Accidental Trapping of a Pied-billed Grebe.—On September 17, 1952, a Pied-billed Grebe *(Podilymbus podiceps)* was discovered on the earth floor of an 18" x 20" wooden box, set 20" deep in the ground, and used to protect our water pipe connections from freezing. This Grebe was evidently from a migrating flock that passed over on the night of September 13; but how the bird ever landed in our yard, and why it should creep under the lid of the box (which was raised only about 3"), and drop into the nearly two-foot hole, is unanswerable.

The altitude here is approximately 2000 ft., and we are practically surrounded by higher mountains of the George Washington National Forest. We do not seem to be on the direct flyway of any of the migrants, but we do get some of the outer-edge stragglers. We have on two previous occasions picked up a dead Pied-billed Grebe in the yard that may have mistaken, in moonlight, the wet dew on the roofs for open water; but this could hardly explain the presence of the grebe we discovered in the box, for there was little, if any, moon on September 13.

Our dog seemed to know of its existence, and tried for three days to make us aware of the visitor by repeatedly going to the box and sniffing, but we assumed he was only fooling with the scent of a big toad that frequents the area of the back steps, and we paid no attention to the dog's actions. A peculiar noise, similar to that made by a bird batting against a window, was heard occasionally in the general location of the box, but it was not constant, and when one attempted to investigate it abruptly ceased.

On Wednesday morning (September 17—and three days after the noise was first heard), I again heard the sound and definitely located it as being *in* the sunken box. When I raised the lid to take out what I was sure would be Mr. Toad, I saw a Pied-billed Grebe sitting on the ground near the side of the box—apparently, with its beak, it had been using the wood as a sounding board. The bird made no effort to get away when I reached down and lifted it out, nor did it appear to be emaciated, or to have any injury.

Band No. 498878 was placed on its right leg, and when released in the water of our Alum Branch it dove and swam as if quite uninjured. The Branch has several good pools, and plenty of small fish, and the Grebe was seen in the water on September 18, and again on September 19, but not seen since that date.—Laura Bailey, Rockbridge Alum Springs Biological Laboratory, Route 2, Goshen, Va.

RECENT LITERATURE

BANDING

(See also Number 57)

1. The Göteborg Natural History Museum's Banding of Migratory Birds from 1949 to 1951. (Göteborgs Naturhistoriska Museums Ringmärkningar av Flyttfåglar under 1949-1951.) Viking Fontaine. 1952. Särtryck ur Göteborgs Musei Årstryck 1951-1952. 92 pp., 1 map. This detailed summary of banding operations in Sweden during 1949, 1950, and 1951 shows that 193 co-operators banded a total of 29,816 birds, but that the trend is regrettably downward, 13,405 in 1949, 10,507 in 1950, 5,904 in 1951, which we hope by now has been reversed. The grand totals of the Swedish program from its start in 1911 through 1951 are 233,895 birds of 222 species banded, from which 6,485 returns and recoveries of 142 species have been received. The raw data are given for the 958 returns and recoveries of 98 species received during the last three years. The publication of such data, making them available to any and all who may have use for them, is always desirable and welcome. Unfortunately most of these lack age and sex, which curtails their usefulness somewhat for many purposes.

Most of the records are "returns" in our restricted sense, retaken at or near the place of banding, but there are many interesting recoveries, most of them from continental Europe south of Sweden, in Denmark, Germany, Holland, Belgium, and France. A significantly large number are reported from the British Isles, some from as far south as the Iberian Peninsula, Italy, Arabia, and Africa, a few east to Poland and Czechoslovakia, but a lone Mallard is the only bird known to have reached nearby Russia. One wonders how this bird came to be reported,

for though the birds can cross the iron curtain, information concerning them evidently cannot. A Eurasian Teal *(Anas c. crecca)* taken in May 1951 bearing a numbered band inscribed "Moscva" is the only one of 14 foreign-banded birds recovered in Sweden during the period (the others came from England, Holland, and Denmark) for which complete banding details were not furnished. At least it is interesting to learn in this indirect way that the Russians are banding birds.

The following longevity records are tabulated on pp. 90-91: *Apus apus* 9 years 11 months; *Strix aluco* 10 y. 1 m.; *Circus aeruginosus* 11 y. 8 m.; *Accipiter nisus* 10 y. 1 m.; *Ardea cinerea* 16 y. 5 m.; *Colymbus stellatus* 23 y. 7 m.; *Columba palumbus* 11 y. 5 m.; *Sterna paradisaea* 17 y. 1 m.; *Larus ridibundus* 21 y. 6 m.; *Larus canus* 22 y. 10 m.—O. L. Austin, Jr.

2. Report on Bird-Ringing for 1951. A. Landsborough Thomson and E. P. Leach. 1952. *British Birds*, **45**(10): 341-351. This is Part 2 of the report reviewed in the January number of *Bird-Banding*. A Manx Shearwater, *Puffinus puffinus*, ringed at Skokholm, Wales, was recovered November 11 at Rio de Janeiro, Brazil. As to Sandwich Terns, *Sterna sandvicensis*, there are "15 further records from West Africa, as far as Angola, all in the northern winter. There is also one from Spain and one from France. A bird ringed as young on the Farne Islands was recovered in Aberdeenshire, 120 miles north, two months later." A Kittiwake, *Rissa tridactyla*, ringed as young at the Lundy Bird Observatory, July 10, 1950, was taken November 11, 1951, in Notre Dame Bay, Newfoundland.—M. M. Nice.

3. Results of Bird-Banding in Belgium in 1950. (Resultats du Baguage des Oiseaux en Belgique—Exercice 1950.) R. Verheyen. 1951. Le Gerfaut, **41**(3): 230-247. Lists the some 500 returns and recoveries from 76 species received in 1950 from birds banded in Belgium. No information is given on the numbers banded, a serious omission to those who may wish to analyze the data further. Birds taken within a radius of ten kilometers from the place of banding are listed as "sur place" (returns), and many of these are given only as lumped totals under each species ("so many taken in the region of birth between so many days and/or so many days and/or months after banding") which are of course of little value for statistical study without the detailed, individual records. The distance and direction from the place of banding are listed for all recoveries. Of interest for their longevity are a Redwing, *Turdus musicus*, banded at Anvers 13 December 1931 and recovered at Lot-et-Garonne, France, 4 October 1950; a Mallard, *Anas platyrhynchos*, banded at Bruges 28 February 1938 and recovered in Finland in September 1950; a Common Cormorant, *Phalacrocorax carbo*, banded as a nestling in May 1939 at Bruges and recovered at Nantes, France, in February 1950.—O. L. Austin, Jr.

4. Results of Bird-Banding in Belgium in 1951. (Resultats du Baguage des Oiseaux en Belgique—Exercice 1951.) R. Verleyen. 1952. Le Gerfaut, **42**(4): 306-328. Follows the pattern of the previous year's report (above) in listing approximately an equal number of returns and recoveries from 80 species in 1951. Among the more interesting: A Starling *(Sturnus vulgaris)* banded as a nestling 17 July 1942 in Flanders was found at the place of banding 5 June 1951; a Little Ringed Plover *(Charadrius dubius)* banded as a fledgling 5 July 1946 was recovered 59 kilometers away in Holland 5 April 1951; A Cormorant *(Phalacrocorax carbo)* banded in the nest 22 May 1939, was taken 73 kilometers distant in Holland 23 May 1951.—O. L. Austin, Jr.

5. Banding and Observations on Water Birds in the Zoute Region during 1951. (Baguage et Observation d'Oiseaux d'Eau dans la Region du Zoute (Knokke-sur-Mer) pendant l'Annee 1951.) L. Lippens. 1952. Le Gerfaut, **42**(4): 296-305 (with Flemish summary). Comments on the banding of 2,632 water birds at Zoute, on the Belgian coast near the Holland border. At the famous Meetkerke waterfowl decoy 917 ducks of 6 species were banded in February and April, July and August. In addition 1509 water birds of 34 species (mostly waders, and a few gulls, terns, herons, rails, and ducks) were netted from April through September, and 206 young birds of 9 species were caught and banded before they could fly. The more interesting retraps, returns, and recoveries are given for each

species, and short comments on their significance, largely as indicating stability and winter dispersion of local breeding species, and dates of passage, lengths of stay, and eventual destination of migrants.—O. L. Austin, Jr.

6. Danish Migrants in Belgium. (Les Oiseaux Migrateurs Danois en Belgique.) P. Skovgaard. 1951. Le Gerfaut, **41**(4): 284-287. More than 200,000 birds have been banded in Denmark through 1949, from which more than 12,000 returns have been received. This paper is a list of the 96 of these, from 25 species, which have been recovered in Belgium. No analysis of them is made, nor any comment on their significance.—O. L. Austin, Jr.

7. Planned Banding of Pied Flycatchers in Hessen. (Plandberingung des Trauerfliegenschnäppers *(Muscicapa hypoleuca)* in Hessen.) W. Trettau. 1952. *Die Vogelwarte*, **16**(3): 89-95. A four-year study in which all nesting adults were ringed while feeding young, and almost all the young were ringed. Of 299 young ringed, only one returned, a female, in contrast to 5.8 percent of young that returned in the author's study of this species in Silesia (1943). It is suggested that the great number of nest boxes put up in the forests from 1949 on may have been one reason for this very small return. Of 40 nesting females, 15 (37.5%) returned; of 37 males 13 (35.1%). Returning males nested from 50-850 meters from their former boxes, averaging 176 meters; returning females from 0-600 meters, averaging 143 meters. Twice pairs remated, but six times they did not, although both birds were present. The author did not find Pied Flycatchers driving out Titmice.—M. M. Nice.

