

the section on bird protection, for instance, where there is much good material, one finds the following statement: "Interest in nature as a form of enjoyment is a characteristic of the British, Teutonic, and Scandinavian cultures. It is less apparent in Latin, Slavic, Oriental, and other cultures. The underlying motives for this would surely be a fruitful source of philosophical inquiry." (p. 416). To say that this is a dubious assertion is to put it mildly, and further comment can best be left to members of the allegedly less appreciative societies.

In reviewing this work, I have assumed that students of ornithology are entitled to texts that maintain the same standards of accuracy and intellectual discipline that are demanded as a matter of course in other, less "popular," sciences. This book is the only attempt at a comprehensive text on birds that is available in the English language, and many people here and abroad may assume that it is an authoritative representation of the status of ornithological knowledge in America. I feel, therefore, that special responsibilities are inherent in a work of this kind. The final authority on whether or not a book measures up to its responsibilities is not the reviewer, of course, but the book itself. This one should be carefully examined and evaluated by everyone with a serious interest in ornithology.—THOMAS R. HOWELL.

The Birds of the Soviet Union.—Edited by G. P. Dementiev and N. A. Gladkov. (State Publishers, "Soviet Science," Moscow, 1951-1954.) 6 volumes. (In Russian.)—This important work is reviewed and summarized by Harber in 'British Birds,' 48: 218-224, 268-276, 313-319, 343-348, 404-410, 447-453, and 505-511, 1955. We can do no better than to refer our readers to this useful review and to add that even for those of us who cannot read Russian, the distribution maps will prove useful.—R. W. S.

RECENT LITERATURE

EDITED BY FRANK MCKINNEY

ANATOMY AND EMBRYOLOGY

- BERGER, A. J. 1956. Anatomical variation and avian anatomy. *Condor*, **58**: 433-441.—Attention is drawn to the fact that anatomical variations are the rule instead of the exception. Especially is this indicated in avian nerves, bones, and blood vascular system. Anatomists are cautioned against generalizations on a "typical" pattern because variations are to be expected.—D. W. J.
- BLAKE, C. H. 1954. Gape color in Eastern Purple Finches (*Carpodacus p. purpureus*). *Bird Banding*, **25**: 133-136.
- FRAZER, R. C. 1957. Somite genesis in the chick. I. Partial characterization of stimulating factors in egg white. *Growth*, **21**: 29-43.
- HANKE, B. 1957. Zur Histologie des Ösophagus der Tinamidae. *Bonner Zool. Beitr.*, **8**: 1-4.—The histology of the esophagus of *Crypturellus obsoletus* and *Tinamus major*.
- STORER, R. W. 1956. The fossil loon, *Colymboides minutus*. *Condor*, **58**: 413-426.—Through this exhaustive osteological study comparing *Colymboides* with recent loons and grebes, the conclusion is drawn that *Colymboides* was a primitive loon which reached an adaptive level comparable to that of grebes. It is further concluded that loons and grebes did not arise from a common swimming ancestor, but that loons were derived from a primitive larine ancestor and evolved a diving habit.—D. W. J.

WELLER, M. W. 1957. Growth, weights, and plumages of the Redhead, *Aythya americana*. Wilson Bull., **69**: 5-38.—Described are the growth of young Redheads, the seasonal weight changes and sexual weight differences of adults, and the sequences of plumage and molts for each sex. Studies were made of both hatchery-reared and wild-reared birds. Illustrations include a color plate.—J. T. T.

BEHAVIOR

ALTEVOGT, R. 1953. Über das "Schöpfen" einiger Vogelarten. Behaviour, **6**: 147-152.—(From English summary). Thread-pulling behavior developed about 12 days after fledging in *Parus caeruleus*. The foot and bill movements used in feeding may lead to thread-pulling and there is no need to imply that "insight" is used.—F. M.

ANDREW, R. J. 1957. A comparative study of the calls of *Emberiza* spp. (buntings). Ibis, **99**: 27-42.—Information on wild and/or captive *Emberiza citrinella*, *E. calandra*, *E. schoeniclus*, *E. cirrus*, *E. cia*, *E. hortulana*, *E. tahapisi*, *E. bruniceps*, *Calcarius lapponicus*, and *Plectrophenax nivalis* is presented. A great variety of calls is analyzed using the sound spectrograph. Homologies in the calls are detected and are used in part to establish degrees of relationship among buntings. *E. cirrus* and *E. citrinella* seem closely related as do *Calcarius* and *Plectrophenax*.—R. F. J.

BAGGERMAN, B., G. P. BAERENDS, H. S. HEIKENS, and J. H. MOOK. 1956. Observations on the behaviour of the Black Tern, *Chlidonias n. niger* (L.), in the breeding area. Ardea, **44**: 1-71.—This fine paper represents the culmination of seven seasons of observation in three different colonies in the Netherlands. A condensed life history is given. Reproductive activities are described and the derivation of each is discussed. An analysis is given of the biological significance of those activities having a signal function. Comparisons with activities of other larids are made throughout.—R. E. G.

