have dropped out. While band loss reduces the apparent number of birds in each of the older age groups, it has its most striking effect on the oldest birds. The number of jays which reach nine years of age is presumably under 1 percent of those which reach their adult stage, but the number may yet be far higher (double?) what would appear in the absence of rebanding. These figures are not necessarily typical of the whole population: they are based not only on banding at one spot over a period of years and a stable environment there, but also on particularly good cover for birds and food made available more-or-less the year round.

I had hoped for similar data from rebanding Common Grackles, especially as the total number banded here has been greater than for jays. They are taken in a shorter season (largely March through July). Because the season is shorter overall, and because it comes at a time of year when I am more likely to be away or busy with gardening, banding effort on the grackles has been even more erratic than for the jays. I suspect a higher rate of band loss for my grackles, from the greater damage to bands caused by the bird's bill (appreciable lapping is not too likely to lead to loss, but damage to the band in this way suggests that the birds may also open some bands and thus lose them). As yet I have no grackle record showing actual loss, and only one retaken after re-banding. The lapping makes it necessary to remove more of the original bands at the time of rebanding. This removal doesn't eliminate all continuity with the original banding, but it does make the record useless for determination of date of band loss under natural conditions.—E. Alexander Bergstrom, 37 Old Brook Road, West Hartford, Conn.

RECENT LITERATURE

MIGRATION

(See also 7, 21, 28)

1. Lipid Levels in Birds Preparing to Cross the Sahara. P. Ward. 1963. *Ibis*, **105**(1): 109-111. The amount of body fat in birds collected in northeastern Nigeria, mostly from late February through early April, 1962, amounted to between 30 and 40 percent of body weight, for the Wheatear and Yellow Wagtail. These migrants must cross about a thousand kilometers (or about 625 miles) of desert in which opportunities for feeding are exceedingly limited. The fat reserves appear comparable to those for crossing the Gulf of Mexico, suggesting that this percentage may be the maximum a bird can accumulate, or the heaviest that can be carried in flight.—E. Alexander Bergstrom.

2. Migration Across the Southern North Sea Studied by Radar. Part 4. Autumn. David Lack. 1963. *Ibis*, **105**(1): 1-54. The movements of migrants in Norfolk in September and October as studied by radar proved to be even more complex than other evidence had shown. The main departure for passerines proved to be S.S.E., despite a preponderance of banding recoveries to the S.S.W., indicating a change in heading later. A small departure eastward was not previously known. The previously known diurnal departure S.E. was believed to be primarily a broad-front movement inland with a following wind. "The 'falls' of Scandinavian passerine night-migrants were attributed . . . to westward drift by easterly winds of a migration that normally keeps over the land, or along the coast, on the opposite side of the North Sea. In fact, there is a regular passage from Norway S.S.W. towards Iberia passing over the North Sea and East Anglia."

"Scandinavian thrushes have evidently evolved an innate response such that, if they are over the sea at dawn out of sight of land, and if in addition they have been drifted westward, they change their heading from S.S.W. to S.S.E. Such a response would seem of no adaptive value in the North Sea, but it would be of great value for birds drifted into the Atlantic . . ."

"All 9 noctural and 4 diurnal movements analysed were far commoner and denser with following than opposed winds. They occurred with cross and opposed winds mainly when the wind was light. They tended to be commoner in clear than cloudy weather, and in anticyclonic than disturbed weather. After allowing for wind-direction, they were equally common in warm and cold weather."—E. Alexander Bergstrom.

3. The migration at Falsterbo 1960. Report from Falsterbo Bird Station No. 23. (Fågelsträcket vid Falsterbo år 1960.) Staffan Ulfstrand. 1963. *Vår Fågelvärld,* **22**: 29-36. (English summary.) Due to an abbreviated season because of a shortage of observers, the report is not representative of the season as a whole, nor comparative with the results of other years. This is especially true with regard to the unusually low number of raptors. By contrast, observations of uncommon birds were frequent. Among such events may be mentioned Sweden's first breeding record of the Yellow Wagtail (*Motacilla flava flavissima*) belonging usually to the British Isles almost exclusively. A large concentration of shorebirds occurred during the first week of July due to conditions of exceptionally low water levels providing an abundance of food.—Louise de K. Lawrence.

4. Migration in Spring Recorded by Radar and Field Observations in Sweden. Jan W. Mascher, Bengt-Olov Stolt and Lars Wallin. 1962. *Ibis,* **104**(2): 205-215. In the spring of 1960, 10 cm. radar at Arlanda airport near Stockholm was compared with systematic field observation nearby, especially for several days in April. Correlation was poor; ". . . most of the radar echoes must have originated from birds flying at heights invisible from the ground, while most of the visible migration was too low (mostly below 650 feet) to be caught by the radar."

