

PERIODICAL LITERATURE

EDITED BY GLEN E. WOOLFENDEN

A NEW SERIES

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ANATOMY AND EMBRYOLOGY

- BERGER, A. J. 1969. Appendicular myology of passerine birds. *Wilson Bull.*, 81: 220-223.
- BISSON, A. J. 1969. Golden Plovers with wing-bars. *Brit. Birds*, 62: 233-234.
- CLARK, G. A. 1969. Oral flanges of juvenile birds. *Wilson Bull.*, 81: 270-279.
- GREENBERG, J., AND Q. N. LAHAM. 1969. Malathion-induced teratims in the developing chick. *Canadian J. Zool.*, 47: 539-542.—Concentrations of 3.99 and 6.42 mg of malathion injected into the yolk sacs of 4- and 5-day old incubated eggs consistently produced deformed chicks with a combination of sparse plumage, micromelia, overall growth retardation, and beak defects.—Authors abstract.
- GRINYER, I., AND J. C. GEORGE. 1969. An electron microscope study of the pigeon breast muscle. *Canadian J. Zool.*, 47: 517-523.—A study of the distinctive cytological features of the red and white fibers of *Columba livia* pectoralis muscle.—H.W.K.
- PRESCOTT, K. W. 1968. Bill deformity in a Brown Thrasher. *Bird-Banding*, 39: 134.
- RUPRECHT, A. L. 1968. [The morphological variability of the *Passer domesticus* (L.) skull in postnatal development.] *Acta Ornithol.*, 11: 27-43.—Shows proportional and dimensional changes in different skull weights and measurements for three age groups (up to 240 days) of the House Sparrow.—M.A.J.
- SCOTT, R. E. 1969. *Corvus frugilegus* Linnaeus with fourteen rectrices. *Bull. Brit. Ornithol. Club*, 89: 109.
- TYLER, C. 1969. The snapping strength of the egg shells of various orders of birds. *J. Zool.*, 159: 65-77.—A study of snapping strength and its relationship to shell thickness in seven nonpasserine orders showed considerable variation. For a given thickness, egg shells of penguins were nearly twice as strong as those of grebes, when snapped outward. Differences in shell strength could not be explained by the presence of the chalky coat or any other tested shell characteristic. Tests on *Pelecanus* eggs showed that the chalky coat adds considerably to impact strength.—K.P.A.
- TYLER, C. 1969. A study of the egg shells of the Gaviiformes, Procellariiformes, Podicipitiformes and Pelecaniformes. *J. Zool.*, 158: 395-412.—General inspection, chemical analysis, and histological and plastic embedding techniques showed that in all four orders a true shell exists consisting of large crystals originating at the surface of the membrane. In the Gaviiformes and Procellariiformes the shell is covered by a cuticle; Podicipitiformes and Pelecaniformes (except Phaethontidae) eggs have a calcareous cover. No major ordinal differences in the organic matrix of the shell were found. Taxonomic aspects of the results are discussed.—K.P.A.

BEHAVIOR

- BEER, C. G. 1969. Laughing Gull chicks: Recognition of their parents' voices. *Science*, 166: 1030-1032.—Chicks (12) 6 to 13 days old taken from a colony (Brigantine, N. J.) and tested indoors responded to recording of their parents by calling and moving toward the sound but generally either did not respond or moved away from sounds of other adult Laughing Gulls.—W.B.R.
- BRACKBILL, H. 1969. Status and behavior of color-banded White-breasted Nuthatches at Baltimore. *Maryland Birdlife*, 25: 87-91.
- DAWKINS, R. 1968. The ontogeny of a pecking preference in domestic chicks. *Z. Tierpsychol.*, 25: 170-186.—Unfed chicks, 3 days old or less, peck at a solid hemisphere more than at a flat disc. This preference occurs in chicks raised in complete darkness and in monocular chicks. Chicks reared in normal light prefer real solid hemispheres to photographs; chicks reared in the dark do not show this preference, which is attributed to a general visual defect rather than the lack of specific learning. Young chicks reared with light coming from below prefer a normally oriented photograph to an inverted one. The author suggests chicks have an "inborn" ability to use surface shading cues of depth.—M.S.F.
- DIXON, K. L. 1969. Patterns of singing in a population of the Plain Titmouse. *Condor*, 71: 94-101.
- FESTETICS, A. 1968. Zweiphasenaktivität bei Schleiereule (*Tyto alba*). *Z. Tierpsychol.*, 25: 659-665.—Two activity phases occur, one of 2 hours before midnight and a shorter one in early morning. Each adult must bring at least 5 prey per night for nestlings about 1 month old.—M.S.F.
- FRANCIS, W. J. 1968. Swallows roosting indoors in Japan. *Bird-Banding*, 39: 131.—Large numbers of *Hirundo rustica* have roosted inside an occupied house for about 30 years. Many have been banded. Each year at least one-third are returns. The time of their autumnal arrival is related to temperature.—M.A.J.
- HOUGH, K. 1969. Behaviour of White-backed Magpie. *Emu*, 68: 282.—A *Gymnorhina hypoleuca* pecked by another as they settled to roost swung under the branch and hung upside down with wings closed. The behavior is similar to death-feigning described for some finches.—C.F.S.
- HOUGH, K. 1969. Courtship display by Willie Wagtail. *Emu*, 68: 282.—A *Rhipidura leucophrys* male, which normally has a thin, dusty-white eyeline, was seen to expand the eyelines into circular white disks about $\frac{3}{8}$ inches in diameter while displaying towards a female.—C.F.S.
- HOWELL, T. R., AND G. A. BARTHOLOMEW. 1969. Experiments on nesting behavior of the Red-tailed Tropicbird, *Phaethon rubricauda*. *Condor*, 71: 113-119.
- JOHNSGARD, P. A. 1968. Some observations on Maccoa Duck behavior. *Ostrich*, 39: 219-222.—In its courtship display *Oxyura maccoa* exhibits affinities with both of the other southern hemisphere *Oxyura* species, and has a few display elements in common with northern hemisphere species.—M.A.T.
- KENNEDY, R. J. 1969. Sunbathing behaviour of birds. *Brit. Birds*, 62: 249-258.—Significance still obscure; systematic list of recorded sunbathers.—H.B.
- KILHAM, L. 1969. Reproductive behavior of Hairy Woodpeckers. 3. Agonistic behavior in relation to courtship and territory. *Wilson Bull.*, 81: 169-183.
- KNECHT, S., AND U. SCHEER. 1968. Lautäusserung und Verhalten des Azoren-Buchfinken (*Fringilla coelebs moreletti* Pucheran). *Z. Tierpsychol.*, 25: 155-169.—Some differences exist in this subspecies vocalizations as compared with those of the

- continental form. In areas where canaries occur, Chaffinches sometimes adopt their song elements.—M.S.F.
- MEANLEY, B. 1969. Pre-nesting and nesting behavior of the Swainson's Warbler. *Wilson Bull.*, 81: 246-257.
- NOTTEBOHM, F. 1969. The song of the Chingolo, *Zonotrichia capensis*, in Argentina: description and evaluation of a system of dialects. *Condor*, 71: 299-315.
- NOTTEBOHM, F. 1969. The "critical period" for song learning. *Ibis*, 111: 386-387.—The critical period represents an interaction of a critical period for auditory template learning, and one for motor learning. Experiments with *Fringilla coelebs* indicate the end of the critical period follows the crystallization of song at whatever age this occurs.—M.S.F.
- PLATT, D. R. 1968. Nest parasitism by the Bobwhite. *Kansas Ornithol. Soc. Bull.*, 19: 18.—Four eggs of *Colinus virginianus* were laid in a nest of 18 eggs of *Phasianus colchicus*.—M.A.J.
- RAIKOW, R. J. 1969. Sexual and agonistic behavior of the Common Rhea. *Wilson Bull.*, 81: 196-206.
- ROBERTS, J. B. 1969. Vocalizations of the Rufous-sided Towhee, *Pipilo erythrophthalmus oregonus*. *Condor*, 71: 257-266.
- SALFELD, D. 1969. Jays recovering buried food from under snow. *Brit. Birds*, 62: 238.—Includes comments by P. O. Swanberg.—H.B.
- SEPPÄ, J. 1969. The cuckoo's ability to find a nest where it can lay an egg. *Ornis Fennica*, 46: 78-79.—*Cuculus canorus* neither searches at random nor watches the host build but is guided to possible host nests by the intensity of alarm cries of parents.—M.D.F.U.
- SHORT, L. L., JR. 1969. An apparent agonistic display of the Whistling Heron (*Syrigma sibilatrix*). *Wilson Bull.*, 81: 330-331.
- SLATER, P. J. B. 1969. The stimulus to egg-laying in the Bengalese Finch. *J. Zool.*, 158: 427-440.—Egg laying is unusual in isolated females and those kept in groups. Monosexual pairs showed a higher incidence of laying, whether males could be heard or not. Females in heterosexual pairs usually lay within 3 weeks of pairing, whether or not the pair is separated by bars. Laying is delayed in the absence of nest material (carried to nest box by male), and in the case of heterosexual pairs separated by bars, when only the male is given nest material. Personal experience with nest material by the female seems to be important and it is concluded that egg laying is stimulated by a mate and nest material in a complex fashion.—K.P.A.
- SMITH, N. G. 1969. Provoked release of mobbing—a hunting technique of *Micrastur falcons*. *Ibis*, 111: 241-243.
- SPOFFORD, S. H. 1969. Flicker incubates pink plastic balls, on a lawn, for five weeks. *Wilson Bull.*, 81: 214-215.
- STOREY, R. W. 1969. The behavior of the Horned Grebe in spring. *Condor*, 71: 180-205.
- WAHLSTEDT, J. 1969. [Hunting, feeding and vocalizations of the Great Gray Owl (*Strix nebulosa*).] *Vår Fågelvärld*, 28: 89-101.—A fine behavior study of three pairs of Great Gray Owls on their breeding grounds in northern Sweden. (English summary.)—L.DEK.L.
- WESTCOTT, P. W. 1969. Relationships among three species of jays wintering in southeastern Arizona. *Condor*, 71: 353-359.
- WILLIAMS, M. 1969. Courtship and copulatory behaviour of the New Zealand Grey

- Duck. Notornis, 16: 23-32.—Social courtship, pair formation, and copulatory behavior of *Anas s. superciliosa*.—G.D.S.
- WINKEL, W. 1968. Zirkeln bei Zuckervogel—Arten (Coerebidae). Z. Tierpsychol., 25: 533-536.—Several species pry open objects frequently, another species seldom. Prying seems to have evolved several times independently within the family and cannot be used as a taxonomic character.—M.S.F.