BASTOCK, M., D. MORRIS, and M. MOYNIHAN. 1953. Some comments on conflict and thwarting in animals. Behaviour, **6**: 66-84.—A valuable discussion of certain ethological concepts. Special attention is given to displacement activities. "Redirection Activities" occur when an animal is under the influence of conflicting drives and "the executive motor patterns of one of the activated, conflicting drives are transferred onto another external object."—F. M.

FRISCH, O. VON. 1956. Zur Brutbiologie und Jugendentwicklung des Brachvogels (*Numenius arquata* L.). Zeitschrift für Tierpsychologie, **13**: 50-81.—An excellent life history study which includes much on the behavior of this species. The behavior is compared to that of other waders.—W. C. D.

GOODWIN, D. 1956. Observations on the voice and some displays of certain pigeons. Avic. Mag., **62**: 17-33, 63-70.—The comparative behavior of several species of pigeons, mostly *Streptopelia* and *Columba*, is discussed. This is illustrated by drawings and concluded with a discussion of the phylogeny of the forms treated.—W. C. D.

HARRISON, C. J. O. 1956. Some Fire-Finches and their behaviour. Avic. Mag., **62**: 128-141.—Observations on the comparative behavior of three species of Fire-Finches are given (*Estrilda senegala*, *E. caerulescens*, and *E. rufopicta*). These observations are based on birds breeding in captivity and are accompanied by drawings of some of the displays observed.—W. C. D.

HAUSER, D. C. 1957. Some observations on sun-bathing in birds. Wilson Bull., **69**: 78-90.—Normal sun-bathing behavior of several species is described.

- An exaggerated behavior occurs when a bird is exposed to bright sun and high temperatures; its possible adaptive value for rapid cooling is discussed.—J. T. T.
- HULME, D. C. 1955. Buildings as Song-posts. *British Birds*, **48**: 211-215.—Of nine species only the Starling (*Sturnus vulgaris*) showed a preference for song-posts situated on buildings.—M. T. M.
- HUMPHREY, P. S. 1957. Remarks on the courtship and voice of the Black Scoter. *Condor*, **59**: 139-140.
- KLUYVER, H. N. 1955. Das Verhalten des Drosselrohrsängers, *Acrocephalus arundinaceus* (L.), am Brutplatz mit besonderer Berücksichtigung der Nestbautechnik und Revierbehauptung. *Ardea*, **43**: 1-50.—This is a thorough account of the behavior of the Great Reed Warbler with special emphasis on the nest building and territorial defense. Some males hold territories in vegetation unsuitable for nest building. The nest material is dipped in water by the females to render it flexible and more adherent. Nest cup is molded by a characteristic trampling movement of the legs (scraping). The nest rim is raised, not by scraping, but by use of the bill.—W. C. D.
- MANVILLE, R. H. 1957. Effects of unusual spring weather on Scarlet Tanagers. *Wilson Bull.*, **69**: 111-112.—After a killing frost in late May in southern New York State, many *Piranga erythromelas* in poor condition were observed feeding on and near the ground. With the return of warm weather, the tanagers resumed their usual feeding in tree tops.—J. T. T.
- MORRIS, D. 1954. The courtship behaviour of the Cutthroat Finch (*Amadina fasciata*). *Avic. Mag.*, **60**: 169-178.—A description of the courtship behavior of the Cutthroat Finch is given not only as a contribution to a better understanding of behavior but also as an illustration of the immense value of making detailed observations on the behavior of common aviary species.—W. C. D.
- MORRIS, D. 1954. The reproductive behaviour of the Zebra Finch (*Poephila guttata*), with special reference to pseudofemale behaviour and displacement activities. *Behaviour*, **6**: 271-322.—Most disputes are settled by actual fighting. The pre-copulatory behavior of the male results from a conflict between fleeing and mating. Pseudofemale behavior of the male occurs in certain circumstances when the sex drive is thwarted. Occasionally reversed mountings occur. Displacement activities and many other aspects of reproductive behavior are described and discussed.—F. M.
- MOYNIHAN, M. 1955. Some aspects of reproductive behaviour in the Black-headed Gull (*Larus ridibundus ridibundus* L.) and related species. *Behaviour Supplement* **4**: 1-201.—A detailed description and analysis of the hostile and sexual behavior patterns. Most attention is devoted to the aerial and ground displays which occur during the period of pair-formation and the causation of these displays is investigated in terms of conflicting attack, escape, and sex drives. The final section compares the displays of other Lari and discusses the classification of the group.—F. M.
- NICOLAI, J. 1956. Zur Biologie und Ethologie des Gimpels (*Pyrrhula pyrrhula* L.). *Zeitschrift für Tierpsychologie*, **13**: 93-132.—This paper is the result of five years observation on the ecology and ethology of the bullfinch.—W. C. D.
- WEIDMANN, U. 1955. Some reproductive activities of the Common Gull, *Larus canus* L. *Ardea*, **43**: 85-132.—This paper discusses and describes the interrelationships of the more or less incompatible tendencies of attack, escape, and sex along with the resultant displays. Comparison is made with other Iarids.—W. C. D.
- WEIDMANN, U. 1956. Verhaltensstudien an der Stockente (*Anas platyrhynchos*

