RECENT LITERATURE

EDITED BY FRANK McKINNEY

ANATOMY AND EMBRYOLOGY

Greenewalt, C. H., W. Brandt, and D. D. Friel. 1960. The iridescent colors of hummingbird feathers. Proc. Amer. Phil. Soc., **104:** 249–253.—Iridescence is caused by interference produced by a thin film. In hummingbirds strong iridescence is caused by the superimposition of about three films. Electron photomicrographs reveal layers of platelets at the surface of the barbules; the platelets consist of a matrix enclosing air bubbles. Iridescent color varies depending on both air content and thickness of platelet. Optics discussed; photographs.—E. E.

Greenewalt, C. H., W. Brandt, and D. D. Friel. 1960. Iridescent colors of hummingbird feathers. Jour. Optical Soc. of Amer., **50:** 1005–1013.

Johnson, D. W. and F. S. L. Williamson. 1960. Heart weights of North American Crows and Ravens. Wilson Bull., **72:** 248–252.—Body and heart weights for three species of *Corvus* are reported. *C. corax,* the largest, had the smallest heart ratios. Males had larger heart ratios than females, and first-year birds had larger ratios than adults.—J. T. T.

Kuroda, N. 1960. On the Meckel's Divertikel [*sic*] of avian intestine. Misc. Reports of the Yamashina's Inst. for Ornith. and Zool., **2** (14) : 41–49.—Reviews presence or absence in adults, size, and relative position of Meckel's diverticulum in various orders of birds. Histological studies (with photographs) of this organ in *Aythya fuligula* and *Xenus cinereus.* ". . . this divertikel, though in some cases it shows secondary development, is not considered very significant functionally and adaptively." (In Japanese with English summary.)—K. C. P.

Kuroda, N. 1960. On the pectoral muscles of birds. Misc. Reports of the Yamashina's Inst. for Ornith. and Zool., **2** (14) : 50–59.—A review by orders of the relative weight of the pectoral muscle mass to body weight, and of relative weights of muscles within this mass. Relative proportions of *M. pectoralis major* and *M. p. minor* are correlated with mode of flight, the latter being least developed in soaring birds and best developed in wing-diving sea birds (Alcidae). An anterior superficial layer of *M. p. major proprius* in herons is named *M. p. m. antero-superficialis.* (In Japanese, with English summary, tables, and captions to figures.)—K. C. P.

Kuroda, N. 1960. The tibial muscles of the ostrich. Misc. Reports of the Yamashina's Inst. for Ornith. and Zool., **2** (14) : 63–66.—Tibial muscles of right leg of an ostrich dissected, figured (photographs and drawings), and compared with those of "typical" birds. Three of the 13 tibial muscles of "typical" birds were not found in the ostrich. (In Japanese, with English summary and captions to figures.)—K. C. P.

Plack, P. A. 1960. Vitamin A_1 aldehyde in hen's eggs. Nature, **186:** 234–235.

Smoczkiewiczowa, A. 1959. Sodium, potassium, calcium and chloride ion contents and protein fractions in the fluids of chick embryos. Nature, **183:** 1260–1261.

Tyler, C. and K. Simkiss. 1959. A study of the egg shells of ratite birds. Proc. Zool. Soc. London, **133:** 201–243.—A morphological study, using chemical and histochemical analysis and plastic embedding techniques. In physical structure

tinamou shells were closest to those of kiwis, differing greatly from those of other ratites.—E. E.

Weiss, P. and A. C. Taylor. 1960. Reconstitution of complete organs from single-cell suspensions of chick embryos in advanced stages of differentiation. Proc. Nat. Acad. Sci., **46:** 1177–1185.—"Single-cell suspensions of 8-to-14 day chick embryos transplanted to the chorio-allantoic membrane of 8-day embryos, and examined 9 days later, proved to give rise to well organized organs of the respective kinds."

Behavior

Baeumer, E. 1959. Verhaltensstudie über das Haushuhn,—dessen Lebensart, 2. Teil. Zeitschr. für Tierpsychol., **16:** 284–296.—Three different types of fighting in chickens may be recognized: (1) fighting between adult cocks for the leading position in the territory, (2) fighting between hens for position in the hierarchy, and (3) fighting between hens and cockerels while the former are still dominant over these young males. After the ownership of different territories has been established, fights still occur at the boundaries, but do not last long and do not end in a decision but in the combatants parting in a peculiar manner, each "saving his face." A defeated cock hides his head, thus covering the red parts that obviously release attack, or goes off into complete hiding for a time in order to escape persecution by the victor. Various agonistic postures are described, including the "spiral scratching run," which is a ritualized expression of superiority. There are also observations on the return to the coop or nest, on the releasing of bathing movements, and on some peculiarities in catching live prey—W. C. D.

Coombs, C. J. F. 1960. Observations on the Rook *Corvus frugilegus* in southwest Cornwall. Ibis, **102:** 394–419.—Breeding behavior of Rooks is discussed under gonadal changes, display postures, song, copulation, pair bond, territory, nest-site selection and nest building, feeding the incubating female and the young, nest sanitation, juveniles, and relationship with other species. Some interesting points: Rooks use song posts, but song is not important in territoriality; copulation occurs most frequently between birds not paired to each other, although it is usually interfered with; in these copulations the female was incubating in more than 90 per cent of the cases; a Rook that robs a neighbor's nest for building material may establish territorial dominance over the nest.—J. W. H.