DISEASES AND PARASITES

- ADAMS, J. R., AND G. C. GIBSON. 1969. *Ancyracanthopsis bendelli* n. sp. (Acuariidae: Schistorophinae) from Pacific coast grouse, with observations on related nematode genera. Canadian J. Zool., 47: 619-626.—Describes a new species of gizzard worm collected from *Dendragapus obscura* and *Bonasa umbellus* on Vancouver Island, British Columbia and proposes changes in the species composition of four spiruroid genera of nematodes.—H.W.K.
- FOSTER, M. S. 1969. Synchronized life cycles in the Orange-crowned Warbler and its mallophagan parasites. Ecology, 50: 315-323.—Based on examination of a large series of study skins, it appears that the timing of breeding in at least two species of mallophaga is controlled by the reproductive hormones of the host, *Vermivora celata*. The author mistakenly is listed by her married name in the table of contents.—H.W.K.
- JONES, J., JR. 1968. Some parasites of the Common Crow, *Corvus brachyrhynchos* Brehm, from Ohio. Ohio J. Sci., 68: 25-31.—Includes protozoans, arachnids, and helminths.—H.C.S.
- LEDGER, J. A. 1968. A list of ectoparasites recorded from Colies. Ostrich, 39: 231-235.—The relationships among the mallophaga support the division of the colies into two genera or subgenera, *Colius* and *Urocolius*. None of the ectoparasites suggests a relationship between colies and other avian orders.—M.A.T.
- LIBURD, E. M. 1969. Incidence of coccidia in California Quail (*Lophortyx californicus*) from the Okanagan Valley, British Columbia. Canadian J. Zool., 47: 645-648.—Of 85 quail 73 per cent were infected with oocysts of *Eimeria* (Protozoa: Eimeriidae). Coccidiosis caused no mortality or morbidity.—H.W.K.
- RAITIS, T., AND M. HELMINEN. 1969. [*Ascaridia compar*, the most frequent intestinal parasite of gallinaceous birds in Finland.] Suomen Riista, 21: 27-39.—During 3 years 302 birds (69 Capercaillie and 118 Black Grouse) and about 1,800 fecal samples collected at game checks from birds shot by hunters were studied. Maximum infestation occurs in autumn (September–November): 41 per cent of *Tetrao urogallus* and 45 per cent of *Lyrurus tetrix* were infested. Eggs were found in 12 and 21 per cent of the samples respectively. Seasonal, yearly, and density-related differences in infestation are discussed. This parasite is usually harmless to the host birds and does not make them inedible. (In Finnish; English summary.)—M.D.F.U.

ECOLOGY AND POPULATION

- BAILEY, R. S. 1968. An index of bird population changes in woodland. Bird Study, 15: 171-180.—Based on Common Birds Censuses from 1964 to 1967. The study period was too short to provide definite conclusions about population levels.—J.D.R.
- BAILEY, R. S. 1968. The pelagic distribution of sea-birds in the western Indian Ocean. Ibis, 110: 493-519.—Data from 600 1-hour counts on oceanographic cruises of the International Indian Ocean Expedition, 1963-64, show the main elements of

- the seabird fauna in the area 15° N-20° S are resident pantropical forms and southern hemisphere migrants passing to and from their contranuptial range near upwellings in the Arabian Sea. The tropical species are more common closer to land and where flying fish are plentiful. Their pelagic occurrence is not correlated with areas of local upwelling and zooplankton abundance, which, Bailey suggests, may be due to the time-space lag between surface enrichment and resulting fish production. Observations indicated that available food is scarce and patchy, and that possible competitors avoid contact by nonoverlapping ranges (*Phaethon aethereus* and *P. lepturus*; *Sula dactylatra* and *S. sula*) or by feeding at different distances from land (*Sterna fuscata* and *S. anaethetus*). Most tropical species do not penetrate the rich Arabian-Somali upwelling area perhaps because the more opaque water requires different feeding adaptations.—W.B.R.
- BAILEY, R. S., AND L. A. BATTEN. 1968. Bird population changes on farmland for the years 1966-67. *Bird Study*, 15: 181-183.—Significant changes in the populations of 11 species.—J.D.R.
- BALDA, R. P. 1969. Foliage use by birds of the oak-juniper woodland and ponderosa pine forest in southeastern Arizona. *Condor*, 71: 399-412.
- BANKS, R. C. 1969. Relationships of the avifauna of San Estéban Island, Sonora. *Condor*, 71: 88-93.
- BATTEN, L. A., AND D. E. POMEROY. 1969. Effects of reafforestation on the birds of Rhum, Scotland. *Bird Study*, 16: 13-16.—Densities and numbers of species present increased with increasing age of tree plantations in moorland.—J.D.R.
- BELKNAP, J. B. 1968. Little Galoo Island—a twenty year summary. *Kingbird*, 18: 80-81.—With the eastern expansion of the Ring-billed Gull the Little Galloo colony in Lake Ontario is believed the largest. Herring Gulls also nest there.—E.E.
- BELL, B., AND R. HORNBY. 1969. Polygamy and nest-sharing in the Reed Bunting. *Ibis*, 111: 402-405.—Over a 4-year period 80-90 color-ringed pairs of *Emberiza schoeniclus* exhibited 4 cases of bigamy, and a complicated case in which 2 females apparently laid eggs in the same nest. Both females and a male fed the young.—S.C.W.
- BENNING, W. E. 1968. 1967 Great Blue Heron survey [in upstate New York]. *Kingbird*, 18: 82-84.—Lists location of nesting colonies and number of nests.—E.E.
- BENTON, A. H., AND H. TUCKER. 1968. Weather and Purple Martin mortality in western New York. *Kingbird*, 18: 71-75.—In May 1966 cold weather is believed to have wiped out 75 to 80 per cent of the population in western New York, so that very few martin houses were fully occupied that year.—E.E.
- BOULDIN, L. E. 1968. The population of the House Martin, *Delichon urbica* in East Lancashire. *Bird Study*, 15: 135-146.—A breeding survey of House Martins on 338,000 acres near Liverpool, England, from 1958 to 1967. The population appeared to remain at the same level throughout the 10 years. Density was about 8 pairs per 1,000 acres. The martins nested in approximately 570 colonies each year which averaged 4.7 nests per colony. Rural colonies were larger and more numerous than suburban colonies. Urban areas had the fewest colonies.—J.D.R.
- BROWN, J. L. 1969. Territorial behavior and population regulation in birds. A review and re-evaluation. *Wilson Bull.*, 81: 293-329.
- BROWN, J. L. 1969. The buffer effect and productivity in tit populations. *Amer. Naturalist*, 103: 347-354.—In *Parus major*, productivity is not limited by territorial behavior, but actually might be maximized by it.—G.D.S.
- BRUYENS, M. F. M., AND A. TIMMERMAN. 1968. Over het roorkomen van de Rotgans (*Branta bernicla bernicla*) in Nederland. *Limosa*, 41: 90-106.—Wintering

- Brant have increased in the Netherlands since the drastic decline following 1932. Monthly counts for 1945 through 1966 document the increase.—K.P.A.
- BUSSE, P., AND B. OLECH. 1968. [On some problems of birds spending nights in nestboxes.] *Acta Ornithol.*, 11: 1-26.—About 250 nest boxes were regularly checked for occupancy in the autumns and winters of 1957-1961. Occupancy (mainly by *Passer montanus*, *Parus major*, *P. caerulescens*, and *Sitta europaea*) varied from 5.9 to 56.5 per cent, temperature being the most important influence. Differences in sedentary habits of the species are discussed, as are differences in use of boxes on the forest edge and within the forest, and the degree of choice of boxes shown by each species.—M.A.J.
- CAUSEY, M. K., AND J. B. GRAVES. 1969. Insecticide residues in Least Bittern eggs. *Wilson Bull.*, 81: 340-341.
- CLAPP, R. B. 1968. The birds of Swain's Island/south-central Pacific. *Notornis*, 15: 198-206.—The 1¼ × 1 mile island (11° 03' S, 171° 05' W) was visited seven times in 1966 and 1967. A brief description of the island and 16 species accounts are included.—G.D.S.
- COOPER, K. H., AND K. Z. EDWARDS. 1969. A survey of Bald Ibis in Natal. *Bokmakierie*, 21: 4-9.—Review of nesting of *Geronticus calvus* in 1968.—E.E.
- DHONDT, A. A., AND J. HUBLÉ. 1968. Age and territory in the Great Tit (*Parus m. major* L.). *Applied Ornithol.*, 3: 20-24.—Preliminary data suggest territory size increases with increasing age of the bird. If true, age composition of the population would influence density through the size of the defended territories. Older birds also seem to choose more favorable territories.—M.D.F.U.
- EDGAR, A. T. 1969. Estimated population of the Red-breasted Dotterel. *Notornis*, 16: 85-100.—*Charadrius obscurus* counted on beaches of North Island, New Zealand, from 1966-69. Previous records are summarized and population size is estimated.—G.D.S.
- EDWARDS, W. R., AND J. A. ELLIS. 1969. Responses of three avian species to burning. *Wilson Bull.*, 81: 338-339.
- ELY, C. A., AND T. J. BOWMAN. 1969. Storm mortality at a House Sparrow roost. *Kansas Ornithol. Soc. Bull.*, 20: 6-7.—Weights and numbers are given for different sex and age groups of *Passer domesticus* killed in a hailstorm.—M.A.J.
- FIUCZYNSKI, D., AND V. WENDLAND. 1968. Zur Populationsdynamik des Schwarzen Milans (*Milvus migrans*) in Berlin Beobachtungen 1952-1967. *J. Ornithol.*, 109: 462-471.—Populations and reproductive success of the Black Kite in the Berlin area varied considerably over a 15-year period; discusses the relevance of the data to some of Lack's hypotheses. (English summary.)—H.C.M.
- GREENHALGH, M. E. 1968. The sex ratio of migrant Ruffs. *Bird Study*, 15: 210-212.—The wintering population of male *Philomachus pugnax* exceeds females by more than three to one. The sex ratio approaches 30 males per female in late June and early July when the males are migrating southward.—J.D.R.
- GREENHALGH, M. E. 1969. The populations of Redshank and Dunlin on salt marshes in northwest England. *Bird Study*, 16: 63-64.—*Tringa totanus* and *Calidris alpina* were most plentiful in areas of thick vegetation, with *Tringa* more common, and the *Calidris* at the southern limit of its breeding range. Areas disturbed by grazing, deturfing, and picnicing had lower populations.—J.D.R.
- HARRIS, M. P. 1968. Black-browed Albatross (*Diomedea melanophrys*) and other sea-birds near Guayaquil, Ecuador. *Ardea*, 56: 284-285.—On 1 November 1965 an adult found on the beach at Santa Elena Peninsula, provides the northernmost Pacific record. With it were dead or moribund *Daption capense*, *Fulmarus*