- L.) I. Das Aktionssystem. *Zeitschrift für Tierpsychologie*, **13**: 208-271.—An exhaustive description of the fixed action patterns of the Mallard is given. Attention is paid to the activity periods, causal factors, biological significance, and evolution of these patterns.—W. C. D.
- ZIMMERMAN, D. W. 1957. Some remarks on the behavior of the Yucatan Cactus Wren. *Condor*, **59**: 53-58.

DISEASES AND PARASITES

- CORBET, G. B. 1956. The life-history and host-relations of a hippoboscid fly *Ornithomyia fringillina* Curtis. *J. Anim. Ecol.*, **25**: 403-420.—Studies in England on 5 species of passerine birds.—S. C. K.
- CORBET, G. B. 1956. The phoresy of mallophaga on a population of *Ornithomyia fringillina* Curtis (Dipt., Hippoboscidae). *Entomologist's Monthly Mag.*, **92**: 207-211.—A discussion of the possible transmission of bird lice by hippoboscid flies.—R. W. S.
- OWEN, D. F., and J. S. ASH. 1955. Additional records of *Protocalliphora* (Diptera) in birds' nests. *British Birds*, **48**: 225-229.—Supplement to an earlier paper on this parasitic fly, found in both Europe and America. Nine new bird hosts are recorded.—M. T. M.

DISTRIBUTION

- ANON. 1955. Lesser Yellowlegs in Britain, 1953-1954. *British Birds*, **48**: 363-366.—*Tringa flavipes* is becoming a regular American vagrant to the British Isles, 14 being recorded in 1953-1954.—M. T. M.
- BERGSTROM, E. A. 1955. American Land-Birds in Western Europe. Letter. *British Birds*, **48**: 237-238.—Some species, normally regarded as sedentary do in fact migrate partially. Occurrences of such American species in Europe should be accepted as true cases of vagrancy, and not as artifacts.—M. T. M.
- BOURNE, W. R. P. 1957. The breeding birds of Bermuda. *Ibis*, **99**: 94-105.—This is a systematic list of the breeding birds of the Bermudas and includes discussion of migrants, zoogeographic affinities, morphology, and behavior of residents, and the general avian ecology on the islands.—R. F. J.
- CAMPBELL, M. 1955. Birds seen during a crossing of the North Atlantic, 16th-23rd October, 1954. *British Birds*, **48**: 208-210.
- GULLION, G. W., and G. C. CHRISTENSEN. 1957. A review of the distribution of gallinaceous game birds in Nevada. *Condor*, **59**: 128-138.—Nevada distribution maps are given for Blue Grouse, Hungarian Partridge, Ring-necked Pheasant, Sharp-tailed Grouse, Sage Grouse, Chukar Partridge, Gambel Quail, California Quail, and Mountain Quail. A short discussion indicates suitable and unsuitable (i.e., occupied and unoccupied) habitats for these upland gallinaceous game birds. About 62 per cent of Nevada is not occupied permanently by any of these game birds.—D. W. J.
- KENNEDY, P. G. 1955. Black Duck in Co. Kilkenny: A bird new to Ireland and Britain. *British Birds*, **48**: 341.—A female *Anas rubripes* taken in Ireland in February 1954 is the first European record of this species.—M. T. M.
- KING, J. E., and R. L. PYLE. 1957. Observations on sea birds in the tropical Pacific. *Condor*, **59**: 27-39.—A report of birds seen on an 86-day, 13,800-mile cruise in the equatorial region of the eastern and central Pacific. Each day the number of scattered birds and number of birds in flocks were recorded. Scattered birds generally increased from west to east, being influenced by proximity to the Mexican coast and by rich zooplankton near 140° W. long. Scattered birds

