Ardmore, Pa., station during the past five years in November is interesting.—HORACE GROSKIN, 210 Glenn Road, Ardmore, Pennsylvania.

White-throated Sparrow Return at Ardmore, Pa., at Least 6½ Years Old.—No. 39-128738, Adult ♂, banded December 24, 1938.

1st return April 26, 1940
2nd return November 11, 1940
3rd return March 7, 1942
4th return October 31, 1942
5th return November 27, 1943

The White-throat is a migratory bird at Ardmore, Pa., with a few remaining to winter. It does not breed in our locality.—HORACE GROSKIN, 210 Glenn Road, Ardmore, Pennsylvania.

Some Alaska Returns.—During the spring and summer of 1942 I banded 133 birds including 68 Gambel Sparrows, two Fox Sparrows, and one Slate-colored Junco. Of this number five Gambel Sparrows, one Fox Sparrow, and the single Junco returned in 1943, giving return percentages respectively of 7.3, 50, and 100. The Junco nested near the traps, as some of the others may also have done, for of some I have repeat records extending through the summer except for brief times when the traps were closed.

One Gambel Sparrow, 40-168545, has a record indicating that it may have migrated beyond this point stopping in both spring and fall. This bird was banded as an adult on May 22, 1942, and repeated six times through May 26. My traps were idle from that date until July 7, but this bird was not retaken until August 19 on which date it repeated three times. I next took it as a return on May 24, 1943; one year and two days after banding. It repeated once on May 26. My traps were idle from July 19 to August 7. Thereafter this bird repeated twice on August 22 and once the next day.—HENRY C. KYLLINGSTAD, Mountain Village (Lower Yukon), Alaska.

RECENT LITERATURE

Reviews by Donald S. Farner

BANDING STUDIES AND MIGRATION

1. The Problem of Partial Migration. David Lack. 1943. *British Birds*, 37 (7) : 120–130. Returns from birds banded in England and Scotland are used in studying the problem of partial migration. In the case of the British Song Thrush, *Turdus ericetorum ericetorum* Turton, returns show that the birds either winter close to the place where they were banded as nestlings or migrate for considerable distances. Furthermore there is a sharp separation of the westward migration to Ireland from the migration southward to France, Spain, and Portugal. There is no migration for the purpose of wintering in southern England. A large portion of the thrushes of southern England spend the winter there, whereas an equally large portion of the thrushes of northern England are migratory. Eighty-four per cent of the thrushes recovered in France, Spain, and Portugal were first year birds whereas only 41% of those recovered in Ireland were of this group.

The British Starlings, *Sturnus vulgaris vulgaris* L., are mostly resident. A small number, especially from northern Britain, migrate westward to Ireland,

there is a single record of a recovery of a British bird in France. On the other hand more Pied Wagtails, *Motacilla alba yarrellii* Gould, migrate south to France, Spain, and Portugal than remain in the area where they were banded. The migration of the British Blackbirds, *Turdus merula merula* L., is similar to that of the Song Thrush except that very few migrate to France, Spain, and Portugal. It appears that the principal migration is westward to western England and Ireland. Information on the robin, *Erithacus rubecula melophilus* Hart., is fragmentary although it is obvious that very few migrate south to France. Most of the migratory birds are females.

Lapwings, *Vanellus vanellus* (L.), either winter close to the place where they were banded or move westward to Ireland with a few going to southwestern Wales, Cornwall, and southwestern Devon, or move southward to France, Spain, and Portugal. None winter in southeastern and southern England. Most Curlews, *Numenius arquata arquata* (L.), migrate to Ireland although considerable numbers are resident. There is a single record of a recovery in Spain. Most of the Woodcocks, *Scolopax rusticola* (L.), are resident although some migrate west to Ireland and a few southward to France and Spain.

Among the Black-headed Gulls, *Larus ridibundus ridibundus* L., there is no clear cut difference between residents and migrants since recoveries occur at varying distances from the point of banding. Furthermore there is no tendency to divide into flights westward to Ireland and southward to France, Spain, and Africa since there are also winter recoveries from southern and southeastern England. There is a greater tendency towards migration among the young.

Cormorants, *Phalacrocorax carbo carbo* L., which nest in Scotland either remain there during the winter or disperse to Ireland, southern England, France, and Spain.

2. The Dispersal of 21,414 Chimney Swifts Banded at Baton Rouge, Louisiana, with Notes on Probable Migration Routes. George H. Lowery, Jr. 1943. *Proceedings of the Louisiana Academy of Sciences*, 7 : 56–74. Of 21,414 Chimney Swifts, *Chaetura pelagica* (L.), banded in Baton Rouge, 340 were recovered at Baton Rouge after a lapse of at least one season; 126 were recovered at distances varying from 15 to 1,900 miles. Recoveries indicate there are two flyways involved in the North American continental migrations both converging in the Lower Mississippi Valley. One proceeds southward down the Mississippi Valley and the other southwestward from eastern Canada, New England, New York, and Virginia, down the Alleghenies and across the Lower Mississippi River Valley. Recoveries indicate further that there is considerable random movement in the fall in Louisiana and adjacent areas prior to departure southward. The author concludes that the principal migratory route southward from the United States is the trans-Gulf route directly south from Louisiana. The Texas-West Gulf Coast is ruled out because of the scarcity of swifts in Texas during the migratory seasons. The same is true for the Florida-Antilles route although there is evidence that a few may return northward via this route arriving in Florida in mid-April; those arriving in mid-March are assumed to have migrated eastward from Louisiana following the trans-Gulf crossing.

