juvenile, and recorded on August 1, 1953, at an age of more than 28 years and 13 days, which would appear to establish a new longevity record for any species in the wild. Details were not given, except the band number (Viborg D 701).]—E. Alexander Bergstrom, 37 Old Brook Road, West Hartford 7, Conn.

RECENT LITERATURE

BANDING

(See also Numbers 25, 26, 27, 30, 58, 61, 62, 63)

1. Banding of Various Species of Birds (in Norway), 1953 and 1954.—(Ringmerking av Forskjellige Fuglearter. Ringmerkingsresultater VIII.) M. Martinsen and A. Wildhagen. 1955. Published by Statens Viltundersøkelser. 50 pp. During 1953 and 1954 a total of 15,820 birds were banded under the Statens Viltundersøkelsers scheme. Species banded in greatest numbers were the Fieldfare *(Turdus pilaris)* 2,841; Redwing *(Turdus musicus)* 503; Common Gull *(Larus canus)* 653; and Black-headed Gull *(Larus ridibundus)* 1,404. Included in the report are the records of 226 recoveries from 1953 and 265 from 1954. Among the interesting foreign recoveries are those of three Pied Flycatchers *(Muscicapa hypoleuca)* banded as young and recovered in Portugal, a Lapwing *(Vanellus vanellus)* banded as a young bird and recovered in Yugoslavia, and a Heron *(Ardea cinerea)* banded in Norway as a young bird in June and recovered in Ireland during the following November.—D. S. Farner.

2. Bird-Banding in Norway 1954.—Holger Holgersen. 1955. *Sterna (Stavanger Museum)* No. 21. 40 pp. This report includes the banding effected by the Stavanger Museum (20,644 birds banded), Statens Viltundersøkelser (8,534) and the University of Oslo (166) during 1954. Since the beginning of banding in Norway, bands have been placed on 194,985 birds. Species banded in greatest numbers during 1954 were the Starling *(Sturnus vulgaris)* 2,229; Great Tit *(Parus major)* 1,407; Pied Flycatcher *(Muscicapa hypoleuca)* 2,750; Fieldfare *(Turdus pilaris)* 4,390; Lapwing *(Vanellus vanellus)* 1,531; Black-headed Gull *(Larus ridibundus)* 2,284; Common Gull *(Larus canus)* 1,952. Of great interest is the banding of 525 Pinkfooted Geese *(Anser brachyrhynchos)*, 73 Pale-breasted Brent Geese *(Branta bernicla)*, and 23 Barnacle Geese *(Branta leucopsis)* by Russel Webbe on Spitzbergen. A selected list of recoveries is included. Among the interesting records is that of a Great Black-backed Gull *(Larus marinus)* banded in Norway as a chick in 1937 and recovered 17.5 years later in Germany.—D. S. Farner.

3. Report on Bird-Ringing for 1954.—Robert Spencer. 1955. *British Birds*, **48**(11): 461-498. A total of 102,858 birds, 36,621 of them being nestlings or chicks, were ringed in Great Britain in 1954. Maps are given showing recoveries of Teal *(Anas crecca)*, Blackbird *(Turdus merula)*, and Starling *(Sturnus vulgaris)*. Wintering Blackbirds were retaken in Norway, Sweden and Germany. The recovery in Holland on 9 August 1954 of a Starling banded in the nest in Lincolnshire on 16 June 1954 is most unusual. "Of five birds ringed on passage at Smith's Knoll Light Vessel (52° 43′ N. 2° 18′ E.) between 17th October and 7th November 1953, 3 were recovered in Holland (11.3.54, 21.4.54 and 24.4.54), one in France (31.1.54) and one in Denmark (16.4.54)." Interesting age records are given. Of Barn Swallows *(Hirundo rustica)* "re-trapped where ringed, two were first caught in 1949 (one as an adult), two were in 1952 and five in 1953." The 58 Lapwings *(Vanellus vanellus)* (practically all ringed as chicks) "recovered during 1954 had been ringed as follows:—1945 (1), 1947 (1), 1949 (2), 1950 (4), 1951 (6), 1952 (8), 1953 (22), and 1954 (14)." They were taken in Denmark, France, Portugal, Spain and Morocco. Arctic Terns *(Sterna macrura)* were captured and released at their birthplaces (Farne Islands) 15, 18 and 19 years after ringing. A Common Tern *(Sterna hirundo)* was found decapitated beside a nest containing eggs 15 miles northwest of its birthplace where it had been ringed 25 years before. "This is the oldest bird so far recorded by the British ringing scheme." (p. 486.)—M. M. Nice.

4. Banding Activities at the Ottenby Bird Station 1954. Report No. 19.—(Verksamheten vid Ottenby fågelstation 1954. Meddelande no. 19.) Wolf Jenning. 1955. *Vår Fågelvärld*, **14**(4): 201-224. During the 1954 spring and fall migrations 12,252 birds of 108 species were banded at the station, bringing its total of birds banded in 8 years up to almost 90,000. By 1 February 1955, 193 recoveries were reported, increasing the number of all recoveries to 1,125, or 1.4 per cent of the total number of birds banded. Several accidentals were trapped, the most interesting being the Paddyfield Warbler *(Acrocephalus agricola)* of which a detailed report was published in this journal, and a Greater Sand Plover *(Charadrius leschenaulti)*, the latter normally at home in Asia and the warbler in southeastern Russia and Asia. The most remarkable recoveries included a Bar-tailed Godwit *(Limosa lapponica)* which was shot two years after banding in the Tajmyr Peninsula in Siberia, 3,500 kilometers from the banding station; and two Mallard *(Anas platyrhynchos)* drakes hatched in the fields of Ottenby, which were reported one from Lake Ilmen in mid-Russia and the other from Archangel at the southeastern tip of the White Sea, both having apparently paired with females of Russian origin on the wintering grounds. Of the 68 recoveries of Dunlins *(Calidris alpina)* many were picked up dead along the coasts of the North Sea during February and March of 1954, probably having succumbed to inclement weather. An interesting note in connection with the solar eclipse on June 30 described flocking around the lighthouse and behaviour as at night by Black Swifts *(Apus apus)* just before maximal obscuration, the flocks dispersing as light returned.—Louise de K. Lawrence.

5. The Banding Activities at Falsterbo Bird Station 1947-1953.—(Ringmärkningsverksamheten vid Falsterbo fågelstation 1947-1953.) Anders Eneman. 1955. *Vår Fågelvärld*, **14**(3): 155-65. This is a report of the banding activity at the southernmost tip of Sweden before the station at Falsterbo was built. Hence most of this work was of an experimental nature. Hawk-cages and clap-nets with live bait were most successful for capturing raptors. Song birds were taken in nets rigged up along a hedge. Except in 1948 and 1951 all banding was done during the fall migrations. A total of 3,875 birds representing 65 species were banded during this period. The fall of 1952 yielded the greatest catch, 2,043 birds. Thirty-eight recoveries were reported, representing almost exactly 1 percent of the total number of birds banded. The more remarkable of the recoveries was a Barn Owl *(Tyto alba)* usually considered to be a sedentary species, which was captured at Stralsund, Germany, seven months after banding, having obviously migrated across the Baltic Sea, and a Robin recovered 30 days after banding in Algeria.—Louise de Kiriline Lawrence.

6. Bird Banding in Finland in 1953.—(Die Vogelberingung in Finnland im Jahre 1953.) Ilmari Välikangas and Göran Nordström. 1955. *Memoranda Societatis pro Fauna et Flora Fennica*, **31**: 3-34. During 1953 bands were placed on 14,830 individuals of 143 species. Species banded in greatest numbers were the Starling *(Sturnus vulgaris)* 1,310, Great Tit *(Parus major major)* 1,620, Pied Flycatcher *(Muscicapa hypoleuca hypoleuca)* 649, Fieldfare *(Turdus pilaris)* 1,321, Common Tern *(Sterna hirundo)* 414, Black-headed Gull *(Larus ridibundus ridibundus)* 760. Of interest also is the banding of 50 Turnstones *(Arenaria interpres interpres)* and 129 Black Guillemots *(Uria grylle)*. Also included in this report are details of 407 recoveries involving 58 species.—D. S. Farner.

7. Banding Recoveries of Barn Owls in Lower Saxony and Westphalia.—(Ringwiederfunde niedersächsischer und westfälischer Schleiereulen *(Tyto alba)*.) Ulrike Sauter. *Beiträge zur Naturkunde Niedersachsens*, **8**(4): 114-118. This list contains 41 records of Barn Owls recovered at distances greater than 50 kilometers from the banding site during 1937-1954. There appears to be a tendency for the recoveries to be west of the banding site but this may be a bias in sampling. The most interesting record is that of a bird banded on 3 August 1934 at Mittelsbüren near Bremen, recaptured and released on 15 April 1935 at Lichtenvoorde, Holland, 193 kilometers SW of banding site, and then taken a second time on 15 December 1937 at Bunderhee, 144 kilometers NNE of the previous recovery site, and 102 kilometers W of the original banding and hatching site.—D. S. Farner.

8. Results from the Banding of Barn Owls in Hesse.—(Beringungsergebnisse an hessischen Schleiereulen *(Tyto alba).*) Ulrike Sauter. 1955. *Vogelring,* **24**(3). 7 pp. The author has analyzed 71 records of Barn Owls banded in Hesse and recovered during 1937-1954. Losses were exceptionally high during the winters of 1937-38, 1950-51, and 1952-53. These records contain considerable evidence of the random scattering of Barn Owls during the first winter. The greatest displacement among this group was 494 kilometers. Perhaps the most interesting record is that of a bird banded 13 June 1928 at Rossdorf and captured 1 April 1943 about five kilometers east of the banding site.—D. S. Farner.

9. Banding Studies on the Barn Owl in the Neckar Region.—Beringungsergebnisse an den Schleiereulen *(Tyto alba)* des Neckarraumes.) Ulrike Sauter. 1955. *Jh. Ver. vaterl. Naturk. Württemberg,* **109**(2): 153-165. Between 1937 and 1953 in Württemberg 1,312 Barn Owls were banded; 356 have been recovered and serve as the basis for this paper. There has been a considerable irregularity in the pattern of recoveries with maxima during the winters of 1947-48, 1950-51, and 1952-53. During a "normal" year most of the recoveries involve first-year birds. During the winters of 1937-38, 1947-48, and 1952-53 there was an unusual amount of wandering among first-year birds. The greatest displacement of a Württemberg Barn Owl was 890 kilometers SW. Shortage in food is regarded as basic to these wanderings. No directional pattern appears to exist in these movements. Dispersion of members of a brood similarly appears to be random. Breeding may occur during the first year.—D. S. Farner.

MIGRATION

(See also Numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 30, 34, 58, 69, 90, 91)

10. Bird Migration as an Adaptation Phenomenon.—(Der Vogelzug als Anpassungsphänomen.) Henrik Wallgren. 1955. *Die Vogelwarte,* **18**(2): 61-66. This interesting paper summarizes the salient aspects of the author's doctoral dissertation which has been published earlier *(Acta Zoologica Fennica,* **84**: 1-110). The Yellow Bunting *(Emberiza citrinella)* was shown experimentally to have a much greater cold tolerance and a slightly lesser heat tolerance than the Ortolan Bunting *(E. hortulana).* The better cold tolerance of the latter apparently is to be attributed to its denser plumage since no differences in metabolic rate and body temperature could be demonstrated. Climographs show clearly that migration would give little advantage to the Yellow Bunting whereas it is essential to the Ortolan Bunting. Fat deposition in the Ortolan Bunting is not the result of reduced metabolic rate; early fall migration probably has positive selective value since the fat deposition (or at least the favorable energy balance which causes it) which is necessary for migration can occur only before higher thermoregulatory requirements of lower temperatures and decreased food intake of shorter days eliminate the favorable balance.—D. S. Farner.

11. The Possibility of Sun Orientation of some Species in Migration.—(Ueber die wahrscheinliche Sonnen-Orientierung einiger Vogelarten auf dem Zuge.) D. A. Vleugel. 1953. *Ornis Fennica,* **30**(2): 41-51. This paper contains some interesting reflections on possible schemes of sun orientation in migration. It is assumed that, in many species, the direction of flight is set by a horizontal angle with the sun at sunrise. This is considered in conjunction with the earlier temporal-symmetry *(Zeitsymmetrie)* concepts of Corti and Stimmelmayr. The author suggests that temporal-symmetry about a 21-June axis could be obtained by flight orientation to a definite horizontal angle with the rising or setting sun. The author suggests that such orientation could account for the gradually increasing westward orientation among Finnish Chaffinches *(Fringilla coelebs)* in fall migration. Also he points out that orientation by means of a fixed angle with rising sun would account for the more southern orientation in fall migration of the earlier migrating Scandinavian Chaffinches as compared to the later migrating German Chaffinches.—D. S. Farner.