Dilger, W. C. 1960. Agonistic and social behavior of captive Redpolls. Wilson Bull., **72:** 115–132.—Displays of *Acanthis flammea* indicating submission or readiness to attack are described and illustrated. A captive flock developed a linear hierarchy with the males more dominant. When sexual behavior increased in the spring, each female became dominant over a particular male.—J. T. T.

Hess, E. H. and H. H. Schaefer. 1959. Innate behavior patterns as indicators of the "critical period." Zeitschr. für Tierpsychol., **16:** 155–172.—Experiments with Leghorn chicks indicated that a distinct color preference is shown associated with the test object to which the birds become imprinted. This color preference in descending order is: blue, red, green, orange, gray, black, yellow, and white. It was concluded that the coloring of a stimulus and its reflectance are two separate dimensions of stimulus quality, color being more important. More choices were made to the chromatic stimuli than to the achromatic stimuli. It was further concluded that the better scores during

testing of the animals that had followed the imprinting object reflected the Law of Effort in imprinting (the more effort an animal has to expend during imprinting the more completely it will be imprinted).—W. C. D.

Johnsgard, P. A. 1960. A quantitative study of sexual behavior of Mallards and Black Ducks. Wilson Bull., **72:** 133–155.—The sexual displays of male *Anas platyrhynchos* and *A. rubripes,* and the frequency and stimulation of these, are described. No qualitative differences between the displays of the two species were found, but male Black Ducks had a more sensitive response than did Mallards, presumably because of the lack of a distinctive male plumage in Black Ducks.—J. T. T.

Kunkel, P. 1959. Zum Verhalten einiger Prachtfinken (Estrildinae). Zeitschr. für Tierpsychol., **16:** 302–350.—A detailed comparative study of the behavior of 10 species of estrildine finches. Tail movements are often very different in closely related species and probably serve as signals keeping flocks together. Estrildine finches learn the edibility of objects from other birds. Pairs remain together for long periods, possibly for life; they come to know each other individually and repel newcomers; individual distance does not exist as they are "contact animals." Most of the agonistic behavior is similar to that of other small passerines, but a few species have developed special forms. Except for the Common Waxbill, Orange-cheeked Waxbill, and the Amadavat, males unceremoniously rape strange females. Song is always an expression of sexual mood but never of territorial fighting motivation. "General display" is a complete, isolated form of behavior, which is supposed to excite and synchronize the partner while the "mating courtship" invites copulation. Much more information is given, especially on behavior of the young, nest building, early reproductive behavior, and maintenance activities.—W. C. D.

Martin, E. M. and A. O. Haugen. 1960. Seasonal changes in Wood Duck roosting flight habits. Wilson Bull., **72:** 238–243.—Morning and evening roosting flights of *Aix sponsa* occurred nearer the hours of darkness and over shorter periods as the fall season advanced.—J. T. T.

Miskimen, M. 1960. Study of preroosting behavior in captive Redwing Blackbirds. Ohio Jour. Sci., **60:** 1–5.—Preroosting activity in caged Redwings is initiated by intensity of light from overhead sky with a maximum occurring between 5 and 20 f.c.; entering the roost occurred between 5 and 1 f.c. Activities increased from December through February.—H. C. S.

Orr, H. D. and T. W. Sudia. 1960. Flight distance in the Great Blue Heron. Wilson Bull., **72:** 198–199.—Distances from the observer to flushing *Ardeo herodias* under various conditions.—J. T. T.

Pennycuick, C. J. and D. Webbe. 1959. Observations on the Fulmar in Spitsbergen. Brit. Birds, **52:** 321–332.—Deals with behavior at the breeding colony (mostly calls), gliding flight (illustrated with photographs), proportions of color phases, and the departure of adults at the end of the breeding season.—F. M.

Pettingill, O. S., Jr. 1960. Crèche behavior and individual recognition in a colony of Rockhopper Penguins. Wilson Bull., **72:** 213–221.—Chicks of *Eudyptes crestatus,* studied in the Falkland Islands, cluster in crèches after about 12 days of age. Each is fed exclusively by its own parents. Protection from Skuas apparently results from the habit of gathering.—J. T. T.

Poulsen, H. 1959. Song learning in the Domestic Canary. Zeitschr. für Tierpsychol., **16:** 173–178.—The song of the Domestic Canary is not learned, but various individualistic themes can be incorporated through learning. The Canary is able to imitate frequency, rhythm, and length of a sound. This learning seems to be restricted to certain periods characterized by subsong singing. Learning also may occur in young birds during the first month of life. Imitations, once acquired, may persist for years, but also may be lost. The characteristic soft and low song of roller canaries is genetically fixed, but, as with other canaries, imitations may be included if the birds are exposed during the sensitive periods. —W. C. D.