3. Ring-billed Gulls of the Great Lakes. Frederick E. Ludwig. 1943. *The Wilson Bulletin*, 55 (4) : 234–244. Ring-billed Gulls, *Larus delawarensis* Ord, apparently disappeared as breeding birds in the Middle West about 1906 and reappeared about 1926. This paper is based on the returns of birds banded in breeding colonies in Michigan on Lake Huron and on upper Lake Michigan, and in Ontario (chiefly North Channel and Georgian Bay). From 1936 through 1941 18,259 birds were banded; there were 496 returns (2.7%). This is compared with 19,564 banded Herring Gulls, *Larus argentatus smithsonianus* Coues,

which gave 739 returns (3.8%). Winter returns indicate that a few birds spend the winter in the Great Lakes area whereas the majority of adults and immatures spend this period in the Gulf area particularly in Florida. Summer returns indicate that some of the immature birds spend the first summer in the South whereas others return to the Great Lakes area. "Four returns from North Carolina, made during the breeding season of the third year after banding, point to the possibility of a nesting colony of Ring-billed Gulls on the North Carolina coast." Fall and spring returns point to migratory routes on the Ohio and Mississippi rivers and also along the St. Lawrence and Hudson rivers and down the Atlantic coast. Mortality appears to be highest during the first six months of life and nearly as high during the first calendar year following banding. This is an important paper; it is the result of an outstanding banding project.

ECOLOGY AND POPULATION STUDIES

4. Population Turnover on a Wisconsin Pheasant Refuge. Aldo Leopold, Theodore M. Sperry, William S. Feeney, and John A. Catenhusen. 1943. *The Journal of Wildlife Management*, 7 (4) : 383–394. Censuses and bandings of a sample population were made for five successive years with the protected Ring-necked Pheasant (*Phasianus colchicus* (L.)) population of the University of Wisconsin Arboretum. This tract consists of 500 acres of marsh, 60 acres of oak-hickory timber, and 40 acres of old fields. Census figures were as follows: 1937–38, 260 (of which 127 were removed); 1938–39, 214; 1939–40, 340; 1940–41, 299; and 1941–42, 317. The number of different birds trapped for these seasons were 22, 145, 178, 162, and 145 respectively. Correcting for the "untrapped residue" and averaging the results of the five seasons the authors' data show that the trapped population for the average year has a composition ratio of 100 newly banded: 30 banded one year previously: 9 banded two years previously: 1.8 banded three years previously: none banded four years previously. "The uniformity of the shrinkage rate (70%, 70%, 80%) in the series has special significance. The numerical base for these shrinkages of course decreases to the right, hence the terminal figure carries the least weight. The identity of the first two figures suggests that once a pheasant reaches his first winter, the experience which accrues from age ceases to have any further survival value." In 1940–41 and 1941–42, 183 birds were trapped and banded at the Fish Hatchery 1¼ miles south of the Arboretum. The city of Madison and the lakes prevent immigration and emigration in directions other than south. None of the birds banded at the Fish Hatchery were recovered in the Arboretum and no Arboretum-banded birds were recovered at the Fish Hatchery. Only two Arboretum-banded birds were taken by hunters, both within one-half mile of the Arboretum boundary. Therefore it appears that the data accumulated in this study apply strictly to an independent population although the movements of the birds of the year are not known. A very interesting study.

5. Census of a Colony of Caspian Terns. Alden H. Miller. 1943. *The Condor*, 45 (6) : 220–225. This nesting colony of Caspian Terns, *Hydroprogne caspia imperator* Coues, which is located in the marshes of the south arm of San Francisco Bay has increased from seven occupied nests in 1922 (two in 1923) to 378 in 1943. It is estimated that there were 400 nesting pairs in 1943 with a grand total of 816 young and eggs (May 21). Attention was given to the color phases of the newly hatched young. Of 110 given careful observation, 62 were of the dark type, 40 of the light type, and eight of the intermediate type. On some occasions two or three types were found in the same nest. The author suggests that these types are determined by a relatively small number of hereditary factors and that the genes for the determination of the two principal types are of high frequency.

6. The Prairie Falcon in Colorado. Harold M. Webster, Jr. 1943. *The American Falconer*, 1 (4) : 10–13. The author estimates the total nesting population of the Prairie Falcon, *Falco mexicanus* Schlegel, to be about 500 pairs. This is based on his personal observation in "the past four or five years" of 135 eyries in three small sections of the State. Included in these observations are Colorado Springs and El Paso County, Denver and vicinity, and the chalk cliffs south of Cheyenne, Wyoming. In addition there are reports of 80 pairs which were not observed by the author. He believes that the population of this species in Colorado is maintaining itself although in general Buteos are decreasing. It is suggested that the Colorado falcons migrate little if at all. The change in diet from rodents to birds at the time of hatching of the Prairie Falcon eggs is doubtlessly due to the fact that the rodents which, during the mating season in the spring are conspicuous and easily taken, become less conspicuous whereas young passerines become abundant and easily fall prey to the falcons.

