repeatedly on the head until she flew away in desperation. The male took no part in the controversy, but showed considerable excitement and gave his repeated "chip" call. In my eighteen years' experience as a bird bander I have often seen newly-banded cardinals peck at the band, but this is the first time I have observed cardinals peck at a band on another individual and drive it away.—FLOYD B. CHAPMAN, Columbus, Ohio.

RECENT LITERATURE

Reviews by Donald S. Farner and others

BANDING

1. Results of Banding the Pied Flycatcher in Silesia. (Ergebnisse einer Planberingung des Trauerfliegenfängers *(Muscicapa hypoleuca* Pallas) in Schlesien.) W. Trettau and F. Merkel. 1943. *Vogelzug*, 14: 77-90. During eight years 1277 nestling Pied Flycatchers, 59 adult males and 136 adult females were banded in nest boxes; 71 of the young (6 per cent) were later trapped as breeding birds. Three members of one brood were found in later years, a male 100 meters from his birth place, two sisters 750 and 2700 meters distant. Of 74 captures of birds banded as nestlings 38 per cent were one year old, 32 per cent 2 years old, 17 per cent 3 years old, 8 per cent 4 years and 3.5 per cent 5 years. The high percentage of two year old birds leads the authors to think that not all birds breed at one year. In three cases old females were not found one year, but reappeared the next; there were always plenty of extra boxes. Only once were mates found together in a subsequent year; four times birds had taken other mates. Many birds returned to the same or nearby boxes, while others settled farther away, one as far as 1300 meters. Many data are given on color types of the males.—M. M. NICE.

2. Bird Banding Activities in Belgium in 1943. (Oeuvre du baguage des oiseaux en Belgique. Exercice 1943.) Ch. Dupond. 1944. *Le Gerfaut*, 34(3/4): 83-84. "Bird banding in Belgium having been suspended during the war, the following few records only are to be reported." The author gives records of twelve birds recovered after banding. Among the more interesting is that of a Stock Dove, *Columba oenas oenas* L., banded at Beernem, West Flanders, 3 October 1936 and recovered at Sainte-Croix lez-Bruges (15 kilometers north of banding locality) 1 June 1943. A Blue Tit, *Parus caeruleus caeruleus* L., was banded at Dudelange, Luxembourg, 22 May 1937 and recovered at Rumelange, Luxembourg (10 kilometers east of banding locality) 7 March 1943.—D. S. F.

3. Bird Banding Activities in Belgium in 1944. (Oeuvre du baguage des oiseaux en Belgique. Exercice 1944.) Ch. Dupond. 1945. *Le Gerfaut*, 35(3): 101-102. This is a list of 24 returns and recoveries mostly recorded in 1944.—D. S. F.

4. Birds Banded in Foreign Countries and Recovered in Belgium. (Oiseaux bagués à l'étranger et retrouvés en Belgique.) Ch. Dupond. 1944. *Le Gerfaut*, 34(3/4): 85-87. Twenty-seven records of birds banded elsewhere and recovered in Belgium are given. Included are five records of Starlings, *Sturnus vulgaris vulgaris* L., banded in Sweden or Germany during the summer and recovered in October or November in Belgium. A Mistle-Thrush, *Turdus viscivorus*

viscivorus L., was banded at Hoeven, Netherlands, 18 July 1940 and recovered at Hérenthals, Anvers in Belgium (50 kilometers south of banding locality) 13 June 1943.—D. S. F.

5. Birds Banded in Foreign Countries and Recovered in Belgium. (Oiseaux bagués à l'étranger et retrouvés en Belgique.) Ch. Dupond. 1945. *Le Gerfaut,* 35(3): 102. Five records of passerine species all at least possibly in migration.—D. S. F.

6. The Genealogical Table as a Means of Clarification of Banding Results, with Examples from the Barn Swallow. (Die Sippentafel als Möglichkeit für die Auswertung von Beringungsergebnissen, geziegt an Beispielen der Rauchschwalbe *(Hirundo rustica rustica* L.).) Gerhard Creutz. 1941. *Der Vogelzug,* 12: 144-151. Interesting genealogical tables showing the history of nests for two to five years, with band numbers of adults and young. The nest is the center; both adults return to it if alive; otherwise the survivor, whether male or female, claims it and is joined by a new mate. If neither survives, the nest is left untenanted. Second broods are always in the same nest, the interval between the laying of first eggs of the two broods ranging from 46 to 73 days, averaging 54. Twice inbreeding occurred, in both cases mother and son being involved. So far as I know this makes five cases of inbreeding recorded with banded, wild birds: brother and sister with Downy Woodpeckers *(Dryobates pubescens),* (Shelley, 1932, *Bird-Banding,* 3:69-70), and Song Sparrows *(Melospiza melodia),* (Nice, 1933, *Condor,* 35: 219-224); and father and daughter with Barn Swallows in Germany, (Clobes, 1936, *Vogelring,* 8(1): 23-24).—M. M. Nice.

MIGRATION

7. An Investigation of the Movements of Water Birds during the Winter of 1941-1942. (Onderzoek over de bewegingen van watervogels gedurende de winter 1941-1942.) J. J. Laarman. 1943. *Ardea,* 32(1/2): 108-130. The observations were made on the Verversingskanaal which is well known as a wintering area for large numbers of birds of many species. The area observed (3375 meters in length and 37.5 meters wide) owes its heavy bird population to the inflow of water from the Electrische Centrale which raises the water temperature of the canal sufficiently so that it never freezes over completely. This paper is the summary of material gained in daily observations and censuses by 21 observers with a rotation scheme in which two persons visited the canal each day. Observations were made from November to February. Among the interesting data recorded are those on sex ratios of ducks. The ratio of males to females (number of males divided by the number of females or *number of males per female)* in the Mallard, *Anas platyrhyncha* L., was found to be 1.15 for 1969 observed individuals. For the Widgeon, *Anas penelope* L., the ratio was 1.68 for 75 individuals; for the Common Pochard, *Aythya ferina* (L.), 2.71 for 378 individuals.

The canal is the true winter area for Coots, *Fulica atra* L.; Mallard; and the Little Grebe, *Podiceps ruficollis* (Pallas). Other species come only under conditions of intense frost. These include the Tufted Duck, *Aythya fuligula* (L.); the Common Pochard; Golden Eye; the Goosander, *Mergus merganser* L.; and the Red Breasted Merganser, *Mergus serrator* L. Coots were most abundant in the middle of January. The Smew, *Mergus albellus* L., was most abundant in early February with a second period of abundance in early March. The maximum numbers of the Tufted Duck (400 to 900 per day) were recorded the middle of January to the first week of February; this was the period of coldest weather. Mallards although present throughout the winter were more numerous during the coldest period indicating a movement from other waters which were freezing.—D. S. F.