Reinert, J. 1960. Unterscheidungsvermögen einer Dohle für verschieden schnelle Metronom-Schlagfolgen. Zeitschr. für Tierspsychol., **17:** 114–124.—In rewarded choice experiments a Jackdaw was conditioned to differentiate a series of five quick from five slower metronome beats lasting from 1.5 to 5.6 seconds. Further, the Jackdaw could at best discriminate 112 from 138 beats per minute. This is as good as has been discovered for a sheep and a chimpanzee.—W. C. D.

Strosnider, R. 1960. Polygyny and other notes on the Redwinged Blackbird. Wilson Bull., **72:** 200.—One male *Agelaius phoeniceus* defended a territory in a small marsh containing nests of four females.—J. T. T.

Suthers, R. A. 1960. Measurement of some lake-shore territories of the Song Sparrow. Wilson Bull., **72:** 232–237.—Four carefully measured territories of *Melospiza melodia* located on the edge of a lake averaged less than half an acre, intermediate in area between those reported from islands and others reported from the mainland.—J. T. T.

Tinbergen, N. 1959. Einige Gedanken über "Beschwichtigungsgebärden." Zeitschr. für Tierpsychol., **16:** 651–665.—General paper dealing with the reproductive displays of birds and other animals. Methods by which the causation and function of these displays may be determined are discussed. Agonistic displays have either a distance-decreasing or a distance-increasing function. The latter involve threat displays, and the former have to do with the inhibition of aggressive tendencies in others. Pair-formation displays often closely resemble threat displays, but both seem to have become independently ritualized with respect to the demands of pair formation. Clear traces of their original agonistic motivation are usually still visible. Comparative studies of gulls indicate that displays used at the conclusion of pair formation or greeting ceremonies have all been derived either from very "timid" threat displays or from agonistic appeasement displays. Further arguments support the validity of the previously discussed methods in tracing the evolutionary origins of smiling and laughing in Man and his relatives. —W. C. D.

Tinbergen, N. 1959. Photographic studies of some less familiar birds. C. Ruff. Brit. Birds, **52:** 302–306.—This text, accompanying photographs of *Philomachus pugnax* by C. C. Doncaster and S. Bottomley, briefly reviews the literature on communal displays, describes behavior at "leks," and interprets some of the behavior patterns in the light of knowledge on gulls and other shorebirds.—F. M.

von Frisch, O. 1959. Zur Jugendentwicklung, Brutbiologie und vergleichenden Ethologie der Limicolen. Zeitschr. für Tierpsychol., **16:** 545–583.—Behavioral observations were made on 21 species of waders and the young of 13 species hand-reared from the egg. The adult captives showed almost normal behavior

and some bred. The sound utterances of the young birds are described and evaluated. Much information on the ontogeny of behavior of these birds is given. Topics such as agonistic behavior, sexual behavior, nest building, and feeding behavior are fully treated in a comparative manner—W. C. D.

Diseases and Parasites

Malcomson, R. O. 1960. Mallophaga from birds of North America. Wilson Bull., **72:** 182–197.—After a brief description of the methods of collecting and mounting bird ectoparasites, a list is presented of about 500 species of birds and the mallophagan species that have been recorded from each.—J. T. T.

Srivastava, B. K., H. C. Saxena, and J. C. Sharma. 1960. Influence of dietary intake of certain insecticides in the hemoglobin and erythrocyte contents of chick blood. Nature, **186:** 172–173.—DDT, Dieldrin, BHC, and malathione caused lower Hb and rbc count in all cases. The chlorinated hydrocarbons caused a continual depression and also a hock disorder similar to perosis.—H. C. S.

Distribution and Annotated Lists

Davis, P. and R. H. Dennis. 1959. Song Sparrow at Fair Isle: a bird new to Europe. Brit. Birds, **52:** 419–421.

Drury, W. H. and M. Drury. 1959. Fulmars in the North Atlantic in the summers of 1956 and 1958. Brit. Birds, **52:** 377–383.—Counts showing distribution and color phases.—F. M.

Hickling, R. A. O. 1960. The coastal roosting of gulls in England and Wales 1955–56. Bird Study, **7:** 32–52.—Details of a winter survey.—F.M.

Johnston, R. F. 1960. Directory to the bird-life of Kansas. Univ. Kansas Mus. Nat. Hist., Misc. Publ., **23:** 1–69.—A distributional check list, with information on nests, clutch size, and egg dates. A generally useful feature is inclusion under each species of a reference to some recent monograph or paper (if available) bearing on its biology, particularly behavior.—E. E.

Loftin, H. 1960. A cooperative summering shorebird survey. Florida Nat., **33:** 199–208.—Fifteen species of shorebirds were noted in Florida during June 1959. Localities, dates, and number of each are given, and in some cases the apparent plumage. Many of the species were present in numbers throughout the month; others may have been late stragglers on migration northward.—E. E.

McKinley, D. 1960. The Carolina Parakeet in pioneer Missouri. Wilson Bull., **72:** 274–287.—The recorded history of *Conuropsis carolinenses* in Missouri is summarized, with many quotations from the original sources.—J. T. T.

North, M. E. W. 1959. The great heronry of Garson on the Tana River. Jour. E. Afr. Nat. Hist. Soc. **23:** 159–160.—Thirteen species of herons and ibises breeding at Garson, Kenya Colony.—H. F.

