

**The Swamp Sparrow, *Melospiza georgiana*, as a host for long-term arbovirus studies.**—The purpose of this note is to call attention to the use of Swamp Sparrows as indicator hosts of Eastern (EE) and Western (WE) Encephalitis activity. For the past seven years the Encephalitis Field Station has been banding and bleeding Swamp Sparrows at its study sites in southeastern Massachusetts. This species was selected because in New England the bird is present from late March into November, an unusually long period in a species that apparently has rather restricted nesting territories. The birds also show colonial tendencies, and it is possible to study many individuals within a small area.

The three epidemics of Eastern Encephalitis in Massachusetts appeared to center around fresh water swamps. This is typical Swamp Sparrow habitat. As Forbush (*Birds of Massachusetts and other New England States*, Publ. of Mass. Dept. Agr. 1929; see pp. 101-104) indicates, the bird breeds in wet meadows, bogs, swamps and marshes, or about low swampy shores of lakes and streams. The nests are close to the ground in bushes, grasses or sedges. This species is generally low-flying and can be readily and repeatedly caught in 30-mm. or 36-mm. nylon mist nets.

During the seven years 324 Swamp Sparrows were banded. Of these 103 individuals (32%) have repeated at least once. Five to seven repeats in a single season is not uncommon, and the birds withstand repeated bleedings at 14-day intervals with very little mortality.

Fifty-one individuals, of 277 birds banded long enough to return, have returned at least once. Eight to 12 blood samples have been collected from several birds over a period of 4 to 6 years.

Swamp Sparrows with viremia for either EE or WE have been found in our study area. Occasionally, individuals have been found which exhibited neutralizing antibody for both viruses. Two examples of this are: 1) A male Swamp Sparrow banded as an immature in 1963 was negative at the first bleeding. Later in 1963 the bird was recaptured and was positive for WE antibody. In 1964 the same bird was in viremia for EE when netted. 2) A female Swamp Sparrow, positive for WE antibody early in 1963, later the same year was positive for both WE and EE antibody.

The wide distribution of the Swamp Sparrow throughout the Northeastern two-thirds of the U. S. A. and Canada during the summer months, the fact that they winter in Southern United States, the close association of their breeding territories to ecological foci of EE and WE, and the large percent of repeats and returns makes this an ideal species for bird-virus life history studies.—Kathleen S. Anderson, Robert J. Tomm, Elizabeth J. Randall and Andrew Main. Encephalitis Field Station, Massachusetts Department of Public Health, Lakeville Hospital, Middleboro, Massachusetts.

## RECENT LITERATURE

### BANDING

**1. Bird-Banding Activities at Falsterbo Bird Station 1959-1964. Report No. 33.** (Ringmärkningsverksamheten vid Falsterbo fågelstation 1959-1964. Bengt Fritz. 1966. *Vår Fågelvärld*, 25: 22-36. (English summary.) This report covers the banding of 66,556 birds of 167 species. The work was done during the months June to November or December each year using mist nets which allowed the banders to catch birds in hitherto untouched localities. So, for instance, the reed beds yielded about 600 Willow Warblers (*Phylloscopus trochiloides*) attracted by an unusual concentration of aphids during a few days in August 1964. Many ducks and Mute Swans (*Cygnus olor*) were treated for oil damage and the washing did not seem to affect the health of the birds afterwards. On 1 October 1964, the banders processed 1456 birds, a record number for one day, most of them Robins (*Erithacus rubecula*) and the rest divided among 22 species. A week after banding a Blue Tit (*Parus caeruleus*) was found on board a ship in the Baltic Sea, presumably having boarded the ship exhausted and then been carried to this point 400 km northeast of Falsterbo. Correction is made in Swedish but not in English of the species captions mistakenly reversed under Figures 2 and 3.—Louise de K. Lawrence.

**2. Bird Ringing in the Netherlands** (Ringverslag van het Vogeltrekstation, Nr. 49, 1964). A. C. Perdeck and B. J. Speck. 1966. *Limosa*, **39**(1-3): 85-134. This article in Dutch consists largely of lists and tables of the 105,000 banded in 1964. The list of recoveries, many of which are foreign, consumes 32 pages. Some interesting longevity records are presented—Herring Gull (30 years), Oystercatcher (16 years), and Sandwich Tern (nearly 15 years). Maps with recoveries are given for Pochard and Greenfinch.—David W. Johnston.

## MIGRATION

(See also 19)

**3. The Migration of the Goldcrest.** (Kungsfågeln (*Regulus regulus*) flyttning.) Sten Österlöv. 1966. *Vår Fågelvärld*, **25**: 49-56. (English summary.) The Goldcrest may either migrate or stay all winter, and this paper discusses various aspects of this tendency. Until lately, after a safe band finally became available for this tiny bird, 15 recoveries give some information of migration routes and wintering areas. Its light weight makes the bird extremely sensitive to weather conditions. Censuses have shown that only about 10 per cent of the winter population in the north are likely to survive from November to March. Because the bird is a poor flier, the risks of migration are equally grave. "It seems, however, as if just this division of risks designed by nature is in the best interest of the Goldcrest. In case of extremely severe weather conditions on the wintering range in the north causing mass death, the returning migrants provide the hope of survival and, *vice versa*, should catastrophe overtake the migrants the survival of the species to a large extent depends upon the remaining winter residents."—Louise de K. Lawrence.