8. Migration of a Castrated European Blackbird. (Zug einer Kastrierten Amsel, *Turdus m. merula* L.). R. Drost. 1941. *Der Vogelzug*, 12(4): 163. Among "the not small number" of European Blackbirds castrated and released by R. Drost and H. Schildmacher in 1937 and 1938 there is one significant recovery. This bird, a male, was captured on 3 March 1938 as a spring migrant at Helgoland. On 11 July 1938 both testes were removed. It was banded both with color and aluminum bands and released at Cuxhaven on 23 July 1938 at which time it appeared to be completely recovered. Three years later on 20 July 1941 this bird was recovered at Korsberga, Västergötland, Sweden, about 600 KM NNE of Cuxhaven in the normal breeding range of this race. "From the time and locality of its recovery it can be concluded that this bird was found in its breeding area and even perhaps at its home, which it reached in spite of castration, possibly even first in the spring of 1939." It was not possible to examine the recovered bird for regenerated testicular tissue. However, the author believes that the type of operation performed leaves little possibility of its occurrence. This is a small addition to the growing evidence that the hormones produced by the gonads do not supply the stimulus for migration.—D. S. F.

9. Concerning Bird Migration at Helgoland during the War. (Ueber den Vogelzug auf Helgoland während des Krieges.) R. Drost. 1941. *Der Vogelzug*, 12(4): 133-136. The question has been raised as to whether the large migration through Helgoland is in part due to the effect of the light from its lighthouse. Weigold in 1924 suggested that about 33 per cent of the migrants came to Helgoland because of the presence of the light. The blackout of Helgoland caused by the war provided an opportunity for comparison of migrations without the influence of the lighthouse with those before the war in which the light was functioning. This paper is a preliminary discussion concerning these observations. There is no doubt that migratory birds appeared in appreciable numbers during the two "blacked out" years. Many species continued to appear in their usual numbers although those which comprised the bulk of the masses formerly attracted to the lighthouse appeared in noticeably smaller numbers.—D. S. F.

10. The Great Tit, *Parus major major* L., as a Winter Resident on Helgoland. (Die Kohlmeise *(Parus m. major* L.) als Ueberwinterer auf Helgoland.) Hans Bub. 1941. *Der Vogelzug*, 12(4): 136-144.

Wintering of Great Tits on Helgoland fluctuates considerably from season to season; some winters there are none. Not infrequently sporadic migrations appear during the winter. In these observations the wintering birds were distinguished from these migrants by color bands. The wintering birds were found to arrive among the earlier fall migrants; meteorologic conditions apparently have little influence on the number spending the winter. At least 80 per cent of the wintering birds are first year birds (hatched the previous summer); the sexes are approximately equal in number.—D. S. F.

11. Migration of North American Birds. George A. Willett. 1946. *Los Angeles County Museum Quarterly*, 5(2): 1-13. This is a posthumous publication of a lecture prepared by the author in 1940 and subsequently used by him in classwork for students in ornithology. It is an interesting, although brief, discussion of migration, with emphasis on West Coast species.—D. S. F.

ECOLOGY AND POPULATION STUDIES

12. Life History, Organization, and Structure of the Netherlands Cormorant Population. (Levensloop, samenstellung en structuur der Nederlandse aalscholverbevolking.) A. Kortlandt. 1942. *Ardea*, 31(3/4): 175-280.

An adequate critical review of this extensive paper would require several pages; the observations and comments herein given deal mostly with some of the more interesting of the author's conclusions. The data on which this study is based were obtained from banding (numerical and color bands), censuses, and direct observations. Since 1931 there has been a marked increase in the number of, as well as the individual numerical strengths of, the colonies of cormorants, *Phalacrocorax carbo sinensis* (Shaw), in the Netherlands. The average annual increase in population appears to be about ten per cent per year. Young birds leave the colony at the age of seven weeks and become independent at 12 to 13 weeks, usually in August. The majority of the cormorants migrate to France or Spain. Some return as early as December but most return in February or March.

The first year cormorants show a "bisexual-reproduction behaviour in May and June and seriously disturb the breeding birds." The second year cormorants generally pair and build nests although usually no eggs are laid. In the second year birds "the impulse of reproduction as a rule occurs only in April." Consequently, they often pair with birds of their own age. Usually cormorants breed first when they are three years old but frequently not until the fourth or fifth year. "On an average the older the birds the earlier in the season they start breeding and the larger the families." The calculated population in the Netherlands in 1940 was set at 4,000 breeding nests and 1,000 "playing nests" whereupon the third year and older birds were estimated at 4,000 females and 4,300 males. These are calculated to produce 4,500-5,500 young able to fly. As an aid and check to these calculations the total Dutch population was counted in May, 1941. The count was 13,379, of which 10,854 were in colonies, 1,850 in sleeping places near colonies, and 225 at other sleeping places. Accordingly the 1940 population was fixed at between 12,700 and 14,700, of which 4,400-6,400 were first and second year birds and 8,300 were third year or older birds. Of considerable interest is the fact that mortality rate decreases with age and is differential according to sex. For females it is 36 per cent during the first year (after flying from the colony); 22 per cent for the second year, 16 per cent in the third year, and "with the mature birds decreasing from about 14 per cent to a few per cent." The mortality for females as a group is between nine and 14 per cent; up to and including the third year the mortality among males is similar to that of the females. For the age groups beyond three years the rate varies from nine to 12 per cent. "An abnormally severe winter may increase these figures up till two and a half as large." Banding returns indicate that the normal population contains about 28 per cent first year birds, 15 per cent second year birds, 11 per cent third year birds, and 45 per cent older birds. The author estimates that, to obtain a stable population, a 50 to 60 per cent mortality among the young must occur before the next breeding season. This study was conducted on an increasing population. It would be of great interest to obtain comparative data once the population becomes stable.—D. S. F.