- seemed to be most numerous during the late afternoon; their frequency could not be correlated with temperature change at the surface. Forty species were recorded.—D. W. J.
- LAMBERT, A. 1957. A specific check list of the birds of Greece. *Ibis*, **99**: 43-68.—All species occurring in Greece are listed with indications of their distributions, habitat preferences, and numbers. There is included a bibliography of Greek ornithology.—R. F. J.
- NEFF, J. A., and B. MEANLEY. 1957. Status of Brewer's Blackbird on the Grand Prairie of eastern Arkansas. *Wilson Bull.*, **69**: 102-105.—*Euphagus cyanocephalus* is a numerous winter visitor to this region, feeding largely on waste rice, grains, and grass seeds.—J. T. T.
- PARKES, K. C. 1957. Notes, chiefly distributional, on some Florida birds. *Wilson Bull.*, **69**: 106-107.—On 9 species.
- ROBERT, H. C., J. M. TEAL, and E. P. ODUM. 1956. Summer birds of Sapelo Island, Georgia: a preliminary list. *Oriole*, **20**: 37-45.
- SEAMAN, G. A. 1957. New bird records for Barbuda, British West Indies. *Wilson Bull.*, **69**: 109-110.—8 species.
- SHAUB, M. S. 1954. Summer appearances of adult and juvenal Evening Grosbeaks. *Bird Banding*, **25**: 87-95.—The increase of the Evening Grosbeak in New York, New England, and the Maritime Provinces is documented.—W. J. H.
- SMITH, F. R. 1955. Myrtle Warbler in Devon: A New British Bird. *British Birds*, **48**: 204-207.—The first British specimen of *Dendroica coronata* (January and February, 1955).—M. T. M.
- TABEL, A. M. 1955. Uccelli del Guatemala con speciale riguardo alla regione del Petén raccolti dal maggio al settembre 1932. *Atti Soc. Ital. Sci. Nat.* 94 (1): 15-84, pls. 2-8.—Report on a collection of 244 skins including 111 forms secured during an expedition to obtain living Ocellated Turkeys for experimental breeding. The report covers 87 forms collected in Petén, 11 taken at Lake Amatitlán and San José, and 13 from Alto Vera Paz purchased from a taxidermist. *Richmondena cardinalis petenensis* is described from the forest area at Lake Petén-Itzá.—A. Wetmore.

ÉCOLOGY

- BOYD, H. 1956. Statistics of the British population of the pink-footed goose. *J. Anim. Ecol.*, **25**: 253-273.—Estimates of adult death-rates from recoveries of marked birds. Size of British population estimated by capture-recapture method at 40-50,000. Ratio of sexes is equal. Most individuals breed when 32 months old. Mean clutch size is 4.5.—S. C. K.
- JOHNSGARD, P. A., and W. H. RICKARD. 1957. The relation of spring bird distribution to a vegetation mosaic in southeastern Washington. *Ecol.*, **38**: 171-174.—Between March and June, the shrubby *Symphoricarpos-Festuca* community was used 30 times more than the grassy *Agropyron-Poa* community.—S. C. K.
- KLOMP, H. 1954. De terreinkeus van de Kievit, *Vanellus vanellus* (L.). *Ardea*, **42**: 1-139.—This study is an analysis of the factors governing the distribution of breeding Lapwings in the northern and western districts of the Netherlands. The paper includes such topics as habitat selection, survival value of habitat preferences, and an analysis of the terrestrial locomotion of the Lapwing and the Godwit. This latter subject is treated from the standpoint of the adaptive values of certain limb lengths and proportions.—W. C. D.
- LACK, D. 1956. Variations in the reproductive rate of birds. *Proc. Royal Soc., B.* **145**: 329-333.—In swifts, the European Blackbird, and tits "the average

- clutch varies with the time of year, in different years, with habitat and with age." These variations seem to be adaptive and presumably natural selection has acted against a rigidly fixed clutch size.—F. M.
- LEGG, K., and F. A. PRTELKA. 1956. Ecologic overlap of Allen and Anna hummingbirds nesting at Santa Cruz, California. *Condor*, **58**: 393-405.—In 1954 and 1955 overlapping breeding populations of these two hummers were studied with special emphasis on interspecific competition. In several instances of competition for territories, Allen Hummers usually displaced Anna. Supporting these studies were rather detailed reports of 44 nests (23 of Anna and 21 of Allen) on the study area of six acres.—D. W. J.
- LOCKIE, J. D. 1956. The food and feeding behaviour of the jackdaw, rook and carrion crow. *J. Anim. Ecol.*, **25**: 421-428.—Analysis and description of food niches.—S. C. K.
- MACARTHUR, R. H. 1957. On the relative abundance of bird species. *Proc. Nat. Acad. Sci.*, **43**: 293-295.—After examination through mathematical formulae of the three hypotheses, (1) Nonoverlapping Niches, (2) Overlapping Niches, (3) Niches Particulate, Not Continuous, the conclusion is reached that the first coincides most closely to field observations. It is suggested "that, at least as a rough approximation, niches do not overlap much and are more continuous than discrete."
- WEBSTER, J. D. 1957. Birds and grasslands in western Mexico. *Hanover [Indiana] Forum*, **3** (1): 34-45.

