecia (loss of feathers), scaldiness, encrustations, thickenings; (2) eyelids—swellings; (3) legs and feet—pox, "puffinosis," mange, arthritis; (4) mandibles—mite attacks, pox. Causative organisms are mentioned in some instances, and there is a bibliography, largely from publications in Britain.—David W. Johnston.

CONSERVATION

(See also 50, 51, 54)

38. Biocides, the Avifauna, and Legislation. (Biociderna, fågelfaunan och författningarna.) Gunnar Otterlind. 1964. *Vår Fågelvärld*, 23: 26-42. (English summary.) Here is still another strong outcry against the indiscriminate use of toxic compounds by agriculture, horticulture, and forestry to promote plant growth. With increasing evidence, the long-lasting and lethal effects of these poisons are now coming to light more convincingly. In Sweden the most exposed birds are the seed-eaters, some scavengers, and the raptors. Many raptors are now being poisoned to death, whereas only a few years ago they were successfully holding their own due to total protection against extinction. That this state of affairs has been allowed to proceed thus far without protest and intervention is blamed partly on the slow insidious effects of these poisons, which makes it difficult to obtain valid proof of cause and effect; of hidden death and decreasing population densities; and partly on the lack of publicity given rarer but more dramatic events such as the mass death of Starlings (*Sturnus vulgaris*) in Scania during the summer of 1958 and the poisoning of 1089 beehive communities in 1959-60. It seems that, beside the widespread use of deadly biocides, other harmful agents introduced by man's civilization, as for instance persecutions of various kinds and the waste oil emissions on the high seas, appear indeed almost insignificant.

On the positive side of the problem is the new legislation which went into effect in 1964. Accordingly, biocides are not to be sold, transferred, or even used without being licensed. The main drawback of this law is the absence of a clause making a previous impartial testing of the materials to be licensed compulsory. Among the author's suggestions for further action is increased information on the side effects of biocides, directed principally at their users and at the public in general who know too little about them. He also endorses the establishment of a special organization based on much increased impartial scientific research, in which nature conservation and wildlife management should be fully represented.—Louise de K. Lawrence.

39. Danger Threatens the Eagle Owl (*Bubo bubo*) and the White-tailed Eagle (*Haliaëtus albicilla*) in Sweden. (Berguv och havsörn i fara.) Viking Olsson. 1963. *Sveriges Natur*, 6: 177-184. This article presents facts about these two sensitive and now very rare species that serve to indict the poison sprayings especially and also too eager but not too discerning bird enthusiasts. The data are based on continuous close observation during the past decade in one of the last remaining habitats of these birds in central Sweden near the Baltic coast.

Measured poison content found in dying and dead owls amounted to from 3 to 70 mg/kg, and in the eagles from 12 to 30 mg/kg. During the period 54 pairs of Eagle Owls produced 39 young, a nesting success of not more than 0.7 young per pair per year, or about one young every other year per pair. The author lists eight causes of 17 nesting interruptions, of which the following may be noted: licensed collecting (4 cases), small boys and bird watchers (3 cases), lumbering (3 cases),

and unlicensed cottage-building (1 case). The nestings of four pairs of White-tailed Eagles from 1955 to 1963 never produced any young. The rotted contents of two eggs, one addled and the other with a dead fetus, contained 3.5 mg/kg mercury. Experiments with pheasants proved that with a mercury content of 2 mg/kg hatchability declined from 75 to 55 percent.—Louise de K. Lawrence.

WILDLIFE MANAGEMENT

(See 57)

MORPHOLOGY AND ANATOMY

See also 2, 36, 37)

40. Weight fluctuations in Young Starlings. Report No. 39 from Ottenby Bird Station. (Viktvariationer hos unga starar (*Sturnus vulgaris*). Sören Svensson. 1964. *Vår Fågelvärld*, **23**: 43-56. (English summary.) Old Starlings are roughly ten grams heavier than young ones and the average weight of the males are slightly above those of the females; sex determination made by eye color is according to Witherby (1952). The average daily weight of young Starlings increases up to about midday after which it decreases. Decreased activity and lower weights prevail when the weather is cloudy and the opposite occurs when the weather is fine. The average weight curve for the whole period of investigation shows a strong tendency to follow the air temperature. Other investigations, however, have in several instances and involving also other species disclosed a reversed correlation. The conclusion is advanced that the availability of food is a principal factor in these relationships, i.e., when the birds have access to a continuous good food supply weights increase with falling temperatures, but when food is scarce the weight curve tends to follow closely that of the temperature.—Louise de K. Lawrence.

41. Observations in Hampshire and Dorset During the 1963 Cold Spell. J. S. Ash. 1964. *British Birds*, **57**(6): 221-241. Examinations were made of 332 birds of 46 species found dead in Dorset and Hampshire during the prolonged cold spell of 1963. In general the victims were found to have lost from 55 to 65 percent of normal weight for the species.—M. M. Nice.

PHYSIOLOGY

(See also 32)

42. The Photoperiodic Control of Reproductive Cycles in Birds. Donald S. Farner. 1964. *American Scientist*, **52**(1): 137-156. Readers of *Bird-Banding* will remember Dr. Farner as an earlier Review Editor for the journal, and other ornithologists recognize him currently as a leader in studies of avian photoperiodism. The present paper is taken from his Sigma Xi-RESA lecture in 1963-1964, and is the most up-to-date summary of photoperiodism as it relates to reproductive cycles in birds. Many of the data presented here stem from research on the Gambel White-crowned Sparrow (*Zonotrichia leucophrys gambelii*) by Farner and his coworkers, but in a general discussion of reproductive cycles he draws upon data published on other species. The section of References contains 98 entries.

Of particular interest to the student of avian photoperiodism is a modern, partly hypothetical scheme of functional relationships found in avian gonadal cycles. Herein, one notes that an increasing vernal photoperiod, circadian clocks, and probably other environmental information affect the hypothalamus which, in turn, releases neurohormone(s). The neurosecretory material is believed to be transmitted to the anterior pituitary gland which produces gonadotropins, these stimulating the gonads. Feedback mechanisms, photo-refractoriness, and the effects of circadian clocks are discussed.