The mean speed of the birds recorded by radar varied between 43 and 70 m.p.h. (to a maximum of 75 m.p.h.) groundspeed, and the still-air flight speeds generally between 35 and 52 m.p.h. Mostly water-birds appear to have been involved.

"On each day an appreciable return migration was noted in the field but scarcely at all by radar, the returning birds generally moving low against the wind. On a day of cold northerly wind later in the spring, however, a distinct return migration was seen on the radar during the first hours of darkness."—E. Alexander Bergstrom.

5. Northward and reverse migration at Ottenby the spring 1962. (Sträck och returnsträck vid Ottenby våren 1962.) Jan W. Marscher. 1963. *Vår Fågelvärld,* **22**: 31-44. (English summary.) As a warm front on 18 April moved northwards across the Baltic, the observers at Ottenby noted many birds flying south across the sea. Among these were a number of titmice seen for the first time in reverse migration. During the next night a flow of cold air forced this front to recede southwards, and in the morning overnight migrants, apparently arrived from the south, filled the surrounding area. This migration continued during the early hours of that day with most of the migrants flying over without stopping, northward bound.

This tendency of migrants to overshoot the boundaries of favorable weather conditions is not unknown. The chief influencing factor, it is argued, is that just as migratory restlessness of high intensity may sometimes release migration before favorable weather sets in, so also can such a strong drive continue to force the birds onwards after an adverse change in the weather. However, this phenomenon appears to depend on unusual circumstances, as when the migratory drive has been brought to a high level of intensity through a prolonged period of unfavorable weather conditions inhibiting movement.—Louise de K. Lawrence.

6. Radar Studies of Songbird Migration in Coastal New England. W. H. Drury and J. A. Keith. 1962. *Ibis,* **104**(4): 449-489. This paper is based upon qualitative results of migration study in New England, using 23 cm. radar. The timing of bird movements with weather changes during the year is discussed in detail. "We suggest the hypothesis that specific changes of weather, for example in autumn, overcast and rain, followed by heavier rain and squalls, followed by clearing and cold weather, combine (including the proper sequence of changes) to make additive stimuli whereby a population reacts to fly in an air-mass which will be most suitable for migration."

"Radar shows three regular offshore movements across eastern and coastal Massachusetts in autumn. . . . Regular southeastward movements . . . of waders . . . not consistently weather-controlled . . . most frequent from mid-July to mid-October. Regular southwestward movements . . . of passerines . . . the eastern limit of the general southwestward flow of these species. These movements follow

cold fronts from early August through mid-November. Regular southward movements . . . of passerines . . . follow cold fronts, occurring most frequently from early September to mid-October. We believe these movements to represent a previously unrecorded migration of wood warblers that winter in the Antilles and South America, whose track cuts directly across the western Atlantic from New England and the Maritime Provinces."—E. Alexander Bergstrom.

POPULATION DYNAMICS

(See also, 9, 17)

7. Studies of waterfowl at upper Gota River, west-central Sweden, winter and spring 1957-1961. (Andfågelstudier vid norra Göta älv vinter och vår 1957-61.) Leif Nilsson. 1963. *Vår Fågelvärld,* **22**: 50-64. (English summary.) The period over which these censuses extended contained one abnormally cold and one abnormally mild winter and spring seasons. Diagrams and tables show the movements of the four most common species, the Mallard (*Anas platyrhynchos*), the Goldeneye (*Bucephala clangula*), the Goosander (*Mergus merganser*), and the Whooping Swan (*Cygnus cygnus*). The emerging variations in population density and peaks indicate some reaction to the weather factor. Other factors such as the nesting success and changes in migration routes are also discussed. The sex ratios of the Mallard, the Goldeneye, and the Goosander were given special attention as well as the ratio of juveniles in the Whooping Swan.—Louise de K. Lawrence.

8. Survival Curves of Some Birds in the London Zoo. Alex Comfort. 1962. *Ibis,* **104**(1): 115-117. Captive life tables were based on five species in the London zoo. The longest-lived of the five were Night Herons (*Nycticorax nycticorax*); a curve based on 44 individuals indicated a maximum age of about 19 years. For lack of directly comparable records from the wild for this species, Comfort compared this curve with wild records for the Heron (*Ardea cinerea*), and found that "only about a quarter of the Zoo birds had died at an age when less than 1% would have survived in the wild". The Zoo figures tend to understate the age reached, as the birds were not banded and the assumption is usually made that the oldest birds have died.

"Life-span in birds is only very roughly correlated with size, but the correlation becomes a little better if terrestrial birds are considered separately from active fliers. . . . there appears to be no close correlation between longevity and body temperature. . . . [perhaps] in mammals brain weight gives the best regression equation upon longevity. Relative brain weight is lower in large-bodied birds, but there seems to be no simple relationship to life-span."