Parsons, B. 1959. Some Makueni birds. Jour. E. Afr. Nat. Hist. Soc. **23:** 164–166. —List of common birds in the highlands 90 miles from Nairobi, Kenya Colony. —H. F.

Sharrock, J. T. R. and R. Gillmor. 1959. Ring-necked Duck in Berkshire. Brit. Birds, **52:** 427–430.—The third European and second British record.

Taverner, J. H. 1959. The spread of the Eider in Great Britain. Brit. Birds, **52:** 245–258.—Increase in numbers and extension of breeding range began about 100 years ago. In recent years, wintering range has been extended greatly; now almost all coasts of England have wintering Eiders.—F. M.

Wagner, H. O. 1959. Die Einwanderung des Haussperlings in Mexiko. Zeitschr. für Tierpsychol., **16:** 584–592.—About 1910 House Sparrows *(Passer domesticus)* immigrated to Mexico simultaneously from the northeast and along the Pacific coast. Environmental influences stopped the advance in the region of the Gulf and considerably impeded it in the uplands. Along the Pacific coast the birds advanced at a rate of about 200 km. a year until they reached the Isthmus of Tehuantepec; they followed the valleys of the rivers Lerma and Balsas into the inner parts of the country. The southern part of the Gulf coast is inhabited by sparrows that came across the continent. These birds are apparently able to cross dry areas if the drought is not exceptionally severe and if there are a few human settlements on the way. Very arid areas and virgin forests both uninhabited by humans serve as ecological barriers. High temperatures inhibit or prevent immigration. Occasional periods of very high temperature diminish the population or even eliminate it. Such regions, however, seem to be constantly reinhabited. Yearly recurring maximum temperatures of above 40° C prevent permanent colonization. The worse conditions are, within supportability, the quicker the birds tend to spread. Young birds are probably the chief source of colonizers, but these are not driven away by adults nor by lack of territorial space. During this time they are simply nomadic and tend to colonize anyway. Environmental factors like landscape configuration or vegetation character may influence their course.—W. C. D.

Winterbottom, J. M. 1960. The zoo-geographical affinities of the Western Cape Province. Ibis, **102:** 383–393.—There are three avifaunal divisions in this region: winter-rainfall area (south-coastal), temperate forest (patches in western Cape), and karoo (arid inland and eastern Cape). The author briefly describes the botany and history of these areas; their relations to the avifauna are discussed in terms of ecology, zoogeography, and evolution.—J. W. H.

Ecology and Population

Beals, E. 1960. Forest bird communities in the Apostle Islands of Wisconsin. Wilson Bull., **72:** 156–181.—The bird populations of 24 stands of forest on islands in Lake Superior were estimated by a sample count method. An objective method of measuring similarity of bird species and of vegetation between stands was used as the basis for drawing conclusions about the environmental distribution and habitat preference of the bird species.—J. T. T.

Cole, L. C. 1960. Competitive exclusion. Science, **132:** 348–349.—"It is contended that there is little justification for believing in the competitive exclusion principle ["Gause's hypothesis"] as usually formulated. There is danger that a trite maxim like this may lead to the neglect of important evidence." (Author's abstract.)

Coulson, J. C. 1959. The plumage and leg colour of the Kittiwake and comments on the non-breeding population. Brit. Birds, **52:** 189–196.

Enderson, J. H. 1960. A population study of the Sparrow Hawk in east-central Illinois. Wilson Bull., **72:** 222–231.—By censusing and marking individuals of

Falco sparverius, the wintering, transient, and breeding populations were estimated, and the home ranges of some individuals were determined.—J. T. T.

Finnis, R. G. 1960. Road casualties among birds. Bird Study, **7**: 21–32.—Casualties on British, French, and American roads are compared; the kill is greater on British roads, with their frequent changes of direction and close cover. The high mortalities of House Sparrow, Blackbird, and Song Thrush are discussed in detail.—F. M.

Norris, C. A. 1960. The breeding distribution of thirty bird species in 1952. Bird Study, **7**: 129–184.—Results of an attempt to map the approximate numerical status of 30 species (mostly passerine) in the British Isles.—F. M.

Royama, T. 1960. The theory and practice of line transects in animal ecology by means of visual and auditory recognition. Misc. Reports of the Yamashina's Inst. for Ornith. and Zool., **2** (14) : 1–17.—Reviews practical and mathematical aspects of line transects. An actual comparison of woodland bird populations as estimated by census and line transect techniques showed serious discrepancies, which are ascribed to variability in conspicuousness of the birds being counted. An appendix gives the mathematics underlying the theories. (In English.)—K. C. P.

Williams, G. R. 1960. A preliminary account of a regular fluctuation in California Quail in Central Otego [New Zealand]. Proc. N.Z. Ecol. Soc., **7**: 9–11. On South Island, New Zealand, the introduced *Lophortyx californicus* shows a four-year cycle, with the year of maximum increase immediately following the "low" of the preceding three years.—E. E.

General Biology

Baker, J. K. 1960. The Cave Swallow. NSS News, National Speleological Soc. **18**: 72.—Brief abstract of paper presented at 1960 Convention, outlining known information on U.S. range.