Farner's Concluding Remarks contain statements of caution as well as generalizations relating to control of reproductive cycles. One of these generalizations warrants emphasis: "The use of northern breeding areas by many species is obviously possible only because of the evolution of relatively rigid photoperiodic control schemes since, among the environmental information available to the wintering migratory birds, only the vernal increase in day-length bears a constantly reliable temporal relationship to the time of the year in which newly produced young will have the maximum probability of survival."—David W. Johnston.

43. The Effect of Salt Intake on the Size and Function of the Salt Gland of Ducks. Knut Schmidt-Neilsen and Yoon T. Kim. 1964. *Auk*, **81**: 160-172. Actually this paper deals with the ontogeny of the salt gland (size of the gland, weight of bird, quantity and quality of nasal secretion) in developing Peking and wild Mallard ducks. Among the conclusions of the authors are the following ideas: the domesticated Peking duckling was more tolerant to salt than were wild Mallard ducklings; Peking ducklings drinking 2 or 3 per cent NaCl grew more slowly than controls or birds drinking only 1 percent NaCl; birds drinking the higher salt concentrations developed larger salt glands at an earlier age (or smaller body weight) than did birds drinking fresh water; and the larger salt glands produced a fluid at a higher rate than did small glands from fresh water controls. Some genetic and evolutionary problems are briefly discussed.—David W. Johnston.

ZOOGEOGRAPHY

(See also 47, 50, 51, 52, 53, 59, 60, 61, 62)

44. Fulmars in Swedish Waters, a Biometric-morphological Study Designed to Establish their Geographical Origin. (Stormfåglar (*Fulmarus glacialis*) i svenska vatten, en biometrisk-morfologisk studie med syfte att klarlägga deras ursprung.) Sven Mathiasson. 1963. *Vår Fågelvärld*, **22**: 271-289. (English summary.) Fulmars are commonly observed on the Swedish west coast particularly in late winter. In 1962 a notable influx occurred. Some of these birds were markedly smaller in size and darker in color than the others. They were identified as belonging to the race *minor* whose breeding range extends north of Hudson Straits and on the west coast of Greenland. These birds usually winter around the Grand Banks. Their appearance so far east of their usual haunts is attributed to wind drift. The weather records, which at this time featured several severe Atlantic storms with strong westerly and northwesterly winds, support this conjecture.—Louise de K. Lawrence.

SYSTEMATICS

(See 47, 53, 61, 63)

FOOD

(See also 19, 33, 40)

45. Tits and Their Food Supply in English Pine Woods: A Problem in Applied Ornithology. John A. Gibb. 1962. *Festschrift der Vogelschutzwerke für Hessen, Rheinland-Pfalz und Saarland*; 58-66. (Summaries in German and French.) In pine woods in England caterpillars are scarce in May, more abundant later, but in broad-leaved woods they are common in May. The first broods of Great Tits (*Parus major*) are often starved in the pine woods, but thrive in deciduous woods. "Populations of tits in English pine woods are regulated by mortality from food shortage in winter. Hence nest-boxes can only influence the distribution, not the size, of the breeding population. In fact, the provision of nest-boxes in English pine woods may only induce Great Tits and Blue Tits to breed where they cannot survive." "Probably the best way to increase the population of tits in pine woods would be to plant broad-leaved trees among the pines. These

trees could provide additional food in late winter and early summer, when tits are most likely otherwise to be short of food." Table 1 compares the success of Great Tits breeding in oak-hazel woods and pine woods. Table 2 gives the air temperature, stock of invertebrate food, and survival of Coal Tits (*Parus ater*) in Scots pine woods during four winters. This important article clearly shows the high caliber of ornithological research in Great Britain.—M. M. Nice.

SONG

46. A Description of Song Sparrow Song Based on Instrumental Analysis. James A. Mulligan. 1963. *Proc. XIII Intern. Ornithol. Congr.*: 272-284. Five seasons were spent in an intensive study of the songs of three races of Song Sparrows (*Melospiza melodia*) in the San Francisco Bay region. Over 1,500 songs were tape-recorded in the field from some 75 individuals of these races. Spectrograms and oscillograms are presented of different songs of individuals and the songs are analyzed in great detail. "The average repertoire size of 13 rather well-studied birds was 15.8, the range being from 10 to 23." These are larger repertoires than I found in Ohio (Nice, 1943). The average length of 871 songs was 2.62 ± 0.47 seconds, the range extending from 1.2 to 5.2 seconds. Another species-specific character determined was "the occurrence of repeated whistles in 90 percent of the first phrases, followed by a vibrato [rapid frequency modulation] in nearly half of the second phrases." "In the quantitative measures, at least, there is greater variation between the songs of an individual and the individuals of a population than the variation between populations. It appears that song has not diverged in these color races."—M. M. Nice.

BOOKS AND MONOGRAPHS

47. Birds of the Labrador Peninsula and Adjacent Areas. W. E. Clyde Todd. 1963. University of Toronto Press, 819 pp., illustrated. Price \$18.00.

The description as a distributional list given this book is one of those understatement deemed to be the true scientist's most significant virtue. The work is all of this and a great deal more. It is a graphic narrative of an exciting and purposeful adventure that filled the whole of an adult lifetime from 1901 to 1963. From this adventure emerged a contribution of high scientific value. While this may have been the principal goal of the remarkable enterprise, it created besides a stirring revelation of unusual human worth.

The reader is at once aware of this. Each page of the book reveals something of the character of its creator, his profound appreciation of all life around him, of the peculiar features of this forbidding yet magnificent land into which he penetrated where few men set foot before—all this gives it a quality of deep fascination not common in works of this kind. Mr. Todd does not deal with stereotypes devoid of flesh and palpitating hearts. Even the birdskin in his hand, obtained and prepared with care and discrimination as the star evidence in support of his arguments, is to him so much a part of life itself that its inertness is almost denied.

The introductory part gives a comprehensive picture of the land. It includes sections on geography and physiography, general geology, climate, population, and resources. This is followed by a description of ecological conditions and a highly informative ornithological history of the Peninsula, beginning with the explorer Henry Hudson in 1610, who mentioned the "great store of Fowle" on Digges Island. The first purely ornithological expedition, however, was not undertaken until 1833 by Audubon, whose mistakes in the identification of several species, while probably not inexcusable in those early days, occasionally draw the author's critical comment. Among the more recent workers, Harrison F. Lewis and Oliver L. Austin, Jr., are named as outstanding authorities on Labrador birdlife.