GENERAL BIOLOGY

- BETTS, M. M. 1956. A list of insects taken by titmice in the Forest of Dean (Gloucestershire). *Entomologist's Monthly Mag.*, **92**: 68-71.
- CROWE, R. W. 1955. Parental Care in the Whitethroat. *British Birds*, **48**: 254-260.—Detailed observations of the time spent by each sex in incubation, brooding, and feeding in the warbler, *Sylvia communis*. Nest relief behavior is described, as is the apparent synchronization, by neighboring males, of their periods on the nest.—M. T. M.
- CUTCLIFFE, A. S. 1955. Further Notes on the Swift, 1944-1954. *British Birds*, **48**: 193-203.—Report on a ten-year study of *Apus apus* in Devon. There are discussions of non-breeding birds, homing, bad-weather movements, simulated coition in flight (as opposed to actual coition on the nest), and of the hippoboscid fly *Crataerina pallida* (Latr.) and other parasites. No nestlings banded in the tower returned to it as adults. 1954 was a really bad breeding season in Devon, as it was at Oxford, and no nestlings survived.—M. T. M.
- EVENDEN, F. G. 1957. Observations on nesting behavior of the House Finch. *Condor*, **59**: 112-117.—This is a report of 48 nesting attempts studied from 1950-1954. Subjects covered include nest sites, egg laying, incubation, hatching, nestlings, double nestings, and nest mortality.—D. W. J.
- HANSON, H. C., and C. W. KOSSACK. 1957. Methods and criteria for aging incubated eggs and nestlings of the Mourning Dove. *Wilson Bull.*, **69**: 91-101.—Descriptions and illustrations of the stages of *Zenaidura macroura*.—J. T. T.
- HOWELL, T. R. 1957. Birds of a second-growth rain forest area of Nicaragua. *Condor*, **59**: 73-111.—The present paper is based upon collections and observations during parts of two years. The annotated list variously treats of habitats, measurements and colors of specimens, breeding, and subspecific characters. There is a discussion relating to the disappearance of certain birds as the primeval forest is altered.—D. W. J.

- LEOPOLD, A. S., and R. A. McCABE. 1957. Natural history of the Montezuma Quail in Mexico. *Condor*, **59**: 3-26.—*Cyrtonyx montezumae* is characteristic of ungrazed pine-oak forest where it feeds largely on forbs, sedges, and insects in the understory. Grazing eliminates the plants and quail. Cold winters or dry summers cause variations in population density as does quality of habitat. Winter coveys (apparently family groups) break up as pairing commences in April and May, this being followed by nesting from May to July. Young hatch in 25-26 days in July and August when insects are abundant. In the fall, diets are shifted to bulbs as coveys are established on winter ranges.—D. W. J.
- MEDINA PADILLA, G. 1957. Sobre la Avifauna de "El Paito" y la nidificación de *Galbula ruficauda*. *Bol. Mus. Cienc. Nat. (Caracas, Venezuela)*, **1**; no. 3-4, July-Dec., 1955 (1957), 196-200. (In Spanish).—Miscellaneous ecological and nesting observations recorded near Valencia, State of Carabobo, Venezuela. *Galbula ruficauda* breeds at the beginning of the rainy season, usually making its nesting tunnels in cut banks in gullies. In level terrain several were found in the sides of a hole where earth for building construction had been removed, and once a nest was encountered in an excavation in a termitarium located at the base of a tree.
- RIPLEY, S. D. 1957. Notes on the Horned Coot, *Fulica cornuta* Bonaparte. *Postilla*, **30**: 8 pp.
- RYDER, R. A. 1957. Avian-pinniped feeding associations. *Condor*, **59**: 68-69.
- SKUTCH, A. F. 1957. The incubation patterns of birds. *Ibis*, **99**: 69-93.—A review of the methods of incubation in birds. The roles of the sexes and the timing patterns are shown to vary between and within discrete groups. Incubation by both sexes is postulated as primitive. The wide variation is suggested as being possible only because there is no strong selection on patterns of incubation, especially in the tropics.—R. F. J.
- SUTTON, G. M., and D. F. PARMELEE. 1955. Nesting of the Horned Lark on Baffin Island. *Bird Banding*, **26**: 1-18.—Nesting and breeding behavior, parental care, behavior of young, and survival are described. Additional notes on distribution and coloration are included.—W. J. H.
- TUTT, H. R. 1955. Observations on a pair of Nightjars at the nest. *British Birds*, **48**: 261-266.—Includes observations of lure-flights in both sexes, practice-flights in the nestlings, feeding activities, and call-notes of *Caprimulgus europaeus*. Feeding of chicks occurs in two dusk and dawn periods totalling no more than 2½ hours in the 24. The nest site was occupied by the nestlings for a total of six weeks. Vertical flights by the nestlings as high as 6 feet are described.—M. T. M.
- YTREBERG, N.-J. 1956. Contribution to the breeding biology of the Black-headed Gull (*Larus ridibundus* L.) in Norway. *Nytt Mag. Zool.*, **4**: 5-106.—A detailed study of nesting from the start of nest-building to the end of incubation.—R. W. S.

