

## RECENT LITERATURE

## BANDING

(See also 2, 26, 30)

1. **Activities at Ottenby Bird Station 1961.** Report No. 35. (Verksamheten vid Ottenby fågelstation 1961.) Barbro Magnusson. 1963. *Vår Fågelvärld*, **22**: 145-153. (English summary.) Observers manned the station from 10 April to 15 November and from 27 to 31 December. Birds of 180 species were banded and for the first time in Ottenby's history their number exceeded 20,000. Reports came in of 163 recoveries; among these firsts for the species were a Woodcock (*Scolopax rusticola*), a Waxing (*Bombycilla garrulus*), and a Goldfinch (*Carduelis carduelis*). A Dunlin (*Calidris alpina*), aged 9 years, was found dead in West Germany. A notable event was the opening of the station's migratory bird museum on 10 June.—Louise de K. Lawrence.

2. **Einige Ergebnisse der Vogelberingung in Finnland in den Jahren 1913-1962.** Göran Nordström. 1963. *Ornis Fennica*, **40**: 81-124. In fifty years, 628,251 birds of 240 species were banded. Several tables list each species, the number banded, places of recovery, and percent recoveries. There follows then 31 maps showing, for many of the species, precise points of recovery and the months in which the recoveries were made.—David W. Johnston.

## MIGRATION

(See also 1, 7, 9, 22)

3. **Orientation Behavior of Four Species of Waterfowl.** Frank C. Bellrose. 1963. *Auk*, **80**: 257-289. Flight paths of Mallards, Blue-winged Teal, Pintails, and Canada Geese were followed under a variety of environmental conditions. Some species showed better orientation under clear than overcast skies, and headings were more uniform at night than day. Nocturnal celestial cues probably come from only a few stars and account for southward headings.—David W. Johnston.

4. **Fall Migration and Weather, A Radar Study.** Sylvia S. Hassler, Richard R. Graber, and Frank C. Bellrose. 1963. *Wilson Bull.* **75**: 56-77. From August to October, 1960, volumes of nocturnal migrants were detected by radar in Illinois. The waves of migrants were correlated with cold fronts and temperature. Important factors in the initiation of a migratory flight are wind shifts, overcast conditions, and, perhaps to a lesser extent, temperature.—David W. Johnston.

5. **Observations on Shorebirds in Sweden during the Winter.** With data from the winter censuses. (Vinterobservationer av vadare i Sverige.) Ingvar Lennerstedt. 1963. *Vår Fågelvärld*, **22**: 131-144. (English summary.) Only birds which were seen during the *whole* of the winter season are included in this paper. Eleven species are listed. Location and counts of individuals are given. The migration times of each species and other pertinent data on their occurrence are discussed. The appearance of shorebirds as winter residents in Sweden may be attributed either to inhibited migration in delayed "stragglers," or to the so-called "weather movements" of the birds.— Louise de K. Lawrence.

## POPULATION DYNAMICS

(See also 9, 16, 26, 27, 29, 30)

6. **The Kite in Scania, southern Sweden, as a Winter Resident.** (Gladan (*Milvus milvus*) som övervintrare i Skåne.) Staffan Ulfstrand. 1963. *Vår Fågelvärld*, **22**: 182-195. (English summary.) With the exception of a few isolated

instances of Kites seen in Sweden during the winter, the first authentic record of winter residence by one to two birds was obtained during the winter 1958-1959. The following year their numbers showed a spectacular increase to 12 and in 1961-1962 to at least 34. Indications are that the wintering Kites were predominantly young birds.

Reasons for this comparatively abrupt change in the Kites' migratory pattern are discussed. The author considers amelioration of climate during recent decades as being of insignificant influence, and gives more emphasis to the advantage of being closer to the nesting grounds during periods of increasing population density to enable them to establish territory ahead of the migrants. Also important are altered feeding habits and utilization of new food supplies which younger birds may be more apt to inaugurate than older ones. Another possible factor is the persecution of raptors, which is considerably better controlled in Sweden than in other European countries. The study continues.—Louise de K. Lawrence.

**7. Winter and Spring at Ottenby 1961-1962.** Report No. 38. (Vinter och vår vid Ottenby 1961/1962.) Robert von Schultz. 1963. *Vår Fågelvärld*, **22**: 154-160. (English summary.) The winter was colder than normal. Snowfalls occurred in December (2.5 in.) and March (6 in.). Ice formed on bays and around the shores as early as mid-December. The water level was record high. During November 94 species were observed, 54 in December, 51 in January, 45 in February, 75 in March, and 93 in April. A mass invasion (up to 1000-2000) of Woodcocks (*Scolopax rusticola*) was recorded in November. The number of oil damaged birds was high. Among the rarities were a Snowy Owl (*Nyctea scandiaca*), one of four observed on the island that winter, and a female Steller's Eider (*Polysticta stelleri*).—Louise de K. Lawrence.