8. Banding Results with German Peregrine Falcons and Hobbies. (Beringungs-Ergebnisse an deutschen Wanderfalken *(Falco peregrinus)* und Baumfalken *(F. subbuteo).*) F. Goethe and R. Kuhk. 1952. *Die Vogelwarte*, **16**(3): 104-108. Thirty-four recoveries of Peregrines are listed and shown on a chart divided according to age and distance from place of banding. Fall migration is chiefly to the southwest. One bird was found in the breeding season ten years after banding about 150 kilometers to the east; another was found in April three years after banding about 370 kilometers northeast. (Both of these were banded as nestlings.) The oldest record was of a bird 13 years and 10 months old. The oldest Hobby was found in the breeding season at the age of 12 years 200 kilometers from its birthplace.—M. M. Nice.

9. The Design, Construction and Operation of Helgoland Traps. H. G. Brownlow. 1952. *British Birds*, **45**(11): 387-399. Detailed descriptions with elaborate sketches showing the different traps, with instructions for making and operating them, as well as suggestions on the planting of cover.—M. M. Nice.

10. Bird Banding on Marion Island. R. W. Rand. 1952. *The Ostrich* **23**(2): 120-122. During the summer of 1951-52 142 adults and 23 young of eight species of oceanic birds were banded at Marion Island in the Indian Ocean (46°48'S, 37°45'E). "A series of rings was anodised and dyed red, green and black. This electrolytic process is to be highly recommended for sea-bird banding and aims at providing an anti-corrosive surface which minimises loss of ring by natural wear. As coloured dyes can also be anodised, rings may be provided with a semi-permanent colour useful in detailed nest-studies. Coloured anodised rings were used at certain marked nests *(Phoebetria fusca)* but the relative 'wearing value' of these rings could not be determined."—Ilustace H. Poor.

MIGRATION

(See also Numbers 5, 6, 7, 46)

11. Analysis of Unusual Bird Migration in North America During the Storm of April 4-7, 1947. W. W. H. Gunn and A. M. Crocker. 1951. *The Auk*, **68**(2): 139-163. A number of species of insectivorous birds, chiefly warblers

and vireos, were recorded April 4-7, 1947, along the southern Great Lakes; they arrived about three weeks earlier than the previous earliest spring dates. Also, a flight of warblers was noted in West Virginia April 3-6. The former flight, at least, may have originated in the lower Mississippi Valley. During April 5-7 an intense storm moved northeast across the continent, bringing with it high winds and, in its warm sector, tropical air from the Gulf of Mexico. It appears probable that many of the birds flew all or most of the distance to the Great Lakes in the cooler air mass which followed the warm sector. The West Virginia flight is not explained on the basis of this storm; it may have been related to a low pressure area which brought light southerly winds and mild temperatures to West Virginia on April 2. Since some early migration was taking place before the storm, perhaps unusual tropical or sub-tropical influences may have been operating before the birds reached the United States. Many observers contributed data that were used in this interesting paper.—Ralph S. Palmer.

12. Migrational Drift in Britain in Autumn 1951. Kenneth Williamson (Fair Isle Bird Observatory). 1952. *The Scottish Naturalist*, **64**(1): 1-18. This paper complements the discussion of the 1951 spring migration on the east coast of Britain which appeared in *British Birds*, **45**: 247-255, by Williamson et al. In brief, the theory of migrational drift is that species which breed in Scandinavia and winter in Africa do not intentionally take a route through the British Isles, with two sea-crossings, but prefer the route along the east side of the North Sea with no long crossings. However, easterly winds are so frequent during migration periods that very large numbers are in fact drifted westward to Great Britain, both spring and fall. Williamson believes that drifting before such a wind has a distinct advantage to the bird in a marked lengthening of its cruising range compared to an attempt to maintain the original course (quite apart from doubt as to the ability of night migrants to know the original course after a marked wind shift). Some data are included to show that a weight loss of 20% or more of the normal weight is not uncommon in North Sea crossings, without necessarily leaving the bird in acute distress. Casual or very rare species occurring at places like Fair Isle have often been considered abnormal or disoriented, but Williamson feels they are merely normal but extreme examples of birds voluntarily drifting before a strong easterly wind.

The migrational drift theory postulated for the North Sea area is of considerable interest when considered briefly in the light of the recent debate on whether migrants regularly cross the Gulf of Mexico in spring (see, for example, G. C. Williams, "Lowery on Trans-Gulf Migration," *The Auk*, **64**: 217-38, and earlier papers cited therein). Neither participant in that debate has contended that northwest or west winds are the cause for deflecting a stream of migrants across the middle of the Gulf: Lowery feels there is a regular and normal stream of spring migrants on that route and Williams doubts the existence of any sizeable spring movement on that route at all. However, the route involves a sea-crossing of 550 miles or more, between the Yucatan Peninsula and the Mississippi delta, roughly twice the crossing between Fair Isle and the southern tip of Norway, and somewhat comparable to the sea-crossings to Iceland or Greenland referred to by Williamson as used by larger species such as the *Turdidae*. If Williamson feels that choice of a migration route through Great Britain in travelling between Scandinavia and Africa is incompatible with our present knowledge of their rapid deterioration in physical condition during migratory flight (evidenced most obviously by loss of weight), then it would appear that birds would not deliberately choose the trans-Gulf route when a land route around the west end of the Gulf, or shorter sea-crossings around the east end, were available. The species which Lowery believes cross the middle of the Gulf are by no means limited to the larger passerines, and include many wood-warblers and others of the smallest passerines. Since this sea-crossing is roughly twice as long as that principally discussed by Williamson, it would not be unreasonable to expect a normal weight loss markedly greater than the 20% to 30% recorded by him. Data on the approximate weight loss which can be sustained by migrants in a sea-crossing are scanty; the weights recorded at Fair Isle are the mean of a number of individuals in apparent good health after making a specific crossing. It is doubtful that the indicated weight loss is a practical maximum that could be endured by the species. Undoubtedly

severe weather on sea-crossings reduces a good many individuals to a point of emaciation that impairs their ability to withstand the rigors of the remainder of the migration route, or to raise young during the following breeding season; these individuals are barely better physically than those which drop into the sea exhausted. However, if a weight loss of approximately 30% were the average maximum which an individual could be expected to survive while remaining in good health, the implication would be that only exceptionally strong individuals of the small passerines would survive a sea-crossing much longer than that from Fair Isle to the southern tip of Norway. The further implication would be that only a tiny percentage of such passerines attempting the trans-Gulf route would be successful, which is contrary to Lowery's belief that the route is successful despite some losses regularly and substantial losses in extreme bad weather.

It would seem that extensive weighing of small passerines at migration periods on both sides of the Gulf might be of material help in determining the precise extent and nature of trans-Gulf migration in spring; extensive data on such weights do not appear to be available at present. Fair Isle and other similar bird observatories on the North Sea are making steady progress on comparable studies in large part by studying each migrant trapped in detail. It is true that, for analyses of migration routes, weight data from migrants trapped at a station on a large continental mass would be of far less value, but very few American banders are making enough use of their opportunities for detailed studies.—E. Alexander Bergstrom.

13. The Problem of Orientation among Migratory Birds. (Le Probleme de l'Orientation chez les Oiseaux Migrateurs.) J. Spaepen, H. Fragniere, P. Dachy. 1952. *Le Gerfaut*, **42**(1-2): 49-59 (English and Flemish summaries). In order to test "whether homing success is due to visual memory, or to some special sense which guides the bird directly to its nesting place . . . nesting birds are sent on two occasions, following closely after each other, to a place of release completely unknown to them. If, on the second occasion, they return in a faster rate, or if more of the birds return within a shorter time, then visual memory must play the most important part."

In the first experiment five Alpine Swifts *(Apus melba)* were taken from Fribourg, Switzerland, and released near Antwerp, Belgium. Three of them returned to Fribourg after 1½ months, and a fourth after 2½ months. The authors believe these long absences "were probably due to too weak attachment to the nest [because] the experiment took place 1½ months before the normal date of egg-laying." No second transport and release was made as planned, but the authors hope to continue the experiment the following year.

In the second experiment six Common Swifts *(Apus apus)* were caught on their nests near Tournai, Belgium, and sent to London. "Four were observed at the nesting place within six days after release. One bird was already seen about four hours after its release, which gives an average speed of 60 km/h for the journey. Control at the nest was very much hindered because, during the absence of the birds, their broods were destroyed by garden-dormice. A second release of three swifts (two made the journey on the first occasion), gave no result, for the same reason (destruction of the broods). The experiment will be repeated this year."

Even if these interesting experiments are eventually carried out successfully as planned, it seems to me that the results cannot be conclusive unless the birds are released well beyond the normal range of the species. Otherwise in such highly migratory and far-flying species as swifts there can be no certainty that the individuals were not already familiar with the territory.—O. L. Austin, Jr.

14. The Ortolan Bunting as a Migratory Bird and as a Cage Bird. (De Ortolaan *(Emberiza hortulana* L.) als trek- en als kooivogel.) J. Spaepen. 1952. *Le Gerfaut*, **42**(3): 164-214. By extensive use of his own observations, Belgian banding records, and material from the literature the author has been able to enhance our rather meager knowledge of the migration of this species. Apparently the Ortolan Bunting migrates at rather high altitudes and primarily

during the night and early morning. In Belgium fall migration can be observed from early August to mid-September. Fall migration occurs by individuals or very small group. In spring migration may be observed in Belgium from mid-April to about 20 May. Males precede the females by eight to fourteen days. Spring migration is nocturnal but may continue into mid-afteroon. Males are not as heavy in spring migration as in fall. The Ortolan Buntings which migrate through Belgium winter in western Africa.—D. S. Farner.

