Abrasion is not consequential since the colors go clear through the celluloid.

The best selection of plain colors seems to be black, white, yellow, orange, red, and (dark) green. The following wide striped combinations of the foregoing colors are available: orange/white, yellow/white, black/orange, red/yellow, green/white, yellow/black, and black/white.

The plain colors (split ring) are 1/3 [18c] per dozen and the striped ones 1/6 [21c] per dozen.—Charles H. Blake, Massachusetts Institute of Technology, Cambridge, Mass.

RECENT LITERATURE

BANDING

(See also Numbers 14, 15, 16, 20, 49)

1. A Survey of the Birds Ringed in Finland during the years 1913-1952. Göran Nordström. 1954. *Ornis Fennica,* **31**(4): 116-130. In the four decades covered by this general report 128,046 birds of 197 species were banded in Finland. The totals of bandings and recoveries are tabulated by species and by families. *Larus ridibundus* heads the specific list in numbers banded with 18,995 individuals, followed in order by *Turdus pilaris* (8,646), *Sterna hirundo* (7,271), *Parus major* (6,253), and *Sturnus vulgaris* (6,031). The 3,734 recoveries, divided among 117 species, are 2.9 percent of the bandings. Of these 35 percent were taken in Finland, 65 percent in 46 different countries abroad. Germany reported the most bands (421), followed by Denmark (383), Sweden (291), France (282), and Italy (212). Finland's nearest and largest neighbor, the U.S.S.R., which certainly must take more of Finland's migrant birds than any other country does, reported only 41 for 13th place in the list.

Banding in Finland has had its ups and downs, which reflect the country's political and economic conditions. Very little banding was done during the two World Wars and in the years immediately following them. Before World War I the high year was 1914 with 1,396 bandings. The totals rose steadily from 656 in 1925 to a high of 12,288 in 1936. The program did not really start again after World War II until 1949, when 1,289 birds were banded. Since then it has increased rapidly. The 1953 totals of 14,830 passed all previous records, and at the time of writing more than 21,500 had already been reported marked in 1954. This is good news indeed, and we all hope the upward progress it signifies continues uninterrupted in the years ahead.—O. L. Austin, Jr.

2. Comparison of Recoveries from Reward and Standard Bands. Frank C. Bellrose. 1955. *Journal of Wildlife Management,* **19**(1): 71-75. Waterfowl banding records appear to offer a more valid approach to hunter kill than do comparisons of populations and kill figures. The principal weakness is the failure of many hunters to report bands. To obtain information on this project the U. S. Fish and Wildlife Service in 1948 issued a special series of reward bands. Over twice as many reward bands were reported the first year as standard bands, but the difference declined sharply. In 1949, 759 reward bands and 360 standard bands were used to mark Mallards *(Anas platyrhynchos)* to determine the lethality of lead shot. There were 31.7 percent reward bands and 19.7 percent standard bands recovered. In 1950-51 the experiment on lead poisoning of Mallards was tried again with the reward bands marked $2.00 Reward. Up to July 1954 there was an average of 2.2 times as many $2.00 reward bands reported as standard bands. Recoveries compared for four regions in the Mississippi Flyway indicate there is some difference in the propensity of hunters to report bands. Canadian region hunters reported 1 standard to 1.92 reward bands; northern region reported 1 standard to 2.10 reward bands; central region reported 1 standard to 2.61 reward bands; and southern region reported 1 standard to 2.10 reward bands. Close proximity to banding stations has little effect upon percent recovered. On the average one hunter in three reports a standard band. It would appear that the kill of ducks by hunters is at least 2.5-3 times greater than that indicated by unrefined band data.—Keith M. Standing.

3. The Use of Banding Data in Determining Waterfowl Migration and Distribution. Walter F. Crissey. 1955. *Journal of Wildlife Management,* **19**(1): 75-84. Much banding has been done that shows route of travel only. Present-day problems in waterfowl management require knowledge of the relative number of birds that use each route. The first step in determining relative volume of movement from breeding-ground population units to each of the Flyways is to band nesting adults, or juvenals prior to the flying stage, and to associate the birds banded with population "index" figures from appropriate breeding-ground surveys. Banding during migration periods is of little value for determining distribution because of the difficulty of relating the birds banded to the size of the population being sampled. A rough measure of volume of movement can be obtained by banding on wintering grounds when the birds are relatively sedentary, and the number of birds being sampled can be determined by censuses. In measuring volume of movement, it is necessary that information be available with which to determine what the recovered sample represents after movement has taken place. Important problems in this respect are: (1) Proportion of birds available which are recovered, and (2) proportion of bands recovered which are reported to the U. S. Fish and Wildlife Service. A determination of proportion of birds available which are killed is dependent on a knowledge of the total birds available. The number of birds killed, or number of hunters involved cannot be used to determine the proportion killed of birds available. A properly designed banding program would have real value in supplying a solution to this problem. Between half and two-thirds of the bands recovered by sportsmen are never reported. Sporadic publicity has lessened the value of banding data. Standardized publicity should be promoted.—Keith M. Standing.

4. Methods of Trapping Woodcocks on their Breeding Grounds. William G. Sheldon. 1955. *Journal of Wildlife Management,* **19**(1): 109-115. The author conducted intensive research on several methods of capturing Woodcocks *(Philohela minor)* in Massachusetts. Data collected on recaptured, banded birds yielded information basic to their management. The author developed an automatic butterfly-shaped trap to capture singing male birds attracted by a mounted woodcock simulating a female. The mechanical parts, specifications, size, and appearance are given in the paper. Many variables such as weather, location of trap site, and individual skill affect trapping success. The general procedure followed is to set the traps in the late afternoon, spend the singing period spotting new sites, tend traps and remove decoys after dark, leaving all traps set blind for the dawn flight. Trapping should be uninterrupted throughout the singing season regardless of weather. The smaller the singing field, the better the chances are of capturing the bird. Instructions are given for setting the traps. Mounted woodcocks were used as decoys for 3 years and then plastic models were substituted with almost equal success. Another method, used by Gunn, was to play a tape recording of a singing male in the presence of performing males. He had good success in luring the birds in and then capturing them in a collapsible net. Japanese mist nets were used to a limited extent. They work on the principle that when a bird hits the net, it falls into a pocket and becomes enmeshed. Some success was attained in using funnel-shaped traps.—Keith M. Standing.

5. Results of the ringing investigation of migration instituted by the Royal Museum of Natural History, Leiden, 40 (1953), 1. (Resultaten van het ringonderzoek betreffende de vogeltrek, ingesteld door het Rijksmuseum van Natuurlijke Historie te Leiden, XL, (1953), 1.) G. C. A. Junge and J. Taapken. 1954. *Limosa,* **27**(3): 92-110. Raw data for some 430 returns and recoveries received in 1953 for 35 species of water birds (cormorants through terns) banded in the Netherlands. As in the previous list (see *Bird-Banding,* **25**: 152) *Anas platyrhynchos, Anas crecca,* and *Vanellus vanellus* lead in numbers of recoveries, accounting between them for almost half the list. Again the list contains a gratifying number of recoveries from behind the Iron Curtain. Most of these are of waterfowl, many of them taken some years back—it takes a long time for the word to get through. Among them are: 9 *Anas platyrhynchos* from Poland; a *Spatula clypeata* and an *Anas penelope* from the Komi A.S.S.R. just west of the Urals; two *Anas querquedula,* one from Archangel, the other from Saratov on the Volga; and three *Anas crecca,* one from Chkalov in the foothills of the southern Urals, one from Vorony on the Don, the other from the Novgorod District. Also of interest are an 11-year *Accipiter gentilis,* a 19-year *Buteo buteo,* and an 18-year *Haematopus ostralegus.*—O. L. Austin, Jr.