**8. Population Changes in a Surrey Oakwood During Fifteen Years.** Geoffrey Beven. 1963. *British Birds*, **56**(9): 307-323. Censuses of the singing males of ten species of birds were taken on 40 acres of a mature oakwood. The numbers nesting each year are shown on a chart with the character of the preceding winter indicated in six categories ranging from "Very Mild" to "Very Cold." "The population of Great Tits (*Parus major*) has remained remarkably constant, except in 1958 when it was reduced by half; this occurred in the spring after a winter in which the population was far greater than normal and presumably many died of starvation." "Populations of Robins (*Erithacus rubecula*) and Wrens (*Troglodytes troglodytes*) have usually been reduced in the springs following cold winters, even when these have not been especially severe." Both recover in one or two years. Willow Warblers (*Phylloscopus trochilus*) have dropped from 21 pairs in 1950 to three in 1963; similar decreases have occurred elsewhere in southern England. Chaffinches (*Fringilla coelebs*) have declined from 17 pairs to six; this species has decreased in large areas of the country, presumably due to poisoning by chemicals when the birds spend the winters on farmlands.—M. M. Nice.

## NIDIFICATION AND REPRODUCTION

(See also 16, 30)

**9. The Influence of Snow on the Breeding Success of Birds in Iceland 1961.** (Något om snöns inverkan på häckningen på Island 1961.) Sven-Axel Bengtson. 1963. *Vår Fågelvärld*, **22**: 97-122. (English summary.) Data were obtained during May and June after migration ended and nesting began from one species of grebe, ten ducks, one falcon, eight shore birds and gulls, and six passerines. Weather conditions featured a relatively heavy snowfall 20 May, which left about four inches to cover the ground for almost a week, followed by a period of fairly normal spring weather. Another heavy snowfall occurred 18 June, but this time the snow disappeared within 24 hours.

Four factors emerged which influenced the nesting success and were directly related to the snow and cold weather: (1) the time of the egg-laying in relation to the snowfall; a better result was obtained when the egg-laying occurred before than during the snowfall; (2) the birds' reactions to the snow, whether they abandoned the eggs or incubated them without interruption or returned to them after an absence of a few days; (3) the location of the nest, whether sheltered or in

the open; and (4) the time of hatching, the probability of survival of the young increased in proportion to the length of the interval between hatching and snow-fall.—Louise de K. Lawrence.

### LIFE HISTORY

**10. Life History of the Cactus Wren. Part VI: Competition and Survival.** Anders H. Anderson and Anne Anderson. 1963. *Condor*, **65**: 29-43. This extensive and concluding part of the study is "concerned with the effects of the physical environment upon the wrens, their conflicts with other birds, the enemies they faced, and finally the survival of the Cactus Wrens."—David W. Johnston.

### BEHAVIOR

(See also 10, 20, 32)

**11. On Aims and Methods of Ethology.** N. Tinbergen. 1963. *Zeitschrift für Tierpsychologie*, **20**(4): 410-433. Ethology is defined by Dr. Tinbergen as "the biological study of behaviour." He discusses the subject under the subtitles of observation and description, causation, survival value, ontogeny, and evolution. He concludes that "The central point in Lorenz's life work thus seems to me his clear recognition that behaviour is part and parcel of the adaptive equipment of animals." This valuable paper has a one-page summary in German and a bibliography of two pages.—M. M. Nice.

**12. Lorenzian Ethology.** Julian Huxley. 1963. *Zeitschrift für Tierpsychologie*, **20**(4): 402-409. This is "a tribute to Konrad Lorenz from an evolutionary biologist who is also an inveterate bird-watcher." An interesting account is given of the situation among psychologists and behaviorists before Lorenz, and this is followed by a discussion of some of his most important contributions. "Lorenz has undoubtedly made the largest and most effective single contribution to the modern study of behaviour." "By his demonstration of the importance of patterns of perception and patterns of action—he has provided the possibility of reformulating the Gestalt theory on a broader and more scientific basis. By his demonstration of the adaptive value of behaviour and his relentless pursuit of its implications into every manifestation of animal life, including our own species, he has contributed materially to establishing ethology in a central position in the main current of evolutionary thought. And by rejecting the reductionist approach and insisting on taking emotion and other subjective phenomena into account, he has helped prepare the way for transcending the mind-body conflict in an integrated and truly monistic approach."—M. M. Nice.