7. The Canada Spruce Grouse in Wisconsin. Walter E. Scott. 1943 *The Passenger Pigeon*, 5 (3) : 61–72. The present Wisconsin range of the Spruce Grouse, *Canachites canadensis canace* (L.), includes local spruce and balsam swamp areas in ten counties in the northern part of the State. Range evacuated since 1900 probably included parts of seven additional counties. The original southern limit of the range of this species was probably roughly coincident with a line passing from central Marinette County to Central Polk County. The number of birds reported for the entire State in 1941 was 227. The total population is estimated as no less than 516 and no more than 820.

LIFE HISTORY

8. The Kuaka or Diving Petrel, *Pelecanoides urinatrix* (Gmelin). L. E. Richdale. 1943. *The Emu*, 43 (1) : 24–48 and 43 (2) : 97–107. The observations recorded in this paper were made in the course of five trips aggregating 21 weeks to Whero, a small island off the northwest corner of Stuart Island, New Zealand. Following the departure of the chicks in January there is a period of at least four months when the birds are at sea. By August they are again spending nights on Whero. At this time both solitary and paired birds were observed. In August the birds were always on the ground at night whereas in January and February they were always in their burrows. The author feels that the staying outside of the burrows at night has something to do with courtship. Of 39 nests observed in 1940–41 only seven were occupied by petrels during the following nesting seasons. Of 18 pairs banded in 1940–41 only three were found again together; the other 15 pairs were never found again in subsequent seasons.

"The majority of the Kuaka burrows on Whero are in the shallow soil around the edge of the island where it is dominated by Poa tussock. There are a few here and there in the sedge and I found one near the tent in the *Muehlenbeckia* area." "Those inhabiting the sedge were frequently just under and among the roots, or not in a burrow at all, but had employed the overhanging leaves as a roof to the nest." The usual length of the burrow is about 18 inches.

The earliest hatchings in 1941–42 were on November 4; 81% were hatched between November 14 and December 3. The incubation period is estimated to be within a day or two of eight weeks. Eggs varied in size from 35 x 27¼ mm. to 42 x 29¾ mm. and in weight from 14 to 18¼ grams.

It appears that parents alternate in incubating and that the change is made nightly. Pairs of non-nesting adults of unknown age occupy burrows although they seldom remain in them during the day. Criteria for estimating the age of the chicks are given. Dark secondary down appears about the 7th day. The quills of the longest primaries are 0.5 mm. on the 19th, 3 mm. on the 21st, and 9 mm. on the 25th. Tail quills appear on the 26th; on the 31st the quill of the

longest primary is 25 mm. long; etc. Only once was an adult bird found with its chick during the day. The principal enemy of the chicks as well as the adults is the skua. The mortality among the chicks during the two seasons was remarkably low (one chick in 90 under observation).

The method of feeding was studied by lighting the burrow at night and constructing an extra opening through which observations could be made. "The parent, after having already, with a barely perceptible cough, brought the food up part of the way, opens its mandibles, waits for the chick to put the point of its bill into its mouth, and then squirts forth a red cream, thick and ribbon-like, as if from a tube of tooth paste. The chick immediately takes this with point of its bill but evidently finds the act difficult for it pushes the bill crossways so that the ribbon-like material is taken side on but with that portion of the bill close to the tip. At the same time the mandibles are vibrated rapidly to make room for the whole pieces, which appeared to be about one inch long." Feeding always takes place soon after the parent arrives. Many of the nights the chick is fed by both parents and occasionally by neither. The maximum amount of food received is about 15 grams per night from the 21st to the 40th day. Thereafter the amount received decreases until the chick leaves the nest at about the 40th day. The peak weight of the chicks occurs at 41st to 44th day. The weights of the chicks on the *8th day before departure* averaged 148 grams; the average weight on the day of departure was 125 grams. The mean weight of 85 breeding adults was 124 grams. Wing length in the chicks increased steadily from a mean 108.8 mm. on the *9th and 10th days before departure* to a mean 120.7 mm. on the last and next to the last days. In 1941, 85% of the chicks left the burrows between January 7 and 31. In 1942, 82% left between January 7 and 26. The majority of them departed at about the time of the loss of the down. The paper contains an abundance of important data which cannot be included in a review. It is a significant life history study.

9. Nesting Habits of the Tree-Martin. M. S. R. Sharland. 1943. *The Emu*, 43 (2) : 126–130. The Tree-Martin, *Hylochelidon nigricans* (Vieill.), is essentially a bush bird although it occasionally nests about dwellings in such places as ventilators. However this species has not adapted itself to these conditions as readily as the Welcome Swallow, *Hirundo neoxena* Gould, and the Fairy Martin, *Hylochelidon ariel* Gould.

