

RECENT LITERATURE

BANDING

(See 28, 34)

MIGRATION

(See also 14, 20, 28)

1. **The Migrations of Certain Populations of the Caucasian Ular (*Tetraogallus caucasicus* Pall.) and Interpretation of their Origin.** Z. K. Basiev. 1968. *Zool. Zhurnal*, 47: 104-110. (In Russian, English summary.) These populations, resident in the alpine zone of central Caucasus, migrate 20 kilometers or less from their nesting areas. There being no apparent ecological necessity, these shifts are regarded as a relict reaction inherited from the ice age.—Leon Kelso.

2. **The Evolution of Resident Versus Migratory Habit in Birds. Some Considerations.** Lars von Haartman. 1968. *Orn. Fenn.*, 45(1): 1-7. Resident birds, being on the spot near the end of winter, are able to obtain a nesting hole (always in short supply), before the migratory species arrive. "Also sexual maturity may be delayed in migrants." (see No. 17 [Berthold's paper]). Most residents gain protection from winter cold by roosting in cavities. Figure 1 shows the nesting times of passerines in southern Finland; most of the hole-nesters start before any of the open nesters.—Margaret M. Nice.

POPULATION DYNAMICS

(See 12)

NIDIFICATION AND REPRODUCTION

3. **Clutch-size in the Pied Flycatcher.** Lars von Haartman. 1967. *Proc. XIV Int. Orn. Cong.*: 155-164. After 25 years of study of *Ficedula hypoleuca* in southwestern Finland, the size of 1124 complete clutches, calculated with an electronic computer, was found to average 6.288256 ± 0.030322 . "460 nest-cards from all over Finland, but mainly from the south, gave an average of 6.38." Two females laid a total of 9 eggs in the same box and incubated side by side; they "seemed to ignore each other completely, leaving the nest and returning independently of each other." Clutch-size in this species decreases consistently as the season advances. Six figures and six tables are used in this paper.—Margaret M. Nice.

4. **Clutch-size of the Pied Flycatcher in Relation to Region, Breeding Time, Habitat, and Age.** (Die Gelegegrösse des Trauerschnäppers (*Ficedula hypoleuca*) in Beziehung zu Ort, Zeit, Biotop und Alter.) Rudolf Berndt and Wolfgang Winkel. 1967. *Die Vogelwelt*, 88(4/5): 97-135. (Summary in English.) Detailed report in this lengthy paper on the Pied Flycatcher in Brunswick, Germany. The average size of 1543 clutches in this region was 6.30. The authors support the thesis that clutch-size of this species increases in Europe from SW to NE, but for evidence to the contrary, see Review No. 5.—Margaret M. Nice.

5. **Geographical Variations in the Clutch-size of the Pied Flycatcher.** Lars von Haartman. 1967. *Ornis Fennica*, 44: 89-98. The average clutch-size of European birds has been supposed to increase from SW to NE, as suggested by Grote (1939). Sixteen years ago, the author (von Haartman, 1951)

published his conclusion that this pattern does not hold with the Pied Flycatcher, but Brendt and Winkel disagree. (See Review No. 4). In the present paper Dr. von Haartman points out:

"If the clutch-size of the species very clearly tends to increase from SW to NE, one would expect it to be strikingly smaller in Berndt's own study area in Brunswick (ca. 52° N, 10° 30' E) than in my area at Lemsjöholm (60° 30' N, 22° E)." In fact they are practically the same. Plotting the results of all 17 available studies in Europe on the clutch-size of this species gives "a bewildering picture, a mosaic of local differences."—Margaret M. Nice.

6. Reproductive Success in Relation to Breeding Density in Pied Flycatchers, *Ficedula hypoleuca* (Pallas). Frank S. Tompa. 1967. *Acta Zoologica Fennica*, **118**: 1-28. Two seasons were devoted to this problem in southern central Finland. Nest-boxes were provided in varying densities in several study plots in relatively dry and open stands of Scotch pine. Intraspecific competition for boxes was "heavy with increasing nest-box density, until the distance between neighboring boxes became less than 25 meters."

The percentage of eggs laid that produced fledglings was 83 in the favorable weather of 1964 but only 62 in cold and rainy 1965; the average number of young fledged per pair was 5 in the first year, 3.6 in the second. "No correlation could be established between variations in breeding success and differences in breeding density. Very low fledging success in high breeding density areas during the 1965 season" seemed to be due to absence of fathers to help feed the nestlings, such individuals probably being polygamists, busy with other broods. (The present address of Dr. Tompa is Simon Fraser University, Burnaby 2, British Columbia, Canada.)—Margaret M. Nice.

7. Snowy Owls Breeding in Shetland in 1967. R. J. Tulloch. 1968. *Brit. Birds*, **61**(3): 119-132. A pair of *Nyctea scandiaca* raised five young on Fetlar, Shetland; this "provided the first British nesting record in the wild." The incubation period was 33 days for the third egg; first flight came at 43 days and all "young could fly strongly at 50 days." Food consisted of rabbits, Oystercatchers (*Haematopus ostralegus*) and Arctic Skuas (*Stercorarius skua*). The female did all the incubating and brooding, while the male did all the hunting. The 14 photographs are excellent.—Margaret M. Nice.

