PERIODICAL LITERATURE

EDITED BY HERBERT W. KALE II

Anatomy and Embryology

Barrett, L. A., and S. L. Scheinberg. 1972. The development of avian red cell shape. J. Exp. Zool. 182: 1–13.—A variety of studies, including some utilizing novel *in vitro* techniques, show that the change of erythrocyte form from spherical to flat that follows the final mitotic division is influenced by conditions that affect availability of oxygen.—A.S.G.

Brown, R. D. 1972. Albinism in Slate-colored Juncos. EBBA News 35:155–160.—Discusses albinism in birds and presents specific cases of albinism in *Junco hymenalis*.—A.C.V.

Cowan, P. J. 1972. The contrast and coloration of sea-birds: an experimental approach. Ibis 114: 390–393.—Photographic techniques used to compare mounted birds with white, partially-white, and black undersides against various sky conditions. No simple relationship exists between color and contrast in mounted birds. Angle of the sun seems to be the relevant variable. Suggests more investigations.—R.W.S.

Feduccia, A. 1972. Variation in the posterior border of the sternum in some tree-trunk foraging birds. Wilson Bull. 84: 315–328.

Grey, R. D. 1972. Morphogenesis of intestinal villi. 1. Scanning electron microscopy of the duodenal epithelium of the developing chick embryo. J. Morphol. 137: 193–214.

Hoffman, D. J., and G. M. Ramm. 1972. Physiological effects of trypan blue on chick embryos. J. Exp. Zool. 182: 227–231.—Additional evidence that the dye may interfere with normal oxygen consumption, perhaps by limiting passage of oxygen to lysosomes.—A.S.G.

Karfunkel, P. 1972. The activity of microtubules and microfilaments in neurulation in the chick. J. Exp. Zool. 181: 289–301.

Kilham, L. 1972. Shortness of tail in Red-crowned Woodpeckers and their habit of entering roost holes backward. Condor 74: 202–204.

Kramer, D. C. 1972. A melanistic House Sparrow. Indiana Audubon Quart. 50: 76.—A black *Passer domesticus* seen for several days with normal sparrows near Liberty, Indiana.—H.W.K.

Krishna Biur (nee Bageshwar), and J. P. Thapliyal. 1972. Cranial pneumatization in the Indian Weaver Bird (*Ploeceus philippinus*). Condor 74: 198–200.

Kuroda, N. H. 1971. A myological illustration of *Columba livia* (Appendicular and caudal muscles). Misc. Repts. Yamashina Inst. Ornithol. 6: 321–355.—The 26 pages of line drawings of appendicular and caudal musculature are based on "more than ten examples of . . . Carrier Pigeons killed by cats" studied in 1945–46. Nomenclature follows George and Berger; names used by Kuroda in earlier papers, if different, are given in synonymy. Four minute muscles, one on the wing and three in the caudal region, are tentatively described as new. Brief English summary. Labels on drawings are given in Japanese and Latin and keyed to the numbered list in the text.)—K.C.P.

Lederer, R. J. 1972. The role of avian rictal bristles. Wilson Bull. 84: 193–197.

Markus, M. B. 1972. Notes on the natal plumage of South African passeriform birds. Ostrich 43: 17–22.—Supplements Markus's monograph (University Microfilms M-2297).—R.B.P.

MATULIONIS, D. H. 1972. Analysis of the developing avian glycogen body. 1. Ultrastructural morphology. J. Morphol. 137: 463–482.

MCNEIL, R., AND J. BURTON. 1972. Cranial pneumatization patterns and bursa of Fabricius in North American shorebirds. Wilson Bull. 84: 329–339.

MIDDLETON, A. L. A. 1972. The structure and possible function of the avian seminal sac. Condor 74: 185–190.

NIEBOER, E. 1972. Preliminary notes on the primary moult in Dunlins *Calidris alpina*. Ardea 60: 112–119.—An investigation of geographic origin, age composition, and molt. Discusses the possible importance of the Dutch Wadden Sea as a resting area in which molt can be completed.—N.A.M.V.

NIEDERMAN, R., AND P. B. ARMSTRONG. 1972. Is abnormal limb bud morphology in the mutant *talpid*^{2} chick embryo a result of altered intercellular adhesion? Studies employing cell sorting and fragment fusion. J. Exp. Zool. 181: 17–32.—No.—A.S.G.

RICHARDSON, F. 1972. Accessory pygostyle bones of Falconidae. Condor 74: 350–351.

RIJKE, A. M. 1972. The water-holding mechanism of sandgrouse feathers. J. Exp. Biol. 56: 195–200.

RYDER, J. P., AND D. J. CHAMBERLAIN. 1972. Congenital foot abnormality in the Ring-billed Gull. Wilson Bull. 84: 342–344.

SAWYER, R. H. 1972. Avian scale development. 1. Histogenesis and morphogenesis of the epidermis and dermis during formation of the scale ridge. J. Exp. Zool. 181: 365–383.

SCHLEIDT, W. M., AND M. C. SHALTER. 1972. Cloacal foam gland in the quail *Coturnix coturnix*. Ibis 114: 558.—Renders droppings conspicuous.—R.W.S.

SHLAER, R. 1972. An eagle's eye: Quality of the retinal image. Science 176: 920–922.—The vision of a live African Serpent Eagle, *Dryotriorchis spectabilis*, examined by ophthalomoscopic methods was estimated to be 2.0 to 2.4 times as acute as the best human performance. Eyes of the largest species of eagles may attain 3.0 to 3.6 times human visual acuity.—W.B.R.

SIEGFRIED, W. R. 1971. Moult of the primary remiges in three species of *Streptopelia* doves. Ostrich 42: 161–165.—Individual records for 1,202 *S. semitorquata*, *S. capicola*, and *S. senegalensis* at Stellenbosch show protracted molting seasons of 8 months for each species and of 164–190 days for individuals. Juveniles molt the year around.—R.B.P.

SIMMONS, K. E. L. 1972. Some adaptive features of seabird plumage types. Brit. Birds 65: 465–479, 510–521.—Species are divided among three broad plumage types: wholly or mainly dark, dark above and white below, wholly or mainly white or light gray. Selection is believed to have occurred in the first category chiefly for social inconspicuousness, to reduce competition and interference with skilled solitary hunting, but in some species for hunting camouflage in air-to-air, air-to-surface, and water-to-water feeding, and occasionally to serve both those ends. In the second category, selection was for hunting camouflage during underwater feeding. In the third category, selection in many species favored social conspicuousness, promoting gatherings at food sources, but sometimes for hunting camouflage in plunge-diver situations, and again occasionally for both. Discusses pressures for specific distinctiveness, protective camouflage, display markings, etc.—H.B.

SOUTHERN, W. E., AND F. J. CUTHBERT. 1972. Ring-billed Gull chick (*Larus delawarensis*) with head deformities. Jack-Pine Warbler 50: 92–93.

TAYLOR, W. K., AND B. H. ANDERSON. 1972. Brown Thrasher (*Toxostoma rufum*) with a bill abnormality in Seminole County. Florida Naturalist 45: 129.—Culmen 40 mm, with maxilla projecting 7 mm beyond mandible; tip of tongue and gizzard also showed anomalies.—E.E.

TREE, A. J. 1972. Black-throated forms of *Euplectes ardens* in Zambia and Rhodesia. Ostrich 43: 139–140.

TREE, A. J. 1972. Albinistic Curlew Sandpiper *Calidris ferruginea* at Walvis Bay. Ostrich 43: 176.

TREE, A. J. 1972. Further records of albinism and lutinism in the Eastern Cape. Ostrich 43: 184.

UDVARDY, M. D. F. 1972. Plumage cycles in adult North American birds. Aquilo, Ser. Zool. 13: 56–60.—Defines seven adult plumage categories based on sexual and/or seasonal dichromatism, and classifies the North American bird families on this basis.—G.E.W.

WASHBURN, N. R. 1970. Unusual plumage of a Scarlet Tanager. Kingbird 20: 180.—Variation of xanthochroism in *Piranga olivacea*.—M.C.B.

BEHAVIOR

BJÄRVALL, A. 1970. Nest-site selection by the Mallard (*Anas platyrhynchos*). A questionnaire with special reference to the significance of artificial nests. Viltrevy [Swedish Wildl.] 7: 151–182.—Long narrow baskets, placed with their long axis horizontally in an elevated position, over land or water on a pole, tree, or stump, were given to country residents in various parts of Sweden. This paper reports and analyzes 167 Mallard nestlings, 90 of which were in the baskets. The experiment was based on the assumption that elevated and covered nests are more predator proof than open and ground nests. Mallards are known to nest in tree hollows and other elevated sites and this study contributes two important factors toward understanding this nesting habit. First, tagging shows that the habit is neither innate nor imprinted, but varies even within the same hen from year to year. Second, observations of nest site selection behavior lead to the following assumption: The hen leads the nest site search by low flight and by walking and running long distances, even outside the pair's territory. Upon being attacked and chased by the resident drake in a strange territory the harrassed hen often alights aloft where the territory owner does not follow her. Ducks that thus spend some time on trees, roofs, etc. during their nest site search, are attracted by elevated potential nest sites. The highest level of disturbance from other pairs was expected to occur where population density in spring is highest, and the survey indirectly verifies this assumption. In the areas where Mallards also winter, two out of three reports indicated use of the baskets, while in other parts of Sweden, with a migratory population, only about 50% of the nestlings were in baskets.—M.D.F.U.

BROOKE, R. K. 1972. A communal roost of the Common Sandpiper. Ostrich 43: 131.—*Tringa hypoleucos* were attacked by roosting birds when they tried to land in their midst but were tolerated if they approached from the side.—R.B.P.

BROWN, L. H. 1972. Partial burying of eggs by Blacksmith Plover. Ostrich 43: 130.—*Vanellus armatus* shielded its eggs with buffalo and lechwe dung in midday.—R.B.P.

DUNN, E. K. 1972. Effect of age on the fishing ability of Sandwich Terns *Sterna sandvicensis*. Ibis 114: 360–366.—Data suggest that during their first year the young terns feeding at Sierra Leone gradually develop the judgment and skill

necessary to dive profitably from increasing heights and so learn to exploit prey in a greater range of water depth.—R.W.S.

FARBER, H. 1972. Evidence of two Tree Swallows sharing the same nest box. Wilson Bull. 84: 204.

FEDUCCIA, A. 1972. The daily cycle of wintering Sissor-tailed [sic] Flycatchers in the San Jose area of Costa Rica. Southwestern Naturalist 17: 296–297.—Describes the morning exodus and evening return of *Muscivora forficata*.—J.J.D.