Clase, H. J., F. Cooke, T. A. Hill, and W. J. Roff. 1960. A survey of the Slavonian Grebe at Myvatn, Iceland. Bird Study, **7**: 76–81.—Information on population, clutch size, nest-site preference, nest materials, and colonies of *Podiceps auritus*. —F. M.

Elgood, J. H. and P. Ward. 1960. The nesting of Heuglin's Masked Weaver in Nigeria. Ibis, **102**: 472–473.—The Masked Weaver is recorded as nesting in association with some other kind of animal in five of six observations (with wasps, bees, storks, and man). The species may not be fundamentally a social nester, but rather its tendency to nest in groups may be the result of several pair seeking a common "protector."—J. W. H.

Heyder, R. 1960. Zur Aufnahme von Mineralsalzen durch Vögel. Beitr. Vogelk., **7**: 1–6.—Comments on eating of salt by birds.—E. E.

Kanai, I. 1960. Breeding ecology of the House Swallow, *Hirundo rustica*. Misc. Reports of the Yamashina's Inst. for Ornith. and Zool., **2** (14) : 30–40.—Figures for the Tokyo region based on a three-year study of several hundred nests (dates of arrival, building, laying, hatching and fledging, incubation period, clutch size, brood size, per cent hatching and fledging, growth of young, banding results). (In Japanese with English summary.)—K. C. P.

Koffán, K. 1960. Observations on the nesting of the Woodlark (*Lullula arborea* L.). Acta. Zool. Acad. Sci. Hung., **5**: 371–412.—A thorough study of a color-marked population on an area about six km. square near the Hungarian capital was carried out over a period of more than 10 years. The area is arid pasture land with calcareous rocks and many gullies. Vegetation is sparse, mostly grasses and trees. The following topics are considered: nest sites, concealment of nests, nesting in cultivated areas, direction in which nests face (mostly north), elevation, nest-site selection (by the male), territory, relationship of nest hollows to soil properties, the number of hollows and their excavation, removal of excavated materials (including experiments with empty snail shells), nest building, nesting period, effects of weather, associations with other birds. A well-prepared paper (in English) with 24 references cited.—F. J. T.

Kuroda, N. 1960. Field studies on the Grey Starling, *Sturnus cineraceus* Temminck. 3. Roosting behaviour from summer to autumn (1. Observation in the east of Tokyo, with note on feeding behaviour). Misc. Reports of the Yamashina's Inst. for Ornith. and Zool., **2** (14) : 18–29.—Factors governing choice of roosts during and after breeding are reviewed, together with factors stimulating change of roost site. In autumn sparrows and starlings gather together at rice paddies, but eat different foods. Starlings favor rice worms found on cut stems. (In Japanese; tables, captions to figures, and summary in English.)—K. C. P.

Lockie, J. D. 1959. The food of nestling Rooks near Oxford. Brit. Birds, **52**: 332–334.

Marchant, S. 1960. The breeding of some S.W. Ecuadorian birds. Ibis, **102**: 349–382.—Includes data on nest site, nest, eggs, laying, incubation, nestling period, breeding success, and breeding season for 33 species (Tinamous through Vireos). To be concluded in a later issue.—J. W. H.

Nau, B. S. 1960. Late nest-building of the Rook. Bird Study, **7**: 185–188.—Two periods of nest-building activity, separated by an interval of three weeks, were noted. It is suggested that inexperienced breeders nest later.—F. M.

Newton, I. 1960. The diet and feeding habits of the Bullfinch. Bird Study, **7**: 1–9. —On the basis of sight observations, diet of *Pyrrhula pyrrhula* can be broadly divided according to season: buds in spring, insects in early summer, berries in autumn, and seeds during late summer and winter. Details of food and methods of obtaining it are given.—F. M.

Niess, H. 1960. Brütet das Männchen vom Höckerschwan, *Cygnus olor* Gm., wirklich? Beitr. Vogelk., **7**: 19–21.—Gives evidence suggesting that male of Mute Swan does not really incubate, but merely sits on the eggs to guard them when female is away.—E. E.

Peakall, D. B. 1960. Nest records of the Yellowhammer. Bird Study, **7**: 84–102.— An analysis of nest record cards for *Emberiza citrinella* deals with geographical variation in breeding season, clutch size, incubation and fledging periods, nest sites, and breeding success. A new method for calculating breeding success from these cards is described in an appendix.—F. M.

Phillips, A. 1960. A note on the ecology of the Fairy Penguin, *Eudyptula minor novaehollandiae* (Forster 1781) in southern Tasmania. Papers and Proc. Roy. Soc. Tasmania, **94**: 63–72.—A preliminary report. Two types of breeding grounds, on rocky and sandy coasts, are being studied. An aluminum flipper band has proved unsatisfactory, and an improved stainless steel band is now being

tried. Chicks are marked by punching webs. Methods for external sexing of *Eudyptula* penguins are reviewed. Tables of measurements illustrate sex differences.—K. C. P.

Rand, R. W. 1960. The biology of guano-producing sea-birds. 3. The distribution, abundance and feeding habits of the cormorants Phalacrocoracidae off the south west coast of Cape Province. Dept. Comm. and Indust., Div. Fish. Inv. Rept., **42:** 1–32.—Union of South Africa.