10. Some Observations on the Common Pochard. E. O. Höhn. 1943. *British Birds*, (6) : 102–107. Observations were made on the Common Pochard, (*Nyroca ferina* (L.)), during 1936 and 1937. Courtship was observed to occur from as early as March 16 to as late as May 17. The males exhibit three postures during courtship: (1) forward posture in which the neck is stretched stiffly along the surface of the water, (2) backward posture in which the head is thrown backward and brought forward rapidly, and (3) dipping posture in which the head is raised and lowered jerkily. During these movements the bird often swims about rapidly and eratically. A soft call, "quee-wrek," is frequently given. Among the postures observed among the females were (1) swimming about with neck held stiffly, jerking the head up and down, (2) pecking the water while swimming about eratically, and (3) a posture apparently inviting copulation. Two calls, an explosive "pwook" and an intensification of the alarm note "graa," were observed among the females during courtship. Courtship was initiated by the drakes in all cases. Both courtship and copulation occur before pair formation while the birds are associated in small groups. Males were seen in courtship performances when there were no females present. After hatching family group are maintained for four weeks. Males left the breeding area during June, females in July, and the young in August and early September.

REPRODUCTION

11. Nest-Site Selection by Birds. Caroline and Desmond Nethersole-Thompson. 1943. *British Birds*, 37 (6) : 108–113. This is the concluding part of this valuable compilation of information on nest-site selection by birds. Because of the already condensed nature of the notes it is not possible to summarize adequately here the information that they contain. Readers interested in this type of material will find this compilation very useful. Seventy-six species are included in the concluding section.

12. Plover Egg Clutches. M. S. R. Sharland. 1943. *The Emu*, 43 (2) : 95–96. This paper records the observation of A. W. Swindells of a Spur-winged Plover (*Lobibyx novae-hollandiae* (Stephens)) clutch with seven eggs. There were two females which sat on the nest. A single male guarded nearby.

13. A Study of Wild and Hand Reared Killdeers. Emma Davis. 1943. *The Wilson Bulletin*, 55 (4) : 223–233. Fifteen Killdeer (*Oxyechus vociferus* (L)) nests were studied in 1931 in the Finger Lakes District of New York. Both sexes shared in incubation and the care of the young. No elaborate ceremony was observed at the change over of incubating birds. Care of the young was restricted to brooding, guarding against enemies, and warning of danger. The adults were never observed to feed the young. In 1932 five young Killdeer were reared from artificially incubated eggs. In 1933 two captive birds mated and produced three young. In this pair the male constructed the nest, shared "at least equally" in the incubation, and when the young were several days old assumed almost complete care of the brood.

PHYSIOLOGY

14. Hormonal Determination of Adult Characters and Sex Behavior in Herring Gulls (*Larus argentatus smithsonianus* Coues). Willis Robert Boss. 1943. *The Journal of Experimental Zoology*, 94 (2) : 181–210. In this interesting series of experiments it was possible to demonstrate that the male sex hormone is responsible for the assumption of the adult plumage in both sexes of the Herring Gull. Continuous injections of testosterone proprionate beginning with the third day of incubation and continuing for 24 months induced the premature development of adult bill color and plumage at the age of one year as compared to the normal period of development of three years. When injections of the testosterone were discontinued when the males were in immature plumage they reverted to juveniles. When both sexes were treated with testosterone injections starting at 53 days and continuing for 669 days there was a premature assumption adult plumage and voice. Accompanying the premature development of adult plumage in the male was also that of aggressiveness, territorial defense, and nest-building. The same occurred in castrated males injected with testosterone proprionate. Injection of gynogenic hormones (stilbesterol and estradiol proprionate) had no effect on the first year juvenile characteristics of either sex. The sexual weight difference is obviously genetic since it was not influenced by any kind of injection. Gonadotropic hormones did not effect the plumage of immature and juvenile birds indicating that the gonads at this time were not sufficiently developed to be influenced by pituitary secretion. Thyroxin also had no effect on the plumage except to increase its luster. Of particular significance in these experiments is the demonstration of the apparent dependence of both sexes on the *male sex hormone* for the development of the adult plumage, etc. Of further importance is the demonstration of the apparent refractory condition of the gonads to pituitary stimulation during the immature and juvenile stages. A very significant paper.

15. Metabolism of the English Sparrow. Daniel P. Quirring and Paul H. Bade. 1943. *Growth*, 7 (3) : 309–315. Basal metabolic rate was computed for fifteen males and fifteen female English Sparrows (*Passer domesticus domesticus* L). from measurements of oxygen uptake and carbon dioxide release. Measurements were made from 2:00 P.M. to 4:30 P.M. after the birds had been allowed 30 to 40 minutes for adjustment to the apparatus. Mean oxygen uptake for the males was found to be 2,053 cc. (Standard Deviation, 462 cc.) per 24 hours; for the females, 1,911 cc. (S. D., 435 cc.). The carbon dioxide release for the males was 1,906 cc. (S. D., 334 cc.); for the females, 1,625 cc. (S. D., 351 cc.). The respiratory quotient for the males was 0.860 and for the females, 0.854. Metabolic rate for the males was computed to be 10.90 Calories per 24 hours; for the females, 9.38 Calories per 24 hours. The authors regard this difference as statistically significant. The caloric output per square centimeter of body surface for the males was computed to be 0.0304 and that of the females, 0.0261. This difference is also regarded as significant. The correlation between basal metabolic rate and body surface is +0.416; between basal metabolic rate and body weight, +0.321. There is a negative correlation between basal metabolic rate and the weight of the thyroid gland (−0.321).