GARBER, D. P., AND J. R. KOPLIN. 1972. Prolonged and bisexual incubation by California Ospreys. Condor 74: 201–202.

GILLON, Y. 1972. The effect of bush fire on the principal acridid species of an Ivory Coast savanna. Proc. Ann. Tall Timbers Fire Ecol. Conf. 11: 419–471.—Pp. 434–436: Includes predation by raptorial birds. Lists mostly Orthopterans, mainly macropterous, found in stomach contents of *Butastur rufipennis* and *Milvus migrans*, both of which feed during burns. Mentions other raptors and nonraptorial birds known to feed on acridids. Includes a picture of kites "hawking" a January fire.—W.W.B.

GRUBB, T. C., JR. 1972. Smell and foraging in shearwaters and petrels. Nature 237: 404–405.—In tests in the Bay of Fundy, sponges soaked in either cod liver oil or seawater and mounted so they were 1 m above the ocean surface were towed behind a boat. Wilson's Petrels and Greater Shearwaters approached the oil-soaked sponge significantly more often ($P < 0.01$ and < 0.025 respectively). Gannets, gulls, Artic Terns, and Common Puffins in the area ignored the experiment. Shearwaters and petrels are able to trace an odor to its source by olfactory cues alone and no doubt use this ability to locate food.—W.B.R.

SCHORRE, B. 1972. Anna's Hummingbird. Pacific Discovery 25 (5): 20–24.—Photographic essay follows mother-young behavior from 1-day-old nestlings to fledging.—J.T.D.

SJÖLANDER, S., AND G. ÅGREN. 1972. Reproductive behavior of the Common Loon. Wilson Bull. 84: 296–308.

SKEAD, C. J. 1971. Use of tools by the Egyptian Vulture. Ostrich 42: 226.—An old newspaper report (7 October 1867) by "an old sportsman" gives a first-hand report of *Neophron percnopterus* using stones to break ostrich eggs in Namaqualand! Jane Goodall, where were you?—R.B.P.

SLATICK, E. R. 1972. A look at ducks. Pennsylvania Game News 43: 24–27.—Diving, molting, and feeding adaptations of puddle ducks (Mallard) and diving ducks (Canvasback). Includes hunting statistics.—J.T.D.

SMITH, C. R., AND M. E. RICHMOND. 1972. Factors influencing pellet egestion and gastric pH in the Barn Owl. Wilson Bull. 84: 179–186.

SMITH, D. G., C. R. WILSON, AND H. H. FROST. 1972. The biology of the American Kestrel in central Utah. Southwestern Naturalist 17: 73–83.—A study of the habitat, population density, nest sites, productivity, care of the young, and food habits of *Falco sparverius*.—J.J.D.

SOSSINKA, R. 1972. Besonderheiten in der sexuellen Entwicklung des Zebrafinken *Taeniopygia guttata castanotis* (Gould). J. Ornithol. 113: 29–36.—The development of the Zebra Finch and comparisons with temperate zone passerines. Males mature sexually as early as 10 weeks of age. (English summary.)—H.C.M.

SPOFFORD, S. H. 1970. Winter roosting of Cedar Waxwings. Kingbird 20: 72–73.—*Bombycilla cedrorum* roosted deep inside *Thuja occidentalis* in central New York state.—M.C.B.

STOCEK, R. F. 1972. Copulation in the Tree Sparrow. EBBA News 35: 163–165.

TERHUNE, E. C. 1972. Operant conditioning as a means of testing the ability of White-crowned Sparrows to discriminate star patterns. J. Exp. Biol. 56: 755–768. —Wild-caught *Zonotrichia leucophrys* were successfully conditioned to hop to one of two perches. None of five subjects showed evidence of learning to discriminate between two star patterns; one may have learned to discriminate two larger signal lights.—A.S.G.

TRUETT, E. A., III, AND J. A. BAILEY. 1973. Observations at a nest of a Giant Canada Goose at Noxubee National Wildlife Refuge. Mississippi Kite 3: 6–11.

VAN NIEROP, S. F. 1972. Precopulatory behaviour in the Whitebacked Mousebird. Ostrich 43: 180.—Possible courtship feeding.—R.B.P.

VERNON, C. J. 1972. *Chlorocichla flaviventris* perching on *Sylvicapra grimmia*. Ostrich 43: 137.

VERNON, C. J. 1971. Juvenile *Pachycoccyx audeberti* with *Prionops retzii*. Ostrich 42: 298.—Thick-billed Cuckoo fed by members of a flock of adult Helmet Shrikes. —R.B.P.

VERNON, C. J. 1972. The call of the Three-banded Courser. Ostrich 43: 68.—"wick wicker wicker wick wick wick. . .ick ick. . .ck k."—R.B.P.

WARD, P. 1972. The functional significance of mass drinking flights by sandgrouse: Pteroclididae. Ibis 114: 533–536.—Food information transfer.—R.W.S.

WEISBROD, A. R. 1970. A response to mobbing crows by an immature Red-tailed Hawk. Kingbird 20: 70–71.

WILSON, E. O. 1972. Animal Communication. Sci. Amer. 227 (3): 52–60.—Discusses animal "language" by chemicals, social displays, and sounds. Lists the number of displays in the repertory of fishes, mammals, and 10 species of birds. Also treats the process of ritualization.—J.T.D.

WINKEL, W. 1972. Beobachtungen zum Abwehrverhalten ("Zischen") nestjunger Meisen (*Parus* spp.). Die Vogelwelt 93: 68–71.—Occurrence of the hiss-display in six European species of nestling tits. (English summary.)—N.A.M.V.

DISTRIBUTION AND ANNOTATED LISTS

ANDRLE, R. F. 1971. Apparent Goldeneye nest at Buffalo, New York. Kingbird 21: 212–214.—Photos.

APPERT, O. 1972. Beobachtungen über *Thamnornis* und die übrigen Sylviidae der Mangokygegend in Südwest-Madagaskar. J. Ornithol. 113: 76–84.—Observations of the distribution, ecology, and behavior of four Sylviidae on Madagascar: *Calamocichla newtoni*, *Nesilla typica*, *Thamnornis chloropetoides*, and *Cisticola cherina*.—H.C.M.

ARBIB, R. S., JR. (Ed.) 1972. A selection of winter range maps. Amer. Birds 26: 537–546.—Ten maps, based on Christmas bird count data, and prepared by different contributors, show early winter distribution (22 Dec. 1970–3 Jan. 1971) of 10 species.—E.E.

AXELL, H. E., AND G. J. JOBSON. 1972. Savi's Warblers breeding in Suffolk. Brit. Birds 65: 229–232.—Summary of records since 1960, when first breeding birds in more than a century were discovered.—H.B.

BARNHILL, M. V., III. 1972. A tentative DOS Delaware list. Delmarva Ornithol. 7: 16–19.—Lists 351 species, 269 of which are verified by specimens or publicly available photographs.—J.P.H.

BAYLIS-SMITH, T. P. 1972. The birds of Ontong Java and Sikiana, Solomon

Islands. Bull. Brit. Ornithol. Club 92: 1–9.—Adds twelve birds to the list from Ontong Java, and 10 to the list from Sikiana.—F.B.G.

BELKNAP, J. B. 1970. The Golden-winged Warbler in northern New York. Kingbird 20: 117.—*Vermivora chrysoptera* appears to be extending its range into Jefferson and St. Lawrence counties.—M.C.B.

BELTON, W. 1972. [White-tailed Kite in Rio Grande do Sul.] Amer. Birds, 26: 565.—Unrecorded prior to 1960 this kite is now common in cleared areas of Rio Grande do Sul, Brazil.—E.E.

BENSON, C. W., AND M. P. STUART IRWIN. 1971. A South African male of *Sarothrura ayresi*, and other specimens of the genus in the Leiden Museum. Ostrich 42: 227–228.—R.B.P.

BORRETT, R. P. 1972. The Terek Sandpiper *Tringa terek* in Rhodesia. Ostrich 43: 130.—First sight record.—R.B.P.

BOURNE, W. R. P. 1971. The birds of the Chagos Group, Indian Ocean. Atoll Res. Bull. No. 149: 175–207.—Casual observations over the past century have recorded about 50 species on or near this complex of low islands in the central Indian Ocean but the identity of many pelagics (particularly petrels) remains in doubt. Large seabird colonies probably persist on outlying islets but few precise data are available. The only endemic is a weakly marked race of *Butorides striatus*. The land birds are all introduced (2 doves, 2 ploceids, Indian Mynah), early deforestation having probably eliminated any indigenous species. Various migrant land birds doubtless occur but records are sketchy. Notes many areas needing study.—W.B.R.

BOYER, G. F., with addenda by A. J. ERSKINE AND A. D. SMITH. 1972. Birds of the Nova Scotia-New Brunswick border region. Canadian Wildl. Serv. Occ. Pap. No. 8, second ed.: 46 pp. (Information Canada, Ottawa, Cat. No. CW69–1/8. No price given.)—The late George Boyer's 1966 paper is reissued with the following addenda: 21 additional species, 22 showing change in status, 9 recently wintering, and 15 with longer reported seasons of occurrence.—R.S.P.

BROOKE, R. K., AND P. HOUGAARD. 1971. The Madagascar Bee-eater breeding in Rhodesia. Ostrich 42: 230.—*Merops s. superciliosus* in sandy bank of Zambezi River near Mana Pools in Urungwe district give first breeding record for Rhodesia. —R.B.P.

BROOKS, E. W. 1971. Clay-colored Sparrow nesting in western New York. Kingbird 21: 68–69.—*Spizella pallida* nested in a Scotch pine plantation near Alfred in 1970.—M.C.B.

BROWNING, M. R., AND W. W. ENGLISH. 1972. Breeding birds of selected Oregon coastal islands. Murrelet 53: 1–7.

BUCKLEY, P. A., AND P. W. POST. 1970. Photographs of New York state rarities. 20. Bell's Vireo. Kingbird 20: 57–60.—Mist-netted and photographed by Wilcox in Suffolk County 25 September 1959. Reviews records of *Vireo bellii* from 1897 to 1959 east of Illinois/Indiana.—M.C.B.

CRAIG, J. T. 1972. Two fall Yellow-throated Warblers in California. California birds 3: 17–18.

CYPERT, E. 1971. Scarlet Ibis at Okefenokee National Wildlife Refuse. Oriole 36: 22–23.—Substantiated by color photographs.—E.F.P.