Ripley, S. D. 1960. Laysan Teal in captivity. Wilson Bull., **72:** 244–247.—The nesting, eggs, downy young, and development of *Anas laysanensis* are described and a duckling is figured.—J. T. T.

Royama, T. 1959. Test of an automatic nest-recorder. Brit. Birds, **52:** 295–302.—By use of an iron detector, a recorder attached to a nesting box gave separate records for male and female visits, only one member of the pair having iron leg bands. Results are presented for a pair of Great Tits in Japan.—F. M.

Uramoto, M. and S. Takano. 1960. Bird research at Musahi Imperial Tomb area (Occasional Report I). Breeding success of Great Tit, *Parus major*, in 1959. Misc. Reports of the Yamashina's Inst. for Ornith. and Zool., **2** (14): 60–62.—Of 26 nests initiated (in nest boxes), clutches were completed in 10. Only one nest fledged young successfully. (In Japanese with English summary.) —K. C. P.

Wagner, H. O. 1959. Nestplatzwahl und den Nestbau auslösende Reize bei einigen mexikanischen Vogelarten. Zeitschr. für Tierpsychol., **16:** 297–307.—Describes the nest site of the Blue-throated Hummingbird (*Lampornis clemenciae*)—alaways in places sheltered from the rain such as washed-out banks, overhanging cliffs, or under roofs. In some icterids and hummingbird species (providing that they are in reproductive condition) the breeding season starts as soon as they are able to find wet moss and/or flexible strands of grass that usually signal the beginning of the rainy season. Following the eruption of a volcano, Cliff Swallows *(Petrochelidon pyrrhonata)* stayed in their lava-surrounded nesting localities as long as the old nests would hold together, as new wet earth for repairs was unobtainable. House Finches *(Carpodacus mexicanus)* nesting on the ruins of houses amidst the cinders lost their broods for lack of food. Kingbirds *(Tyrannus melancholicus)*, although in breeding condition, could not nest for lack of fresh grass strands.—W. C. D.

Williamson, K. 1960. The development of young Snipe studied by mist-netting. Bird Study, **7:** 63–76.—A study on St. Kilda, Outer Hebrides, gave information on breeding season, clutch size, division of parental responsibility, distraction display, development of young, plumage and soft-part colors, molt, measurements and weights of adults, and ectoparasites for *Capella gallinago faeroeensis*.—F. M.

Migration and Orientation

Andrew, D. G. 1959. Migrations of the Oystercatcher. Brit. Birds, **52:** 216–220.—Conclusions drawn from banding returns and observations of birds on passage. —F. M.

Goodacre, M. J. 1960. The origin of winter visitors to the British Isles. 5. Redwing *(Turdus musicus)*. Bird Study, **7:** 102–107; 6. Song Thrush *(Turdus philomelos)*. Bird Study, **7:** 108–110; 7. Fieldfare *(Turdus pilaris)*. Bird Study, **7:** 111–113.

Graber, R. R. and W. W. Cochran. 1960. Evaluation of an aural record of nocturnal migration. Wilson Bull., **72**: 253–273.—Records on tape of the calls of nocturnal migrants were analyzed in various ways. A favorable, following wind apparently exerts the dominant influence in the start of a mass flight; a shift of wind to an opposing direction may halt a flight. Migrations frequently were initiated and continued under complete overcast. Comparisons were made between data acquired by this method and information obtained from lunar observations, field observations, and kills of migrants at towers.—J. T. T.

Harrison, T. 1960. Regularity of migrant dates in central Borneo. Ibis, **102**: 472.—Eight species of birds are shown to have markedly regular arrival dates in upland interior Borneo. Arrivals of four of these species, *Motacilla flava, Lanius cristatus, Accipiter virgatus,* and *Turdus obscurus,* are used by natives to set their calendar.—J. W. H.

Lack, D. 1959. Watching migration by radar. Brit. Birds, **52**: 258–267.—Reviews the history of bird detection by radar and the conclusions drawn from recent studies on migrations over eastern England.—F. M.

McLean, I. and K. Williamson. 1959. Migration notes from the Western Approaches, spring 1958. Brit. Birds, **52**: 177–185.

Moreau, R. E. 1960. Autumn migrants in Greece. Ibis, **102**: 473–475.

Murton, R. K. 1959. Visible migration in N.E. Norfolk in November 1956. Brit. Birds, **52**: 228–235.

Nisbet, I. C. T. 1959. Wader migration in North America and its relation to transatlantic crossings. Brit. Birds, **52**: 205–215.—"The relative frequency of occurrence of various American waders in Great Britain is compared with the available information on their migration patterns and abundance in North America. Some species which have occurred in Britain are rare on the American coast, while there are especially few British records of the species which are most abundant there. Species of inland habitat are relatively more frequent than those of the coast; long-distance migrants are more frequent than short-distance migrants; and species from western arctic America are much more frequent than species from eastern arctic America. Transatlantic vagrancy occurs mainly in those species in which a part of the population has an extensive west-to east movement within North America. Spring records in Britain bear still less relation to the relative abundance of the species concerned in eastern North America. It is suggested that the birds have either wintered in the Old World or crossed from South America to Africa on spring migration. Similar conclusions apply in reverse to the records of European waders in eastern North America." (Author's summary.)