- glacialoides*, *Phalacrocorax bougainvillei*, and *Puffinus griseus*; the *Fulmarus* still alive when found was extremely emaciated and weighed at death only 345 g. These birds presumably died from the failure of the Humboldt Current and the southward flow of the warm El Niño Current. Other birds were observed.—E.E.
- HARRIS, M. P. 1969. Effect of laying date on chick production in Oystercatchers and Herring Gulls. *Brit. Birds*, 62: 70-75.—Early nesting Oystercatchers average eight times as many young as late nesters. Herring Gull nesting success increases with laying date.—H.B.
- HARRIS, M. P. 1969. Food as a factor controlling the breeding of *Puffinus lherminieri*. *Ibis*, 111: 139-156.—An important seabird study at the Galápagos Islands where Audubon's Shearwater breeds without periodicity the year round. Factors controlling breeding are length of time required for molt and availability of food. Manifestations of food shortage are reduced laying, retarded chick growth and sometimes death by starvation, lengthened incubation shifts, and poor nesting success. Despite occasional food shortage adults had a high survival rate with most mortality attributed to local raptors.—B.A.H.
- HAUKIOJA, E. 1968. Reliability of the line survey method in bird census, with reference to Reed Bunting and Sedge Warbler. *Ornis Fennica*, 45: 105-113.—The line survey method resulted in an estimate of less than 75 per cent of the real number.—E.E.
- HELMINEN, M. 1969. Relative abundance of some game and fur species in Finland at the end of the 1966/67 and 1967/68 hunting seasons. *Suomen Riista*, 21: 116-127.—Discusses population trends of upland birds. (In Finnish; English summary.)—M.D.F.U.
- HENDERSON, M. 1968. The Rook population of a part of West Cheshire 1944-1968. *Bird Study*, 15: 206-208.—A marked decline in numbers of *Corvus frugilegus* occurred between 1944 and 1968. Expansion of residential and industrial areas decreases suitable nesting habitat.—J.D.R.
- HILDÉN, O., AND J. KOSKIMIES. 1969. Effects of the severe winter of 1965/66 upon winter bird fauna in Finland. *Ornis Fennica*, 46: 22-31.—The usual Christmas census was repeated around the beginning of March by the same observers following the same routes (508 observation routes around New Year, 245 in late winter; the results are pooled for species and the late winter results expressed in per cent of the first census). A detailed discussion of the possible errors of the method follows. Heaviest losses occurred in the populations of *Regulus regulus*, *Aegithalos caudatus*, and *Certhia familiaris*, the wintering, small, insectivorous passerines. Corvids, common seed-eaters, the Pheasant, and Mallard survived the winter well. The increased (and more affluent) human population helps these species by feeding, willfully or accidentally. Many interesting individual cases are described, such as a *Parus major* dropping dead in flight at an ambient temperature of -43°C, or grouse and ptarmigan spending up to 4 days buried in snow except for their feeding time.—M.D.F.U.
- HJALTE, K. 1969. The Corn Bunting (*Emberiza calandra*) in Scania, Sweden, 1965-1968. *Vår Fågelvärld*, 28: 124-129.—An investigation into the decline and present status of the species.—L.DEK.L.
- JACKSON, J. R. 1969. What do Keas die of? *Notornis*, 16: 33-44.—From a 10-year banding study of *Nestor notabilis* author concludes that starvation is most important cause of death.—G.D.S.
- JANZEN, D. H. 1969. Birds and the ant X acacia interaction in Central America, with notes on birds and other myrmecophytes. *Condor*, 71: 240-256.

- KOPLIN, J. R. 1969. The numerical response of woodpeckers to insect prey in a subalpine forest in Colorado. *Condor*, 71: 436-438.
- LACK, D. 1969. Population changes in the land birds of a small island. *J. Anim. Ecol.*, 38: 211-218.—An analysis of census data of breeding birds obtained from 1928 to 1967, except war years, on Skokholm, a 240 acre (96 h) island 2 miles off the coast of southwest Wales. Comparisons are made with breeding bird populations (censused much less often) on other larger nearby islands.—H.W.K.
- LINCOLA, P., AND A. MYLLYMÄKI. 1969. Der Einfluss der Kleinsäugerfluktuationen auf das Brüten einiger kleinsäugerfressender Vögel im südlichen Häme, Mittelfinnland 1952-1966. *Ornis Fennica*, 46: 45-78.—Population dynamics of *Microtus agrestis* and 6 raptors through 4 vole population cycles. Breeding success for 1,350 nests of *Aegolius funereus*, *Strix aluco*, *S. uralensis*, *Asio otus*, *Falco tinnunculus*, and *Buteo b. vulpinus* correlates with vole population cycles. Overwintering species of owls lay earlier during peak vole years. Long-eared Owl, Tengmalm's Owl, and Kestrel invasions occurred in some of the peak vole years. Peak years have the greatest impact on size of breeding populations in Tawny Owls (where mortality also is analyzed from banding recoveries), Kestrels, and Buzzards. In general Tengmalm's Owl is the most dependent on vole years and the Ural Owl least. Much nest abandonment occurs in poor vole years in England but not in Finland, probably not because the Finnish birds are more cold-hardy but because of a behavioral adaptation: in England the mother of newly hatched owlets hunts, and if food is scarce the young may die of exposure during her long absences. In Finland where brooding hatchlings is an absolute necessity during the cold spring and summer nights the male does most of the hunting and thus the young are better protected thermally. While in England the summer food supply most influences the population dynamics of the owls through their breeding success, in Finland (where clutch size of all 6 studied species is larger than farther south in Europe) the combination of cold winter and low vole population results in extremely high mortality rates. Thus in overwintering species weather is an important factor. (In German; copious English summary.)—M.D.F.U.
- LJUNGGREN, L. 1968. The influence of mercury poisoning on the reproduction and general health of Wood Pigeons. *Viltrevy*, 5: 423-434.—*Columba palumbus* with mercury content varying between 5 and 48 mg/kg of liver showed no indication of impaired health. Although gonadal production appeared normal, the mercury seemed to inhibit crop milk production and therefore also reproduction. City pigeons are less subject to mercury poisoning than country pigeons as they feed less on mercury-treated grain. Individuals probably eliminate the mercury in about 5 months, and birds eating poisoned grain in the spring might rear young late in the summer.—M.D.F.U.
- LJUNGGREN, L. 1968. Seasonal studies of Wood Pigeon populations. *Viltrevy*, 5: 435-504.—Prior to 1938 the Swedish population of *Columba palumbus* bred only in coniferous forests. Now the species also breeds in suburbs and city parks exclusively in deciduous trees. Ljunggren suggests the conifer-nesting population immigrated to Sweden during an interglacial warm and became adapted to these trees during a glacial cool when the deciduous trees were replaced. The populations of Britain and continental Europe, which breed in deciduous habitats, may have been the source of the deciduous-nesting birds now present in Sweden. The two populations in Sweden have different feeding habits and the urban pigeons weigh more. Many interesting comparisons of food habits are made with the British population.—M.D.F.U.

- LJUNGGREN, L. 1969. Seasonal studies of Wood Pigeon populations. 2. Gonads, crop glands, adrenals and the hypothalamo-hypophyseal system. *Viltrevy*, 6: 41-126.—In 6 years over 1,300 adult *Columba palumbus* were collected. Beaks, legs, and adrenals change color with age, and were used in aging. Structural and weight variation of testes, ovaries, oviducts, and crops indicate longer periods of activity in males than females, and in individuals from city parks than in those from the country. Urban park populations have greater reproductive activity and longer reproductive seasons than rural populations. All organs studied showed seasonal variation.—M.D.F.U.
- LÖHRL, H. 1968. Das Nesthäkchen als biologisches Problem. *J. Ornithol.* 109: 383-395.—An analysis of the role of the runt in the population biology of birds. Runts die when food is scarce, permitting siblings to survive. (English summary.)—H.C.M.
- LOMAS, P. D. R. 1968. The decline of the Rook population of Derbyshire. *Bird Study*, 15: 198-205.—A comparison of extensive nest records of *Corvus frugilegus* taken in Derbyshire in 1944 and 1966 was made. The 1966 census showed a decrease of 22 per cent in total population and a decrease in the size of rookeries. The decline was limited mainly to cultivated areas.—J.D.R.
- MACDONALD, R. 1968. The Australian Coot established on Virginia Lake, Wanganui. *Notornis*, 15: 234-237.—*Fulica atra* population on Virginia Lake has increased to about 60 birds since first observed in 1962 and first recorded breeding in 1964-65. Information included on territories, nesting, incubation and raising young, establishment on other lakes, and feeding. Results of first and second broods of 21 pairs.—G.D.S.
- MCKENZIE, H. R. 1968. Census records of turnstone for Firth of Thames and Manukau Harbour. *Notornis*, 15: 238-241.—Sight records of *Arenaria interpres* from two New Zealand localities from 1941 to 1967.—G.D.S.
- MCNEIL, R. 1969. La territorialité: mécanisme de régulation de la densité de population chez certains passériformes de Québec. *Naturaliste Canadien*, 96: 1-35.—Population density appears to control the mean area of the territories and the space covered by the territories of the species but no correlation exists between such mean area and the space covered by the species. Territory probably has a maximum as well as minimum area. Population density varies proportionately with the volumetric vegetation index, but mean territory size is independent of the vegetation index. Hence limitation of population density seems the main function of territory of the type usual in passerines. (English abstract.)—E.E.
- MOYNIHAN, M. 1968. The "Coerebini": a group of marginal areas, habitats, and habits. *Amer. Naturalist*, 102: 573-581.—The neotropical honeycreepers, including *Coereba*, *Ateleodacnis*, *Conirostrum*, and possibly *Oreomanes*, are all "marginal" in one way or another. Their "marginality" may be expressions of the same basic general adaptation, a tendency to use indirect rather than direct clues to locate food. Species that use indirect clues might colonize new areas and habitats more frequently and successfully than similar species that rely on direct clues. The proportion of endemic species using indirect clues in any given area probably correlates positively with degree of isolation and peculiarity of the area.—G.D.S.
- NELSON, J. B. 1969. The breeding ecology of the Red-footed Booby in the Galápagos. *J. Anim. Ecol.*, 38: 181-198.—*Sula sula* in the Galápagos breed in a harsher environment than those in the Caribbean or Indian Ocean, and because of scarce or irregular food supplies must feed offshore rather than inshore. Several adaptations to this environment are nonseasonal egg laying, a single-egg clutch,