8. A Golden Eagle Nest in the Pine Ridge. Glen A. Mitchell. 1968. *Nebraska Bird Review*, **36**(2): 33-35. A nest of *Aquila chrysaetos* was watched on Trunk Butte near Chadron, Nebraska. The second of the two eggs hatched in 45 days. "This is about 10 days longer than reported by Bent" (1937). Bent's erroneous incubation period is an example of the general unreliability of his statements on this subject (as well as on parental share in incubation) in his volumes through 1940. This reflects the confusion at that time in our country as to these subjects, and readers should keep this situation in mind.—Margaret M. Nice.

9. On the Breeding Biology of the Lesser Spotted Eagle. (O biologii razmnozheniya malogo podorlika.) K. Hentz. 1967. *Ornitologiya*, **8**: 294-298. About 80-100 pairs of *Aquila pomarina* nest in the Mecklenburg and Brandenburg areas of Germany. The greeting ceremony by the female as the male arrives to replace her on the nest (leaning forward, neck extended, uttering a special call for several seconds) is described; this act is discontinued after the young are 20 days old. As with some other raptors the nest border is supplied with fresh twigs and foliage. The young, per a limited number of observations, were fed 1 or 2 items per day at first; then, at 3 weeks age, 8 or 9 per day, mostly frogs and mice.—Leon Kelso.

10. Distribution and Biology of the Spoonbill in Roumania. Emil E. Vespremeanu. 1968. *Ardea*, **56**(1-2): 160-177. In the Danube Delta *Platelia leucorodia* is "strictly protected" as a "natural monument." The author studied the nesting of this species in the Călărăsi lake system for five years between 1958 and 1964. Nesting success was good in all but one year (1961), when all the chicks were drowned in their nests by high water. No figure is given for incubation,

but fledging lasts between 50 and 54 days. Of the 1234 eggs laid during five years, 1188 hatched (95.4 percent); and 835 fledged—a success of 67.7 percent. In 1964 this habitat was taken over for agriculture; hence the author stresses the necessity for more effective protection.—Margaret M. Nice.

11. Growth of Nestling Goldfinches Compared to Adult Size and Differential Development Rate of Structures in Relation to Their Function. Larry C. Holcomb. 1968. *Nebraska Bird Review*. 36(1): 22-32. A detailed report on development of six structures during growth of a large number of nestling *Spinus tristis*, studied from 1963 through 1965 in Toledo, Ohio. "Neonates weighed 73 percent of fresh egg weights and 7.4 percent of adult female weight" (13.0 grams). After a table on mean weights and measurements of 232 adult Goldfinches (mostly from other studies), Dr. Holcomb compares weights in adults, eggs and nestlings of seven Fringillids. The next six tables summarize daily increase in Goldfinch nestlings in weight, and in length of wing, tarsus, lower mandibular tomium, total body, and left outermost retriex. The adaptive value is discussed of the differential growth rates of these structures and relationships. A bibliography of 46 titles (44 of which stem from American authors) is appended. An impressive study.—Margaret M. Nice.

12. On the Mechanisms of Population Homeostasy in Animals. (O mekhanizmkh populyatsionnogo gomeostaza u zhivotnykh.) I. A. Shilov. 1967. *Uspekhi Sovremennoi Biologii*, 64(5): 332-351. This is of note in that it deals with maintenance of population stability (homeostasy), the main theme of a recent book (*Population Studies of Birds*. David Lack. 1966. Oxford University Press. London. v - 341 pp.) For various reasons vertebrate territorialism (especially avian) is advanced as a principal mechanism in maintaining population stability, and all the literature on the topic available to the author is summarized and discussed. A population is defined as a biological system existing in a certain medium and having complex mechanisms providing unity and relative stability for it in a constantly fluctuating environment. These adaptive mechanisms are considered under 3 headings: (1) maintenance by arrangements in populations, e.g. dispersal in territories; species gathering food far from nests (non-territorial); marking of territories by song and other means; (2) maintenance by adaptive density of populations, e.g. increase of population density being checked by decline of birth rate; (3) maintenance by qualitative diversity of individuals in populations, e.g. by variation of sex ratio, of ratio of breeders to non-breeders, of migrants to non-migrants. There is a bibliography of 126 titles.—Leon Kelso.

13. A Comparison of the Postembrional Development of the Common Tern, *Sterna hirundo L.*, in Natural and Artificial Situations. B. Cymborowskii and B. Szule-Olechowska. 1967. *Acta Ornithologica*, 10: 214-225. (In Polish, with English summary.) In comparison of 8 young reared naturally with 15 artificially incubated and hand-reared, it was found that the wild left the nests at 21-28 days age; the latter at 25-44 days; the weights of the hand-reared did not rise temporarily above those of the adults as in the wild, and they fluctuated much less from the mean value. Growth rate of plumage was much slower in the hand-reared, 18.33 days for contour feathers in contrast to 7.96 days in the wild.—Leon Kelso.