6. Banding Birds on Ushant Island. (Le Baguage des Oiseaux a L'ile d'Ouessant.) M. H. Julien. 1954. *Penn-ar-Bed* (Bulletin des Cercles Geographique et Naturaliste du Finistere), new series No. 4 & 5: 6-17. A semi-popular article, evidently designed to arouse local interest in banding. The author bands a few nestlings, but gets most of his birds from the many attracted to Creac'h lighthouse at night during migration. He also uses both Italian and Japanese nets at suitable places on the island, and traps waders along its shores. He lists none of his bandings, and gives no indication of the size and extent of the program. He does give the raw data (with map) for 10 foreign-banded birds taken at Ushant, and for the two foreign recoveries of his own bandings, none of them particularly new or startling. The article closes with a short bibliography and instructions for obtaining official permission to band birds, warning, however, that nobody unwilling to devote a great deal of time, expense, thought, and care to banding should attempt it.—O. L. Austin, Jr.

MIGRATION

(See also Numbers 42, 47)

7. Bird Mortality at Airport Ceilometers. Joseph C. Howell, Amelia R. Laskey, and James T. Tanner. 1954. *The Wilson Bulletin*, **66**(3): 207-215. Airport ceilometers, used to measure the height of the cloud ceiling, consist in part of a light with a candlepower rating of about 25 million. This light is focused into a steady vertical beam about 2 degrees wide. Circumstances surrounding 12 instances of bird mortality, involving from 3 to more than 1,000 birds, at ceilometers in the United States are examined. Ten instances occurred during the fall migration season and the other two during the spring migration season. Mortality was detected only at night, and when there was a cloud ceiling of 5,000 feet or less. Deaths were almost certainly caused by impact with the ground, with another bird, or with a nearby building. Species involved (mostly Passeriformes) seemed to be a random sample of migrants to be expected at that time and place. On-the-spot observations suggest the birds were first attracted to the light and then became blinded or confused by the light before colliding.—L. Richard Mewaldt.

8. Body Weight and Fat Deposition in Captive White-throated Sparrows in Relation to the Mechanics of Migration. Albert Wolfson. 1954. *The Wilson Bulletin*, **66**(2): 112-118. A few data gathered at Evanston, Illinois in the years 1945-47 on "fat classes" and body weights of wild and captive White-throated Sparrows, *Zonotrichia albicollis*, are employed to show that profitable comparisons may be made between wild and captive birds in the study of avian migration.—L. Richard Mewaldt.

9. Bird Mortality During Night Migration October 1954. James T. Tanner and Others. 1954. *Migrant*, **25**(4): 57-68. "On the nights of Oct. 5-6, 6-7, and 7-8, 1954, a tremendous number of migrating birds were killed at a minimum of 27 localities scattered thru-out the eastern and southeastern states. The accidents occurred around airport ceilometers, brightly lighted areas, and at television and radio towers." The contributing weather condition was a moving cold front with a solid overcast with low cloud ceiling, forcing the birds to fly at low levels. The lights at the ceilometers at Nashville and Knoxville were turned off, thus saving many birds. Catastrophes at Air Force Bases could easily be averted if the operators were alerted on the danger nights. The list of the birds killed at seven localities in Tennessee is appended.—M. M. Nice.

10. The Pattern of Migration in 1953 at the Irish Sea Bird Observatories. Peter Davis. 1954. *British Birds*, **47**(12): 414-422. Based on reports of the four southwestern Bird-Observatories with tables summarizing spring and fall data on 12 common species. "Fair weather and light winds are known to be associated with strong 'normal' migration."—M. M. Nice.

11. The Pattern of Migration in 1953 at the East Coast Bird Observatories. R. K. Cornwallis. 1954. *British Birds,* **47**(12): 423-431. In spring there was very little development of drift from the Continent; there was also a lack of drift movements in fall except at Fair Isle.—M. M. Nice.

12. The Migration of the Iceland Merlin. Kenneth Williamson. 1954. *British Birds,* **47**(12): 434-441. An analysis with a chart and five weather maps of the fall migration of *Falco columbarius subaesalon,* which starts in mid-August and lasts through October. "The data support the view that clear skies and a lack of wind provide the stimulus to undertake a migratory flight, and show that journeys are made in any type of pressure-system which offers these conditions." —M. M. Nice.

13. Aircraft Observations of Birds in Flight. K. D. G. Mitchell. 1955. *British Birds,* **48**(2): 59-70. "Over the United Kingdom and to a lesser extent over Western Europe the observations indicate that there is little flight by birds at heights of five hundred feet or above, birds being encountered on an average once in every seventy hours of flying by daylight." Detailed observations are given of the species, date, locality, height, weather conditions, etc. of all birds identified. There were 31 records from 1,500 to 4,000 feet, one at 6,000—30 Lapwings, *Vanellus vanellus,* over England, and one at 8,000 feet—a Griffon Vulture, *Gyps fulvus,* circling over the Toledo Mountains, Spain.—M. M. Nice.

LONGEVITY AND MORTALITY

(See Numbers 5, 15, 16)

NIDIFICATION AND REPRODUCTION

(See also Numbers 13, 24, 26, 33, 35, 36, 39, 47)

14. Summer Movements of Black Swifts in Relation to Weather Conditions. Miklos D. F. Udvardy. 1954. *The Condor,* **56**(5): 261-267. Observations on the Black Swift, *Nephoecetes niger borealis,* at Vancouver, British Columbia during the summers of 1952 and 1953 revealed a striking correlation between their presence and the passage of low pressure systems accompanied by southeast or east winds and rain. At Vancouver in June of the two years, from eight to more than a thousand swifts were seen on 15 of the 34 days with precipitation. No swifts were seen on the 26 days without precipitation. As they are not known to breed in the immediate vicinity of Vancouver, it is suggested that they may be swifts which have temporarily left their nesting sites some distance to the northwest. Similar movements of the European Swift, *Apus apus,* are known to occur in Europe, in which cases the nestlings become reversibly torpid and may survive unfavorable weather until the return of their parents.—L. Richard Mewaldt.

15. Twelve Years of Observing the Behavior of the Stock Dove. (Douze Annees d'Observation sur le Comportment du Pigéon Colombin *(Columba oenas* L.).) E. Delmée. 1954. *Le Gerfaut,* **44**(3): 193-259 (with Flemish summary). An interesting study of the increase of the Stock Dove in the vicinity of Tournai, Belgium, with copious notes on its breeding biology. The species nests readily in wide-mouthed pottery urns placed sideways in trees for them, and in which the adults are easily trapped. From the 55 returns and 12 recoveries of the 310 doves banded—132 as adults, 178 as nestlings—the author draws the following conclusions on the species' site-tenacity (p. 222): "The habitual fidelity of young Stock Doves to their natal *canton,* which includes the territory within a 20-kilometer radius, but not to the *colonie* where they were born. 2. The fidelity of breeding Stock Doves not only to the *canton* of reproduction, but to the *colonie* where they raised their young the preceding year, and also to their old nest."