The descriptions of the 25 Carnegie Museum expeditions give complete itineraries of each, followed by a detailed account. Mr. Todd took part in most of these. His style of writing is clear and vivid, which lends authenticity to these accounts as well as the pitched interest and excitement of exploration. Shrewd comments on conditions, on some phase of wildlife, on the weather which not seldom was the main factor spelling success or failure, enliven the narrative. The

section is illustrated by 15 pages of photographs depicting some of the difficulties encountered, the bleakness, the fascination, and extraordinary beauty of this American northland.

The area spreads across three life zones, the Arctic Hudsonian, and Canadian. Their limits are delineated and discussed, and lists of the species given for each. Interestingly, the number of species decreases as the land is traversed from south to north, and also from west to east. In general, the main factor influencing zonation is climatic conditions; but the fact that the birds respond very differently to these conditions creates a large "unknown quantity" in these zonal studies.

Of the 338 species found in the total area, 46 are accidental visitants, 3 "summer migrants" coming from the Southern Hemisphere to spend the southern winter in the north, 20 transient visitants breeding in the far north and migrating south in winter, 50 permanent residents (though only three of these are considered truly sedentary), 4 "properly winter residents breeding elsewhere", and 11 "more or less summer residents" but not known to breed in the area. The bulk of the avifauna is composed of 203 species designated as summer residents.

The systematic list includes 349 species and subspecies. The notes on each contain exhaustive previous records, number of specimens and the locality where taken, followed by a section of general comment. These comments feature discussions mainly on plumages, systematic problems, and distribution often accompanied by maps. They are sometimes very extensive as for instance in the cases of the Snowy Owl (*Nyctea scandiaca*), the Northern Raven (*Corvus corax principalis*), and the Common Redpoll (*Acanthis flammea flammea*), all of which present features and problems of particular interest. Mr. Todd does not always use the common names established by the A. O. U. Check-List (1957) and mentions no reason for this. Thus we have for instance the Arctic and the American Three-toed woodpeckers (*Picoides arcticus*, *P. tridactylus*) as well as the Canada Jay (*Perisoreus canadensis*) still with us, to which the reviewer at least raises no objection.

The work concludes with a bibliography covering 50 pages and arranged in a novel fashion which has many advantages. There is also a list of localities and an index to the birds.

Its superior organization and the almost incredibly fine-toothed research that has gone into these records past and present make the volume an ornithological work of rare distinction and scholarship.—Louise de Kiriline Lawrence.

48. Biology of Birds. Wesley E. Lanyon. 1964. Natural History Press, Garden City, New York (published for the American Museum of Natural History). xii + 175 pp. Price \$3.95. This compact, well-written book is divided into seven chapters: (1) origin and evolution; (2) design for flight; (3) variations on a general theme (including sections on adaptations, physiology, classification, adaptive radiation and convergence, etc.); (4) migration and navigation; (5) distribution and the environment (including faunal regions and major habitats of the world); (6) courtship and reproduction; and (7) growth and survival. Much of the material in the last two chapters is based on the author's own field studies of meadowlarks. As stated in the preface: "It is in response to the need for an inexpensive, non-technical presentation of the principles of avian biology that this book has been written."

With clarity and conciseness Lanyon has succeeded in covering a lot of ground, and many will find the book so engrossing as to read it in one or two sittings. The author's ability to explain, to elucidate, is illustrated by his introducing a special "yardstick" for measuring evolutionary events," making it unnecessary for the reader to try to comprehend periods of time stretching over millions of years. Thus, by letting the distance between San Francisco and New York City represent the full scale of geologic time (with New York being the "present-day terminus"), Lanyon is able to offer vivid statements such as these: "We have no positive evidence of living organisms west of the Mississippi River on our yardstick of geologic time"; "birds have been on this evolutionary journey only since Harrisburg, Pennsylvania (Upper Jurassic)"; and "the oldest human fossils date back only as far as Newark, New Jersey . . ." The author does an admirable job of setting forth certain principles or basic concepts with regard to topics such as adaptations, classification, and migration. Happily, many of his terse introductions have a way of "starting from scratch" (an example: "Laymen and scientists alike abhor disorder and appreciate the necessity of naming and classifying living

organisms"). Some readers might wish that comparable introductory statements relating to certain broad disciplines (such as ecology, genetics, and ethology) had been incorporated in the text.

No typographical errors came to my notice, and other errors or partial misstatements seem very few indeed. One statement ("... dermal cells provide the essential nourishment and pigments for the growing feather") is in part an oversimplification, for the exact source of certain pigment cells (melanophores) has long been a subject of dispute (cf. R. L. Watterson. *Physiol. Zool.*, 15(2): 249 ff., 1942), with some workers postulating an ectodermal rather than a dermal (mesodermal) origin. In assessing a relatively short treatise such as this, almost any reviewer is likely to detect what he personally considers "omissions" or perhaps "glaring omissions." The following comments are only one man's reactions, which might reflect pet peeves, and thus can be taken *per saltum*. Although several fascinating aspects of avian physiology are taken up (e.g., wax digestion, torpidity, and echolocation), and although seven paragraphs are devoted to "Incubation and the Embryo," no mention is made of the adaptation whereby embryonic wastes are excreted and stored chiefly as uric acid (non-toxic because insoluble in aqueous solution), which is most advantageous to birds and other terrestrial egg-laying animals. Whereas some subjects are developed rather fully (the competently handled chapter, "Migration and Navigation," covers 23 pages), others are left out completely (e.g., avian diseases, ecto- and endoparasites, the role of fire as related to vegetation types, and ecological succession).

Sixty-four line cuts (maps, diagrams, and drawings), all prepared by the Graphic Arts Division of the American Museum of Natural History (many having been prepared from exhibit material) effectively complement the text and make for considerable over-all attractiveness. The volume contains an adequate index, and there is an appendix giving the common and Latin names of birds cited (including species and other taxa representing many parts of the world). Like the text, this list of names, together with lists of references to authoritative works on avian biology and related subjects, attests to the author's scholarly diligence and breadth of approach. Lanyon's *Biology of Birds* should provide an edifying experience for many a reader.—Robert A. Norris.