"None of the species which probably survive to display senescence (gannet, albatross) have been studied long enough to show the whole of the mortality distribution during a life which may well exceed 70 years". This omits mention of the statistical evidence for the onset of old age in the Common Tern (*Sterna hirundo*) in its 19th year (Austin and Austin, "Some Demographic Aspects of the Cape Cod Population of Common Terns", *Bird-Banding,* **27**(2): 55-66, April, 1956). It is doubtless true that the two larger species can be expected to reach a far higher extreme age, and to demonstrate senescence more obviously.

In my own banding of Night Herons, in Massachusetts in 1939, two individuals were reported at about 11 years of age. At least two individuals elsewhere have been recorded at just under 15 years of age. All of these were banded as nestlings, and were reported as found dead.—E. Alexander Bergstrom.

NIDIFICATION AND REPRODUCTION

(See also 19, 22)

9. The Adelie Penguin Pygoscelis adeliae at Cape Royds. Rowland H. Taylor. 1962. *Ibis,* **104**(2): 176-204. The penguin rookery at Cape Royds, on the Ross Sea in Antarctica, was observed during the 1959-60 breeding season.

Breeding data for this season were compared with information available for some earlier years at Cape Royds, and for the species elsewhere in Antarctica. The microclimate at this site seems to be more favorable than the average, in less snowfall during the breeding season and in greater food supply.

"Mortality of adults at the breeding grounds was slight. Most egg losses were due to eggs being displaced from nests, or the abandoning of nests and eggs. A study of marked nests showed that 67% of all chick losses were directly due to Antarctic Skua predation, other mortality factors being desertion and exposure. Of the eggs 66% hatched and 75% of the chicks survived to leave for sea."

A dispatch to the *New York Times*, dated October 15, 1963, reports that at this rookery the drop in the population of Adelie Penguins has been so severe that it is feared the rookery will be extinct in ten years, from the effect of plane noises on the birds while nesting. The U. S. Navy has ordered pilots to refrain from flying below 2,000 feet or within a 300-yard radius of known penguin rookeries, except where runways are situated. The adverse effect of noise seems to outweigh the favorable factors at Cape Royds. Even where no outright persecution takes place, man is altering the avian environment for the worse in the remotest corner of the world.—E. Alexander Bergstrom.

10. All-Day Observations at a Robin's Nest. Olin Sewall Pettingill, Jr. 1963. *The Living Bird*, **2**: 47-55. Three all-day watches by Dr. and Mrs. Pettingill at a nest of *Turdus migratorius* outside their window at the University of Michigan Biological Station. The first two occurred during the seventh and ninth days of incubation, the third when one young was two days old and two were three days old. The first day the attentive periods numbered 27, the second day 23; they averaged 32 minutes in length on both days. The inattentive periods averaged 6.85 and 8.53 minutes respectively. (W. E. Schants [1944, *Wilson Bulletin*, **56**: 118] recorded an incubating Robin as leaving the nest 31 times in one day; her periods on the nest averaged 20.6 minutes and periods off 5.6 minutes. Weather conditions were much the same during all three watches.) The Michigan female turned her eggs 28 and 25 times on the two days.

The male Robin visited his mate 11 and 3 times respectively; on 4 occasions he fed her and once she "pushed the food . . . at one of the eggs." Is this an instance of "courtship feeding?" Lack (1940, *Auk*. **57**: 176) found this behavior "Apparently lacking in *Turdus*." Or could it be "anticipatory food bringing" for the chicks as recorded for the Prairie Warbler (*Dendroica discolor*) by Nolan (1958, *Auk*, **75**: 263-278).

During the third watch the female fed the young 45 times, the male 36 times. Charts illustrate the activities of the parents during the three days. A valuable contribution.—M. M. Nice.

11. Breeding Density in the Peregrine Falco peregrinus and Raven *Corvus corax*. D. A. Ratcliffe. 1962. *Ibis*, **104**(1): 13-39. "While the Peregrine was banished from many easily accessible haunts, the evidence does not suggest that, during the last few centuries, it has ever had a much wider distribution in Britain than in recent years . . .". It appears to have maintained a fairly constant breeding population during this century, down to World War II; was persecuted during that war in some districts; recovered fairly well thereafter, but showed a decline in the south by about 1957. This paper considers the means by which population stability was maintained for long periods in this species and the Raven.

Food supply is not likely to limit the population directly, as both species utilize a wide variety of food. "For breeding to occur, cliffs suitable in altitude, vertical height, cover and presence of ledges are necessary. Alternative cliffs and ledges are used if available but are not essential to ensure regular occupation of a territory. Availability of suitable cliffs controls nesting density at the lower levels, but does not impose an upper limit."

Persecution by man does not appear to limit breeding density over a period of time, except in terrain which is marginal for other reasons. It appears that maximum nesting density is controlled by territorialism, which produces a "proximity tolerance limit" between adjacent nesting pairs. "It is believed that such territorialism is not itself an ultimate limiting factor but has evolved in relation to food supply so that the number of predators are permanently balanced against this factor.—E. Alexander Bergstrom.