Each pair lays from 2 to 5 clutches of eggs per year; the average of 42 pairs over a 7-year period (1938-1945 omitting 1940) was 3.8 clutches. The clutches may contain from 2 to 5 eggs; the average per clutch of the same 42 pairs for 7 years was 3.8 eggs, of which 54 per cent hatched. As nestling mortality was 29.5 per cent after hatching, fully fledged young were produced by 38 per cent of the eggs laid. The average production of 62 pairs observed for 12 breeding seasons (1938-1950 omitting 1940) was 3.06 fledged young per pair per year.

The author claims annual mortality to be about 50 per cent, with no apparent difference between the first and subsequent years. In the absence of the complete raw data, which are not furnished, his estimates of mortality and longevity would be far more useful and significant had he used Lack's formulas or any of their variants in preparing them. His "average age" figure of 15 months is meaningless. (He obtained it by adding the known life-spans in months of 82 recoveries banded as nestlings, and dividing by 82.) The oldest of his recoveries lived 6 years, 9 months.

The Stock Dove is partly migratory, southward movement being largely restricted to young birds in their first winter, after which the birds seldom move more than a few kilometers from the breeding site. Nevertheless an adult banded in Belgium in May was taken in October in Spain, 1,000 kilometers southwestward.—O. L. Austin, Jr.

16. Contribution to the Biology of the Swift. (Contribution a la Biologie du Martinet Noir, *Apus apus* (L.).) P. Dachy. 1954. *Le Gerfaut*, **44**(2): 96-173 (with Flemish summary). This is a detailed report of the author's observations from 1944 to 1953 of a colony of some 15 pairs of Swifts nesting in the eaves of a church near Tournai in western Belgium. In the course of his study he managed to band 124 young and 52 adults, and to recapture on their nests 45 birds he had banded in previous years. These form the basis of his more important conclusions.

He discusses at length such varied topics as arrival in spring, nest-building, clutch size, incubation, nestlings, departure, wintering grounds, colony composition, nocturnal behavior, faithfulness to the colony and the nest (site tenacity), conjugal fidelity, longevity, body weight, copulation, effects of the weather on behavior, and enemies. He compares his observations largely with those of Lack in England, Weitnauer in Switzerland, and Koskimies in Finland, and appends a general bibliography. Unfortunately in analyzing his statistics he follows none of the standard practices, and as he does not give his basic banding data in detail, it is impossible to compare his figures with any others.—O. L. Austin, Jr.

17. Observations on the Kentish, Little Ringed and Ringed Plover, breeding near Amsterdam. (Waarnemingen over de drie bij Amsterdam broedende pluviersoorten *(Leucopolius a. alexandrinus, Charadrius dubius curonicus* en *Ch. h. hiaticula).*) J. E. Sluiters. 1954. *Limosa*, **27**(3): 71-86 (from the English summary). Reviews the breeding history of these three species near Amsterdam during the past 20 years, and discusses especially their reoccupation of new land being made available behind the dikes. "The main factor in the occupation of new areas is the nest site, rather than the food supply, the presence of water or the salt-content of the water. The Ringed Plover has practically no brood-surplus and is a rare breeding bird in new areas. The Kentish and Little Ringed Plovers have a good brood-surplus and both old and young birds will readily occupy new areas, with either natural or artificial habitats, if they are forced to abandon old breeding sites."—O. L. Austin, Jr.

18. Nest Temperatures and Attentiveness in the Anna Hummingbird. Thomas R. Howell and William R. Dawson. 1954. *The Condor*, **56**(2): 93-97. During several stages of incubation and brooding, essentially continuous records of temperature were obtained with a thermocouple in the nest of an Anna Hummingbird, *Calypte anna*, in Los Angeles, California. Periods of inattentiveness were usually less than 20 minutes and never more than 40 minutes. This parent female did not become torpid at any time while incubating or brooding. She maintained the nest about 10°C warmer than surrounding air. Little capacity for homeothermy was exhibited by the young during their first few days, but at 13 days after hatching they maintained their temperature well above that of the environment.—L. Richard Mewaldt.

19. Photographic Studies of Some Less Familiar Birds. LXII. Snowy Owl. I.J.F:-L. 1954. *British Birds*, **47**(12); 432-433. *Nyctea scandiaca* lays 4 to 9 eggs at intervals of at least 2 days; the female incubates from the first egg; incubation is estimated to require nearly 5 weeks. She broods constantly while the young are small and her mate brings all the food. He persuades her "to accept the offer by rubbing her face with the prey and trying to fit it into her beak, both birds constantly 'gruffing'," as shown in Sten Larson's fine photographs. "If the prey was not accepted the male would devour it himself elsewhere. As the young were only fed when hungrily piping, the female often put the food she took into a 'prey-collection' around the nest." "There is a strong correlation between lemming and Snowy Owl numbers and when the former are abundant, which happens in any one area about every four years, Snowy Owls increase enormously through greater clutch-size."—M. M. Nice.

20. A Field Study of Sora Rail and Virginia Rail in Central Minnesota. L. B. Pospichal and W. H. Marshall. 1954. *Flicker*, **26**(1): 2-32. Careful, detailed study of *Porzana carolina* and *Rallus limicola* during 1950 and 1951, based on trapping and marking the birds. Colored celluloid bands on the chicks were found to cause deformities or even amputations as the birds grew. Fish fingerling tags, clipped into the patagium of the right wing were more satisfactory, but could not be seen in the field. Adult Soras can be sexed by characters of the auricular patch and superciliary line, bill color in the breeding season, and measurements. In the drought year of 1950 clutches averaged 9.5 eggs for the Sora and 6 for the Virginia Rail, while in the more favorable year of 1951 they averaged 10.4 and 8.2 respectively. Valuable information is given on growth, plumage development, food of old and young, and parasites. There appears to be some mistake in calculating the length of incubation. How could one Virginia Rail embryo develop into a precocial chick in 13 days, while another took 20; one Sora in 11 days, while another needed 22?—M. M. Nice.

21. Ecology of the Virginia Rail in Clay County, Iowa. W. D. Tanner and G. O. Hendrickson. 1954. *Iowa Bird Life*, **24**(4): 65-70. On 107 acres 37 occupied nests of *Rallus limicola* were found, chiefly in lake sedge. In 28 complete clutches in 1951 and 1952 the average number of eggs was about 8. Of 190 eggs in 27 nests, 144 (75.7%) hatched. "Egg destroyers in order of their importance were small birds of unidentified species, raccoons, flood and hail."—M. M. Nice.

BEHAVIOR

(See also Numbers 13, 19, 47, 48)

22. Visual Cues of Food Places and Food Objects and their Significance for Food-seeking Titmice. (Die Bedeutung optischer Merkmale des Futterplatzes und des Futters für nahrungsuchende Meisen.) Herbert Bruns. 1952. *Biologischen Zentralblatt*, **71**: 69-108. Observations carried out in the field showed that titmice make their food choices on the basis of visual cues. This was substantiated by experiments involving spontaneous choice carried out with caged birds. Food platforms of lighter background were chosen in preference to darker ones. However, both solid black and solid white platforms were preferred to checkered or striped patterns.

Males of the Great Tit, *Parus major*, preferred fine checkerboard patterns over coarser ones, a behavior the females did not exhibit. Naturally-colored cucumber seeds were significantly preferred over those decorated with black longitudinal, horizontal, or concentric stripes, or with spots, while those colored a uniform black were only slightly preferred over the patterned ones. The author tries to relate the findings to the perceptual problem involved when patterning interferes with the form aspect of a visual stimulus.—Eckhard H. Hess.