- relatively large egg, long nestling period, and a long period of postfledging feeding of juveniles by parents.—H.W.K.
- NORMAN, F. I. 1969. Artificial twinning in the Short-tailed Shearwater *Puffinus tenuirostris*. Ibis, 111: 391-393.—Hatching success in nests given an extra egg was lower than for controls. Provision of twin chicks did not increase productivity because of higher chick mortality. Lower weights of experimental chicks suggest adults were unable to provide sufficient food.—B.A.H.
- OATLEY, T. B. 1969. Bird ecology in the evergreen forests of northwestern Zambia. Puku, 5: 141-180.—Distribution of forest birds is related to forest type and availability of food and water. The importance of mixed flocks of insectivorous birds taking species from woodland to forest and the reverse is demonstrated.—M.A.T.
- OLSON, S. L., AND K. E. BLUM. 1968. Avian dispersal of plants in Panama. Ecology, 49: 565-566.—Seeds of various species of plants taken from birds collected in Panama were planted and observed for germination. Viable seeds were found in all parts of the bird digestive tract. Birds especially preferred *Cecropia peltata* fruits.—H.W.K.
- PEAL, R. E. F. 1968. The distribution of the Wryneck in the British Isles 1964-1966. Bird Study, 15: 111-126.—The breeding population of *Jynx torquilla* of the British Isles has declined since 1954-1958. Breeding populations in most other European countries also appear to be declining or existing at low levels.—J.D.R.
- PENNYCUICK, L. 1969. A computer model of the Oxford Great Tit population. J. Theoret. Biol., 22: 381-400.—A computer program, designed to test the variables affecting fecundity and survival, indicated that density independent factors (date of laying and size of mast crop) could not hold the population in check. Density dependent fecundity also would not hold it in check, but juvenile survival would.—J.J.D.
- PETTET, A. 1969. Feeding association of *Aerops albicollis* and *Cinnamoptyx castaneofuscus* with the squirrel *Funisciurus anerythrus*. Ibis, 111: 98-101.—In western Nigeria, White-throated Bee-eaters and Chestnut and Black Weavers often attend squirrels feeding on oil-palm nuts and eat strips of the fibrous seed coat that the squirrels discard.—W.B.R.
- PIRKOLA, M. K. 1969. The IWRB wildfowl census in Finland, January 1968. Suomen Riista, 21: 82-95.—An imposing area of western Europe was censused on a 50-km square grid system during the winters of 1966-67 and 1967-68. In both years England, Belgium, Holland, and Denmark were covered and much of France, Sweden, Norway, Switzerland, both Germanies, Hungary, Greece, Turkey, and Tunisia. The Finland census was by professional and volunteer amateur game managers and ornithologists, coast guardsmen, and fishermen who covered 80 sites or routes, half of them completely icebound. No birds were found at 8 sites and only 26 sites gave reliable results. Maps show midwinter densities of *Anas platyrhynchos*, *Somateria mollissima*, *Bucephala clangula*, and *Clangula hyemalis*. (In Finnish; English summary.)—M.D.F.U.
- POTTS, G. R. 1969. The influence of eruptive movements, age, population size and other factors on the survival of the Shag (*Phalacrocorax aristotelis*). J. Anim. Ecol., 38: 53-102.—An extremely interesting and detailed analysis of variations in mortality rates with respect to age, sex, and breeding success, especially in years of high mortality associated with extensive movements (eruptions) of Shags. Eruptive behavior is indirectly a reaction to food shortage, which mainly is caused by weather conditions and not competition.—H.W.K.
- PRIGOGINE, A. 1969. Polymorphism of the Chestnut-bellied Wattle-eye *Dyaphoro-*

- phya concreta*. Ibis, 111: 95-97.—About 20 per cent of adult male *D. c. graueri* of the eastern Congo have the underparts chestnut (as in West African subspecies), instead of the usual yellow. Only two of eight subspecies of this muscipid are known to be polymorphic.—W.B.R.
- PROUT, J. 1968. Sufficient conditions for multiple niche polymorphism. Amer. Naturalist, 102: 493-496.—Using Levene's (1953) population model, which contained sufficient conditions for at least one stable equilibrium when selection varies from niche to niche, Prout shows that it is possible to state sufficient conditions for a broader equilibrium.—G.D.S.
- PULLIAINEN, E. 1968. [On the sex determination and weight of the Willow Grouse (*Lagopus lagopus*) in Finnish Lapland.] Suomen Riista, 20: 43-49.—The sexing method of Bergerud et al. (J. Wildl. Mgmt., 27: 700) proved 98 per cent accurate when applied to the Finnish population. Three ptarmigan populations were sampled along a 500 km latitudinal transect of increasing altitude from south to north. The average weight of the various sexes and classes decreased from south to north significantly, or almost significantly, thereby contradicting Bergmann's rule. The relative length of the the snowy period is at least 2 to 3 months longer at the northern end of the transect and the related decreased availability of preferred food items affect the general nutritional status and weight of the ptarmigan. (In Finnish; English summary.)—M.D.F.U.
- PULLIAINEN, E. 1968. [On the spring food of the partridge (*Perdix perdix* L.) in Ostrobothnia, Western Finland.] Suomen Riista, 20: 94-101—Local habitat preferences based on line transects and covey counts. Green vegetable matter and weed seeds form the bulk of spring diet. (In Finnish; English summary.)—M.D.F.U.
- PULLIAINEN, E. 1968. Autumn weight of the partridge (*Perdix perdix* L.) in Finland. Ann. Zool. Fennica, 5: 241-244.—Weights of partridges shot in western and southern Finland in October, 1964 through 1967, show only slight differences, mainly in juvenile birds. Finnish birds are significantly heavier than those from Hungary, a circumstance that agrees with Bergmann's rule, but the Hungarian data are scanty.—M.D.F.U.
- RAJALA, P. 1968. [Finnish tetraonid populations in August 1967 according to route-census.] Suomen Riista, 20: 118-124.—Fourth annual census, during August, covered 582 routes totaling 21,731 km. Three census-takers walked abreast on a 60-m wide strip and flushed or observed about 54,000 grouse (Capercaillie, Black Grouse, Hazel Grouse and Willow Ptarmigan). Though the area covered is known (1,304 square km) the density values are not representative of the censused districts because known good grouse habitat was chosen for the census everywhere. However reliable trend figures and sex ratios are gained, and in some species even adult/juvenile ratios were calculated. (In Finnish; English summary.)—M.D.F.U.
- RAJALA, P. 1969. [Finnish tetraonid populations in August 1968 according to route-census.] Suomen Riista, 21: 128-135.
- RECHER, H. F. 1969. Bird species diversity and habitat diversity in Australia and North America. Amer. Naturalist, 103: 75-80.—Breeding bird censuses in Australia support the conclusion from North American studies that habitat diversity as measured by foliage profile is a good predictor of bird species diversity. Equilibrium or saturation levels appear to be independent of the histories and ancestors of the avifaunas concerned.—G.D.S.
- RECHER, H. F., AND J. A. RECHER. 1969. Some aspects of the ecology of migrant shorebirds. 2. Aggression. Wilson Bull., 81: 140-154.
- REID, B. 1968. An interpretation of the age structure and breeding status of an

- Adélie Penguin population. *Notornis*, 15: 193-197.—Gives estimates of mortality, clutch size, and chick survival, also the age distribution of birds in the colony and those breeding.—G.D.S.
- ROBEL, R. J. 1969. Nesting activities and brood movements of Black Grouse in Scotland. *Ibis*, 111: 395-399.—Activity of two female *Lyrurus tetrrix* and their broods was studied using radio telemetry. Both incubating birds had three daily feeding periods, the longest one in the evening. Broods moved most the first few days after hatching, and least mortality of young occurred at that time.—S.C.W.
- ROSENZWEIG, M. L. 1969. Why the prey curve has a hump. *Amer. Naturalist*, 103: 81-87.—Support is presented for the graphical theory of predation. A predator's ability to reproduce successfully in the presence of few prey can be a source of instability, perhaps even resulting in the predator's extinction.—G.D.S.
- SCHOENER, T. W. 1969. Models of optimal size for solitary predators. *Amer. Naturalist*, 103: 277-313.—Models predict an optimal body size (i.e. that size which takes the least amount of time to satisfy its energy requirements) for several types of predators. Some interesting predictions concerning avian predators are presented.—G.D.S.
- SCHREIBER, R. W. 1968. Seasonal population fluctuations of Herring Gulls in central Maine. *Bird-Banding*, 39: 81-106.—Discusses fluctuations in numbers over 1 year of *Larus argentatus* of various age classes in relation to breeding season and migration.—M.A.J.
- SETINA, M. 1968. Beitrage zur Kenntnis der Vogelwelt von der Umgebung von Slavonski Brod. Die Fischteiche von Jelas-Polje. *Larus*, 20: 101-110.—The faunistics of the lakes and the influence of man. (In Serbo-Croatian; German summary.)—M.D.F.U.
- SHARROCK, J. T. R. 1969. Grey Wagtail passage and population fluctuations in 1956-67. *Bird Study*, 16: 17-34.—At tips of headlands that project southward into the sea and on islands close to the mainland, the number of *Motacilla cinerea* was greater than at stations in bays or distant from the mainland. Autumn migration, which reaches a peak in mid-September in Britain, was used as an index of population size. Peak numbers were observed in 1959 and 1961. Severe weather during the winters of 1961-62 and especially 1962-63 correlated with reduced numbers of migrating birds during the following autumns. Following 1963 the numbers of Grey Wagtails migrating southward gradually increased. Data collected independently on banding and nest records support the conclusions on population size using migrating birds as an index.—J.D.R.
- SIEGFRIED, W. R. 1968. Ecological composition of the avifaunal community in a Stellenbosch suburb. *Ostrich*, 39: 105-129.—The breeding birds of a suburb about 40 km east of Cape Town, Union of South Africa, include 18 species and 870 individuals per square km. Standing crop biomass of the breeding community is 36 kg/km², and its total intake of fresh food is 21 kg per day. The most important species are *Passer melanura*, *Sturnus vulgaris*, and two *Streptopelia*.—G.E.W.
- SNOW, D. W. 1969. Some vital statistics of British Mistle Thrushes. *Bird Study*, 16: 34-44.—Egg laying by *Turdus viscivorus* begins in late February, peaks in late March and early April, and is completed by July. Mean and modal clutch sizes were 3.85 and 4 respectively, larger clutches being laid in late April and early May. Nesting success was greatest for the early broods, which were started mainly by experienced birds. Low reproductive rate and high adult mortality as