MANAGEMENT AND CONSERVATION

- CRAIGHEAD, J. J., and D. S. STOCKSTAD. 1956. Measuring hunting pressure on Canada Geese in the Flathead Valley. *Trans. 21st. N. Amer. Wildl. Conf.*, 210-238.—"During 1953, 1954, and 1955, data were gathered on Canada goose numbers, goose movement, hunting pressure and goose kill in the Flathead Valley of Montana in order to evaluate the dynamics of hunting pressure." A direct relationship was found between the number of geese killed and crippled and population levels, the number of geese moving and hunting pressure. The most

- promising management refinements are the control and manipulation of hunting pressure and goose movement.—S. T. D.
- GOLLOP, J. B. 1956. The use of retrievers in banding flightless young Mallards. Trans. 21st. N. Amer. Wildl. Conf., 239-248.—Describes habitats, techniques, efficiency, and costs involved in using retrievers as aids in banding and concludes that "to catch an adequate, well-distributed sample of mallards (and pintails) in the "grassland" habitat of southwestern Saskatchewan and southeastern Alberta, the most efficient and practical technique is the use of retrievers."—S. T. D.
- KIEL, W. H., JR., and J. T. HARRIS. 1956. Status of the White-winged Dove in Texas. Trans. 21st. N. Amer. Wildl. Conf., 376-389.—Destruction of nesting habitat, predation, hunting pressure, and variations in food supply have reduced populations of *Zenaida asiatica* in the lower Rio Grande Valley of Texas to the extent that its status as a game bird is no longer secure. The most urgent need is the preservation of native brushland for nesting cover and to provide the opportunity for carrying out ecological studies.—S. T. D.
- LOSTETTER, C. H. 1956. Environmental control in waterfowl. Trans. 21st. N. Amer. Wildl. Conf., 199-209.—Recognizes reductions in waterfowl habitat brought about by expanding agriculture and describes corrective measures taken in the Pacific Flyway, particularly California. Federal and state management units, on which programs of water level manipulation and planting of cultivated and natural waterfowl food plants have been established, are discussed both functionally and financially. The role of private lands in providing needed waterfowl habitat is also stressed.—S. T. D.
- NEELY, W. W. 1956. How long do duck foods last underwater? Trans. 21st. N. Amer. Wildl. Conf., 191-198.—Data are presented on the percentage of deterioration of seed samples of 25 plant species upon 90 days exposure underwater in trays or plastic screen envelopes.—S. T. D.
- PALMER, W. L. 1956. Ruffed Grouse population studies on hunted and unhunted areas. Trans. 21st. N. Amer. Wildl. Conf., 338-345.—A study on two similar areas in northeastern lower Michigan, one heavily hunted and the other unhunted, was initiated during the population high of 1950 and carried through the low of 1954. It was found that a 40 per cent removal of the population by hunting produced no detrimental effects on the subsequent fall population. Thus a two- or three-month grouse season in Michigan would probably not be excessive.—S. T. D.
- PETERS, H. S. 1956. Banding—a key to dove management. Trans. 21st. N. Amer. Wildl. Conf., 365-375.—Reviews briefly the results of a program begun in 1920 in which 145,000 Mourning Doves have been banded, providing a return from all sources of 3.7 per cent. Past efforts have centered on banding large numbers of doves, but present needs emphasize nestlings to provide information on the movement of doves of known origin.—S. T. D.
- UHLER, F. M. 1956. New habitats for waterfowl. Trans. 21st. N. Amer. Wildl. Conf., 453-469.—Describes an experimental study being carried out at the Patuxent Research Refuge, Laurel, Maryland, designed to demonstrate the conversion of waste lands and waters into habitat useful to breeding and wintering waterfowl. Preliminary results show utilization of recently developed areas by 60 kinds of shorebirds, marsh birds, and waterfowl.—S. T. D.
- WADE, D. E., H. M. STEELE and G. H. BROWN. A method of teaching waterfowl identification. Trans. 21st. N. Amer. Wildl. Conf., 602-607.—South Carolina's approach in teaching waterfowl identification to conservation officers is described

with comments on the application of such a program to general conservation awareness and education.—S. T. D.

- WALLACE, R. F. 1956. An evaluation of wildlife resources in the State of Washington. Economic and business studies, Bull. 28: State College of Washington.
- WESTERSKOV, K. 1955. Notes on the post-juvenile moult and first-winter plumage in the Pheasant. *British Birds*, 48: 308–311.—Agrees with the findings of Petrides (1942) and Linduska (1943) upon which aging techniques are now based. Unlike other gallinaceous birds all ten primaries are replaced during the post-juvenile molt. Statements in Witherby *et al.* need correcting.—M. T. M.