23. Lanceolated Jays Breeding in Captivity. Derek Goodwin. 1954. *Avicultural Magazine*, **61**(5): 154-162. Very interesting account, illustrated by sketches, of the behavior of four captive *Garrulus lanceolatus*, their love life and

nesting attempts during two seasons. Both females fixed their affections on one male and he responded equally to both. At length one young was raised after an incubation period of 16 days and nestling period of 20 to 23 days. One is impressed by the striking individuality of these intelligent birds.—M. M. Nice.

24. Notes on Feral Pigeons. Derek Goodwin. 1954. *Avicultural Magazine*, **61**(6): 190-213. This important paper shows how much ornithology, in particular biology and ecology, can be learned from an abundant species with which we are all familiar but which most of us ignore. "The Pigeon *(Columba livia)* is among the commonest of birds in British towns, as well as elsewhere throughout most of the temperate and tropical regions of the world." Feral pigeons originated from domestic or dovecote pigeons which in turn are descended from wild rock pigeons. "Most Feral Pigeons are dependent on man-made buildings for their nesting and roosting sites. Man's reaction to their presence ranges from welcoming them as guests or even as sacred birds, as in many Buddhist and Moslem communities, to active dislike and attempts to destroy them in many western countries," (p. 198). Very interesting observations were made on "Feeding Behaviour and Recognition of Food." It seems that "Pigeons instinctively alight on relatively bare ground and away from the immediate vicinity of trees when seeking food." Young pigeons apparently are weaned rather suddenly. "The method of parental feeding does not enable the young one to see the food it swallows, and under normal conditions the young pigeon does not appear actively to seek food until the parents have ceased to feed it." A hungry young pigeon, if alone, will experiment on all sorts of small objects, picking them up and dropping them many times before swallowing them. If older pigeons are present the young one tries to take food from their bills. Suddenly then it starts to eat, perhaps as a result of having seen the grain picked up by the other bird.

In contrast to the pigeon's insistence on a protected nesting site, roosting sites may be exposed to wind and rain, yet resorted to night after night unless the birds are frightened away. "So long as the bird remains alive and fit for reproduction, there will be no selection against individuals that stick to an accustomed roost in spite of discomfort."

With all the *Columbidae* "the parent at first feeds the squabs with pigeon milk that forms in the upper part of the crop. When they are a few days old it begins also to regurgitate the food in its crop," and this it does more and more as the young grow. There is much more of interest in the paper on behavior and ecology as well as on physical characteristics of different forms descended from the Rock Dove. The sketches are a valuable addition to the text.—M. M. Nice.

25. Hostile, Sexual, and Other Social Behaviour Patterns of the Spice Finch *(Lonchura punctulata)* in Captivity. M. Moynihan and M. F. Hall. 1954. *Behaviour*, 7(1): 33-76. The third study on behaviour patterns of captive Mannikins (see the papers by Morris reviewed in *Bird-Banding*, April 1955). Patterns reflecting the highly gregarious nature of this species are described. The "hostile" activities (termed "agonisitic" by Morris) are analyzed: "attack, escape, and patterns obviously produced by a simultaneous conflict or combination of attack and escape motivation." This behaviour proves to be "much less ritualized than that of many other species. This paucity of ritualization, with the accompanying sombreness of plumage and weakness of voice, is probably correlated with the extreme gregariousness—which has probably reduced the need for behaviour patterns conspicuous over long distances." The third group of activities are sexual. There are elaborate pre-copulatory ceremonies and violent post-copulatory performances. These are analyzed as consisting in both sexes of "simultaneously activated attack, escape, and sexual tendencies of varying strengths." The Spice Finch's strong gregariousness is shown by its habits of social preening and of "clumping," i.e. of roosting in a tightly packed row, a trait found only in "a few scattered families or orders." Locomotory intention movements and different attitudes during "Jingling"—the male's song—are illustrated in four sketches. A careful, detailed study with keen discussion of theoretical implications.—M. M. Nice.

26. The Pied Flycatcher. III. Feeding Biology. (Der Trauerfliegenshnäpper. III. Die Nahrungsbiologie.) Lars von Haartman. 1954. *Acta Zoologica*

Fennica, **83:** 1-96. The four chapters in this distinguished monograph are devoted to Food, Feeding of the Young, Weight, and Evolution of Size of Brood. The prey items are analyzed in Finland and found to be very similar to German studies. On the average 2.4 items were brought on each trip to the nest. A middle-sized brood will be fed some 15,000 invertebrates during the 15 days in the nest. Direct observation by means of a mirror in the nesting box was carried on for more than 250 hours, while 173 days were recorded by mechanical apparatuses.

Instead of "courtship feeding," the author suggests "marital feeding" as a better term. Male and female fed about equally except that second mates of polygamous males raised their broods alone. Males sometimes give up feeding young when going into molt. Single parents feed almost as frequently as two parents. Diagram 5 and Table 9 show the gradual increase of feeding frequency from hatching to 9 to 11 days and then a gradual decrease till flight at 15 days. In broods of 1 to 3 young the average number of feedings per young per day was 119, in those of 4 to 10 the average was 82 feedings per day (p. 28). Table 13 summarizes from the literature size of brood and frequency of feeding per young for 23 broods of 18 species.

The incubating female loses some 3 percent of her weight during the short night (4 1/3 hours). While building, females average 13.9 grams, during egg-laying 17 grams, while incubating 15 grams, but at the end of feeding young in the nest 12.4 grams. Unmated males averaged 12.3 grams, and males feeding young 12.5 grams.

The young gain very fast for about 10 days, then lose a little during the last 5 days (Diagram 18); this resembles the curve of growth in other hole-nesters. Table 10 gives data on 33 species of open and hole-nesters on length of incubation, of the period of rapid growth and of the whole nestling period. Much of this information is summarized in Table 24, where 13 open nesters are compared with 12 hole-nesters: the length of incubation averages 12.2 and 13.8 days respectively; rapid growth of the young 7.8 and 10.5 days; nestling period 10.8 and 19.3 days. The author believes that incubation period and period of rapid growth should be compared, rather than that of the whole nestling period. Yet the development of motor coordinations and of feathering is typically slower in hole-nesters than in open nesters. The larger the brood, the less as a rule each nestling weighs.

Chapter 4 is a thought-provoking discussion of the various theories as to evolution of the size of brood. There appears to be no correlation between size of brood and assistance of the male in feeding in species in *Emberiza* and *Phylloscopus,* as well as in wrens and icterids. There is an excellent summary, an 8-page bibliography, an author and species index, a detailed table of invertebrates taken in hard woods and conifers, and 8 photographs. All in all, a most valuable, scholarly piece of work, packed with important findings and comparisons.—M. M. Nice.

27. "Anting" by Birds. Derek Goodwin. 1955. *British Birds,* **48**(1): 47-48. Detailed criticism of Poulsen's theory, reported in *British Birds,* **47:** 312-313, that anting is "merely performed to rub off formic acid or any other irritant from the head."—M. M. Nice.