**4. Changes in Ratio of Fat and Carbohydrate Metabolism as an Endogenous Stimulus to Migration in Birds.** (Izmenenie sootnosheniya zhirovogo i uglevodnogo obmena kak endogennyi stimul k migratsii u ptits). V. R. Dolnik. 1966. *Zool. Zhurnal*, **45**(6): 897-909. This is another study in a long series of researches conducted at the Biological Station of the Zoological Institute, USSR Academy of Sciences, Rybachi Village, Kaliningrad Region, on the bioenergetics of bird migration. Seasonal changes in the diurnal rhythms of locomotor activity, feeding, fat, and glycogen content in the liver, fat content in the body, and sugar content in the blood were analyzed for *Fringilla coelebs*, *Sturnus vulgaris*, *Sylvia borin*, *Erithacus rubecula*, *Carduelis spinus*, *Passer domesticus*, and *P. montanus*, in migratory and non-migratory periods. The results obtained could hardly be interpreted from previously accepted viewpoints which are reviewed in detail. In all cases the migratory state was correlated to suppression of carbohydrate metabolism and increase of fat metabolism, a situation not observed in non-migratory species, nor in migratory ones outside migratory periods. Further (translating the words of the author) the observed changes connected with migration are not side effects of other processes but enter into the basic complex of the migratory state. This is confirmed by the following arguments: 1) in *Fringilla coelebs* in fall the changes in ratio of fat and carbohydrate metabolism, as elaborated by their methods, precede the appearance of migratory behavior (Dolnik, *et al.* 1963. Physiological Analysis of the Fall Premigratory Period in *Fr. coelebs*. Thesis repts. 5th Baltic Orn. Conf. Tartu: 63-65; Dolnik, 1965. The Physiological Basis of Bird Migration, from *Sbornik: Biological Significance and Functional Determination of Migratory Behavior in Animals: 12-22*); 2) injection at this period of small doses of cortisone increasing the expenditure of carbohydrate and increase of sugar content in the blood stimulates migratory behavior, while injection of small doses of insulin, delaying the expenditure of carbohydrates and reducing the sugar level in the blood, delays the appearance of migratory behavior; 3) the expenditure of fat reserves in the migratory period suppresses migratory behavior and their accumulation stimulates it; 4) the stimulating effect of fat is seen also on injecting it into the body of lean birds; with this, changes in carbohydrate metabolism occur simultaneously; 5) cortisone renews migratory activity of lean birds but insulin suppresses the activity of the fat ones; 6) starvation (or exhaustion) of *Fringilla coelebs* in the migratory period is accompanied by an in-

crease of carbohydrate metabolism, a weakening of fat metabolism, and the curtailing of migration.

Finally, there is justification to presume that the metabolic basis of migratory behavior consists in the establishment of a special ratio between the body fat deposit, the fat and carbohydrate deposit of the liver, blood sugar and the other components of fat and carbohydrate metabolism. Characteristic of these correlations is an increase of fat metabolism and a reduction of carbohydrate, during which the migratory state is manifested the more strongly the farther this process goes.—Leon Kelso.

**5. The Spring Hawk Migration Around the Southeastern Shore of Lake Ontario.** John R. Haugh and Tom J. Cade. 1966. *Wilson Bull.*, **78**(1): 88-110. A concentrated spring movement of hawks along the south shores of Lakes Erie and Ontario reaches its climax at the southeastern corner of Lake Ontario, where 27,000 hawks were counted in 1963, and a less complete watch was maintained in 1962. "Large spring movements of hawks are associated with southerly winds, rising temperatures, falling barometric pressure, and the approach of a low-pressure area and cold front. Because of the tendency for these weather factors to occur together, it has not been possible to isolate any one as being of primary importance." However, the authors believe that southerly winds and rising air currents are more likely to be important than temperature or pressure. Migrating hawks tend to remain close to the lake when the winds are southerly and to move inland when the winds are from other directions.—I. C. T. Nisbet.

**6. Hawk Migration Over the Western Tip of Lake Superior.** P. B. Hofslund. 1966. *Wilson Bull.*, **78**(1): 79-87. Hawk counts at Duluth, Minnesota, during 1951-1963 are summarized in two tables. The September migration of Broad-winged Hawks was numerically the most impressive, averaging nearly 1,000 birds per day with a peak in mid-month. Most large flights coincide with west or northwest winds, but the birds do not seem to be concentrated against the north shore of Lake Superior by wind-drift. Hofslund attributes the concentration partly to ecological factors, including the eastward diversion of woodland species by the treeless plains to the west and southwest.—I. C. T. Nisbet.

## POPULATION DYNAMICS

(See also 24)

**7. The Influence of the Pair-bond and Age on the Breeding Biology of the Kittiwake Gull *Rissa tridactyla*.** J. C. Coulson. 1966. *J. Anim. Ecol.*, **35**(2): 269-279. As the result of a 12-year study of breeding female Black-legged Kittiwakes, the author has made some interesting discoveries. Approximately 64 per cent of the females retain the same mate from the previous breeding season. Selecting a mate of the same age is the general rule, although the oldest females frequently pair with a younger male. The age of the female, rather than the male's age, had the more pronounced effect on clutch size and breeding success. "It is suggested that there is a marked selective value in retaining the same mate from one breeding season to the next, but that in incompatible pairs (which fail to hatch their eggs) there is more advantage in changing mates as by so doing they are more likely to breed successfully." A thorough and important contribution to population dynamics in gulls.—David W. Johnston.