MIGRATION AND ORIENTATION

- BUTTERFIELD, A., and K. WILLIAMSON. 1955. The passage of Black Terns through Britain in autumn 1954. *British Birds*, 48: 300–307.—The fall passage of *Chlidonias niger* was unusually large and continued into November. The peaks of passage were associated with cyclonic weather (contrast peaks during anticyclonic weather in spring 1954), and frontal weather which induces precipitation which is unfavorable to an insect-feeder. Winds were between NE and SE in the North Sea and English Channel areas at peak passage and the birds escaped by moving downwind.—M. T. M.
- FORSTER, G. H. 1955. Thermal air currents and their use in bird-flight. *British Birds*, 48: 241–253.—A very clear and concise account of the dynamics of thermal air currents and the conditions under which they arise. An inversion of temperature, when upper layers of air are warmer than those below, can be identified by flat-topped clouds or levelling off of chimney smoke, and are poor conditions for soaring. Cumulus formation is an indication of warm air rising and the higher the cumulus base the stronger the thermals from which they arise on the ground (heated spots). After midday ground surface begins to cool and an inversion forms. Only above it is gliding possible. Maximum height of the inversion is reached just before sunrise. Topographic or vegetational demarcations (e.g. seashore) cause thermals which continue at night over the sea, rivers and estuaries, especially in cases of sudden onset of cold weather. Accipitres use topographic (e.g. coastal) thermal lines as guiding lines in migration. Slope currents are also discussed. Albatrosses are reputed to use wind shear i.e. change in wind speed with altitude since it creates "standing waves." The implications of the physical formation of thermal currents should help us to interpret temporal features of migration more clearly, as well as the routes followed.—M. T. M.
- GUICHARD, K. M. 1957. The spring migration in Tripolitania—1955. *Ibis*, 99: 106–114.
- LACK, D., and M. G. RIDPATH. 1955. Do English Woodpigeons migrate? *British Birds*, 48: 289–292.—Apparent visible migration of *Columba palumbus* through Great Britain has been observed. At least in Kent and Sussex, birds coming in from the sea were *not* migrants from France. Both there and near Oxford large roosts existed nearby. But these roosts showed a bias to disperse southwards in the mornings (little return noted) and this suggested a connection between migratory movements and the roosts. An enquiry is instituted.—M. T. M.
- RICHDALE, L. E. 1957. Recovery of sooty shearwater in northern hemisphere. *Ibis*, 99: 116.—Report of the recovery of a *Puffinus griseus* on the Coronado Islands, Mexico, July, 1955. The bird was banded by Richdale in New Zealand in February, 1950, and was known to have bred there in 1950, 1953, and 1954.—R. F. J.

- SHULER, J. B., JR. 1956. Bird navigation as related to migration. *Chat*, **20**: 65-71.
- STEVENSON, H. M. 1957. The relative magnitude of the Trans-gulf and circum-gulf spring migrations. *Wilson Bull.*, **69**: 39-77.—The relative abundance of spring migrants in areas around the Gulf of Mexico and the southern U. S. was obtained from the field observations of many cooperators. The spring arrival dates for different localities were obtained from the literature and other sources. These data were plotted on maps, by species, and from these, inferences were made as to whether the migration was primarily across the Gulf or around it to the east or to the west. 179 species were studied; maps are presented for 30 species. Approximately 40 species migrated primarily across the Gulf.—J. T. T.
- TAIT, G. M. 1957. American-ringed turnstone recovered in Portugal. *Ibis*, **99**: 122-123.—One *Arenaria interpres* was shot at Fão, Portugal, on September 11, 1955; it had been banded as a nestling on Ellesmere Island on July 6, 1955.—R. F. J.

PHYSIOLOGY

- BARTHOLOMEW, G. A., and T. J. CADE. 1956. Water consumption of House Finches. *Condor*, **58**: 406-412.—Caged *Carpodacus mexicanus* were exposed to experiments which showed that more water was consumed at higher ambient temperatures and that body weight was reduced by about 15 per cent when the birds were deprived of water. When succulent food was available even though water was not, body weight was maintained fairly well. These experimental results would offer some explanation for the occurrence of this species on the desert near springs, tanks, and other available water. Data taken from the literature seem to indicate that the smaller the bird, the greater its need for surface water (or perhaps a succulent diet).—D. W. J.
- NORRIS, R. A. 1957. On the appraisal of fat condition in birds. *Oriole*, **21**: 2-9.—A significant discussion relating to field and laboratory techniques involving the evaluation of fat deposits.—D. W. J.
- STEGEMAN, L. C. 1955. Weights of some small birds in Central New York. *Bird Banding*, **26**: 19-27.—Data are based on 1650 trapped and 800 shot birds. Birds shot but not mangled average 4.3 per cent lighter than trapped individuals. In general, insectivorous birds are heaviest in the fall, seed-eaters in the spring. Hourly variation is considerable, increases taking place in morning and late afternoon. The nocturnal decrease averaged at least 10 per cent. Development of the trap habit does not affect weights.—W. J. H.