28. Feeding Rates of Great Tits. John Gibb. 1955. *British Birds,* **48**(2): 49-58. Observations at 52 nests of *Parus major* from 1947-51, mechanically recorded. "The daily total of visits usually increased each day for the first half of the nestling period. In the second half of the nestling period, activity was usually maintained at small first broods, but slackened off at large first broods and late broods." Late broods were less successful than early ones, many young in late broods dying of starvation at about 15 days; the caterpillars on which the first broods were largely fed were no longer available. The author concludes that parents "with large or late broods were straining to feed their young." No figures are given as to numbers of visits nor numbers of young, but 13 graphs are shown. There is also a detailed description with sketches of the mechanical recorders.—M. M. Nice.

29. Nuthatch Roosting Times in Relation to Light as Measured with a Photometer. M. C. Bradford. 1955. *British Birds,* **48**(2): 71-74. A female *Sitta europaea* was watched as she went to roost in a nesting box on the majority of afternoons from Nov. 11 to Mar. 21. No consistent relationship with the amount

of light was found. From November through January she roosted at about sunset, but in February and March she roosted before sunset, usually at much higher photometer readings than in the early winter. In the mornings she left "with great regularity close to the time of sunrise."—M. M. Nice.

30. The Behaviour of a Pair of Great Tits at the Nest. Monica M. Betts. 1955. *British Birds*, **48**(2): 77-82. Nine young *Parus major* were watched in an observation nest box for 6 hours daily for the 19 days of nest life. "The rate of feeding increased to a peak on the eleventh day and thereafter decreased, the fall being correlated with an increase in the size of food items brought to the young." Two or more items were brought on 22 percent of the visits. "The female left the box before sunrise until the young were half grown, after which she emerged progressively later. The male was active rather earlier than the female." She entered the box from 11 to 68 minutes before sunset. The working day was about 16 hours long.—M. M. Nice.

31. The Nature of "Anting." K. E. L. Simmons. 1955. *British Birds*, **48**(2): 94-96. A detailed discussion criticizing Poulsen's theory. The author concludes that this "behaviour functions in some way, yet not understood, as a superior preening method."—M. M. Nice.

WILDLIFE MANAGEMENT

(See also Numbers 2, 3, 4, 20, 40, 47)

32. Acute Toxicity of Certain Insecticides to the Bobwhite Quail and Mourning Dove. James H. Dahlen and Arnold O. Haugen. 1954. *Journal of Wildlife Management*, **18**(4): 477-481. Using 212 Bobwhite Quail *(Colinus virginianus)* and 64 Mourning Doves *(Zenaidura macroura)*, the levels at which half the treated individuals succumbed (median lethal dosage or LD-50) were as follows: (1) For Bobwhite Quail—aldrin, 4-4.5 mg/kg; dieldrin, 12-14 mg/kg; toxaphene, 80-100 mg/kg; and lindane, 120-130 mg/kg (males) and 190-210 mg/kg (females). (2) For Mourning Doves—aldrin, 15-17 mg/kg; dieldrin, 44-46 mg/kg; toxaphene, 200-250 mg/kg (estimated); and lindane, approximately 350-400 mg/kg. Doves appeared to be almost three times as resistant to the insecticides as Bobwhite Quail. The doses below those causing acute toxity had no perceptible affect on the breeding potential of quail. No cases of insecticidal mortality were found in agricultural areas, apparently because insecticides are used at low concentrations and the toxicants do not accumulate sufficiently to cause death.—Helmut K. Buechner.

33. Duration of Fertility in the Domestic Mallard Hen After Isolation from the Drake. William H. Elder and Milton W. Weller. 1954. *Journal of Wildlife Management*, **18**(4): 495-502. Groups of female Mallards *(Anas platyrhynchos)* were isolated on four occasions with similar results, showing maximum duration of fertility of 12, 14, 15, and 17 days after separation from males. Fertility of eggs laid the first week (64 percent) was much greater than that of eggs laid during the second week (37 percent) of isolation from the drakes. Less than 3 percent were fertile in the third week. From these experiments with domestic Mallards one may conjecture that second fertile clutches of eggs required the presence of a drake.—Helmut K. Buechner.

34. Unusual Ruffed Grouse Density in Benzie County, Michigan. Walter L. Palmer. 1954. *Journal of Wildlife Management*, **18**(4): 542-543. A crew of 4 men spaced 10 feet apart covered 105 acres during eradication of *Ribes* spp. for control of white pine blister rust counted 15 Ruffed Grouse *(Bonasa umbellus)* nests, representing a population of about 29 grouse per 100 acres. This was the highest density of Ruffed Grouse nests ever recorded in Michigan. Prior to Palmer's record, the highest spring population in Ruffed Grouse, 25 birds per 100 acres, was reported from Minnesota by Ralph T. King.—Helmut K. Buechner.

35. Some Effects of Fluctuating and Falling Water Levels on Waterfowl Production. Ken Wolf. 1955. *Journal of Wildlife Management*, **19**(1): 13-23. This study was conducted from April through September, 1951, in Cache Valley in northern Utah and southern Idaho. Three areas were selected for the study: (1) Swan Lake, a natural lake in southern Idaho with stable water level; (2) Newton Reservoir in Utah, an irrigation reservoir with a receding summer water level; (3) Cutler Reservoir, a hydro-electric impoundment on the Bear River in Utah, characterized by fluctuating water levels. The following species were found at Swan Lake: Western Grebe *(Aechmophorus occidentalis)*, Pied-billed Grebe *(Podilymbus podiceps)*, Canada Goose *(Branta canadensis)*, Mallard *(Anas platyrhynchos)*, Pintail *(Anas acuta)*, Cinnamon Teal *(Anas cyanoptera)*, Redhead *(Aythya americana)*, Canvas-back *(Aythya valisineria)*, Lesser Scaup *(Aythya affinis)*, Ruddy Duck *(Oxyura jamaicensis rubida)*, and Coot *(Fulica americana)*; at Cutler Reservoir were found: Canada Goose, Mallard, Pintail, Cinnamon Teal, Shoveller *(Spatula clypeata)*, Redhead, and Coot; at Newton Reservoir were found: Pied-billed Grebe and Coot. Flooding caused 31 percent loss of potential waterfowl production on the Cutler Reservoir. The nesting density at Swan Lake was 1 nest per ½ acre; at Cutler Reservoir it was 1 nest per 3½ acres. No evidence was found of a relationship between fluctuating water levels and degree of predation. Damage to waterfowl nests by water was both direct and indirect. Direct factors were: (1) Flooding duck nests and partial or complete submergence of eggs and (2) possible drying of grebe nests by lowered water levels. Indirect factors were: (1) Spilling or burying of eggs by the hens in their efforts to cope with changes in levels, (2) toppling of nests made unstable by dropping water levels, and (3) isolation of nests in the case of Grebes and possibly Coots. Coot nests suffered greatest damage when the water level dropped. Duck nests suffered most from flooding, with the damage principally restricted to Mallards and Redheads. Cattail and bulrush, the principal nesting materials, were tested for resistance to water-logging but no significant difference was found. It was concluded that total rise is not as important as the amount of rise per unit of time. Tolerances to total rise and rate of rise differ between species. The data obtained from the brood study indicated little or no difference in survival between the areas of falling, stable, and fluctuating water levels.—Keith M. Standing.