## NIDIFICATION AND REPRODUCTION

(See also 7, 13, 23)

**8. A Contribution to the Ecology and Reproductive Biology of the Marabou Stork (*Leptoptilos crumeniferus*) in East Africa.** M. P. Kahl. 1966. *J. Zool.*, **148**: 289-311. Dr. Kahl, who studied the Wood Stork (*Mycteria americana*) in Florida, has published two papers on the Marabou Stork in Kenya. Marabous are abundant and important scavengers in East Africa, the adults sub-

sisting mostly on carrion but the young needing also whole fish and frogs to satisfy their calcium requirements. A breeding colony at Kitale in a large acacia tree was studied through binoculars and a telescope from a nearby tower. The birds probably do not breed until four or five years of age; out of a population of nearly 200 storks at the colony only 30 bred in 1964-65. Incubation, performed by both parents, lasts 30 days. In 24 observations males incubated on 17 nights and females on 7 nights. Fledging averaged 116 days. A fine study.—Margaret M. Nice.

**9. The Role of Weather, Food and Biological Factors in Timing the Sexual Cycle of Woodpigeons.** B. Lofts and R. K. Murton. 1966. *British Birds*, 59(7): 261-280. A six-year study on *Columba palumbus* by microscopical examination of the gonads of specimens collected from January through May. In males temperature was not influential until March when active cell division was in progress, but females responded a month later. Males had first to establish territories where they were joined by females in April. Three tables and one figure are given, as well as a bibliography of 28 titles.—Margaret M. Nice.

**10. Little Stint Found Breeding in Sweden for the First Time.** (Småsnäppan (*Calidris minuta*) för första gången funnen häckande i Sverige.) Ola Arheimer and Erik Nyholm. 1966. *Vår Fågelvärld*, 25: 143-147. (English summary.) This bird breeds along a narrow strip of tundra coast along the Arctic Ocean from Norway eastward into Siberia. Breeding is rare on the Norwegian tundra except in years when spring comes late. A parent with one downy young was found at an elevation of 1100 m on the Ammarfjäll massive in southern Lapland. Positive identification was made by means of color photographs.—Louise de K. Lawrence.

**11. A Method of Studying the Family Life in Hole-Nesting Birds.** Svein Haftorn. 1965. *Det Kongelige Norske Videnskabers Selskabers Forhandlinger*, 38(10): 44-50. An ingenious technique involving gradual movement of a nestbox in which tits are nesting up to an especially constructed observation nestbox in the wall of an observation hut. The nest and its contents are then transferred from the original box to the experimental one. Three figures illustrate the hut and five photographs show titmice and their families inside this box.—Margaret M. Nice.

**12. Egg-laying and Incubation in Tits based on Temperature Recordings and Direct Observations.** (Egglegging og ruging hos meiser basert på temperaturalinger og direkte iakttagelser) Svein Haftorn. 1966. *Sterna*, 7(2): 49-102. (3 1/2 page summary in English.) A five year study of the nesting biology of Great Tits (*Parus major*), Marsh Tits (*P. palustris*) and Coal Tits (*P. ater*) was made with the technique described in Dr. Haftorn's paper of 1965. Temperatures in the nest and in the air inside and outside the nestbox were continuously recorded, as well as in the eggs, for a thermocouple was placed 1-2 mm below the top of a "K-egg" filled with wax. Interestingly enough, although the female parent from the start of laying spends all her nights in the box, she does not begin to incubate the eggs until the night before laying the last one or two eggs; for most of the time during the egg-laying period she sleeps *standing* over the eggs.

"It was surprising to realize that all these tit species performed rolling-in of eggs artificially placed on the nest edge during an incubation recess. Hitherto this behaviour seemed to be unknown in passerines." (See Poulson, 1953.) Many photographs show tits in their nesting boxes with captions in both Norwegian and English. It seems a pity that the whole paper had not been published in English.—Margaret M. Nice.

#### LIFE HISTORY

**13. The Wood Duck in Massachusetts.** David Grice and John P. Rogers. 1965. *Mass. Div. Fisheries and Game, Final Report, Federal Aid in Wildlife Restoration, Project No. W-19-R*, 96pp. A seven-year study of the ecology and management of *Aix sponsa* on a 160-acre marsh on Great Meadows Wildlife Refuge at Concord. Here an abundance of nesting boxes (72 from 1950-55, 125 in 1956),

were erected over water; they were equipped with entrance tunnels as defense against the ducks' worst predator, the raccoon. These boxes were quickly adopted by the Wood Ducks, and, despite competition from Starlings, nesting success averaged 66 per cent. "It is estimated that 49 percent of the ducklings, an average of six per brood, survived to flight stage," i.e., 60 to 70 days. Returns of breeding hens averaged 49.8 per cent during the study. Juvenile hens returned faithfully to their birth place. As to the drakes, only about 10 per cent of those banded were retrapped in another year.

There are 26 tables, a large number of photographs, and a large bibliography. An interesting and valuable study.—Margaret M. Nice.

## BEHAVIOR

(See also 27)

**14. The Behavior in Winter of the Goosander.** (Storskrakens (*Mergus merganser*) beteende under vinterhalvåret.) Leif Nilsson. 1966. *Vår Fågelvärld*, **25**: 148-160. (English summary.) These observations were conducted partly on the Göta River, central Sweden, and partly along the south coast. This duck spent 50 per cent of the time foraging as compared with the Goldeneye's (*Bucephala clangula*) 80 per cent. In the northern location the Goosander devoted more time to foraging than in the south. Aggressive behavior was common during the winter months, and it occurred most frequently among dense flocks concentrating in small areas of open water during cold spells and among groups engaged in courtship. The most prevalent aggressive movement was "steaming"—speed-swimming producing a gushing swell. This movement at high intensity also involved the wings batting the water to increase the speed. With the exception of circling and steaming around the female, the Goosander's courtship display, compared with that of the Red-breasted Merganser (*Mergus serrator*), contained few special movements. The courtship was performed in display-groups of varying sizes, the largest seen contained 12 males and 6 females. Encounters and disturbances were the most common incentives to display, and courtship behavior was most prevalent on the warmer days. The earliest date of observed copulation was 18 December. The female incited to copulation by adopting the "prone-posture" while the male circled and speed-swam around her. In one case, after having incited by the prone-posture, the female briefly regained normal swimming pose, after which she again incited. Suddenly she attacked the male and chased him away. The male's behavior during this episode is not mentioned.—Louise de K. Lawrence.