15. Migration of *Turdus viscivorus* and Particulars of its Reproduction. (Migration de *Turdus viscivorus* et Particularités de sa Reproduction.) Noël Mayaud. 1952. *Alauda,* **20**(1): 31-38. Mistle Thrushes, *Turdus viscivorus,* which breed in land areas northwest of France, migrate through and winter in France. Twenty-four French recoveries of banded Mistle Thrushes were chiefly from birds banded as juvenals in north-west Germany, Holland, and Belgium, with a few banded in Scotland, England, and Sweden. Reports of ground-nesting are cited, as are breeding records which indicate that the breeding season may extend into August. Instances of Mistle-thrushes and Chaffinches, *Fringilla coelebs,* nesting in the same tree in some parts of France and in Corsica are reviewed.—L. R. Mewaldt.

FOOD HABITS

16. Report on the diet of the Long-eared Owl on Amrum. Nahrungsökologische Befunde an Amrumer Waldohreulen (Asio otus [L.]). H. Kumerloeve and H. Remmert 1952 *Ornithologische Mitteilungen* **4**(8) 169-172. Pellets collected under three nests on the island of Amrum were examined by counting the number of recognizable skulls. This study was made because the principal food of this owl elsewhere is the Wühlmaüse *(Microtus spp.)* which are absent from Amrum. From this study, it was concluded that the wood mouse *(Apodemus silvaticus)* constituted about 75% of the diet of this owl on Amrum, which compares with about 9% for true mice elsewhere. Birds constituted 20% of the vertebrate prey. Mollusks were found in two pellets and were considered to be "primary prey." The wooded interior of the island was used as the principal hunting ground, next were the dune areas and least were the marshes. Sparrows and house mice were taken in the villages.—R. O. Bender.

17. Observations on the Collection and Burial of Acorns by Jays in Hainault Forest. M. E. Chettleburgh. 1952. *British Birds,* **45**(10): 359-364. Very interesting paper. A small grove of oaks in Essex, the nesting territory in summer of two pairs of *Garrulus glandarius,* becomes the scene of intense activity of 35-40 birds in October; near the middle of the month they worked from sunrise till past sunset—ten hours a day. Each Jay collected three or four acorns at a time and flew three-quarters of a mile to bury them. The acorns were buried in small depressions or pushed under roots, then covered with dead leaves. The birds appear to remember where they have hidden them, as Jays in winter have been seen going directly to a spot and digging up an acorn with no evidence of random searching. These observations remind us of the hazelnut storing of the Thick-billed Nutcracker in Sweden (Swanberg, 1951, reviewed in Oct. 1952 *Bird-Banding,* p. 177).—M. M. Nice.

18. Food Availability as a Timing Factor in the Sexual Cycle of Birds. A. J. Marshall. 1951. *The Emu,* **50**(4): 267-282. After a detailed discussion of evidence from Australia and elsewhere, the main conclusion (p. 281) is that "a genetically-determined response to widely-varying factors has evolved in some species in a way that ultimately gears the sexual cycle so that the young will hatch at times when the environment contains abundant food on which they are traditionally fed." The importance of food supply in the origin and maintenance of bird movement, including migration, also is stressed. Bibliography of 61 titles.—Ralph S. Palmer.

NESTING

(See also Numbers 7, 15, 26, 28, 29, 30, 43, 56.)

19. Studies of Habitats, Territory, and Nests of the Eastern Goldfinch. W. P. Nickell. 1951. *The Auk*, **68**(4): 447-470. In a 17-year period the author obtained data on 264 nests of *Spinus tristis tristis* in Charlevoix and Oakland Counties, Michigan. Today swamp habitats contain most nests but the Goldfinch evidently has occupied other habitats since colonial times; also, introduced plants—Canada thistle and common dandelion—have become important as food and for nesting materials. This bird begins nesting later than any other species in Michigan. Nest sites and structure are described in much detail. Some unfinished nests are abandoned; this happens frequently to completed ones, but not to nests with young. Nests in winter sometimes are used for various purposes by other vertebrates; House Wrens, *Troglodytes aëdon*, used two nests as winter roosting shelters. An excellent series of nest pictures accompanies this article. Bibliography of 24 titles.—Ralph S. Palmer.

20. On the Breeding Biology of the Kentish Plover. (Zur Brutbiologie des seeregenpfeifers *(Charadrius a. alexandrinus* L.).) Herbert Zimmermann. 1951. Ornithologishche Mitteilungen **3**(12): 270-273. Observations of the courtship and nesting of this species were made on a sand flat between two dikes on the sea bird sanctuary of Hallig Norderoog. Some unusual details of the courtship are described, including the picking up and throwing to one side of numerous small stones and mussel shells. The clutch consisted of three eggs; incubation started with the last egg laid and lasted 29 days. Both birds incubated but there was no regularity in length or order of their sittings. Song birds and terns were driven away from the nest by direct attack; Oystercatchers were distracted by typical "broken wing" tactics. The first young hatched on June 22; the second on June 23; the third egg was abandoned. The second young hatched was smaller and weaker than the first. This family was observed until July 30. Both young were captured and banded.

The nesting of a second pair is also reported. The author removed the eggs from this nest to protect them from high water for 2-4 hours. When replaced, they were incubated within 15 minutes. This occurred three times. All three hatched, but the young were not captured for banding. The paper contains a good photograph of an adult Kentish Plover and another of one of the nests.—R. O. Bender.

21. Increase in Chimney Swallows. (Augmentation des Hirondelles de cheminée.) Louis Nicod. 1952. *Nos Oiseaux*, **21**(220): 168-170. Nesting success of the Swallow, *Hirundo rustica*, in the vicinity of Granges in the Canton of Vaud in Switzerland, was higher in 1950 and 1951 when meteorological conditions were favorable, than in two preceding years (1948 and 1949) when meteorological conditions were less favorable. The mean numbers of eggs per nest was 4.0 (40 nests) in 1948, 4.1 (32 nests) in 1949, 4.4 (42 nests) in 1950, and 4.6 (70 nests) in 1951. Percentages of eggs which hatched in each of the four years were 92.5, 91.0, 93.5, and 95.0 respectively. The numbers of nesting pairs in the colonies observed showed a substantial increase in 1951 over 1950. Seven Swallows banded as nestlings in 1950 returned and nested in the vicinity of Granges in 1951, whereas only one bird banded as a nestling the previous year returned to nest in each of 1948, 1949, and 1950.—L. R. Mewaldt.

22. Notes on the Biology and Reproduction of *Turdus v. viscivorus* L. 1758. (Notes sur la Biologie et la Reproduction de *Turdus v. viscivorus* L. 1758.) André Labitte. 1952. *Alauda*, **20**(1): 21-30. This is a summary of observations made upon the Mistle Thrush in the Department of Eure et Loir in France during 23 years prior to 1952. The wintering population, made up of migrant and resident birds, does not move about much during the cold months. Pair formation occurs in January and February, but nesting territories are not occupied until late February or early March. Both birds of the pair begin nest building between 10 March and 4 April. Records of first eggs laid were from 20 March to 5 April during the years 1928 to 1951.—L. R. Mewaldt.

23. Observations on the Development of Mobility in Young Common Gulls, *Larus canus* L., and Lesser Blackbacked Gulls, *L. fuscus* L. Jukka Koskimies. 1952. *Ornis Fennica,* **29**(3): 83-87. A field study in the Apskär Bird Preserve on the outer archipelago of Loviisa off the south coast of Finland. "On the day of hatching no young were recorded outside the nest bowl. Of the young one day old (14 cases) half were still in the nest bowl and all within a radius of 1.1 m. from the nest." The next day only two of 13 were still in the nest, the rest being within two meters (except for one at 5 meters). At three days the maximum distance was 10 meters, at five days 15 meters. After this the young *L. fuscus* were found at greater distances than were the *L. canus;* this greater mobility might have been due to ecological factors, i.e., the nests of the former were surrounded by less vegetation, were placed farther apart and farther from the water than were the nests of the latter.—M. M. Nice.

24. The Breeding of the Cardinal Woodpecker at Gatooma, Southern Rhodesia. Mrs. G. D. Attwell. 1952. *The Ostrich,* **23**(2): 88-91. Both sexes of a pair of Cardinal Woodpeckers, *Dendropicos fuscescens,* shared the two-week preparation of the nest cavity, the reported 10 to 12 day incubation of the two eggs, and the 27 day feeding of the young in the nest. The male was the last to feed the young in the evening, and spent the night in the cavity with the nestlings, while the female roosted elsewhere. Until the young had fledged the woodpeckers successfully defended their nest from invasion by a pair of Yellow-throated Sparrows, *Petronia superciliaris.*—Hustace H. Poor.