12. The Preference for Headwind by Migrating Chaffinches.—(De voorkeur van trekkende, zich op zon en wind oriënterende botvinken *(Fringilla coelebs* L.).) D. A. Vleugel. 1954. *Le Gerfaut,* **44**(3): 259-277. Whenever meteorologic conditions were favorable, fall migration in 1943 was observed to be about seven times as intense under conditions of mild head winds as under mild tail winds. The difference between weak head and tail winds was less pronounced. In the springs of 1934 and 1935 in eastern Netherlands migration was 2.5 times as intense during periods of moderate or weak head winds as in moderate or weak tail winds. That fall migration occurs frequently by steady movement on a broad front can be explained by the fact that this occurs when head winds are the rule. In spring such well developed broad-front movements are noted less frequently, an observation which the author correlates with a greater frequency of tail winds. It is the author's suggestion that Chaffinches may navigate by maintaining a certain angle with the prevailing wind and that such an angle is easier to maintain with a head wind; this is suggested as possible explanation for the apparent preference for migration into a head wind. It is suggested that the greater tail-wind migration in spring may be explained by the fact that more of the birds are familiar with the terrain and that sun orientation is easier in spring than in fall. —D. S. Farner.

13. The Inadequacy of Visual Orientation for Straight Flight, Especially in the Migration of the Chaffinch.—(Über die Unzulänglichkeit der Visierorientierung für das Geradeausfliegen, insbesondere beim Zug des Buchfinken *(Fringilla coelebs* L.).) D. A. Vleugel. 1955. *Ornis Fennica,* **32**(2): 33-40. The author presents a number of arguments based on field observations, to the effect that orientation with overcast skies cannot be explained alone by visual orientation to fixed points. It is suggested that, whereas such orientation may be important over short distances, orientation by maintaining a constant angle with wind direction may be important over greater distances.—D. S. Farner.

14. Land- and Sea-Bird Migration in North-West Spain, Autumn 1954. —D. W. Snow, D. F. Owen and R. E. Moreau. 1955. *The Ibis,* **97**(3): 557-571. This very interesting paper is based on five weeks' observations, September-October. The annotated list of land birds observed includes 39 species. There are also notes on five species of sea birds. On several occasions the authors observed birds arriving from the sea onto the north coast. The principal species was the Meadow Pipit *(Anthus pratensis)* with smaller numbers of Skylarks *(Alauda arvensis),* White Wagtails *(Motacilla alba),* Chaffinches *(Fringilla coelebs),* and Linnets *(Carduelis cannabina).* No arrivals from the sea were observed at the northwest corner of the peninsula. Extensive coasting movements were noted. Principal species involved were Meadow Pipits and Chaffinches with smaller numbers of thirty other species including Swallows *(Hirundo rustica),* Great Tits *(Parus major),* Blue Tits *(P. caeruleus),* Goldfinches *(Carduelis carduelis),* Linnets *(Carduelis cannabina),* and Serins *(Serinus canarius).*—D. S. Farner.

15. Night Migration and Wind Direction on Helgoland.—(Nächtlicher Zug und Windrichtung auf Helgoland.) 1954. Lore Dinnendahl. *Die Vogelwarte,* **17**(3): 188-194. Migration-wave nights were selected from sudden peaks in catches at the Helgoland Banding Station. A figure presents 241 migration-wave nights (in which 13 species of night migrants are included) in relation to wind direction. No correlation was found between wind direction (favorable or unfavorable) and migration waves.—Frances Hamerstrom.

16. The Migration of the West Siberian Population of the Black-throated Loon.—(Vom Zug der Westsiberischen Population des Prachttauchers *(Gavia arctica).*) 1954. Ernst Schüz. *Die Vogelwarte,* **17**(2): 65-80. This comprehensive paper gives a vast amount of information on the migration routes and distribution of *Gavia arctica.* A taxonomic discussion is included. — Frances Hamerstrom.

17. A Glance at the Recoveries in France of Buzzards.—(Coup d'oeil sur les Reprises en France de Buses variables, *Buteo buteo.)* Noël Mayaud. 1955. *Alauda,* **23**(4) : 225-48. This is an interesting survey of some 300 recoveries of Buzzards which were originally banded during the period 1920-53 in Finland, Scandinavia, Germany, Switzerland, and during their migration to and from the breeding-grounds in these countries. Two subspecies are considered, *buteo* and *vulpinus. Vulpinus* breeds in Russia and Finland but has lately extended its breeding range into northern Sweden, and it is not known to what extent it overlaps with that of *buteo. Vulpinus* migrates in a general southerly direction as far as South Africa and southern Asia. Only the Finnish and Swedish populations of this race appear to migrate southwest through France and Spain into western Africa. The *buteo* is far less of a migrant with movements in a general southwesterly direction. The Finnish and Scandinavian populations of the *buteo* pass along the shores of the Baltic and North seas to the northwest and western parts of France where it winters. The various German populations appear to migrate on lines chiefly parallel which run in the directions southwest and west-southwest to wintering grounds in the eastern half of France. The Swiss birds winter in France's southeastern corner and are therefore the least strongly migratory of all these populations. Interesting data emerged also on the ages of the migrants. The oldest bird was in its 18th year and there were several from 9 to 14 years old. In the Scandinavian populations the older birds (over two years) tended to migrate farther than the young ones. This tendency was reversed in the German populations, while in the Swiss one there was almost no difference in the distances covered by each group.—Louise de Kiriline Lawrence.

18. Ornithological Observations from Lista 1954.—Michael K. Swales. 1954. *Sterna (Stavanger Museum),* 20. 31 pp.—This is a summary of observations on migratory birds made on Lista during the period 11 September-17 October. Migration was largely confined to high pressure periods with fine weather conditions. Species observed in greatest numbers were Siskin *(Carduelis spinus),* Chaffinch *(Fringilla coelebs),* Brambling *(Fringilla montifringilla),* Yellow Bunting *(Emberiza citrinella),* Meadow Pipit *(Anthus pratensis),* Tree Pipit *(Anthus trivialis),* White Wagtail *(Motacilla alba),* Swallow *(Hirundo rustica),* and Sparrow Hawk *(Accipiter nisus).*—D. S. Farner.

19. Some Observations on Birds at Gotska Sandön.—(Några fågelobservationer på Gotska Sandön.) Johan Morbeck and Per Melin. 1955. *Vår Fågelvärld,* **14**(4) : 240-244. An account of observations made on this small island in the Baltic Sea from 27 May to 9 June 1955 during spring migration. Altogether 103 species were recorded. On one morning when observations were made from 3 to 6 A.M. about a score birds could be seen leaving the island every other minute, flying northwest and also north out over the sea. Most numerous migrants were warblers and Chaffinches *(Fringilla coelebs).* There were also many shrikes which fed extensively on the warblers. An immature Scarlet Grosbeak *(Carpodacus erythrinus)* was heard singing the full song. It also gave a whisper song which was more varied with trills and soft whistled notes, and as the bird sang this song it closed its eyes and ruffled its feathers. Over a hundred Crossbills *(Loxia curvirostra)* were banded.—Louise de K. Lawrence.

20. The Autumn 1953 Invasion of Lapland Buntings and its Source.—Kenneth Williamson and Peter Davis. 1956. *British Birds,* **49**(1) : 6-25. An unprecedentedly large invasion of Lapland Longspurs *(Calcarius lapponicus)* in the British Isles in September 1953 is analyzed with 10 weather maps. Most of the birds are believed to have come from Greenland. "The biggest influxes occur under conditions of anticyclonic development in the north-east Atlantic, with a westerly airstream between south-eastern Greenland and the British Isles." "There is evidence that, as the species was unusually abundant in the United States in winter 1953-54, the Lapland Bunting population in the Nearctic reached an optimum in autumn 1953. The cause of this abnormal abundance is not known."—M. M. Nice.

21. An Invasion of Pine Grosbeaks *(Pinicola enucleator)* during the Winter 1954-55.—(En invasion av tallbit vintern 1954-55.) Gunnar Markgren. 1955. *Vår Fågelvärld,* **14**(3): 168-77. The Pine Grosbeak breeds in northern Europe southwards to about the 62nd latitude but reaches the 50th parallel in Siberia and the 36th along the Rocky Mountains. An invasion of the species began in late October 1954 into the middle and southern parts of Sweden. The records suggest that most of these birds came from Siberia and Russia, moved in a southwesterly direction, crossing the Baltic Sea via the Åland Islands and the southern band of islands which stretches from the Bay of Riga to the Swedish coast. The climax of the irruption occurred the last of November—first part of December and by March 15, 1955 the last of the birds had disappeared. Mostly small flocks were observed of about 10 to 12 birds. Foods eaten by the grosbeaks included rowan-berries as the principal item, also the buds of spruce, birch, and aspen, later on juniper and "lingon" berries. The cause of the invasion is attributed foremost to a critical low in the food supply on the usual wintering grounds in combination with uncommonly severe climatic conditions immediately preceding the migration, such as early and violent snowstorms with extremely low temperatures perhaps having occurred in Siberia and Russia. It would also be interesting to investigate the weather conditions in these parts a year or two previous to the irruption and their long-range effect upon the food supplies of the grosbeaks. Overpopulation is discounted as a main factor for the simple reason that it would be almost impossible for any single species of birds to overpopulate the enormous ranges of the Siberian taigas.—L. de K. Lawrence.

POPULATION DYNAMICS

(See also Numbers 7, 8, 9, 23, 57, 58, 67, 90)

22. Concerning Propagation, Sexual Maturity, and Interim and Further Migration in the Quail.—(Über Zucht, Eintritt der Geschlechtsreife, Zwischen- und Weiterzug der Wachtel *(C. coturnix).*) 1954. Wilhelm Meise. *Die Vogelwarte,* **17**(3): 211-215. The first part of this paper summarizes some Japanese work on the Quail. Artificial propagation to produce songsters with a trill at the end of the call was popular in Japan between 1595 and 1647 and again from 1764 to 1780. Quail propagation was revived in 1918 but it is not known whether the breeders came from early stock or from wild-caught birds. Topnotch hens lay up to 30 eggs per month—365 per year—and are used for egg production for 1 to 1½ years. The Quail are raised in batteries, with artificial light, on a ration of meal: 50% rice; 40% wheat or clover powder; 10% rye; supplemented by 30%-50% fishmeal and 15%-20% [*sic*] ground mollusk shells. The incubation period is 16 days and hens start laying when they are 40-50 days old!

Meise adds that Quail can start "interim migration" when they are only slightly over six weeks old. Interim migration is defined as migration in the interim between completion of the brood and before the real migratory departure. This differs from movements away from unfavorable habitats which also occur. He suggests that the remarkable precocities of the Quail may have survival value in the wild, especially for birds such as these whose semi-arid range has marked fluctuations in carrying capacity.—Frances Hamerstrom.

23. What Is the History of Young North-Sea Herring Gulls Released Inland?—(Wo verbleiben im Binnenland frei aufgezogene Nordsee-Silbermöwen?) Rudolf Drost. *Die Vogelwarte,* **18**(2): 85-93. During 1950-1954, 953 young *Larus argentatus* from Mellum on the North Sea Coast were transported to and released from 14 zoological gardens in Germany and Switzerland. The recoveries from these birds indicate a considerable amount of diverse movements although there appears to have been some movement towards (actually somewhat westwardly displaced) the birthplace. This could be explained in part by simply following the river courses and in part through association with other species of gulls.—D. S. Farner.

24. Population Changes in the White Stork: Third Review, 1939-1953.—(Bestandsveränderungen beim Weissstorch: Dritte Übersicht, 1939-1953.) 1954. Ulrike Sauter and Ernst Schüz. *Die Vogelwarte,* **17**(2): 81-100. Storks, with the exception of occasional upswings in numbers, are declining particularly at the periphery of their range in Sweden and Switzerland. "Disturbance years," in which reproduction is low, play an important part in the decline. These are characterized by late arrival in spring, a high percent of non-breeders and paucity of young. The disturbance is sometimes regionally retarded for a year. Low survival of young can be due too to food shortage during the first three weeks in the lives of the young storks, but this is different from "disturbance year" low reproduction which appears to be predominantly due to the physiological condition of the breeding population. Both in disturbance years and in normal years, variation in reproductive success is considerable: there are only half as many non-breeding pairs in Southwest Germany as in Oldenburg. Storks from the western flyway appear to have a higher reproductive rate than those from the eastern. Other factors reducing storks are: the war, increased industrialization (danger from wires), over-population by human beings, and increase of guns along the flyways. Counts of stork pairs, number with young and percent without young are given for 21 regions.—Frances Hamerstrom.