**15. Anting and the Problem of Self-stimulation.** K. E. L. Simmons. 1966. *J. Zool., Lond.*, **149**: 145-162. A review of anting based on observation of 800 anting sessions by some 300 individuals of 100 passerine species of 22 families (listed in the appendix); six species of ants were used by the birds. "True anting consists of highly stereotyped movements whereby the birds apply ants to their feathers [especially the wings] or expose their plumage to the ants." "True anting is strictly functional and probably belongs to the feather-maintenance group of behaviour-patterns. Anting with substitutes, however, is thought to be non-functional, arising from developmental 'error' in the learning process during the ontogeny of anting responses."

Whereas the anting-movements are innate, the birds "have to learn that ants are the biologically correct media for anting." Mr. Simmons rejects the suggestion that the 'basic-stimulus' lies in the taste of the acceptable species of ants, but that "it is the chemical effect of formic-acid in the olfactory organs, rather than other areas of the head, that first releases anting instinctively in the inexperienced bird." The author concludes that "it is very likely that anting has been evolved to combat ectoparasites, particularly those under the wing, though this may not be its only—or even its main—function." An important, scholarly study.—Margaret M. Nice.

**16. Comparative Ethology of the Ciconiidae.** Part I. The Marabou Stork, *Leptoptilos crumeniferus* (Lesson). M. P. Kahl. 1966. *Behaviour*, **27**(1-2): 76-106. Dr. Kahl chose the Marabou as a "model stork" to be the first African member of the Ciconiidae for his projected study of this family. It is one of the

largest of the storks, and "It is certainly one of the ugliest of all birds. In the full breeding plumage, however, the Marabou's appearance improves; if not handsome, it is at least less hideous during the early stages of the annual reproductive cycle." "They are remarkably agile fliers for so large a bird and often perform aerial acrobatics when descending from high altitudes."

The author describes in precise detail the behavior of adults under the topics of locomotion, feeding behavior, comfort movements, social displays both away from the nest and at the nest. He also treats much the same topics for the young. The pertinent displays are illustrated in 12 excellent photographs and in 15 cartoon-like sketches. An admirable study.—Margaret M. Nice.

## ECOLOGY

(See also 8, 13)

**17. Notes on the Ecology of the Cattle Egret *Ardeola ibis* at Rokupr, Sierra Leone.** R. Q. Craufurd. 1966. *Ibis*, **108**(3): 411-418. Because of the increasing numbers and widening distribution of Cattle Egrets in North America, the present article should be of interest to all those interested in Cattle Egrets. Basically Craufurd's study entails observations during the nonbreeding season, particularly of flocking and roosting behavior. No cattle occur in the area studied, so the egrets obtain nearly all their food from small vegetable gardens, the numbers of egrets averaging about two for each acre of garden.

Pre-roosting assemblies were observed carefully. Each flock left for the roost at about the same time each day, generally 30-35 minutes before dusk. Just before flying to the roost, the Cattle Egrets drank water from tidal creeks whose salinity sometimes reached 1.2% NaCl. Even in the roosts (mangrove swamp), occasionally a Cattle Egret would climb down to the water to drink. Other species using the roost included a variety of herons, ibises, and shags, all the species assorting themselves into different strata. Shags occupied tree-tops, Cattle Egrets in the middle stratum, then "black" and reef herons at the lower levels.

The author concludes "that the number of Cattle Egrets using the roost is determined by the number and area of the feeding grounds that lie within 30-35 minutes flying time (about 12 miles) of the roost." It would be interesting to compare Craufurd's observations with those made on roosting Cattle Egrets in the United States, especially Florida.—David W. Johnston.

## CONSERVATION

**18. The Noisy Scrub-Bird Saved.** Anon. 1966. *Oryx*, **8**(5): 282. A "remarkable victory for the conservation movement" has just been won in Western Australia. The Noisy Scrub-Bird (*Atrichornis clamosus*) is one of two species of the Atrichornidae, a passerine family confined to Australia. This species was discovered in southwestern Australia in 1843 and was last seen and heard by any naturalist in 1889, until in 1961 it was rediscovered at Two People Bay. Unfortunately this place had been proposed for a townsite. "Immediately there were protests, not only in Australia, but from all over the world, against the site being cleared for development." Happily, the proposal has been cancelled, and a thousand acres have been declared a fauna reserve, "vested in the Fauna Protection Advisory Committee, with the expectation that a further 12,000 acres will soon be added." "Forty pairs of the scrub-bird are breeding in the proposed area and a full time warden has been appointed." Congratulations to Australia for this enlightened action.—Margaret M. Nice.

**19. Distribution and Migration of the White Stork in Greece.** (Brutvorkommen und Zugverhalten des Weissstorchs (*C. ciconia*) in Griechenland.) Jochen Martens. 1966. *Die Vogelwarte*, **23**(3): 191-208. (Summary in English.) Storks are strictly protected by the Turks and they were abundant throughout Greece during the Turkish domination of the land. In 1830 the Greeks threw off the Turkish yoke and many of them revenged themselves on their former oppressors by destroying the Storks, with the result that these birds completely dis-

appeared from Attica and the Peloponnesus. At present the Greeks no longer hate the Storks; they are indifferent towards them. There are probably not more than 5,000 pairs of these birds breeding in the country today. Two maps are given, as well as five delightful old prints from 1750-1817 showing an abundance of Stork nests on ancient ruins.—Margaret M. Nice.