25. The Palatability of the Eggs of Birds. Hugh B. Cott. 1952. *Proceedings Zoological Society of London,* **122**(Part I): 1-54. Continuing experiments on the palatability of eggs to hedgehogs and man, 765 tests with eggs of 45 species were made with 11 captive-bred hooded Norwegian rats, *Rattus norvegicus.* "Rats are important natural enemies of the eggs of birds," especially on Procellariformes, Galliformes, Ralliformes and Charadriiformes. As to passerines, we assume that rats take their eggs, but, strangely enough, Dr. Cott could find but one actual instance, and that was published over 100 years ago! "Preferences and aversions shown by the rat for eggs of different species are found to correspond generally with those of the hedgehog and man," p. 51. With eggs arranged in a hierarchy from best to worst, examples of palatable are gulls, *Larus argentatus, L. fuscus, L. marinus, Rissa tridactyla,* domestic fowl, *Gallus gallus,* Gannet, *Sula bassana,* Razorbill, *Alca torda,* Lapwing, *Vanellus vanellus,* Coot, *Fulica atra,* terns, *Sterna macrura, S. hirundo.* Eggs rated as intermediate are Kestrel, *Falco tinnunculus,* Wood-Pigeon, *Columba palumbus,* Eider, *Somateria mollissima,* Buzzard, *Buteo buteo,* House Sparrow, *Passer domesticus,* and many other passerines. Among the distasteful are the Ringed Plover, *Charadrius h. hiaticula* and nine passerines including two British titmice and our House Wren, *Troglodytes a. aedon.*

Palatability showed no constant relation to color of yolk, to palatability of flesh of parent, to feeding habits of parent, nor to broad taxonomic divisions, "nevertheless, a trend towards nauseousness is recorded for passeriform species generally." Acceptibility of eggs was found to be correlated with large size of parent, social nesting, inaccessibility of nesting, as on cliffs and islands, and cryptic markings. "Broadly, the most palatable eggs are those of species the least subject to predatory attack; and the most distasteful eggs, those that are (otherwise) highly vulnerable." It is suggested that conspicuous markings on eggs constitute warning coloration. "Accessibility tends to be associated with the compensating attribute of nauseousness, which—if we accept the verdict of human tasters—is frequently apparent as a very bitter or inky flavour, with a pronounced bitter after-taste," p. 50.

Think of the wasted opportunities with the vast quantities of eggs taken by collectors during the last 150 years! Are strikingly-marked eggs evil-tasting? Do rats take the eggs of passerines? What about squirrels? This is a new field that should be tested on other avian species and in other countries.—M. M. Nice.

BEHAVIOR

(See also Numbers 17, 18, 20, 23, 24, 45, 50)

26. The Common Loon in Minnesota. Sigurd T. Olson and William H. Marshall. 1952. Minnesota Mus. Nat. Hist., Univ. of Minn., Occasional Papers No. 5, vi + 77 pp. It is always a pleasure to find a piece of avian research as well planned, ably carried out, and interestingly and lucidly presented as this small monograph on *Gavia immer*. Based on a Master's thesis and apparently written and published for semi-popular consumption, it is essentially a study of the loon population in the Knife Lake area of the Superior National Forest of northeastern Minnesota. The authors have combed the literature, and interpreted previously published findings on most aspects of the species' biology, behavior, and life history in the light of the senior author's extensive field experiences with the bird on its Minnesota breeding grounds. They have produced an authoritative summation of human knowledge of this interesting species in very readable form. The accounts of the loon's attitudes and activities, its flying, swimming, diving, and display, and above all the description and analysis of its intriguing calls, "the most widely recognized and least understood attribute of the loon," are particularly instructive and enjoyable.

Banders will be neither surprised nor disappointed to find no reference to the banding technique, for there is hardly a more difficult bird to trap alive and unharmed. Very few loons have ever been banded successfully, and practically no returns or recoveries are available. The senior author was able to catch and mark several downy young with airplane "dope" for temporary field identification, which allowed their movements to be followed for about three weeks before the marks wore off or disappeared with the molt of the first down.

The careful census made of the study area will be of value as the basis for future studies of the loon's population trends there. The close check of the nesting success of 42 pairs of loons in 1950 gave very interesting results. "The period of greatest brood mortality was the hatching period and the week immediately following . . . The early mortality is probably due at least in part to the following causes: predation, weakness of one of the chicks, and human interference." Of the theoretically possible production of 84 young by these 42 pairs, only 21 (25 percent) were raised to maturity, which the authors consider "quite low." At first glance this 75 percent mortality in the pre-flight stages does seem high, and possibly of critical importance in a species with the low reproductive potential of only two young per pair per year. Actually it is very little if any higher than the pre-flight mortality, figured on the basis of eggs laid, in the few other large precocial water birds for which comparable figures are available. In the absence of any evidence of the loon's decrease, the observed 25 percent survival rate of young apparently is sufficient to compensate for the annual adult mortality, and to maintain the breeding population at a safe level. As the loon is probably a long-lived bird with a comparatively low adult mortality rate, it should be able to withstand periodic nesting failures, for it is not as critically dependent for its survival on the maturation of each year's crop of young as are shorter-lived species with high annual mortality rates.—O. L. Austin, Jr.

27. Male Red-backed Shrike Begging Food from Female. K. E. L. Simmons. 1952. *British Birds*, **45**(10): 366. A pair of *Lanius collurio* with young not long out of the nest exhibited normal intruder-reactions in the presence of the observer. As he moved away the parents were near each other, the female with food in her bill. "The male then performed typical food-begging, soliciting the female, which did not respond, with quivering wings and open bill." Perhaps this behavior was in the nature of a displacement activity.—M. M. Nice.

28. Spotted Flycatchers Feeding Nestling Blackbirds. John Southern. 1952. *British Birds*, **45**(10): 366. A pair of *Muscicapa striata* built a nest in close proximity to one of a pair of *Turdus merula;* when the former nest contained eggs it was destroyed in a storm and the following day the Flycatchers were seen carrying butterflies to the week-old Blackbirds and "pushing them down their

throats. Whenever one of the adult Blackbirds attempted to enter the nest with food, it was viciously driven off by one or both of the Flycatchers. This behaviour continued until the young Blackbirds were fledged, when the adult Blackbirds took full control of their offspring, the Flycatchers completely disappearing." It is a pity that more details were not given of this strange situation.—M. M. Nice.

29. Three Robins Feeding One Brood. J. M. D. Harrison. 1952. *British Birds,* **45**(10): 368. A pair of *Erithacus rubecula* were assisted in feeding their young by a crippled adult Robin to which they showed no antagonism.—M. M. Nice.

30. Behavior of Male and Female Herring Gulls outside the Breeding Season. (Das Verhalten der männlichen und weiblichen Silbermöwen *(Larus a. argentatus* Pont.) ausserhalb der Brutzeit.) Rudolf Drost. 1952. *Die Vogelwarte,* **16**(3): 108-116. Exceptional opportunities were offered to the Vogelwarte Helgoland in Wilhelmshaven for observing color-banded Herring Gulls throughout the year within 100 meters of the chief office building, which is provided with 16 and 25-power telescopes and microphones that bring the voices of the gulls indoors. Adult Herring Gulls are in the "pairing mood" from October on, and young birds (in their fourth year) may start seeking partners as early as September 10. Detailed observations are given on four pairs on their territories, all of which raised young in 1951. ♂A died Sept. 9, 1951; in October an unbanded male became attached to ♀A, but in February he was driven off by her neighbor ♂C, that courted ♀A. In the meantime ♀C insisted on going through the ceremonies also, finishing by attacking ♀A and driving her off. ♂C did not remain neutral, but attacked his former mate and remained with ♀A on her territory. On Mar. 24 ♀C got a new mate, one of a pair that had settled near; she had driven off his former mate. The Bs nested together each year from 1948 to 1952, despite "flirtations" in October and November between ♀B and a strange male, and in February between ♂B and a strange female. On the fourth territory ♂D was still feeding young Oct. 31, 1951, but in February he went through pair-formation displays with two strange females and also ♀D, finally mating with an unbanded bird, ♀D staying on the territory and eventually getting a new mate. Although permanent mating appears to be the rule, this does not prevent flirtations in winter and, on occasion, divorces. The different steps in the process of pair-formation are described. A very interesting paper showing the great value of continuous, detailed observation on individually marked birds.—M. M. Nice.

31. The Nature of the Predator-Reactions of Breeding Birds. K. E. L. Simmons. 1952. *Behaviour,* **4**(3): 161-171. "Predator-reaction" is used to "include all the activities (attack, threat and distraction displays, direct displacement-activities and intention-movements, fleeing, *etc.*) performed by a bird in response to the presence of a potential predator." The author agrees with Tinbergen that distraction displays might be a result of the simultaneous activation of the aggressive and escape drives. Although Jourdain (1936-37) considered that birds have little fear of man, Simmons thinks that with Palearctic birds "man is the most 'terrifying' predator." He describes many different predator-reactions of many different species and gives three photographs and four sketches.—M. M. Nice.

32. Observations on a Tame Grey-winged Trumpeter. (Beobachtungen an einem frei gehaltenen Trompetervogel *Psophia crepitans.)* Fr. Haverschmidt. 1952. *Die Vogelwelt,* **73**(5): 168-171. Interesting description, illustrated with four photographs, of the behavior of this bird about which very little is known in the wild. This Trumpeter tried to attach itself to any human being who came near. It performed what seemed to be a courtship display towards women, and a different display towards the author which consisted in turning its back to show its grey upper coverts. It bathed with only one wing at a time. When a second Trumpeter was introduced, the first attacked it so vigorously that it departed. The bird had full freedom, yet never wandered more than 20 meters from the house, until one day when it must have followed coffee-pickers off and was never seen again.—M. M. Nice.