13. Data Concerning the Stork, *Ciconia ciconia ciconia* (L.), in the Netherlands in 1940. (Gegevens over de Ooievaar, *Ciconia c. ciconia* (L.) in Nederland in 1940.) Fr. Haverschmidt. 1942. *Ardea*, 30(1/2): 86-88. The winter of 1939-40 was severe but the return of the storks was normal. The earliest nests were recorded between 22 and 28 March. Most of the nests were recorded in the first half of April. The total number of inhabited nests in the entire country was 253; the total number of young 551, 2.2 per nest. The average number of young per nest with young was 2.6 since 43 nests (17 per cent) had no young. Two nests had five young, and 16 had one. The breeding season was not quite as successful as that of 1939 but nevertheless not to be regarded as a poor season.—D. S. F.

14. Data Concerning the Stork, *Ciconia ciconia ciconia* (L.), in the Netherlands in 1941. (Gegevens over de Ooievaar, *Ciconia c. ciconia* (L.) in Nederland in 1941.) Fr. Haverschmidt. 1942. *Ardea*, 31(1/2): 75-77. The earliest recorded nesting in 1941 was 9 March. Again most of the nests were recorded in the first half of April. The number of inhabited nests was 202; the total number of young was 251. The mean number of young per nest was 1.2; the mean number of young per nest with young was 2.6. Fifty-two per cent of the nests had no young; 11 had one young, 35 had two, 30 had three, and 20 had four. Compared to 1940 this was a poor season, producing only one-half as many young.—D. S. F.

15. Breeding-Bird Density in a Park. (Die Siedlungsdichte in der Parklandschaft.) Georg Steinbacher. 1942. *Journal für Ornithologie*, 90: 342-359. On the 76,000 square meters (19 acres) of the Frankfort Zoo, 111 pairs of birds nested in 1940, a high population of 585 pairs per hundred acres, 1.459 pairs per square kilometer. Conditions were very favorable as to nesting opportunities, abundance of food and lack of enemies. The author considers that ordinarily nesting sites constitute a more limiting factor than food; that territories are usually compressible, and that "urbanization" of birds depends on a lessening of the "flight distance" from man: this is not inherited, but is learned from the example of companions or from experience.—M. M. Nice.

16. Some Interesting Observations Concerning Nesting in the Polders Inundated in the Spring of 1944. (Quelques intéressants cas de nidification dans les polders inondés au printemps 1944.) L. Lippens. 1944. *Le Gerfaut*, 34(1/2): 1-11. The area studied was a small section of the large polder area of coastal Belgium which was inundated in the course of military activities in that country. There are notes on 22 nesting species. Of particular interest is the large increase in breeding avocets, *Recurvirostra avosetta* L. The number of Lapwings, *Vanellus vanellus* (L.), increased to five to seven times the population of previous years.—D. S. F.

17. Studies on Deciduous Forest Animal Populations During a Two-Year Period with Differences in Rainfall. Lucile A. Rice. 1946. *The American Midland Naturalist*, 35(1): 153-171. In the course of a study on deciduous-forest animal populations the author presents data on the relation of invertebrate populations to birds. Sweeping generalized calculations are made to indicate the magnitude of these relations. Based on Twomey's observation that in 1934 there were five Downy Woodpecker nests in the woods and that the young, hatched in June, were fed every 3.5 minutes, the author concludes that 73 nests (four young per nest; of various species, number and names not given) used 1,051,200 large insects. The reviewer wonders about the source, and questions the accuracy, of the statement that "in general, birds are known to take seven meals per day." This is used to calculate a total of 2,391,480 insects used by the 146 parents in 60 days. That 146 parents should consume twice as many insects as 292 young in the same period seems somewhat amazing and provokes some concern about the assumptions in the calculations. An interesting series of observations was recorded on Robins. In January, both in 1934 and 1935, a large flock appeared in the woods and practically removed all of the Bibio larvae (*Bibio albipennis* Say). "In three weeks 250 robins probably consumed approximately 200,000 larvae, 21,000 beetles, and 66,250 Hemiptera." It was estimated that these Robins consumed about five-sixths of the invertebrate population occurring on the leaves on the ground. There is a useful table which compiles data on the feeding habits of 15 species of birds according to season.—D. S. F.

18. The Present Status of the Great Black-backed Gull on the Coast of Maine. Alfred O. Gross. 1945. *Auk*, 62(2): 241-256. This is another of Dr. Gross's fine reports on the dynamic population changes of Maine sea birds. Cormorants, Eiders, Herring and Great Black-backed Gulls are four species which have been invading or reinvading the Maine coast during the past several decades. (For a review of the Cormorant report see *Bird-Banding*, 16: 70.) Study of these changes is very important in clarifying the complex interrelations of colony nesting species in determining the role directly or indirectly played by man in promoting distributional changes. Not until 1928 was the Great Black-backed Gull definitely known to nest on the Maine coast; at present at least 98 islands have breeding pairs, with most of breeding birds, however, tending to congregate in a few colonies, apparently a characteristic habit of the species within the original range. The Black-back gets the "jump" on the Herring Gull in regard to the choice nesting sites by starting to nest ten or more days earlier. The winter range of the species has also been extended southward. The Great Black-backed Gull is by no means an entirely welcome invader since it is destructive to eggs and young of other species and even attacks and kills adult Eiders and other ducks. Control of the gulls in Eider colonies probably will be necessary, but Dr. Gross wisely points out that complete condemnation of the species should await further study since at the same time that the Black-back has been increasing the Eider has also shown a phenomenal increase. Predator-prey relations are not always as simple as casual observation might seem to indicate.—E. P. Odum.

CONSERVATION AND WILDLIFE MANAGEMENT

19. The Netting of the Golden Plover in the Netherlands (De Goudplevierenvangst in Nederland). Fr. Haverschmidt. 1943. *Ardea*, 32(1/2): 35-74. This is an interesting and comprehensive paper dealing with the Golden Plover, *Charadrius apricarius* L., in the Netherlands. Its value is enhanced by the inclusion of large amounts of quantitative data and eight good photographs illustrating trapping methods. The netting of the Golden Plover is still practised in Groningen, Friesland, and Noord-Holland. All other shore birds are protected by law. The birds are trapped on the extensive grasslands bordering the sea by the use of enormous nets and live and stuffed decoys. In 1938-9 there were 168 plover catchers and in 1942-3 there were 271. Before the war most of the birds were exported to England. Banding data indicate that at least some of the Golden Plovers visiting Holland are from Scandinavia. Two birds banded in migration in Italy were recovered in Holland. The southern race *(apricarius)* is decreasing rapidly as a breeding bird in southern Sweden, Denmark, and northwestern Germany largely because of drainage and reclamation operations. The northern race, *altifrons* Brehm, also has shown marked decreases in numbers. "In Holland too the Golden Plover was formerly much more numerous in the autumn and spring than nowadays and it seems that the annual toll of birds taken in this country is too excessive and harmful to the species on the long run." The author concludes his paper with an appeal for conservation of this species by removing it from the list of game birds and that it be given adequate protection.—D. S. F.