DAVIS, T. H., AND P. A. BUCKLEY. 1970. 1969–1970 Common Murre records from Long Island, New York. Kingbird 20: 71–72.—Most records of *Uria aalge* are in late January and February, indicating possible seasonal movement well offshore.—M.C.B.

DAVIS, T. H., JR., AND L. MORGAN. 1971. Highlights of the winter season—Region 10—Marine. Kingbird 21: 102.—First New York state record for Ash-throated Flycatcher (*Myiarchus cinerascens*) 22–24 November 1970 (Corrigendum Kingbird 21: 246) at Larchmont, Westchester County.—M.C.B.

DOWSETT, R. J. 1971. The Lesser Grey Shrike *Lanius minor* in Africa. Ostrich 42: 259–270.—Lists observations and specimen records to document wintering and migration.—R.B.P.

ECKERT, J. 1972. Extension of range of the Brush Bronzewing [*Phaps elegans*]. Emu 72: 23–24.

EDWARDS, K. R., AND K. C. OSBORNE. 1972. Hooded Warbler in the Isles of Scilly: a species new to Britain and Ireland. Brit. Birds 65: 203–205.

ELEY, T. J., JR., AND C. L. ELEY. 1972. Use of Crater Lake by waterfowl. Murrelet 53: 27.

ELLIOTT, C. C. H. 1972. An ornithological survey of the Kidepo National Park, northern Uganda. J. East Africa Nat. Hist. Soc. Nat. Mus. 28 (129): 1–31.—Results of observations and mist netting July to September 1966, in the northeastern corner of Uganda. Lists ca. 400 species including 1 species (*Merops orientalis*) and 8 subspecies found for first time in Uganda as well as notes on possible new races of three other species. Each species is reported as present or absent in each of 13 habitats (excluding a few species seen by other observers). Habitat distribution records suggest that *Vidua hypocherina* may parasitize *Estrilda erythronotus*; no indigobirds were seen.—R.B.P.

ELY, C. A., AND R. S. CROSSIN. 1972. A northerly wintering record of the Elf Owl (*Micrathene whitneyi*). Condor 74: 215.

ERSKINE, A. J. 1971. Fox Sparrow summering in Abitibi County, Quebec. Tchebec 1: 97–98.

EVERY, B. 1972. House Sparrows on Bird Island, Algoa Bay. Ostrich 42: 131–132.—Off Port Elizabeth, Cape Province.—R.B.P.

FORRESTER, A. K. 1972. Some unusual vagrants at Kleinzee, Namaqualand. Ostrich 43: 186–187.—*Anas clypeata*, *Actophilornis africanus*, and *Columba arquatrix*. —R.B.P.

GATTER, W. 1972. Über das Auftreten des Zwergschnäppers (*Ficedula parva*) in Europa und Afrika westlich des Brutareals. Vogelwelt 93: 91–98.—The occurrence of the Red-breasted Flycatcher in Europe and Africa, west of its normal range. (English summary.)—N.A.M.V.

GIBSON, D. D. 1972. Sight records of two birds new to interior Alaska. Murrelet 53: 31–32.—*Larus delawarensis* and *Quiscalus quiscula* seen at Fairbanks.—A.C.V.

HEIGHAM, J. B., AND J. P. GEE. 1970. Lesser Grey Shrike at Lagos: a species new to Nigeria. Nigerian Ornithol. Soc. Bull. 7: 36.—Specimen of *Lanius minor*. —M.H.C.

HENRY, C., P. HENRY, J. HESSE, AND B. LUNAIS. 1971. Contribution à la connaissance de l'avifaune du Loir-et-Cher (Régions de Blois et de la Sologne). Oiseau 41: 94–116.—Systematic list and status of the species.—A.C.

HOLMBRING, J. Å. 1972. [The immigration and dispersal of the Thrush Nightingale, *Luscinia luscinia*, in Östergötland, south central Sweden.] Vår Fågelvärld 31: 16–19.—From only two records during the 19th century, the species showed a spectacular increase during the 1940s and 1960s. (In Swedish, English summary.)—L.DEK.L.

JACKSON, J. A. 1973. First record of the Red Crossbill in Mississippi. Mississippi Kite 3: 3–4.—Male specimen, 29 October 1972.—J.A.J.

JOHNSON, E. D. H. 1972. Observations on the birds of the Upper Blue Nile Basin. Bull. Brit. Ornithol. Club 92: 42–49.—Notes on occurrence and in some cases ecology of uncommon species.—F.B.G.

JULIAN, W. H. 1972. Swallow-tailed Kite seen at Blackwater Refuge. Maryland Birdlife 28: 104.—Second Maryland record in this century—31 May 1972.—H.B.

KEMP, A. C. 1972. A further southern African report of the American Pectoral Sandpiper. Bull. Brit. Ornithol. Club 92: 23.—A third specimen is in the Transvaal Museum.—F.B.G.

KING, B., AND R. M. CURBER. 1972. Great Blue Herons coming on board ships in mid-Atlantic. Brit. Birds 65: 442–443.—In October 1968.—H.B.

KOEPCKE, M. 1971. *Zonotrichia capensis markli* nov. subspec. (Fringillidae, Aves), una raza geográfica nueva del Gorrión Americano de la costa norte del Perú. Publ. Mus. Hist. Nat. "Javier Prado", Zool. Ser. A. No. 23: 1–11.—A new race of Rufous-collared Sparrow from the dry coastal lowlands of northwestern Peru, Department of Piura (known only from the valleys of Río Chira and Río Piura). This form is characterized by very pale color (resembling the distant *insularis* of Curaçao), and has spread and become common very recently with the expansion of cotton plantations. (English summary; description and diagnosis in German.)—E.E.

MUNTEANU, D. 1972. A recent record of Bonelli's Warbler in Rumania. Bull. Brit. Ornithol. Club 92: 31–32.—*Phylloscopus bonelli orientalis* has not been collected in Rumania for 80 years.—F.B.G.

NEWELL, J. G. 1971. Parasitic Jaeger in Oklahoma City. Bull. Oklahoma Ornithol. Soc. 4: 21–24.

NOBLE, M. D. 1972. Blue Geese observations in British Columbia. Murrelet 53: 13.

OHLENDORF, H. M., AND V. BOARD. 1972. Nesting records for two species of birds in Trans-Pecos, Texas. Southwestern Naturalist 17: 99–100.—Mississippi Kite and Green-tailed Towhee.—J.J.D.

OUELLET, H. 1971. Un autre Ibis luisant au Québec. Tchebec 1: 96.

PASQUIER, R. 1970. Black-throated Gray Warbler at Central Park, New York, N. Y. Kingbird 20: 117.—Sight record of *Dendroica nigrescens* 24 May 1970.—M.C.B.

PLYMIRE, M. 1972. Glaucous Gull winter resident at Chestertown. Maryland Birdlife 28: 43–44.—For at least two winters a bird has frequented the same river piling.—H.B.

POST, P. W. 1970. Another New York state Townsend's Warbler. Kingbird 20: 117–118.—At Jamaica Bay Wildlife Refuge 9 May 1970. Reviews records of *Dendroica townsendi* east of the Mississippi 1927–70.—M.C.B.

POWERS, L. 1971. Blue Grosbeak in Idaho. Murrelet 52: 26.

PULESTON, D. 1970. First recorded nesting of the Cattle Egret in New York state. Kingbird 20: 178–179.—On Gardiner's Island, Suffolk County in 1970.—M.C.B.

PURDUE, J. R. 1969. The Western Sandpiper in Oklahoma. Bull. Oklahoma Ornithol. Soc. 2: 17–21.

QUICKELBERGE, C. D. 1972. Status of the European Starling at its present approximate eastern limits of spread. Ostrich 43: 179–180.

RICHARDSON, F. 1971. Birds of Grant Bay and Browning Inlet, Northwest Vancouver Island, British Columbia; a year's phenology. Murrelet 52: 29–40.

ROSS, G. J. B. 1972. Immature Grey-headed Albatross *Diomedea chrysostoma* at Maitland River mouth, Eastern Cape. Ostrich 43: 136.

ROWLETT, R. A. 1972. First records of the Limpkin in the mid-Atlantic states (Maryland and Virginia). Maryland Birdlife 28: 3–6.—At Lily Pons, Maryland, 25 May–8 June 1971, and Lynchburg, Virginia, 20 April–9 June 1971.—H.B.

SALVAN, J. 1972. Statut, recensement, reproduction des oiseau dulçaquicoles aux environs de Tananarive. Oiseau 42: 35–51.—A systematic list, including a study of water birds during a 2-year tour in the vicinity of Tananarive, Madagascar. Since 1945 many species have undergone changes in status and number. Author urges protection of birds should be undertaken by concerned authorities. (English summary.)—A.C.

SANGER, G. A. 1972. Checklist of bird observations from the Eastern North Pacific Ocean, 1955–1967. Murrelet 53: 16–21.

SCHREIBER, R. K. 1972. Recent sightings of Blue Geese in Washington. Murrelet 53: 36–37.

SCOTT, J. A. 1972. Woolly-necked Stork breeding in Rhodesia. Ostrich 43: 68.—First breeding record for *Dissoura episcopus*, in Chippinga District.—R.B.P.

SEYFFERT, K. D. 1972. Discovery of the Verdin in southwestern Oklahoma. Bull. Oklahoma Ornithol. Soc. 5: 9–12.

SHARLAND, R. E. 1972. Olive-tree Warbler *Hippolias olivetorum* at Kano: a species new to West Africa. Nigerian Ornithol. Soc. Bull. 9: 11.—Single bird netted in Nigeria 22 October 1971 after a period of easterly winds; banded and released.—M.H.C.

SHARROCK, J. T. R. 1972. Scarce migrants in Britain and Ireland during 1958–67. Brit. Birds 65: 381–392.—Discusses Yellow-browed Warbler and Richard's Pipit.—H.B.

SHARROCK, J. T. R., AND K. PRESTON. 1972. Red-eyed Vireo in County Cork. Brit. Birds 65: 400–401.—On 6 October 1967.—H.B.

STEYN, P. 1972. Some Black Harrier records. Ostrich 43: 182–183.—*Circus maurus* in South Africa.—R.B.P.

STJERNSTEDT, R. 1972. Some lowland forest birds in southern Tanzania. Bull. Brit. Ornithol. Club 92: 10–11.—Removes sight record of *Bessornis anomala* from list of evergreen forest birds in *Brachystegia*.—F.B.G.

SUTTON, G. M. 1969. The Red Phalarope in Oklahoma. Bull. Oklahoma Ornithol. Soc. 2: 26–28.