TAXONOMY AND PALAEOLOGY

- BLAKE, C. H. 1954. Notes on the wing length of the Eastern Purple Finch (*Carpodacus p. purpureus*). *Bird Banding*, **25**: 97-101.—Analysis based on over 1000 birds taken at banding stations in Massachusetts.—W. J. H.
- BOWERS, D. E. 1956. A study of methods of color determination. *Syst. Zool.*, **5**: 147-160, 182.—A good discussion of the methods for the designation of colors based on both visual and machine determinations.—R. W. S.
- DILGER, W. C. 1956. Relationships of the thrush genera *Catharus* and *Hylocichla*. *Syst. Zool.*, **5**: 174-182.—*Hylocichla mustelina* is closely related to the genus *Turdus*. The other species formerly included in *Hylocichla* should be placed in the genus *Catharus*.—R. W. S.
- MILLER, L. 1956. A collection of bird remains from the Pliocene of San Diego,

- California. Proc. Calif. Acad. Sci., Ser. 4, **28**: 615-621.—*Lechusa stirtoni* (Strigidae), new genus and species, and seven species of water birds recorded.
- MILLER, L. 1957. Bird remains from an Oregon Indian midden. Condor, **59**: 59-63.—From an Indian mound about 8000 years old, approximately 9000 bird bones were examined. Sixteen avian types were identified, the most abundant being *Larus*, *Phalacrocorax*, *Haliaeetus*, and *Gymnogyphs*. Two especially unusual "finds" were *Coragyps occidentalis* and *Gymnogyphs californianus*. The absence of wading, diving, and gallinaceous birds was of interest.—D. W. J.
- NORRIS, R. A., and G. L. HIGHT, JR. 1957. Subspecific variation in winter populations of Savannah Sparrows: a study in field taxonomy. Condor, **59**: 40-52.—In this important paper the results of banding and studying 559 *Passerculus sandvicensis* in the Savannah River Plant area, South Carolina are reported. By using initially a series of museum-identified, racially-determined specimens, later field taxonomy was employed wherein live birds were assigned racial designations. Five races were found, but more than half the total birds examined were considered to be intergrades. Dark races and light races showed no differential habitat selection in the study area of old abandoned fields. Weights and wing measurements are given for some of the large sample.—D. W. J.
- PAYNTER, R. A., JR. 1957. Taxonomic notes on the New World forms of *Troglodytes*. Breviora, Mus. Comp. Zool., **71**: 15 pp.
- RAND, A. L. 1957. Two new species of birds from Angola. Fieldiana, Zool., **39**: 41-45.—*Muscicapa gabela* and *Prionops gabela*, new species, both from 15 kilometers south of Gabela, Angola.—M. A. T.
- RAND, A. L. 1957. The subspecies of the Bush Shrike *Laniarius fulleborni* (including *L. poensis*). Fieldiana, Zool., **39**: 47-50.—Two new subspecies, *L. f. usambaricus* from Usambara, and *L. f. ulugurensis* from the Uluguru Mountains, are described.—M. A. T.
- RIPLEY, S. D. 1957. New birds from the western Papuan Islands. Postilla, **31**: 4 pp.—*Aepyodius arfakianus misoliensis*, *Eos squamata attenua*, *Crateroscelis murina fumosa*, *Gerygone magnirostris occasa*, and *Xanthotis chrysotis austera*, new subspecies.
- WALLACE, D. I. M. 1955. The mixing of the races of the Yellow Wagtail in Kenya. British Birds, **48**: 337-340.—Records of *Motacilla flava* in Kenya. The race *M. f. flavissima* (British breeding race) probably crosses Africa from west to east in winter in small numbers.—M. T. M.
- WILLIAMS, J. G. 1957. The re-discovery and status of *Ploceus golandi*. Ibis, **99**: 123-124.—Report of taking the second specimen of this weaver in Kenya; it had been doubted that the species was real.—R. F. J.
- WILLIAMSON, F. S. L. 1957. Hybrids of the Anna and Allen hummingbirds. Condor, **59**: 118-123.—A fifth hybrid between *Selasphorus sasin* and *Calypte anna* is described in detail. Evidence is marshalled to question the relegation of these two species into separate genera.—D. W. J.
- WILLIAMSON, K., and FERGUSON-LEES, I. J. 1955. Plumage and structural characters in the Yellow-headed Wagtail. British Birds, **48**: 358-362.—A detailed discussion of the identification of *Motacilla citreola* with especial emphasis on its similarity to the Eastern Blue-headed Wagtail (*M. flava similima*) of Kolyma-Kamchatka —M. T. M.