20. Inbreeding among Pen-reared Quail. Ralph B. Nestler and Arnold L. Nelson. 1945. *Auk*, 62(2): 217-222. While authorities generally agree that close inbreeding in wild game birds either does not occur or would not be harmful in a population of good stock, Nestler and Nelson show that inbreeding of quail (brother-sister matings) in captivity does reduce the hatchability of eggs to a statistically significant degree. Close inbreeding, therefore, might be detrimental when populations are reduced to a very low level; perhaps inbreeding was a con-

tributing factor in the extinction of such a species as the Heath Hen, which was unable to recover even under full protection when the population was reduced to a few individuals.—E. P. ODUM.

LIFE HISTORY

21. On the Bateleur, Especially at the Nest. R. E. Moreau. 1945. *Ibis,* 87: 224-249. Although *Terathopius ecaudatus* Daudin is "one of the commonest and most widespread accipitrine birds in Africa, . . . accounts of its nesting are few." The author and his African helpers observed a nest for 100 hours at which three adults, one plainly sub-adult, probably over three years old, were in attendance: "The youngster took 130 days to fledge. . . . When the fledgling was about one month old its feeds averaged about one in eight hours; during its last week in the nest feeds were nearly three times as frequent." "Fledging period apparently longer than authentically recorded for any land bird. First wing moult may have started before first flight." In the wild the Bateleur is shy of man, but in captivity it becomes unusually tame and has a greeting ceremony consisting of a low bow and special cry for human friends.—M. M. NICE.

22. On the Nesting Biology of the Wheatear. (Zur Brutbiologie des Steinschmätzers.) Heinz Mildenberger. 1943. *Ornithologische Monatsberichte,* 51: 6-12. *Oenanthe oenanthe oenanthe* (L.) is a bird of waste land; during the war it moved into military "waste lands" and became a characteristic bird of the heavy batteries on the west front in the Rhineland. Males and females sang from cannon; both defended the territory zealously from others of their kind and, after completion of the nest, from birds of all species. Both birds built; the female incubated and was fed by her mate; she left the nest at intervals of about 2 hours and returned after 8-15 minutes. Incubation lasted 13 days, fledging 14-16; male and female fed about equally. Two broods were raised.—M. M. NICE.

23. Life History of Tengmalm's Owl. (Lebensgeschichte des Rauhfusskauzes *(Aegolius funereus).*) R. Kuhk. 1943. *Journal für Ornithologie,* 91: 361-364. This little owl lives in forests and nests in Black Woodpecker holes; the song is heard all night from mid-December to May, the earlier singers being old males, later ones young birds and those that fail to get mates. Pair formation follows the pattern of the House Sparrow and Starling: the male carries prey into his chosen hole and sings before it; the female inspects the hole and eats the provisions! Incubation lasts 26-27 days, fledging 29-36 days. The male brings all the food to his incubating mate and to her and the young until they are 2 weeks old; during this period the female leaves the nest only once a day, in the early morning, for 3-9 minutes. The young gain in weight for the first 20 days, then steadily lose weight. The food consists mainly of mice.—M. M. NICE.

24. Breeding of the Pied Flycatcher in Captivity. (Ueber Gefangenschaftsbruten des Trauerschnäppers *(Muscicapa h. hypoleuca* (Pallas).) Rolf Nöhring. 1943. *Journal für Ornithologie,* 91: 329-340. In South Holstein adult Pied Flycatchers were trapped on spring migration and placed in a well-planted aviary provided with nest boxes; males and females paid no attention to each other, but aroused interest in wild birds. The author then put one male in the aviary and caught a female trying to enter; these birds became mates and nested. A box was contrived that registered the comings and goings of the birds but the pairs in 1937 and 1938 chose ordinary boxes; they raised 4 and 5 young, incubation lasted from 12½-15 days, fledging 12-14 days. In 1939 a new pair

chose the experimental box; charts are given showing daily and hourly activity in nest building, in the feeding of the female by her mate and in the feeding of the five young by both adults. During eight days of building the birds entered 2,396 times, the female about five times as often as her mate. Detailed tables are given of the incubation period; the female averaged 10.5 periods off the nest per day, averaging 4.75 minutes; her periods on averaged 86.7 minutes. Meanwhile the male fed her from 40 to 80 times a day! (The first male had fed his mate to a small extent, the second not at all.) The eggs hatched in 11¼-12¼ days; the parents fed the young 1,392 times, and they left at the very early age of 10-11 days. The ease with which food could be procured would seem to make these records of nesting life not typical of conditions in the wild. The juvenal molt started at 30 days with the 1937 and 1939 broods and with the first brood lasted 6 weeks.—M. M. NICE.

25. Biological Observations on Starlings in Rossitten. (Biologische Beobachtungen an Staren in Rossitten.) E. Schüz. 1942. *Der Vogelzug*, 13: 99-132. A notable study based on banding (with both aluminum and colored rings), and close observation. *Sturnus vulgaris* L. behaves differently in different regions in the matter of number of broods, age of breeding, direction of migration and *Zwischenzug*—summer migration. The present study is concerned with nine color-banded birds in 1942. The season was very late, the first young leaving June 18-21. Starlings defend their nest-holes, but resort to communal singing stations nearby where a number of individuals of both sexes crowd together to sing. On June 8 year-old Starlings—mostly males—appeared, sang, peered into boxes, occasionally carried food, but failed to deliver it. On June 27, the adults returned without the young to the nesting boxes, but disappeared again after two days; on September 21, seven of the nine color-banded adults returned, singing, visiting boxes and copulating; there was some shifting of mates. An annotated bibliography is given.—M. M. NICE.

26. Observations on the Breeding Biology of Starlings at the Vogelwarte Rossitten in 1943. (Brutbiologische Beobachtungen an Staren 1943 in der Vogelwarte Rossitten.) E. Schüz. 1943. *Journal für Ornithologie*, 91: 388-405. Fourteen of 29 breeding birds were color-banded, six of them returns. An early spring brought on early nesting, the first young leaving June 2, most leaving three days later, and the adults returning June 11. The male at first claims several boxes, builds in them and sings near them; upon the arrival of a female he redoubles his singing and goes in and out of the boxes "showing" them. This practice led to one male's having two mates; he assisted in incubating both sets of eggs, but when the first young hatched, turned all his attention to that nest, leaving his other mate to raise her two young unaided. Copulation takes place upon the invitation of the female and occurs throughout incubation. Incubation lasts 16 days, fledging 20 to 22 days. During incubation mates relieve each other at about half hour intervals. Adults may bring insects to the nest a week before the eggs hatch; these are *not* given to the mate. Yearling Starlings (four of them banded) arrived May 12. An exceptional case of breeding of a year-old female occurred; she laid four eggs 26 days later than most of the birds; her mate's first mate had disappeared.—M. M. NICE.