49. Proceedings XIII International Ornithological Congress. Held at Ithaca, New York, June, 1962. Edited by Charles G. Sibley. Vols. I and II, 1246 pp. Published in 1963 by the American Ornithologists' Union. Order from Robert J. Newman, Treasurer, Museum of Zoology, Louisiana State University, Baton Rouge, La. Price \$20.00. These Proceedings contain, among other things, 110 published papers out of some 153 presented at the Congress, and undoubtedly represent a fair cross-section of contemporary ornithological research interests in much of the world. Only a few of the individual papers of special interest are reviewed in this issue of *Bird-Banding*; otherwise, it appears more advisable simply to summarize in a general way the contents of the two volumes.

Perhaps indicative of an increasing world-wide interest in birds, this Congress, as compared with the ten most recent Congresses, had the most members enrolled (879), the most papers published, and the Proceedings contain the most pages. Both the prefatory remarks of "the editors" and the presidential address of Ernst Mayr state or imply contemporary trends in ornithological research toward more physiological, ethological, and ecological studies. These trends are further indicated by the somewhat arbitrary but probably wise groupings of published papers into categories such as "behavior" and "ecology." Dr. Mayr further suggests some gaps in ornithological knowledge, such as diseases of birds, dynamics of flight, energy utilization, and physiology of molt.

Volume I, containing 610 pages, covers the subjects of taxonomy, paleontology, systematics, general behavioral studies, life history and breeding biology, migration and orientation, phylogeny and evolution, and avian diseases and arthropod-borne viruses. Volume II (635 pages) embraces ecological aspects of breeding, mortality and reproductive rates, population studies, general biology, physiology of annual cycles and migration, endocrinology, morphology, metabolic studies, zoogeography, and distribution. Many of the papers contain fine illustrations (photographs, graphs, tables), a summary, and literature cited. The small number of papers published in a foreign language contain an English summary. There is also a list of films and additional papers presented at the Congress, this

list being followed by a useful index to the two volumes. It was of some passing interest to note that nearly all the papers dealing with zoogeography and distribution were by non-American researchers whereas a significant number of the physiologically oriented researches were by Americans.

Dr. Sibley and his editorial staff are to be commended for their compilation of these papers. The significant researches published here plus the durable hard-bound covers of the two volumes make these Proceedings an essential for the serious-minded ornithologist.—David W. Johnston.

50. The Animal World of Scandinavia. Mammals, Birds, Reptiles, Amphibians, Fishes. (Nordens Djurvärld. Däggdjur, Fåglar, Kräddjur, Groddjur, Fiskar.) Kai Curry-Lindahl. 1963. *Forum*, Stockholm, 464 pp. 225 color plates. This work probably best represents Curry-Lindahl's remarkable talent for producing highly readable popular books on natural history containing a wealth of sound scientific information. This is an account of the 286 species of fishes, 14 amphibians, 8 reptiles, and 410 birds that dwell within the precincts of these four countries of northern Europe and the seas around them. The book also deals with the evolution of the land from the last glacial age some 12,000 years B. C., the question of zoogeography and ecology with special reference to Scandinavia, and whether this part of the world can be considered a zoogeographical unit. These discussions are followed by an account of the colonization of the land by the animals after the retreat of the ice. Built on this basis, the rest of the work moves step by step from one ecological zone to another, beginning with the seas surrounding Scandinavia and extending northward to the coast of the Arctic Ocean.

The author's easy pen makes this into a remarkably fascinating story which deftly and successfully avoids the pitfalls of repetition, and which includes in addition to the zoological inventory penetrating discussions on the intertwined dependencies and connections between the sea, land, plants, and animals. Often these are interwoven with dissertations on some particularly interesting details, such as the encounter between a toad and a snake, foraging of foxes, matings of fishes, frogs, and birds, including specific behavior patterns and their bearing on adaptation and evolution. An astonishingly large part of this is based on expert personal studies and observations. The author seems to have been everywhere and experienced nearly every phase of what he is talking about, experiences which lend an original freshness to his descriptions. So, for instance, while living in a tent in Lapland during the exceptionally cold winter of 1941 when the temperature for three weeks never rose above — 30° C. and once sank to — 49° C., the author made a point to actually experiencing "what the cold of the winter in the farthest north means to the animals." No opportunity is missed to stress the need for sane conservation, an attitude convincingly expressed without mincing words by telling arguments, especially on such subjects as the right of existence of the wolf and wolverine, the ecological changes wrought by drainage, and the raising of the water-levels.

It is regrettable that at least for the present this eloquent and penetrating exposition of the world of Nature above the 54th parallel is unavailable except to those familiar with the Swedish language. Apart from an unfortunate misprinting of four pages of color plates, the generous photographic material is of superior quality. It includes some outstanding pictures of the animal world under water as well as some of Hosking's best, notably a House Swallow (*Delichon u. urbica*) in flight caught in a beam of flash illumination as it approaches its nest inside a dark barn.— Louise de K. Lawrence.

51. Arctic and Tropic. (Arktis och Tropik.) Kai Curry-Lindahl. 1963. Bonniers, Stockholm, 244 pp. The author's keen observations, his insatiable curiosity, and indefatigable enthusiasm, combined with a remarkably readable style, take the reader from the Arctic tundras to the savannas and rain forests of Africa, from the isolated continent of Australia to the Americas. Primarily a travelogue with strong overtones of natural history and conservation problems, the book deals with various aspects of comparative ecology, with the balance of nature and the effects of man's interference therewith, with animal relationships, and food chains. The ruthless use of the land, the gamble of conservation, when these are not based on sound foresight and objective research, are brought out

with dismaying frequency. In these affairs the new African states seem to have developed more realistic and farsighted tendencies than the technology-ridden lands considered more civilized and advanced. This development seems to stem from nothing more complicated than a matter of attitude, a native realization of the expediency of working *with* nature instead of expecting nature to allow self-centered dominance by man without challenge. The last is rather like putting relentless pressure on a plastic bag full of water and expecting it not to burst.—Louise de K. Lawrence.