25. Where Do Different Age Classes of White Storks Spend the Breeding Season?—(Wo verbleiben die Weisstörche aller Altersstufen in den Brutmonaten?) 1954. Walter Libbert. *Die Vogelwarte,* **17**(2): 100-113. Only about one third of year-old White Storks, and about two thirds of the two-year-olds return to within 1,000 kilometers of the breeding area in which they were banded as nestlings (based on 1,367 breeding season band returns). Older birds regularly return to their breeding localities, which are usually near to where they were hatched. A large number of those year-old storks which do not return to the breeding region spend the summer 2,000-3,000 kilometers away in the region of the Nile Delta and Asia Minor; probably not because of particularly favorable feeding habitat there, but primarily because of insufficient migratory urge due to sexual immaturity.—Frances Hamerstrom.

26. Sexual Maturity and Establishment of Breeding Ground in the White Stork.—(Reifealter und Ansiedlung beim Weissen Storch.) 1954. Friedrich Hornberger. *Die Vogelwarte,* **17**(2): 114-149. In general one- and two-year-old White Storks do not pair. Sexual maturity is normally not attained even at three years, when only 7 percent were paired; however, of these 44 percent reproduced successfully. Of storks found paired for the first time, 18 percent were four-year-olds (48 percent produced young); 20 percent were five-year-olds (58-60 percent produced young); only 11 percent were six-year-olds, presumably because of heavy mortality commencing with this age class, but reproductive success of six-year-olds was high: 66 percent. Fourteen percent of the storks found breeding for the first time were seven years old, 5.5 percent were eight years old and 2 percent were nine. Productivity increases with age. Among the birds in this study the peak was reached by eight year olds, 70 percent of which were fertile. The data at hand were insufficient to evaluate the fertility of still older storks. Four-, five- and six-year-olds make up 55 percent of the breeding population. In a study of about 1,000 known storks, only 100 were older than nine years and the oldest was seventeen.

Settling far from home is extremely rare. Only three out of 353 storks bred more than 500 kilometers from their birthplace. Excellent diagrams give the relative geographic distribution for all major age classes.—Frances Hamerstrom.

27. Do Two-Year-Olds Breed and Are There Some Old Non-breeders among White Storks?—(Gibt es zweijährige Brüter und alte Nichtbrüter beim Weissen Storch?) 1954. Halfdan Lange. *Die Vogelwarte,* **17**(2): 150-155. This is a review of P. Skovgaards' sight records and summarizes some Danish nest and banding records from 1930 to 1954. In the disturbance year, 1949, at least 65 percent of the Danish storks did not breed; ordinarily about 30 percent do not breed; and in the good years, 1939 and 1952, only about 7 percent failed. There are three reports of two-year-olds at nests. [But the evidence that they were breed-

ing is insufficient; they may have been visiting.] Of four-year-old storks, breeding for the first time, 12 out of 28 were unsuccessful. As tabulated, storks ten years and older appear to have high breeding success, and the greatest number of unsuccessful attempts were by five- and six-year-olds. One stork bred successfully in its 17th, 18th and 19th years.—Frances Hamerstrom.

28. Concerning Vital Statistics and Ecology of the White Stork in Spain.—(Über Demographie und Ökologie des Weissen Storches in Spanien.) 1954. Francisco Bernis. *Die Vogelwarte*, **17**(2): 158-161. In general, the White Stork increased in Spain between 1929 and 1948. In 1948, 26,000 stork nests were reported for all Spain. Storks breed throughout most of Portugal as well.

Factors favorable to storks in Spain are: moist or wet ground; sandy-clay subsoil; sunny climate; gently sloping, broad valleys; grassland; pastures and open, pastured woodlands; favorable man-made factors such as irrigation; towers; and plantings (such as poplar lanes); the last two supplying nesting sites. Unfavorable factors are: dry ground; limestone, gypsum or sandstone substrate; foggy or rainy climate; high mountains and narrow, steep valleys; large stretches of thick woods or brushland and unspecified man-made activities.—Frances Hamerstrom.

29. The Breeding of the Starling, *Sturnus vulgaris*, in Relation to Its Food Supply.—George M. Dunnet. 1955. *The Ibis*, **97**(4): 619-662. This very interesting investigation was conducted at the North of Scotland College of Agriculture experimental farm at Craibstone near Aberdeen. The study area was one square mile in extent. To facilitate observations of nests the investigator blocked natural cavities and put up boxes nearby to replace them. The number of breeding females increased from 43 in 1950 to 52-54 in 1951, and to 78 in 1952. In this area leatherjackets (*Tipula* sp. larvae) constitute the principal source of food brought to the nestlings; earthworms constitute a relatively minor item. It seems that the beginning of the breeding season has become adjusted so that young starlings appear only after the population of leatherjackets is sufficiently great to serve as a food supply. The author's data indicate that about 1.9 percent of the available leatherjackets were used in 1951; about 7 percent in 1952. Hence, if the timing is correct, the food supply is not limiting with respect to reproduction. Synchrony in second clutches is much less pronounced than in the first. Nestling weights did not differ significantly between broods of different sizes or in relation to the amount of food available. The occurrence of second broods may be determined by the time of the beginning of breeding and the time of disappearance of leatherjackets from the soil. "There is much evidence to suggest that the available food supply is the ultimate factor timing the end of the breeding season, but it probably does not determine the onset of breeding." (p. 661.) "It appears that clutch-size in the Starling is adapted to normal low density of food, and is not immediately adaptable to higher levels as it seems to be in the Great Tit . . . or that food is normally superabundant during the breeding season, and clutch-size is determined by other factors." (p. 658.) A very significant paper.—D. S. Farner.

30. Results from the Banding of Starlings in Saxony.—(Ergebnisse der Beringung Sachsen-Anhaltischer Stare (*Sturnus vulgaris* L.).) Alfred Hilprecht. 1954. *Abhandlungen und Berichte für Naturkunde und Vorgeschichte* (Museum für Kulturgeschichte Magdeburg), **9**(1): 1-63. This is a very interesting and important analysis of the substantial quantity of data which has been obtained from the banding of Starlings in Saxony. It is of interest to note that the phenomenon of *Zwischenzug* among young of the year is not as pronounced in the populations of Saxony and eastern Poland as it is in many populations. Among 271 recoveries of first-year birds during June-September after hatching, only 63 were taken more than 15 kilometers from the hatching site. Birds banded in the region between 52° 15′ N. and 53° N. were found to winter primarily in France, Belgium, Netherlands, and southern England. Birds banded between 52° and 52° 15′ were found to winter principally in western Germany, Belgium, Netherlands, and France. Birds from 51° 45′ to 52° were recovered in winter from central and western Germany, the low countries, Spain, Italy, and north Africa. Birds

banded between 51° and 51° 45′ were recovered in central and western Germany, low countries, France, Spain, North Africa, Italy, Sicily, and Switzerland. First-year Starlings show a marked tendency to return to the vicinity of the hatching site: 69 were recovered within 1 kilometer, 39 from 1-5 kilometers, 9 from 5-10 kilometers, 20 from 10-25 kilometers, 3 from 25-50 kilometers, and 3 beyond 50 kilometers. The most frequent numbers of young per nest in 833 nests were 4 (254) and 5 (267). The mean number young for first broods was 4.2; for later broods, 3.7. The distribution of 1,042 recovered or retrapped birds according to age at time of recovery was as follows: 0-½ year, 447; ½-1, 226; 1-1½, 134; 1½-2, 75; 2-2½, 56; 2½-3, 21; 3-3½, 16; 3½-4, 18; 4-4½, 6; 4½-5, 3; 5-5½, 4; 5½-6, 3; 6-, 3. Information is not given with respect to numbers of individuals banded per year, etc., so that it is not possible to estimate a mortality rate. It is unfortunate that this was not calculated. A very important paper.—D. S. Farner.

31. Quantitative Investigation of Breeding of Reed Warblers.—(Quantitative Untersuchungen zur Brut des Teichrohrsängers *(Acrocephalus scirpaceus* Hermann).) Ludwig Franzisket. 1955. *Journal für Ornithologie*, **96**(4): 378-381. A 2,000-meter strip (1.5-2.0 meters wide) of reeds along a canal near Münster contained 31 breeding pairs of Reed Warblers in 1954. From late May to mid-July the 31 pairs constructed 80 nests. In 77 nests 259 eggs were laid. Of the 77 clutches, 38 were destroyed or abandoned before hatching; nestlings were produced in 28. Five nests had Cuckoo eggs. Six nests still had eggs at the end of the observation period (mid-July). A period of bad weather followed hatching and young were fledged from only nine nests.—D. S. Farner.

32. The Lapwing on the Island, Hilnoto, during 1951-1954.—(Töyhtöhyypän, *Vanellus vanellus* (L.), esiintyminen Hailuodossa vv. 1951-54.) Veijo Törnroos. 1955. *Ornis Fennica*, **32**(2): 59-61. Observations on this island (65° N, 24° 45′ E) indicate a marked increase in the Lapwing population during the course of these four years. This is another indication of the northward expansion of this species in Finland.—D. S. Farner.

LONGEVITY AND MORTALITY

(See Numbers 7, 8, 9, 24, 26, 30, 58, 90)

NIDIFICATION AND REPRODUCTION

(See also Numbers 22, 24, 29, 45, 79, 90)

33. The Winter Breeding Season of Land-Birds in Eastern Eritrea.—K. D. Smith. 1955. *The Ibis*, **97**(3): 480-507. In contrast to the remainder of tropical Africa which has summer rains, the rains are largely confined to the period, November-April. Correlated with this is the breeding of 73.5 percent of the land birds in December-March and an additional 15 percent in April-May. In central and western Eritrea, where the rains come in the summer, the percentages for these periods are 9 and 28, respectively. There are a number of instances where these differences are shown strikingly by individual species. For example, *Euodice cantans* breeds in eastern Eritrea in February-April and in central and western Eritrea in August-November. The respective breeding seasons for *Pycnonotus barbatus* are January-April and May-July. The very interesting data recorded in this paper emphasize again a most interesting problem for experimental investigation, namely the mechanism by which the rainy season, or some factor invariably associated with it, controls the reproductive cycle.—D. S. Farner.

34. The Birds of the Cape Verde Islands.—W. R. P. Bourne. 1955. *The Ibis*, **97**(3): 508-556. This paper is based on the observations of the author during the summer of 1951 together with unpublished material obtained by the Blossom

Expedition of 1923-1924 and information from the few published studies of the islands. The annotated list contains 40 resident forms; the list of migrants includes 49 forms. The resident forms are composed of an interesting mixture of relict Palaearctic species and species of tropical origin. Of particular interest is a comparison of the relict Palaearctic species with the corresponding European species. The rains occur in the Cape Verde Islands in August, September, and October. Small birds, including the relict Palaearctic species which normally breed in the northern spring, breed at this time. Normally they fail to breed in the absence of rain. The scavengers nest after the rains and the water birds during the dry seasons. The desert species and inshore sea-birds have prolonged breeding seasons with seasonal changes in clutch-size. The pelagic sea birds breed early in the year while there is an increase in food supply off the coast of Africa. —D. S. Farner.

35. Observations on *Tapera naevia* and Its Host Species in Surinam.—(Beobachtungen an *Tapera nævia* und ihren Wirtsvögeln in Surinam.) *Journal für Ornithologie*, **96**(3): 337-343. In Surinam this lark cuckoo parasitizes principally the Furnariid species, *Synallaxis gujanensis, S. albescens,* and *Certhiaxis cinnamomea.* The eggs of *Tapera naevia* may be found during all months of the year. Details of nests containing *Tapera* eggs are given. Egg-color varies from pure white to blue white and blue green. The eggs of parasite and host are incubated together; subsequently the nest contains only the *Tapera* young.—D. S. Farner.

36. On the Subject of the Steel-green Widow Finch Parasitizing the Little Ruddy Waxbill.—(Au sujet du parasitisme de *Lagonosticta senegala* L. *par Hypochera chalybeata* Muller.) G. Morel and M. Y. Morel. 1955. *Alauda,* **23**(4): 281-82. No nests of *Hypochera* have ever been found. Nor has any building activity been observed in this species, but the female has often been found at the nest-sites of *Lagonosticta.* The finches acquire their nuptial plumage at exactly the same time as the waxbill reaches the state of reproduction. Furthermore, fledglings of the finch have been found among groups of waxbill juveniles. Most recently a nestling *Hypochera* was discovered in the nest of a waxbill and the remarkable similarity noted between the design and coloring of the mouth-linings of both species of nestlings.—Louise de K. Lawrence.