36. Spring Rainfall in Relation to Mallard Production in the Sacramento Valley, California. Wilbur W. Mayhew. 1955. *Journal of Wildlife Management*, **19**(1): 36-47. Production of Mallards *(Anas platyrhynchos)* on the Conaway ranch in the central Sacramento Valley was found to be high in years of high spring rainfall and very low in years of spring drought. Apparently as many birds nest in dry as in wet years, but relatively few broods appear except in wet springs. Studies were undertaken to determine the relation of moisture to hatching. Measurements of temperature and relative humidity conditions within the nests showed no direct correlation with hatching success. Series of eggs incubated at five relative humidities (40%, 65%, 75%, 85%, 90%) were treated with direct applications of water in varying amounts (dipped daily, dipped weekly, dipped once, undipped). The best hatch was obtained from eggs incubated at 65% relative humidity and dipped in water once a day. The direct application of water at frequent intervals is apparently necessary to obtain a successful hatch, with relative humidity playing a secondary role. It is suggested that the few successful broods produced in the dry years come from nests close to water, where the incubating birds can bring sufficient moisture to the eggs on the feathers. However, most nests are located in grain fields so far from water they are dependent upon rainfall for moisture. Therefore, yearly variations in hatching success are related to frequency and timing of direct wetting of eggs by rainfall.—Keith M. Standing.

37. The Hungarian Partridge in Utah. Richard D. Porter. 1955. *Journal of Wildlife Management*, **19**(1): 93-109. This study of the Hungarian Partridge *(Perdix perdix perdix)* was conducted to determine the size and distribution of the Utah population and to analyze environmental conditions in relation to life history so as to prognosticate the possible success of the species as a game bird in the state. A history of introductions of the bird into the state shows that over

650 birds were introduced from 1912 to the present with no apparent success. The present population, pocketed in those areas where conditions of climate, cover, food, and soil are most suitable to its survival, apparently moved in from Idaho and Nevada. The two areas studied, Standrod, Box Elder County, and Ibapah, Tooele County, showed similar environmental conditions; hay, grain, and alfalfa being the predominant crops, while sagebrush, greasewood, rabbitbrush, and shadscale are the chief components of the native vegetation. The population seems to be affected by the percent of land acreage in farms. Free water appears to be a requirement of partridges in the dry desert areas of Utah. Ants, Lepidoptera larvae, and aphids appeared to be the more important animal food items whereas wheatgrass, wheat, buckwheat and barley seemed to be the most important plant foods present. For nesting they seem to prefer permanent cover becaus the hay, alfalfa, and grain were not dense enough when nesting sites were chosen. After the nesting season temporary cover was preferred. Covey sizes usually averaged about 14 birds, with as many as 75 birds in a winter flock. Farming practices and severe winters are the two most critical mortality factors. Hythergraphic (climographic) comparisons were made of partridge areas in Utah with the average optimum for Europe and with Colfax, Washington, and Edmonton, Alberta, Canada. In most areas of Utah high temperature during June and July are critical. Heavy summer showers may be detrimental. Thus climate, topography, and farming practices are the chief factors limiting the increase of partridges in Utah.—Keith M. Standing.

38. Weather and Fall Pheasant Populations in Iowa. Edward L. Kozicky, George O. Hendrickson, Paul G. Homeyer, and Richard Nomsen. 1955. *Journal of Wildlife Management,* **19**(1): 136-142. To evaluate temperature and rainfall, on a quantitative basis, as factors in the fluctuation of Ring-necked Pheasant *(Phasianus colchicus)* populations in Iowa, the fall roadside census data from 1936 through 1952 were examined for possible weather relationships. An attempt was made to analyze spring weather conditions and the percentage of annual population changes by multiple regression. Two major assumptions were necessary: (1) That the habitat has remained essentially unchanged and (2) that the production response of pheasants has not been governed by the population level of the species. However, the rate of pheasant production was apparently related to changes in habitat and population level. A critical winter period, from December through February, may be detrimental to pheasant populations by reducing the breeding stock. Cold temperatures in May or June resulted in a decrease in fall populations even if March and April were warm. Mean total precipitation above normal in conjunction with low temperatures was evident only in years of decreasing fall populations. With high temperatures precipitation had no apparent adverse effects. Normal spring weather prevailed during years in which the fall population either remained the same or increased. There are many unevaluated combinations of temperatures and rainfall during winter and spring. There is obvious need for a better understanding of what constitutes a critical deviation from the mean temperature or rainfall.—Keith M. Standing.

39. Mourning Dove Production in South Central North Dakota. Robert N. Randall. 1955. *Journal of Wildlife Management,* **19**(1): 157-159. During the summer of 1952 the author studied the breeding populations and production of Mourning Doves *(Zenaidura macroura)* in two types of nesting cover in the vicinity of Bismarck, North Dakota. One was a shelterbelt typical of many windbreaks around farmsteads of the central North Dakota prairies. The other was an isolated patch of natural cover in the head of a small coulee. He examined all possible nesting sites in both areas, recording on each visit the status of all nests that were active or had been active. He found 123 nests in the coulee in which 156 nesting attempts were made, for an average of about 1¼ attempts per nest. In the shelterbelt, the 23 nests observed showed 31 attempts for a similar rate of attempts per nest. In the coulee about 70 percent of nestings were successful while in the shelterbelt at least 77 percent were successful. Nesting activity appeared to reach a peak in the shelterbelt much earlier than in the coulee. The species evinced little preference between trees or shrubs for nest sites, and nest loss from the occasional strong winds was slight. During the study 126 doves were banded.—Keith M. Standing.

PARASITES AND DISEASES

(See also Numbers 32, 47)

40. The Occurrence of Gizzard Worms in Canada Geese. Carlton M. Herman and Everett E. Wehr. 1954. *Journal of Wildlife Management*, **18**(4): 509-513. Distribution and variation in incidence of the roundworm parasite, *Amidostomum anseris*, the most common parasite in Canada Geese *(Branta canadensis)*, are reviewed in this paper. When the number of worms exceeded 150, extensive erosion of the gizzard lining was evident. In the bird with the most worms (1,537) the gizzard was completely denuded. Usually *A. anseris* is a contributing rather than primary factor in mortality. One of the most severe losses (predominantly younger birds) was in the winter of 1948-1949 on Pea Island National Wildlife Refuge in North Carolina where several hundred geese, or about 10 per cent of the population, died.—Helmut K. Buechner.

MORPHOLOGY AND ANATOMY

(See Numbers 43, 44)

FAUNISTICS

41. The Value of the Christmas Bird Counts. Paul A. Stewart. 1954. *The Wilson Bulletin*, **66**(3): 184-195. The large quantities of data gathered in 50 years of American Christmas bird counts are critically examined to determine their potential in quantitative ornithology. It is suggested that these counts could possibly be a highly effective method of collecting data on early winter bird populations, but techniques now used lack the refinement necessary to have much scientific usefulness. So many variables are involved, including a slow trend toward improved methods, that the lists from different years and different localities are seldom comparable. A need for increased standardization is emphasized. It is concluded that the counts will probably always contain some flaws, but that their scientific value can be enhanced without serious infringement on their popular appeal.—L. Richard Mewaldt.

42. American Land Birds in Western Europe. W. B. Alexander and R. S. R. Fitter. 1955. *British Birds*, **48**(1): 1-14. An examination of records for the past 150 years. There are 103 of these that can be dated to a month, in contrast to 203 for North American wading birds. More than five-sixths of the total are for the British Isles. A marked peak has occurred in autumn and a less marked one in spring. Records for the land birds are discussed in detail under each species. (The authors are in error in considering Hairy and Downy Woodpeckers and the Mockingbird as non-migratory.) They conclude that many of the records of American land birds are not of escaped cage-birds, but represent genuine "drift-migrants," the British Isles providing a "refuge for storm-blown American migrants."—M. M. Nice.