Nisbet, I. C. T. 1959. Bewick's Swans in the British Isles in the winters of 1954-55 and 1955-56. Brit. Birds, **52**: 393–416.—Documents two large invasions with notes on status in the past, migratory behavior, habitat, feeding, age composition, and mortality. In February 1956 about 4,400 birds left Germany and the Netherlands and flew west to Great Britain; this movement coincided with a long period of severe frost.—F. M.

Radford, M. C. 1960. Common Gull movements shown by ringing returns. Bird Study, **7**: 81–93.—Analysis of returns of birds banded in the British Isles and those banded abroad that were recovered in the British Isles.—F. M.

Swinebroad, J. 1960. A review of some problems in the study of bird migration. Ohio Jour. Sci., **60**: 174–182.—The use of influx and departure data to help answer some problems arising from a critical approach to migration studies in the field.—H. C. S.

Wallraff, H. G. 1959. Über den Einfluss der Erfahrung auf das Heimfindevermögen von Brieftauben. Zeitschr. für Tierpsychol., **16**: 424–444.—More than 2,000 carrier pigeons were used to determine the effects of prior homing experience on homing behavior. With the number of previous flights, the homing success increases rapidly at first but more slowly later. The increase of performance was mainly in speed but also in lessened losses of birds. Selection is probably also important, as poor homers tend to become lost on one of the early flights. Increase in speed is due to learning. Special knowledge of the release point is of much less importance than is homing experience in general. Other results are also given.—W. C. D.

Wallraff, H. G. 1959. Örtlich und zeitlich bedingte Variabilität des Heimkehrverhaltens von Brieftauben. Zeitschr. für Tierpsychol., **16**: 513–544.—More than 3,000 birds were used to evaluate temporal and other factors on the homing abilities of carrier pigeons. Four criteria were used to judge performance: (1) time in sight, (2) initial direction taken, (3) homing performance, (4) reports on birds gone astray. In general, after 20 seconds the birds showed a definite tendency to head homeward. Initial orientation and homing performance are positively correlated. Initial headings and homing performance may differ at different release points. Excellence of homing shows an annual cycle, maximum in August and minimum in January. Initial orientation and homing performance may vary from day to day, even at the same release point; weather conditions alone do not explain the observed results. Hour-to-hour variation also occurs (not periodical and not associated with weather changes). At one release point, the initial orientation data obtained in 1957 varied from that obtained in 1954-56. It is further concluded that the demonstration of local and temporal variations in homing behavior shows (supplementary to other findings) that visual landscape orientation and celestial orientation are not sufficient to explain the homing ability.—W. C. D.

Wallraff, H. G. 1960. Über Zusammenhänge des Heimkehrverhaltens von Brieftauben mit meteorologischen und geophysikalischen Faktoren. Zeitschr. für Tierpsychol., **17**: 82–113.—Investigations were made to determine the effects of wind, cloud cover, fog, air temperature, barometric pressure, and sun-spot activity on the homing ability of carrier pigeons. Wind influenced initial heading and homing performance, but the influence is small with light winds, and the effects may be ignored. Cloud cover has little influence, unless the sun is obscured. Data suggest that the pigeons can locate the sun after the human eye is no longer able to do so. Visibility shows a loose connection to homing performance, but only very poor visibility (fog) has a decisive influence. Apparently there is a question whether the poor visibility itself is the decisive factor or whether atmospheric conditions coincident with fog are affecting the performance. Air temperature is of little importance. Interdiurnal variations in barometric pressure at higher altitudes have a significant effect on homing ability, performances being poorer during periods of rising pressure. Sun-spot activity could not be proved to be a significant variable, but the results do not exclude any connection.—W. C. D.

Williamson, K. 1959. The September drift-movements of 1956 and 1958. Brit. Birds, **52**: 334–377.—Describes and compares drift movements on the east coast of

England for the two years. Eastern and southern vagrants from Europe were recorded in unusual numbers in 1958. The bird records are correlated with weather conditions, and the evidence for down-wind drift is presented. Vagrants were predominantly young of the year. It is suggested that the orientation mechanism does not mature until after a brief phase of postjuvenile dispersal. Light easterly winds in 1958 produced a drift-aided dispersal far to the west of the normal range.—F. M.

Physiology

Boyer, G. 1960. Chorioallantoic membrane lesions produced by inoculation of adult fowl leucocytes. Nature, **185:** 327–328.

Braekkan, O. R., H. Myklestad, L. R. Njaa, and F. Utne. 1960. Vitamin A isomers in the liver of rats and chicks. Nature, **186:** 312.

Fussell, M. H. 1960. Collection of urine and faeces from the chicken. Nature, **185:** 332–333.—A surgical technique for separating urine and feces by exteriorizing the large intestine.—H. C. S.

Kornfeld, W. 1960. Experimentally induced proliferation of the rudimentary gonad of an intact domestic fowl. Nature, **185:** 320.—Brought about by injecting anti-estrogenic 17 α-ethyl-19-nortestosterone.—H. C. S.

Wilkie, D. R. 1959. The work output of animals: flight by birds and by man-power. Nature, **183:** 1515–1516.