27. Fertility and Mortality in the Nest of Swallows. E. J. M. Buxton. 1946. *British Birds*, 39: 73-76. In 1944, when a prisoner in Bavaria, the author kept track of the Barn Swallows, *Hirundo rustica rustica* L., nesting in the barracks, banding them with colored bands. The average number of eggs in 19 first brood nests was 4.00, the average number of chicks fledged 3.02; the average number of eggs laid in 17 second brood nests was 4.09 and the chicks fledged 3.36.

The "success" of the 113 eggs was 80.53 per cent. In Great Britain (Boyd, 1934, 1935) the average number of eggs in over 1,200 nests was 4.4, while "about 10 per cent of the eggs failed." Intervals between the fledging of the first and second broods ranged between 48 and 65 days, with a median of 55. In 15 cases the pairs remained together for the second brood; in the other two one bird of each pair was identified.—M. M. NICE.

28. Nesting Observations on the Tree Pipit in the Rominter Heide, East Prussia. (Brutbeobachtungen beim Baumpieper *(Anthus t. trivialis)* in der Rominter Heide, Ostpr.) Otto Steinfatt. 1941. *Journal für Ornithologie*, 89: 393-403. The Tree Pipit has increased since 1934 due to great insect injury to forests and their consequent opening up. Seven nests were found, all on the ground; one was observed from a blind for four full days. Two broods are raised. The male occasionally feeds his mate on the nest. On July 6, a warm and cloudy day, the female incubated 64 per cent of the 16 hour and 52 minute day; her periods on the nest ranged from 2 to 71 minutes, averaging 46; her 15 periods off ranged from 1 to 49 minutes, averaging 26.3. On the following day, also warm, she incubated 62 per cent of the 15 hour 5 minute day, her periods on the nest ranging from 26 to 98 minutes, averaging 50.6, while her 12 periods off ranged from 16 to 48 minutes, averaging 29. The four young hatched the 9th and 10th; on the 12th, which was rainy, the female brooded them 44 per cent of the time, her periods on averaging 13.5 minutes, her 33 periods off 16.6. The young were fed 41 times in the 16 hours and 20 minutes, an average of 2.4 times an hour; excreta were eaten by the female 19 times and carried off twice—an average of 1.2 times an hour. On the 17th the female fed the young 82 times, or 4.8 times an hour, and removed excreta 39 times or 2.3 times an hour. Apparently the male had come to his end, as ordinarily both parents feed the young.—M. M. NICE.

29. The Biology of the Many-colored Parakeet. (Zur Biologie des Vielfarbensittichs, *Psephotus varius.*) H. Hampe. 1941. *Journal für Ornithologie*, 89: 404-416. In these Australian Parakeets the pair is devoted to each other, the male being dominant; they are hostile to other parakeets during the nesting season. Young males raised by hand have offered food to other parakeets at the age of 71 and 79 days; an 11-month-old male courted the finger of the author. Incubation lasts 18-20 days, the female meanwhile receiving all her food from her mate. The young leave the nest at 30-36 days, first try to feed themselves at about two months and are fed by the parents until about 70 days. Data are given on voice, food, weights of young and old, development of young, molt, etc., with photographs and references to experiences of other observers and aviculturists.—M. M. NICE.

29A. The Biology of the Stanley Parakeet. (Zur Biologie des Stanleysittichs, *Platycercus icterotis.*) H. Hampe. 1942. *Journal für Ornithologie*, 90: 361-375. The same subjects are covered with the Stanley Parakeet as with the Many-colored. Incubation lasts 18 days, fledging 4½ weeks. Mates are less attached to each other than with many parakeets; the male is dominant in the pair. The caretaker is only a "food-counter" to them, not a social companion.—M. M. NICE.

30. The Half-collared Kingfisher *(Alcedo semitorquata)* at the Nest. R. E. Moreau. 1944. *Ostrich*, 15 (3): 17 pp. Very interesting study based on about 300 hours of observations on three broods at Amani, Tanganyika Territory. Charts are given showing behavior in incubation, brooding and feeding. "The parents shared the incubation about equally, sitting usually about one-two hours at a stretch. The eggs were uncovered less than 10 per cent of the time, e.g.,

one day only four minutes in eight hours." Each young bird seemed to be fed about its weight in fish each day. Each young was fed about 14 times in the 12-hour working day; the two broods of two each averaged slightly more per young than did the brood of four. Fledging takes about 27 days. The young fly well upon emerging and within four hours two young were practising diving. "There is good evidence that parents deliberately withheld food to stimulate emergence."—M. M. NICE.

31. The Recording of Incubation and Fledging Periods. R. E. Moreau. 1946. *British Birds,* 39: 66-70. The author suggests that incubation should be counted from the laying of the last egg and that a "spread" of at least a day should be allowed because of the impossibility of continuous observation, as 12 days ± 1. Instead of "fledging period," he suggests "nestling period," since so many young leave the nest before they are "fledged."—M. M. NICE.

32. The Yellow-eyed Penguin. *Camera Studies of New Zealand Birds; Ser. B, No. 6.* L. E. Richdale. 16 pp. 23 Skibo St., Kew, Dunedin, 3/6. A series of remarkable photographs of the life history of *Megadyptes antipodes* (Hombron and Jacquinot), several small colonies of which the author studied for ten years, using metal and colored bands. The 24 photographs and informative captions show activities of the adults summer and winter, as well as the development of the young. Unfortunately the numbers of these most interesting birds are dwindling; a plea is made for their protection.—M. M. NICE.