37. A Nesting of the Booted Eagle in the Haute-Marne Region 1955.—(Reproduction de l'Aigle botté *Hieraëtus pennatus* (Gmelin) dans le Département de la Haute-Marne en 1955.) André Labitte. 1955. *Alauda,* **23**(4): 249-53. Some instances of the occurrence of this species existed previous to this observation in east central France. The eyre was discovered in an oak 12 to 14 metres from the ground. The old nest of a Black Kite *(Milvus migrans)* was used much enlarged and refurbished with fresh branches of deciduous trees. Two eggs incubated 8-10 days reposed in the nest. The adult birds upon being disturbed executed a remarkable flight above the nest. Mounting in spirals to heights varying from 10 to 100 metres, they folded their wings and dropped head first down to just above the treetops. Here they deftly turned in a half loop and with a ringing musical cry: "Bili . . . bili . . . bili" they surged upwards once more to repeat the manoeuvre.—Louise de K. Lawrence.

38. Nesting and Production of the Blue-winged Teal *(Anas discors* Linnaeus) in Northwest Iowa.—Fred A. Glover. 1956. *Journal of Wildlife Management,* **20**(1): 28-46. In a constantly productive area, 40 out of 186 nests of Blue-winged Teal were successful. Destruction of 100 nests was attributed to predators, mostly skunk, mink, fox, and raccoon. In two locations nests were regularly destroyed and in three instances, incubating females were killed. At least 52 of the 186 nests found were renesting attempts, 24 percent of which were successful. As of September 1 in both 1948 and 1949, the average number of juveniles per breeding pair of teal was 1.3; the average from 1932 to 1936 was 3.1 juveniles per breeding pair; and in 1946 the production was 2.0 juveniles per breeding pair. No territorial defense of nests was observed; but 66 waiting stations, which were defended by males against trespass by other males, were noted. The paper provides a third record of productivity for the Ruthven study area.—Helmut K. Buechner.

39. Nesting Study of Wood Ducks.—W. J. Breckenridge. 1956. *Journal of Wildlife Management,* **20**(1): 16-21. Detailed nesting activity was recorded at one nest, equipped with floating floor and automatic recording apparatus. Thermocouple readings showed the down covering over eggs to be inefficient insulation and probably for this reason longer periods of incubation were evident on cooler days. Incubation periods for three years of study were: 25, 29-30, and 31 days, the latter being correlated with prolonged and severe chilling of the eggs on the fourteenth day of incubation. It is suggested that the shortest period of incubation approaches most nearly the period characteristic of the species. Increases in temperature, within physiological limits, do not shorten the period, but chilling can greatly increase the length of the period.—Helmut K. Buechner.

40. The Influence of Poikilothermy in Hummingbirds on Their Breeding Biology.—(Einfluss der Poikilothermie bei Kolibris auf ihre Brutbiologie.) Helmut O. Wagner. 1955. *Journal für Ornithologie,* **69**(4): 361-368. Among hummingbirds the tendency toward poikilothermy under unfavorable energy states is apparently common. The author suggests that there is little energy storage and that a uniform metabolic rate therefore requires a continuous food intake. The deep thick-walled nests of high-mountain species, the tolerance of embryos to low temperatures (hence wide range of incubation period), tolerance of nestlings to low temperature, and the temporary poikilothermy represent adaptations which have permitted hummingbirds, a tropical group, to inhabit and breed in high-mountain regions.—D. S. Farner.

BEHAVIOR

(See also Numbers 11, 12, 13, 23, 35, 36, 37, 39, 57, 82, 87, 90, 91, 93)

41. Some Observations at a Roost of European Swallows and Other Birds in the South-Eastern Transvaal.—Gustaf Rudebeck. 1955. *The Ibis,* **96**(3): 572-580. The author describes a roosting site of *Hirundo rustica* in a reed marsh near Lake Chrissie. The number of roosting birds was estimated to be about one million. The marsh was 500-600 meters in diameter.—D. S. Farner.

42. The Sleeping Habits of Tree Creepers and Other Small Birds in Cold Winter Nights.—(Schlafgewohnheiten der Baumläufer *(Certhia brachydactyla, C. familiaris)* und anderer Kleinvögel in kalten Winternächten.) Hans Löhrl. 1955. *Die Vogelwarte,* **18**(2): 71-77. The author describes winter sleeping sites in which he found as many as 20 Short-toed Tree Creepers *(Certhia brachydactyla)* sleeping together in a compact formation with heads oriented inwards.—D. S. Farner.

43. Countershading in Caterpillars. An Analysis of Its Adaptive Significance.—L. De Ruiter. 1955. *Archives Néerlandaises de Zoologie,* **11**(3): 1-57. A study that supports A. H. Thayer's (1896) theory of the importance in nature of "countershading," i.e. a graded pigmentation "darkest on the side the animal normally turns to the light, and lightest on the opposite side." (p. 2.) Experiments with hand-raised European Jays *(Garrulus glandarius)* in relation to a large variety of caterpillars showed that ". . . countershading has considerable protective value against this predator. . .," and also that the jays ". . . make use of shade in the identification of objects." A piece of careful and convincing research.—M. M. Nice.

44. A Raven Roost in Devon.—H. G. Hurrell. 1956. *British Birds,* **49**(1): 28-31. For five years a pair of *Corvus corone* held territory which included a five-acre wood which they used for roosting. In January 1955 large numbers of sheep had died on the moor and a great many Ravens assembled to feed on the carcasses. From 50 to 60 roosted in the wood from January to mid-March. Two birds found dead were found to be in non-breeding condition. The author believes that: ". . . in Devon the most suitable feeding areas for Ravens, such as the moors, are to a large extent territorially divided between a number of pairs. This means that, if non-breeding Ravens fed and roosted singly, especially in the breeding season, they might be vehemently driven from one territory to another. When,

however, a whole host of Ravens arrive, as in our case, it is clearly impossible for the local pair to rout them. This seems to point to an advantage for non-breeders in feeding and roosting collectively."—M. M. Nice.

45. Nest-sanitation and Fledging of the Green Woodpecker.—H. R. Tuft. 1956. *British Birds*, **49**(1): 32-36. As a result of observations from blinds on several nests of *Picus viridis*, the author found that during the first 12-14 days of nest life feces were swallowed by the adults inside the nest hole; during the next 4-5 days they are both swallowed and carried away; while during the last 3-4 days there is no more sanitation by the female and only about a day of this activity by the male. Fledging usually takes place two days after the male ceases to enter the hole.—M. M. Nice.

46. Observations on the Goosander in the River Indal.—(Iakttagelser över storskraken (*Mergus merganser*) i Indalsälven.) Matts Holmer. 1955. *Vår Fågelvärld*, **14**(4): 231-235. These interesting notes on the habits and behavior of the Goosander, the European counterpart of *Mergus merganser americanus*, were accumulated during research work done on the behest of a hydro-power company in northeastern Sweden. The typical habitat was in swift water running over rocky bottom at shallow depths. The species was found also in water with less current and sandy or silt bottom, but it avoided muddy and overgrown bottom areas. Since there was a scarcity of natural nesting places in hollow tree-trunks, the ducks which always require a roof over their heads were found nesting in nest-boxes, under sheds, even in attics of dwellings. In some attics three to four nests were found and in one house the owner had opened a hole in the wall of his attic to accommodate nesting ducks. Some of the nests were at a great distance from water. It was possible to see female Goosanders leading a string of young downies to water in the midst of the forest almost a mile from the river. The clutches contained 5-14 eggs and hatched commonly during the second week of June. The maternal instinct of the females was highly developed and instances recorded when lone females, probably most often unmated birds, adopted motherless broods. A low cackling call uttered by the mother released the flocking reaction in the young. Warning cries from other birds caused the mother duck to lead the young quickly to safety. She chased other Goosanders. At actual danger, she fled at the head of her closely following brood, all of them pattering over the water at great speed with wings flapping, scrambling over whatever obstacles might be in their way, such as rafts of logs, out into the middle of the stream. The young never dispersed or dived out of sight, but kept tight together in a flock. On land they never ran to cover but fled to water.

The female did not feed the young and the diving for fish was apparently an innate activity in the downies. All fish caught were turned around and swallowed head first. The downies foraged in shallow water with weak currents over sandy or pebbly bottom. They gradually learned to dive with a kick-off motion like the adult ducks. An adult female was watched for an hour while feeding. During this time she dived 50 times and spent periods of from 17 to 33 seconds under water. The longest time a Goosander was observed under water was 35 seconds. These ducks also forage during the night.—Louise de K. Lawrence.

47. Nuthatch Feeds the Young of Starling.—(Nötväcka *(Sitta europea)* som matar starungar *(Sturnus vulgaris).*) Sten Svensson. 1955. *Vår Fågelvärld*, **14**(4): 256. A pair of Starlings and a pair of Nuthatches nested in nest-boxes put up in a group of trees not far from each other. One of the Nuthatches regularly fed the young Starlings which were also cared for by their parents in normal fashion. The young Nuthatches which still required brooding were apparently fed chiefly by the female Nuthatch. Once when the two Nuthatches met in the trees a minor fight developed between them. There was no fighting noted between the Starlings and the Nuthatch which entered their nest-box. On another occasion when the Starlings were very attentive to their young, the Nuthatch after finding no opportunity to feed the Starlings came over to its own nest and for a time the pair there fed the young Nuthatches in "complete concord." There was no evidence to suggest the presence of 3 Nuthatches in the neighborhood or even in the area.—Louise de K. Lawrence.

48. The Activity of Caged Green Finches in the 24-Hour Day with Different Day-lengths with and without Twilight.—(Die Aktivität gekäfigter Grünfinken im 24-Stunden-Tag bei unterschiedlich langer Lichtzeit mit und ohne Dämmerung.) Jürgen Aschoff and Johannes Meyer-Lohmann. 1955. *Zeitschrift für Tierpsychologie*, **12**(2): 254-265. The activity of three male *Chloris chloris* was measured mechanically; nine charts illustrate the findings. During an eight-hour day the birds evinced the highest activity per light hour, and during a 12-hour light period the highest total activity for the 24 hours. Longer light periods resulted in a considerably lower activity per light hour, and even the total activity might decrease. When the light period was less than eight hours, activity per hour did not increase.—M. M. Nice.

49. Experiments on the Seeing Ability of the Goose.—(Versuche über den Gesichtskreis der Gans.) Carlheinrich Engelmann. 1955. *Zeitschrift für Tierpsychologie*, **12**(2): 266-276. Experiments were made on five geese, three domestic ducks and four roosters. The geese recognized a white plate at 35 meters, ". . . a group of maize grains at 8 meters, single maize grains and the group of wheat grains at 3 meters and single wheat grains at 1 meter. Fellow members of the species were recognized as such at a distance of 120 meters. They see far goals better than chickens and ducks do, but—like ducks—they are less good than chickens at recognizing objects quite near to them."—M. M. Nice.

50. The Behaviour of the Domestic Chicken: a Review of the Literature.—D. G. M. Wood-Gush. 1955. *British Journal of Animal Behaviour*, **3**(3): 81-110. An excellent, well-documented resumé of the voluminous studies on this bird from embryo to old age.—M. M. Nice.

51. Nests of Ten Various Species on the Same Tree.—Kálmán Warga. 1955. *Aquila*, **59-62**: 453-454. In the Kishalaton marshland in 1951 there were only six trees in a circle of about two kilometers. One of these, a huge and hollow white poplar, held nests of 10 species: "White Stork, Kestrel, Lesser Grey Shrike, Tree Sparrow, Great Spotted Woodpecker, Roller, Golden Oriole, Hooded Crow, Jackdaw and House Sparrow." "Noisy quarrels and chases frequently occurred between Orioles and Rollers, Kestrels and Jackdaws." I believe this is the record for number of species nesting in one tree.—M. M. Nice.

52. Transference of "Imprinting" in a Wild Gosling.—D. M. Steven. 1955. *British Journal of Animal Behaviour*, **3**(1): 14-17. A Lesser White-fronted Goose *(Anser erythropus)* captured when between one and two weeks old, was very wild at first, hissing at its captors. On the fourth day it called to be released from its cage when it saw a human being; on the sixth day it followed the author for 300 yards. The next day it followed all members of the party, showing signs of distress when left alone. On the 8th day it entered the house, lying down by the observer's feet. It did not hiss at people after the second day, but continued to hiss at horses, goats and dogs. It was given to the Zoo at Edinburgh and here it showed attachment to people. The gosling accepted people as social companions in lieu of its own species.—M. M. Nice.