16. Age Determination in Juvenal Bob-white Quail. George A. Petrides and Ralph B. Nestler. 1943. *The American Midland Naturalist*, 30 (3) : 774-782. In order to establish criteria for age determination in Bob-white Quail, *Colinus virginianus* (L.), tabulations were made of the ages at which captivity-raised birds dropped their juvenal remiges and the rates at which the post-juvenal replacement primaries grew. Post-juvenal wing molts were observed to begin on the 28th day and ended at 146 to 154 days. Although there is considerable variation in individual cases it appears that the tabulation should prove to be useful. The tabulations are based on the daily measurements of two captive birds and bi-weekly checks on a group of 20 to 35 captive birds. Consideration should be given to the fact that feeding of scientifically balanced diets may have affected the course of the molts.

17. Organ and Gland Weights of the English Sparrow. Daniel P. Quirring and Paul H. Bade. 1943. *Growth*, 7 (3) : 299–307. Body weight as well as weights of various organs and glands were obtained from 57 males and 44 female English Sparrows (*Passer domesticus domesticus* L.). Body weights were found to range from 15.20 to 29.80 grams. The mean for the males was 24.81 ± 0.35 grams; for the females, 23.41 ± 0.47 grams. Data on the weights of the brain, thyroid gland, adrenal glands, eyes, heart, digestive tract, kidney, liver, lung, pancreas, spleen, and gonads are statistically analyzed and tabulated. Body weights as well as the weights of the brain and liver were found to be significantly higher in the males. Eye weights were significantly higher among the females. Correlations between the weights of organs and body weights were low except in the cases of the heart (+0.805) and the liver (+0.451).

FOOD HABITS

18. Seasonal Insect Food of the Western Chipping Sparrow. George F. Knowlton and Stephen L. Wood. 1943. *The American Midland Naturalist*, 30 (3) : 783–785. This paper gives a detailed analysis of the insect food contained in 283 stomachs of the Western Chipping Sparrow, *Spizella passerina arizonae* Coues, collected in Utah during the nine years from 1934 to 1942 inclusive. In total items Homoptera constituted nearly two-thirds of all insects in the stomachs. Hemiptera and Coleoptera were next in total numbers taken by the birds.

BEHAVIOR

19. Contests of Double-crested Cormorants for Perching Sites. George A. Bartholomew, Jr. 1943. *The Condor,* 45 (5) : 186–195.

Observations were made on the competition of non-breeding cormorants, *Phalacrocorax auritus* (Lesson), for roosts on a group of pilings at Berkeley, California. It was concluded that an absolute "peck-right" does not exist. Rather there is the more flexible "peck-dominance". The winners of contests for roosts are determined largely by circumstances such as wind direction and velocity, direction of attack, position of defending bird, etc. Frequently a dispossessed bird will regain his roost within a short time. Attacking birds are as aggressive as the defenders. Contests for roosts are purely psychological, involving threats, postures, and calls only. A very interesting paper.

HEREDITY, VARIATION, AND EVOLUTION

20. The Two Phases of *Stercorarius parasiticus* (L.). H. N. Southern, 1943. *The Ibis,* 85 : 443–486. This interesting discussion is based primarily on papers in the literature which record data on the ratio of dark and light phases of breeding colonies of *Stercorarius parasiticus* (L.). Among the Skuas melanics are rare in *S. longicaudus* Vieillot, 5–10% in *S. pomarinus* (Temminck), and 0–95% in *S. parasiticus.* The breeding range of *parasiticus* is circumpolar and almost coincident with the range of the tundra. Its greatest population concentrations are in the areas of the North Pacific and the North Atlantic. There appears to be a definitely larger percentage of pale birds among the more northern colonies. Isolines connecting areas of the same proportions of pale to dark phases are approximately concentric about the Pole. The 25% light-phase line passes through southern Alaska, north central Canada, south of Greenland, through Iceland and southern Scandinavia. The 50% light-phase isoline passes through central Alaska, northern Canada, south of Greenland, and through northern Scandinavia. The 75% light-phase isoline passes along the north coast of Alaska and Canada, through central Greenland, and along the north coast of Scandinavia. The colonies on the British Isles constitute an exception to this scheme. There is no apparent basis for selection of the pale phase in the northern colonies since there is no correlation between its occurrence and temperature, or relative humidity. Intra-group clines occur only in Iceland. The author suggests that selection is on a physiological basis with no direct relation to the color phases as such. There is a very interesting discussion on polymorphism and polymorphic clines. This discussion as well as the material on clines in Skuas is highly recommended.

GEOGRAPHICAL DISTRIBUTION

21. The Avian Genus *Zosterops* in Siam, with Description of one New Race. H. G. Deignan. 1943. *Zoologica,* 28 (4) : 201–202. The following White-eyes are now known to occur in Siam: *Zosterops erythropleura* Swinhoe, *Z. japonica simplex* Swinhoe, *Z. palpebrosa mesoxantha* Salvadori, *Z. palpebrosa joannae* La Touche, *Z. palpebrosa williamsoni* Robinson and Kloss, and *Z. atricapilla wetmorei* Deignan (subsp. nov.). *Z. palpebrosa siamensis* Blyth does not occur in Siam.