33. Observations on the Behavior of Young Barn, Little and Tawny Owls in Captivity. (Beiträge zur Kenntnis der Verhaltensweisen junger Eulenvögel in Gefangenschaft: (Schleiereule *Tyto alba*, Steinkauz *Athene noctua* und Waldkauz *Strix aluco aluco*).) Hans Hubl. 1952. *Zeitschrift fur Tierpsychologie*, **9**(1): 102-119. Description of hunting play of very young Barn Owls and the definite chain of actions in killing and swallowing prey. The Little Owl also killed prey early, but the Tawny Owls never killed any prey before they were fledged, and only one of the four birds ever became able to do so. When cats and mounted birds of prey were presented, the Barn Owls attacked them, the Little Owl crouched motionless, while the Tawny Owls were indifferent. Barn Owls taken very early from the nest attacked adult Barn Owls. Within the family the older young protected the smaller young. Barn Owls and the Little Owl showed a strong bond to particular places, something not true of the Tawny Owls. The first two species hoarded food, while the third did not. Optical fixation was effected in the Barn and Tawny Owls by horizontal movements, in the Little Owl by vertical movement. Young Tawny Owls placed in a cage in the garden of the Zoological Institute of Würzburg were fed by no less than four adult Tawny Owls (none of which could have been their parents), mostly with small birds and only 20 percent of rodents. This is a sample of the many interesting observations presented.—M. M. Nice.

PHYSIOLOGY

(See also Numbers 12, 25)

34. Reactions of Poor-wills to Light and Temperature. Joseph Brauner. 1952. *The Condor*, **54**(3): 152-159. Field observations on the period of activity of the Poor-Will, *Phalaenoptilus nuttallii* were made on the south side of the Santa Monica Mountains, Los Angeles County, California. Onset of activity at dusk and cessation at dawn coincided with a light intensity usually lower than one foot-candle. Durations of 33 periods of activity varied from 3 to 192 minutes with a mean of 32 minutes. Longer periods of activity apparently occurred when food was less plentiful and when the moon was full. Nineteen records of cloacal temperatures taken from freshly collected Poor-wills ranged from 40.6° to 43.1°C. without apparent relation to environmental temperature. The diurnal temperature curve of a captive female Poor-will showed two high (dawn and dusk) and two low points differing from nocturnal and daylight birds which show only one of each during any 24-hour period. Use of a constant temperature chamber demonstrated that neither exposure to cold during daylight, nor shortened days with or without reduced temperatures, nor reduced diet caused torpidity in the captive bird. Ten readings of cloacal temperatures of three-day to twelve-day old Poor-will chicks in the nest ranged from 20.3° to 37.3°C., and demonstrated semi-poikilothermy.—L. R. Mewaldt.

35. A Preliminary Study of the Avian Adrenal. F. A. Hartman and R. P. Albertin. 1951. *The Auk*, **68**(2): 202-209. The authors have examined the adrenals of more than 400 species (not listed), half being tropical. This short paper deals briefly with gross anatomy and histology. In most, but not all, species examined the adrenals are separate (paired). They differ greatly in shape from species to species and vary within a species. Color may be cream, yellow, or orange, sometimes pink, gray, or reddish brown. The interrenal cells in some species in the suborder Pelecani "are the largest of any vertebrate observed thus far, . . ." (p. 209). Bibliography of 10 titles.—Ralph S. Palmer.

36. Pigment Variations and Their Correlates in Birds. Fanny L. and Clyde E. Keeler. 1951. *The Auk*, **68**(1): 80-85. Study of a sampling of published observations on mutations in birds indicates that some of the mutants exhibit correlates in morphological, physiological, and behaviorial characteristics. In many cases pigment variations from the 'normal' are associated with 'weakness' of one sort or another—for example: albino Collared Doves *Streptopeleia roseogrisea* have deficient vision, do not fly well, and are less active than 'normal' individuals.—Ralph S. Palmer.

PSYCHOLOGY

(See also Number 50)

37. On the Ability of Parrots to Distinguish Un-named Numbers. (Ueber das Unterscheidungsvermögen unbenaanter Anzahlen bei Papageien.) Hildegard Braun. 1952. *Zeitschrift für Tierpsychologie,* **9**(1): 40-91. A long and detailed report by one of Otto Koehler's students on carefully controlled experiments with two Amazon and one Gray Parrot. The birds learned by simultaneous presentation to pick up a particular number of pieces of food up to 6 and 7, and by successive presentation up to 5 and 6. The Gray Parrot could also act upon auditory signals, after 3 sounds picking up 3 pieces of food, and after 4 sounds picking up 4. Very brilliant research.—M. M. Nice.

38. Familial Recognition in Domestic Birds. O. A. Ramsay. 1951. *The Auk,* **68**(1): 1-16. Several species were studied experimentally, using various techniques (transferring individuals from group to group, dyeing young birds, use of vocal cues, substituting inanimate objects for parent), and it seemed "probable that in several species of birds both the adults and young largely acquire, rather than inherit, the ability to recognize other members of the family to which they belong using color, voice, size and form as cues" (p. 16).—Ralph S. Palmer.

POPULATION DYNAMICS

(See also Numbers 26, 47)

39. Investigations of Methods of Appraising the Abundance of Mourning Doves. 1952. Special Scientific Report: Wildlife, No. 17. U. S. Dept. of the Interior, Fish and Wildlife Service, Washington, D. C. 53 pp., 7 maps, 32 graphs, multilithographed. This report is an admirable example of cooperation between many persons and agencies in a single research project. It is divided into five sections, each by a different author or authors, representing state universities, state fish and game authorities, and the federal Fish and Wildlife Service. Here are described the methods used "to determine essential population phenomena with the objective of improved hunting regulations for the Mourning Dove," as Leonard E. Foote of the Wildlife Management Institute and Harold S. Peters of the U. S. Fish and Wildlife Service explain in their introduction.

Perhaps the word "interim" or "progress report" should have entered in the title, for the project is apparently not completed and to be continued. Results thus far, other than trials of counting methods, show that Mourning Doves in both the northern part of their range (in New York, Pennsylvania, Ohio, and Wisconsin) and in the southern (Georgia and Tennessee) are heard calling from late March or early April through August, after which few are heard anywhere. The greatest number call early in May and again in early June.

Two, or perhaps three, ways of counting Mourning Doves are discussed. The first is called "spot-mapping" ("absolute count" appears to be the same). Individual birds are located by voice, identified with a glass in the territories they are presumably occupying, and plotted on a map. Because this method is found to be too time-consuming to be practical, "call counts" and "road counts" and combinations of these have been used during 1950 and 1951. The former is simply a count of the number of "coos" heard at designated places and times. The second is a count of the number of birds seen along a measured road, apparently without regard to time, for in practice it is often done by mail carriers in cars. As a rule the investigators used a combination of these methods for this report. By this technique one or more men make a 20-mile circuit in a car, stop for three minutes every mile of the way to listen for calls, and count the birds both seen and heard.

In only two of these surveys is "spot mapping" (clearly the most painstaking and reliable method) used, so that the figures available to show "a significant relationship (probably curvilinear) between calling rate and numbers of individuals calling," as Foote and Peters state, are somewhat limited. In Georgia four

pairs were mapped in a tract of 100 acres; by the "call method" one to four doves were counted in the same territory. In Tennessee the "call counters" recorded from 22 to 41 percent of the birds that had been mapped.

All these methods are particularly vulnerable to human error and, as Clayton Kerley points out in his report of the Tennessee project, ". . . lack of acuity of hearing may also explain the blank stations . . .".

The matter of habitat in different parts of the country and at different seasons further complicates the problem, for the environmental factor does not lend itself to accurate analysis. Duvall and Robbins found suburban residential areas better hunting ground than abandoned apple orchards in the eastern states, but that cemeteries are even better. Frederick H. Wagner found that the best place to look for the birds in Wisconsin was near streams or in sandy country. No doubt each of these experienced men selected the most suitable territory in his particular part of the country. As these are not strictly comparable, they introduce the sort of factor that might affect the figures, and upon which statistical theories often totter.

No doubt much time is required to obtain sufficient data from banding operations, but the results therefrom would appear to be less liable to human frailty, and the cost in time and labor considerably less, than by the experimental methods outlined in this report.—James C. Greenway, Jr.

40. Analyses of the Results of Banding Nestling Thrushes in Belgium. (Interprétation des résultats du baguage au nid de nos Grives *(Turdus)* indigènes.) R. Verheyen and G. le Grelle. 1951. *Le Gerfaut,* **41**(4): 271-280. In this paper the authors have analyzed the records of thrushes banded as nestlings and recovered at least two months after banding. It does not appear that these data have been corrected for the smaller chance of recovery of older birds either by weighting or by exclusion of records of birds banded beyond a prescribed date. However, it does appear that the data have been collected over a substantially long period so that the error introduced in this manner is perhaps not appreciable. The series of 276 records for the European Blackbird, *Turdus merula,* contains 60 percent first-year recoveries. This is quite similar to the 54 percent first-year recoveries obtained by Lack *(British Birds,* 39: 258-264. 1946.) for a series beginning with the first August 1 of life. However, the data of Verheyen and le Grelle appear to indicate an adult mortality rate of approximately 60 percent whereas as the data of Lack suggest only about 40 percent. The similar series of 164 recoveries of Song Thrushes, *Turdus ericetorum,* contains about 70 percent first-year recoveries which is substantially higher than the 53 percent found by Lack *(Loc. cit.)* for a similar series beginning the first August 1 of life in Britain. However, the apparent adult mortality rate for the Belgian series is about 50 percent which is similar to that obtained by Lack. The series of recoveries of Mistle Thrushes, *Turdus viscivorus,* contains only 79 records of which 60 are first-year recoveries beginning two months after banding date. In general the authors appear to be able to rationalize the data on these three species with the available information on reproduction.—D. S. Farner.

41. Analysis of Belgian Banding Data on the Common Heron, Lapwing, and Black-headed Gull. (Interprétation des résultats de baguage relatifs au Héron cendré *(Ardea cinerea),* au Vanneau *(Vanellus vanellus)* et à la Mouette rieuse *(Larus ridibundus).*) R. Verheyen and G. le Grelle. 1952. *Le Gerfaut,* **42**(3): 214-222. As in the authors' earlier analysis of banding data on thrushes I am unable to find any indication of a correction for the smaller chance of recovery of older birds. However, since the series obviously extends over a considerable period, the error introduced is probably of a minor order and the results are doubtless reasonably comparable with other studies on these species.