**13. Konrad Lorenz 60 Jahre.** Otto Koehler. 1963. *Zeitschrift für Tierpsychologie*, **20**(4): 385-401. A warm tribute to Dr. Lorenz on his 60th birthday, closing with a bibliography of his writings—98 of them from 1927 to 1963. Forty-five articles dedicated to him have come to Dr. Koehler from all over the world. Instead of one *Festschrift* to celebrate the 60th birthday of the Founder of Ethology, nearly a full year will be devoted to these papers.—M. M. Nice.

**14. The Role of Auditory Feedback in the Vocal Behavior of the Domestic Fowl.** Masakazu Konishi. 1963. *Zeitschrift für Tierpsychologie*, **20**(3): 349-367. At the University of California at Berkeley five 2-day-old chicks were deafened. Audiospectrographic comparisons with normal birds showed that the deaf birds developed the same repertoire and forms of vocalization. An adult cock was deafened and the forms of his calls remained unchanged although some change occurred in the detailed aspects of his crowing. Numerous audiospectrograms of both normal and deafened birds are presented.—M. M. Nice.

**15. On the Honey Sucking Habit of the Purple Sunbird, *Nectarinia asiatica* (Latham).** A. R. K. Das. 1963. *Pavo*, **1**: 60-65. Even though this species' bill is not adapted for any one particular type of flower, it visits a variety of flowers, and approaches their nectaries in different ways.—David W. Johnston.

**16. Behavior of the Skylark.** (Das Verhalten der Feldlerche.) Juan D. Delius. 1963. *Zeitschrift für Tierpsychologie*, **20**(3): 297-348. (Two-page summary in English.) A population of color-banded *Alauda arvensis* was studied for four seasons in Ravenglas, Cumberland, England. Skylarks are highly territorial birds, returning to their breeding territories year after year. Eleven birds, banded in the nest, were found in subsequent seasons, six in the observation area, four in the vicinity, the furthest 1.5 km from its birthplace. "Between the members of a pair there is no dominance." Incubation, performed by the female, lasts 11 days, fledging eight days. Each female averaged 2.7 broods a year. There are eight tables with the standard error indicated, and 46 graphs, several of which depict postures of the birds. Population aspects of the study as well as nonreproductive behavior are being published elsewhere.—M. M. Nice.

## ECOLOGY

(See also 18)

**17. Ecological Studies on the Mute Swan (*Cygnus olor*) in South-eastern Sweden.** Bjorn E. Berglund, Kai Curry-Lindahl, Hans Luther, Viking Olsson, Wilhelm Rodhe, and Gunnar Sallerberg. 1963. *Acta Vertebratica*, **2** (No. 2): 167-288. Significant research was begun in 1957 to answer questions relating to this swan's possible effects on commercial fishing interests. Do Mute Swans, for example, damage submerged vegetation and thereby destroy fish spawning grounds? Do they eat fish eggs, their fry, or shrimps? These several investigators, under the able leadership of Mr. Berglund, are to be commended for the present extensive study.

Among the ecologic phases of the swan reported here are: distribution and population fluctuations, plant communities in the grazing localities of this swan, food selection, fisheries studies, nutritional biology, botanical analyses of feces, and migrations. As conclusions, the authors found that vegetable matter comprised 95-100 percent of this swan's food — "no roe or spawn of fish and no shrimps were found." Evidently the bird has no noticeable effect on populations of pike, perch, or shrimp. Finally it is said that "The mute swan is included in the ecosystem of the shallow lakes and brackish-water archipelagoes. The population is at present expanding. This change, however, has not led to any serious and injurious disturbance of the ecosystem."<sup>3</sup>—David W. Johnston.

## CONSERVATION

(See also 27, 29)

**18. My Eye is on the Sparrow.** Daniel McKinley. 1963. *Contact*, **4**(1): 10-20. An eloquent plea for heeding the lessons of ecology by a man deeply concerned that "the lovely things of Earth be saved." Pointing out the appalling folly of the unlimited increase of our own species, he urges the contrary and wiser way of choosing "to share the Earth with as many kinds of things as possible."—M. M. Nice.

## MORPHOLOGY AND ANATOMY

**19. Erythrocyte measurements in birds.** F. A. Hartman and M. A. Lessler. 1963. *Auk*, **80**(4): 467-473. This significant paper gives measurements of "erythrocytes and their nuclei . . . in 124 species of birds in 46 families collected in Panama and the United States." The cell size ranges from "10.7 / $\mu$  X 6.1 / $\mu$  in *Selasphorus* to 15.8 / $\mu$  X 10.2 / $\mu$  in *Tigrisoma*. The lower forms have the largest erythrocytes." In some families the erythrocyte size varies with body size. It is assumed that the lesser diameter (width) of the cell measures the capillary diameter. This supposes the erythrocyte to be undeformable in life, which has not been proven. It is known that the mammalian red cell can deform to pass through a capillary not more than 2/3 the diameter of the cell.—Charles H. Blake.