- compared to the Blackbird, *T. merula*, was compensated for by higher juvenile survival. Higher survival of juveniles was attributed to the high mobility and cohesive nature of family groups, which remain together longer than Blackbird families.—J.D.R.
- SOUTHERN, H. N. 1969. Prey taken by Tawny Owls during the breeding season. *Ibis*, 111: 293–299.—Using three methods, (1) analysis of pellets, (2) night observation of prey brought to nests, and (3) analysis of prey left in nests during the day, the diet of *Strix aluco* living near Oxford, England, was studied for the breeding seasons 1949–52. All three methods showed a tendency of the owl to shift from voles and mice to moles and beetles, mainly cockchafers, in early May when the nestlings are about half grown. Southern also concludes that diurnal hunting is regular during the breeding season, and mentions that V. P. W. Lowe's unpublished work demonstrates that survival of identifiable remains in pellets varies for different small rodents.—G.E.W.
- STEWART, P. A. 1969. Movements, population fluctuations, and mortality among Great Horned Owls. *Wilson Bull.*, 81: 155–162.
- STRESEMANN, E. 1968. Der Eingriff der Eleonorenfalke in den herbstlichen Vogelzug. *J. Ornithol.*, 109: 472–474.—Calculations involving the known populations of Eleonora's Falcon, their prey preferences, and the populations of migrant small birds, suggest that more than one out of every 600 migrants crossing the Mediterranean fall victim to this falcon. (English summary).—H.C.M.
- SUMMERS-SMITH, D. 1968. Buntings on a Yorkshire farm. *Bird Study*, 15: 209–210.—A 7-year census of buntings on 223 acres of mixed farmland suggests that *Emberiza schoeniclus* are expanding their breeding habitat into drier areas, seemingly at the expense of *E. citrinella*.—J.D.R.
- WAARAMÄKI, T. 1968. [Further observations on the breeding of the Velvet Scoter (*Melanitta fusca*) in the Oulanka river basin, North-east Finland.] *Suomen Riista*, 20: 87–93.—(English and Swedish abstract).—M.D.F.U.
- WILLIAMSON, K. 1969. Habitat preference of the Wren on English farmland. *Bird Study*, 16: 53–59.—Habitat selection by *Troglodytes troglodytes* was studied following a large reduction in numbers during the severe 1962–63 winter. At first the wrens utilized small woodland and streamside habitats. In subsequent years as the population increased more wrens nested in less suitable gardens and hedgerows. A higher proportion of hedgerow territories failed to be occupied in successive years than in other habitats, suggesting that hedgerows are the least desirable habitat.—J.D.R.
- WIMBUSH, D. J. 1969. Studies on the Pied Currawong *Strepera graculina* in the Snowy Mountains. *Emu*, 69: 72–80.—A banding study of seasonal movements, growth rates, and population age structure. Sexes differ in bill length (5 females, 51–53 mm; 6 males, 58–62 mm) and in weight (males average 70 g heavier) but because of seasonal weight variation, corrections must be made for month of capture to use weight differences in sexing. Yellow gapes and brown-edged feathers are immature characters. Currawongs nest solitarily and presumably are territorial. During the winter they congregate around townships (which are at lower altitudes) to feed. A high proportion of birds at low altitudes are adults, probably those unsuccessful in establishing breeding territories and forced out of the breeding area earlier.—C.F.S.
- YUNICK, R. P. 1968. Summary of the 1967 F. & W. Breeding Bird Survey [in New York]. *Kingbird*, 18: 75–80.

EVOLUTION AND GENETICS

- CHEKE, A. S. 1969. Mechanism and consequences of hybridization in sparrows *Passer*. *Nature*, 222: 179-180.—A male *Passer domesticus*, hatched and raised by *P. montanus* foster parents, mated with *P. montanus*. The two resultant clutches gave rise to both hybrids and typical (presumably pure) *P. montanus*, indicating that the female was fertilized by two males in each case.—K.P.A.
- CODY, M. L. 1969. Convergent characteristics in sympatric species: a possible relation to interspecific competition and aggression. *Condor*, 71: 222-239.
- DESFAYES, M. 1969. A possible hybrid *Jynx ruficollis* × *torquilla*. *Bull. Brit. Ornithol. Club*, 89: 110-112.—Describes an aberrant Wryneck specimen from outside the known range of *J. torquilla*.—F.B.G.
- GREENWOOD, J. J. D. 1968. Coexistence of avian congeners on islands. *Amer. Naturalist*, 102: 591-592.—Using Grant's (1966) data on the birds of the Tres Marias Islands, which are claimed to support the hypothesis that avian congeners are less likely to be able to coexist on islands than in comparable mainland areas, Greenwood explains why he thinks they do not support the hypothesis.—G.D.S.
- HARRISON, C. J. O. 1969. Some comparative notes on the Peaceful and Zebra Doves (*Geopelia striata* ssp.) with reference to their taxonomic status. *Emu*, 69: 66-71.—Comparisons of size and color pattern show *G. s. striata* of Malaya and the East Indies and *G. s. mangleus* of Timor and the Tanimbar Islands share more characteristics than either share with *G. s. placida* of Australia. Morphological differences (longer wing, smaller size) in *placida* probably are related to habitat differences, while plumage differences (e.g. white rather than chestnut inner primary webs) may be a result of character displacement by the sympatric *G. cuneata*. In ventral coloring *G. s. placida* appears closer to the Australian *G. cuneata* and *G. humeralis* than to the other *striata* subspecies. *G. s. placida* also differs from others studied in advertisement and close contact calls. All three *striata* subspecies probably should be considered separate species.—C.F.S.
- HARRISON, J. M., AND J. G. HARRISON. 1969. Comments on a wild shot Pintail × Teal hybrid. *Bull. Brit. Ornithol. Club*, 89: 100-103.—Reexamination of a hybrid duck from Kashmir suggests that its parentage was *Anas c. crecca* with *Anas acuta* rather than with *A. formosa*.—F.B.G.
- LACK, D. 1969. Tit niches in two worlds; or homage to Evelyn Hutchinson. *Amer. Naturalist*, 103: 43-49.—Lack compares the titmice and chickadees to answer the question, "Why are there so many kinds of animals?" Seven species of *Parus* in Europe have close ecological counterparts in North America, two the result of cladistic affinity and the others of convergence. In Europe up to six species coexist, but only two normally do so in America. The American species are probably at an earlier stage in their evolution, and ecological segregation permitting coexistence may normally evolve slowly along a common boundary between two species that initially replace each other geographically.—G.D.S.
- MIKUSKA, J. 1968. Beitrag zur Kenntnis der Ornis des Ludasko jezero-Sees. *Larus*, 20: 60-79.—Vegetational zones and the avifauna on a eutrophic lake. (In Serbo-Croatian; German summary.)—M.D.F.U.
- RICKLEFS, R. E. 1969. Natural selection and the development of mortality rates in young birds. *Nature*, 223: 922-925.—Analysis of mortality rates in seven species of varied developmental modes indicated that in spite of the diversity of adaptation, the mortality of young is similar in each. The extent to which birds can reduce

- juvenile mortality through natural selection is probably limited by counteradaptation in mortality-causing organisms.—K.P.A.
- SELANDER, R. K., S. Y. YANG, AND G. CANTU. 1969. Extension of zone of sympatry of *Quiscalus mexicanus* and *Q. major*. Condor, 71: 435-436.
- VOHS, P. A., JR., AND L. R. CARR. 1969. Genetic and population studies of transferrin polymorphism in Ring-necked Pheasants. Condor, 71: 413-417.
- VON HAARTMAN, L. 1969. Nest-site and evolution of polygamy in European passerine birds. Ornis Fennica, 46: 1-12.—A discussion of passerine mating systems and mechanisms favoring or inhibiting polygamy, especially polygyny. Favorable food conditions often have been invoked as leading to polygamy, especially in two-dimensional, less stratified habitats such as marshes and prairies in North America. Polygamy as represented by European passerines does not correlate with food or habitat type, but instead with nest type and site. Species that nest in holes or niches or roof over the nest are polygamous significantly more often. Such nests have better heat-retaining capacity than open nests, and this energy saving may induce polygamy. Domed nests and holes are also better concealed, hence safer: this enables longer nestling life and thus indirectly reduces food requirements again. The protective assistance of the male is less vital in such nests. Among hole-nesters, but not among domed nest builders, restricted numbers of nest sites may also facilitate the evolution of polygyny.—M.D.F.U.
- VUILLEUMIER, F. 1969. Pleistocene speciation in birds living in the high Andes. Nature, 223: 1179-1180.—Geographic isolates, at or just below the species level, are present in 31 per cent of 83 species, of which 22 are at the periphery of the species' range; 36 per cent of the species are members of superspecies complexes. Of five potential major barriers to gene flow, the deep, arid inter-Andean valleys of northern Peru were probably the most effective.—K.P.A.
- WILLSON, M. F. 1969. Avian niche size and morphological variation. Amer. Naturalist, 103: 531-542.—Comparison of variation in the bills of mainly passerine birds from tropical lowlands and north temperate regions using several statistical methods produced no evidence of any trend toward greater variation in the region with fewer species.—G.D.S.
- ZIMKA, J. 1968. [Studies on hybrids between the Canary, *Serinus canaria* (L.) and the Serin, *Serinus serinus* (L.).] Acta Ornithol., 11: 87-102.—Hybrids were studied with respect to melanin and lipochrome pigments, growth rates, skull characteristics, and responses to changes in day length.—M.A.J.

MANAGEMENT AND CONSERVATION

- BORG, K., H. WANNTORP, K. ERNE, AND E. HANKO. 1969. Alkyl mercury poisoning in terrestrial Swedish wildlife. Viltrevy, 6: 301-379.—The use of alkyl mercury compounds for seed dressings has been completely banned in Sweden since 1966 as a result of the investigations reported in this paper. Widespread mercury poisoning in the terrestrial fauna of Sweden has been documented by the National Veterinary Institute since the mid-1950s. Postmortem residue levels have been compared with animals collected at random. Mercury values were highest in tissues of predatory birds, and mercury poisoning killed many mammalian predators (foxes, martens, and polecats). In grazing mammals mercury residue levels were much lower. The results show the food chain accumulation that leads from dressed seed to game animals. Etiology, pathology, and methods of mercury poisoning investigations are discussed, with color plates showing histological changes in tissues.