53. Studies of Fighting in Chaffinches. (1) Behaviour in Relation to the Social Hierarchy.—P. Marler. 1955. *British Journal of Animal Behaviour*, **3**(3): 111-117. Two captive flocks of four and eight birds, equally divided as to sex, ". . . were organized in straight-line, peck-right hierarchies with males dominant over females, the results of fights being the same wherever they occurred in the aviary."—M. M. Nice.

54. Voice of a Fledgling Robin.—E. H. Gilham. 1955. *British Birds*, **48** (12): 549-550. A Robin *(Erithacus rubecula)* adopted at about 10 days of age, started to warble when about 17 days old. The food call, feeding note and a ticking note are described.—M. M. Nice.

55. The Effects of Model Scorpion and Lizard on a Bird-Table.—R. Meinertzhagen. 1955. *British Birds*, **48**(12): 556-557. Both small and large birds ignored the lizard model, but all were much afraid of the scorpion. "Not one of these birds or their remote ancestors can ever have seen a scorpion before and yet they evinced extreme fear; this from birds who are credited with less intelligence than man. Many years ago in South Africa I was training with my company—all cockneys—when three of my men found a large scorpion. One of them picked it up and was stung. They thought it was some wingless locust . . . it is refreshing to find there are occasions when a bird has more sense than a man. . . . Reaction to a stimulus in a bird is fundamentally identical with man's reaction to the same stimulus; detail differs, but our and a bird's reaction to fear, hunger, sex, etc., are much alike in general form, whether in face of danger, in a restaurant or when courting." Col Meinertzhagen is now using the scorpion to protect his rock-garden from being rooted up by Blackbirds *(Turdus merula)*.—M. M. Nice.

56. The Song Rhythm of the Goatsucker.—(Nattskärrans, *Caprimulgus e. europaeus* L., sangrytm.) Ch. Ehrström. 1955. *Ornis Fennica*, **32**(3): 93-99. Observations were made on four pairs in 1951 and two in 1952 on the Island Storhomen. Song was recorded throughout the night in June although there were considerable differences in individual pattern. Song decreased markedly in August. In cloudy and rainy weather song began about a half hour earlier than in clear weather. During the most intensive song period in June song periods were 2-15 minutes; at the end of July and beginning of August the song periods were of the order of 1-6 minutes.—D. S. Farner.

LIFE HISTORY

(See also Numbers 29, 35, 36, 46, 90, 91)

57. The Breeding Biology and Behaviour of the Redwinged Starling, *Onychognathus morio*.—M. K. Rowan. 1955. *The Ibis*, **97**(4): 663-705. The observations on which this paper is based were made at Hout Bay on the Cape Peninsula, South Africa. Data were obtained on 14 broods, 1948-1953. In this area the Redwinged Starling population consists of two parts: resident pairs and roving flocks. Pairs are territorial, usually roosting all year at the nest. Widowed males or females do not flock again, but acquire new mates. It appears that flocks are composed mostly of juvenile birds but with some sexually mature birds. It appears that incipient pairs develop in the flocks. The male courts the female with food. The Redwinged Starling nests primarily on cliffs, occasionally in holes in trees, and more recently on man-made ledges. There are normally two clutches, in October and November. Normal clutch size is three. Incubation begins before the last egg is laid and is effected only by the female. Incubation periods for 14 clutches varied from 12.5 to 23 days, mean 16. Fledging period varied from 22 to 28 days, mean 26. Auditory stimuli release the gaping response in blind nestlings as well as in older nestlings. Among the 14 broods observed, 43 eggs were laid; 41 nestlings were hatched and 39 left the nest. During the breeding season these starlings take large quantities of insects although on the whole the species is primarily frugivorous.—D. S. Farner.

58. The Pied Flycatcher. — (Der Trauerschnäpper *(Muscicapa hypoleuca* [Pallas]).) Gerhard Creutz. 1955. *Journal für Ornithologie*, **96**(3): 241-326. The author began his investigations on the Pied Flycatcher in 1932; between 1932 and 1952 he banded 3,308 individuals with an additional 233 banded in 1953 and 1954. Three ecologically different areas (73.5 hectares) near Dresden have been under investigation. This extensive paper contains a wealth of information on this interesting species. The Pied Flycatcher is a highly adaptable species which neither restricts itself to a particular biotope nor develops psychologic races. Installation of nest boxes increases density significantly.

Mean arrival date in Dresden is 21 April. Males arrive at least three days

earlier than the females and establish preliminary unstable territories which are constricted as later males, mostly young, arrive. Initially the females move through the area in a disinterested manner. Soon, however, they are attracted to nest holes by the calls of the males. Banding data strongly suggest that a substantial fraction of both sexes does not breed until the second year after hatching. Breeding birds pair with other mates in subsequent seasons thus causing extensive interbreeding.

Nest construction is effected by the female. Eggs are laid at one-day intervals between 5 A.M. and 8:00 A.M.; clutch size varies from three to nine. Most of the clutches are completed within a period of 14 days; this period, depending on the weather, may occur in early, mid-, or late May. Incubation is by the female; in many pairs she is fed by the male. While the female is incubating the male may court unpaired females; this sometimes leads to polygyny. Mean incubation period is 13.5 days. Mean number of young hatched per nest for 608 nests was 4.3. The young are ready to leave the nest on the 15th day after incubation but usually leave on the 16-18th day. Second clutches are not frequent; second broods do not occur in central Europe. The author records cases of both territorial polygyny (two females with a single nest hole) and extraterritorial polygyny. Molt of flight feathers begins earlier in the male (as early as the beginning of June) than in the female (never before mid-July). Fall migration to the Iberian peninsula is over a very restricted migratory route. Local birds leave the breeding areas in late June or early July. Northern birds appear in mid-September.

The author's statistics show that 606 clutches contained 3,724 eggs; 112 of the clutches produced no young. The remaining 494 clutches with 3,120 eggs produced 2,632 young of which 2,315 left the nest. Breeding birds display a marked *Ortstreue*. Less than four percent of the young returned to the immediate area as breeding birds although substantial numbers bred within 4 km. of the hatching site. An average breeding population contains 30 percent individuals which have bred previously at the same site, 5 percent birds breeding for the first time and which were hatched at the site, and 65 percent individuals of unknown age from elsewhere. The mean life expectancy of first-year birds is 1.3 years. The following distribution was noted for breeding males of known age for 1947-1952: 1st year, 37.8 percent; 2nd year, 32.5 percent; 3rd year, 17.6 percent; 4th year, 6.4 percent; 5th year, 4.1 percent; 6th year, 0; 7th year, 1.3 percent. This is a very modest sample of the wealth of data in this very commendable paper.—D. S. Farner.

WILDLIFE MANAGEMENT

(See also Numbers 77, 91)

59. The Use of Log Transformations in Analyzing Fall Roadside Pheasant Counts.—H. O. Hartley, P. G. Homeyer and E. L. Kozicky. 1955. *Journal of Wildlife Management*, **19**(4): 495-496. In 1952 an analysis of the fall roadside pheasant census in Iowa was made for a 15-year period and certain conclusions were reached on the efficiency of sampling design as well as on the importance of sample size in predicting population trends within certain specified confidence limits. The analysis of variance was calculated on the basis of the number of pheasants seen per 15-mile length of road. While the usual assumption for such an analysis of variance is the constancy of error variance for the various segments into which the data have been decomposed, there was a tendency for the experimental standard deviation to vary in proportion to the segment mean. By using logarithms of the pheasant counts the average variance remained the same but the heterogeneity was eliminated.—Keith M. Standing.

60. The Use of Agricultural Cover Crops in Southeastern Waterfowl Management.—Lawrence S. Givens and Thomas Z. Atkeson. 1955. *Journal of Wildlife Management*, **19**(4): 494. Several agricultural cover crops, which are fall-planted annuals plowed under the following spring for soil improvement, can furnish good grazing for all species of geese and limited use by ducks. These are especially useful if planted after such good waterfowl food crops such as corn, peanuts, or grain sorghum have been harvested. Cover crops which furnish good

goose forage are wheat, oats, rye, barley, ryegrass, crimson clover, Austrian peas, and button clover. Only slight modifications of standard agricultural practices are necessary to adapt cover crops to waterfowl use.—Keith M. Standing.

61. Technique for Identification of Woodcocks at Night.—Wilmer C. Richter and Stephen A. Liscinsky. 1955. *Journal of Wildlife Management,* **19** (4) : 501. To determine the possibility of identifying individual woodcocks *(Philohela minor)* at night two birds were banded with a one-fourth inch band of thin aluminum alloy covered with Wide Angle Pressure Sensitive Flattop "Scotchlite" Reflective Sheeting. One bird was banded red and one was banded gold. The woodcock with the gold band was identified on several different nights. The application of this technique is restricted because of the limited number of colors. —Keith M. Standing.

62. Trapping Techniques for Ruffed Grouse. — Robert S. Dorney and Helmer M. Mattison. 1956. *Journal of Wildlife Management,* **20**(1): 47-50. Described in this paper are improvements in construction and operation of mirror traps for spring trapping. Clover-leaf traps proved highly successful in August and September. Leads made of netting direct birds toward a central cage from which they are directed by a guide toward a holding cage. The latter is entered between bobs spaced 1½ inches apart, or through a cone at the top of a wire ramp from which the birds drop into the cage. Along one highly populated road edge, using seven clover-leaf traps, 86 different individual Ruffed Grouse *(Bonasa umbellus)* were caught in 16 days. With snow covering the ground, the bob holding trap placed under a shelter was effective. Using this technique in a mild winter (1952-53), 47 birds plus 91 recaptures were made between mid-December and the first week in April. Without snow, trapping was ineffectual.—Helmut K. Buechner.

63. The Use of Auditory Stimuli for Flushing Ring-necked Pheasants. —Paul A. Stewart and Eugene H. Dustman. 1955. *Journal of Wildlife Management,* **19**(3) : 403-405. To determine the possibility of reducing the heavy destruction of incubating Ring-necked Pheasants *(Phasianus colchicus)* by the mowing machine, observations were made on their responses to various auditory stimuli. A number of natural sounds, presumed to be of a disturbing nature, were recorded and presented to the nesting birds with a tape recording machine. Several nesting birds were also exposed to a variety of tones generated by an audio-oscillator. The incubating birds made minor responses to several sounds that did not counter the incubating instinct, but no indication was found that any auditory signal might have value for frightening them from their nests ahead of the mowing machine.— Keith M. Standing.

64. Trapping Techniques and Banding Returns for Michigan Sharp-tailed Grouse.—Tony J. Peterle. 1956. *Journal of Wildlife Management,* **20**(1) : 50-55. Of four types of traps—tip top, long bob, wing funnel, and portable funnel —only the first two were successful in winter, and of these the tip top was superior. In 1,881 trap-days, using a tip top (number of traps in use not stated), 45 different birds were caught a total of 110 times. The cannon-projected net trap, used at dancing grounds, was the most economical technique for capturing Sharp-tailed Grouse *(Pedioecetes phasianellus)*. Slight modifications of the trap and technique to facilitate capture are discussed. During the period 1951-1954, trapping resulted in 117 captures, of which 45 percent were recaptured. At the point of release, 27 percent of the 117 captures were recaptured one to six months later, eight percent from six months to 1 year later, seven percent from 1 to 1½ years later, and three percent from 1½ to 2 years later. Recapture records indicate that individual birds probably never move more than three miles from the nest site during the entire lifetime, but most of the data are for males which may be more sedentary than females and juvenals.—Helmut K. Buechner.

65. Validity of Mail Survey Data on Bagged Waterfowl.—Earl L. Atwood. 1956. *Journal of Wildlife Management,* **20**(1): 1-16. Post-hunting-season questionnaires were tested against true kill records obtained at checking stations. Returns from three mail contacts showed no difference between the nonresponding

and the responding population of hunters. Prestige-bias resulted in upgrading actual hunting success. Two types of memory-bias were discerned, both of which stemmed from lack of records on the part of hunters and resulted in significant exaggeration of the harvest data. For example, an actual decrease of 14 percent occurred in the average seasonal duck kill per hunter on the Bear River public hunting area during the 1952-53 season as compared to the 1951-52 season, but the mail survey data indicated that the average seasonal duck harvest had increased 32 percent during the same period. Removal of the large biased errors was accomplished with high efficiency through application of statistical techniques, thus providing reasonably accurate harvest data from questionnaire surveys.—Helmut K. Buechner.

66. Experiments in Locating Wild Chukar Partridges by Use of Recorded Calls.—Wayne H. Bohl. 1956. *Journal of Wildlife Management,* **20**(1): 83-85. Although the technique has not been perfected and effectiveness has not been ascertained statistically, it appears that phonograph record calls may be successful in locating and trapping Chukar Partridge *(Alectoris graeca).* Behavior could be controlled by playing "community," "feeding," and "warning" calls.—Helmut K. Buechner.