22. Birds of the Kings Canyon National Park Area. Joseph S. Dixon. 1943. *The Condor,* 45 (6) : 205–219. An annotated list of the 127 species and subspecies thus far recorded.

23. Birds of Warnboro Sound, Western Australia. V. N. Serventy and S. R. White. 1943. *The Emu,* 43 (2) : 81–95. This paper contains lists of the avifaunae of Penguin Island, Shag Island, Seal Island, Bird Island, and the Three

Sisters in Warnboro Sound. There are many interesting observations on the breeding habits of the Little Penguin (*Eudyptula minor* (J. R. Forster)), Silver Gull (*Larus novae-hollandiae* Stephens), Pied Cormorant (*Phalacrocorax varius* (Gmelin)), and others.

24. The Wood-Sandpiper. Jack Jones. 1943. *The Emu*, 43 (2) : 107–112. This species, *Tringa glareola* L., is rare in Australia. The author has summarized and discussed the available records including those of his own from the mouth of the Little River, Port Phillip Bay.

25. Additions to the Avifauna of the North Island, New Zealand. R. B. Sibson. 1943. *The Emu*, 43 (2) : 136–139. The author lists sight records (field glasses and telescope at less than 20 yards) from the North Island of the Hudsonian Godwit, *Limosa haemastica* (L.); Curlew Sandpiper, *Erolia ruficollis* (Pallas); and the American Pectoral Sandpiper, *Erolia melanotos* (Viellot). The Pectoral Sandpiper record might be questionable since the bird was immature and because of the similarity of this species to the Siberian Pectoral Sandpiper, *E. acuminata* (Horsfield). The Hudsonian Godwit record can be accounted for on the basis of its overlapping range in Alaska with the Bar-tailed Godwit, *Limosa lapponica baueri* Naumann, a common migrant to New Zealand. All three records are substantiated by previous records of the same three species on South Island.

26. Notes on Australian Birds (II). Ernst Mayr. 1943. *The Emu*, 43 (1) : 3–17. This interesting paper is primarily a revision of the Little Grebes (*Podiceps ruficollis* group), the Mangrove Herons (*Butorides striatus* sspp.), and Boobook Owls (*Ninox novaseelandiae* sspp.) of northern Australia, Timor, and adjacent Lesser Sunda Islands. There are included also some interesting zoogeographical notes on these groups. The author agrees with Rand in the separation of *Podiceps novaehollandiae* from *P. ruficollis*. These two species breed side by side from New Guinea to New Caledonia. "It seems that *novaehollandiae* occurs in a number of isolated colonies from Java to New Guinea and New Caledonia. It is probable that *novaehollandiae* represents an earlier wave of immigration and *ruficollis* (*tricolor* group) a late Pleistocene one which now lives side by side with *novaehollandiae* in a number of places without interbreeding." It is suggested that the Australian Mangrove Herons represent two waves of immigration from the north, one from New Guinea and the other from the Lesser Sunda Islands, especially Timor.

27. Observations on the Distribution of the Wrybill in the North Island, New Zealand. R. B. Sibson. 1943. *The Emu*, 43 (1) : 49–62. Wrybills, *Anarhynchus frontalis* Quoy and Gaimard, are seen in small numbers on the North Island during the spring migration (July to September) southward and the fall migration (December to May) northward. The winter habitat of the majority of the species is the Firth of Thames or the harbors of Kaipara and Manukau. The nesting areas are on the South Island.

SYSTEMATIC ORNITHOLOGY

28. The Races of *Puffinus assimilis* in Australia and New Zealand. C. A. Fleming and D. L. Serventy. 1943. *The Emu*, 43 (2) : 113–125. The authors present a revision of the Little Shearwaters, *Puffinus assimilis*, of Australia and New Zealand. The subspecies recognized are *Puffinus assimilis tunneyi* Mathews, breeding on the Abrolhos Islands and the Archipelago of the Recherche; *P. a. assimilis* Gould, breeding on Norfolk and Lord Howe Islands; *P. a. kermadecensis* Murphy, breeding colonies on Meyer and Sunday Islands;

P. a. haurakiensis subsp. nov., breeding colonies on Hen Island, Chickens Islands, and the Mokohinau Group; and *P. a. munda* (Kuhl), the most distinctive of the subspecies and almost circumpolar in distribution, breeding localities unknown. In speaking of the origin of the modern groups of Least Shearwaters the authors suggest that "in the south *assimilis* is well differentiated from the tropical *herminieri*, but in the North Atlantic *baroli* and *boydi* are less distinct though convergently approaching *assimilis* in some features."