- After the use of the alkyl compounds for seed dressing was banned mercury levels in wildlife decreased.—M.D.F.U.
- HELMINEN, M., AND T. RAITIS. 1969. The toxicity and immediate effects upon game animals of 2,4-D and 2,4,5-T herbicides. *Suomen Riista*, 21: 7-15.—The toxicity of these herbicides is low. They decompose relatively fast, and show no tendency to accumulate in nature. Game animals seldom get lethal doses. In simple experiments seven pheasants and their food were sprayed with 2,4,5-T emulsion with no visible adverse effects. Herbicides used to kill hardwood growth in coniferous plantations cause deterioration in upland game habitats. This indirect effect is under study. (In Finnish; English summary.)—M.D.F.U.
- LAHTINEN, J. 1969. [Rearing tetraonid birds in captivity in Keuruu, Central Finland.] *Suomen Riista*, 21: 140-149.—Grouse nests endangered by lumbering operations are collected and the clutches reared artificially by methods described herein. Controlled light is extremely important for governing the activity of chicks. During the second year of experimentation 16 per cent of *Tetrao urogallus* and 70 per cent of *Lyrurus tetrrix* chicks survived the first 8 weeks. (In Finnish; English summary.)—M.D.F.U.
- LARSSON, T. 1969. Land use and bird fauna on shores in southern Sweden. *Oikos*, 20: 136-155.—An important and timely paper showing how vegetational changes caused by change of land use affect the breeding bird fauna along lakes, water-courses, and coasts in southern Sweden. Drastic changes are taking place in the open cultivated landscape where larger agricultural units are being created, but at the same time the total cultivated area is being reduced at a rate of 50,000 h annually. Few birds species are common to both grazed and ungrazed areas except in areas covered with *Phragmites*. Some species (Black-tailed Godwit, Redshank, Dunlin, and Yellow Wagtail) are adversely affected by revegetation of formerly grazed, wet areas. Eight species (Great Crested Grebe, Water Rail, Moorhen, Coot, Grasshopper Warbler, Reed Warbler, Sedge Warbler, and Reed Bunting) are favored by revegetation. Such studies are sorely needed elsewhere in the world.—H.W.K.
- MOSS, R. 1969. A comparison of Red Grouse (*Lagopus l. scoticus*) stock with the production and nutritive value of heather (*Calluna vulgaris*). *J. Anim. Ecol.*, 38: 103-122.—Breeding densities and breeding success of Red Grouse are higher on moors overlying relatively base-rich rocks than on those overlying granite. Heather on rich moors contains more phosphorus than on poor moors, and a greater variety of vascular plants grows on the richer sites. The author concludes that a higher quality diet caused the better grouse reproduction on rich moors.—H.W.K.
- RAJALA, P. 1969. The occasional feeding companion of a male Black Grouse (*Lyrurus tetrrix*) with pheasants (*Phasianus colchicus*) and some ideas contributing to it. *Suomen Riista*, 21: 96-107.—A male grouse joined a flock of pheasants as a feeding companion during a winter season. Discusses the possibilities of feeding tetraonid species artificially in winter. (In Finnish; English summary.)—M.D.F.U.

MIGRATION AND ORIENTATION

- BORDNER, D. L., M. WOOD, AND D. E. DAVIS. 1968. Geographical distribution of Starlings banded at State College, Pennsylvania. *Bird-Banding*, 39: 117-122.—Recoveries (53 in-state, 46 out-of-state) of 8,058 *Sturnus vulgaris* banded in central Pennsylvania. Migration follows a northeast-southwest direction. Some individuals seem to be nonmigratory.—M.A.J.

- BROWN, I. L., AND L. R. MEWALDT. 1968. Behavior of sparrows of the genus *Zonotrichia*, in orientation cages during the lunar cycle. *Z. Tierpsychol.*, 25: 668-700.—Moon caused strong deviations in azimuth directions in some birds, suggesting they are mistakenly using the moon as a sun compass without time correction.—M.S.F.
- CURTIS, S. G. 1969. Spring migration and weather at Madison, Wisconsin. *Wilson Bull.*, 81: 235-245.
- GWINNER, E. 1968. Artspezifische Muster der Zugunruhe bei Laubsängern und ihre mögliche Bedeutung für die Beendigung des Zuges im Winter quartier. *Z. Tierpsychol.*, 25: 843-853.—Willow Warblers (*Phylloscopus trochilidis*) in captivity stayed longer in migratory condition than Chiffchaffs (*P. colybita*). Willow Warblers normally migrate a greater distance.—M.S.F.
- HAVERSCHMIDT, F. 1969. The migration of the American Golden Plover through Surinam. *Wilson Bull.*, 81: 210-211.
- KEETON, W. T. 1969. Orientation by pigeons: Is the sun necessary? *Science*, 165: 922-928.—*Columba livia* with their internal clocks shifted 6 hours by altering their light regime, when released under sun, depart as predicted (90° to right or left of the home direction) but, when released under overcast, home as well as controls from both familiar and unfamiliar release sites. The author concludes, "the sun is used as a compass when it is available, but . . . the pigeon navigation system contains sufficient redundancy to make accurate orientation possible in the absence of both the sun and familiar landmarks; the orientational cues used under such conditions do not require time compensation."—W.B.R.
- NICKELL, W. P. 1968. Return of northern migrants to tropical winter quarters and banded birds recovered in the United States. *Bird-Banding*, 39: 107-116.—Recoveries (8, 7 in North America) and returns (191) of 7,178 migrant birds banded in British Honduras from 1960-1965. Of 11,000+ banded birds, 35.3 per cent were endemics. *Icterus spurius*, *Passerina cyanea*, and *Dumetella carolinensis* were most numerous, accounting for 80.1 per cent of all migrants banded.—M.A.J.
- REED, C. A., AND T. E. LOVEJOY. 1969. The migration of the White Stork in Egypt and adjacent areas. *Condor*, 71: 146-154.
- SOUTHERN, W. E. 1969. Orientation behavior of Ring-billed Gull chicks and fledglings. *Condor*, 71: 418-425.
- ŠTROMAR, L. 1968. Über das Vorkommen des Seidenschwanzes, *Bombycilla garrulus*, im Winter 1965/66 in Jugoslawien. *Larus*, 20: 45-59.—Summarizes previous periodic winter invasions and describes the great 1965/66 invasion. Recoveries of banded birds indicate the origin and route of the invading waxwings; several were banded in October 1965 as transients in Finland, Czechoslovakia, and Hungary. One banded in Beograd in late fall 1965 was recovered 3 months later in Georgia in the Kaukasian area, more than 1,700 km southeast. (In Serbo-Croatian; German summary.)—M.D.F.U.
- WILTSCHKO, W. 1968. Über den Einfluss statischer Magnetfelder auf die Zugorientierung der Rotkehlchen (*Erithacus rubecula*). *Z. Tierpsychol.*, 25: 537-558.—Birds choose a normal migratory direction in a room with the earth's normal magnetic field (0.41 Gauss). In an artificial magnetic field of about normal magnetic intensity, change of direction of magnetic north yielded corresponding changes in orientation of migratory activity. When the strength of the magnetic field was doubled or less than normal, orientation was random or not oriented in the direction of migration.—M.S.F.

MISCELLANEOUS

- BOSWALL, J. 1969. New Palearctic bird sound recordings during 1968. *Brit. Birds*, 62: 271-281.
- BUCKLEY, P. A., AND J. T. HANCOCK, JR. 1968. Equations for estimating and a simple computer program for generating unique color- and aluminum band sequences. *Bird-Banding*, 39: 123-129.—Equations determine how many different colors and how many bands per bird are necessary to achieve a given number of unique combinations. Presents a FORTRAN program that will provide a list of the combinations to be used.—M.A.J.
- ENNIS, T. 1969. Field-characters of immature Little Gulls and Kittiwakes. *Brit. Birds*, 62: 234-237.
- HILLBRICHT-ILKOWSKA, A. J., E. P. LUCZAK, AND I. SPODNIEWSKA. 1968. Polish Ecological Bibliography for 1964. Polish Acad. Sciences, (Warsaw) 536 pp.—A most useful publication where every paper is abstracted; about 70 deal directly with bird ecology.—M.D.F.U.
- HOWES, C. A. 1969. A survey of extinct and nearly extinct birds in the Royal Albert Memorial Museum, Exeter. *Bull. Brit. Ornithol. Club*, 89: 89-92.—Collections at R.A.M.M. in Devonshire include 2 Ivory-billed Woodpeckers, 9 Passenger Pigeons, 4 Kagus, and several New Zealand endemics including 3 Kakapos, 4 Huias, and 2 Saddlebacks.—F.B.G.
- NAKANISHI, M., A. C. WILSON, R. A. NOLAN, G. C. GORMAN, AND G. S. BAILEY. 1969. Phenoxethanol: protein preservative for taxonomists. *Science*, 163: 681-683.—A simple chemical for the preservation of various tissue samples that allows subsequent biochemical analysis of proteins.—A.H.B.
- PARKES, K. C. 1969. On abnormally crossed mandibles in birds. *Wilson Bull.*, 81: 342.
- SEALY, S. G. 1968. Technique for recording field data in the rain. *Bird-Banding*, 39: 134.
- ŠTROMAR, L. 1968. [Bird-banding in 1965: 1. Results of the bird-banding carried out by the Ornithological Department of the Biological Institute of the University in Zagreb, 17th Report; 2. Foreign recoveries made in Yugoslavia, 13th Report.] *Larus*, 20: 5-27.—Weather conditions caused a decline in banding activity: only 10,697 individuals were banded during the year, mainly herons, swallows, and fringillids. The 2,429 recoveries, 49 of which were foreign-banded, are presented and analyzed. (In Serbo-Croatian; English summary.)—M.D.F.U.