**20. On the Morphology and Behaviour of a Hybrid between Goosander and Shelduck (*Mergus merganser* L. x *Tadorna tadorna* L.).** H. Lind and H. Poulsen. 1963. *Zeitschrift für Tierpsychologie*, **20**(5): 558-569. Observations on two hybrid females and one male in the Copenhagen Zoo. These birds reacted socially to each other and to the species of their mother, a Shelduck. Some of their morphological and behavioral characters resembled one or the other of their parents, some were intermediate, whereas others differed from either parent, being apparently more primitive.—M. M. Nice.

#### PHYSIOLOGY

**21. Tentative Field Estimates of Metabolism in Buntings.** Carl W. Helms. 1963. *Auk*, **80**: 318-334. Although recognizing possible sources of error, the author proposes a method for determining metabolic requirements of birds in the field. The method is based largely on daily fluctuations in body weight and fat. For the five species studied metabolic estimates ranged from 11.06 kcal/bird/day to 34.72 kcal/bird/day, the values being somewhere "between resting metabolism and existence energy."—David W. Johnston.

**22. The Relationship of Fat Deposition to Zugunruhe and Migration.** James R. King and Donald S. Farner. 1963. *Condor*, **65**: 200-223. In most experimental birds of the genus *Zonotrichia*, vernal fat deposition precedes *Zugunruhe*. "The mechanisms of development of *Zugunruhe* and fat deposition are essentially independent . . ." and gonads are apparently not essential to either mechanism.—David W. Johnston.

#### PLUMAGES AND MOLTS

(See also 32)

**23. The Incidence of Albinism and Melanism in British Birds.** Bryan L. Sage. 1963. *British Birds*, **56**(11): 409-416. Analysis of 3,134 records of albinism in British birds showed that the species most affected were "Blackbird, House Sparrow, Starling, Swallow, Rook and Jackdaw." "The highest incidence of albinism appears to be found in sedentary species that tend to form isolated populations and in social breeders." Only 113 records of melanism in British birds have come to light.—M. M. Nice.

**24. Comments on the Study of Plumage Succession.** Philip S. Humphrey and Kenneth C. Parkes. 1963. *Auk*, **80**: 496-503. This article appears to be a rebuttal to the critique of Stresemann (*Auk*, **80**: 1-8. 1963) on the authors' new system of nomenclature for molts and plumages. By and large, the authors present few new arguments but rather re-assert their earlier views on the matter and plead to their critics for "an improved conceptual and terminological framework."—David W. Johnston.

#### ZOOGEOGRAPHY

(See also, 5, 6, 31)

**25. The Yellow Wagtail Breeding in Sweden and a Survey of the Yellow Wagtail Complex.** Report No. 24 from Falsterbo Bird Station. (*Motacilla lutea flavissima*, Blyth, häckande i Sverige samt en översikt över gulärlekomplexet.) Sören Svensson. 1963. *Vår Fågelvärld*, **22**: 161-181. (English summary.) A pair of Yellow Wagtails was found nesting at Falsterbo 21 June 1960. Both the male and the female were caught and found to belong to the subspecies *Motacilla lutea flavissima*. Their four young were banded. It is suggested that *Motacilla flava* and *M. lutea* are two separate species. Based on this hypothesis, the author lists the Yellow Wagtails recorded in Sweden as follows:

*Motacilla flava*:

subsp. <i>flava</i> ,	breeding in southern Sweden
<i>thumbergi</i> ,	breeding in northern Sweden
<i>feldegg</i> ,	found once in southern Sweden (1959).

*Motacilla lutea*:

- subsp. *flavissima*, found breeding at Falsterbo (1960).  
undetermined, two individuals observed in Småland, central  
Sweden, one on the island of Öland.

New Swedish names are suggested to differentiate the two species.—Louise de K. Lawrence.

**26. The Barn Owl in Scania, Sweden, 1951-1961.** (Tornugglan (*Tyto alba guttata* Brehm) i Skåne 1951-1961.) Walter Hermanson 1951-1961, Lennart Otterhag 1959-1961. 1963. *Vår Fågelvärld*, **22**: 123-130. (English summary.) The paper is based on census and banding data. During this period 89 Barn Owls were located. In 1961, 27 nesting places were discovered, of which 18 contained first broods and 9 second broods. The Barn Owl is able to adjust clutch size to the food supply and in good rodent years may lay a first clutch of six eggs followed by a second of up to ten eggs. Winters with heavy snow are more likely to impair survival than winters with temperatures much below normal and comparatively little snow. This is because small rodents do not come out in the open in winters with heavy snowfall.—Louise de K. Lawrence.