ECOLOGY

(See also Numbers 10, 24, 27, 31, 32, 33, 34, 40, 46, 87, 90)

67. Contributions to the Ecology of the Indian Ring-Dove.—Jenö Tomasz. 1955. *Aquila,* **59-62**: 129-143. *Streptopelia decaocto* first arrived on Gellért-hill in Budapest in 1945; it increased rapidly. It always settles near dwellings. The territories ". . . are first taken over by the male birds after severe fights and quarrels." The patrolling and fighting are described in detail. The male then attracts a mate by loud cooing. Detailed accounts, illustrated with eight maps, are given of territorial changes of six pairs in 1950. Territories may contain from 500-3,500 square meters, averaging from 800-2,000. During incubation the male sits from about 11-12 A.M. to 5-6 P.M., but during the first 10 days of feeding the young in the nest his session usually lasts from 8-9 A.M. to 3-4 P.M. Incubation lasts about 14 days, fledging about 18 days, the parents feeding the young for some time afterwards. In 1950 six pairs were extraordinarily successful, fledging 31 young from 32 eggs, one pair fledging six young, another eight, a third 10! But in the wet spring of 1949 almost no eggs hatched. "Pair numbered II.a. built 8 times in 1951 and only succeeded in fledging one young from the last nest." Nesting usually lasts into September, sometimes into October and rarely November.—M. M. Nice.

ZOOGEOGRAPHY

(See also Numbers 67, 89 and 90)

68. The Collared Turtle Dove in Norway.—(Tyrkerduen, *Streptopelia d. decaocto* (Friv.), ny for Norges fauna.) Holger Holgerson. 1954. *Stavanger Museums Årbok,* 1954: 39-46. The northward range expansion of the Collared Turtle Dove has now apparently reached Stavanger as well as Sunde (Sunnhordland). The five birds reported were observed during the winter of 1954-1955.—D. S. Farner.

69. The Iceland Merlin as an Addition to the Fauna of Norway.—(Islandsdvergfalk, *Falco c. subaesalon* Br., ny for Norges fauna.) Holger Holgerson. 1954. *Stavanger Museums Årbok,* 1954: 47-50. The author has found four specimens of the Iceland race in Norwegian Museums. It is suggested that it is a drift migrant in Norway in a manner similar to many Iceland and Greenland species.—D. S. Farner.

70. Slender-billed Nutcracker *(Nucifraga caryocatactes macrorhynchos)* Breeding in Sweden. — (Smalnäbbad nötkråka häckande på Gotska Sandön 1955.) Stig Lundberg. 1955. *Vår Fågelvärld*, **14**(3): 166-67. This is the first breeding record of the species in Europe. Nesting followed an invasion of this nutcracker into Sweden in the fall of 1954 and involved a pair which apparently wintered near a feeding-station on the island in the Baltic Sea. Both birds were of the same race. Two fledglings were seen.—L. de K. Lawrence.

71. *Acrocephalus agricola*—a New Eastern Visitor at Ottenby.—*(Acrocephalus agricola*—en ny ostlig gäst vid Ottenby.) Ingvar Petersson. 1955. *Vår Fågelvärld*, **14**(3): 153-55. On June 1, 1954, a strange bird entered the Ottenby trap together with four Reed Warblers *(Acrocephalus scirpaceus)*. In appearance it was almost inseparable from its companions, but its behavior was notably different. It proved to be a female Paddyfield Warbler. This bird breeds in Asia and in Europe only in southern Russia; it winters in India. There are accidental records for Fair Isle, Heligoland, and Roumania; this is the first for Scandinavia. Northeasterly winds preceded the arrival of these migrants.—Louise de Kiriiline Lawrence.

72. The Ciconiiform Birds with Special Reference to The Venezuelan Species.—Gerardo Ypez Tamayo. 1955. *Memoria de la Sociedad de Ciencia Naturales la Salle*, **15**: 5-44. This is primarily an annotated list of the 34 species known from Venezuela including brief descriptions and notes on distribution.—D. S. Farner.

73. Black Kite and Great Grey Owl Breeding in Norrbotten 1955.—(Brun glada *(Milvus migrans)* och lappuggla *(Strix nebulosa)* häckande i Norrbotten 1955.) Stig Lundberg. 1955. *Vår Fågelvärld*, **14**(4): 224-230. The Black Kite has not earlier been known to breed farther north in Sweden than in Södermanland, south of Stockholm, and in southeastern Finland, although the bird has been previously recorded as far north as the northeastern regions of Sweden. On 27 May 1955 a nest was found near Kalix, province of Norrbotten. It contained three eggs of which two hatched a week later. The nest was built on top of one constructed by a Russian Buzzard *(Buteo b. vulpinus)* a few years earlier in an old spruce, about 18 feet from the ground. It was made of branches and dry twigs and decorated with feathers, the wool of hares, newspaper, even a nylon stocking. The young kites which left the nest on 6 August were fed fish and the young of squirrels, ducks, shore-birds, and thrushes.

The nest of the Great Grey Owl was found in June near Pajala, also in the Swedish province of Norrbotten. A pair nested in the same place in 1954 and it is presumed, though evidence is lacking, that the species which is primarily a migrant in Sweden may breed in this locality even in years when mice, rats, and voles, its principal food, are not abundant. The nest was in an old pine, about 24 feet from the ground, a collection of dry branches on a site previously occupied by a Goshawk *(Accipiter gentilis)*. The usual clutch is from 4-6 eggs, but this nest contained only two in response, it is thought, to the restricted food supply. Both eggs hatched, but one of the young later disappeared before it was ready to leave the nest, and there was reason to believe that it had been pecked to death by its sibling while in a weak condition from lack of food. As the surviving owlet grew older, its mother became progressively more aggressive around the nest-site.—Louise de K. Lawrence.

74. The Nuthatch as a Wanderer into Sweden. — Nötväckan *(Sitta europea)* som svensk invasionsfågel.) Gunnar Svärdson. 1955. *Vår Fågelvärld*, **14**(4): 235-240. As the last glacial period drew to a close the avifaunal recolonization of the Scandinavian Peninsula occurred from two directions, one from the south and the other from the east where glaciation had been much less extensive. In some birds, one part of the species had retired to the eastern and another section to the southern refuges. During the isolation from each other both sections progressed more or less in their evolution. This created certain differences between them, some of which appear today only as an inherited preference for a particular migratory direction, while others show in distinct morphological modi-

fications. The last is the case with the Nuthatch of which there are two groups, the brown-bellied birds which spent the time of isolation in the south and after the glacial era spread northwards from the Mediterranean, and the white-bellied races which "wintered" on the slopes of the Urals and post-glacially spread westwards.

There are three white-bellied races in Scandinavia and European Russia, *norvegica, europea,* and *rossica,* all of eastern origin, whose northern range limit lies approximately along the 60th parallel. As this parallel crosses the Bay of Finland, a gap is created between the Scandinavian and Russian populations, since southern Finland situated slightly north of the range lacks breeding Nuthatches. The race *europea* which occurs in southern Sweden and the region around Oslo in Norway is almost entirely sedentary.

In Siberia, however, the white-bellied race *biedermanni* is a typical invasion bird. Its range covers the Siberian taiga up to the tree limit. The westerly limit of its range is unknown, but may run somewhere west of the Urals. Fairly regularly *biedermanni,* as proved by collected specimens, extend its wanderings throughout the forested areas of Finland.

Simultaneously with the major invasions into Finland, 1900-01 and 1951-52, Nuthatches were observed in northern Sweden in districts lying up to 700 kilometers north of the range of the breeding race *europea.* In common with other species of invasive habits, some of the Nuthatches bred here in the early spring, a nest being found at Junosuando north of the Arctic Circle, 67° 30′ N latitude. The author concludes that despite the lack of specimen evidence, but on the basis of the above facts and circumstances, the Nuthatches found in northern Sweden during the Finnish invasion winters must have been of the Siberian subspecies *biedermanni,* and not of the breeding race *europea.*—Louise de K. Lawrence.

75. A Record of the Steppe Shrike and other Observations on Utsira.—(Stepptörnskatan, *Lanius excubitor pallidirostris* Cass., och andra observationer från Utsira 1953.) *Sterna (Stavanger Museum),* 13. 16 pp. Ragnar Edberg. 1953. The author was on Utsira Island, southwestern Norway from 31 August to 11 September 1953. The recorded observations are of significance because of the importance of Utsira in migration in coastal Norway. The record of the Steppe Shrike is the first for Scandinavia.—D. S. Farner.

ANATOMY

76. Modifications of Pattern in the Aortic Arch System of Birds and their Phylogenetic Significance.—Fred H. Glenny. 1955. *Proceedings of the United States National Museum,* **104:** 525-619. In this very interesting paper, the author summarizes his extensive investigations on the aortic arch systems in birds. In the first part of the paper (pp. 529-552) there is a discussion of the general development and anatomy of the avian aortic arch system. This is followed (pp. 552-614) by descriptions of the system for the orders and families including suggestions as to the situation which might have existed in the Archeornithes. Of particular interest are the author's observations with respect to the phylogenetic significances of his studies. The arrangements of the thoracic and cervical derivatives of the aorta in the ostrich, rhea and cassowary support the view that these are secondarily modified species and not derived from holocursorial ancestors. "In the kiwi, on the other hand, the arrangement and supply of the arteries can hardly be interpreted as having been derived from an ancestor possessing the normal flight function although a volant ancestor cannot be excluded from their line of evolution." (p. 612.) The carotid arrangement suggests a very early origin of the Colymbiformes. The dextral evolution of the carotids on the herons and flamingos suggests that these are more closely related than are the flamingos and ducks, the lateral being bicarotid. The tinamous and gallinaceous birds have a relatively early relationship with the latter having developed many diverse lines of specialization. The author suggests, in discussing the early ancestry of birds, that *Archeopteryx* and *Archeornis* be placed in the Sauropsida with the Reptilia.—D. S. Farner.

77. A Field Technique for Bursal Inspection of Mourning Doves.—Howard M. Wight. 1956. *Journal of Wildlife Management*, **20**(1): 94-95. Described here is a simple technique for exposing the bursa of Fabricius by cutting away the tail posterior to the cloaca. Since doves having molted primaries eight through ten, cannot be aged precisely from white-tipped primary coverts, bursal inspection was necessary for accurate age determination.—Helmut K. Buechner.

78. Measurements of Hungarian Birds.—Miklós Vasvári. 1955. *Aquila*, **59-62**: 167-184. Weights and measurements of over 300 birds along with locality, date and sex. An important contribution both because of faunistical data and the weight records.—M. M. Nice.

PHYSIOLOGY

(See also Numbers 10, 11, 12, 13, 40, 48, 49)

79. Factors in Photoperiodism of Bobwhite Quail.—Charles M. Kirkpatrick. 1955. *Physiological Zoology*, **28**(3): 255-264. In recent years it has become increasingly apparent that reproductive cycles and other physiologic cycles in many species of temperate-zones birds are timed by the changing duration of the daily photoperiod. However, the basic mechanism by which the duration of the daily photoperiod actually controls the reproductive cycle is by no means entirely understood. This paper, based on experiments with *Colinus virginianus*, is a noteworthy contribution to our knowledge of this mechanism. Particular attention was given to stimulation of development of the reproductive system with interrupted light, an experimental approach which offers great promise in characterizing the mechanism. At the end of 64 days, males exposed to a 15-minute interruption and females to a 30-minute interruption of a 14-hour daily dark period produced eggs and sperm; controls which were subjected simply to 10 hours continuous light and 14 hours continuous dark showed no sexual development. The duration threshold for night interruption causing full activity in males is between 0 and 15 minutes and in females between 15 and 30 minutes. The light-intensity threshold of the dark-period interruption stimulating both sexes lies between 0.1 and 1.0 foot-candles for a period of treatment of 37 days. With 17-hour daily photoperiods for 44 days maximum or near-maximum responses of reproductive organs of both sexes were obtained at 0.1 through 300 foot-candles. Ovulation was induced earlier with 300 foot-candles, however. Although there is no direct evidence as to the mechanism by which interrupted light, or interrupted dark, operates in the stimulation of reproductive organs, there can be no doubt that experimental data such as these will prove to be of basic importance in our ultimate understanding of the photoperiodic mechanism in birds.—D. S. Farner.

80. Techniques for Taking Blood Samples from Living Birds. — H. Elliot McClure and R. Cedeno. 1955. *Journal of Wildlife Management*, **19**(4): 477-478. To secure adequate serial samples of avian blood in studying Japanese B encephalitis, birds were bled by cardiac puncture through the suprasternal passage. When more than one blood sample was needed this method proved unsatisfactory. The use of the brachial vein to secure blood was difficult and awkward. It was found that the larger right jugular vein was a good source of blood and could be utilized many times. The syringe was wet with herapin to prevent coagulation. The use of the jugular vein is now the standard procedure.—Keith M. Standing.