SYSTEMATICS

(See also Number 49)

43. Myology and Serology of the Avian Family Fringillidae, a Taxonomic Study. William B. Stallcup. 1954. *University of Kansas Publications, Museum of Natural History*, **8**(2): 157-211. Through study of leg muscle and serology, the author decided that the richmondenines, emberizines and tanagers should be included in the family Fringillidae, but that the carduelines and estrilidines should be placed in a separate family, the Carduelidae.—M. M. Nice.

44. A Systematic Study of the Avian Family Fringillidae Based on the Structure of the Skull. Harrison B. Tordoff. 1954. Miscellaneous Publications, Museum of Zoology, University of Michigan, No. 81. 42 pp. The author concludes that the Carduelinae can be separated from the remaining Fringillidae in certain anatomical features, diet, migration and singing habits, social behavior and nest sanitation. He might also have included length of nestling life—12-17 days in the Carduelinae, 8-10 days in Richmondeninae and Emberizinae. "It seems reasonable to conclude that the carduelines are ploceids." He includes the Thraupinae with the Fringillidae.—M. M. Nice.

FOOD HABITS

(See also Numbers 22, 24, 26, 28, 47)

45. More Material on Food Habits of the Eagle-Owl. (Neues Material zur Ernährung des Uhus.) 1954. Rob. März. *Die Vogelwelt,* **75**(5): 181-188. Individual prey items from Eagle-Owl *(Bubo bubo)* pellets from four regions in East Germany and from Rogaland, Norway, are tabulated and compared. März concludes that the basic food of the Eagle-Owl, especially for successful rearing of young, is medium-sized prey: hares, rabbits, hedgehogs, hamsters, partridges, crows, etc. Too high a proportion of small prey items (mice or amphibians) is a symptom of famine. A highly varied food list, rather than the selection of a chief prey species, is also considered a portent of poor Eagle-Owl reproduction. This paper would have been more valuable to other workers if März had mentioned the number of pellets on which his tabulations were based.—Frances Hamerstrom.

SONG

46. Japanese Bird Songs. Published by The Victor Company of Japan with the assistance of the Japanese Wild Bird Association. 2 Vols., each containing three 10-inch discs with a total of 30 species of Japanese birds. Available from R.C.A. Victor Dealers in America on special order at a cost of approximately $5.00 per volume depending on import costs. The recordings were made by Mr. Kasake Hoshina, Mr. Tsuruhiko Kabatani and Mr. Yoshihiko Kabatani, with the encouragement of Mr. Godo Nakanishi, President of the Japanese Wild Bird Association.

The albums which hold the discs are attractively prepared and are decorated with drawings, in color, of the birds. There are no English captions on either the albums or the discs, and there are no announcements of any kind on the discs.

A 16-page booklet accompanies each volume of records. The text gives in Japanese a simple description of each bird, its relationship, its song and its preferred habitat. A simple black and white sketch gives a visual impression of each bird and these sketches are reproduced on the covers of the booklets. The scientific name and an English common name is given for each species. Otherwise the text is in Japanese.

The original recordings were made on magnetic tape and the originals may be excellent, but the pressings have been made on a shellac base and the reproduction quality is poor, even when compared with American recordings of 15 years ago. However the recordings are entirely capable of giving a good impression of the songs of these 30 birds and as such are highly recommended.

Of particular interest to Americans will be the songs of the close relatives of the American Robin. Four members of the genus Turdus are represented. In most of these it's quite easy to detect a "Robin-like quality," but the White's Ground Thrush is represented as having only a weak whistled note slightly reminiscent of our Veery call note.

Dr. Oliver Austin, Jr., through whose good offices these recordings were made available, laments some notable omissions from the series, but from experience, I can sympathize with those who did the field work, for I know how exasperating can be the trials associated with recording some much desired species even though it is abundant. Sometimes it seems that bird, weather, mechanics and electronics

diabolically conspire to thwart one's most sincere efforts. However, in a letter accompanying the recordings, Dr. Austin is assured that plans are afoot to improve the recordings greatly and make them available in more up-to-date form and quality.

Any ornithologist or bird enthusiast planning on visiting Japan would, I feel, be well repaid for spending several hours listening to and making notes on these recordings.—P. Paul Kellogg.

BOOKS

47. The Passenger Pigeon/its natural history and extinction. A. W. Schorger. 1955. University of Wisconsin Press, Madison, Wisconsin. 8vo, 432 pp., 19 figs., price $7.50. Not only is this book an encyclopedia of knowledge of the extinct Passenger Pigeon but also a text book for the study of extirpation of birds. There probably is no pattern for the extinction of all bird-species, but the study of the spread of European civilization during the past 300 years and its effects will perhaps come close to revealing such a thing in many of these sad events.

Every phase of the Passenger Pigeon's history as well as the distressing story of the eventual destruction of the species is discussed in detail in the book's 16 chapters. The titles indicate the scope of the work. These are (1) Early Accounts, (2) Behavioral Characteristics (voice, fear, intelligence, physical habits, sociability, domestication), (3) Food (methods of feeding, plant foods, animal foods, mineral substances, effect on agriculture), (4) Movements (flight, shape of flocks, effects of weather, crossing lakes), (5) Roosts, (6) Nesting (colonial nestings, nesting procedures, aberrent nesting, number of nestings), (7) Utilization (the Indian and the pigeon, squabs, commerce, trapshooting), (8) Methods of Capture (netting, shooting), (9) Decrease and Extinction (population figures, decrease, enemies, extinction, conservation and legislation), (10) Description, (11) Anatomy and Physiology, (12) Nomenclature, (13) Distribution, (14) Migration, (15) Late Records, (16) Evaluation of Illustrations.

The care and good judgment with which the many contradictory reports in the literature are evaluated is admirable. For example, Dr. Schorger has determined that only one egg could possibly have been laid in a clutch although contemporary authors by no means have agreed about whether two might not sometimes have been laid. He states also that, unless a storm or other accident broke up the first nesting, it is doubtful that more than one took place because of the probability that the nutritive mast available would be insufficient to permit more than a few birds to nest a second time. In spite of this obvious handicap, Dr. Schorger estimates that the population may have numbered ("at a guess") three billion—perhaps between 25 and 40 percent of the total population of birds on the North American continent. In accounting for this he assumes that the Pigeon was a long-lived species with a low rate of mortality. With these hypotheses as bases, it becomes apparent that the excessive predation to which the population was subjected could theoretically have destroyed the entire species.

The recorded history of this once astoundingly numerous species begins with Jacques Cartier's sight record for Prince Edward Island of July 1, 1539 and ends with the last certain record of a wild bird, shot at Babcock, Wisconsin, on Sept. 15, 1899. The period was one of constant destruction of wild resources of all sorts. Dr. Schorger in a chapter "Decrease and Extinction" discusses every conceivable cause for the destruction of the species. He states that "the conclusion is inescapable that the passenger pigeon became extinct through such constant persecution that it was unable to raise sufficient young to perpetuate the race," with a great deal of information from every possible source, including contemporary newspapers and magazines, to document his thesis. He has amassed a bibliography of 2,200 titles in preparation of the book.