52. Birds of the AEC Savannah River Plant Area. Robert A. Norris. 1963. *Contributions from the Charleston Museum*, 14: 1-78. Field studies carried on by the author from 1955-1958 on the 201,000 acre tract in South Carolina of the United States Atomic Energy Commission. After a description of the ecology of the area and a list of the chief plants encountered, the bulk of the report is devoted to an annotated list of the birds. These include many interesting life history and behavior notes as well as figures on numbers of migrating birds killed at a television tower. To give a few examples: the occurrence in fall-collected Ruby-throated Hummingbirds (*Archilochus colubris*) of some two grams of fat; the agitation of Brown-headed Nuthatches (*Sitta pusilla*) over imitations of Screech Owl (*Otus asio*) calls; the "presenting" of the black crown patch as an intimidation display of one male Goldfinch (*Spinus tristis*) to another. A very helpful index calls attention not only to bird species but to items on behavior.—M. M. Nice.

53. A Checklist of the Birds of Arizona. Gale Monson and Allan R. Phillips. 1964. University of Arizona Press, Tucson. 74pp., 4 figs., paper. Price \$1.75. Also published as part 4 of *The Vertebrates of Arizona*, edited by C. H. Lowe, 1964, University of Arizona Press. This checklist will be welcomed by Arizona birdwatchers, and visitors who want to use limited time in the field effectively. Its only complete predecessor was published in 1914, with a supplement in 1934. The new list reflects general changes in nomenclature and reveals much more extensive knowledge of Arizona birds, based on the field work of a handful of observers, like the authors, with enthusiasm and endurance. The terse comments for each species leave field identification to other books. No species is given a numbered place in the list without an extant specimen, though hypothetical occurrences are referred to briefly.

The list includes many corrections to the status of Arizona birds as given in the 5th edition of the A. O. U. Check-list, based on more precise knowledge of the distribution of Arizona birds state, or on field work since the A. O. U. Check-list was finished. The authors comment that they have followed the nomenclature of the A. O. U. Check-list, though they do not agree with it in all respects. Unfortunately these good intentions were not always carried out. Five of the owls, for example, appear under the common name in the A. O. U. Check-list, but preceded by another name. The "Purple Finch" of the A. O. U. becomes the "Common Purple Finch," and "Cassin's Finch" becomes "Cassin's Purple Finch." In general, the first English name shown is that of the A. O. U., followed by one or more other names. Even if this practice had been followed consistently, it would not be apparent to many readers that all names but the first were obsolete. It would have been far clearer to show the additional names in parentheses, in smaller type, and on a different line, as was done in the second edition of Peterson's *A Field Guide to Western Birds* (1961). The authors probably felt that their checklist was aimed at a more limited group, but it would be a pity if the checklist did not reach the majority of active observers in the state. A good many species have the generic name, the species name, or both, in quotation marks to show that the authors disagree with current A. O. U. nomenclature. For some of these, the species accounts include a brief reference to the reason for the disagreement, but the majority of these quotation marks are unexplained, and thus merely confusing to most readers.—E. Alexander Bergstrom.

54. The Black-tailed Godwit. F. Haverschmidt. 1963. E. J. Brill, Publisher, Leiden, Holland. viii + 120 pp., frontis, one figure, 17 photographs, two maps. Price Gld. 18. The author, well-known for his ornithological research in the South American Tropics, has written this little book "for the ordinary bird

lover and the general ornithologist," and does not claim it to be a thorough monograph on this species. It is his intent, I believe, to remind "a growing generation who hurry by car all over the country-side looking for rarities" that there are values to be gained from sitting still and studying our common birds, especially if one makes his observations alone.

The book is based upon Haverschmidt's own personal observations of *Limosa limosa* in Holland dating back to about 1922, with periodic visits to the country through 1962. He generously augments his own records with many published accounts, and supplies the reader with (apparently) complete bibliographies at the end of the four principal sections. The reader must stand in awe at the coverage of these bibliographical references because of their depth and scope: they span a very large number of non-American ornithological publications over many years. Haverschmidt also mentions that "as this work was going to press a very thorough and scientific paper: "Studies on the behavior of the Black-tailed Godwit" was published by the Danish zoologist Hans Lind. . ."

The book begins with a chapter of General Remarks which touches on taxonomy of godwits, distribution of the subspecies of *Limosa limosa*, selected measurements of birds from different populations, and habitat preferences. Depending upon the specific location the Black-tailed Godwit prefers fenland or moors or fen meadows surrounding peat bogs and frequently nests in cultivated grasslands used as hayfields and for the grazing of cattle. The second chapter, The Nesting Period, is the longest and most detailed section of the book. Herein Haverschmidt starts with arrival of godwits in Friesland (the principal study area) and discusses displays, copulation, nest, eggs, incubation, hatching success, nestlings, predators, and food. One of the most striking photographs I've ever seen is the author's Plate IX wherein he caught a godwit turning its eggs before settling down. One foot is under an egg, the other foot on top of it!

In the chapter on Migration many data from band recoveries are given. From 1911 to 1961, 3074 Godwits were banded in Holland with a 2.3 percent recovery. A striking feature of all recoveries (birds banded in Holland and elsewhere) is the fact that "only 13 or 15% pertain to birds on their first autumn migration and that no less than 63 or 73% were recovered on spring migration and most of them in later years." Haverschmidt believes this is partly due to the possibility that in autumn the Godwits travel nonstop to their winter quarters. Finally, in a chapter on Protection and the Future the author expresses concern for Holland's nesting meadow birds—the godwit, Lapwing, Redshank, Oystercatcher, and others. It is his conviction that egg-searching must be curtailed, the harvesting of hay be carried out so as to interfere as little as possible with breeding birds, and that shooting regulations should depend upon international cooperation.

This delightful little book contains much valuable information on the Black-tailed Godwit, but it is a compilation of isolated facts and there are significant omissions from its life history; for example, a thoroughgoing discussion of territory would have added much. I doubt that the book was edited or proofread carefully for there are many typographical errors, misspellings (especially in compounding words), errors in hyphenations, omission of punctuation marks, and the same word is spelled in two different ways on the same page. Nonetheless, the book adds much to published accounts of this shorebird.—David W. Johnston.