PHYSIOLOGY

- AULIE, A., AND P. S. ENGER. 1969. The flight muscle in a bird with high wing-stroke frequency, the Zebra Finch. *Physiol. Zool.*, 42: 303-310.—Contraction properties of *M. pectoralis major* and *M. gastrocnemius* are compared in a series of stimulation experiments employing electrical shock. The pectoralis is faster in both development (150 vs. 180 shocks/second) and relaxation of tetanic contraction. In both muscles, tension increased with number of stimuli. The gastrocnemius also showed an increase in contraction time with increased stimuli, but contraction time of short tetanic contractions in the pectoralis was relatively constant up to 5 shocks (delivered at 200 shocks/second). The pectoralis fatigued more quickly in tetanus.—A.S.G.
- BITMAN, J., H. C. CECIL, S. J. HARRIS, AND G. F. FRIES. 1969. DDT induces a decrease in eggshell calcium. *Nature*, 224: 44-46.—Japanese Quail produced thinner

- eggshells when fed *o,p'*- and *p,p'*-DDT. The concentrations used were no higher than those reported from North American Peregrine Falcons. Lists possible mechanisms of operation of these compounds.—K.P.A.
- BLACKMORE, F. H. 1969. The effect of temperature, photoperiod and molt on the energy requirements of the House Sparrow, *Passer domesticus*. Comp. Biochem. Physiol., 30: 433-444.—An attempt to correlate the effect of photoperiod and temperature on weight, metabolism, and molt cycle in laboratory populations of House Sparrows. The regression of weight and total metabolized energy is positive and linear on the number of growing feathers. It is independent of temperature and photoperiod regime. Differences in the effectiveness of insulation, duration of molt, and molt intensity affect the total energy expended in molting.—A.H.B.
- BRUSH, A. H. 1969. On the nature of "cotingin." Condor, 71: 431-433.
- DAVIS, J. G., J. C. ZAHNLEY, AND J. W. DONOVAN. 1969. Separation and characterization of the ovoinhibitors from chicken egg-white. Biochemistry, 8: 2044-2053.—Chicken ovoinhibitor, a single polypeptide chain with an average molecular weight of 49,000, can be separated into five fractions that vary in their carbohydrate content, but not in their amino acid content nor their inhibitory ability. (Ovoinhibitor inhibits the action of proteolytic enzymes from various sources.)—A.H.B.
- DAWES, C., AND K. SIMKISS. 1969. The acid-base status of the blood of the developing chick embryo. J. Exp. Biol., 50: 79-86.—The pH, CO₂ tension, bicarbonate, and excess base levels of chick blood were determined for the period from 11 days of incubation to 2 days post-hatching. The CO₂ tension shows a continuous rise to a maximum on day 19; bicarbonate and base excess levels increase from day 12-16. The pH values drop to minimums on days 13-14 and day 19. Discusses physiological and developmental phenomena likely to influence these values.—A.S.G.
- ERPINO, M. J. 1969. Seasonal cycle of reproductive physiology in the Black-billed Magpie. Condor, 71: 267-279.
- EVANS, P. R. 1969. Winter fat deposition and overnight survival of Yellow Buntings (*Emberiza citrinella* L.). J. Anim. Ecol., 38: 415-423.—Fat and other energy reserves determined in collected buntings are related to the calculated energy requirements for each night in order to determine the proportion of birds that should survive each roosting period. Mean total reserves were higher than energy requirements on each of the 9 nights studied. The mean fat reserve did not correlate with temperatures during preceding days, nor with duration of obligatory roosting, but correlated strongly with the long-term average temperature to be expected at that date. The author concludes that temperature is the ultimate, but not the proximate factor to which Yellow Buntings have responded by depositing fat. The proximate factor may well be daylength.—H.W.K.
- FANBURG, B. L., D. B. DRACHMAN, AND D. MOLL. 1969. Calcium transport in isolated sarcoplasmic reticulum during muscle maturation. Nature, 218: 962-964.—Increasing calcium uptake by microsomes in chick pectoral muscle correlates with muscle development and the concomitant increase in the mechanical speed of twitches with maturation.—K.P.A.
- FRASER, R. D. B. 1969. Keratin. Sci. Amer., 221: 86-96.—A semipopular discussion of the structural proteins of feathers, claws, and beaks.—A.H.B.
- FRENCH, M. C., AND D. J. JEFFRIES. 1969. Degradation and disappearance of ortho, para isomer of technical DDT in living and dead avian tissues. Science, 165: 914-916.—Pigeons (*Columba livia*) fed 250 mg doses of *o,p'*-DDT and killed 2 to 240 hours later had no residues in liver tissue after 72 hours and none in breast

- muscle after 120 hours. The *o,p'* isomer is metabolized to *p,p'*-DDT and then to *p,p'*-DDE, the form most commonly found in wild birds. After death anaerobic breakdown of *o,p'*-DDT to *o,p'*-DDD occurs even more rapidly (50 per cent loss in liver after 6 hours). This work shows why *o,p'*-DDT is seldom detected in biological systems despite the fact that it makes up 20 per cent of commercial DDT.—W.B.R.
- HEATH, R. G., J. W. SPANN, AND J. F. KREITZER. 1969. Marked DDE impairment of Mallard reproduction in controlled studies. *Nature*, 224: 47-48.—DDE, a widespread breakdown product of DDT, fed to penned Mallards in concentrations of 10-40 ppm induced significant eggshell thinning and cracking and increased embryo mortality. DDD and DDT impaired reproduction less severely.—K.P.A.
- JEFFERIES, D. J. 1969. Induction of apparent hyperthyroidism in birds fed DDT. *Nature*, 222: 578-579.—Eggshells in the Bengalese Finch were heavier in treated birds than in controls (dose rate, 0-300 $\mu\text{g}/\text{day}$ in three groups), but egg weights were significantly less. An insignificant increase in heart weight and a delay in ovulation occurred with increased dosage. These effects have all been shown to be correlated with hyperthyroidism in the chicken.—K.P.A.
- JONES, R. E. 1969. Epidermal hyperplasia in the incubation patch of the California Quail, *Lophortyx californicus*, in relation to pituitary prolactin content. *Gen. Comp. Endocrinol.*, 12: 498-502.—Prolactin causes hyperplasia of the incubation patch epidermis *in vivo* and *in vitro*. In females pituitary prolactin was low during egg-laying and early incubation, but high during brooding. Comparison of these results with epidermal thickness indicated that incubation stimulates prolactin release. In males pituitary prolactin was low when the testes were inactive, but high in breeding males and in those with regressing testes and an incubation patch. The condition of the epidermis in males suggested that circulating prolactin levels were high only in the last group, possibly in response to the presence of an abandoned nest.—K.P.A.
- KING, D. B. 1969. Effect of hypophysectomy of young cockerels, with particular reference to body growth, liver weight, and liver glycogen level. *Gen. Comp. Endocrinol.*, 12: 242-255.—Body weight and bone growth (combined length of shank and middle toe) were reduced in treated birds. During the first 12 days following hypophysectomy, thyroxine stimulated bone growth to the extent that shank-toe length did not differ from controls, but its effect was reduced during the second 12-day period. Hypophysectomized birds consumed 22-23 per cent less food than controls. Liver weights were the same for experimental and control birds at 12 days, but liver glycogen levels were more than doubled in operated birds. Hypophysectomized birds force-fed enough food to cause equal weight gains with controls had liver weights 55-56 per cent greater than controls.—K.P.A.
- KLICKA, J., R. EDSTROM, AND F. UNGAR. 1969. Acid mucopolysaccharide changes in chick hatching muscle. *J. Exp. Zool.*, 171: 249-251.—Acid mucopolysaccharide levels in the M. complexus increase during the final 96 hours of incubation, dramatically so on the day of pipping. The function of this increase is obscure, but the mucopolysaccharides, together with large amounts of water that the muscle takes up simultaneously, may help form a spongy mass that cushions the skull during pipping.—A.S.G.
- KONISHI, M. 1969. Hearing, single-unit analysis, and vocalizations in songbirds. *Science*, 166: 1178-1180.—Konishi exposed the nucleus angularis of the cochlea of Canaries, House Sparrows, and Slate-colored Juncos and determined the electrical response threshold of individual nerve fibers to sound of varying frequency and

- intensity. In the Canary, "thresholds of single auditory neurons at their best frequencies match the thresholds of hearing obtained by behavioral methods at the same frequencies." The upper frequency range of single neuron thresholds is higher in the junco than it is in the House Sparrow, perhaps related to the fact that juncos produce higher frequency sounds. Birds do not necessarily hear the entire range of sounds they produce and "there is no evidence that the songbird is able to hear frequencies inaudible to man." All songbirds studied so far can hear sounds lower than the sounds they produce, which may aid them "in detecting broad-band noises created by stalking predators." A most interesting paper.—W.B.R.
- LASIEWSKI, R. C., AND W. R. DAWSON. 1969. Calculation and miscalculation of the equations relating avian standard metabolism to body weight. *Condor*, 71: 335-336.
- LEWIS, R. W., AND M. I. DYER. 1969. Respiratory metabolism of the Red-winged Blackbird in relation to ambient temperature. *Condor*, 71: 291-298.
- LOFTS, B., R. K. MURTON, AND N. J. WESTWOOD. 1967. Photoresponses of the Woodpigeon *Columba palumbus* in relation to the breeding season. *Ibis*, 109: 338-351.—Experiments showed that the gonads of adult Woodpeckers respond to increased photoperiod throughout the usual nonbreeding season. The species apparently lacks the postbreeding refractory period found in all other birds studied so far. The authors conclude "the refractory period does not represent a necessary period of gonad reorganization primarily serving to regulate and time the cycle of seasonal reproductive activities, but rather that it functions solely as a safety mechanism reducing, if not entirely preventing, unseasonal reproduction." And "Because natural selection permits Woodpeckers to remain in breeding condition from March until September, without disadvantage, a direct response to natural daylength can regulate the cycle, and there is no need for a period of pituitary refractoriness."—W.B.R.
- LOFTS, B., R. K. MURTON, AND N. J. WESTWOOD. 1967. Experimental demonstration of a post-nuptial refractory period in the Turtle Dove *Streptopelia turtur*. *Ibis*, 109: 352-358.—Unlike Woodpeckers (previous paper) Turtle Doves show typical pituitary refractoriness after breeding. Gonads of autumn adults kept on 17-hour days remained regressed after 3.5 to 6 months, but gonads of birds held on 8-hour days for 2.5 months thereafter responded to increased photoperiod. The authors suggest that, in contrast to resident Woodpeckers, Turtle Doves must stop breeding while daylength is still stimulatory in order to molt and deposit fat before they migrate.—W.B.R.
- LOTT, D. F., AND S. COMERFORD. 1968. Hormonal initiation of parental behavior in inexperienced ring doves. *Z. Tierpsychol.*, 25: 71-75.—Brooding and feeding of squabs was established in males by hormone injections, showing it is possible to establish parental behavior in absence of crop milk. Brooding was established by progesterone alone, while birds injected with both progesterone and prolactin both brooded and fed. Prolactin alone produced neither brooding nor feeding.—M.S.F.
- MEIER, A. H. 1969. Antigonadal effects of prolactin in the White-throated Sparrow, *Zonotrichia albicollis*. *Gen. Comp. Endocrinol.*, 13: 222-225.—Increase in oviductal weights induced by injections of FSH and LH was blocked completely by simultaneous injections of prolactin in photorefractory birds. The ovarian response was partially inhibited. It is hypothesized that endogenous prolactin exerts an antigonadal effect that delays maturation of the gonads until migrants reach their breeding grounds.—K.P.A.