LIFE HISTORY

(See also 29, 30, 32)

14. Breeding Place of One-year-old Female Pied Flycatchers in Relation to Birthplace. (Der Brutort der einjährigen weiblichen Trauerschnäpper (*Ficedula hypoleuca*) in seiner Lage zum Geburtsort.) Rudolf Berndt and Helmut Sternberg. 1966. *J. f. Ornith.* 107(3/4): 292-309. (Summary in English.) Since 1952 the authors with many volunteer helpers have ringed up to 1500 breeding pairs of Pied Flycatchers in an area of 1000 hectares near Braunschweig, Germany. Up through 1963 they had ringed some 36,000 flycatchers and obtained more than 2,500 recoveries. Of these 544 were of females banded as nestlings.

About half of these were retaken within one kilometer of their birth area; "beyond that appeared an ever-increasing thinning out of the recoveries up to distances of about 80 kilometers." Four striking figures are given of the distances from birthplace to first place of breeding on four scales—dispersal up to 100 meters, to 1,000 meters, to 10 kilometers, to 100 kilometers. The birds spread out in all directions in the first three diagrams, but in the last, chiefly to the east and west.—Margaret M. Nice.

15. An Experimental Study of Thermal Conditions in the Snow Burrows of Tetraonids. N. I. Volkov. 1968. *Zool. Zhurnal*, 47: 283-286. (In Russian, English summary.) A Hazel Hen (*Tetrastes bonasia*), and a Black Grouse (*Lyrurus tetrix*) were confined in metallic net cages, 12 x 12 x 20 cm and 21 x 21 x 42 cm and sunk in snow to depths purportedly natural in the wild, of 8 - 12 cm in snow of .08 to .15 gms per cc density, for periods of 3-4 hours. The temperature of the surrounding snow and its heat conductivity were controlling factors; at a snow temp. of -12.5°C the cavity temperature rose 8.4° in 30 minutes; at 5.6° snow temp. it rose 5.2°C. Surprisingly, evidence has been found that tetraonids of far northern latitudes actually have plumages of lower heat insulation capacity than those of the Phasianidae.—Leon Kelso.

16. Fecundity, Mortality, Numbers and Biomass Dynamics of a Population of the Tree Sparrow (*Passer m. montanus* L.) Jan Pinowski. 1968. *Ekologia Polska-Ser. A.*, 16(1): 1-58. A seven-year study was made of Tree Sparrows nesting in a weedy agricultural area near Warsaw. In all 8,461 individuals were ringed (4,881 of them nestlings); 3,783 were recaptured at least once by mist nets or in the boxes. In autumn and winter nest-boxes were inspected at least once a month to check on the birds roosting in them.

"The average temperature of the week preceding the laying of the first egg of the first broods amounted to $9.5 \pm 0.1^\circ\text{C}$ in the years 1960-1965." Pairs regularly had two broods a season, while about two-thirds of them attempted a third brood, chiefly those birds that had started nesting early. In the seven years the period from laying of the first egg to fledging of the last nestling lasted from 117 to 136 days, the median figure being 123. The average size of 1,417 clutches was 4.97 ± 1.00 . The Tree Sparrow proved to be a determinate layer.

Hatching success of the 6,510 eggs laid averaged 78.7 ± 0.5 percent. Fledging success of the total eggs came to 68.8 ± 0.5 percent. Dr. Pinowski supplies 16 figures and 23 tables. His thorough acquaintance with the pertinent literature in many languages is shown in his discussions, as well as in his bibliography of 121 titles. An impressive study.—Margaret M. Nice.

17. The Enormous Increase in the Number of European Starlings from a Physiological Viewpoint. (Die Massenvermehrung des Stars *Sturnus vulgaris* in fortpflanzungsphysiologischer Sicht.) Peter Berthold. 1968. *J. Orn.*, 109(1): 11-16. (Summary in English.) Since the middle of last century the European Starling has increased tremendously in numbers and has widened its breeding range. Explanations mention the climatic amelioration, "the nestboxes offered everywhere, the extension of meadows, pastures and fruit-cultures (as new feeding-grounds)."

Formerly Starlings seldom bred before their second year and second broods were uncommon; now they migrate less and less, wintering at or not far from their nesting grounds, and even if they have migrated, they arrive home earlier and earlier in the spring. First year Starlings breed, and because of the earlier start than formerly second broods have become very common. As to the fantastic increase of this species in North America after the release of 120 individuals in New York City in 1890, the author suggests, "Compared with Europe, the high rate of second broods and breeding first year birds as a possible consequence of the highly resident behavior may have been responsible."—Margaret M. Nice.