33. A Study of the Nesting Activities of the American Redstart. Louis Sturm. 1945. *Auk,* 62(2): 189-206. An intensive three-summer study of the nesting of *Setophaga ruticilla* on two limited areas of young second-growth deciduous woodland on South Bass Island, Lake Erie. Eighteen nests were found, 213 out of 250 hours of total observation being devoted to two nests. As in other Compsothlypidae males, Redstarts were observed to be persistent singers and to vigorously defend territory against other males during early stages of nesting, to take no part in nest building, incubation (but, unlike many warblers, the male occasionally fed the incubating female at the nest), or brooding, but to share with female the feeding of young (the male fed 7.6 and female 4.4 times per hour average for the day nestling period). Females were observed to aid in defending the territory (against both sexes), to construct nests in 2-3 days, and to incubate 2-4 (average 2.9) eggs for 12 days. Territories were surprisingly small ranging from 0.14 to 0.23 acres, perhaps correlated with a dense population in a sharply limited area of favorable habitat (Hickey, *Auk,* 57: 255, found Redstart territories to be about one acre, the smallest observed being 0.5 acre). Territory defense virtually ceased after the young hatched. Of total eggs laid 56 per cent hatched and 52 per cent fledged, a nesting success higher than Nice's average for passerines with open nests. Only three out of 29 males observed on the area wore the yellow and gray "immature" plumage although two other "immatures" held territory but failed to get mates. Special attention was paid to attentive-inattentive behavior at two nests. The length of periods showed but slight variation during the incubation period except that inattentiveness was greater during the first few days of incubation which began with laying of second egg. Attentive periods averaged 22.8 minutes and inattentive periods three minutes. A good study.—E. P. ODUM.

PHYSIOLOGY

34. Temperature and Growth Studies of the Northern Cliff Swallow. Dayton Stoner. 1945. *Auk,* 62(2): 207-216. General development, growth of flight feathers and development of temperature regulation of the Cliff Swallow

(as roughly indicated by body temperature measurements of nestlings taken immediately after removal from nest) closely parallels that of the Barn Swallow but lags about two days behind, with result that the nest life is 23-36 days,—2-5 days longer than in the latter species. As in other passerines the most rapid increase in weight and development of temperature regulation occurs early, the first 10 days in Cliff Swallow, while the most rapid development of feathers occurs later,—after the 10th day. Contour feathers reach full growth before flight feathers but growth of the latter is considerably accelerated during the final days in the nest. Growth of very young nestlings is sometimes variable due to erratic feeding by the parents which are more susceptible than other swallows to disturbances around the nest colony.—E. P. Odum.

BEHAVIOR

35. The Habits of the Hen Harrier. The Matter of Polygamy. (Moeurs de Busard Saint-Martin. Cas de polygamie.) Thomas Stals and Theo. Kiggen. 1945. *Le Gerfaut*, 35(3): 107-108. In May, 1944, the authors found two nests of *Circus cyaneus cyaneus* (L.), each with a female, about 50 meters apart. One nest had four eggs; the other had none. The male was observed to feed the female on the nest with eggs who flew some distance away to eat the prey. A quarter of an hour later the male returned with prey, chased the first female until she returned to the nest, and then took the prey to the second nest. The authors were convinced that there was but a single male with the two females.—D. S. F.

36. Ornithological Observations on the Hornsund Region on West Spitzbergen. (Ornithologische Beobachtungen aus dem Hornsund-Gebiet auf West Spitzbergen.) Max Tiedemann. 1943. *Journal für Ornithologie*, 91: 239-267. Experiences on summer expeditions in 1938 and 1939. Young Arctic Terns, *Sterna macrura* Naum., in loose colonies "froze" in or near their nests and were difficult to find for banding, but those in crowded colonies hurried away and plunged into a small stream from which they could be easily fished out. With feeding Glaucous Gulls, *Larus hyperboreus* Gunnerus, there was evidence of a definite "peck-order." When one of the party was banding nestlings on the edge of a cliff, a blow from a parent nearly tumbled him into the abyss. Observations are given on a number of species, particularly the Kittiwake, *Rissa tridactyla* (L.) and Parasitic Jaeger, *Stercorarius parasiticus* (L.).—M. M. Nice.

37. "Anting" of Starling. C. F. Tebbutt. 1946. *British Birds*, 39: 84. Anting with small yellow ants. The editor suggests that the functional significance may be "that the acid produced by the ants acts as a skin stimulant in a manner somewhat analogous to that of a dust-bath."—M. M. Nice.

38. A Nesting Study of the Eastern Song Sparrow. Alvin L. Throne. 1945. *Passenger Pigeon*, 7: 99-105. A nest of *Melospiza melodia* (Wils.) was found in July in a recently cut hayfield, and was exposed to full sunlight during most of the incubating and nestling periods. (In a letter Mr. Throne suggests that the nest might have been built before the grass was cut.) The unusual situation brought out unexpected behavior in the parents: "When the young were 3, 4, 5, and 7 days of age the sun was shining brightly and brooding was almost continuous." Over "half the time, on sunny days, both adults were brooding at the same time," one over the young, the other over its mate. "The upper bird after receiving the intense sun for several minutes would try to slip below the other one. Sometimes it would succeed and sometimes there would be a fight in which the female usually won out."—M. M. Nice.

39. Sexual Ambivalence in the White Stork. (Geschlechtliche Ambivalenz biem Weissen Storch.) E. Schüz. 1943. *Vogelzug*, 14: 134-137. *Ciconia ciconia* (L.) has been supposed to be an outstanding example of Lorenz' third type of pair formation—the Cichlid or Chromiden—where the sexes are not ambivalent and there is no dominance. The author noted eight times in 1943 a nine year old banded female Stork taking the male part in copulation. This bird nested for three years outside the author's window, in 1941 without offspring, 1942 with, in 1943 without. In each instance of reversed copulation the female had been nibbling the head of her mate that was lying in the nest, this nibbling normally being directed by a mother Stork towards three to four week old young. The male was apparently young and not fully developed sexually.—M. M. NICE.

40. Courtship Feeding in Thrushes and Warblers. B. W. Tucker. 1946. *British Birds*, 39: 88-89. Mentions occasional cases in the Mistle-Thrush, *Turdus viscivorus viscivorus* L., and Blackbird, *Turdus merula merula* L., also exceptional instances among the Sylviidae.—M. M. NICE.