SUTTON, G. M. 1971. The Black-throated Blue Warbler in the southwestern United States. Bull. Oklahoma Ornithol. Soc. 4: 11–15.—Records suggest that *Dendroica caerulescens* has a continental winter range.—A.C.V.

SVENSSON, S. 1972. [The Heron *Ardea cinerea* in Sweden 1970.] Vår Fågelvärld 31: 28–31.—A census established the species' most northerly distribution on a line through central Sweden. (In Swedish, English summary.)—L.DEK.L.

THIEDE, W. 1972. Bemerkenswerte faunistische Feststellungen 1968/69 in Europa. Vogelwelt 93: 109–116, 142–150.—Compilation of unusual bird records in Europe in 1968/69.—N.A.M.V.

TREACY, E. D. 1970. Highlights of the summer season Region 9—Delaware–Hudson. Kingbird 20: 202.—First breeding record of the Goshawk (*Accipter gentilis*) in Dutchess County, New York. Two fledglings were produced.—M.C.B.

TREACY, E. D. 1970. Great Cormorant at Cornwall-on-Hudson. Kingbird 20:

70.—First inland New York specimen of *Phalacrocorax carbo* 19 October 1969.—M.C.B.

TREE, A. J. 1972. Ornithological comparison between differing dry seasons at a pan in Botswana. Ostrich 43: 165–168.—Compares bird distribution in Ngamiland in a wet year and a dry year.—R.B.P.

TREE, A. J. 1972. European Sedge Warbler *Acrocephalus schoenobaenus* in Eastern Cape. Ostrich 43: 176.—First record for Cape Province based on close-up observation and song.—R.B.P.

TREE, A. J. 1972. The Black Tern *Chlidonias nigra* at Walvis Bay. Ostrich 43: 180.

TREE, A. J. 1972. Pectoral Sandpiper *Calidris malanotus* in Botswana. Ostrich 43: 184.—Netted and photographed (not shown), first record for Botswana (Mwaku Pan).—R.B.P.

VARONA, L. S., AND O. H. GARRIDO. 1970. Vertebrados de los Cayos de San Felipe, Cuba, incluyendo una nueva especie de Jutia. Poeyana, No. 75, 26 pp.—This preliminary account of the fauna of islands located between the Isle of Pines and the south coast of Pinar del Rio Province includes a briefly annotated bird list of 34 species.—W.B.R.

WALLACE, D. I. M. 1972. Northern Waterthrush in the Isles of Scilly. Brit. Birds 65: 484–485.—3–8 October 1968.—H.B.

WARNCKE, K. 1972. Beitrag zur Vogelwelt der Türkei im Bereich der Südgrenze. Vogelwelt 93: 23–26.—New and supplementary bird records from the south of Turkey. (English summary.)—N.A.M.V.

WAUER, R. H., AND J. F. SCUDDAY. 1972. Occurrence and status of certain Charadriiformes in the Texas Big Bend country. Southwestern Naturalist 17: 210–211.—Records of nine shorebirds.—J.J.D.

WETMORE, A., AND P. GALINDO. 1972. Additions to the birds recorded in Panama. Proc. Biol. Soc. Washington 85: 309–312.—The Choco Tinamou (*Crypturellus kerriae*) and Purple Honeycreeper (*Cyanerpes caeruleus chocoanus*), known previously from Choco in northwestern Columbia, are now recorded in the Province of Darien.—H.W.K.

WHITE, C. M. 1972. *Falco peregrinus pealei* in Ohio—an error. Ohio J. Sci. 72: 153–154.—It was really *F. p. anatum*.—A.S.G.

WILBUR, S. R., AND C. F. YOCOM. 1971. Unusual geese in the Pacific Coast states. Murrelet 52: 16–19.—Presents updated distribution records of *Branta bernicla hrota, B. bernicla orientalis, B. ruficollis, Anser canagicus, A. coerulescens coerulescens, A. rossii, A. albifrons gambelli, A. indicus*, and *Alopochen aegyptiacus*. —A.C.V.

WINTERBOTTOM, J. M. 1972. The ecological distribution of birds in southern Africa. Monogr. Percy FitzPatrick Inst. African Ornithol. No. 1, 82 pp.—Describes 54 habitats, some of them agricultural, and lists the characteristic birds of each. A well-documented summary of local habitat distribution.—R.B.P.

WINTERBOTTOM, J. M. 1972. Status of the Lark-like Bunting in the south-west Cape. Ostrich 43: 133.—*Emberiza impetuani* is a breeding summer migrant.—R.B.P.

WINTERBOTTOM, J. M. 1972. Note on altitude as a factor in bird distribution. Ostrich 43: 133–134.—Some species live at sea level at high latitudes but on mountains at low latitudes.—R.B.P.

WINTERBOTTOM, J. M. 1972. Sharpe's Catalogue. Ostrich 43: 185.—Winterbottom corrects some oversights in his check list of birds of South West Africa (1971) by referring to Sharpe.—R.B.P.

WINTERBOTTOM, J. M. 1972. Range of the Hadeda. Ostrich 43: 186.—Range extensions in Cape Province.—R.B.P.

YUNICK, R. P. 1972. Photographs of New York state rarities. 21. Great Gray Owl. Kingbird 22: 5–7.—Reviews records of *Strix nebulosa*, 1875–1971.—M.C.B.

ZEILLEMAKER, C. F. 1971. Chestnut-sided Warbler in Oregon. Murrelet 52: 27.

ECOLOGY AND POPULATION

BAILEY, R. S., AND W. R. P. BOURNE. 1972. Notes on sea-birds. 36. Counting birds at sea. Ardea 60: 124–127.—Stresses need for uniformity of counting methods of birds at sea, so that data obtained by different observers and in different sea areas are comparable. Provides guide lines for counting birds at sea.—N.A.M.V.

BERTHOLD, P., E. GWINNER, AND H. KLEIN. 1972. Circannuale Periodik bei Grasmücken. 1. Periodik des Körpergewichtes, der Mauser und der Nachtunruhe bei *Sylvia atricapilla* und *S. borin* unter verschiedenen konstanten Bedingungen. J. Ornithol. 113: 170–190.—Of 56 birds of the two species, most individuals hand-reared, all but 9 birds exhibited circannual rhythms under constant laboratory conditions for 3 years. The period was about 320 days, a sufficient deviation from 365 to essentially rule out unknown environmental factors. Garden Warblers showed reasonably regular cycles in body weight, molt, and nocturnal restlessness. Blackcaps were considerably less regular and did not show good cycles in molt and restlessness. (English summary.)—H.C.M.

BEUSEKOM, C. F. VAN. 1972. Ecological isolation with respect to food between Sparrowhawk and Goshawk. Ardea 60: 72–96.—The hawks occupy similar habitats and use similar hunting methods. *Accipiter gentilis* takes larger prey items but its food overlaps in part with that of the smaller *A. nisus*. After dividing the prey species into seven weight classes, the author calculated the average consumption per weight class from the joint food supply and found that the two species occupy nearly separate niches. Prey selection in the two species tends to be complementary, so that together they sample the whole range of prey sizes in any habitat. The paper briefly mentions sexual dimorphism.—N.A.M.V.

BRITTON, P. L. 1972. Weights of African bulbuls (pycnonotidae). Ostrich 43: 23–42.—Comprehensive catolog of weights of birds banded by Britton and banded or collected by many others. The author compares weights of sympatric competing species, of forms in sympatry and allopatry (no character displacement was noted), of altitudinally replacing populations within a species, of superspecies member populations, of sexes, and of seasonal breeders. *Pycnonotus barbatus* in western Kenya appears to lose weight through its molt.—R.B.P.

BROWN, L. H., AND T. J. CADE. 1972. Age classes and population dynamics of the Bateleur and African Fish Eagle. Ostrich 43: 1–16.—Using described plumage classes as age characters (although "The age at which Bateleurs [and eagles] assume the fully adult plumage is not precisely known"), sight observations and identification of plumage classes in the field indicate long lives for *Terathopius ecaudatus* and *Haliaetus vocifer*. From frequencies of plumage types the authors estimate adult annual survival rates of 94–97% for Bateleurs and 94–96% for fish eagles. The annual productivity of young estimated to be necessary to maintain the population is about 0.5 young/pair, and nesting records show this number is met. But the authors could not determine what proportion of adults actually nested. In six African eagle species, body size of adults was related directly to

estimated adult lifetime and indirectly to number of young per year per nesting pair.—R.B.P.

BUNN, D. S. 1972. Regular daylight hunting by Barn Owls. Brit. Birds 65: 26–30.

CALDWELL, L. D. 1972. Diurnal hunting by a Barred Owl. Jack-Pine Warbler 50: 93–94.—*Strix varia* appeared to be eating grasshoppers.—W.T.V.

CHOUSSY, D. 1970. Comportement prénuptial du Moyen-Duc *Asio otus*. Nos Oiseaux 331: 265–266.

COOPER, J. 1971. The breeding of the Fiscal Shrike in southern Africa. Ostrich 42: 166–174.—Analysis of 1,147 nest records shows little geographic variation in season or clutch size, except that birds in the southwestern Cape breed with winter rains and all other birds breed with spring and summer rains. More than one successful brood per year is rare.—R.B.P.

DE VILLIERS, J. S. 1972. The Yellowbilled Kite in South West Africa. Ostrich 43: 136.—5,000 *Milvus migrans parasiticus*.—R.B.P.

DEXTER, R. W. 1971. Shift of mates during nesting of chimney swifts. Bird-Banding 42: 125.—Two male *Chaetura pelagica* changed mates after nest building was completed, the first female of one becoming the second female of the other.—B.G.M.

DINGLE, H., AND C. P. M. KHAMALA. 1972. Seasonal changes in insect abundance and biomass in an East African grassland with reference to breeding and migration in birds. Ardea 60: 216–221.

GARGETT, V. 1972. Black Eagle *Aquila verreauxi* population dynamics. Ostrich 43: 177–178.—Population at Matopos appears to be decreasing.—R.B.P.

GEIS, A. D., R. I. SMITH, AND J. P. ROGERS. 1971. Black Duck distribution, harvest characteristics, and survival. Spec. Sci. Rept.—Wildl. No. 139, Bureau Sport Fisheries & Wildl., Washington, D. C., 241 pp.—Analysis of data from nearly 265,000 Black Ducks banded before 1961. Presents distribution of hunting kill, band recovery rates, and mortality rates for each reference area of banding. The continental population declined greatly between 1952 and 1962, probably due to a high rate of kill that has also prevented its recovery. Half of the total annual deaths of birds alive in late summer was due to hunting mortality. This mortality occurred largely in addition to, rather than in place of, nonhunting mortality. A comprehensive report with 66 tables, 21 figures, and an appendix. —H.W.K.