BEHAVIOR

(See 31)

PARASITES & DISEASES

18. The Ecology of Trombiculid Mites of Burrowing Birds in Turkmeniya. E. G. Shluger and G. S. Belskaya. 1967. *Izvestiya Akad. Nauk Turkmenskoi SSR, Seriya Biol.* No. 6: 56-61. Of 13 bird species, 477 individuals were examined. On 171 (35.85 percent) of these 9685 trombiculid larvae were found, comprising 12 species, 8 of which were new to science. Of the 4 species of Wheatears infested, *Oenanthe hispanica* (53.7 percent) was the most severely infested; *O. isabellina* (4.8 percent) the least. Female birds were much more heavily infested with mites than males.—Leon Kelso.

CONSERVATION

(See also, 30)

19. Nature Conservancy. (Okhrana Prirody.) N. A. Gladkov, editor. 1967. "Vysshaya Shkola" Publishing House, Moscow. 443 pp. 106 figures, 19 tables. (In Russian.) The title could also be translated as Nature Preservation, Nature Conservation, or just simply, Conservation. It is introduced on the title page as a manual for the use of biological, soil science and geographic faculties in USSR universities. Apparently every item of significance in the natural world, animate and inanimate, is dealt with in regard to its past exploitation in the USSR, its present status there (and sometimes in the rest of the world), and necessity and methods of future management. The text is the collective effort of four authors, (K. N. Blagosklonov, V. M. Galushin, A. A. Inozemtsev, and V. N. Tikhomirov) and their associates. There are 12 chapters of text covering: scientific fundamentals of conservation, a history of nature conservancy in their nation, conservation of mineral resources, conservation of atmospheric air, soil conservation, conservation of vegetable resources, of fishes and other aquatic animals, of terrestrial animals, of landscapes, rare items, and natural monuments, nature conservancy abroad and international agreements therefor, and, organizations and tasks of nature conservancy in the USSR. Examples of the high informative value of the book, especially for foreign readers, are a map with table (p. 420) giving names, location, area, and date of founding of their 72 principal national reserves; also (p. 364) their use of ant colonies for protecting forests from insect pests.—Leon Kelso.

PHYSIOLOGY

(See also, 27)

20. An Explanation of the Orientation Capacity of Birds. Gorzo, Gy. 1965. "Tiscia, 1965". (Publ. Universitatis Szegediensis, Szeged, Hungary): 109, 110. Another suggestion on the function of the pecten in the avian eye. The orientation capacity of homing pigeons was lost when their eyes were experimentally shielded from solar radiation so that the folds of the pecten cast no shadow on the retina. It is suggested that the pecten hypothesis can explain nocturnal orientation also. Translated and adapted from abstract in Russian Referativnyi Zhurnal, 1967, No. 11 in absence of original.—Leon Kelso.

21. Extraretinal Light Perception in the Sparrow, I. Entrainment of the Biological Clock. Michael Menaker. 1968. *Proc. Nat. Acad. Sci., U. S. A.*, 59(2): 414-421. Various rhythms and periodicities in bird life are believed to be light-stimulated and light-controlled. In operations of suitable delicacy and skill to allow recovery all external optic tissue was removed from an experimental group of House Sparrows (*Passer domesticus*), rendering them blind in the usual sense. Thereafter they were still responsive to light, even of low intensity, even unto initiation (entrainment) of diurnal activity rhythms, indicating sensitiveness to light via other tissues.—Leon Kelso.

PLUMAGES AND MOLTS

(See also, 13)

22. An Electronmicroscopic Investigation of the Penetration of Iron Oxide into Anatid Feathers. (Elektronmikroskopische Untersuchung der Einlagerung von Eisenoxid in Anatiden-Federn.) Peter Berthold and Richard Rau. 1968. *Zeitschr. f. Zellforschung*, **85**: 492-500. (English summary.) A continuation of a study previously reviewed (*Bird-Banding*, **39**(1): 66) illustrating in the feathers of *Anas querquedula* and *Oxyura macoa*, by 9 electronmicrographs, the Chadbourne-described (*Auk*, **14**: 147) pores and passages and oxide color penetration therein.—Leon Kelso.

ZOOGEOGRAPHY

(See also, 33, 35)

23. Two Occurrences of Short-billed Dowitcher in Sweden. (Två fynd av kort-näbbad beckasinsnäppa (*Limnodromus griseus*) från Sverige.) Gunnar Ehrenroth and Jan Andersson. 1967. *Vår Fågelvärld*, **26**: 286-296. (English summary.) On 1 May 1966 three Dowitchers, one in summer plumage, were observed for an hour by Ehrenroth and two other ornithologists north of Lake Vänern in west-central Sweden. On 17 and 18 September the same year a Dowitcher was found at Ulricehamn south of Lake Vänern. It was photographed and studied by four observers.—Louise de K. Lawrence.

24. Sora Rail - New Species for Sweden. (Karolinasumphöna (*Porzana carolina*) — en för Sverige ny art.) Sten Wahlström. 1967. *Vår Fågelvärld*, **26**: 348-358. (English summary.) From 8 to 17 June 1966 the call of a strange bird was heard from a marsh in the highlands of southern Sweden. The bird was never seen, but by means of tape recordings it was eventually identified. Only five previous European records of the species exist, all from the British Isles.—Louise de K. Lawrence.