PLUMAGES AND MOLT

(See also Number 90)

81. Notes on Albinism in the Eastern Wild Turkey.—R. Wayne Bailey. 1955. *Journal of Wildlife Management*, **19**(3): 408. Several authentic reports indicate that albino and partial albino Wild Turkeys (*Meleagris gallopavo sylves-*

tris) occur in West Virginia. As many as five have been observed in one flock. It is believed that these are cases of natural albinism.—Keith M. Standing.

82. Behavior, Molt, and Coloration of a Caged Pallid Harrier.—(Über Verhalten, Mauser und Umfärbung einer gekäfigten Steppenweihe *(Circus macrourus).)* Rudolf Piechocki. 1955. *Journal für Ornithologie,* **96**(3): 327-336. Recorded in this paper are observations on a single Pallid Harrier obtained as a young bird in 1952. Molting of the primary feathers involved 103 days (late May to August) in 1953 and 96 days (April to August) in 1954; 1-6 were dropped during the first 11 days in 1953 and during the first ten days in 1954. Molt of the secondaries required 37 (left) — 42 (right) days in 1953; and 61 (right) — 71 (left) days in 1954. It began 4-6 weeks after the beginning of the molt of the primaries. Molt of the rectrices began 2-4 weeks after the beginning of the molt of the primaries and lasted 78 days in 1953 and 36 (left)—73 (right) in 1954. Molting of body feathers began within a few days after beginning of the primary molt and ended about a week after the end of the primary molt.—D. S. Farner.

PARASITES AND DISEASES

(See also Number 90)

83. Filariae in a Wintering Flock of Canada Geese.—Harold C. Hanson, Norman D. Levine and Sidney Kantor. 1956. *Journal of Wildlife Management,* **20**(1): 89-92. *Sarconema eurycerca,* described originally from the Whistling Swan *(Olor columbianus)* was found in three percent of 306 Canada Geese *(Branta canadensis interior)* at Horseshoe Lake Game Refuge, Illinois. A shorter form, which may be *Ornithofilaria fallisensis,* was found in 24 percent of the 306 geese, but the species has not been firmly assigned. The incidence of *Sarconema* was highest in yearlings, whereas that of *Ornithofilaria* was highest in juveniles, suggesting for the latter development of immunity with age.—Helmut K. Buechner.

84. Experiments on the Influence of E 605 forte on our Avifauna.—(Untersuchungen über den Einfluss von E 605 forte auf unsere Vogelwelt.) 1954. Wilfried Przygodda. *Die Vogelwelt,* **75**(1): 1-18. Ninety-one nestlings of several species were sprayed with E 605 forte. Severe wetting *per se* in cool weather may kill naked nestlings within a few hours. Controls sprayed with rain water or nontoxic spray also succumbed. In warm weather (above 14°C) they withstand the soaking, but may die within a matter of days apparently from direct poisoning. The effects of E 605 forte are not cumulative. Almost fledged nestlings are not harmed either by wetting or poisoning.

Forty-three adults were given a 0.035 percent solution of E 605 forte and 20 were given a 0.07 percent (double strength) solution in their food for five days. Insect-eaters were more readily poisoned than seed-eaters. Small insect-eaters such as Robin *(Erithacus rubecula),* Hedge-sparrow *(Prunella modularis),* and Great Tit *(Parus major)* showed no ill effects from single strength doses. Thrushes *(Turdus spp.)* which are larger, lost weight, but as the symptoms of poisoning did not appear until the third or fourth day, death by poison is not apt to occur in the wild because the poison is so quick acting that poisoned insects would not be available after three or four days. Larger birds are more susceptible—perhaps because of their slower metabolism. Double strength E 605 forte, however, killed six out of 10 Blackbirds *(Turdus merula)* and six out of 10 Robins in these experiments. In a four hectare apple orchard, sprayed with double strength E 605 forte on three successive days against San Jose scale, 21 seriously ill and 35 dead birds were reported.—Frances Hamerstrom.

85. Plant Protective Materials in Relation to Birds with Reference to other Animals.—(Pflanzenschutzmittel und Vogelwelt mit Berüchsichtigung der übrigen freilebenden Tierwelt.) Wilfried Przygodda. 1955. *Biologische Abhandlungen,* 12. 34 pp. This is an extensive review of the effects of fungicides, herbicides, and insecticides on birds. In general the arsenicals applied by dusting are dangerous to birds and other animals; application by spraying is considerably

less dangerous. DDT in heavy applications may be dangerous to nestlings. Hexachlorcyclohexane as used in June beetle control may be dangerous also when applied heavily. Poisoning of birds by the phosphoester insecticides occurs primarily in excessively heavy application. There is little evidence that systemic insecticides are dangerous to birds as used. Among the herbicides DNC may be dangerous whereas there is little danger from 2, 4 D. With respect to insecticides, emulsions are more dangerous than suspensions.—D. S. Farner.

EVOLUTION

(See also Numbers 33, 34, 76, 88)

86. Questions on the Evolution of the Wryneck.—(Evolutionsfragen beim Wendehals *(Jynx torquilla).*) 1954. Friedrich A. Kipp. *Die Vogelwarte*, **17**(3): 183-188. There is perhaps no other species in which there is such a great difference between juvenal and adult wing and tail plumages as the Wryneck. The juvenal primaries are short and woodpecker-like; those of the adults are long, which is probably correlated with their migration to Africa. (The adults of the non-migratory *Jynx torquilla tschusii* have stumpy wings more closely resembling those of juvenile *Jynx t. torquilla.)* The long, slightly rounded adult tail is very different from the short, wedge-shaped juvenal tail. Of particular interest are the tiny, rudimentary outer rectrices which (as well as the next pair) are dropped in the first weeks after fledging. Ontogenetically remarkable is the fact that the rudimentary outer rectrices reappear in the adult plumage and are about twice as long!

Kipp suggests that the juvenal plumage traces a step in evolutionary development and also that Wrynecks are still handicapped by a weak link in their evolutionary transition from the woodpecker type to the eventual wryneck type, and that this weak link is compensated for by an unexpectedly high reproductive rate (7-10, rarely 12 eggs, and second clutches frequent). Judging from comparison of habitat (woodpecker-like), behavior and brain size, Kipp concludes that the point of evolutionary departure stems largely from the central nervous system of the Wryneck rather than from the environment.—Frances Hamerstrom.

87. The Relation between Ground Color and the Color of Chicks of the Caspian Tern and the Arctic Tern.—(Die Beziehungen zwischen Bodenfarbe der Reviere und Farbe der Kücken bei *Hydroprogne tschegrava* und *Sterna macrura.)* Göran Bergman. 1955. *Ornis Fennica*, **32**(3): 69-83. The author has assembled a considerable quantity of data which indicate that there has been a selection of chick color types in these two species in conformance with the ground color of the breeding sites. In southern Finland the Arctic Tern chicks are mostly gray whereas elsewhere the brown phase is most common. Here competition with the Common Tern has apparently caused the Arctic Tern to breed on gray stony beaches and smooth gray skerries.—D. S. Farner.

BOOKS AND MONOGRAPHS

88. Evolution of the Vertebrates.—E. H. Colbert. 1955. John Wiley & Sons, Inc., New York, and Chapman & Hall, Limited, London. 8vo. 479 pp., 122 numbered figs., 4 stratigraphic correlation charts, numerous unnumbered phylogenetic diagrams and other drawings, price $7.50 (text edition). Leafing quickly through this profusely illustrated book one is struck by the originality and attractive simplicity of its general format. These qualities prove characteristic of the text as well. As foretold in the author's preface, the book is not designed to serve as an exhaustive reference work for the vertebrate paleontologist, nor does it swerve from its purpose widely enough to qualify as an independent summary of genetics, systematics, comparative anatomy, stratigraphy or any of the several other disciplines in the general field of organic evolution. It *does*, however, fully succeed in presenting a clear, relatively concise, adequately documented and

bountifully illustrated general account of the evolution of backboned animals, particularly as read from the fossil record. The introductory chapter discusses the general nature and mode of occurrence of fossils, vertebrate characteristics, the nature of geologic time and the chronologic succession of vertebrates, and briefly reviews taxonomic procedure. Thereafter, the history of each of the vertebrate classes is unfolded largely in a combination chronologic-phylogenetic, sequence. Happily the fossil vertebrate record makes this approach both possible and practical. The illustrations are almost all entirely new, imaginatively conceived and skillfully executed under the author's competent direction. They are all pertinent to the text, but in most cases would also serve well as independent teaching aids. A few of the phylogenetic diagrams are noncommittal almost to the point of ambiguity; a more definite commitment, qualified by a question mark, as to the possible origin of certain groups might more clearly reflect the current state of knowledge. The text, however, deals adequately in detail with such cases. The highly plausible "in-the-flesh" restorations are refreshingly new and well done. The several groups of archaic Tertiary mammals that underwent adaptive radiation in comparative isolation in South America are treated as a group, rather than in what might be their more proper phylogenetic turn. Although this briefly interrupts the otherwise orderly march of the text, it is completely justified by the result, a clear and concise picture of the fauna as a whole and the conditions under which it developed. Technical terminology has been kept to a reasonable minimum without any apparent sacrifice in the exposition of the basic principles that derive from paleontologic studies. The taxonomy is simple. The text is not burdened with generic names that are not pertinent to the basic ideas. An up-to-date, systematic classification of chordates, carried down to the family level, and a well-chosen, annotated reference list are appended for those who may wish to extend their knowledge beyond the text. Strong emphasis is placed upon the highly significant transition forms that bridge the gaps between the vertebrate classes and some lower categories. The nature of morphologic intergradation and its probable biologic and taxonomic significance is fully brought out. This focuses attention on the major trends of vertebrate evolution and offsets the distracting effect of digressions into phyletic side branches occasionally necessitated by the complexity of the fossil record. Each new taxonomic group is introduced by a description of some relatively central and characteristic member of the group; generalizations then follow, including an analysis of the possible ecology of the group, its relationship to the biota and physical environment of the time. The thread of geologic history is maintained by the insertion of chapters and sections, such as "Early Vertebrate Faunas," "Years of the Dinosaurs," and "The Age of Mammals" that review the sequence of physical events that conditioned environments through the course of time. There has long been a need for such a book. Students, and teachers of all phases of organic evolution and all but the most highly professional courses in vertebrate paleontology, should welcome it. Those whose sole interest lies in avian morphology and phylogeny will find it less useful. However, the author's rather summary treatment of fossil birds is consistent with his avowed objective, "A general textbook on vertebrate paleontology . . . written for the general student rather than for the specialist, and for the lay reader."—John A. Dorr, Jr.