The series of recoveries of Lapwings includes 86 records of individuals which survived the first July 1 of life. Of these, 15 died after the first reproductive period (first spring after hatching), 7 after the second, and 4 after the third; 33 percent of the young which survive the first July 1 actually attain breeding age. This series appears to indicate an annual mortality greater than the 40 percent suggested by Kraak, Rinkel, and Hoorgerheide *(Ardea,* 29: 151-175. 1940.) for the Dutch population of the same species. The Belgian data suggest to the

authors that the population is in a somewhat precarious situation with respect to its ability to replace the annual losses. This is attributed primarily to hunting pressure, since the population increased during the war when fire arms were prohibited.

The series of data on the Common Heron consists of the records of 247 individuals which survived the first July 1 of life. Presuming breeding to occur during the first spring, 22 percent of the young which survive the first July 1 survive to become breeding birds. In my opinion this sample is probably biased because of the greater susceptibility of first-year birds to shooting, and possibly also because of the failure to correct for the smaller chance of recovery of older birds. It should be pointed out that the mortality pattern is remarkably similar to that obtained by Lack's *(British Birds,* **42**: 74-79. 1949.) analyses of the data on the British population of this species, and apparently similar to Bourlière's *(L'Oiseau et la Revue Francaise d'Ornithologie,* **17**: 178-185. 1947.) series from France. Lack noted that his series could not be rationalized with known productivity and concluded that his sample was biased with respect to first-year birds. Verheyen and le Grelle have noted a similar discrepancy in their calculations but feel that the Belgian colonies are maintained by immigration from other colonies. It seems quite possible that both suggestions may be correct.

The data on the Black-headed Gull consist of the records of 123 individuals presumably surviving the first July 1 of life. Of these 97 were found dead before the following May 1 and therefore failed to attain the *minimum* breeding age; however, apparently the majority of individuals do not breed until the second spring after hatching. Obviously there is a great discrepancy between the mortality indicated by this series and the reproductive ability of the species. This is a situation similar to that described by Lack *(British Birds,* **36**: 214-221. 1943.) for a British sample. Lack's interpretation was that of a biased sample whereas Verheyen and le Grelle are inclined to feel that the Belgian colonies are maintained by large immigrations of breeding individuals from elsewhere.—D. S. Farner.

42. A Census of the Gannet *(Sula serrator)* in New Zealand. C. A. Fleming and K. A. Wodzicki. 1952. *Notornis* **5**(2): 39-78. During the 1946-47 breeding season the authors and cooperating observers visited or aerially photographed most of the 32 known gannetries in New Zealand waters. Direct counts of individual nests, extrapolation of sample area counts, and examination of photographs were used to estimate the population of the various colonies. Unfortunately, yearly and seasonal fluctuations, and the similarity between year-old birds and adults, added to the uncertainties inherent in any bird census.

Each of the former or existing breeding locations in New Zealand is discussed in detail, and many are illustrated in photographs. The authors estimate the total population as between 18,000 and 24,000 pairs, probably somewhat more than 21,000. (An additional 4,000 individuals breed in Australian waters.) Records are inadequate to give a good historical picture of population trends, except for scattered colonies, but the authors conclude that the gannets have increased in the last century. A map and table locate all New Zealand colonies, list their populations, and summarize their histories.

The breeding range of the species lies between the parallels 34° and 47° S. latitude and the meridians 141° and 178° E. longitude. All but a handful of the New Zealand birds breed along the sub-tropical coast of North Island north of the 40° parallel. Most of the gannetries are deserted during the winter season when the birds are at sea, but a few serve as winter roosts. There is little evidence of a regular northward migration. Egg laying starts in August, and most nests are filled by late November, but a few eggs (mostly replacements) are laid as late as February. Only the earliest hatched of the young birds leave their nest sites as early as January. Birds in "immature" plumage are not seen at gannetries in the spring, but their true status is obscured by the uncertainty as to when adult plumage is assumed.

At the conclusion of this thorough and excellent paper the authors offer suggestions for future study of the species.—Hustace H. Poor.

43. The 1952 Bluebird Population in Warner Parks. Amelia Laskey. 1952. Migrant, **23**(3): 50. The population of *Sialia sialis* in these parks near

Nashville, Tenn., reached normal again after a low following severe winter weather in 1951. This increase appears to be due to an influx of birds from outside areas, since only 12 percent of the breeding females captured had been previously banded, in contrast to 21 to 57 percent in earlier years. During the first nesting period, of 194 eggs laid, 142 hatched and 130 young were fledged, 67 percent of success. In the second period, of 164 eggs laid, 89 hatched and 47 young matured, 29 percent of success. In the third nesting season 100 eggs were laid, 52 hatched and 21 young fledged, 21 percent of success. "In 13 nests, I found unhatched fertile clutches of eggs or dead nestlings." The large percentage of failures during the latter part of the season seemed "directly attributable to the excessive heat and severe drouth that prevailed through June and July," with only 2 inches of rainfall and temperatures from 90° to 106° or 107°F. on 55 days. For the entire season of 1952 the Bluebirds laid 458 eggs, of which 283 hatched and 198 young fledged, 43 percent of success.—M. M. Nice.

LONGEVITY

(See also Numbers 1, 3, 4, 8)

44. Buzzards of 19 and nearly 24 years. (Mäusebussarde *(Buteo b. buteo)* von 19 und fast 24 Jahren.) R. Kuhk. 1952. *Die Vogelwarte,* **16**(3): 123. Until now the oldest Buzzards recorded have been 14, 15½ and 17 years old. A fully adult individual was ringed Dec. 8, 1932, in Germany and caught and released 35 kilometers from the place of ringing Mar. 24, 1952. Another, ringed at the age of 3 weeks June 1, 1927, was killed Mar. 21, 1951.—M. M. Nice.

FAUNISTICS

(See also Numbers 42, 58, 59, 60)

45. The Story of the Scrub-birds. A. H. Chisholm. 1951. *The Emu,* **51**(2): 89-112; (3): 285-297. Generally placed in the Passeriformes, Suborder Menurae, is the Family Atrichornithidae—containing two small, almost flightless, speedy, ventriloquistic, and mimetic species. They travel almost mouse-like on the forest floor and are known to run into hollow logs. One species, *Atrichornis clamosus,* known only from a small area in Western Australia, has not been observed in over 60 years. The other, *A. rufescens,* is known from a portion of eastern New South Wales and Queensland. Chisholm discusses the classification of these birds and indicates that their origin and affinities still are enigmas. The recorded history of each species is summarized. The type locality of *rufescens* is determined. There is a section on general habits of this species. It is "suggested that although the western species may be approaching extinction, if not already extinct, the eastern species may be saved through the medium of national parks. It is thought, however, that with some terrestrial birds 'temperament,' as well as extrinsic factors, is a handicap to survival" (p. 293). There are interesting photographs of habitat, nest-sites, and nests. A lengthy bibliography lists the available published and manuscript references on these birds.—Ralph S. Palmer.

46. Arctic Terns in the Subantartic. M. C. Downes. 1952. *The Emu,* **52**(4): 306-310. Close similarity among such terns as *Sterna macrura* [*paradisaea* of A. O. U. Check-list], *vittata, hirundo, striata,* and *dougallii* has delayed obtaining more precise knowledge of the Arctic Tern *(macrura)*. The confusion is mainly with *vittata.* The two species are compared in detail and there are diagrams showing a difference in their flight patterns. A short list of the more southerly occurrences of the Arctic Tern is given.—Ralph S. Palmer.

47. Removal and Repopulation of Breeding Birds in a Spruce-Fir Forest Community. R. E. Stewart and J. W. Aldrich. 1951. *The Auk,* **68**(4):

471-482. **Further Data on Removal and Repopulation of the Breeding Birds in a Spruce-Fir Forest Community.** M. Max Hensley and James B. Cope. *Ibid.*, 483-493. Data were obtained "in connection with investigations of the effective control by breeding birds of an infestation of the spruce budworm, *Choristoneura fumiferana* Clem." (The entomological aspects are published elsewhere.) A square 40-acre experimental and a rectangular 30-acre control area, 1.25 miles apart, were studied in June and July, 1949, near Cross Lake, Aroostook County, Maine.

The first paper reports the 1949 findings. The number of territorial males was 148 in the period June 6-14; birds were removed by shooting "June 15 to July 8 inclusive, with the intention of reducing the population to and keeping it at as low a level as possible" (p. 479). The "number of territorial males was reduced to approximately 19 percent of the original by June 24. Continued collecting coupled with a steady influx of new birds maintained this low level until July 8. A total of 455 birds (420 adults and 35 young) were removed from the area during the entire collecting period" (pp. 480-481). Tables show, by species (mostly passerines), numbers present in the pre-collecting period, numbers collected, and their sex. The importance of habitat niches was "indicated by the fact that most of the new arrivals established themselves in the *same* places that had been occupied by former residents of the *same* species" (p. 481; reviewers' italics.) Possible explanations of the influx are discussed.

The second paper reports on repetition of the study in 1950. The populations in the pre-collecting period in both years were remarkably similar—148 and 154 pairs. By shooting, "the population was reduced to 21 percent by June 21, 1950, and held at this level by continuous collection of new arrivals until July 11, 1950. A total of 528 adult birds was collected, 108 more than during the previous year" (p. 492). "A rapid influx of new males and the establishment of the same territories as used by their predecessors were very much in evidence" (ibid.). The details are discussed.—Ralph S. Palmer.