29. Relationships of the Canada Jays in the Northwest. John W. Aldrich. 1943. *The Wilson Bulletin*, 55 (4) : 217–222. A careful examination of the subspecies of the Canada Jay, *Perisoreus canadensis* (L.), and the Oregon Jay, *Perisoreus obscurus* Ridgway, reveals that they intergrade in a manner characteristic of the subspecies of a single species. "Apparently the two characters that have been assumed to be specific, separating the *obscurus* from the *canadensis* group, are the immaculate underparts and the white shaft streaks of the dorsal plumage in *obscurus*." The author shows that specimens from central northern Washington and central southern British Columbia show complete integradation between the *canadensis* and *obscurus* groups. This population is described as a new subspecies, *Perisoreus canadensis connexus*. Nine other subspecies are recognized. A map shows the distribution of the ten *obscurus-canadensis* subspecies.

30. Notes on the Classification of Penguins. (Bemerkungen zur Systematik der Penguine.) H. von Boetticher. 1943. *Zoologischer Anzeiger*, 142 (1/2) : 22–28. The author agrees only in part with the revision by G. M. Mathews (Bulletin of the British Ornithologists' Club, 382, 1934) which recognizes four separate families of penguins and which reduces *Spheniscus demersus*, *S. magellanicus*, and *S. humboldti* to the status of a single species. It is suggested that the older concept of a single family be restored and that two subfamilies, Aptenodytinae and Spheniscinae, be recognized. In this scheme *demersus*, *magellanicus*, and *humboldti* are reduced to subspecies of *demersus* (as in Mathews) and with *S. mendiculus* comprise the Spheniscinae. The new genera of Mathews, *Catadyptes* and *Dasyrhampus*, are accepted and with *Eudyptula*, *Aptenodytes*, *Pygoscelis*, *Megadyptes*, and *Eudyptes* constitute the Aptenodytinae.

31. Suggestions Concerning the Generic Classification of Passerine Birds. (Vorläufiges zur Gattungssystematik der Passeres.) *Zoologischer Anzeiger*, 143 (7/8) : 179–191. This paper is concerned primarily with the subgeneric relationships within *Euplectes*, *Niobella*, *Coliuspasser*, *Estrilda*, and *Hirundo*. *Lagonosticta cinereovinacea* is placed in a new genus, *Euschistospiza*.

32. Some Notes on the Anatomical Differences between the Cuculidae and the Musophagidae with Special Reference to the Specialization of the Oesophagus in *Cuculus canorus* Linnaeus. Percy Lowe. 1943. *The Ibis*, 85 : 490–515. Because of the occurrence of a crop in the Cuculidae, the differences in feather tracts, and certain obvious osteological and myological differences the author insists that these families should not be placed in the same order.

HISTORY

33. The Last Passenger Pigeon Hunts of the Cornplanter Senecas. William N. Fenton and Merle H. Deardorff. 1943. *Journal of the Washington Academy of Sciences*, 33 (10) : 289–315. This paper, although primarily ethnological, is of interest in that it contains much interesting information on the relations of the Indians of eastern North America to the Passenger Pigeon, *Ectopistes migratorius* (L.). Most of the information comes from members of the

Cornplanter Band of Senecas in northwestern Pennsylvania. Pigeons were taken by the Indians as food long before the arrival of white man. Squabs were generally considered more palatable than the adults. "They (the Iroquois) allowed the birds to nest and to hatch their young; and the nests were not disturbed until the young were ready to leave. They believed that the practice of taking squabs at their prime and of allowing the adult birds to go free to reproduce the species was a measure of conservation, which was probably true under the circumstances." "The Iroquois regarded the annual return of the passenger pigeon as one of the blessings ordained by the Master of Life. The sudden arrival of great flocks of birds to nest in the neighboring forests not only relieved the economic strain at a period when they were sometimes reduced to eating their seed corn, but also justified their faith in the bounties of nature." Although some of the Iroquois set nets, both stationary nets on high places and trip nets at salt licks, the most common technique among these Indians was nest-raiding. Nest-raiding was the technique of the Senecas who used nets only when employed by white pigeoners. It is concluded, with apparent justification, that the Indians had little to do with the disappearance of the species.

BOOKS

34. A Guide to Bird Watching. Joseph J. Hickey. 1943. Oxford University Press. New York, London. xiv + 262 pp. $3.50.

During the last half century the popular study o birds has made great strides, not only in the enormously increased number of its devotees, but also in the quantity, quality, and point of view of the manuals for identification, state-lists, and other adjuncts to its literature. That something like the saturation point in both of these respects has been reached is suggested by the recent appearance of a few books with a wholly new approach to the subject; an approach that would have been uncalled for had there not already been a great number of bird students sufficiently well equipped with means by which to identify what they encountered afield, and by which to integrate their observations with what has already been recorded. This new approach, somewhat unfortunately called "bird watching," has brought into being a number of books, chiefly in England. Among them are James Fisher's "Watching Birds" and Nicholson's "The Art of Bird Watching," while over 40 years ago that solitary and, be it admitted, idiosyncratic, individualist, Edmund Selous, came out with "Bird Watching" and "A Bird Watcher in the Shetlands" among other works. To this small, but growing, list we may now add Hickey's volume. Unlike Selous, Hickey does not concern himself with what he has seen while watching birds, but gives his attention to the bird-watcher, especially the would-be bird-watcher, and supplies him with the answers and the guiding suggestions that are most likely to be of practical value to him. He explains how birds are named, how to learn to identify birds in the field by fleeting glimpses of plumage or by sound, how to keep his records and notes; he tells him all the little "tricks" the field man has of finding what birds there are in a given place, the best time of day, the best type of country, even the type of field glass to use.