89. New Zealand Birds. — W. R. B. Oliver. 1955. A. H. & A. W. Reed. Wellington, New Zealand, 661 pp., 251 halftone photographs, 12 color photographs and 103 drawings. The book is half again increased in size and more liberally illustrated than his first edition published in 1930. In addition to accounts of species, included are chapters on the history of ornithological discovery in New Zealand, the structure of birds, geographical distribution, migration, changes in the fauna, economic value of birds, species and subspecies, and classification. This book is described by the publishers as the standard work on the birds of New Zealand, but as such it has considerable limitations due both to the way it was conceived and to the way in which it was executed. The text is very poorly documented. One example illustrates a situation common throughout the text. In discussing the Chatham Island Tomtit (p. 483), five different authors are mentioned in the text, but only one, the last, is cited in the references to this species. Lack of any cross reference between the color photographs and the text renders

this expensive addition somewhat ineffectual. More serious as a hindrance to easy use by the serious student are numerous differences in nomenclature between this book and the most recently published checklist (Fleming, C. A., (convenor), 1953, reviewed above). Of the 19 orders included, 13 are listed in different order than in the 1953 New Zealand Checklist. The chief difference in organization, however, is the reinstatement of a considerable number of subspecies of the 1953 checklist to full species. These differences can be largely accounted for by Oliver's definitions of small taxonomic groups which he proposes "as a contribution toward the stabilizing of scientific names" as follows: "Species are groups of populations which are (1) morphologically similar, (2) habitually interbreed and reproduce their like, and (3) show the same degree of polymorphism. Under morphology I include colour." The introduction of the term "semispecies" is perhaps reviewed in its fairest light by quoting his definition: "Species that have well-marked morphological characters but which cross-breed when their areas of distribution overlap and produce hybrids, usually with intermediate characters, may be called semispecies." And "Subspecies differ from one another usually in characters that show some intergradation in size, colour or other features. When their areas of distribution overlap they almost always freely cross." This type of archaic confusion becomes even more perplexing when applied to the species accounts of the birds of New Zealand. In spite of the practice of loosely referring to the 1953 Checklist as "the Checklist" no specific citation is given to this, the 14th of the New Zealand checklists, the last five of which have included trinomial nomenclature. For the present these two books will probably have to be used together, the present edition for an interesting collection of notes pertaining to New Zealand birds, and the 1953 Checklist for the most acceptable names of these birds. Even this will not be easy, for the present work does not include cross references to the 1953 Checklist where differences in names occur. Useful characters for identification of birds in the field are almost entirely lacking. Specimens of some of the commonest birds seen in all New Zealand forest areas (e.g. immature Rifleman *(Acanthisitta chloris)*, occurring within the city limits of Wellington), cannot be identified from the text. The following sentence occurs in the chapter on migration. "Migration is more prevalent in some groups of birds than in others, which indicates an inheritable disposition to move in accordance with some stimulus such as a change in temperature." The fact that photoperiodicity was not mentioned, or recognized in any way, indicates the extent to which the book, at least in this chapter, and whether purposefully or accidentally, is at least 20 years out of date. The lay reader would have found the book far easier to use had alternate common names been included. One of the most famous birds in New Zealand, the Kotuku of the Maori *(Egretta alba modesta)*, is listed as Eastern Great White Egret. There is nothing in the index to let the reader know that this is the bird the majority of New Zealanders know as the White Heron. In short, it is a difficult book to use. Most of the photographs are excellent, but there is marked variation in the quality of the drawings done by several artists. In spite of the difficulties pertaining to the use of the book, Dr. Oliver has succeeded in collating in a single volume more information about New Zealand birds than in any other single volume. It is printed on good paper and has many good photographs, but it is remarkable that a book of its size and cost (£6) could have been so poorly executed. There is now more than ever a great need for an authoritative book on the birds of New Zealand.—T. Riney.

90. The Barn Swallow. — (Die Rauchschwalbe.) A. Vietinghoff-Riesch. 1955. Duncker und Humblot, Schleisheimer Strasse 68, (13b) München 13, Germany. xvi + 302 pp. 24 DM. This extensive and detailed compilation is concerned largely with the European race, *Hirundo rustica rustica,* of this well-known Holarctic species. However there are substantial amounts of material on the other races, particularly the North American *erythrogaster*. Actually the book contains an amazing variety of information. Although the reader is sometimes left in doubt as to the source of some of the data, there is a fairly extensive documentation. Following an introductory chapter which is concerned with geographic distribution, morphology, weights, and related material there is an inter-

esting chapter on migration. The fascinating story of the winter disposition of the European population into three distinct areas in Africa is presented nicely. Most aspects of migration are discussed in this and the succeeding chapter. Other chapters consider extensively reproductive biology, molt, ecology, population density and population dynamics, relation to the House Martin *(Delichon urbica)*, food habits, behavior, preservation, banding, and relation to human culture. The author has examined the possibility that the range of the barn swallow has developed in association with the spread of mankind. There is much to argue in favor of this. He suggests also in this conjunction that the species reached North America via Alaska and that the southward expansion of range still continues. Annual mortality rates for this species are relatively high, in the order of 70 percent. Although the author enumerates and discusses many causes of death, as is usual in such matters, an accurate appraisal of the actual quantitative role of each appears not possible at this time. Considerable attention is given to catastrophic decimations of populations, a well-known phenomenon in swallows. No review can do justice to the quantity and variety of material assembled in this book. Although there is certainly a considerable variation in the degree of authenticity of some of the material, it is most certainly a very interesting and useful compilation.—D. S. Farner.

91. Travels and Traditions of Waterfowl.—H. Albert Hochbaum. 1956. University of Minnesota Press, Minneapolis, Minnesota. xii + 301 pp. $5.00. This very attractive book is an imaginative projection of scientific information and theory into attractive and interesting lay language. There is a continually pleasing blend of the experiences of the hunter and naturalist with those of the scientist. The attractiveness is much enhanced by the author's excellent sketches. Part I contains chapters on local movements, learned responses to the environment, the visual world, the aerial environment, and awareness of time and space. The last is a most interesting collection of examples of temporal relationships with suggestions as to the bases of the perception of time by birds and mammals. The nine chapters on migration (Part II) contain exciting descriptions of many aspects of this phenomenon as gleaned skillfully from personal observations and from a mass of published data. Unfortunately the author has not included much of the existing information on the physiologic bases of the operation of proximate and ultimate factors in migration. Admittedly, however, there is little such information which applies directly to waterfowl. Nevertheless it does appear that a good picture could have been even better had there been a careful consideration of this literature. The author adopts the suggestion of Wilkinson that migrations to and from the breeding area be designated as *anastrophic migration* and that all other movements be designated as *diasporic migration*. The chapters, "The Dimensions of Travel" and "Awareness of Direction" are excellent syntheses of some of the most recent thinking about orientation. The chapter on "Overseas Migration" is a most interesting discussion which has the effect of simplifying problems even though it does not solve them. The final part of the book, "The Traditions of Waterfowl," contains chapters on biological traditions, building new traditions (new breeding habits, natural range expansion, successful introductions), tradition and racial isolation, and broken traditions (extinction of species and populations). With the last the author concludes appropriately, "The real concern is for us, the people. We who wish to keep marshes and their waterfowl must study ourselves and our human society. We are at the threshold of an era we cannot comprehend. But surely we know that each nation must find its strength in the land. The people of North America cannot remain always strong if the value of our prairie land is measured wholly in terms of wheat and barley." (p. 258.)

This is indeed a distinctive book. In it the hunter, the amateur naturalist, and the layman will find an understandable and stimulating integration of scientific thought with everyday field experience. In it the biologist will find a novel aspect and a refreshingly different organization. Beyond this, and very probably unintentionally, the author has performed an additionally important function. In an otherwise well-integrated picture there exists a significant hiatus. Basic to so

much of the "travels and traditions" of waterfowl is the complex annual physiologic cycle of which molt, migration, and reproduction are but individual facets, a cycle which must have a fundamental extrinsic timer (or timers) and numerous adjusting or modifying factors. With respect to waterfowl considerable has been written and speculated concerning the adjusting and modifying factors. But our knowledge of the fundamental timer and the mechanisms through which it operates in the bird is almost nil. To seek an explanation for this hiatus leads to considerable soul-searching with respect to waterfowl research. Are the research problems too difficult? Is there a paucity of research talent? Of research funds? I think that none of these questions strike at the basic difficulty. Rather it appears that the answer *must* be sought in the overwhelming tendency to divert most of the available funds and talent to short-range "practical" projects which, from a short range point of view, *may* appear more attractive to sportsmen and legislators. The reviewer is well aware that policy and regulation with respect to utilization of federal and state funds often dictate this type of policy. He is also aware, however, that sound arguments by responsible biologists can exert an impact on regulation and policy. Certainly it is evident that in the long view the proper management and conservation of waterfowl will depend to a great extent on a thorough knowledge of the annual cycle and how it is controlled.

These remarks are not intended in any way to be derogatory of the author or his excellent book. He has done extremely well with the available information. His is a book which the reviewer recommends without hesitation to anyone with any sort of interest in natural history.—D. S. Farner.

92. Laboratory and Field Manual of Ornithology.—3rd edition. Olin Sewall Pettingill, Jr. 1956. Burgess Publishing Company, 426 South Sixth Street, Minneapolis 15, Minnesota. viii + 379 pp. This revision incorporates several very desirable additions into an already outstandingly successful teaching aid in ornithology. Possibly the most important alteration is the expansion of the previous chapter on *Internal Anatomy* into a chapter on *Anatomy and Physiology*. There has long been a need for students of ornithology to know more about how the "inside" of the bird functions! The new chapters, like the other chapters, have a generous selection of important reference although, in the opinion of the reviewer the selection for digestion could be improved substantially. It would also appear that the assignment of excretory and testes-cooling functions to the air sacs is excessively speculative for an elementary text. The very brief discussion of the endocrine glands and their functions is quite good considering its brevity. Possibly it would have been well to note that the "posterior pituitary hormones" are in all probability hypothalamic in origin; certainly it is undesirable to list "vasopressin" and "pitressin" as separate hormones since all available evidence indicates that the "posterior pituitary" antidiuretic and vasopressor effects are due to the same compound whose composition has been established. There is now also a sufficient amount of information on the endocrine function of the pancreas in birds to be quite certain that the avian pancreas also produces a second hormone, glucogon. The chapter on *Classification and Nomenclature* has been enlarged into a chapter on *Systematics* which presents a very useful introduction to the field from an ornithologic aspect. A further important alteration is that of the division of the chapter on *Distribution and Migration* into two separate chapters with an excellent resume of the major aspects of migration. There is also a new chapter on *Bird Song*. In addition to these improvements, and others not mentioned here, there is also now the advantage of hard covers and cloth binding. This revision assures the continued importance of the manual for many years to come.—D. S. Farner.

93. Sold for a Farthing.—Clare Kipps. With a Foreword by Julian Huxley. 1955. 9th impression. London. Muller. 72 pp. This little book tells of Clarence, a House Sparrow, adopted at the age of about three days, whose engaging ways entertained soldiers and civilians during the *Blitz* in London and delighted his mistress for the 12 years of his life. Mrs. Kipps writes: "I was his little world"; and ". . . he made love to me from March to October." Daily he crept into her

bed. He ignored the *sight* of other birds, but answered the *notes* of other House Sparrows, was excited at hearing their "courting" scraps and apparently responded to their alarm notes. In response to the piano playing of Mrs. Kipps he developed a truly musical song. In many ways he followed the pattern of the House Sparrow raised by the Heinroths (*Die Vögel Mitteleuropas* 1924-28, I: 169-178). This bird treated Dr. Heinroth as his mate and also as an old tower holding his nest site; he chirped in his master's ears, attacked Frau Heinroth and the maid, crept into pockets and under the table napkin, turning about to mold a nest. He paid no attention to other small birds and he developed a pretty little warble. I have come across seven other instances of hand-raised male *Passer domesticus* developing songs, three reported by friends, four published by Conradi (1905, *American Journal of Psychology*, **16**: 190-198). Mrs. Kipps has written a good account of a member of a social species imprinted on human beings. Her book would gain greatly by the deletion of the quotation at the beginning which states: ". . . man was made to be the priest and even, in one sense, the Christ of the animals."—M. M. Nice.

NOTES AND NEWS

Dr. William H. Drury, Jr., co-author of the leading paper in this issue, is Assistant Professor of Biology at Harvard. His principal interests in recent years have been in the Arctic—birds, flora and permafrost—with field work in Alaska, the Yukon and on Bylot Island (District of Franklin). He has just been appointed director of the education and research program at the Louise Ayer Hatheway School of Conservation Education, being started by the Massachusetts Audubon Society at its magnificent new property in Lincoln, Mass., Drumlin Farm. Dr. Drury is spending the summer in Europe, visiting museums, universities and bird observatories to get ideas for the new school.

It is suggested that those interested in the use of mist nets for the banding of fall migrants along the Atlantic coast of the United States, and who wish to join "Operation Recovery—a cooperative banding study of the coastal fall migration in the eastern United States," should get in touch with James Baird (Norman Bird Sanctuary, Third Beach Road, Newport, R. I.). Mr. Baird, as coordinator of the study, will supply all of the necessary information. Depending on the locality, the peak of the passerine migration is expected to fall between the middle of August and the end of September. Target dates for the optimum operation of mist net stations for specific areas along the coast will fall within the period that the migration peak is expected in that particular locality. However, it is hoped that many stations can be manned continuously for a period of weeks, and volunteers are needed. Stations right on the coast are most desirable, but cooperation from inland stations within about 50 miles of the coast will be welcome.

We announce with regret the resignation of Wendell Taber as a member of the Review Staff, after three years' service, because of the pressure of his work as chairman of the committee of the Nuttall Ornithological Club to complete the Bent "Life Histories" series.

Banders in the western United States have long had the problem of distinguishing the House Finch (*Carpodacus mexicanus*) from Cassin's Purple Finch (*Carpodacus cassinii*). A new bulletin on the differences, based on studies by Oakleigh Thorne, II, and O. A. Knorr, may be obtained without charge from the Thorne Ecological Research Station, 1707 Hillside Road, Boulder, Colo. (ask for Bulletin No. 3). Now that the House Finch has become established on Long Island and near Greenwich, Conn., the distinctions between it and the Eastern Purple Finch (*Carpodacus p. purpureus*) have become of interest to banders in the eastern United States, and the Thorne bulletin may be of interest to them, although it deals with a different species of Purple Finch, not a subspecies. Many