55. Life Histories of North American Diving Birds. Arthur C. Bent. 1963. Dover Publications, Inc., 180 Varick St., New York 14, N. Y. 239 pp., illustrated. Price \$2.75. Paperbound. As was generally true of the other eight volumes in the famous Bent series already reprinted by Dover, the present one is "complete and unabridged, containing all the original illustrations." Reprinting of the text appears to be verbatim, but all the plates, originally partly scattered throughout the text, are now grouped en masse at the end of the book. Unfortunately the original color plates are now black-and-white, a feature which greatly reduces their value. Furthermore, explanations of the first 43 plates have been omitted from the Explanation-of-Plates list on page 233, this list being reserved solely for egg data. In these points it resembles a previous reprint, by Dodd Mead and Company (1946). Mrs. Nice earlier (*Bird-Banding*, 34: 231, Oct., 1963) pointed out in her review of the reprinted volumes on shorebirds that "the reproduction of the photographs is decidedly disappointing," but this is to be expected after the lapse of so many years.—David W. Johnston.

56. Life Histories of North American Marsh Birds. Arthur C. Bent. 1963. Dover Publications, Inc., 180 Varick St., New York 14, N. Y. 392 pp., illustrated. Price \$2.75. Paperbound. This volume, like the preceding one, represents another of the Dover reprints, and contains only minute changes (captions to photographs are occasionally shortened) from the original. In spite of the fact that there have been changes in nomenclature, techniques, and approaches to life history studies since Bent's time, the "Bent series" will remain a storehouse of data, useful to many ornithologists for years to come. Dover Publications is to be thanked for making these reprintings available at such a nominal cost.—David W. Johnston.

57. Wildfowl in Great Britain. A Survey of the winter distribution of the Anatidae and their conservation in England, Scotland and Wales. Prepared by the Wildfowl Trust, edited by G. L. Atkinson-Willes. 1963. Monographs of the Nature Conservancy No. 3, Her Majesty's Stationery Office, London. xiv + 368 pp., illustrated. Obtainable from Sales Section, British Information Services, 845 Third Ave., New York, N. Y. Price \$9.00. As a part of the great postwar Nature Conservancy movement, the Wildfowl Trust began in the late 1940's a comprehensive survey of England's waterfowl resources, the first ever made for any part of Europe. This significant volume reports the results of the first 15 years of the study made by a host of both professional and amateur ornithologists throughout the country, whose combined efforts the Trust directed and coordinated.

Introductory chapters delineate the aim and scope of the survey and the methods used for obtaining the data—in which mass banding plays a very important part. Much of the book is given over to detailed descriptions of England's main waterfowl concentration areas and the numbers and species of wildfowl each supports. An extensive section by Hugh Boyd, accompanied by a most revealing set of population density-distribution maps, assesses the present status of each of the 32 species of waterfowl that occur regularly in Britain.

The final section reviews the ways in which man is influencing the waterfowl populations, mainly by altering the environment and by propagating, spreading, or curtailing breeding stocks. An assessment of waterfowl's relation to agriculture finds them not overly harmful and their depredations easily controlled. As the British game laws allow a 5-month open season on 21 species of waterfowl with no bag restrictions and permit market trapping as well as shooting, hunting pressure is apparently controlled mainly by limiting the areas in which the birds may be taken. Under the Nature Conservancy a large number of waterfowl refuges have already been established, and still more are proposed for a national network of them that will assure the perpetuation of wildfowl at at least their current levels of abundance throughout Great Britain.

The book is handsomely produced, nicely proofed and printed, and beautifully illustrated. Scores of Peter Scott's black and white vignettes enliven the pages, and the 14 colored plates of waterfowl from his *Wildfowl of the British Isles* (1957) are included, plus 26 photographic plates of waterfowl operations and habitats. Indeed the work presents a most graphic assessment of the status of waterfowl in the British Isles today, and should greatly assist in their preservation—O. L. Austin, Jr.

58. An Asian Bird-Banders Manual. H. Elliott McClure. 1964. Migratory Animal Pathological Survey, Armed Forces Institute of Pathology, Box 6119, APO 323, U. S. Forces, Tokyo, Japan. 113 pp., 71 figs., paper, no price (limited supply available for distribution to anyone interested in cooperating with a bird-banding project in eastern Asia). This Survey currently has teams in the field in Malaya, Thailand, Negros, Luzon, Taiwan, Korea and Japan (McClure, *in litt.*). The author is to be congratulated for adapting banding techniques most of us are familiar with to a great variety of situations, some of which are seldom encountered in the U. S. The manual is based on a wide acquaintance with banding literature, plus the author's broad experience in the field in the U. S. and in eastern Asia.

For removing birds with very powerful beaks (such as barbets or parrots) from mist nets, try taping the tip of the bill closed with 1/2-inch adhesive tape, taking care not to cover the nostrils, and leaving the tape in place only during the

few minutes you are removing the bird from the net. To avoid bites while removing bats from nets, encase the animal with a handkerchief.

For collecting external parasites of birds, McClure recommends the insecticide silicon-dioxide, trade name "Dri-Die 67," a fine powder which acts as a dessicant (not the aerosol spray of the same material, which should be avoided as it coats the bird with crystals). It does no harm to the bird or operator, but avoid breathing the fine dust or getting it into the bird's nostrils. "When a bird is taken from a net or trap and put in a cloth bag it may lose some of its parasites in the bag. For this reason the bag should be reversed each time a new bird is placed in it. . . . As soon as a bird is removed from a bag or holding cage it should be dusted lightly with Dri-Die about the vent and rump, under the wings, between the wings, on the head, and the chin especially. With a small plastic dispenser the dust can be forced among the feathers." After five to ten minutes wait (during which time the bird can be banded, weighed, etc.), hold the bird over a white pan or paper, and ruffle the feathers. "The stupefied parasites will fall out. They can be scraped up with a forceps dampened with alcohol and washed off in a vial of 70% alcohol. . . . and the vial properly labelled with bird species, band number, date, place, and age of bird." This technique was first worked out by Dr. Barry Tarshis at the San Diego Zoo.

The manual includes a section on band sizes and another on "trapping and banding idiosyncracies" of some Asian birds. The standard record forms shown go into more detail than the basic Fish and Wildlife Service form, especially on measurements and parasites. The measurements form uses inches for length, wing and tail (which may vary depending on feather wear), and then only to the nearest quarter- or half-inch, while other measurements are to the nearest millimeter or tenth of a millimeter. Admittedly it is hard to get consistent measurements from a number of scattered workers, especially on overall length, but a record only to the nearest half-inch is of rather limited value. The Survey enters recaptures on the same "species" sheet as newly-taken birds (probably because the field parties forward their entire records to the central office frequently), but flags the number by the symbol "CL," an abbreviation for *Chinchan Lama*, Malay for "old ring."—E. Alexander Bergstrom.