## PHYSIOLOGY

(See 4)

## ZOOGEOGRAPHY

**20. Short-toed Lark Found at Ottenby, New for Sweden. Report from Ottenby Bird Station No. 47.** (Korttållärka (*Calandrella cinerea*), en för Sverige ny fågelart, påträffad vid Ottenby.) Christian Hjort. 1966. *Vår Fågelvärld*, **25**: 37-39. (English summary.) Two individuals of this species were observed by several ornithologists during the period 17 to 30 April in the vicinity of Ottenby. An inhabitant of southern Europe, this is the eighth record for Scandinavia including Finland.—Louise de K. Lawrence.

**21. White-throated Sparrow New for Sweden.** (Vithalsad sparv (*Zonotrichia albicollis*) ny art för Sverige.) Sune Christiansson and Sune Gerell. 1966. *Vår Fågelvärld*, **25**: 1-4. (English summary.) A White-throated Sparrow was found in a park in Malmö in southern Sweden on 5 December 1963. The bird was caught and banded, and its shyness during the operation in combination with the good condition of its plumage indicated that it was not an escapee. Interestingly enough, in spite of the strange surroundings it reacted to the alarm calls of the other birds. A ship, out of New York 7 October 1963, was boarded at sea by a number of North American migrants, among them 20 White-throated Sparrows. One White-throat was seen to land near Le Havre and three at Southampton.—Louise de K. Lawrence.

**22. Winter Populations and Movements of Wildfowl at the Falsterbo Peninsula: January to March 1964.** Report from Falsterbo Bird Station No. 32. Shawn L. Ellingthorpe-White. 1966. *Vår Fågelvärld*, **25**: 5-12. (Swedish summary.) Daily observations gave the following basic result: icing conditions rather than the temperature determined migratory movements. In calm weather with low salinity and shallow water, icing occurred at 0°C, but if one or all of these conditions were reversed it occurred much later, down to -12°C. Complete exodus took place only when the feeding grounds were altogether covered with ice, and this happened only once. In many species the males wintered closer to the breeding grounds than did the females and the first arrival of the latter inaugurated the spring migration. The study covered 15 species of ducks, a few *Cygnus* species, and the Coot (*Fulica atra*). The data are presented in six diagrams and three tables.—Louise de K. Lawrence.

**23. Greenshank and Rustic Bunting found Breeding in Northern Värmland, Central Sweden.** (Gluttsnäppan (*Tringa nebularia*) och videsparv (*Emberiza rustica*) funna häckande i norra Värmland.) Björn Ehrenroth and Börje Jansson. 1966. *Vår Fågelvärld*, **25**: 97-105. (English summary.) These observations were made in the wilderness area (61° Lat. N) close to the Norwegian border. On the highest point of a large bog covered by scattered pines the Greenshank nest with four eggs was located. The two bunting nests, one containing four young, the other one cold egg, were found at the edge of bogs and tucked under tufts of grass in habitats characteristic of the species. These finds indicate an extension of previously known breeding ranges, for the Greenshank southwards from northern Scandinavia and for the Rustic Bunting south-westwards from the northeastern parts of Sweden and northern Finland.—Louise de K. Lawrence.

**24. The Irruption of the Pygmy Owl into Southern Scandinavia 1963-64.** (Invasionen av sparvuggla (*Glaucidium passerinum*) i södra Skandinavien 1963-64.) Peter Lindberg. 1966. *Vår Fågelvärld*, **25**: 106-142. (English summary.) The invasion covered all of the provinces from a line drawn across central Sweden southwards. The greatest concentrations were observed just under this line in the east, these owls apparently having originated from Finland and points farther east, and along the westcoast southwards, these birds presumably having come from the Swedish breeding grounds in the north. Five nestings are on record from the invasion areas for the spring of 1964. The bird's normal breeding grounds extend from Northern Norway and Sweden to the Arctic Circle and through the Finnish evergreen belt eastwards across Russia to Siberia. Although the species displays a cyclic tendency to migrate, the last irruption of similar magnitude was recorded in 1843-44. The present migration began in July 1963 and reached two peaks, a lesser one in December and another in March 1964. Minor irruptive movements were observed also in the winter 1964-65.

The main factor activating the invasion is believed to be a combination of good nesting success and diminishing numbers of prey animals within the normal range prior to the migration. In the spring of 1963 regional reports of large successful broods, nine young fledged from one nest in one case, support this conjecture. On the west coast the owl showed a preference for oak forests mixed with spruce and for spruce groves, as well as for parks and orchards with nest-boxes used mostly for storage. Prey animals were most common in these areas, but whether or not mice and voles were actually at peak populations in the invaded areas was not established.—Louise de K. Lawrence.

## FOOD

**25. An Investigation into the Prey Selection of the Boreal Owl in Southwestern Lapland.** (En undersökning av pärlugglans (*Aegolius funereus*) bytesval i SW Lappland.) Ulla Lindhe. 1966. *Vår Fågelvärld*, **25**: 40-48. (English summary.) This report is based on analyses of prey remains from five nests, all located in nest-boxes. Four of these were in the birch region, an unusual habitat for this owl, and one in the coniferous region. The main part of the prey consisted of voles (80 per cent), shrews (18.8 per cent) and birds (1.2 per cent) including a Starling (*Sturnus vulgaris*) and a Meadow Lark (*Anthus pratensis*). Detailed data are presented in the comprehensive English summary.—Louise de K. Lawrence.