GOERTZ, J. W., AND K. RUTHERFORD. 1972. Adult Carolina Chickadee carries young. Wilson Bull. 84: 205–206.

GREEN, R. O., JR., D. REED, AND M. H. WRIGHT, JR. 1972. Graceful aerialist of the Everglades. Natl. Geogr. 142: 496–505.—Observations on the Swallow-tailed Kite (*Elanoides forficatus*) conducted over a 6-week period. Reports behavior and activity of birds from 2-week-old nestlings through fledging.—J.T.D.

GÜTTINGER, H. R., AND J. ACHERMANN. 1972. Die gesangsentwicklung des Kleinelsterchens (*Spermestes cucullata*). J. Ornithol. 113: 37–48.—Wild-caught Bronze Mannikins and individuals reared in captivity in the absence of conspecifics had songs that contained two similar elements that appear to be derived from the species "flight call" and "distance call." Two of 15 wild-caught, and all 4 birds reared in isolation, produced a third element. The sequence of elements in the song varied greatly between all birds. (English summary.)—H.C.M.

GWINNER, E., P. BERTHOLD, AND H. KLEIN. 1972. Untersuchungen zur Jahresperiodik von Laubsängern. 3. Die Entwicklung des Gefieders, des Gewichts und

der Zugunruhe südwestdeutscher und skandinavischer Fitisse (*Phylloscopus trochilus* und *Ph. t. acredula*). J. Ornithol. 113: 1–8.—Nestling Willow Warblers from northern Sweden and southwestern Germany were brought into the laboratory and kept on long or short photoperiods. The northern race molted earlier, showed earlier increase in weight, and earlier onset of migratory unrest than the southern race under all experimental regimes. (English summary.)—H.C.M.

HARWIN, R., AND J. HARWIN. 1972. Raptor territories at Cathedral Peak, Natal. Ostrich 43: 73–76.—Two-week study of 14 square miles of sandstone foothills revealed 6 pairs of *Buteo rufofuscus*, 1 of *Aquila verreauxi*, and 1 *Falco tinnunculus*. *Buteo buteo* may have resided also.—R.B.P.

HUSSELL, D. J. T. 1972. Factors affecting clutch size in Arctic passerines. Ecol. Monogr. 42: 317–364.—Lack's hypothesis that clutch size is determined by the ability of adults to feed young is tested on the basis of investigations of clutch size and breeding biology in the Lapland Longspur (*Calcarius lapponicus*) and Snow Bunting (*Plectrophenax nivalis*) in the Arctic and in allied subarctic and temperate species. Clutch size is negatively correlated with adults' night rest period in the Arctic. Lapland Longspurs clutches in Canada were larger at high latitudes and at localities with early breeding seasons. Clutch size and latitude were not significantly related at those localities where adult activity is unrestricted by daylength. Hatching of both species on Devon Island, Northwest Territories, corresponded with insect emergence. More young fledged from experimental Snow Bunting clutches of seven than from smaller broods, but adults visited such nests more often, weighed less, and visiting rate per young was lower. The author concludes clutch size is determined by effects that changes in it and reproductive strategy have on survival of both adults and offspring. —C.R.B.

KING, J. R. 1972. Variation in the song of the Rufous-collared Sparrow, *Zonotrichia capensis*, in northwestern Argentina. Z. Tierpsychol. 30: 344–373.—Most individuals sang only one "theme" throughout the breeding season. A weak correlation was demonstrated between theme frequency and some habitats. Variation in dialect was associated with geographic variation in size of birds, although all birds were in the subspecies *hypoleuca*. Temporal variation in theme was attributed to movements of birds in or out of an area, rather than individual changes.—H.C.M.

KEPLER, C. B. 1972. Notes on the ecology of Puerto Rican Swifts, including the first record of the White-collared Swift *Streptoprocne zonaris*. Ibis 114:541–543. Relates distribution of swifts to insect abundance.—R.W.S.

KLINGENSMITH, C. 1970. A population index of breeding birds in Allegany County [New York]. Kingbird 20: 163–168.—Adapts the design of the Fish and Wildlife Service Breeding Bird Survey to a single county to get a quantitative measure of relative abundance and distribution.—M.C.B.

KREBS, J. R., M. H. MACROBERTS, AND J. M. CULLEN. 1972. Flocking and feeding in the Great Tit *Parus major*—an experimental study. Ibis 114: 507–530.—Aviary experiments to investigate survival of flocking. Details of results with discussion of relevance to wild birds. Flocking is of benefit because participants increase their effectiveness in food finding. Survival value of mixed-species flocks of titmice remains unsolved.—R.W.S.

KROODSMA, D. E. 1972. Variations in songs of Vesper Sparrows in Oregon. Wilson Bull. 84: 173–178.

KUSHLAN, J. A. 1972. Aerial feeding in the Snowy Egret. Wilson Bull. 84: 199–200.

LATZEL, G. 1972. Über den Bestandsrückgang der Greifvogel (*Falconiformes*) im Stadtkreis Wolfsburg. Vogelwelt 93: 133–138.—Between 1946–48 39 pairs (8 species) of birds of prey lived in 30 square km surrounding Wolfsburg (16,000 humans). In 1971, in 35 square km containing 94,000 humans only 17 pairs of hawks (2 species: *Buteo buteo* and *Falco tinnunculus*) remain. The reduction in species was caused by changes in the landscape and increased recreation by people in the remaining forest. (English summary.)—N.A.M.V.

LECROY, M. 1972. Young Common and Roseate Terns learning to fish. Wilson Bull. 84: 201–202.

LINDSAY, G., AND A. BRIDGE. 1971. A Great Blue Heron. Pacific Discovery, 24(1): 16–17.—Brief description of Blue Heron fishing behavior; includes photographs.—J.T.D.

MATTHÄS, U., AND H. SCHRÖDER. 1972. Ungewöhnliche Brutdichte des Grossen Buntspechtes (*Dendrocopos major*) in einem Berliner Park. Vogelwelt 93: 72–74.—Unusual breeding density of 5.1 birds per 10 ha for the Great Spotted Woodpecker in a Berlin park.—N.A.M.V.

MATTOX, W. G., R. A. GRAHAM, W. A. BURNHAM, AND D. M. CLEMENT. 1972. Peregrine Falcon survey, West Greenland, 1972. Arctic 25: 308–311.—In 1800 square km 8 *Falco peregrinus* and 3 Gyrfalcon (*Falco rusticolus*) eyries were found. The eyries produced a total of 18 Peregrines and 8 Gyrfalcons.—J.A.J.

NISBET, I. C. T., AND LORD MEDWAY. 1972. Dispersion, population ecology and migration of Eastern Great Reed Warblers *Acrocephalus orientalis* wintering in Malaysia. Ibis 114: 451–495.—Systematic mist netting appears to have significant effects on wintering birds, causing them to emigrate from the netting area, affecting feeding behavior which results in weight loss and perhaps increased mortality. Presents voluminous data on home range, various parameters related to weight, molt, migration dates, and implications on adult survival and sexual dimorphism.—R.W.S.

NYSTRÖM, M. 1972. On the quantification of pecking responses in young gulls (*Larus argentatus*). Z. Tierpsychol. 30: 36–44.—Newly hatched Herring Gull chicks were tested with blue, red, yellow-green, and grey paper strips. Three test methods were used: A, strips were presented singly for 30 seconds; B, all four strips were presented for 1 hour; C, strips were presented in pairs for 30 seconds each. All methods showed a preference for blue. A and C show very similar results, but the author believes C to be the more relevant test. Presents considerable analysis of the advantages of the three methods. The preference for blue is in agreement with recent work on the Common and Laughing Gulls and disagrees with early (and still often quoted) work on the Herring Gull.—H.C.M.

OUELLET, H., AND S. LEMIEUX. 1971. Contribution à l'étude d'une avifaune nicheuse en milieu urbain: cimetière Mont-Royal, Montréal, Canada. Tchebec 1: 49–63.—Notes on 24 species that nested in an urban environment. The "spot-mapping" method was used successfully.—A.C.

PEEK, F. W., E. FRANKS, AND D. CASE. 1972. Recognition of nest, eggs, nest site, and young in female Red-winged Blackbirds. Wilson Bull. 84: 243–249.

PENNYCUICK, C. J. 1972. Soaring behaviour and performance of some East African birds, observed from a motor-glider. Ibis 114: 178–218.—A beautiful study comparing gliding and soaring flight of birds and human gliders; exploring the nature of environmental conditions conducive to soaring flight; illucidating

the flight characteristics and related behavior of vultures, eagles, storks, and pelicans; with detailed description of the energetics of soaring flight.—R.W.S.

POST, W., AND F. ENDERS. 1970. Notes on a salt marsh Virginia Rail population. Kingbird 20: 61–67.—*Rallus limicola* is absent from most New York salt marshes. In 1968 about 11 pairs (1.2 pairs per ha) were discovered in an unditched salt marsh in Suffolk County. None had apparently wintered there. The first calls were heard in late March. Eight nests were found, each suspended from *Spartina alterniflora* but not immune to flooding by extreme tides. Black Rails (*Laterallus jamaicensis*) were found in the same part of the marsh. Clapper Rails (*Rallus longirostris*) nested farther offshore. The Virginia Rail call described as a "Yellow Rail" on the Kellogg-Peterson record (1959) lured calling Virginia Rails, and is probably the main breeding call. Before the advent of mosquito control ditching that reduced food supply by changing the fauna, and restricted the growth of *S. alterniflora* to a narrow zone, Virginia Rails may have been more common in salt marshes.—M.C.B.

SIEGFRIED, W. R. 1972. Breeding success and reproductive output of the Cattle Egret. Ostrich 43: 43–55.—*Ardeola ibis* had 34% success from eggs laid to young fledged. Many young starved, especially in larger broods.—R.B.P.

SMEENK, C. 1972. Ecological comparisons between Tawny Owl and Long-eared Owl. Ardea 60: 1–71.—The Field Vole (*Microtus arvalis*) is one of the principle prey items of *Strix aluco* and *Asio otus*. What are the ecological differences that allow these two owl species to coexist? On his study area in the east Netherlands, the author shows differences between these species in habitat, hunting method, and territory size. Only pellets of *S. aluco* were found from March to July 1965 and show a seasonal difference in prey selection, and also an extremely varied diet. Food of *S. aluco* on the study area compared with that of *A. otus* in the Netherlands in general indicates striking differences that can be related to differences in habitat. The species also differ in population dynamics. Furthermore, *S. aluco* is a resident while *A. otus* tends to move about in search of high rodent populations. The paper has an extensive bibliography. (In German; summary, tables, and figure captions in English.)—N.A.M.V.