12. Breeding Success of the Cowbird. Howard Young. 1963. *Wilson Bulletin,* **75**(2): 115-122. A valuable presentation of data, mostly from the literature, on hatching and fledging success of 879 eggs of the Brown-headed Cowbird (*Molothrus ater*) in 560 nests of 36 host species. Fledging success with the five most heavily parasitized hosts ranged from eight (Yellow Warbler, *Dendroica petechia*) to 30 percent (Song Sparrow, *Melospiza melodia*), and averaged 25 percent. Fledging success in the nests of the five least parasitized species amounted to only 16 percent. The total number of Cowbirds fledged was 218, i.e., 25 percent of the 879 eggs. This is markedly lower than that in other passerines as found by myself (1957, *Auk,* **74**: 305-321) in 29 studies on open nests of altricial birds: from 21,951 eggs 10,071 birds were fledged — 46 percent of success.

Dr. Young suggests that for each female Cowbird an average of six young may be fledged each year; this he calculates from Walkinshaw's (1949, *Wilson Bulletin,* **61**: 82-85) report of 25 eggs apparently having been laid by one Cowbird in one season—25 percent success of 25 eggs would come to six fledglings. There is no evidence, however, that this bird's record was typical. I suggest that the Cowbird averages nearer 16 eggs per year and hence would seldom average more than four fledged offspring per year. (See Nice, M. M. 1937. *Transactions Linnaean Society of New York*: **4**: 155-156, 162-163.)—M. M. Nice.

13. The Life Cycles of Three Australian Parrots: Some Comparative and Population Aspects. John Le Gay Brereton. 1963. *The Living Bird,* **2**: 21-30. Life cycles are described for King Parrot (*Alesterus scapularis*), Eastern Rosella (*Platycercus eximius*) and Budgerigar (*Melopsittacus undulatus*). The first is a sedentary species of lowland rain forest; its social development is limited. The second is also sedentary but the juveniles associate with their parents much longer than do the King Parrots. The third is a "nomadic species with a high degree of sociality . . ., the young remaining with the parents throughout their lives." A table summarizes life cycle characteristics in 19 species of parrots: courtship preening, courtship feeding, sex incubating, number of broods, number of eggs, migratory status, etc. The author is Senior Lecturer at the University of New England, Armidale, New South Wales, Australia.—M. M. Nice.

14. Twite found breeding at Virihaure, Swedish Lapland. (Vinterhämpling (*Carduelis flavirostra*) häckande vid Virihaure, Lule lappmark.) Kai Curry-Lindahl. 1963. *Vår Fågelvärld,* **22**: 45-49. (English summary.) On 23 June 1959 this bird, breeding predominantly in the northern latitudes north and south of Tromsφ and on the mountain plateaus in the interior of southern Norway, was found nesting near a small lake among sparse vegetation where 50 percent of the ground was still snow-covered. A rocky shelf with southerly exposure held the nest made of *Carex* straws, mosses, and a lining of ptarmigan feathers. It contained four nestlings fed by their parents.—Louise de K. Lawrence.

BEHAVIOR

(See also 10, 13, 23, 26)

15. Notes on the Behavior of Common Nighthawks in Florida. Charles A. Sutherland. 1963. *The Living Bird,* **2**: 31-40. A 5 day study of 16 pairs of *Chordeiles minor* on Key Largo with 46 hours spent in a blind watching one family. Eight different calls are described. The males defended the territories; the females brooded the chicks; both parents fed them. The author compares his findings with those of 16 papers on nesting behavior of the Common and Lesser Nighthawks (*Chordeiles acutipennis.*)—M. M. Nice.

CONSERVATION

(See also 9, 17)

16. Peregrines and Homing Pigeons. Thorwald Lindquist. 1963. *British Birds,* **56**(4): 149-151. Peregrines and other falcons are strictly protected by Swedish law, a situation which has not pleased the people practising pigeon racing

In 1944 the author was empowered by the conservationists and by the pigeon fanciers to investigate the losses of pigeons attributable to Peregrines. It was established that there were at least 120 breeding pairs of this species in Sweden in 1945 and that they brought about some 3 percent loss to the thousands of pigeons. It was possible to reroute some of the pigeon racing routes and thus minimize losses. Thus a spirit of cooperation now reigns between falcon lovers and pigeon fanciers. The author well states: "a country which does not try to preserve its present fauna for the benefit of future generations can hardly regard itself as civilised."—M. M. Nice.