FOOD

25. Food and Foraging Behavior of the Wood Pigeon in Southwestern Sweden. (Studier av ringduvans (*Columba palumbus*) näring och födosöksbeteende i sydvästra Sverige.) Sven Mathiasson. 1967. *Vår Fågelvärld*, **26**: 297-347. (English summary.) The composition and amount of food consumed, foraging behavior, migration and foraging, and experiments on preferences and choices of foods with a captive pigeon, enter into the scope of this study. An investigation of a smaller population permitted further elaborations: a complete survey of the available foods calculated in percent from the number of crops containing respective items; a month-by-month survey of crops containing the five foremost food items; the weight relation between the various foods calculated in percent of the total weight of all items taken during the given month; foraging behavior as deduced from the pecking movements directed at the various food items. The data are presented in numerous tables, charts and diagrams.

In the Wood Pigeon the digestive tract empties entirely during the night. Diurnal migrants, most pigeons start out on an empty stomach and delay feeding until the stopover. During the period July-September breeding pigeons showed three daily peaks of feeding, morning, midday and evening. By contrast the crops of non-breeding birds during September and October were virtually never found filled until the evening. The foods of wintering pigeons consisted of grains, the leaves of clover and rape, and acorns. The crops of two pigeons collected in December contained 23 acorns, plus fragments of 15 and of other foods, and another one 19 acorns plus fragments.

In the tests the captive pigeon showed decided preference for acorns and rape leaves. It chose medium-sized acorns over larger and smaller ones, but smaller ones in preference to the larger. In color tests it preferred yellow grains.

However, an adjustment to eating green grains was accomplished after a four-day period of habituation, while the adjustment from green to blue took only two days. This capacity of adjustment obviously has an important bearing on the economy of the birds' feeding habits according to the seasonal variation in food abundance.

The comprehensive English summary should be of value to those interested in this notable contribution.—Louise de K. Lawrence.

26. On the Food of the Red-Backed Shrike, *Lanius collurio* L. Stefan Mielewczyk. 1967. *Acta Ornithologica (Warsaw)*, **10**: 157-175. (In Polish, with English summary.) In observations near Gniezno, Poland, 1961-1964, prey impaled on thorns (chiefly of *Robinia* and *Crataegus*, 0.2 - 3.0 m above ground) consisted of Coleoptera, 41.53 percent; Amphibia, 31.78 percent, and Hymenoptera, 14.42 percent. Numerous corollary ecological observations are recorded.—Leon Kelso.

SONG

27. Adaptations in the Auditory System of Birds and their Role in Evolution. V. D. Ilchev. 1968. *Z. Obshchei Biologii*, **29**(1): 31-47. (In Russian, with English summary.) The auditory system of birds, being somewhat like that of reptiles, has long been regarded as primitive in structure. The author is disinclined to regard it as such. The reptilian ear developed two trends: one culminating in birds, the other in mammals. Its evolutionary course in birds was short but characterized by numerous adaptive steps at different evolutionary levels, eventually developing marked adaptations for various ecological conditions. The modifications for several types of habitat are described in detail.—Leon Kelso.

BOOKS AND MONOGRAPHS

28. Cislaltic Bird Migration. (Migratsii ptits Pribaltiki.) R. L. Potapov, and B. E. Vykhovskii, editors. 1967. *Trudy Zool. Instituta, Akad. Nauk SSSR*, **40**: 1-236. 65 tables, 94 figures. "Nauka" Publishing House, Leningrad. 1 rouble, 68 kopecks (about \$4.00 U. S.). (In Russian.)

This volume comprises 10 articles which elaborate in part on the material recently published in *The Condor*, 1967, **69**: 435-467 (Dolnik and Blyumenthal, "Autumnal Premigratory and Migratory Periods in the Chaffinch," etc.) with more information on methods and equipment employed in the professional full-time research in progress at the Russian Zoological Institute biological station, at Rybachi (formerly Rossitten) on the Baltic Sea, since 1957. Four of the articles cited in the above *Condor* article as of 1966 are actually published here in 1967, with titles somewhat simplified.

"Some features of bird migration on the Kurische Nehrung [also translated as Kurische Haff on some maps, and Courish Spit] according to visual observations of 1959-1960," by A. A. Mezhenyi, discusses the influence of meteorological factors, chiefly winds, and also the causes of reverse flights and flight waves. "Spring migration of birds at the Kurische Nehrung according to visual observations in 1959-1960," by D. S. Lyuleeva, gives a detailed account of times, directions and intensity for flights of the 115 species of birds involved. "A large trap for mass bird trapping," by W. W. Erik, details the construction and operation of the Rybachi traps, 65-90 meters long, with entrances 12 m high and 30 m wide, by which as many as 5,000 birds are trapped per day, and from which one person may daily band as many as 500-800. "Features of the fall migration at the K. N. according to trapping data of 1957-1964," by L. O. Belopolskii, provides figures on numbers of numerous species trapped, which are converted into what are regarded as objective indices of correlations among those passerine species during migration. Considerable regularity in dates and numbers for some species, and extreme variability for others is shown.