**27. The Birds of the Danube Delta and Their Conservation.** Stanley Cramp and L. J. Ferguson-Lees. 1963. *British Birds*, **56**(9): 322-339. The authors spent 17 days in May, 1961 on two lakes in Rumania in the company of Gheorghe Andone who for the last eight years has been in charge of scientific and conservation studies in the Danube delta. The most notable nesting species here are: White and Dalmatian pelicans (*Pelecanus macrotalus* and *P. crispus*), Glossy Ibis (*Plegadis falcinellus*), Great White Heron (*Egretta alba*), and Ruddy Shelduck (*Casarca ferruginea*). A great decline in the populations of the more important species took place in the late 19th and early 20th centuries, but in the last decade protective measures "have led to marked improvements in many cases—apart from the birds of prey." This interesting paper is illustrated with a map and 13 plates of birds and habitats.—M. M. Nice.

SYSTEMATICS

(See 25, 32)

FOOD

(See also 15, 17)

**28. The Feeding Ecology of the Wood Pigeon.** R. K. Murton, A. J. Isaacson, and N. J. Westwood. 1963. *British Birds*, **56**(10): 345-375. An elaborate and exhaustive investigation into the feeding activities of *Columba palumbus* in Suffolk. "In winter each pigeon collected an average of 34,900 food items (mainly clover leaves) per day from pastures. This was equivalent to a dry weight of 47 gm." At this time of year 7.6 hours were spent in feeding. In February the number of pecks per minute averaged 70 in the morning, 103 in late afternoon. Cage tests showed that the birds required 50 grams of wheat or barley per day. It seems clear that only from June to October do the pigeons have sufficient time to feed themselves and raise offspring. A very thorough study.—M. M. Nice.

SONG

(See 32)

BOOKS AND MONOGRAPHS

**29. A Comparative Study of Bird Populations in Illinois, 1906-1909 and 1956-1958.** Richard R. Graber and Jean W. Graber. 1963. *Illinois Natural History Survey Bulletin*, **28**, Article 3: 382-528. Price \$1.00. Natural History Survey Division, Urbana, Illinois. Over 50 years ago Stephen A. Forbes, Director

of the Illinois State Laboratory of Natural History, instituted a series of statewide, cross-country bird censuses. In 1956 the Illinois Natural History Survey empowered Drs. Richard and Jean Graber to repeat these censuses. Fortunately, Dr. Alfred O. Gross, who with a companion had carried out the original censuses, was able to provide the Grabers with his field notes, journals, and photographs from the censuses of 1906-1909. The census method consists of two observers walking 30 yards apart and recording all birds flushed by them on a strip 50 yards in width. The Grabers followed the same technique in the same counties as Dr. Gross had in 1906-1909, their censuses being in December, 1956, January and February, 1957 and 1958, and in June, 1957 and 1958.

The results are classified according to northern, central, or southern zones of the state as well as in 20 different habitats. "Extrapolating from the crop acreages presented by the Illinois Co-operative Crop Reporting Service (Ewing, 1959), the U. S. Bureau of Census (1913, 1961)" and the census data, the Grabers have estimated "the total number of birds in a given habitat and also the total number of birds in the state for the summers of 1909, 1957, and 1958". The figures for summer are: (1) 1909, 61.3 million birds or 1.7 birds per acre; (2) 1957, 59.7 million or 1.67 per acre; and (3) 1958, 65.6 million or 1.84 per acre ("Illinois has a total land area of about 35,800,000 acres," of these the authors omitted 3 million acres as occupied by highways, or railroads, or so urbanized as to be useless to birds). The closeness of the calculated totals for the summers suggests to the authors that "the state land area has a saturation population level of 60,000,000 birds in summer . . . There is a limit to the mass of protoplasm that can be supported on a given area."

The winter totals, however, show a large increase from 30.9 million birds in 1906-1907 to 54.1 million in 1956-1957. This increase may be partly due to the tendency in recent years of some species to winter further north than formerly.

The composition of the avifauna has changed in the last 50 years. "Of the 40 most abundant species of birds in the state, 17 showed notable population increases in the half century, 17 showed decreases, and 6 had about the same populations in 1907-1909 as in 1957-1958." The Cardinal and Redwinged Blackbird doubled their numbers, the Barn Swallow tripled its population, whereas the Horned Lark increased its numbers five-fold, the last three species responding to increased habitats—mixed hay, cement culverts and bridges, and expanded fields of corn and soybeans. The Starling, not even present in the state before about 1926, now has a "state breeding population of at least 3,100,000 birds".