41. Birds and Storms. The 1944 Hurricane in New England. Norman P. Hill. **Effects of a Tornado on Bird Life.** H. Elliott McClure. 1945. *Auk*, 62(3), 410-413; 414-418 (1 pl.). **Behavior of Birds during a Florida Hurricane.** George Miksch Sutton. 1945. *Auk*, 62(4), 603-606. Tornados and hurricanes are rather radically different types of storms and the three papers listed bring out some interesting contrasts as to their effects on birds. During a 78 mile per hour hurricane wind (with gusts reaching 108 m.p.h.) at Orlando, Sutton observed that birds were able to withstand the storm well, Mockingbirds, shrikes and other small birds seeking shelter in lee of limbs, trees, buildings, or at the base of thick shrubbery. Several Blue Jays even moved about during the storm. Larger water birds either sought shelter or were buffeted about and blown more or less helplessly in the direction of the winds. The fact that hurricanes blow many of the larger birds from their homes without killing them is further emphasized by Hill's report on hurricane winds in New England which brought numbers of Black Skimmers, shore birds, and gulls into unusual places. The skimmers must have been blown all the way from North Carolina and Virginia. In sharp contrast is the report of McClure's on the effect of a tornado which produces violent, very local winds of short duration. A tornado severe enough to heavily damage houses and trees (stripping them of their leaves) but causing no loss of human life practically exterminated the entire bird population in 100 acres within the small town of Portsmouth, Iowa. One thousand birds were estimated killed with Robins and Doves especially heavy sufferers. Only hole-nesting species and English Sparrows survived in appreciable numbers. One month later the stricken area was still nearly devoid of birds, only 53 being counted on 100 acres (other than English Sparrows) as compared with 1270 per 100 acres in a neighboring town.—E. P. ODUM.

FOOD HABITS

42. On Food and Daily Rhythms of Some Birds in the Arctic Winter. (Ueber Ernährung und Tagesrhythmus einiger Vögel im arktischen Winter.) J. Franz. 1943. *Journal für Ornithologie*, 91: 154-165. Two winters, 1941-43, were spent in Lapland, 67°N. In winter all species but Owls and Gallinae were active for 5-5½ hours; they fed in deep twilight as long as food was visible. The Gallinae were active for 4-4½ hours, and the Owls at all hours.—M. M. NICE.

SYSTEMATIC ORNITHOLOGY

43. Concerning Belgian Birds in the Third Volume of "Handbuch der Deutschen Vogelkunde" by G. Niethammer. (A propos des oiseaux de Belgique dans le volume III du "Handbuch der Deutschen Vogelkunde" de G. Niethammer.) Léon Lippens. 1944. *Le Gerfaut,* 34(1/2): 20-23. The author lists a number of errors and omissions dealing with information derived from birds banded in Belgium and geographic records from Belgium and Belgian Congo.—D. S. F.

44. Some Ornithological Questions and Discussion. (Quelques questions ornithologiques en discussion.) Ch. Dupond. 1945. *Le Gerfaut,* 35(3): 84-96. This is an interesting discussion, based on the opinions of many systematic ornithologists, concerning some of the more difficult problems of systematic ornithology in Europe. Among those discussed is that of the races of *Aegithalos caudatus* L. Concerning this problem Stresemann has proposed that *Aegithalos caudatus europeus* Hermann has been produced by the recent interbreeding of *Aegithalos caudatus caudatus* (L.) and *Aegithalos caudatus taiti* Ingram which were geologically separated for a considerable period. This interpretation has not received general acceptance. Also interesting is the observation that Russian ornithologists doubt that Holboell's Redpoll, *Acanthis flammea holboelii* (Brehm), can be regarded as a valid race whereas other ornithologists believe that *holboellii* should be accorded specific status. Also included are observations casting doubt on the validity of the races of the Green Woodpecker, *Picus viridis* L.—D. S. F.

45. First-winter Plumages in the Galliformes. George A. Petrides. 1945. *Auk,* 62(2), 223-227. The Galliformes are somewhat unique in that the post-juvenal molt of the wing is not complete in many species, the outer two juvenal primaries, and sometimes a number of greater primary coverts as well, being retained until the second autumn. Thus a possible criterion for age determination is provided in those species which retain juvenal feathers during the first year. American Quail retain two outer primaries and all coverts, American grouse and introduced Hungarian and Chukar Partridges the outer two primaries and their coverts, turkeys keep the primaries but no coverts, while the introduced Ring-necked Pheasant sheds all wing feathers during the post-juvenal molt. The difference in wing molt of pheasants and quail would support the 1931 A.O.U. Check-list arrangement of placing these groups in separate families, rather than the 1944 revision which puts them in the same family (and European quails and pheasants in the same sub-family). Study of museum specimens of species of non-North American families indicated that most have a grouse-type first winter plumage, but more data are needed.—E. P. Odum.

GEOGRAPHIC DISTRIBUTION

46. The Red Crested Pochard, *Netta rufina* (Pallas), a Breeding Bird in the Netherlands. (De Krooneend, *Netta rufina* (Pallas), broedvogel in Nederland.) K. H. Voous, Jr. 1943. *Ardea,* 32(1/2): 1-9. In the spring of 1942 this species was found breeding in the ponds at Botshol. These ponds are an extension of the large pond region of Vinkeveen and are brackish. There were at least three nests. In reviewing the distribution of this species the author points out that its principal breeding area is in western and central Asia including the Black, Caspian, and Aral seas. There are isolated breeding areas scattered through central and western Europe, and are suggested by the author as indicating a possible northward and westward expansion of the species. Most of the breeding places are in brackish or salt water; a few are in fresh-water ponds and

lakes. The author proposes that the Genus *Netta* originated in central Europe in Tertiary times; it probably inhabited cut off fresh-water sections of the brackish-water Samartian Sea. It was part of a tropical and subtropical avifauna containing also flamingos, pelicans, and ibises. With the encroachment of the cooler climate accompanying the glaciers it is suggested that *Netta rufina*, in the large part, moved southeastward into the Samartian Sea area of eastern Europe and western Asia. The Samartian Sea being cut off from the Mediterranean became brackish due to dilution by glacial water. Its isolation prevented it from becoming fresh. This area then became, and still remains, the principal breeding range of this species. It is a possibility that a small part of the original population retreated southward instead of eastward to the Samartian area. The author raises the possibility that the birds of western Europe are derived from this group and may be subspecifically distinct. He points out that it would be interesting to know whether the Dutch birds migrate eastward to the old Samartian region or migrate southward to the second proposed retreat since this would be an indication of their origin.—D. S. F.