After orienting the newcomer with these hints and advice, Hickey then introduces him to the ever recurring fascination of watching the annual goings and comings of birds in their migrations, and points out innumerable details still to be elucidated and in the study of which the amateur bird-watcher, no less than the so-called professional, can contribute material of value. To occupy the bird-watcher in the "between migration seasons" the author outlines the significance, the value, and the means of making accurate bird censuses, either of breeding or of wintering birds. Added to, and incorporated with, this is the matter of local distribution, involving such considerations as food supply, cover, water, nesting sites, singing perches, and, in a geographically broader sense, even

such items as life zones, biomes, etc. Another aspect of bird study to which the would-be bird-watcher is introduced is that of bird-banding and the host of bird-behavior problems it not only introduces but even makes possible to approach. Hickey gives the results of his own and other's experience in banding and handling birds, in building and maintaining trapping stations, in keeping records and in extracting the significant data from them. This leads to a consideration of the various opportunities open to the student in exploring the lives of even our commonest, supposedly best-known birds, and to the need for cooperative studies either in a single area or in a series of adjacent places.

An appendix of five sections unfolds to the newcomer the study of bird tracks (this I think is accepted too whole-heartedly by the author), the results of breeding bird censuses, a very elaborate and detailed outline for a life history study (an ideal to aim at rather than a goal to hope to achieve), an annotated list of bird books, and finally, a list of bird clubs in Canada and the United States.

The book is decorated rather than illustrated by tastefully executed sketches by Francis Lee Jaques, and is well indexed.

The most striking omission, and this may be a deliberate and therefore a significant one, is the absence of any mention or instruction regarding bird photography. Another omission, which will catch the eyes of the "old timers" particularly is the lack of instructions regarding collecting and preserving specimens, yet the reviewer feels satisfied that the author is well aware of the fact that in life history studies it not infrequently becomes necessary to shoot birds to check on observations, especially in cases where the sexes or ages look alike. In a manual of how to study birds a few pages could have been given to these two still useful methods of getting the data needed in life history work. It is true that photography as an end in itself contributes little to knowledge of birds, but as a means of conveying certain types of data it has a definite place. (For example, courtship poses, nesting sites, etc., are more readily portrayed than described.)

A book is both a record and a tool. As a record of what has been done and as a manual of the methods involved the value of the present book is indicated in the above review. As a tool in the hands of present and future bird-watchers its value remains to be demonstrated. It is written in such a way as to lend itself admirably for classroom purposes. More and more, people are realizing the value of a satisfying and instructive hobby in even the busiest life, and when bird-watching is taught as a source of pleasure, much as literature and music are taught, Hickey's book may well prove to be a veritable key to a new world of interests and joys to many who would otherwise never sample of its pleasures.—HERBERT FRIEDMANN.

35. Stroud's Digest on the Diseases of Birds. Robert Stroud. 1943. St. Paul. L. G. Marcus, agent for the author. ix + 483 pp. $5.00. This unusual book has been purposely prepared in as completely non-technical language as possible in order to make its information usable to those without technical knowledge of histology, pathology, or pharmacology. The arrangement is that of an encyclopedia with its various items in alphabetical order. Included are anatomical terms, physiological terms and conditions, pathological terms and conditions, drugs and chemicals used in the therapy of avian diseases, pathogenic organisms, nutrition (including vitamins), treatment of injuries, etc. The information is drawn almost exclusively from the author's own experiments and extensive experiences largely with cage canaries. Material on the diseases of poultry is also introduced. The illustrations are in general helpful although some of them have been drawn from memory. There is a good discussion on the role of vitamins in the physiology of birds and the symptoms of the various avain avitaminoses. The section on malaria contains no suggestion for treatment in spite of the fact that several species of birds are used regularly as test animals

for various anti-malarial drugs. Many of these experiments should give reliable information on the therapeutics of malaria in birds. There is a glossary which defines the relatively small number of technical terms employed in the text. Readers may justifiably wonder why extraneous remarks and information are inserted in various places. Nevertheless its description of more than seventy diseases and pathological conditions, their diagnoses and treatments, obviously based on practical experience make this a valuable treatise. It is recommended particularly to those ornithologists whose investigations involve the keeping of birds in captivity.

36. Cuban Ornithology. Thomas Barbour. 1943. Memoirs of the Nuttall Ornithological Club, No. 9. 144 pp. This attractive volume is a successor to the author's *Birds of Cuba* published in 1923. He has incorporated notes accumulated in his annual visits to Cuba since the publication of the earlier treatise. Other records including those derived from the returns on banded birds are also added. Although there is no bibliography the introduction contains a discussion of the best sources of information on the birds of Cuba. The organization of the book is that of an annotated list of the known species. The notes deal primarily with collecting records, migration dates, breeding habits, relative abundance, and ecology. Scientific, English, and Cuban names are given and descriptions are omitted. This treatise will prove to be an interesting and invaluable source of information on Cuban birds.