## SONG

**26. A Comparative Study of the Songs of Three *Locustella* species.** (En akustisk jämförelse mellan sången hos tre olika *Locustella*-arter.) Sten Wahlström. 1966. *Vår Fågelvärld*, **25**: 161-166. (English summary.) This study concerns the Grasshopper Warbler (*Locustella naevia*), the River Warbler (*L. fluiatilis*), and Savi's Warbler (*L. luscinioides*). Their songs contain many notes in the high register beyond man's hearing ability, but the Sonograms showed that the taping of only a fraction of a second is enough for positive species identification. Although extensive acoustical differences exist, owing to the way each sound is produced, the song of the Savi's Warbler bears the greatest resemblance to that of the grasshopper (*Tettigonia viridissima*).—Louise de K. Lawrence.

**27. Vocalizations of the Domestic Chick; their Occurrence in Normal Behavior.** (Les émissions sonores du Poussin domestique, leur place dans le comportement normal.) Jean-Charles Guyomarch'h. 1966. *Z. Tierpsychol.*, **23**(2): 141-160. Eggs from a Rhode Island Red and White Wyandotte cross were incubated artificially, the chicks at 48 hours of age were separated into groups of 5 to 10 individuals of the same sex, and raised without the influence of adults of their species. No less than 15 different notes of the chicks are described and illustrated with sonograms; the significance of each note is explained and a number of excellent sketches of accompanying attitudes of the chicks are supplied.—Margaret M. Nice.



## BOOKS AND MONOGRAPHS

**28. Ornithological News.** (Novosti Ornitologii). Contributions of the fourth All-Union Ornithological Conference, 1-7 September 1965. "Nauka" Publishing House Kazakh Sov. Soc. Republic, Alma-Ata. 451 pp. Price 2 rubles, 12 kopecks (about \$4.00); distributed to subscribers attending the conference. This volume, made available through Dr. R. S. Palmer who attended the conference, contains the condensations (1/2 to 4 pages each, longer than terse abstracts) of 295 of the papers presented at the conference. The titles, many of them lengthy and of multi-authorship, have been translated and may be distributed later. Among those more pertinent to *Bird-Banding*, (many range into the fields of diseases and parasites) are the following: Blagosklonov, K. N., Orientation factors in the Pied Flycatcher and Bank Swallow; Blum, P. N., *et al.*, Methods and results of banding rallids in Latvia; Viksne, Ya. A., Dispersal and attachment to the nest site in *Larus ridibundus* as the result of banding on the Lakes of Latvia; Vilks, E. K., Results of experiments on homing of the Pied Flycatcher; Vinokurov, A. A., A study of migration and seasonal dispersal of birds in Asiatic USSR; Dolnik, V. R., Bioenergetics of the molts of fringillids as adaptations to migration; Ilenko, V. I., *et al.*, The role of migrant birds in dispersal of viruses and transmissible infections; Kistyakovskii, A. A., Bird orientation research through experiments on homing; Kokshaiskii, N. V., The influence of wind on bird migration; Kotkova, L. I., Rate of return of *Hirundo rustica* on removal from the nest; Kydyraliev, A., Migration routes and their role in the formation of avicomplexes in high-montane Tyan-Shan; Mitropolskii, O. V., The effect of "relict" migration of birds and its use in study of regional fauna history; Polivanova, N. N., Flights of waterfowl at Khanka Lake; Romanov, A. N., Common and automatic banding of tetraonids in the Kirov region; Shuetsov, Yu. G., Station dispersal of birds in the Selengi delta (southeast Cisbaikal); Shumakov, M. E., Significance of various factors in the orientation of passerines during migration; Yakobi, V. E., Flocking and bird orientation.—Leon Kelso.

**29. Birds of Colorado.** Alfred M. Bailey and Robert J. Niedrach. 1965. Denver Museum of Natural History. Two volumes, 9 1/2" x 12 1/2", 895 pp., 124 color plates, 400 black-and-white photographs. \$35.00. Without question this is the most highly illustrated and weighty of the several state bird books that have appeared in recent years. It also has proven to be a difficult task for me to tackle a review of these volumes, especially because the authors collectively spent about 85 years gathering data for this, their most significant contribution to Colorado ornithology. In preparing these volumes they have been assisted by "many trained naturalists, enthusiastic amateurs, and individuals who merely enjoy a day afield," and by 23 bird artists and 36 photographers.

*Birds of Colorado* is, in part, a potpourri of ornithological lore. In the first volume prior to the species' accounts, the following subjects are discussed in 70 pages—scope of the work, migration, orientation, hazards of migration, pesticides, arrival, incubation, nesting success, longevity, history of Colorado, ornithological work in the state, topography, Colorado rivers, climate, life zones, ecological associations, common Colorado plants, "day afield," migration in the state, spring counts, and Colorado Christmas count (1963). These sections are well written and not only provide easy reading but also give reasonable coverage to such broad subjects as orientation and migration. Especially is the section on life zones beautifully illustrated with magnificent black-and-white photographs of the several zones in the state. I can neither agree with nor fully comprehend the contention (p. 45) that "instead of the terms biome and ecotone, we consider the 'habitat' as the rather broad area where the species may be found, and within that habitat are *plant associations, plant habitats, or ecological niches*—all being synonymous in our usage—which are preferred places in the habitat where bird species regularly associate with other species of animals and plants."