47. A Small Breeding Colony of *Larus minutus* Pallas in the Netherlands in 1942. (Een kleine broedkolonie van *Larus minutus* Pall. in Nederland in 1942.) G. A. Brouwer and Fr. Haverschmidt. 1942. *Ardea*, 31(3/4): 157-174. This colony was discovered in 1942 in Friesland in the northern part of the Netherlands and represents the first well established case of the breeding of the species in that country. All other recorded breeding colonies in Europe (excluding Russia) are in Denmark or eastward in the countries adjoining the Baltic Sea. The Friesland colony was in an inland marsh with a dense vegetation of *Striatotes aloides* in company with Black Terns, *Chlidonias niger* (L.), and near a colony of *Larus ridibundus* L. A total of 15 breeding pairs of *minutus* were observed; these were in groups of 1, 2, 3, 3, and 6 pairs. In addition to the breeding birds the colony contained at least two immature non-breeding individuals. According to Schlegel *(De Vogels van Nederland*, 1854-1858, pp. 604-605), a few pairs breed at the mouth of the Elbe and on the Hook of Holland (". . . enkele paren . . . , aan den mond van de Elbe, en aan den Hoek van Holland."). There is considerable doubt concerning the authenticity of these records.—D. S. F.

48. New Nesting Records of the Black-Winged Stilt in Flanders. (Un nouveau cas de nidification de l'Echasse blanche, *Himantopus h. himantopus* (L.), en Flandre.) Léon Lippens. 1944. *Le Gerfaut*, 34(1/2): 11-14. The inundation of the polder areas in 1944 provided excellent habitats for this species which had been last recorded as nesting in Belgium in 1935. Including this, there are six previously recorded instances of the breeding of this species in Belgium. During the summer of 1944 the author found three nests.—D. S. F.

49. New Nesting Records of the Pintail in Belgium. (Le Canard pilet, *Anas acuta acuta* L., nicheur en Belgique.) Léon Lippens. 1944. *Le Gerfaut*, 34(1/2): 14-20. The author records three nesting pairs from flooded polders in 1944. This is the first unquestionable evidence of the nesting of this species in Belgium. There is a discussion and map concerning the breeding range and isolated breeding records of this species in western Europe.—D. S. F.

50. Notes on Birds of Northern Newfoundland and Labrador. Evarts G. Loomis. 1945. *Auk*, 62(2), 234-241. **Some New Records from Newfoundland.** Harold S. Peters and Thomas D. Burleigh. 1945. *Auk*, 62(4), 564-567. The birds of relatively little known Newfoundland and neighboring Labrador are the subjects of these two papers. Loomis lists with annotations all species observed while he was engaged in medical work for Grenfell Mission for five years, 1936-

1944. Numerous fall and winter observations are included. Peters and Burleigh list only additions to distributional information in 1931 A.O.U. Check-list, reserving the bulk of their observations for a later publication. Their records, some of which are included in Loomis' paper, are based on specimens taken during a cooperative governmental survey in the summers of 1942 and 1943.—E. P. ODUM.

51. Summer Birds of the Fremont National Forest, Oregon. Thomas H. McAllister, Jr., and David B. Marshall. 1945. *Auk*, 62(2), 177-189. Observations made incidental to Forest Service work during the summer of 1943 and presented in the form of an annotated list of 122 species are of more than local interest since they give us a picture of the summer avifauna of a region virtually undisturbed by man. Between 4000 and 8000 ft. elevation sage brush desert, yellow pine, yellow-pine-white fir, and white fir-lodgepole pine are the principal climax vegetation types with extensive marshes and aspen-willow stream borders providing variety.—E. P. ODUM.

BOOKS

52. Check-List of the Birds of the World. Volume V. James L. Peters. 1945. Harvard University Press, Cambridge, Massachusetts. 306 pp. $5.00. The fifth volume of this standard reference in systematic ornithology presents a carefully appraised arrangement of the Suborder Trochili (hummingbirds) of the Order Apodiformes as well as of the Orders Coliiformes (colies), Trogoniformes (trogons), and Coraciiformes (kingfishers, todies, motmots, rollers, hornbills, and bee-eaters). The arrangement of the major categories adheres strictly to that of Wetmore ("A systematic classification of the birds of the world," Smithsonian Miscellaneous Publications Vol. 99, No. 7, 1940) with the exception that the Leptosomatidae are listed first in the Suborder Coracii.

More than half of the volume is devoted to the hummingbirds, a group for which no completely satisfactory linear arrangement can be made. The system adopted is in general based on that of Simon ("Histoire naturelle des Trochilidae," Paris, 1921). Excepting changes in the listed order of species and genera there are four changes in nomenclature of the nineteen forms of hummingbirds given in the fourth edition of the A.O.U. Check-list (including the 19th supplement, *Auk*, 61(3): 441-464 and the 20th supplement, *Auk*, 62(3): 437-449). The Calliope Hummingbird, *Stellula calliope* (Gould) becomes *Stellula calliope calliope* because of the recognition of *Stellula calliope lowei* Griscom from the mountains of Guerrero in southern Mexico. *Eugenes fulgens aureoviridis* van Rossem, Rivoli's Hummingbird, becomes *Eugenes fulgens fulgens* (Swainson) by synonymy. *Amazalia salvini* (Brewster), Salvin's Hummingbird of which only two specimens are known, is regarded as a hybrid of *Amazalia violiceps conjuncta* Griscom and *Cyanthus latirostris*. The original spelling of the scientific name of Xantus's Hummingbird, *Hylocharis xantusii* (Lawrence), is restored. Compared to the 150 genera accepted by Simon, Mr. Peters recognizes 123 genera with eight subgenera. There are also introduced a number of changes as required by the rules of zoological nomenclature.

There are only two other changes which affect the area covered by the A.O.U. Check-list. The Coppery-tailed Trogon is represented by one subspecies, *Trogon elegans canescens* van Rossem, in Arizona and by another, *Trogon elegans ambiguus* Gould in extreme southern Texas. The Belted Kingfisher is returned to the genus *Ceryle*.

This volume provides another useful tool both for the taxonomist who will use it as a constant reference and also for ornithologists in general who will use it to standardize their nomenclature. It continues the concise, useful style and arrangement of the previous volumes.—D. S. F.

CORRESPONDENCE

To the Editor of BIRD-BANDING—

Dear Sir:

That many ornithological data are largely subjective, and interpretable only by those who have compiled them is an unfortunate fact. Terms such as "common," "abundant," etc. are often nearly meaningless, and common expressions of abundance, such as birds per acre, etc., are often not very helpful in time of migration, although they can be fairly exact in breeding bird censuses.

In order to clarify the problem, and possibly to work out some partial solution, I would appreciate any suggestions, ideas, or information regarding the methods of measurement of abundance of birds in a region and the variation in abundance with time. Any ideas on the mathematical ways of analyzing such data, whether of field sight records or bird banding, would also be of interest.

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