48. Birds of the State College Region, Pennsylvania. Merrill Wood. The Pennsylvania State College of Agriculture, Agricultural Experiment Station, State College, Pennsylvania, Bulletin 558. August, 1952. Pages 1-36. This is a carefully worked out distributional study of a limited area with records dating as far back as 1858. Intended for the use of local bird watchers, considerable attention is given to the local geography and topography. Forests, woods, streams, ponds, swamps, mountains and valleys are described in detail. Illustrative maps aid the directions for finding the more favored points of observation. The list itself, based primarily on sight records with only 121 species out of the 244 species recorded actually supported by specimens taken, is outstandingly notable for its freedom from extreme rarities or records which might be subject to question. The shortness of the hypothetical list again emphasizes the approach. It is evident that the author has shown scrupulous and painstaking carefulness.—Wendell Taber.

49. Sharptails into the Shadows?. Frederick and Frances Hamerstrom and Oswald E. Mattson. 1952. Wisconsin Wildlife No. 1. Wisconsin Conservation Department, Madison 2, Wis. 35 pp. The Wisconsin Department of Conservation is to be congratulated on this attractive bulletin with its striking sketches by Charles Schwartz and excellent photographs of habitats; its vivid account of Sharptail booming grounds, and its fine presentation of its theme based on the firm foundation of years of study of *Pedioecetes phasianellus* in the field. The two main types of Sharptail habitat are "wild lands removed from farming practices" and "the transition zone between farmland and forest." "A mature agriculture is as unsuitable for sharptails as a mature forest." The prevention of fire, the flooding or drying up of bogs and marshes, and reforestation, all these are crowding out these fine grouse. The authors have many good suggestions as to how land may be managed for Sharptails and also be tied in with other land uses. But it must be done soon, or it will be too late. "In the long run, a rich and varied landscape is the healthiest landscape for all forms of wildlife—and for people as well."—M. M. Nice.

SONG

(See also Number 26)

50. The Function of Vocal Mimicry in Birds. A. J. Marshall. 1950. *The Emu*, **50**(1): 5-15. This is a summarizing paper, although it deals mainly with Australian birds, of which 53 species have been reported as mimetic. "In the two [mimetic] species in which the sexual cycle has been examined histologically the practice of vocal mimicry runs parallel with seasonal changes in the gonads" (p. 14). That is, mimicry is most frequent in seasons when song is most frequent. "There is biological value in mimicry *per se* in that some species do not inherit their characteristic calls but must learn them from others of their kind" (p. 15). "Some species inhabiting places where visibility is restricted achieve this end [make more and more sound in order that territorial rivals and members of the opposite sex will be constantly aware of their presence] by repetition of their own calls. Others achieve a greater volume by supplementing their 'natural' notes with a 'borrowed' repertoire. The inherent capacity for mimicry confers a selective value in heavily-timbered country (i.e. by a more or less continuous vocal advertisement and heightened reproductive efficiency) it is to be expected that natural selection will operate and that highly mimetic species will emerge" (ibid.).

From the discussion earlier in the article (p. 13): "In advancing what may appear to be an essentially mechanistic theory for the evolution of vocal mimicry in the 'master mimics' no suggestion is made that birds do not get pleasure from their song." The reviewer recalls that Craig (1943. The song of the Wood Pewee *Myiochanes virens* Linnaeus: A study in bird music. *N. Y. State Museum Bull.* 334; see also important review by F. H. Allen. 1944. *Wilson Bull.*, **56**(1): 52-54) expounded the idea that song satisfies a psychological need of the singer, that the bird derives pleasure from its singing, that the bird is esthetic. Craig was not working with a mimetic species; some of his ideas may need to be considered carefully in connection with them.—Ralph S. Palmer.

51. Sound Production in Passerine Birds. Mildred Miskimen. 1951. *The Auk*, **68**(4): 493-504. From the summary (p. 504): "The arrangement of the birds studied, in the order of the number of syringeal muscles possessed by each species, shows that in general the birds possessing more muscles are able to produce a wider variety of notes than those having fewer muscles, providing that the muscles are attached to the syringeal cartilages in such a way that these cartilages may move freely, regulating with precision the tension on the vibrating syringeal membranes. There is, therefore, direct correlation between the degree of development of the syrinx, with respect to muscles and attachments, and the quality (variety of notes) of the song."—Ralph S. Palmer.

52. Bird Songs of Dooryard, Field and Forest. Recorded by Jerry and Norma Stillwell; manufactured by Columbia Records, Inc.; published by Ficker Recording Service, Box 883, Old Greenwich, Conn. 33-1/3 r.p.m., $7.95. This new disc resembles in some respects the series of 78 r.p.m. discs formerly produced by the Stillwells, but now withdrawn from the market (reviewed in *Bird-Banding*, **23**: 188), but is taken direct from the master tapes rather than from the older discs. About a dozen species from the Rio Grande Valley or Florida which were included in the earlier discs have been dropped. The new disc gives 135 songs or calls of 49 species (of which about 35 occur as far northeast as southern Connecticut), with 42 minutes running time. The songs are arranged in four bands on each side, making it easier to play the song of a particular species without playing the whole of one side. The sound level is somewhat higher than in the previous Stillwell discs, and surface noise practically non-existent.

A comparison with the last Cornell album (American Bird Songs, Vol. II—reviewed in *Bird-Banding*, **23**: 125-26) is instructive. That album is made up of five vinylite discs, 78 r.p.m., playing time about 40 minutes, 51 species, cost $10.50. The new Stillwell disc enjoys the inherent advantages of the 33-1/3 r.p.m. disc over the old 78 r.p.m. speed, and the better the phonograph, the more evident this is. It is more convenient to handle and store, has even less surface

noise, and appears to reproduce songs with higher fidelity, most apparent in high pitches. In addition, the Stillwell disc has other advantages over the Cornell discs or any others that have come to my attention, in tending to give longer selections for species with varied songs and calls, in some cases including the rather distinctive songs of several individuals of the same species.—E. Alexander Bergstrom.

53. Dawn Song and All Day. Published by the Bird Research Station, Glanton, Northumberland, **1**(7): 61-72, April 1952, price 1/6. This little periodical is devoted to the development of a world-wide co-operative study of the relative timing and periodicity of bird song in various parts of the globe. Instructions are given on methods of making, recording, and reporting the desired observations, and summaries and analyses are published of reports already received. Those interested in participating in the study may write the ornithologist in charge, Noble Rollin, at the above address.—O. L. Austin, Jr.

54. The Influence of Temperature on the Awakening Song of the Chaffinch. (Ueber den Einfluss der Temperatur auf den morgendliches Gesangsbeginn des Buchfinken, *Fringilla c. coelebs* L.) Lars von Haartman. 1952. *Ornis Fennica,* **29**(3): 73-76. Charts are given showing the correspondence in the time of the first songs of Chaffinches in Lemsjöholm with temperature. In 1948 May was very warm and the songs on clear mornings very early; in 1941 it was cold and the songs were late, while in 1946 the temperature was more normal and the first songs came between those of the other years. A table shows the much earlier singing on clear than on cloudy mornings.—M. M. Nice.

55. The Influence of Temperature on the Awakening Song of Chaffinches in Different Years. (Ueber den Einfluss der Temperatur auf den morgendlichen Gesangsbeginn des Buchfinken in verschiedenen Jahren.) Georg Scheer. 1952. *Ornis Fennica,* **29**(3): 77-82. A discussion of the problems brought up by von Haartman's paper. Bibliography of 15 titles—M. M. Nice.

BOOKS

56. Parental Care and its Evolution in Birds, S. Charles Kendeigh, 1952. *Ill. Biol. Monog.,* **22**:i-x, 1-356, 35 figs. $4.00 (paper), $5.00 (cloth).

This monograph comprises four parts:

1) Methods of studying attentiveness during nest building, incubation, and feeding of the young.

2) A detailed summary of such behavior in the House Wren *(Troglodytes aëdon)* including the changes correlated with the environment and with the growth of the young.

3) A brief summary of attentive behavior in other North American species. (Only the Song Sparrow is known in detail comparable to the House Wren.)

4) A digest by families for the birds of the world (100 pages) and a short account of the possible evolution.

The author himself has provided us with most of the vast amount known about the House Wren. However, the study of attentive and inattentive periods almost swamps out the real physical facts. To be sure the summary does, for example (page 91), show quite clearly the inverse correlation between ambient heat available and incubatory heat supplied. Quite possibly new instrumentation is required to let us get at the basic physical and physiological facts.

We may attempt a summary of the historical and evolutionary aspects of the account. Joint responsibility is the rule and appears to be primitive. The shift to male responsibility in the ratite birds (presumed to be primitive) and several other diverse groups or to female responsibility in some groups appears difficult to explain as is persistence of joint responsibility in higher passerines. Uniparental responsibility must have evolved independently in most of the groups in which it occurs. Aggressive sexual behavior or territory defense in males may outweigh the advantages of biparental care of the young. Parasitism seems clearly due to a

breakdown of the metachronous mechanism responsible for the order of events in reproduction, and communal nesting may be of the same origin. Altricial nestlings have tended to evolve among smaller birds because they involve less drain on the energy resources of the female per unit of time and as well as smaller absolute amount of energy in egg laying. The net effect of parental care is a higher survival rate of the offspring. These propositions seem to be clearly deducible from the visible history, but they tell us relatively little about how it came to pass. The reviewer ventures (fools rush in) a somewhat different statement.