The remainder of the two volumes contains species' accounts for 439 species and many subspecies. A typical account contains (1) recognition (characteristic field marks), (2) range (worldwide, in North America, and in the contiguous states of Nebraska, Kansas, Utah, Wyoming, and New Mexico), (3) occurrence in Colorado (early and late dates, specimens), (4) nesting (dates, nest contents), (5) general account of preferred habitats, voice, habits, and other natural history

notes. Many of these species' accounts are, in my estimation, far too verbose, they frequently contain lengthy quotations from undigested field notes, and occasionally ramble through unnecessary, irrelevant accounts of loons in Michigan, Black Brant in arctic Alaska, Whooping Cranes in Texas, and orientation of *Zonotrichia* sparrows in California and Louisiana—just a few examples. By and large, the authors would have strengthened the state book by adhering closely to Colorado birds and ornithological problems in the state, for extralimital, additional tidbits, as interestingly as they have been described, are readily available in less geographically oriented ornithological works.

Paradoxically those features attractive to the general public—the abundant and generally excellent photographs and color plates—are the ones with which this reviewer takes issue. It is undoubtedly true that the high cost of these volumes is in large measure due to the illustrations. Was it necessary to include so many photographs of the same species—four of the Lesser Prairie Chicken and Mountain Plover, three of the Pine Grosbeak, and four Red Crossbill plates? When the Black-legged Kittiwake is but a mere straggler in the state, was it essential to include a plate of nesting kittiwakes in Quebec? And I can see virtually no value in a full-page black-and-white photograph of a Yellow Warbler or of a dead Worm-eating Warbler, especially when there are attractive accompanying color plates of these birds. The point to this argument is that judicious editing of photographs alone could have materially reduced the cost of the books.

One more observation on the illustrations must be made. It is poor judgment, I believe, to assign a trinomial to a photograph or a color plate even though geographically the particular bird being photographed (perhaps even on a nest) should represent a given subspecific population. Of course, some geographic races are so well marked that a competent artist could depict significant subspecific patterns or color differences. Certainly Dick Parks, a competent bird artist residing in Atlanta, Georgia did not paint his American Redstarts from specimens representing the Colorado-occurring *tricolora* or his Ovenbird from specimens of the western *cinereus*. To append trinomials to even the best executed paintings does not necessarily increase the scientific worth of either painting or book.

In addition to countless field observations and records gleaned from the literature, *Birds of Colorado* is largely based on “. . . the valuable collections of specimens accumulated through the years now deposited in this and other museums.” So far as I can ascertain, “other museums” are wholly in the state, and the authors did not make exhaustive studies of specimens in major American museums where undoubtedly many Colorado bird specimens repose. Another untapped possible source of information on Colorado birds is the bird banding files of the U. S. Fish and Wildlife Service.

These impressive volumes will likely be of value only to people interested in birds in Colorado or as collectors' items. Had some of the contents been altered, especially to include significant ornithological problems in the state, *Birds of Colorado* would have achieved values on a larger scale.—David W. Johnston.

**30. The Birds of Guyana (Formerly British Guiana) / A Check List of 720 species, with brief descriptions, voice and distribution.** Dorothy E. Snyder. 1966. Peabody Museum, Salem, Massachusetts. 7-1/2" x 5", 305 pages, \$6.00. Unpretentious despite its price, this little volume is exactly what its subtitle claims, an annotated check list of the birds recorded from what the old hands used to call “BG,” with brief descriptions of each form plus notes on voice and distribution. Introductory sections touch briefly on the climate and ecology of the region, and include a nicely written little history of the ornithological work done there—which I wish the author had expanded a few pages to retell some of the colorful stories of the flamboyant Bill Beebe and his predecessors. For the check list itself Mrs. Snyder has done a prodigious amount of digging through the literature, and she has visited most of the major museums to check specimen evidence of questionable forms. She has evaluated the evidence of each species' status carefully, and wherever uncertainty exists she presents the details in full. Localities cited are keyed conveniently by number to the end-sheet maps, and all species are indexed by both their vernacular and scientific names.

The work is a strange combination of ornithophily and ornithology. Planned partly as a guide book and “condensed as much as possible for use in the field,” the contents presume the user has a good knowledge of birds,—certainly well

beyond the level where he needs to refer to a diagram of the parts of a bird, to which a whole page is needlessly given. While the short descriptions contain each species' diagnostic characters, no keys are furnished for any groups, and for illustrations (except for that diagram of a bird) the reader is referred to other works on nearby areas, including one book not yet published!

Though the book is going to prove indispensable to both the serious student of BG birds and the ornithological dilettante, it has its weaknesses. An outstanding one is its uneven handling of the so-called "hypothetical," which the dictionary defines as "theoretical or conditional." Accordingly a hypothetical list should not include forms that have no rightful place in a fauna, such as species no longer valid or recorded in error, but only those recorded without acceptable or verifiable proof of occurrence.

Three introductory pages are devoted quite correctly to expunging 33 species collected on the Venezuela side of Mount Roraima and ascribed erroneously to BG by Chubb and most subsequent authors. The next ten pages contain a hypothetical list of 42 species including "(a) Birds mistakenly recorded from British Guiana; (b) Forms eliminated by re-identification or synonymization; (c) Doubtful sight records. Other sight records are bracketed in the regular list; and (d) Species found in surrounding countries which should occur." The 16 species in categories (a) and (b) belong of course in the expunged list with the Roraima birds.

Bracketed in the regular list, and thus to be considered "not doubtful" according to (c) above, are 14 species. Two of these, *Thalurania watertonii* and *Tangara peruviana*, are based on specimens with questionable locality data. Six more, including Band-tailed Pigeon, Groove-billed Ani, and Slate-colored Seed-eater, are definitely in category (d). The remaining six are based on recent sight records, three each by the author and by Noel Howe, both of whom are highly capable, careful, and reputable observers. By present day standards the Royal Tern records are certainly acceptable, but had I myself seen the Green Heron, Buff-breasted and Stilt sandpipers, Belted Kingfisher, and Caribbean Martin, I'd have kept them in my field notes until I had corroborating evidence, or put them unmistakably in the hypothetical list.