As to the losses, the Eastern Kingbird is down to one-half of its former numbers, the Eastern Bluebird and Blue Jay to one-third, the Sparrow Hawk, Common Crow, Lark Sparrow, and Brown Thrasher to one-fourth, the Yellow-shafted Flicker to one-eighth, and Red-headed Woodpecker to one-tenth. The Starling is partly responsible with the last two species; with some of the others, probably the increase of forest conditions in southern Illinois may be largely to blame. Commercial orchards with their rigorous spraying schedules were barren of birds. Clean farming, destruction of osage orange hedges, use of herbicides—all these destroy habitats for desirable birds.

The authors warn that man's "domination has reached a fearful and critical level. Some obligation must go with this domination . . . If there is to be a varied and interesting fauna for future generations to know, then management of the land must extend beyond human needs to the basic requirements of the fauna".

A number of habitats are shown in photographs by Dr. Gross 50 years ago and, for comparison, the same locality as it looks today. There are 32 figures and 56 tables, an elaborate index, a brief bibliography, but no summary. This is a unique study, discussing the summer and winter bird life in the 20 habitats of Illinois as it was 50 years ago and is now. The Grabers are to be congratulated on a masterly achievement.—M. M. Nice.

**30. Biology of the Sooty Shearwater *Puffinus griseus*.** L. E. Richdale. 1963. *Proc. Zool. Soc. Lond.*, 141, Part 1:1-117. This impressive work is based on a 17-year study of the nesting population of the Sooty Shearwater, popularly called "mutton-bird," on the half-acre island of Whero off the southern end of New Zealand. Dr. Richdale was on the island for a total of 96 weeks from late 1940 to the beginning of 1957, during which time he was also studying four other species of nesting petrels. Of the Sooty Shearwaters 4,065 adults were banded on Whero. Topics treated appear to be chiefly those on which the author's

great amount of meticulous records could be analyzed statistically: for instance, site tenacity, hatching, weights and measurements of the chicks, composition of the shearwater community, survival and mortality, and pair-bond.

Individual Sooty Shearwaters do not usually occupy the same burrow year after year, but they do return to the same neighborhood. Spans of incubation of the eggs by each parent are summarized in table 3; of 412 records, 177 lasted 1 day, 202 from 2 to 6 days, and 33 from 7 to 16 days. In 1953 "the mean age at which 56 chicks received their last meal ashore was 80 days  $\pm$  7.5, with the wide range of 66 to 97 days. . . . The chicks were fed approximately once in three nights". Throughout April parents began to feel the migratory urge and most of them deserted their chicks. For 58 chicks, desertion periods lasted from 0 to 27 days and averaged 11.9 days  $\pm$  5.6. In four species of Procellariiformes (all highly migratory) a starvation period for the chicks is characteristic, but in five other species (all non-migratory) it does not exist. The banding of 232 chicks showed that some of them returned when four to seven years of age.

Most of the text consists of matter-of-fact exposition with little discussion. A vivid description, however, is given of a January night spent on neighboring Stewart Island, five miles long and two miles wide. Shortly before 7 p. m. the Sooty Shearwaters began to gather on the water "forming black rafts of some tens of thousands in each." By 8:30 "as far as the eye could see, to the south and to the north, there were birds, and still more birds. Beyond us, above the forest, and up to the skyline of the peaks beyond, were birds. In front of us looking east over the straits and extending to the shore on the opposite coast and overhead to a height of about 2000 feet, the air was black with birds in never-ending numbers, seething and whirling, completely dominating the whole scene. . . . By 9-20 p. m. they began to land and within twenty minutes the majority were on the ground. In this period of twenty minutes we gradually became aware of a noise like the roar of the sea on a distant beach. This was the effect produced by the combined wailing from about one million mutton-bird throats for a mile on either side of us; a volume of sound which was most awe-inspiring. Closer acquaintance with the vocal efforts of the mutton-bird is also an experience. It is the most weird and unearthly caterwauling that one could possibly imagine".

The lack of an adequate summary to this volume is a disappointment. An abstract, one-fifth of a page long, is inserted before the table of contents. In it the three most important findings are mentioned. The first is the "periodic nestling mortality;" in 1953 there must have been a shortage of food supply resulting in puny chicks many of which must have left their burrows at too light a weight for survival. "The second is the tight fit of the breeding season with pressure to migrate near the end of it. . . ." The third is the low annual mortality (of the adults) which may be as little as nine per cent. If so, the average expectation of further life would be around 16 years.