59. Fauna of the French Antilles, the Birds. (Faune des Antilles Françaises, Les Oiseaux.) Père R. Pinchon. 1963. Fort-de-France, 264 pp., illustrated. Obtainable from the author, College Seminaire, Fort-de-France, F. W. I. Price 50 NF. This guide to the birds of the Lesser Antilles is designed for popular use and should do much to stimulate local interest in birds and their protection in the easternmost archipelago of the West Indies, where its author has lived and studied them almost two decades. I remember how his arrival in Martinique in the late 1940's was marked by the reporting of a dozen recoveries of our Cape Cod tern bands he obtained from the local hunters and fishermen, the first of some fifty-odd we eventually received from the French West Indies.

Father Pinchon earned his Doctor of Science degree at the Sorbonne, and is a Correspondent of the Paris Natural History Museum. Since his advent in the Antilles he has published a number of papers on its birds in *L'Oiseau et Revue Française d'Ornithologie* and several notes in *The Auk*. This volume is apparently the first of a series he is preparing on the Antillean fauna, but the birds are his chief interest and concern. They certainly need such a friend in the French islands, where the record of decimation and extirpation from hunting, introduced predators, and destruction of the environment is little short of appalling.

The Reverend Father's writing combines careful scientific reporting with warm human interest and a refreshing simplicity of expression. In clear simple French he presents the birds order by order and family by family. A simple, easily followed key to its species introduces each group. Instead of using a set format for his species accounts, he treats them in essay style that varies with each, but nevertheless includes the pertinent information—description, status, history, habits, behavior. Of the 35 plates, two are in color, the remainder being excellent photographs of the birds in their Antillean habitat. The book is a "must" for anyone at all interested in the West Indies or its birds.—O. L. Austin, Jr.

60. List and Distribution of Argentine Birds. (Lista y Distribucion de las Aves Argentinas). C. C. Olog. 1963. Opera Lilloana IX, Tucuman, Argentina.

377 pp., 4 maps. (In Spanish with English abstract). This is the most up-to-date list of Argentine birds since the check-list published by R. A. Zotta (*El Hornero*, 1936-1944). Two lists provide the reader with names of birds added to and dropped from Zotta's earlier check-list. An interesting section deals with four life zones (*Zonas Ornitograficas*), these extending from the subtropics to high Andes to the antarctic archipelago south from 64° latitude. The life zones are subdivided into subzones and for each of these a brief description appears in the text followed by typical avian families, genera, and species occurring therein. Of additional help are numbers beside many species' names which refer to portion of the zone or subzone occupied by that species (such as the entire zone, part of a state, etc.). Fourteen pages, illustrated by a map, are devoted to the subject of migration with especial emphasis on seven migratory routes and the species which are believed to follow these routes.

The bulk of the book is a systematic list (following Wetmore's classification) of 902 species occurring in Argentina. Common names and a brief paragraph on distribution (in and near Argentina) comprise each species' account. Indices to scientific and common names terminate the book. Unfortunately the publication is poorly paper-bound and there is no bibliography.—David W. Johnston.

61. Birds of the Atlantic Islands. Volume One. A History of the Birds of the Canary Islands and of the Salvages. David A. Bannerman. 1963. Oliver and Boyd, Ltd., Edinburgh and London. xxxi + 358 pp., color and half-tone plates, two maps. Price \$4s. This is another of Bannerman's colossal undertakings to survey the avifauna of a major distinctive area, this particular volume embracing the Canary Archipelago and the less-known Salvage Islands. Volume two, now being prepared jointly by Bannerman and his wife, is proposed to cover Madeira, the Desertas, Port Santo and adjoining islets, and the islands of the Azores. The color plates are by D. M. Reid-Henry and line drawings, interspersed at various intervals, were prepared by a variety of artists; all these illustrations add much to the attractiveness of the book.

The volume begins with a bibliography of 95 entries on Canary and Salvage island birdlife dating back to 1810. The introduction contains a wealth of data on the history of ornithological investigations in the islands though a detailed description of the islands is omitted since the author published this in an earlier account in 1922. It is not surprising but refreshing to find him expressing in an almost chatty fashion some of his philosophies of ornithology in these days of the usual stereotyped publications. At the end of the introduction there are two lists providing the reader with data on the fourteen species of birds (21 individuals) banded elsewhere and recovered in the Canaries. Most of these are nonpasserine species.

The real meat of the book is to be found in the lengthy section on breeding birds. Sixty-one species are known to breed on these islands; for each species there is a description (colors, measurements) of the bird, detailed information on its insular range and habitat distribution, habits, food, and nesting. Each of these accounts amounts to a life history study of the species on the islands. In some instances there are detailed comparisons between or among the several subspecies of one species inhabiting various of the islands. The species' accounts are well done, pleasing to read, but sometimes verbose. Smaller sections of the book are devoted to the nonbreeding birds, 154 species which have been recorded on the islands as migrants, accidentals, or of irregular occurrence (forms "that had been recorded on evidence which required further proof . . .").

Although no author is necessarily bound to follow any one nomenclatural scheme, it does seem desirable to me that an author adopt a standard scheme and to state his reasons for any deviations from it. In several instances Bannerman does neither. He is inconsistent with his earlier works (for example, *Birds of West and Equatorial Africa*, 1953) and from many other published schemes in the following instances: he places the Barn Owl in the family Strigidae, the Osprey in Falconidae, flamingos in the order Phoenicopteriformes, and in the Sequence of Orders and Families (viii), *Passer hispaniolensis* and *Petronia petronia* are placed in a family Passeridae whereas in the text (pp. 297-307) these birds are presented as Fringillidae. He offers no explanations for these wide deviations from much contemporary ornithological thought.

Despite this objection to a unique nomenclature of some higher taxa, the volume will no doubt find a receptive audience because of the author's literary

style, the fine illustrations, as well as the apparent completeness of and detailed data in the species' accounts. We anticipate with much pleasure the appearance of volume two.—David W. Johnston.