STEYN, P. 1972. African Fish Eagle: a record of breeding success. Ostrich 43: 181–182.—*Haliaeetus vocifer* sometimes rears two young per brood and sometimes the older kills the younger.—R.B.P.

SVENSON, S. (ED.). 1970. Bird census work and environmental monitoring. Intern. Bird Census Comm., Swedish Nat. Sci. Res. Council, Stockholm, 52 pp.—Despite the title, this symposium deals almost exclusively with the necessary background on census work and touches only briefly on its application to environmental monitoring. The paper by K. Williamson of Britain is the only noteworthy exception. The other 11 papers deal primarily with the status and methodology of census work in the U. S. and 7 European countries.—J.J.M.

THORESEN, A. C., AND J. G. GALUSHA. 1971. A nesting population study of some islands in the Puget Sound area. Murrelet 52: 20–23.—Counts of nesting *Larus glaucescens* and other seabirds on seven islets are compared for 1963 and 1970. —A.C.V.

TULL, C. E., P. GERMAIN, AND A. W. MAY. 1972. Mortality of Thick-billed Murres in the West Greenland salmon fishery. Nature 237: 42–44.—Based on three years of data (1969–71) from a fisheries research trawler, the autumn drift net fishery off the west side of Greenland kills more Thick-billed Murres than it does salmon and seriously endangers survival of the species. The estimated

annual kill, 500,000, added to those harvested for food in West Greenland annually, 750,000, nearly equals the estimated production of young from all colonies in West Greenland and the eastern Canadian Arctic with no allowance for other major mortality, such as that caused by oil pollution. Mortality of other species in the salmon fishery (Dovekie, Common Murre, Common Puffin, Black Guillemot) appears to be minor.—W.B.R.

WENDLAND, V. 1972. Zur Biologie des Waldkauzes (*Strix aluco*). Vogelwelt 93: 81–91.—A study of the Tawny Owl in a large forested park on the outskirts of Berlin. The owls prefer to nest in oaks and those breeding in the city parks do so 1–2 months earlier than those in the woods outside the city. Birds comprise 46.9% of total food intake in the forest, 70.7% in cities. The owls prefer garlic toads (*Pelobates fuscus*) to any other prey. Two birds were present on the study area for 13 years. (English summary.)—N.A.M.V.

WINTERBOTTOM, J. M. 1972. Results of the garden bird counts organised by the Percy FitzPatrick Institute of African Ornithology, part 3. Ostrich 43: 125–129.—Relative population sizes of species.—R.B.P.

YOCOM, C. F. 1972. Weights and measurements of Taverner's and Great Basin Canada Geese. Murrelet 53: 33–34.

ZWARTS, L. 1972. Bird counts in Merja Zerga, Morocco, December 1970. Ardea 60: 120–123.—Counts of ducks and waders between 12 and 18 December in a large lagoon with intertidal mudflats with a few remarks about the habitat and feeding density of the waders.—N.A.M.V.

EVOLUTION AND GENETICS

DARLINGTON, P. J., JR. 1972. Competition, competitive repulsion, and coexistence. Proc. Natl. Acad. Sci. 69: 3151–3155.—Discusses concepts modified by related interactions, including predation, parasitism, disease, and cooperation.—(From author's abstract.)

DIAMOND, J. M. 1972. Estimation of relaxation times for avifaunas of southwest Pacific islands. Proc. Natl. Acad. Sci. 69: 3199–3203.—Discusses the avifauna of New Guinea satellite islands of 50–3000 square mile area during periods of 3,000–18,000 years. Avifaunas are the result of recolonization following volcanic destruction, change in area with rising sea level, severance of land bridges, and disappearance of relict species.

GILL, F. B., AND B. G. MURRAY, JR. 1972. Discrimination behavior and hybridization of the Blue-winged and Golden-winged warblers. Evolution 26: 282–293.—This study of song discrimination in Blue-winged Warblers, Golden-winged Warblers, and their hybrids represents another step in the arduous elucidation of speciation in this puzzling situation. Results of investigations treating 44 territorial males at several sites in southern Michigan show assortative mating and strong introgression in the face of little evidence for formation of mixed pairs. The authors feel that selection for more efficient isolating mechanisms, if it exists, is slight. Interspecific territoriality was uncommon, although this may vary from place to place (species as different in voice and plumage as Hairy Woodpeckers and Nuttall's Woodpeckers may be interspecificially territorial in areas of recent sympatry, Short 1971, Bull. Amer. Mus. Nat. Hist. 145: 96–99). Introgression seems somewhat retarded in the Michigan populations by a high degree of song discrimination, which in Blue-wings, is greater than that noted in allopatric populations. The authors pose more questions to be investigated, including the effects of imprinting. Their

use of color-banded, character-indexed birds represents a distinct advance over previous studies of hybridization in this complex.—L.L.S.

GOULD, S. J., AND R. F. JOHNSTON. 1972. Geographic variation. Ann. Rev. Ecol. Syst. 3: 457–498.—Reviews the last decade's advances in computer-mediated, generally multivariate, geographic variation analysis, and in electrophoretic analysis of infraspecific genetic variation. Comprehensive bibliography cites ten multivariate bird studies and six of avian genetics.—D.M.N.

IRWIN, M. R. 1972. Evolution in Columbidae: Additional relationships among the antigenic specificities produced by gene interaction. Proc. Natl. Acad. Sci. 69: 2979–2981.—Genes related to those that in modern species or in species hybrids interact to effect new antigenic specificities presumably possessed the same abilities in ancestral forms of Columbidae. (Author's abstract.)

JARDINE, N., AND D. MCKENZIE. 1972. Continental drift and the dispersal and evolution of organisms. Nature 235: 20–24.—With the firm establishment of the concepts of continental drift and seafloor spreading, "it is . . . no longer profitable for biologists to speculate about the past arrangement of land masses." The paper is mainly about the dispersal of marsupials (ancestral forms reached Australia from South America via Antarctica prior to the final break-up of Gondwanaland), but it will have wide interest to biogeographers now confronted by the reality of continental drift.—W.B.R.

JOHNSON, N. K. 1972. Origin and differentiation of the avifauna of the Channel Islands, California. Condor 74: 295–315.

JOHNSTON, R. F., D. M. NILES, AND S. A. ROHWER. 1972. Hermon Bumpus and natural selection in the House Sparrow *Passer domesticus*. Evolution 26: 20–31. This multivariate analysis of storm-killed House Sparrows represents the fourth such treatment of the data initially gathered by Bumpus in 1898. Concludes that severe winter cold stress tends to eliminate smaller males and intermediate-sized females, thus suggesting a viability component of fitness in sexual dimorphism, additional to its reproductive component.—L.L.S.

JUKES, T. H., AND R. HOLMQUIST. 1972. Evolutionary clock: Nonconstancy of rate in different species. Science 177: 530–532.—Comparison of amino acid sequences in cytochrome c of the rattlesnake, snapping turtle, and four birds (King Penguin, chicken, duck, pigeon) shows much less difference between turtle and avian cytochrome c than between rattlesnake and avian cytochrome c. The rate of evolutionary change of proteins apparently varies in different species.—W.B.R.

NOTTEBOHM, F., AND R. K. SELANDER. 1972. Vocal dialects and gene frequencies in the Chingolo Sparrow (*Zonotrichia capensis*). Condor 74: 137–143.

O'DONALD, P. 1972. Sexual selection for colour phases in the Arctic Skua. Nature 238: 403–404.—Among new pairs of Arctic Skuas (presumably *Stercorarius parasiticus*, no scientific name mentioned; and sample size not stated) at Fair Isle, Shetlands, dark phase males bred significantly earlier than intermediate or light phase males, but mean breeding dates of females were essentially the same for all color phases. It appears that, "females exercise a mating preference in favour of darker males but are not themselves selected." Because earlier breeding is more productive, this selection favors increase of dark phase birds, but in fact color phase frequency seems stable in the Fair Isle population. Natural selection and/or immigration of light phase birds from other populations apparently balance the effect of sexual selection. "Sexual selection may be as

important as natural selection in determining the evolution of many characteristics and in maintaining balanced polymorphisms."—W.B.R.

REYNOLDS, R. T. 1972. Sexual dimorphism in accipter hawks: A new hypothesis. Condor 74: 191–197.

WALKER, A. D. 1972. New light on the origin of birds and crocodiles. Nature 237: 257–263.—Detailed study of the skull and shoulder girdle of *Sphenosuchus*, an Upper Triassic crocodile from South Africa, reveals an array of birdlike osteological features, among which apparently were paired salt glands above the orbit. Walker concludes that "birds and crocodiles form essentially one stock." Early crocodiles may have been arboreal. "Living crocodiles seem, to a surprising extent, to represent a 'frozen' stage in the evolution of birds."—W.B.R.

GENERAL BIOLOGY

BENNING, W. E. 1971. Phalaropes hawking insects over the water at Montezuma. Kingbird 21: 11.—*Steganopus tricolor* and *Lobipes lobatus* swam, dabbled, spun, and hawked insects a foot or so above the water on 14 September 1960 in central New York.—M.C.B.

BINFORD, L. C. 1971. Seabirds of the Galápagos. Pacific Discovery 24 (1): 23–27.—Describes physical features, courtship, and nesting behavior of the Galápagos Penguin (*Spheniscus mendiculus*), Galápagos Albatross (*Diomedea irrorata*), Flightless Cormorant (*Nannopterum harrisi*), Swallow-tailed Gull (*Creagrus furcatus*), and Sooty Gull (*Larus fuliginosus*).—J.T.D.

BRAINE, S. G., AND J. W. S. BRAINE. 1971. Chestnut Weavers *Ploceus rubiginosus* breeding in South West Africa. Ostrich 42: 299–300.—Males leave the colony after the eggs are laid. Observations did not continue past incubation (by females).—R.B.P.

BROWN, L. 1972. The breeding behaviour of the African Harrier Hawk *Polyboroides typus* in Kenya. Ostrich 43: 169–175.—A dry season breeder, as are most African hawks of this size. Two eggs are laid and when both hatch the older chick may kill the younger. Young fledge after 50–55 days. Food includes insects, reptiles, and oil palm fruit.—R.B.P.