"Territorial behavior of juvenile forest birds in the postnesting season", by V. A. Paevskii, discusses the results of banding young birds in nests and traps.

Data from 1126 returns of 22 species showed extreme diversity in postnesting movements of young of any given species, and even in one population. "The interrelationship of fat reserves of bird migrants and migration", by V. R. Dolnik, presents the experimental results of examination of trapped birds and a review of the published evidence on the role of fat in migration, particularly in the formation of the migratory state. On the apparent parallelism of the accumulation of fat reserves and the manifestation of migratory behavior it is concluded that while one may be evoked without the other, they are closely related, the former strengthening the latter.

"The annual cycles of bioenergetic adaptations to life phases in 16 species of Passeriformes," by V. R. Dolnik, finds that the median annual level of energy metabolism is about the same in all species examined, as are the fluctuations of rate of metabolism throughout the year. Specific differences include: a much lower metabolic rate in birds wintering in more northern latitudes; a lower metabolic rate in fall and spring migrants than in resident species. "Fluctuations of energy reserves (fatness) and their relationship to migration of some passerines at Kurische Nehrung," by T. I. Blumenthal, summarizes the results of fat deposit examinations of about 20,000 individuals of 46 species in the spring and fall seasons. There was a sharp rise in fatness during migration, and a corresponding decline during seasons of nesting and molting. A correlation between migration rate in a given species and its fat reserves was indicated. Some species show fluctuations in which the fat deposit maximum coincides with or slightly precedes the migratory wave.

"Geographical features of molt in the Great Tit (*Parus major* L.) on the Cisbaltic," by T. I. Blumenthal, E. K. Vilks, and A. R. Gagin'skaya, finds that the rates and times of molts of various populations from Karelia and Leningrad regions on the north to Kaliningrad on the south show a stronger correlation of height of molting to start of migration in the north. It is suggested that the climax of molt rate is the turning point in the change of post-nesting movements, which are to the north before molting, and toward the south afterward. 'Correlation of wing-shape to migratory distance in birds,' by R. L. Potapov, supports the soundness of the Seebohm rule (more acuteness of wings in long-distance migrants). On examination of wing-apex outlines in migratory and sedentary populations of certain species it was found that longer distance migrants have wing tips more acute. There seemed to be no correlation with latitude and longitude of localities. In migrant populations of greater geographic isolation the acuteness was more marked. The wealth of data in the above volume is far greater than can be indicated in a review. It is a landmark in the literature of migration and banding.—Leon Kelso.

29. A Comparative Life-history Study of Four Species of Woodpeckers. Louise de Kiriline Lawrence. 1967. Ornithological Monographs No. 5, American Ornithologists' Union, 156 pp. Price \$3.75 prepaid, \$3.00 to AOU members. The title of this monograph is slightly misleading as it deals almost entirely with the breeding biology of the Flicker, Yellow-bellied Sapsucker, and Hairy and Downy woodpeckers. Aside from the first chapter, on movements, displays, and communication, and the last, which deals rather briefly with plumages, food, and foraging behavior, the remainder pertains to various aspects of the breeding cycle. The information presented was gathered by very patient and highly skilled observations of color-banded individuals at Pimisi Bay, central Ontario. Most of the work was done in the seven years 1953 to 1959 inclusive, with pertinent information added from daily records gathered over a 25-year period. Records of some individuals are very extensive, a Hairy Woodpecker being recorded for 14 years and a Downy for 15 years. About one half of the total effort was devoted to the sapsucker. As one might expect, such a long-continued program carried out by such a patient and highly competent observer as Mrs. Lawrence has resulted in the accumulation of a great amount of very high quality data. Fortunately, the author has focused her attention on the most important topics, has summarized many of her findings, and often uses one or a few specially good examples of behavior to illustrate a particular point. As a result, the reader is never overwhelmed by detail for detail's sake. The emphasis throughout is strongly, though by no means exclusively, behavioral. Since many of the observation periods were lengthy, and since Mrs. Lawrence was dealing with a group of

individual birds well known to her, she often had the opportunity to witness and interpret the events leading up to and following a behavioral sequence. Thus, she was in a position to evaluate the kinds and intensities of motivations involved and to indicate the effects of such a sequence both on the bird or birds immediately involved as well as on other individuals which perceived it. Only by such patient and discriminating observation and careful analysis can we get clues to the causes of what may seem to be aberrant behavior, or appreciate the importance of what otherwise might be written off as trivial.