This scholarly piece of work based on tireless observations in the field presents a vast amount of information. It is a notable contribution to our knowledge of the biology of these strange and fascinating birds.—M. M. Nice.

**31. Our Birds of the Northland.** (Våra fåglar i Norden.) Edited by Kai Curry-Lindahl. 1963. *Natur och Kultur*, Stockholm. Part IV, pp. 1535-2294, plates CIVC-CCCV. The present volume completes this work of which Parts I, II, and III have already been reviewed in this journal (**31**: 168, **32**: 66, **33**: 212). It contains descriptions of 101 passeriforms belonging to the category of ascertained yearly breeders in Sweden. Some of these, the Golden Oriole (*Oriolus oriolus*), the Red-breasted Flycatcher (*Muscicapa parva*), and the Scarlet Grosbeak (*Carpodacus erythrinus*), are for the first time included in this group. Two lists of accidentals, 134 species having been found in Sweden and 99 in Denmark, Norway and Finland, but not in Sweden, conclude the work, followed by a list of all birds found in the four Scandinavian countries and a species index.

The 14 contributors include, apart from Curry-Lindahl, such well-known names to American ornithologists as Durango, Rosenberg, Swanberg, and Ulfstrand. As in the previous three volumes, each species is allotted several pages on life history and behavior. The fact that these data in the overwhelming number of cases continue to derive from the authors' original observations lends to these sections a particularly valuable character. So, for example, the results of Curry-Lindahl's 14-year study of the Golden Oriole are here revealed, conducted, however, not in Sweden but in Belgium. Also Durango summarizes his prolonged pre-

occupation with the Tree Creeper (*Certhia familiaris*), including such little known and interesting items as the flight-song and the courtship flights—to name but two of these highly successful presentations. This arrangement not only imparts desirable authenticity but also a continuity which adds much to the comprehensiveness of the species' descriptions, not always characteristic of similar works in which principally compiled data form the backbone.

The sections on "detailed description" actually are a wealth of minutiae dealing with plumages, field-marks, voice, distribution, and migration. Of these the occurrence in Sweden is presented in greatest detail. Sometimes, as in the Nightingale (*Luscinia luscinia*), changes in the range during the past 100 years are given together with a chart setting forth variations of the mean temperature during May. In other cases maps and tables are furnished, based on pertinent banding data. In the two sections on accidentals, the life history part is excluded whereas detailed descriptions are hardly less meticulous than those of the breeding species.

Thus, the organization of the whole work is remarkably successful adding in no small degree to its content value and readability. The type is clear and easy to read and typographical errors practically non-existent. This reflects the thoroughness of the work done by both publishers and authors. Were I to mention any comparatively minor inaccuracy and omission, I might point out that the *joo-vi vi vee* call of the Great Northern Diver (*Gavia immer*) is not "conversational" but rather a courtship and mating call used in connection with swimming displays, and that the section on the distribution of the Iceland Gull (*Larus glaucooides*) has somehow been left out. The most serious omission is the lack of a bibliography, explained by the editor as due to lack of space, at the same time that he indicates where the omitted sources of reference may be found.

Withal, in view of the magnitude of the work, the overall thoroughness of research, the standard and taste of reproduction, editor, collaborators, and publisher deserve unstinted credit.—Louise de K. Lawrence.

**32. Biosystematics of Sibling Species of Flycatchers in the Empidonax hammondii-oberholseri-wrightii Complex.** Ned K. Johnson. 1963. *Univ. Calif. Publ. Zool.*, 66: 79-238, 8 plates, 28 figures. Price \$3.50 (Univ. Calif. Press, Berkeley). Among the *Empidonax* flycatchers of Western North America are the Hammond, Dusky, and Wright flycatchers, a group renowned for its perplexities in morphologic, ecologic, and ethologic features. This paper should be studied along with that of Stein (*Proc. Amer. Phil. Soc.*, 107: 21-50) on populations and systematics of Traill's Flycatchers in the Eastern United States (*Bird-Banding*, 34: 228-230, October, 1963).

At the outset, Dr. Johnson considers the forms as "sibling species which rarely if ever hybridize." He sets about to prove this hypothesis by an exhaustive investigation into these three species' morphologic traits, molt, breeding distribution, comparative behavior (displays and vocalizations), and reproductive biology. Details of wing formulae and age determination (skull ossification, distinctive juvenile feathers, and wear) are reported, especially as these criteria can be utilized in specimen identification. By using combinations of these morphologic traits, the author was able to identify to species all of the 3,253 specimens examined; no hybrids were found.