BUCKLEY, F. G., AND P. A. BUCKLEY. 1972. The breeding ecology of Royal Terns *Sterna* (*Thalasseus*) *maxima maxima*. Ibis 114: 344–359.—Two-year study in Virginia and North Carolina. Data on colony sites, courtship and pair formation, egg-laying and colony growth, clutch size, and parameters of eggs, nest density, interspecific behavior, chick behavior, chick growth and creche behavior, feeding, and predators and mortality.—R.W.S.

CARLETON, G. 1971. Wood Duck presumed nesting in cliff. Kingbird 21: 212.

CARPENTER, J. W., P. M. KEHDE, AND D. E. WATTS. 1969. Observations of a Red-tailed Hawk nest. Bull. Oklahoma Ornithol. Soc. 2: 25–26.

CHILD, G. 1972. A survey of mixed "heronries" in the Okavango Delta, Botswana. Ostrich 43: 60–62.—Describes nesting at Moremi for *Leptoptilos crumeniferus*, *Ibis ibis*, *Ardea purpurea*, *Butorides rufiventris*, and *Anhinga rufa*, in August 1970.—R.B.P.

COOPER, J. 1971. Post-nestling development in the Fiscal Shrike. Ostrich 42: 175–178.—Describes *Lanius collaris* development from two captive fledglings, with special reference to behavior.—R.B.P.

CUISIN, M. 1972. Notes sur l'ecologie du Pic noir (*Dryocopus martius*). Oiseau 42: 28–34.—Observations of a nest of a Black Woodpecker, from hole excavation through the nesting period. The reestablishment of the Black Woodpecker in

Champagne after a 15-year absence caused no change in the local populations of other ant-eating birds within 130 ha of the nest.—A.C.

DAVIS, G. L. 1971. Cliff Swallow nest in active Bank Swallow colony. Kingbird 21: 67.—In Monroe County, New York (photo).—M.C.B.

DEAN, W. R. J., AND I. A. W. MCDONALD. 1972. *Lamprotornis australis*; a new host of *Clamator glandarius*. Ostrich 43: 66.—Nest had two young cuckoos and one young host.—R.B.P.

DIAMOND, A. W. 1972. Sexual dimorphism in breeding cycles and unequal sex ratio in Magnificent Frigate-birds. Ibis 114: 395–398.—Data on *Fregata magnificens* at Barbuda in the Lesser Antilles suggest that because of a division of labor in feeding older nestlings and postfledging young, males could breed every year but successful females no oftener than every other year. An excess of females was produced in 1970–71.—Discusses significance.—R.W.S.

DUFFY, D. C. 1970. Observations on Great Gull Island.—Summer 1969. Kingbird 20: 169–170.—A 17-acre island of bayberry and beach grass 7 miles off Orient Point, New York supports a breeding colony of 6,000 Common and Roseate Terns. Seven other species nested there in 1969, and an additional 20 species, apparently visitors, were found between 9 June and 13 July. Duffy suggests that a study of summer wanderings where there can be no doubt that the birds are wanderers might throw new light on late migration, early post breeding dispersal and nonbreeders.—M.C.B.

FRASER, W. 1972. Notes on *Terpsiphone corvina*. Ibis 114: 399–401.—Nests, eggs, young, and associated behavior of the Black Paradise Flycatcher on La Digue island of the Seychelles.—R.W.S.

GADGIL, M. 1972. The function of communal roosts: relevance of mixed roosts. Ibis 114: 531–533.—Data on Indian birds indicate that predator avoidance is a major function of communal roosting.—R.W.S.

GARGETT, V. 1972. Observations at a Black Eagle nest in the Matopos, Rhodesia. Ostrich 43: 77–108.—Nesting of a pair of *Equila verreauxi* observed for 582 hours over 11 months produced one young from three eggs. Nearly all kills were of hyrax. Young eaglet fledged on day 90 and was fed by parents for 14 more weeks.—R.B.P.

HARDEN, W. D. 1972. Predation by hawks on bats at Vickery Bat Cave. Bull. Oklahoma Ornithol. Soc. 5: 4–5.

HARWIN, R. M. 1972. Sunbirds, shrikes, and sparrows at Bulawayo. Ostrich 43: 132.—Notes on birds mentioned in Winterbottom's garden counts.—R.B.P.

HENDRICKS, D. P., AND J. W. MARTIN. 1972. Horsehair as a major mortality factor in nestling Barn Swallows. Southwestern Naturalist 17: 295.—One immature *Hirundo rustica* found dead.—J.J.D.

HENRY, C. 1972. Notes sur la reproduction et la biologie de la Locustelle tachetée et de la Locustelle luscinioïde. Oiseau 42: 52–60.—Short notes on the reproduction and the biology of *Locustella naevia* and *Locustella lusciniodides*: habitat, song stations, nesting, feeding.—A.C.

JOHNSON, P. 1972. Egg-hatching in the African Hawk Eagle. Ostrich 43: 66.

JUNOR, F. J. R. 1972. Offshore fishing by the Pied Kingfisher *Ceryle rudis* at Lake Kariba. Ostrich 43: 185.—Feeds on introduced sardines.—R.B.P.

KAHL, M. P. 1971. Observations on the breeding of the Abdim's Stork at Lake Shala, Ethiopia. Ostrich 42: 233–241.—*Sphenorhynchus abdimii* breed with the rains. Describes breeding behavior.—R.B.P.

KEMP, A. C., M. I. KEMP, R. A. C. JENSEN, AND C. F. CLINNING. 1972. Records of brood parasitism from central South West Africa. Ostrich 43: 145–148.—Notes on hosts and breeding seasons of *Clamator glandarius*, *Chrysococcyx caprius*, and *Indicator minor*.—R.B.P.

KING, B. 1972. Osprey taking food other than fish. Brit. Birds 65: 527–528.—Apparent rat caught in ploughed Florida field. J. C. Ogden adds small alligator and marsh rabbit, also in Florida.—H.B.

LITTLEFIELD, C. D. 1971. An unusual encounter between an American Bittern and Common Garter Snake. Murrelet 52: 27–28.—A *Botaurus lentiginosus* tried to swallow a large garter snake, which in turn coiled around the bird's leg and wing.—A.C.V.

LOONEY, M. W. 1972. Predation on bats by hawks and owls. Bull. Oklahoma Ornithol. Soc. 5: 1–4.

MACCLINTOCK, D. 1971. Ravens. Pacific Discovery 24 (3): 20–26.—Notes on distribution, feeding, nesting, social behavioral patterns, and activity of pet ravens.—J.T.D.

MACROBERTS, B. R., AND M. H. MACROBERTS. 1972. Social stimulation of reproduction in Herring and Lesser Black-backed Gulls. Ibis 114: 495–506.—Two-year study on Walney Island, Lancashire found no convincing evidence for interspecific social stimulation of reproduction.—Presents methods and results in detail.—R.W.S.

MALCOLM, J. M. 1971. Two female Trumpeter Swans share a nest. Murrelet 52: 24–25.

MASER, C., AND E. W. HAMMER. 1972. A note on the food habits of Barn Owls in Klamath County, Oregon. Murrelet 53: 28.

MASER, C., E. W. HAMMER, AND R. MASER. 1971. A note on the food habits of the Short-eared Owl (*Asio flammeus*) in Klamath County, Oregon. Murrelet 52: 27.—*Microtus montanus* made up over 99% of the food.—A.C.V.

MORTON, M. L., J. L. HORSTMANN, AND J. M. OSBORN. 1972. Reproductive cycle and nesting success of the Mountain White-crowned Sparrow (*Zonotrichia leucophrys oriantha*) in the central Sierra Nevada. Condor 74: 152–163.

MOWBRAY, E. E., AND J. W. GOERTZ. 1972. Nesting season and reproductive rates of cavity nesting birds in north Louisiana. Southwestern Naturalist 17: 145–151.—Largely a tabular presentation on the nesting season and nesting parameters of 1255 nests of 28 species found over 7 nesting seasons.—J.J.D.

MUNDY, P. J., AND A. W. COOK. 1972. Vultures. Nigerian Ornithol. Soc. Bull. 9: 8–9.—Second eggs were added to two nests of *Neophron monachus* (normal clutch is one). The first was accepted and hatched; the second was rejected, possibly broken by one of the parents with a rock as *N. percnopterus* is known to do with Ostrich eggs. Second confirmed breeding site of *Gyps ruppellii* in West Africa, a colony of 12 nests at Waza National Park, North Cameroun.—M.H.C.

NETTLESHIP, D. N. 1972. Breeding success of the Common Puffin (*Fratercula arctica* L.) on different habitats at Great Island, Newfoundland. Ecol. Monogr. 42: 239–268.—Evaluations of breeding success on slope and level habitat reveal that hatching success, fledging success, and fertility of eggs are higher on the slopes. Burrow density decreases away from cliff edge and on flatter slopes. Habitat affects male weight after peak egg-laying, variation in egg-laying dates, frequency of fighting, fledging condition of chicks, frequency of feeding, and other factors in reproduction. Higher exposure of eggs and chicks to gull preda-

tion on level habitat lowered breeding success. Egg and chick survival was greater on nearby islands where gulls were absent.—C.R.B.

PARSONS, J. 1972. Egg size, laying date and incubation period in the Herring Gull. Ibis 114: 536–541.—Good detailed study on Isle of May, Scotland, showing that many factors affect *Larus argentatus* incubation period. Energy requirements for egg production need investigation.—R.W.S.

POST, W. 1971. Sharp-tailed Sparrow lays dwarf eggs. Kingbird 21: 68.

POST, W., F. ENDERS, AND T. H. DAVIS, JR. 1970. The breeding status of the Glossy Ibis in New York. Kingbird 20: 3–8.—*Plegadis falcinellus* increased on Long Island from three pairs in 1961 to about 166 pairs in 1969. Six nesting colonies are known, all in established heronries. Adaptability of nest site selection, and a late breeding season may be factors in the increase.—M.C.B.

RYDER, J. P. 1972. Biology of nesting Ross's geese. Ardea 60: 185–215.—A 3-year study of *Anser rossii* at Karrak Lake, Northwest Territories. The author concentrated on the effects of variation in the temporal and spatial distribution of nests on the production of young. The mean distance between all nests was 15 feet; the mean distance for unsuccessful nests was significantly shorter than for successful ones. It is suggested that in high density plots the number of nests is regulated by a minimum distance nesting pairs tolerated between each other. In low density plots the number of nests may be regulated by the amount of suitable habitat. Pairs whose nests are closer together than the mean distance appear to do less well than those farther apart. Hatching success increases with increasing clutch size, but nests with the modal number of eggs (4) hatched more eggs than any other clutch size.—N.A.M.V.