PARASITES AND DISEASES

(See also number 12)

17. Changes in the Status of Birds of Prey in Europe. I. J. Ferguson-Lees. 1963. *British Birds*, **56**(4): 140-148. A disheartening presentation of the many factors due to man that are destroying the diurnal birds of prey in Europe and Great Britain—shooting and trapping, poisoning of carcasses to kill wolves and of small prey by pesticides, modern hygiene and habitat destruction.—M. M. Nice.

18. A Fungus Disease Spreading in U. S. / Histoplasmosis, Once Rare, Afflicts 160,000 a Year. Walter Sullivan. 1963. *New York Times*, November 29, 1963. This discussion is based on papers delivered in November, 1963 at the annual meeting of the American Public Health Association in Kansas City, Mo., and on a subsequent telephone interview by Sullivan with Dr. Fred E. Tosh of the Kansas City field station of the Communicable Disease Center of the U. S. Public Health Service. We comment on this problem in advance of publication of the latest material in a scientific journal because of its possible importance to the health of bird or bat banders.

As discussed in *Bird-Banding*, **34**: 43-44, January, 1963, histoplasmosis is a fungus disease which causes an inflammation of the lung tissue and is at times mistaken for tuberculosis or lung cancer. Our previous review quoted the advice to those working in shaded areas contaminated by starling droppings to wear a simple gauze or paper mask. It is disturbing to note evidence now that the spores are so small as to pass through dust masks designed to protect miners against silicosis, so that a simple mask is not adequate. Pending more definite technical recommendations, I suggest that anyone who must work in such areas use a respirator approved for use against low densities of organic gases or vapor, available from suppliers of industrial protective equipment for occupational diseases (one manufacturer is the American Optical Co.). Care should be taken that the chemical filter unit in the respirator is not worn out, and that the respirator fits the face well enough so that no air for breathing is drawn in around the edges rather than through the filter. It should be emphasized that use of a vapor-type respirator is not known to stop all spores; however, that type should be more effective than the dust-type respirator, and yet is light weight and widely available.

According to Dr. Tosh, roosts of grackles and other blackbirds (in addition to starlings) may be favorable areas for the fungus, even though it does not appear that the birds actually carry the disease. The connection may simply be that the birds, concentrated in roost areas, enrich the soil with their droppings. Bats are often infected, but the disease is probably transmitted in caves ("cave fever") by stirring up dust on the floor.

A survey made of 42,508 patients admitted to 82 hospitals specializing in lung diseases indicates quite a variation in incidence of the disease geographically, with concentration in the Mississippi Valley. Over 80 percent of this group of patients in most of Missouri, eastern Illinois and western Indiana, and an area from central Ohio southwestward through most of Kentucky and Tennessee (apart from the mountains) appear to have had at least a trace of the disease. By contrast, in New England and New York state, less than 10 percent of this group of patients showed any trace of the disease. Projecting these figures, it is thought that some 30 million Americans may have had the disease, with a half million others infected every year (160,000 of these new cases require medical treatment, and a few are fatal).

In addition to exercising some caution in roosts and caves, it would seem prudent to keep gathering or holding cages quite clean, to avoid stirring up dust—and possible spores of the disease—from dry deposits.—E. Alexander Bergstrom.

19. Host Relations of the Parasitic Cowbirds. Herbert Friedmann. 1963. *United States National Museum Bulletin*, **233**: 1-276. $1.25. In 1929 Dr. Friedmann published his comprehensive book on "The Cowbirds: A Study in the Biology of Social Parasitism;" since then he has issued in the journals seven reports on additional hosts of these parasites. The present volume is mostly concerned with the Brown-headed Cowbird (*Molothrus ater*) with short sections on the four other parasitic cowbirds. The Brown-headed Cowbird has greatly increased in recent years, both in numbers and in range, spreading to the south, the west and the north. The total list of its hosts has reached the number of 206 species (333 species and sub-species). More than half of these are "uncommon, rare or even accidental victims." Only "17 species have been recorded as cowbird victims 100 times or more." Thirty-three other species are listed in descending order of frequency to those having 25 to 30 records. "These 50 hosts account for approximately 7,800 records out of a total of about 9,000 instances of cowbird parasitism." (p. 7). The Yellow Warbler (*Dendroica petechia*) and Song Sparrow (*Melospiza melodia*) head the list with about 1,000 cases each, while the Red-eyed Vireo (*Vireo olivaceus*) is the third most popular host with over 875 instances.

Many topics of host and parasite are discussed and many problems pointed out. The author states: "the general breeding success of the cowbird, like that of so many parasitic animals, is often much lower than that of its chief victims. This is the saving factor in the picture." (p. 16). There is one species, however, whose future existence is imperilled by cowbird pressure; with Kirtland's Warbler (*Dendroica kirtlandii*) with its entire population restricted to a small, specialized habitat, this brood parasitism has "gotten out-of-hand" (p. 110).