1) Deposition of several or many eggs in a nest or its equivalent is widespread, if not universal, in oviparous reptiles and seems to have been carried, with elaboration, over to birds.

2) Regardless of homoiothermy, even in reptiles, some additional heat during incubation may have become obligatory.

3) Some provision for supplying heat to the hatched young before they attain homoiothermy appears necessary in existing birds.

4) The essence of the matter in any bird species capable of survival is a coadaptation of young, female, and male. This does not presuppose any one answer. Insofar as the young cannot fend for themselves, attendance by one or both parents is requisite to survival of the species. Biparental care seems to depend on a more or less permanent pair bond between the parents. When this bond becomes transitory, uniparental care must result. The same thing can arise in another way: the functions of one parent diverge from parental care to aggressive sexual behavior or to special territorial defense. The sexual inversion in phalaropes and a few other groups may be purely genetic and will work successfully in cases where male responsibility is already established or where the pattern of uniparental care depends on some hormonal difference between the sexes.

This needed coadaptation shows strongly in the parasitic birds. The foster parent must have the correct habits to assure the survival of the parasitic young. It is worth noting that the parasitic ducks utilize other ducks as the only foster parents. Perhaps the host and the parasite were, in all cases, originally fellow members of one restricted taxonomic unit. (Cf. ants as well as cowbirds.)

Some additional points may be noted. Kendeigh gives no weight to McDowell's conclusion that there is no such group as the *Palaeognathae* (1948, *Auk* 65:520). The various orders assigned to this group seem to be in no way closely related and it is not surprising that they are very diverse in their breeding habits in spite of some structural convergence.

The second point is that the Crotophaginae may be regarded as self-parasitic which is an extension of the position that Kendeigh takes.

The wood swallows (Artamidae), in addition to their divergence from the passerine reproductive ambit, give other hints that detailed examination of their structure and habits might be rewarding.

The slow development of the procellariiform birds has long been a puzzle. One possibility is that their metabolism, even in the egg, has come to involve a ready deposition and slow utilization of fat. This does not necessarily mean the ingestion of an excessive proportion of dietary fat.

With regard to the author's statements on the incubation periods of hawks, Mrs. M. M. Nice has written me as follows: "Dr. Kendeigh's book is so fine and so important, it is a pity he gives too short incubation periods for the Falconiformes. This is a common misconception, and one of our greatest mistakes in the subject, so I hope you can correct this error in your review. The statement on p. 193 that 'the incubation period [in Falconiformes] is commonly about 4 weeks long' is true only of the genus *Falco*. We know nothing about the Caracara—Kendeigh's '4 weeks' from Bent came originally from Bendire, who merely guessed. Buteos are probably 30-34 days; so far as I can find we have only one reliable record in this country, a Red-tailed Hawk that took 34 days. Bald Eagles take 35 days. We have no North American records of the Golden Eagle, but those in Scotland require 44-45 days. Accipiters also have long incubation periods, about 35 days. Our Black and Turkey Vultures take 40 days, and the European Great Vultures and the South American Condor take 56 days."

The book is, in all, a most valuable summation of our knowledge of incubation and parental care, and should be the starting point for many more and detailed studies of species other than the House Wren.—C. H. Blake.

57. Watching Birds. James Fisher, 1951. Penguin Books, Harmondsworth. Rev. ed., 188 pp., 35 fig. 2/-. This is a remarkably concise account of the structure and habits of birds with concrete statements of the problems and the available methods for obtaining data. Pages 76-84 deal with banding and really tell how it is done.—C. H. Blake.

58. Bird Recognition. II. Birds of Prey and Water Fowl. James Fisher, 1951. Penguin Books, Harmondsworth. 186 pp., 85 figs., 153 maps and charts. 3/6. This volume covers raptores, owls, ducks and geese, ciconiiform birds, loons, and grebes. It is worthy of note for two reasons. The American as well as the English common names are given, when they differ. As in vol. I, each species has a circular diagram showing the relation of its activities to the calendar. Often the resident or breeding birds are distinguished from passage or immigrant birds. The accumulation of the data for such diagrams is one of the chief objects of birdbanding but the diagrams have yet to be drawn for the various regions of North America.—C. H. Blake.

59. The Pocket Guide to Birds. R. S. R. Fitter. Illustrated by R. A. Richardson. 1952. Collins. St. James Place, London. 21s net. Directed at the novitiate, this volume with its new and radical approach to field identification may startle the orthodox scientific ornithologist. For the moment, at least, he must put aside his instinctive reaction against change from the traditional scientific classification of birds based on evolutionary relationships.

Diverging intentionally from tradition the author segregates bird life according to habitat into three major sections—Land Birds, Waterside Birds, and Water Birds. He admits that certain overlappings are unavoidable and occasional misplacements in actual life are inevitable. He classifies birds within each habitat into eight length groups commencing with the smallest, both by group and within the group, then rearranges species under yet other groupings—"Wing-Length," "Wing-Ratio," "Neck-Ratio," "Leg-Ratio," and "Bill-Ratio." Diagrammatic drawings in black and white illustrate each of the component divisions. The main text provides under each species the scientific Latin nomenclature, a simple set of code classifications in connection with the foregoing groupings, and brief sections on plumage, structure, movement (behavior), voice, field marks, habitat, and range and status.

The 64 color plates and 48 plates in black and white deserve much praise. Groupings are in accordance with the main text except that within each group particular effort has been made to bring together species closely resembling each other, waterfowl and waders with similarly colored heads or rumps, or possessing or lacking a wing-bar. Many of the larger birds are shown as they appear in flight. A silhouette of the house sparrow on each plate indicates comparative size. There is a key based primarily on plumage but including other features, also, such as a decurved bill. Appendices supply a migration table, a list of geographical races identifiable in the field, the scientific order of families with Latin as well as English terminology, and a list of species of accidental or casual occurrence. A detailed index affords ready reference to either text or plates. A novel and laudable feature is the inclusion of semi-domesticated imported species which are frequently discovered in the wild in Great Britain as "escapes."

An inherent weakness in the new approach is the necessity for the student, as he progresses into more advanced stages, to unlearn much material which may, in the meantime, have become ingrained. The revisions in the order of the 1932 A. O. U. Check List, and the existing differences in order between that and the British Check List emphasize the potential difficulties. This volume is, however, for the general populace, of which only a small portion can be expected to progress far beyond an elementary stage.

Perhaps the greatest weakness in the method employed in this volume is the intensive and careful preliminary study required on the part of the novice in order to acquaint himself with the procedure. I question how much attention and reference the average user of a field guide gives to the all-important introductory portion. Qualifying, myself, as a novice in respect to the procedure followed in this volume, I found concentrated application of thought, effort and care a necessity.

The weakness arises out of the frailty of the human rather than out of any inherent fault of the book.

For the novice the existing order of systematic classification seems sufficiently cumbersome to warrant extensive experimentation with the new method employed in this volume. Usage will prove or disprove its worth. The author deserves appreciation and respect for his progressiveness in venturing into uncharted paths while at the same time presenting a volume capably and carefully prepared in other respects along highest standards.—Wendell Taber.

60. What Flies There? (Was Fliegt Denn Da?) By Heinrich Frieling. Kosmos. Gesellschaft der Naturfreunde. Franckh'sche Verlagshandlung. W. Keller & Co., Stuttgart. 1952. 106 pages. 7.25 marks (approximately $1.75), paper bound.

One of the best field guides of foreign publication that I have seen—and we are constantly comparing such guides with Peterson's *Field Guide to the Birds*—is this little volume from Germany. It is available in either paper or linen binding and is reasonably priced. The book is very well got up. An excellent silhouette section following the introductory material shows representative birds of the different groups. This helps greatly in preliminary classification in the field. The book is profusely illustrated, with 101 black and white drawings and 324 color illustrations. Many of the species represented are identical with our American forms, and the reader who is familiar with these, though unfamiliar with the birds of Europe, can recognize them quickly.

In addition to the individual species represented, there are several black and white plates in which hawks are illustrated as seen from below, as we usually observe them; ducks in flight are shown both from above and below; and gulls are shown from above.

Opposite the well but simply done color plates are given field marks, including size comparisons and the type of environment in which the bird should be found. Also, there is indicated the part of Germany in which the species is usually present and the common German as well as the scientific name of the bird. A section of five pages is devoted to casuals which may occur in a region from time to time, many of these having occurred perhaps only from one to three times in Germany.

Because of the excellence of the illustrations and the similarity of many German names to the English, even those unfamiliar with the German language will find this book of much interest and of use in comparing the forms that occur in Germany with those that are found in the United States.—C. Russell Mason.

NOTES AND NEWS

On December 29, 1952, the U. S. Fish and Wildlife Service issued a directive to holders of bird banding permits, indicating that in future special authorization would be needed for the use of any band other than the standard numbered band, for the marking of plumage, or for the use of nets such as the Japanese mist net. It is unfortunate that the Bird Banding Office could not have accompanied this with a brief explanation of the reasons behind the restrictions, as the directive itself was not worded in a way to produce the cheerful cooperation of banders. In the aggregate, the individual banders have a far greater investment in time and facilities than the Bird Banding Office and other banding activities of the Fish and Wildlife Service, and it behooves the heads of the Service to administer the program with this constantly in mind.

While we deplore the bureaucratic way in which the restrictions were announced, Mr. Reed's discussion in this issue of flanging of aluminum bands illustrates one of the serious problems with which the restrictions are concerned, the multilation of birds from existing methods of using aluminum color bands. Corollary difficulties were the variation in color of some of these bands in the manufacturing process, the tendency of some to lose color by fading or the wearing away of surface color, and the occasional use of such bands at random without considering possible interference with projects already underway (thus ruining