- MEIER, A. H., J. T. BURNS, AND J. W. DUSSEAU. 1969. Seasonal variation in the diurnal rhythm of the pituitary prolactin content in the White-throated Sparrow, *Zonotrichia albicollis*. Gen. Comp. Endocrinol., 12: 181-199.—Marked diurnal rhythms of pituitary prolactin content differ with respect to photoperiod in May and August. In May the peak occurs at noon, in August at midnight.—K.P.A.
- RALPH, C. L. 1969. The control of color in birds. Amer. Zool., 9: 521-530.—A concise review of the subject, covering pigments, structural color, and genetic and hormonal influences in the development and differentiation of feathers, and patterns of molt.—K.P.A.
- RAMACHANDRAN, S., J. KLICKA, AND F. UNGAR. 1969. Biochemical changes in the Musculus complexus of the chick (*Gallus domesticus*). Comp. Biochem. Physiol., 30: 631-640.—Compared to other skeletal muscles M. complexus undergoes water imbibition and decrease in glucose content during pipping and hatching. Activities of ATPase and acid phosphatase also increase.—A.H.B.
- SCHMIDT-NIELSEN, K., J. KANWISHER, R. C. LASIEWSKI, J. E. COHN, AND W. L. BRETZ. 1969. Temperature regulation and respiration in the Ostrich. Condor, 71: 341-352.
- SCHWAB, R. G., AND D. F. LOTT. 1969. Testis growth and regression in Starlings (*Sturnus vulgaris*) as a function of the presence of females. J. Exp. Zool., 171: 39-42.—Testis width was measured through a growth and regression cycle for birds kept on regimens of 12 or 14 hours of light and in the presence or absence of females. A slower rate of involution in the group kept in 12 hours light with females present was the only significant difference noted.—A.S.G.
- STEWART, D. J., W. N. HOLMES, AND G. FLETCHER. 1969. The renal excretion of nitrogenous compounds by the duck (*Anas platyrhynchos*) maintained on fresh-water and on hypertonic saline. J. Exp. Biol., 50: 527-539.—Rates of total nitrogen excretion, glomerular filtration, and renal flow did not differ significantly between ducks maintained on fresh water and those maintained on saline equivalent to 60 per cent sea water. Plasma urea concentrations of ducks given 60 per cent sea water equilibrated after 24 hours at about twice the level of freshwater birds; in those given saline equivalent to 100 per cent sea water, plasma urea equilibrated at 10 times freshwater levels after 50 hours. Birds deprived of all water showed a continuous increase in plasma urea for the entire test period. Urea:insulin clearance ratios suggest that renal tubular synthesis and secretion of urea may occur.—A.S.G.
- WEVER, E. G., P. N. HERMAN, J. A. SIMMONS, AND D. R. HERTZLER. 1969. Hearing in the Blackfooted Penguin, *Spheniscus demersus*, as represented by the cochlear potentials. Proc. Natl. Acad. Sci., 63: 676-680.—In checking three individuals of this species, hearing in terms of cochlear potential indicated sensitivity over a range of 100 to 15,000 Hz, with best results in the region 600 to 4,000. Vocalizations produced by the three individuals were described as grunts and brayings. Comparison with results from spectrographs of tape recordings indicated that the principal energy of the calls lies below 2,000 Hz.—A.H.B.
- WHITE, C. M. 1969. Functional gonads in Peregrines. Wilson Bull., 81: 339-340.
- WIT, J. G. 1969. Drug-enzymes in Kestrel liver. Comp. Biochem. Physiol., 30: 185-186.—A preliminary study showing the liver of *Falco tinnunculus* contains enzymes capable of detoxifying various xenobiotic substances.—A.H.B.

TAXONOMY AND PALEONTOLOGY

- BROOKE, R. K. 1969. Taxonomic and distributional notes on *Apus acuticauda*. Bull. Brit. Ornithol. Club, 89: 97-100.—Considers *Apus acuticauda* (Gerdon) the

- correct name of this Assam swift. Specimens from Lushai Hills (*A. c. rupchandii*) do not differ in size from those of Khasi Hill, but do differ in timing of wing molt. The Thailand population may prove separable from Indian birds.—F.B.G.
- BROOKE, R. K., AND R. J. DOWSETT. 1969. The original name of the bustard *Eupodotis afra*. Bull. Brit. Ornithol. Club, 89: 103-104.—Traces the name *afra* back to the 10th edition of Linnaeus' *Systema Naturae*.—F.B.G.
- CLANCEY, P. A. 1969. An undescribed race of Black-headed Apalis. Bull. Brit. Ornithol. Club, 89: 92-94.—*Apalis melanocephala adjacens* subsp. nov. from montane forests of southern Malawi and northwestern Mozambique.—F.B.G.
- CLANCEY, P. A. 1969. Miscellaneous taxonomic notes on African birds. xxvii. Durban Mus. Novit., 8: 227-274.—Discusses recent collections from the Manica e Sofala district, Mozambique, and describes nine new subspecies: *Hirundo abyssinica ampliformis* (Caprivi Strip), *Erythrocygia coryphaeus eurina* (Orange Free State), *Cisticola galactotes stagnans* (Ngamiland), *Andropadus milanensis disjunctus* (eastern Rhodesia), *Pogonocichla stellata hygrica* (Manica e Sofala), *Seicercus ruficapillus alacris* (Manica e Sofala), *Camaroptera stierlingi olivascens* (Manica e Sofala), *Malaconotus olivascens interfluvius* (Manica e Sofala), *Estrilda quartinia stuartirwini* (Manica e Sofala).—M.A.T.
- CLANCEY, P. A. 1969. A catalogue of birds of the South African sub-region. Supplement No. 1. Durban Mus. Novit., 8: 275-324.—Further taxonomic notes supplementing his recent Catalogue (1965-1966, tom. cit. pp. 201-633.) Describes *Cisticola pipiens arundicola* subsp. nov. from Sepopa, Ngamiland, Botswana.—M.A.T.
- ELBEL, R. E. 1969. The taxonomic position of the hornbill *Rhyticeros plicatus subruficolis* (Blyth) as indicated by the mallophaga. Condor, 71: 434-435.
- HARDY, J. W. 1969. A taxonomic revision of the New World jays. Condor, 71: 360-375.
- JOHNSTON, R. F. 1969. Taxonomy of House Sparrows and their allies in the Mediterranean basin. Condor, 71: 129-139.
- PINTO, A. A. DA ROSA. 1967. Geographical variation of the African *Cisticola subruficapilla* (A. Smith), and description of a new subspecies for Angola. Bol. Inst. Invest. Cient. Angola, 4: 7-14.—Review of the species and description of *Cisticola subruficapilla newtoni* subsp. nov. from Major, Moçamedes, Angola.—M.A.T.
- PINTO, A. A. DA ROSA. 1967. Descrição de 4 novas subspecies de Aves de Angola. Bol. Inst. Invest. Cient. Angola, 4: 29-32.—*Mirafra africana anchietae* (Humpata, Huila); *Turdoides melanops angolensis* (Jau, Huila); *Cisticola chimiana huilensis* (Lagoa Ivantala, Huila); and *Sporopipes squamifrons pallidus* (Caraculo, Moçamedes), subspp. nov.—M.A.T.
- PRIGOGINE, A. 1969. Trois nouveaux oiseaux du Katanga, République démocratique du Congo. Rev. Zool. Bot. Afr., 79: 110-115.—During a stay in the vicinity of Lubumbashi (formerly Elizabethville), Congo, the following newly described subspecies were taken in the gallery forest of the Kisanga river: *Phyllastrephus cerviniventris schoutedeni*, *Phyllastrephus terrestris katangae*, and *Cossypha bocagei hallae*. A provisional list of 18 species characteristic of gallery forest and "muhulus" of the area is appended.—E.E.
- SCARLETT, R. J. 1968. An owlet-nightjar from New Zealand. Notornis, 15: 254-266.—A new genus and species, *Megaegotheles novaezealandiae*, described from subfossil bones from a number of New Zealand localities is similar to members of the genus *Aegotheles* but with larger wings.—G.D.S.

- SHORT, L. L., JR. 1969. Relationships among some South American seedeaters (*Sporophila*), with a record of *S. hypochroma* for Argentina. *Wilson Bull.*, 81: 216-219.
- SIBLEY, C. G., K. W. CORBIN, AND J. H. HAAVIE. 1969. The relationships of the flamingos as indicated by the egg-white proteins and hemoglobins. *Condor*, 71: 155-179.
- SIEGFRIED, W. R. 1969. On the validity of *Bubulcus ibis ruficrista* Bp. *Ostrich*, 40: 61-62.—A detailed refutation of Clancey's contention that the African Cattle Egrets are separable from those of the Palaearctic. The outcome of this controversy may affect the nomenclature of the New World populations.—M.A.T.
- SMITH, N. G. 1969. Polymorphism in Ringed Plovers. *Ibis*, 111: 177-188.—Relationships of *Charadrius semipalmatus* and *C. hiaticula* in the eastern Canadian Arctic indicate a single polymorphic species with nonrandom mating.—B.A.H.
- VINSON, J. 1968. La centenaire de la découverte a l'île Maurice des ossements du Dronte ou Dodo *Raphus cucullatus* Linné. *Proc. Royal Soc. Arts and Sci. Mauritius*, 3, pt. 1: 1-5.—An account of the Dodo and the 1865 discovery of a site where many bones were found of this and other extinct animals. The site was drained and filled during World War II, and recently has been bulldozed.—E.E.
- WOLTERS, H. E., AND P. A. CLANCEY. 1969. A new race of Green-headed Oriole from southern Moçambique. *Bull. Brit. Ornithol. Club*, 89: 108-109.—*Oriolus chlorocephalus speculifer* subsp. nov. has a prominent white wing patch.—F.B.G.

OBITUARY

ANGUS MUNN WOODBURY, naturalist, ecologist, ornithologist, and herpetologist, died in an automobile accident near Loveland, Colorado, on August 1, 1964. Born at St. George, Utah, on July 11, 1886, he obtained his B.S. at Brigham Young University in 1927, his M.S. at the University of Utah in 1928, and his Ph.D. at the University of California in 1931. He was employed by the U. S. Forest Service from 1908 to 1920, served as the first naturalist at Zion National Park (summers) 1925 to 1933, was instructor at Dixie College, St. George, 1925 to 1927, and thereafter taught at the University of Utah until his retirement in 1952. From 1952 to 1956 he directed the ecological research project at Dugway, Utah, for the university, and from 1956 to the time of his death, various ecological studies, most notably those of the Upper Colorado River Basin.

The greater part of his writing and research was in ecology and herpetology, but 21 of about 100 titles are devoted to birds. His major papers on birds include two salvaged from a voluminous manuscript compiled on the birds of Utah, coauthored by C. Cottam and J. W. Sugden, which has never been published. The parts extracted were "An annotated check-list of the birds of Utah" (*Univ. Utah Biol. Ser.*, 11: 1-39, 1949) and a paper on the habitats and ecological distribution of the birds in Utah (*Univ. Utah Biol. Ser.*, 12: 1-28, 1962). His "Birds of the Navajo country"