The hosts of the Brown-headed Cowbird are treated in detail and this makes fascinating reading. The treatment is by species, but the author takes pains to point out wherever necessary which subspecies of host and parasite are concerned. There is one unfortunate printing error on p. 85 which Dr. Friedmann asked me to mention:

"The printer, subsequent to corrected galley proofs, dropped out the first line of the account of the gray vireo reading, — "This vireo has been recorded only once in print as a host of the . . .", and in its place repeated the first line of the following species, the yellow-throated vireo, reading — "This is a frequently imposed upon victim, for which I have noted . . ."

The Bronzed (or Red-eyed) Cowbird (*Tangavius aeneus*) of southwestern U. S. A. and Mexico parasitises mostly orioles, blackbirds and finches; 52 species (64 forms of birds) of hosts are known. As to the Shiny Cowbird (*Molothrus bonariensis*), widespread over most of South America, its list of hosts comprises 148 species (193 forms). Both sexes of this species show a marked tendency to puncture with their bills the eggs of other species, even outside its own breeding season.

This impressive volume represents a vast amount of well-organised, careful work. It shows us the wealth of problems still unsolved in the realm of brood parasitism. It should be in the library of every serious student of birds.—M. M. Nice.

20. Toxic Chemicals and Birds of Prey. Stanley Cramp. 1963. *British Birds*, **56**(4): 124-139. Pesticide residues have been found in 3 species of hawks and 4 of owls in Great Britain, in both our eagles in the U. S. A., and in 3 raptors in Sweden and in Holland. The author attributes the decline in numbers of the Peregrine (*Falco peregrinus*), Kestrel (*F. tinnunculus*) and Sparrowhawk (*Accipiter nisus*) to this cause and he warns that conditions will become worse if the persistent chlorinated hydrocarbons are used in forests and other habitats in the north and west of Britain.—M. M. Nice.

PHSYIOLOGY AND PSYCHOLOGY

(See also number 1)

21. The Experimental Demonstration of Pre-Migration Activity in the Absence of Fat Deposition in Birds. B. Lofts, A. J. Marshall and Albert Wolfson. 1963. *Ibis*, **105**(1): 99-105. By limiting the number of daylight hours for feeding, or by limiting the quantity of food available, experimental birds were kept from accumulating fat, but were at the same time photostimulated in order to determine whether migratory restlessness (*Zugunruhe*) would nevertheless occur. Bramblings (*Fringilla montifringilla*) captured during the winter, before the start of the migratory period, did develop typical nocturnal migratory restlessness. Juncos (*Junco hyemalis*) and White-throated Sparrows (*Zonotrichia albicollis*) captured during spring migration did not yield such clear results, although in the Juncos some evidence for a similar result did occur. Despite the wide evidence that many migratory species do accumulate fat reserves, this experiment suggests that the accumulation of such reserves is not an essential element of the "total physiological state" necessary for the onset of migration.—E. Alexander Bergstrom.

22. Temperature Regulation in the Sooty Tern Sterna fuscata. T. R. Howell and G. A. Bartholomew. 1962. *Ibis*, **104**(1): 98-105. Studies were made in the extensive colonies on Midway Island, where the species faces severe heating from solar radiation. "The mean daytime body temperature of incubating adults (40.5° C.) was significantly higher than the mean (39.4° C.) for adults on nestts a night. The mean incubation patch temperature (39.6° C.) was significantly higher than the means for incubated eggs without visible embryos (34.8° C.), incubated pipped eggs (36.6° C.), or brooded, newly-hatched chicks (38.3°C.)."

The chicks are less fitted to cope with the thermal problems of their environment. "Shading by adults of eggs and young chicks prevents overheating; older chicks seek natural shade. When placed in the open sun, chicks of all ages can lose heat by vigorous panting. However, body temperatures may rise to almost 45° C. and usually stabilizes in the lower range of prevailing black bulb temperatures."—E. Alexander Bergstrom.

PLUMAGES AND MOLT

(See number 27)

ZOOGEOGRAPHY

23. The avifauna of north-western Värend, central Smaland, Sweden. (Fågelfaunan i nordvästra Värend, mellersta Småland.) Sune Anderson. 1963. *Vår Fågelvärld*, **22**: 1-28. (English summary.) This readable and informative summary covers observations from 1950 through 1961 of birds and their habits in the highlands and lowlands of south central Sweden, an area previously largely neglected by ornithologists. The way the author presents his material provides an agreeable change from the usual. Instead of an annotated list, we are given a table containing the pertinent data for each species and year, breeding status, occurrences, and so on. This is supplemented with comments of particular interest, observations on behavior, population fluctuations, and changes in the avifauna through the years.