Taxonomy and Palaeontology

Gilliard, E. T. 1960. Results of the 1958-1959 Gilliard New Britain Expedition. 2. A new species of ticket warbler (Aves, *Cichlornis)* from New Britain. Amer. Mus. Novitates, **2008:** 6 pp.—*Cichlornis grosvenori,* based on two specimens from Wild Dog Range, Whiteman Mts., New Britain, 5,200+ feet elevation. The only other species of this little-known genus is *C. whitneyi,* of which five specimens have been taken on Espiritu Santo, New Hebrides, and one *(C. w. turipavae)* on Guadalcanal, British Solomon Islands. These elusive forest birds may yet be found on other high islands of the Pacific.—K. C. P.

Mainardi, D. 1960. Dati di ibridologia per una sistematica dei fringilidi. Inst. Lombardo (Rend. Sc.) B., **94:** 43–62.—Using data in Gray's "Bird Hybrids" (1958), relations between the subfamilies of Fringillidae and allied families are analyzed. *Fringilla* is definitely known to have hybridized with several carduelines, but not with any emberizine; the view that it is emberizine seems to be negatived. The carduelines occupy a central position hybridologically, for carduelines have occasionally produced hybrids with *Emberiza,* and even with *Passerina* (considered, depending on the authority, either richmondenine or emberizine). The North American cardinal, *Richmondena,* has hybridized with the South American cardinals *Paroaria* and *Gubernatrix* (which Tordoff removed from the richmondenines to the emberizines because of differences in palato-maxillaries). Even the estrildine *Lonchura* (Ploceidae) is reported to have hybridized with the cardueline *Serinus,* as well as with the neotropical *Tiaris* (considered emberizine or richmondenine by recent writers). Mainardi points out that the hybrid data suggest close relationship among the subfamilies traditionally included in Fringillidae; at least they indicate that the proposed dismemberment of that family is premature. There is some support for the view that the Ploceidae, or at any rate some genera allocated to that family, might be included in the family Fringillidae. (In Italian; English summary.)—E. E.

Milne, B. S. 1959. Variation in a population of Yellow Wagtails. Brit. Birds, **52:** 281–295.—Results of field work and color banding, over a period of three years in Surrey, support the suggestion (previously based only on museum taxonomy) that the grayish-headed races should be regarded as a distinct species from the yellow-headed races. *"Budytes perconfusus"* is thought to be an interspecific hybrid. Enormous variation found in this group in southeast England is thought to be due to interspecific hybridization, rather than the result of gene flow from "drifted" migrants.—F. M.

Moreau, R. E. 1960. Conspectus and classification of the Ploceine Weaver-birds. Ibis, **102:** 443–471.—A continuation of a paper begun earlier in the *Ibis*. Under his Group A Ploceinae the author continues discussion considering nests and nest sites, eggs and clutch sizes, food and beaks, size and proportions, and classification. There follow a brief discussion of Group B Ploceinae and a general section divided into a discussion of ploceine geography, intraspecific variation, and conclusions. A major attempt at systematic organization of an avian taxon, relying not only on morphological characters but upon a thorough consideration of existing knowledge on behavior, breeding biology, and zoogeography as well.—J. W. M.

Morioka, H. 1960. The skull of *Regulus regulus,* with some remarks on the taxonomic status of Regulidae. Mem. Coll. Sci., Univ. Kyoto, Ser. B, **27,** No. 1: 59–64.—On the basis of comparison of the skull of *R. regulus* with those of certain characteristic genera of Sylviinae, the writer concludes that the relations between the kinglets and Old World warblers may not be so close as has been assumed.—E. E.

Patterson, B. and J. L. Kraglievich. 1960. Sistemática y Nomenclatura de las Aves Fororracoideas del Plioceno Argentino. Publ. Mus. Muncipal Cienc. Nat. y Tradicional Mar del Plata Argentina. Vol. **1,** No. 1: 1–49.—A much-needed revision of the Pliocene phororhacoids. The Phororhacoidea are considered a superfamily of the Cariamae and are divided into three families: the Psilopteridae (with the subfamilies Psilopterinae and Hermosiornithinae), the Phororchacidae (with the subfamilies Phororhacinae and Tolmodinae), and the Brontornithidae. *Opisthodactylus* is referred to the Rheidae; and the Cunampaiidae are not included in the Phororhacoidea. A new tolmodine genus, *Andalgalornis,* is described. (In Spanish, with English summary.)—R. W. S.

Taylor, D. W. 1960. Late Cenozoic molluscan faunas from the High Plains. Geol. Surv. Prof. Pap. **337:** 1–94.—Data from fossil mollusks clearly support those from mammals in assignment of Rexroad local faunas in Meade County, Kansas, to Upper Pliocene. Seven species of birds reported from these beds, which include the Mourning Dove and turkey, are verified as of Upper Pliocene age.

Miscellaneous

Lack, D. 1960. Hints on research for bird-watchers. Bird Study, **7:** 9–20.—A valuable discussion written for those amateur bird watchers who want to do scientific research. The author has spent 31 years carrying out, directing, encouraging, and publishing research on birds. His conclusions on the nature of research, choice of subjects, desirable qualities in the researcher, and procedure of writing up results will be of interest and value to both amateur and professional ornithologists.—F. M.