Rather extensive field studies were conducted in an area of sympatry where there was no evidence of hybridization. It was here that interspecific differences in displays, songs, and feeding and nesting niches were noted. As was true of certain morphologic characters, there were some interspecific overlaps in these ecologic and ethologic features. In spite of these several differences (morphologic and ecologic) the author concludes "that reproductive isolation between these species of *Empidonax* is maintained solely through ethologic means." His basis for this statement is fortified by his belief that "... potential breeding individuals of all three species annually come into immediate contact in regions of sympatry at the time of pair formation, and then segregate by behavioral means into conspecific pairs for reproduction."—David W. Johnston.

**33. Carolina Low Country Impressions.** Alexander Sprunt, Jr., with 72 line drawings by John Henry Dick. 1964. Devin-Adair Co., New York. 192 pp. Price \$10.00. This volume contains impressions of the Carolina Low Country, a region described as "geographically . . . the coastal plain from North Carolina to Georgia and . . . some seventy-five miles inland." Hence the Low Country, or at

least the part considered here, is bounded on the east and west by natural boundaries, and on the north and south by political ones.

The work contains 16 chapters, beginning with a description of the barrier beaches and sea islands, then ranging through a variety of subjects: turtles, snakes, the panther, some characteristic plants, hurricanes, ornithological history, and a final chapter telling of the author's experiences with the Carolina ornithologist, Arthur T. Wayne.

The coastal islands are divided into the "Barrier Beaches" and the "Sea Islands," an adequate separation for the purpose, but one that is difficult to maintain exactly. The descriptions of Bull's Island, other islands, marshes, cypress forests, and bird rookeries, are entertaining and well written, although an eye-brow may be lifted here and there at such an expression as a "supercilious raccoon." A brief chapter on the egg-laying of the Loggerhead Turtle recounts old ideas and is not in line with recent research and thought.

A number of recurring accounts indicating that the panther may still exist in the Low Country have been gathered from here and there. It is worthwhile to have them in one place. The author brings the matter into focus, and stresses the fact that more definite information is needed.

As expected, birds occupy much of the volume. Some of this is anecdotal, of such naturalists as Wayne, Sass, Peterson, and others, and many of the accounts of the first finding of rare species have been assembled from a scattered literature. The inconsistent use of common names detracts from the accounts. Sometimes the standard names are given in parentheses, following other common names, but at times this practice is reversed. Then the older common names may be given without explanation, as "American Egret" (for Common Egret) and "Cabot's Tern" (for Sandwich Tern). In standard nomenclature neither "Semi-palmated Plover" (p. 156) nor "Fulvous Tree-duck" (p. 156) should contain a hyphen. This will not greatly trouble the experienced birder who usually knows several names for the same species, but may be confusing to the beginner.

A few other inconsistencies occur. On the inside front and back covers Fort Sumter is spelled with a "p," though spelled correctly in the text. In various places "broomgrass," "cordgrass," "shore birds," and "cottonmouth" are each spelled in two ways. "Frittillary" should be Frittillary, and "*Spartina alterniflora*" should be *Spartina alterniflora*.

This reviewer objects to the statement, twice repeated, that the oyster-catcher severs the adductor muscle in the oysters it eats, and a modern student of bird behavior might be distressed by the implication in the description of the distraction-display of Wilson's Plover.

The drawings add to the work and are interesting. I do not consider myself competent to criticize them from an artistic point of view, but I do wish that the one of Old Sheldon Church had a little perspective, the columns less than exactly parallel and vertical. It is not clear where the Whimbrel listed on the caption of page 62 has disappeared to, and it is not clear why the drawing on page 63 should be repeated in smaller size on page 156. Some of the beach scenes contain bits of flotsam, an old bottle, a board with nails, and perhaps a discarded light bulb. On the first plate it seemed a bit of whimsy, a touch of lightness, but when repeated on several others, it tended to become a trade mark, and of less interest.

The volume is well organized, nicely bound, the paper and type well suited. The text is written with a fine sensitivity toward the charm of this interesting region.—Ivan R. Tomkins.

#### CHANGES IN REVIEW EDITORS

Since 1952, Oliver L. Austin, Jr., has maintained for our review section the high standards set by Margaret Morse Nice and Donald S. Farnier. The January, 1964 issue is his last as review editor, though he will continue to write some reviews. While we are happy to see his continuing recovery from his spinal disc operation last fall, other burdens—such as responsibility for completion of the Bent life history series—have been heavy. While the review section speaks for itself over this long period, I should like to record my deep personal appreciation for the many ways in which he has aided me.

We are fortunate in our new review editor, effective with this issue: David W. Johnston, now teaching at the University of Florida in Gainesville. While he is perhaps best known for his recent monograph on the crows of North America,