To the behavior student the description of the Woodcock's (*Scolopax rusticola*) manner of carrying off its young bodily when threatened by danger, based on several careful observations, is undoubtedly a highlight. Another section deals with an entirely local irruption of Crossbills (*Loxia curvirostra*) due apparently to an abundance of food supply. In the last section, the gradual disappearance of the Eagle Owl (*Bubo bubo*), the Corncrake (*Crex crex*), the Kite (*Milvus milvus*), and the Yellowhammer (*Emberiza citrinella*), as well as the increase of waterfowl are noted.—Louise de K. Lawrence.

24. The Song Sparrows of the Mexican Plateau. Robert W. Dickerman. 1963. *Occasional Papers Number 9, Minnesota Museum of Natural History*: 1-71. An impressive discussion of the diverse populations of *Melospiza melodia* inhabiting the fresh-water marshes of the Mexican Plateau. Three subspecies were described in 1874 and 1899; Dr. Dickerman accepts these and adds five others. The differentiation of these completely sedentary races is comparable to the situation where four subspecies of Song Sparrows have developed in the San Francisco Bay Region in California.

Under "Ecology" we learn that clutches are small, averaging about three eggs. These are brighter blue and more heavily spotted than those of northern races. The riparian and marsh habitats to which these birds are restricted are being more and more destroyed through over-grazing, removal of trees and shrubs, and the tillage of fields up to the edges of streams. "Elimination of habitats means extinction of local populations."

Under "systematics" the eight races are described and compared for eight mensural characters after which color characters are treated. In the "Discussion" the topics are "Pleistocene History" and "Methods of Speciation." Twenty-nine figures include photographs of habitats—dreary looking spots—, maps, statistical analyses of mensural characters, etc. The author concludes: "The adaptation to completely sedentary existence in restricted ecological niches which have remained available to the Song Sparrow through long periods of time, and the isolation of these niches, have permitted the phenominal differentiation exhibited by the species along the southern border of the Mexican Plateau."—M. M. Nice.

SONG

25. The Cadence of Bird Song. George B. Reynard. 1963. *The Living Bird*, **2**: 139-148. "The cadence of delivery of a song is the average length of time from the first note of a song unit to the first note of the succeeding unit throughout the whole song performance." Cadence was determined "when the bird was in *relatively continuous song.*" These cadences can be turned into average songs per minute by dividing 60 by the cadence figure. A table shows the results of observations on over 1,500 individuals of 52 species; for each species are given the number of individuals, the cadence of song in seconds, and the standard deviation in seconds. An interesting contribution.—M. M. Nice.

26. Ultrasonic Frequencies in Bird Song. W. H. Thorpe and D. R. Griffin. 1962. *Ibis*, **104**(2): 220-227. Special recording equipment designed for work with bats was employed with a number of species of birds, in the range from 15 to 50 kilocycles per second. ". . . although many small birds undoubtedly have high frequency components present in their songs and call notes, these are always associated with, and at a much lower amplitude than, sonic frequencies . . . it is extremely unlikely that the ultrasonic frequencies have any major communicatory function, since at this level of intensity their carrying power would be extremely limited and they would be very easily interrupted by foliage and other obstacles . . . if they are significant in the life of the bird it is highly likely that they play their part only in those notes which serve for intro-specific communication at very close quarters."—E. Alexander Bergstrom.

27. The Lack of Ultrasonic Components in the Flight Noise of Owls Compared with Other Birds. W. H. Thorpe and D. R. Griffin. 1962. *Ibis*, **104**(2): 256-257. In the course of the experiments described in the preceding review, it was noted that the wings of small birds generally produced ultrasonic "noises". ". . . all the small owls tested . . . have eliminated ultrasonic noise . . . two species of hawks and five species of doves of corresponding size to these owls were all found to be noisy at ultrasonic levels . . . three species of medium-sized owls tested were all silent at ultrasonic ranges; and of the large owls two species of Eagle Owl tested were mostly silent, but ultrasonic noise was occasionally heard from wingbeats at the time of take-off. The Fishing Owls (two species) on the other hand appear to have lost the special adaptations of plumage which confer silence on the other owls . . . though sometimes they succeeded in flying almost as quietly as the other two large owls."—E. Alexander Bergstrom.

BOOKS

28. Bird Migration. Instructions to Young Ornithologists, III. Robert Spencer. The Brompton Library, The Museum Press, Ltd., London. 126pp., 12s6d. As in the case of *Sea-Birds* (*Bird-Banding*, **34**(4): 231), this introduction to the subject will be helpful to most amateurs of any age. While the examples are largely British, enough situations elsewhere in the world are mentioned to make it plain how dangerous it is to try to define or to study migration on the basis of its nature in one area. To fit as many cases as possible, Spencer uses the definition of migration proposed by Sir Landsborough Thomson: a shift in the center of gravity of a bird population. This is especially useful for species which move out of part of their breeding range in winter, or species in which some individuals migrate and others winter in their breeding range. Such species tend to be thought of as permanent residents on a superficial review, but are quite different from the truly sedentary species.