Mrs. Lawrence presents abundant data on the size and structure of territories and changes in territorial boundaries over the years, on the composition of breeding pairs, on nest site and nest construction, egg laying schedule, incubation and brooding rhythms, feeding of the young, nest sanitation, behavior of the nestlings, and their emergence from the nest. One of the outstanding contributions is the beautiful documentation of the cooperation of the breeding male and female and the synchronization of their behavior during the breeding cycle. Throughout the accounts, the author's personal devotion to the avian subjects of her study shows through. Such feelings can probably be appreciated only by someone who has studied a marked population of animals, be it of woodpeckers, lizards, or snails. As a result of the author's personal interest and of her literary ability, the monograph is written in a free-flowing and graphic manner without any sacrifice of accuracy. The usefulness of the text is increased by a series of drawings made by Sylvia Hahn based on field sketches made by the author. The highly competent attention of series editor Robert W. Storer is also evident throughout. The only possible criticism that I have concerns the omission of sonograms of the vocalizations of the species involved. The author presents vocabularies in traditional phonetic manner but she refers to Cornell University recordings of many of the vocalizations involved. In a day when the sonogram is becoming the standard, and only truly reproducible, method of describing bird sounds, it seems unfortunate that available tapes were not used for this purpose. This monograph will be of great interest to behaviorists and ecologists, but the material presented is so good and so nicely handled that anyone who likes birds will enjoy reading it.—John Davis.

30. World of the Great White Heron. Marjory Bartlett Sanger. 1967. The Devin-Adair Co., New York, N. Y. xi + 146 pp., illus. \$10.00. Marjory Sanger's text is an excellent exposition of the interrelationship between all living creatures (including man) and their environment on the land and in the waters of the south Florida Keys. Her descriptions of the flora and fauna are lively, accurate, and colorful. To quote a typical paragraph that delighted me: "One of the brown pelicans that had been diving fitfully in the cove since dawn plunged again and brought up a menhaden. A laughing gull, dropping from nowhere onto the pelican's head, grabbed the fish from its great raised bill. Instantly *Fregata* banked on its seven-foot wingspread, opened its scissorlike tail, and plummeted down. Across the turquoise sky the two birds described frantic sweeping wheels. The gull let out a scream of fury and terror, and dropped the fish. *Fregata* had it in a moment in its strong hooked beak. Sitting on the surface, the pelican looked as if it had no idea what had happened."

The seven essays deftly woven together will appeal to sophisticated naturalists as well as a general audience. Those familiar with the Florida Bay area will enjoy it and it will alert those who have never visited them to the charms of the Keys, historical as well as natural. The book would appeal even more if the publisher had not sabotaged both author and artist. Given a fine text and a fine artist one expects a publisher to produce a fine book. Devin-Adair Company has produced one that is carelessly impressed and badly designed, as a result also over-priced.

The offset printing of the "World of the Great White Heron" is so grossly done on such thin paper that most of John Henry Dick's drawings can be seen from either side of the pages they are on, a little too much of a good thing. Two-thirds of the 43 black and white drawings are in the first half of the book and one-third are sparsely scattered through the second half. The drawings are misplaced, and no attempt was made to place them near the text they illustrate. Frigate birds, opposite a text on plants on page 18, and shrimp trawlers with gulls on page 38 both belong with text in the last two chapters. Why do Wood Storks illustrate

the cigar industry and the Dry Tortugas lighthouse the story of plume hunting?

This book cries for color. As I read it I wished for the first time since I was a child to crayon the pictures in a book. I wished even more that Mr. Dick had been commissioned to do some of his outstanding color work for it. Vivid tropical birds, butterflies, fish corals, and a hundred and one other bright gay attributes of the Keys call for color plates. It is almost insulting to make queen triggerfish and Roseate Spoonbills black and white.

To add insult to injury Devon-Adair did not publish this book when they received the manuscript in 1961. If they had, readers would not have the feeling that the author has omitted the phenomena, natural and man-made, of the past five years. Drainage, drought, devastating fires, unusually low winter temperatures, and pesticides have all taken a toll of the flora and fauna of the "World of the Great White Heron." Marjory Sanger could not write about them before they happened. She did manage to add a 1965 census of Great White Herons before publication.

A few statements in the text are questionable—such as frigate birds sensing atmospheric changes in their hollow bones, cormorants drying their wings because they are by biological time measure recent fishermen, and the Cattle Egret receiving this common name after it spread to America. Any competent science editor would have pointed out these misstatements to the author before publication. Unfortunately the book was neither edited, designed, nor printed competently.—Elizabeth S. Austin.

31. That Quail, Robert. Margaret A. Stanger. 1966. Lippincott, 127 pp. A rather long-winded account of a female Bobwhite (*Colinus virginianus*), completely imprinted on human beings. Hatched from an egg left in the nest, she lived a most unnatural life, mostly indoors until her death three years later. The highly social tendencies of this species made her a most devoted pet to all people she met. Her intense dislike of any changes in the accustomed environment was in marked contrast to my hand-raised Bobwhite, Loti, who, having had the companionship of brothers and sisters (as well as of myself) for the first nine days of his life, was only partially imprinted on people. When adult he became mated and fathered a brood (see *The Watcher at the Nest*, 1966, Dover). It is a pity that Miss Stanger and the family who raised "Robert" were so ignorant of the life history of Bobwhites that lived around them that they didn't even realize the difference in plumage of the sexes; they consulted with various "ornithologists", but learned little from them. This book has been a best seller and is now in paperback for 65 cents.—Margaret M. Nice.