62. The Birds of Colombia and Adjacent Areas of South and Central America. R. Meyer de Schauensee. 1964. Livingston Publishing Co., Narbeth, Pennsylvania, xvi + 427 pp., illustrated. Price \$10. This book goes far toward filling one of the great voids in ornithological literature, that of usable guides to the birds of tropical South America. Thanks to its expanses of widely varied habitats—tropical rain forests, savannas, semiarid plains, wooded uplands, snow-capped peaks, and the coasts and coastal waters of two ocean systems as well—the Republic of Colombia boasts one of the richest and most varied avifaunas for its size of any country in the world. Within its roughly 440,000 square miles occur 1556 species, more than one-sixth of the world's birds. As these include more than half the birds of all the rest of South America, and 80 percent of those in adjoining Central America northward through Nicaragua, the book should prove useful in neighboring countries as well.

The species are treated by families presented in the Wetmore sequence. Each family is characterized briefly, and a typical member of each is pictured in a black-and-white sketch by George Sutton, many of which are the same ones he drew for Van Tyne and Berger's *Fundamentals of Ornithology*. An interesting novelty is the inclusion of the numbers of species in each family found in respectively in Colombia, in South America, in North and South America combined, and in the world.

Fitting so many species within the confines of a 427-page book presents many problems, mainly of what to include in the limited space available and, much more difficult, what to omit. The data given for each species here are restricted to a short summary of its size, shape, and color (ostensibly enough to identify the bird), its range outside Colombia (helpful in adjoining countries), its habitat within Colombia, and the distribution of any local subspecies. Instead of cumbersome keys, which are seldom workable without the bird in hand, the author has devised an ingenious set of "Aids to Identification" to the species in each family which should reduce the amount of searching considerably. Even more helpful are the 20 plates by Earl L. Poole, 11 of them in color, showing some 300 species stressing the endemics and wisely disregarding migrants and extralimital species amply illustrated elsewhere. Needless to say, however, is the abbreviating to initials all generic and polytypic species names in the captions. Most commendable, on the other hand, is the care given to the selection of English vernacular names, in which the author graciously acknowledges the assistance of that past master on the subject, Eugene Eisenmann.

The book is bound to be of interest and value to everyone interested in South and Central American birds. With it the student who knows the bird families well should have little difficulty identifying almost anything he sees satisfactorily. But the neophyte is still sure to have trouble deciding under what family to look for that little brown bird with vague markings he glimpsed by the roadside. Just how, at the field guide level and without the bird in hand, do you tell an ovenbird from an antbird, or either from a gnatcatcher? Or for that matter an icterid from a thrupid from a fringillid, or a turdid from a sylviid from a muscicapid? No field guide I know of meets this test satisfactorily, for no simple key to all the families of birds that can be used without the bird in hand has yet been devised.—O. L. Austin, Jr.

63. Check-List of Birds of the World. A continuation of the work of James L. Peters. Volume X. Herbert G. Deignan, Raymond A. Paynter, Jr., and S. Dillon Ripley. 1964. Museum of Comparative Zoology, Cambridge, Massachusetts. x + 502 pp. Price \$10.00. All ornithologists will welcome the appearance of another volume of what was Peters' Check-List as a vital working tool in their profession. This number proves to be the competent, workmanlike job one would expect from its three authors. The last three volumes have appeared at fairly regular 2-year intervals. I hope we do not have to wait ten more years for the remaining five volumes.

I am disappointed, but not at all surprised, that the editors decided to abandon the English names they experimented with in the two previous volumes ostensibly because of the criticism with which these were received. It is amusing

to note their justification of this decision by the same gambit they employed when adopting their non-Peters passerine sequence (see *Bird-Banding* 31: 234) — the vote of a packed and biased jury, in this case the 12 authors working on this and the remaining volumes. I don't know where you could find 12 people who personally have less need of or use for common names than this dozen of the world's leading taxonomists. I'm surprised their vote to drop vernaculars wasn't unanimous, but two voted to include them.

The critics who are thus being slapped, of whom I most certainly am one, were unanimous in welcoming the English names, and in deploring the careless, lackadaisical attention given them. The excuse that "to standardize and supply appropriate names for all species . . . would require cumbersome polls and other elaborate procedures beyond the scope of a scientific work" (p. iii) is pure hog-wash. All it would require beyond a bit of searching would be common sense and sound judgment. And so doing would have been a real service and made the Check-List useful to a far wider audience.—O. L. Austin, Jr.

NOTES AND NEWS

Edwin A. Mason (Massachusetts Audubon Society, Lincoln, Mass.) has for sale a set of the *Bulletin of the Northeastern Bird-Banding Association* (1925-29), minus one issue, and a complete set of *Bird-Banding* (1930-63), including Indexes, all bound in green library buckram except for the past five years. The number of such sets coming on the market is very limited. Price \$214.

We are always happy to mention sets or long runs of *Bird-Banding* for sale, or readers' needs. With the increase in our circulation, and the growing needs of institutional libraries, it is difficult to take care of all requests. We hope that readers who no longer have a need of their copies can make them available to others by sale or gift. While NEBBA has a substantial number of back issues in stock, some issues are lacking or in short supply, including even as recent an issue as July, 1958. We are indebted to several members for gifts of back issues, notably a large number from Ralph Palmer recently. A list of back issues presently in stock may be obtained from the Treasurer, Mrs. Downs.

Bird-Banding is to receive a legacy, subject to life estates, under the will of the late Christian J. Goetz, of Cincinnati, Ohio.

In July the Post Office Department announced active use of zip codes for parcel post in 31 large offices, in addition to six already using the system. In many cases parcels can then bypass larger cities, with an appreciable savings in time particularly for parcels travelling over 300 miles. We welcome this improvement, offsetting recent delays from abandoning most handling of parcel post on Saturdays. Most of those ordering mist nets now list their zip code, and we recommend it to the others. The list of mist nets and prices in the July, 1963 issue is still up-to-date, except that type H has been added experimentally (resembling types A and F except that the mesh is 30mm. or 1-1/4"); prices are the same as type C). Orders, or requests for copies of the list, should be sent to Mr. E. A. Bergstrom, 37 Old Brook Road, West Hartford, Conn. 06117.

We note with pleasure the addition of Leon Kelso to the review staff, chiefly for reviews of articles in the Russian journal *Ornitologiya*.