The bibliography is another weak point, a peculiar hodgepodge seemingly aimed at the amateur whose knowledge is well below the level needed to use the book understandingly. Far from complete, it omits many titles referred to in the introductory pages. Along with such standard works on BG as the main ones by Schomburgk, Quelch, Chubb, and Beebe, are sandwiched a strange mixture of books on other areas with vague if any reference to the Guianas—the Peterson and the Pough field guides for North America (why only the first volume of the latter?), Blake's *Birds of Mexico*, Bond's guide to the West Indies birds, Eisenmann's and Wetmore's papers on Middle America and Panama, Thomson's *A New Dictionary of Birds*, and vol. 1 of the *Handbook of North American Birds*. Culling out such irrelevant titles and printing instead as complete as possible a bibliography of titles containing references to birds in Guyana (which the author certainly has available in her files) would not have taken many more pages, and would have made the book infinitely more useful.—O. L. Austin, Jr.

**31. Peter Kalm's Travels in North America: The English Version of 1770.** Revised from the original Swedish and edited by Adolph B. Benson. 1966. Unabridged reprint, Dover Publications Inc., New York, N. Y. Two vols., xviii + 797 pp. 20 black-and-white illus., 1 fold-in map of NE United States and SE Canada reprinted from 1771 English Edition. Paperback. \$5.00. Peter Kalm, a student of Linnaeus and a botanist of note in his own right, was commissioned by the Swedish Academy of Science to collect natural history materials in North America, especially plants and seeds suitable for the Swedish climate. From September 1748 until February 1751 he traveled in Pennsylvania, New Jersey, Delaware, New York, and southeastern Canada, visiting among other places Niagara Falls, Quebec, and Montreal. His journals and other writings describe much of what he saw and many things he heard, including descriptions of flora and fauna, customs and manners of all peoples with whom he came in contact, and observations on more than 40 species of birds.

The journals were first published in Stockholm in three volumes between 1753 and 1761, and by 1772 they had been translated into German, English, French, and Dutch. Adolph B. Benson's version, the first to be published in the United

States, appeared in 1937. I can find no review of this book in any ornithological publications nor any mention of *Kalm's Travels in North America* since Elliott Coues listed it in his *American Ornithological Bibliography* nearly 90 years ago. I am grateful to Dover Publications for giving me an opportunity to draw the attention of bird people who are not acquainted with Peter Kalm to his travels in North America.

The *Travels* are delightful and informative reading in spite of the petty errors of the editor and translator, Adolph B. Benson, who was a Yale professor of German and Scandinavian and one-time president of the Swedish-American Historical Society. From his acknowledgments, his footnotes, and his lack of or improper evaluation of natural history subjects, he obviously did not consult a botanist or zoologist before publishing the travels. In speaking of birds and snakes on page 34 Kalm says, "This bird, which from its cry has the name of catbird (*Muscicapa carolinensis* L.) flew from one branch of a tree to another and was making a doleful tune . . . and hopped to the place where the snake lay, which immediately opened its mouth, caught the bird and swallowed it. . . ." In a footnote A. B. Benson says, "It is not certain that this bird was a catbird. *Muscicapa* means flycatcher . . ." Benson should have consulted an ornithologist before contradicting Peter Kalm.

In his diary for 24 October 1747 Peter Kalm describes hummingbirds in Pennsylvania, their plumage, flight, food, nest, eggs, and habits. These are perhaps the first life-history notes on Ruby-throated Hummingbirds in the literature. I particularly enjoyed his discussion of the decrease of the numbers of birds, animals, and fish in the English colonies in 1749 owing to the increasing population pressures (colonists not Indians). Most interesting also are Kalm's notes on Whip-poor-wills, grackles, Bank Swallows, martins, bears in Canada, ducks in New York Harbor, the habits of skunks, the women of Quebec, bedbugs, and a sauerkraut machine. A description of malaria and quotations from conversations with Benjamin Franklin and John Bartram mingle effectively with descriptions of the flora. The only part of the book that bored me was 30 pages of "Meteorological Observations" which a professional weatherman might enjoy thoroughly.—Elizabeth S. Austin.

**32. Handbook of Birds of Eastern North America.** Frank M. Chapman. 1966. Dover Publications, Inc., New York, N. Y. 581 pp., paperbound. \$3.00. Dover has reprinted another of the classical, North American bird books. "Chapman's Handbook," as it came to be called, was first published in 1895, then revised in a second edition in 1940. No doubt many serious-minded ornithologists first learned their birds by using this book. It contains, in addition to descriptions of birds, keys to identification of species, instructions for preparing bird skins and blinds, color charts, and other general features.

Although this Dover reprint is "unabridged," certain changes are evident. The text and many illustrations have been enlarged somewhat to increase legibility. Original plates in color are here reproduced in black-and-white halftones. The life zone map by C. Hart Merriam is much larger, and information on societies and magazines is more up-to-date. Otherwise the "Handbook" contains the readable, scholarly writings of Chapman, plus attractive illustrations by Fuertes, Jaques, and others.—David W. Johnston.

## MISCELLANEOUS

**33. The International Ornithological Congresses.** E. M. Nicholson. 1966. *British Birds*, 59(7): 257-261. Interesting account of the 12 Congresses that have taken place between 1884 and 1966; 12 pages of photographs show people at the Congresses from the 9th to 11th meetings.—Margaret M. Nice.