32. The Biology of the Elf Owl, *Micrathene whitneyi*. J. David Ligon. 1968. *Misc. Pub. Mus. Zool., Univ. Mich.* No. 136. 70pp. \$2.00. Parts of three seasons were spent by the author in the field in Arizona studying this "smallest of all owls (adults weigh from 35 to 55 grams)." They breed from low desert to 7,000 feet in forests on the mountains. They are totally dependent on woodpeckers for nest sites and they feed almost entirely on insects. Males feed their mates from pair-formation till the young are half grown; they also do most of the feeding of the young. The clutch typically consists of three eggs; incubation is by the female and requires 24 days. The young fledge at 28 to 33 days of age. Omitting the losses due to the investigator, nesting success was very high, 52 young fledging from 58 eggs—89.7 percent.

The field work, mostly carried on at night, was supplemented by laboratory studies on metabolism and temperature regulation in a number of juvenile Elf Owls. A valuable paper.—Margaret M. Nice.

33. Pictorial Checklist of Colorado Birds. Alfred M. Bailey and Robert J. Niedrach. 1967. Denver Mus. Nat. History. 9" x 12". 416 pp. \$10.00. Colorado is richly endowed by nature with great mountains and vast plains, with rushing streams and ancient forests. All this diversity of habitat means a rich and varied flora and avifauna. It has also been fortunate in its naturalists, particularly in the authors of this book. Condensed from their monumental two-volume *Birds of Colorado* (1965), the present handsome publication touches lightly on topography of the state, on the five life zones with characteristic photographs of each, and on migration in the state.

The main body of the work deals briefly with the 441 species and 64 additional subspecies recorded from Colorado, giving recognition marks of the bird, statements as to its summer and winter ranges through the Western Hemisphere or the world, more specifically its occurrence in the neighboring states, and finally—in detail—its status in Colorado. Interspersed with these accounts are a score of admirable black and white photographs from the original work.

All 124 color plates, painted by 23 artists, from the *Birds of Colorado* are included. These depict 420 of the species recorded from the state. Some of the plates are exceptionally fine. The book concludes with a strikingly clear map of Colorado.

This *Pictorial Checklist of Colorado Birds* should prove helpful and inspiring to bird students in Colorado, its neighboring states, and, indeed, everywhere.—Margaret M. Nice.

34. The Capture and Banding of Birds. Part I: General methods and capture with drop-traps and funnel-traps. Part II: Capture with large funnel-traps, nets, automatic drop-door traps, and foot snares. (Vogelfang und Vogelberingung. Teil I: Allgemeines und Fang mit Siebfallen und Reusen. 116 pp., 85 illus. 5.80 MDN. Teil II. Fang mit grossen Reusen, Spannetzen, Fangkafigen und Fusschlingen. 122 pp. 115 illus. 7.80 MDN) Hans Bub. 1967. A Ziemsem Verlag, Wittenberg - Lutherstadt. Two more parts will appear in 1968. This promises to be a most complete encyclopedia of techniques for the bird-bander. Bub has searched both the current and older literature with exceeding thoroughness. He has travelled widely in Europe and has made a special journey to the United States, all to collect firsthand information on trapping techniques. The almost endless variety of trapping devices and methods described in this work will surprise even the most dedicated and knowledgeable trapping technician. Part I includes information on proper clothing, binoculars, tree climbing, live and artificial decoys, various baits, banding methods, weights and measures, to mention only some of the items in the table of contents. Part II includes detailed descriptions of Heligoland traps, duck "decoys" and other large funnel-type traps, mist-nets, trammel nets, clap-nets, various kinds of cage traps in which the doors are tripped by the bird, and other devices too numerous to mention. These volumes will prove indispensable to the wildlife technician and those banders who wish to trap "difficult" species. The abundance of illustrations and photographs make this work useful even to those with only a marginal command of German.—Helmut C. Mueller.

35. The Birds of Byelorussia [White-Russia]. (Ptitsy Belorussii.) A. V. Fedyushin and M. S. Dolbik. 1967. "Nauka i Tekhnika" Publishing House, Minsk. 520 pp. 3 roubles, 36 kopecks (\$7.50 U. S.). This, one of the most sumptuously printed of Slavic bird texts, both as to print and as to the 8 water-color plates (unnumbered), and 24 black and white photographic plates, consists of an authors' preface, and 8 chapters: a history of local ornithological investigation, a biotopic distribution of the birds, a systematic account of the 284 species, a summary of the main features of their geographic distribution in this province, a general history of the avifaunal formations, a bibliography of 317 titles, and an index of Latin and of Russian names. Treatment of the individual species includes common and scientific names with additional local names, paragraphs on main features of structure and coloration, weights and measurements, local status, and (for resident species) a summary of information from local life history and migration studies. Thus, for the Great Snipe, *Capella media*, it was found by banding 286 at 13 scattered leks, that one male during a season visits several leks as far as 10 kilometers apart.—Leon Kelso.