The majority of birds that have been extirpated within recorded historical times were true species, and further they were those especially distinct morphologically and probably specialized in habits. The Passenger Pigeon was no exception. Beyond the fact that their specialization, particularly their gregarious habits, made them an easy prey for men, there may have been another attribute which predisposed them to extinction. It appears that even after the last large colonial nestings were destroyed the birds lived in pairs and small parties. There is no

evidence that these were more disturbed than the nests of other birds, for example, the Mourning Dove. The last large colonial nesting took place in 1851, 1855, and 1886 in Massachusetts, Ohio and Wisconsin respectively, but small parties and pairs were reported to nest in 1880, 1893, and 1894 in those states. It is remarkable that they were not able to breed in isolated pairs. Perhaps the kill of the adult population was too great, putting too much pressure upon the factor of longevity so important to survival of this species. There is little direct evidence now available.—J. C. Greenway, Jr.

48. Bird Life. Niko Tinbergen. 1954. Oxford University Press. London. Geoffrey Cumberlege. 64pp. 8s. 6d. net. This is a book designed for beginners, one of the Oxford Visual Series, in which "text and illustration are of equal importance." In simple words, with a wealth of his own sketches and photographs, Dr. Tinbergen gives us the essence of bird biology. Through vivid descriptions of actual experiences with birds the subject of each chapter is made alive; then it is amplified by comparisons with the behavior of other species. After chapters on movements, feathers, song, fighting, courtship, nest building, and incubation we join the author in watching families of Herring Gulls, Hobbies, and Great Tits.

Some other chapters of particular interest are on "Why Do Birds Behave as They Do?" and "The 'Language' of Birds." Some "people try to work out theories, thinking hard about the animals' minds and personalities without, perhaps, spending enough time in watching what does happen . . . it is above all necessary to observe what birds do before thinking out theories, " (p. 52). Bird language consists of visual and auditory signals. It "is extremely simple—merely making the other bird do a certain thing, do it now, go towards the caller or away from it, and perhaps, in rare cases, making it go 'there'. It is amazing to see how on these simple principles birds manage to 'run' their communities," (p. 55).

The author has a deep love for nature, and with no false sentimentality. The opening incident involves the capture of a Tit by a European Sparrow Hawk, and the frontispiece is a beautiful colored plate of Joseph Wolf's painting of a Tengmalm's Owl with a Blue Tit in its claws. The last two chapters deal with "Some Practical Hints"—a discussion of hides (blinds), of attracting birds, and sketching them, and "Bird Books, Bird Journals, Bird Clubs" with a list of Bird Observatories, showing the great encouragement offered in Great Britain to young naturalists. Never do we get the discouraging idea that all is known; on the contrary the book is always pointing the way as to how the reader can observe for himself and add to our knowledge; the need is stressed for "continued, detailed, quantitative knowledge" and for "more ornithologists of the perservering kind." A wonderful book that will delight and inform not only beginners, but all students of nature.—M. M. Nice.

49. Birds of France. (Oiseaux de France.) 1954. No. 9., 34 pp.. Association pour l'Etude dans la Nature des Oiseaux de France et leur Protection, 129 Blvd. St. Germain, Paris 6, France. 100 francs. In this issue the Association has consolidated two issues into one unusually well-balanced volume. In the migration and banding section Dr. Marsille reviews rather critically the new manual by M. Chaigneau and takes exception to some of the sizes of bands recommended. The section on protection discusses the French League for the Protection of Birds, its sanctuaries, and its goal of popularizing interest in birds. Other sections concern the Association itself, courtship behavior, book reviews, and miscellaneous notes and announcements. A 6-page study treats the identification, distribution, and local haunts of the French vultures, eagles including the sea eagle, and the osprey, illustrated by a fine full page plate in the Peterson manner by Jacques Penot.

The feature article, Life History of the Booted Eagle, *Hieraëtus pennatus*, by Jacques Penot and Marc Laferrere, with illustrations of the bird at rest and in flight and a distribution map, compares favorably with Bent's life history studies. The section on synonymy is a bit rugged for an amateur, and the entire article tends to be rather advanced for its intended audience. The authors question the validity of the genus, and consider the species to be at best a subgenus of *Aquila*. They also point out the white flecks on the forewings, which Peterson gives as a field mark, are variable, inconsistent, and easily overlooked.

As an experiment in fostering interest and speeding up learning among amateurs, this publication's tactics are a far cry from those followed by the popular bird publications in the United States. The continued publication of the sort of papers this volume contains will raise it out of the amateur class into the professional. Perhaps we underestimate the ability of our own public to learn and progress. We shall be interested to learn of its effect on the French amateurs.—Wendell Taber.

50. Stray Feathers from a Bird Man's Desk. Austin L. Rand. 1955. Doubleday & Company, Garden City, N. Y., pp. 1-224, 61 cartoon illustrations, price $3.75. The 61 chapters in this book are an engaging potpourri of odd bits of information about birds and their habits, presented skilfully, simply, and interestingly for lay consumption. The emphasis, if there is one, is on the anthropomorphic aspects of bird behavior, and the subjects range from birds as brigands and as pilferers, to their use of tools, ability to count, and solution of the baby-sitting problem.

Obviously written for possible use as a newspaper column, each chapter runs from 500 to 1,000 words and is subdivided for easier digestion. The newspaperish subhead leads introducing many of the paragraphs are often inappropriate and, to me, detract from rather than add to the text's readability. Nor do I particularly admire the title—scarcely less awkward and certainly more descriptive would have been "Columns Clipped from the Culled Cogitations of a Cultured Curator." Or how about "Rambling at Random with Rand"?

Aside from these minor faults, the columns themselves are exceedingly well done. They contain a wealth of accurate, authoritative information, presented with a light and amusing touch. That no feature syndicate picked them up for distribution reflects the newspaper editors' judgement of the public taste, not the columns' worth and interest. I fear that in book form they will never have the far wider audience and sale they deserve.—O. L. Austin, Jr.

NOTES AND NEWS

Those interested in banding who drive to Boston for the American Ornithologists' Union meeting in October would be welcome at the editor's banding station (37 Old Brook Road, West Hartford, Conn.) on the weekends before (Oct. 22, 23) or after (Oct. 29, 30) the papers session at Boston. The station offers a wide variety of plantings for birds, and of traps; weather permitting, mist nets will be in operation. It is likely that the migration of White-throated Sparrows will be tapering off, with Juncos and Fox Sparrows increasing (in the fine migration of October, 1954 we banded 900 individuals, of 30 species).

The station is only a few miles off the main parkway route from New York to Boston: take the Merritt and Wilbur Cross Parkways, turn left on Conn. 173 in Newington, left on Asylum Ave. in West Hartford ("T" intersection), right at first traffic light (onto Conn. 185), left at next light (onto U. S. 44). Turn diagonally left after just one mile (at the intersection of Mountain Road, with overhead blinker), on Old Oak Road, take the middle road of three (Old Brook Road), after a tenth of a mile, go another tenth of a mile. From Boston, on the Wilbur Cross Highway, turn right on U. S. 44 in Manchester.

The 1955 annual meeting of the Northeastern Bird-Banding Association will be held on Saturday, October 1, at the Cook's Canyon Sanctuary of the Massachusetts Audubon Society, in Barre, Mass. The meeting starts at 10 A.M., Eastern Daylight Time; bring a picnic lunch (coffee will be provided). All those interested in banding are welcome.