In the most technical part of the book, on how birds find their way, Spencer steps lightly among the experiments and theories of specialists such as Matthews, Kramer and the Sauers, conveying a sense of real progress toward a basic understanding of how birds navigate and orient themselves, while conceding freely that the experiments do not all point in exactly the same direction. He discusses the ways in which the British bird observatories study migration, and how ringing (banding) is done. The comment "ringing is useful as a study technique in proportion to the number of recoveries it produces" is not novel, but bears emphasis. Incidentally, in outlining differing views on endurance of birds on the wing, Spencer indicates that a hundred hours of non-stop flight would be an impossibly long time. This was of course written before the publication of a estimate of 105 to 120 hours non-stop for migrating Blackpoll Warblers (*Bird-Banding*, **34**(3): 107-159). —E. Alexander Bergstrom.

29. Birds of Wisconsin. Owen J. Gromme. Published by the University of Wisconsin Press (Madison, Wisc.) for the Milwaukee Public Museum. 1963. xvi + 220pp., 105 color plates. $18 until Feb. 1, 1964, $22.50 thereafter. This is not a "state book" in the conventional sense, but a volume of bird portraits, to be supplemented at some future date by a volume of text. The distinction is made clear in the publisher's advertising, but some bookstore advertising has been ambiguous, as if they doubted the appeal of the book on its own merits. Any such doubts appear ill-founded. Only a handful of states enjoy such a collection of portraits, and the collection will give pleasure to readers far beyond the bounds of Wisconsin. It covers the bulk of the species which occur in the eastern half of North America. Only by the support of the Friends of the Museum, Inc., was publication of color portraits made economically feasible.

Each species occurring in Wisconsin (328, omitting a few casual records) is illustrated on the main series of 89 plates, often with two or even three plumages shown. On a facing page opposite each plate, a silouette of the bird is shown to identify the species and plumage, accompanied by a map of Wisconsin showing where the species occurs, and by a scale showing when it occurs. Following this series, 16 plates under the caption "Birds in Action and in Habitat" show some of the larger birds in their normal habitat. The plates were painted over a period of many years by Gromme, curator of birds and animals at the Milwaukee Public Museum.

Any such series of bird portraits faces comparison with the masterpieces of Louis Agassiz Fuertes, particularly his work in the *Birds of Massachusetts* some 40 years ago. Despite the many virtues of the Gromme portraits, they will not replace the Fuertes series as a standard of excellence. Overall, the Gromme portraits are less felicitous on some of the smaller birds like the wood warblers than on waterfowl. They do not match the Fuertes gift for depicting feather texture. On scale, in plate 37 the Great Black-backed Gull is out of proportion to the Glaucous Gull. The chief drawbacks to the plates are in color, apparently partly from inadequacies in printing and partly from the original portraits. Printing inadequacies appear at fault in the Catbird (wing washed with reddish, in the course of showing the undertailcoverts) and a number of species which are not black enough (e.g. Great Black-backed Gull). It is hard for me to see how the printer can be at fault on quite a few birds which appear too brown (e.g. Osprey,

Willet, Yellowlegs, Mourning Dove, and ♀ Cowbird), or excessively bright, such as Pipit (too yellow) or Nashville Warbler (gray areas too bright a bluish).—E. Alexander Bergstrom.

NOTES AND NEWS

We record with regret the retirement of two reviewers because of the pressure of other work, after several years' service. Helmut K. Buechner is currently involved with several research projects. Robert J. Newman has found it difficult to keep up with the literature on migration in view of his labors as treasurer of the A.O.U.

All seven of the mist nets carried by NEBBA are currently in stock, with substantial quantities on order. While supplies have been reaching us from Japan without delay, we cannot guarantee prompt shipment during the spring peak of demand for nets. If you can anticipate your needs and order now, you may be saved some delay in the active netting season. If you can't anticipate your needs that far ahead, it is likely that we can handle spring orders promptly. Each year we increase our shipments from Japan, but the overall demand for nets also seems to be increasing. Orders or inquiries should be sent to: Mr. E. A. Bergstrom, 37 Old Brook Road, West Hartford, Conn., 06117.

This issue carries the greatest number of general notes that *Bird-Banding* has included in several years. Many banding stations have material for at least one good note, whether or not they have the basis for a long paper. We would like more general notes, and can print them promptly. As this issue goes to press, we know of some papers in preparation for *Bird-Banding*, but we can still offer other authors of papers unusually early publication. We have no rigid limits or restrictions on acceptable subjects, though most deal either with field ornithology or with other work along somewhat those lines (such as plumage studies, or laboratory experiments on readiness for migration). While papers should be in English, they are by no means restricted to U. S. or Canadian authors; subjects from abroad might involve groups of special interest to *Bird-Banding* readers (such as the Laridae), or areas of special interest (such as the Arctic or Antarctic).

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