SIEGFRIED, W. R. 1971. The nest of the Cattle Egret. Ostrich 42: 193–197.—Counts of sticks in *Ardeola ibis* nests.—R.B.P.

SKEAD, C. J. 1972. A juvenile Klaas' Cuckoo *Chrysococcyx klaas* with its hosts in late June 1971. Ostrich 43: 134.—Cuckoo reared by sunbird *Nectarinia afra*. The egg probably was laid in May at King William's Town, Eastern Cape. Third "winter" breeding record.—R.B.P.

SMITH, D. G., AND C. R. WILSON. 1971. Tenacity of nesting Barn Owls. Murrelet 52: 25.

STEYN, P. 1972. The development of Senegal coucal nestlings. Ostrich 43: 56–59.—Incubation period of *Centropus senegalensis* estimated at 18 days, but author assumes (incorrectly) that eggs are laid daily. Development of feathers and defecating behavior of young are noted.—R.B.P.

STEYN, P. 1972. Further observations on the Brown Snake Eagle. Ostrich 43: 149–164.—*Circaetus cinereus* nesting observations. All prey was reptilian, mainly snakes. Excellent action photographs of nesting birds.—R.B.P.

STIEGLITZ, W. O. 1972. Food habits of the Florida duck. J. Wildl. Mgmt. 36: 422–428.—Gizzards from 85 *Anas f. fuligula* contained 89.9% plant material and 10% animal material by volume. The most important foods by percentage of volume and by percentage frequency of occurrence were, respectively, spiny naiad and sawgrass.—L.H.F.

STUART, C. T. 1972. Notes on a Cape Vulture colony in the Gamka Mountains, Oudtshoorn District. Ostrich 43: 140–141.—*Gyps coprotheres* and their long-abandoned nests.—R.B.P.

SUTTON, G. M. 1972. Winter food of a central Oklahoma Roadrunner. Bull. Oklahoma Ornithol. Soc. 5: 30.

TARBOTON, W. R. 1971. Breeding biology of the Crimson-breasted Shrike at

Olifantsfontein, Transvaal. Ostrich 42: 270–290.—Fourteen pairs of *Laniarius atrococcineus* observed for 3 months had a low breeding success (of 74 eggs laid in 27 nests, 38 eggs hatched and 32 young fledged). The nesting birds tore their own nests to pieces, especially during incubation. No cuckoo parasitism occurred. —R.B.P.

TARBOTON, W. R., AND C. J. VERNON. 1971. Notes on the breeding of the Green Pigeon *Treron australis*. Ostrich 42: 190–192.—In trees at Pretoriuskop rest camp, Kruger National Park.—R.B.P.

TICKELL, W. L. N., AND R. PINDER. 1972. Chick recognition by Albatrosses. Ibis 114: 543–548.—Differences in individual recognition between *Diomedea exulans*, *melanophris*, and *chrysostoma* are related to nesting habits.—R.W.S.

VERNON, C. J. 1971. Notes on the biology of the Black Coucal. Ostrich 42: 242–258.—An unmarked population of *Centropus grillii* is said to be partly polyandrous; one female had three males and the other had one. Sexes were recognized by size (females are larger). In one instance the polyandrous female was seen to copulate with two males in quick succession, and her three males each had an active nest on their adjacent territories. Males incubated and reared the young, the female's parental investment was just laying the eggs.—R.B.P.

VERNON, C. J. 1972. An analysis of owl pellets collected in southern Africa. Ostrich 43: 109–124.—*Tyto alba* hunts in dry habitats, *T. capensis* in moist grassland.—R.B.P.

VICTORIA, J. K. 1972. Clutch characteristics and egg discriminative ability of the African Village Weaverbird *Ploceus cucullatus*. Ibis 114: 367–376.—A 3-year study on large samples of eggs and individual birds, giving clutch size and replacement intervals. Replacement tests showed that individual females recognize their own egg type and reject eggs differing from their own. Discusses implications for parasitism by *Chrysococcys caprius*.—R.W.S.

WARHAM, J. 1972. Aspects of the biology of the Erect-crested Penguin *Eudyptes sclateri*. Ardea 60: 145–184.—A study on Antipodes Island between 28 January and 12 March 1969. The breeding timetable was deduced from past and present records. The peak of laying is about 12 October. The incubation period is assumed to be 35 days and the mean hatching date is 17 November. Both sexes incubate and feed young. The female takes the first and longest period of incubation. Peak of departure of the young is about 30 January. Breeding adults come back to shore in the third week of February and remain from 24–30 days to complete the molt. Nonbreeding birds molt before the breeding birds and leave the island before the breeders arrive. Describes 20 patterns of display, some of which are illustrated.—N.A.M.V.

WOODALL, P. F. 1971. Notes of a Rhodesian colony of the Red Bishop. Ostrich 42: 205–210.—Breeding of *Euplectes orix* was late because of low November rainfall, and nests were observed December and January.—R.B.P.

PESTICIDES AND POLLUTION

ADLEY, F. E., AND D. W. BROWN. 1972. Mercury concentrations in game birds, State of Washington—1970 and 1971. Pesticides Monit. J. 6: 91–93.—Livers from 250 ducks, geese, and upland game birds were analysed for mercury. Most contained well below 0.5 ppm, except 6 mergansers (species ?) that carried 0.80 to 58.00 ppm (average 11.67 ppm).—J.C.O.

BAETCKE, K. P., J. D. CAIN, AND W. E. POE. 1972. Mirex and DDT residues in wildlife and miscellaneous samples in Mississippi—1970. Pesticides Monit. J.

6: 14–22.—Includes analyses of liver, adipose, brain, and/or heart and muscle tissues from upland game birds, an owl, and five species of passerines, plus egg analyses from two ardeids. Although DDT has a longer history of use, and has been applied in greater amounts than Mirex, about one-third of samples contained higher Mirex concentrations than total DDT. Some readings are surprisingly high, for example 104.386 ppm Mirex in adipose tissue of one Blue Jay, *Cyanocitta cristata*.—J.C.O.

BAILEY, S., AND P. J. BUNYAN. 1972. Interpretation of persistence and effects of polychlorinated biphenyls in birds. Nature 236: 34–36.—Aroclor 1242 is metabolized more rapidly than Aroclor 1254. The authors suggest this explains the universal residues of only 1254 despite wide use of 1242.—J.J.M.

BLUS, L. J. 1970. Measurements of Brown Pelican eggshells from Florida and South Carolina. BioScience 20: 867–869.—Comparison of pre-1947 eggs with eggs collected in 1969 ($n = 23$ to 208 in various samples) shows a highly significant ($P < 0.01$) decrease in the thickness and weight of shells from all areas. Shell thickness decrease was greatest in South Carolina (16.9%) where the Brown Pelican population is said to be "declining rapidly" and least (5.9%) on the Gulf Coast of Florida.—W.B.R.

BLUS, L. J., C. D. GISH, A. A. BELISLE, AND R. M. PROUTY. 1972. Logarithmic relationship of DDE residues to eggshell thinning. Nature 235: 376–377.—In a sample of 80 Brown Pelican eggs collected in 1969 and 1970 in California, South Carolina, and Florida, percent decrease of eggshell thickness (compared with pre-1947 eggs) showed an essentially linear inverse relationship to the logarithm of DDE residues in the egg contents. A similar pattern occurs in several other species (Prairie Falcon, Double-crested Cormorant), but threshold values seem to differ widely between species. Thus, Brown Pelicans show 15% shell thinning at 4 to 5 ppm DDE, but Herring Gulls only 11% thinning at 80 ppm DDE. An important comment on a vexing subject.—W.B.R.

BLUS, L. J., R. G. HEATH, C. D. GISH, A. A. BELISLE, AND R. M. PROUTY. 1971. Eggshell thinning in the Brown Pelican: Implication of DDE. BioScience 21: 1213–1215.—In a regression analysis of eggshells in relation to chlorinated hydrocarbon residues in egg contents (70 eggs from 12 colonies in South Carolina, Florida, and California) DDE was the only residue that accounted for a significant part of the variability of shell weight, shell thickness, and thickness index.—W.B.R.

BOGAN, J. A., AND W. R. P. BOURNE. 1972. Organochlorine levels in Atlantic seabirds. Nature 240: 358.—PCBs and DDE occurred in all of over 100 specimens collected in the eastern North Atlantic with PCB:DDE ratios of 2–10:1, but as much as 60:1 in some Kittiwakes. Total organochlorine levels in muscle and liver were less than 1 ppm in auks, 1–10 ppm in more pelagic species such as the Fulmar, and above 10 ppm in large gulls and jaegers, and levels showed little geographical variation within the North Atlantic. Extremely high levels (to 535 ppm PCB in fat) were found in Glaucous Gulls feeding on seabird eggs on Bear Island (north of Norway near 75° N), where one bird in convulsions had 311 ppm PCBs and 67 ppm DDE in its liver. As the authors note, occurrence of such elevated levels in a largely nonmigratory bird in so remote a place "seems a matter for concern."—W.B.R.

BORLAUG, N. E. 1972. Mankind and civilization at another crossroad. In balance with nature—a biological myth. BioScience 22: 41–44.—This article (excerpted from an address to the FAO Conference, Rome, 8 November 1971) is a free-

swinging attack on the opponents of DDT, not a scientific paper. It deserves notice here only because its author's eminence (Nobel Peace Prize, 1970, for his role in the "Green Revolution") has given it wide notoriety. Few will question Borlaug's view that natural systems are often strongly perturbed or his plea for an "integrated approach" to control of crop pests. Much of the article, however, is all too sadly familiar. Environmental concern is the creation of a tiny "hysterical" minority, including "bird-watchers" and "wildlife lovers," whose efforts succeed because of "their superb organization and tactics." The work linking DDT to the decline of various birds amounts to "much propaganda, but little convincing scientific evidence." Threatened species might rather be helped by "propagation and good sound game management," but most such species are evolutionary losers due to become extinct anyway. Banning DDT is merely the first step of a grand scheme to do away with all agricultural chemicals. The extravagant language of this article provides prime examples of most of the flaws it finds in others.—W.B.R.

CADE, T. J., J. L. LINCER, C. M. WHITE, D. G. ROSENEAU, AND L. G. SWARTZ. 1971. DDE residues and eggshell changes in Alaskan falcons and hawks. Science 172: 955–957.—A significant negative correlation exists between shell thickness and DDE content of Peregrine eggs. Tundra and taiga Peregrines have fledged progressively fewer young each year since 1966. Rough-legged Hawks and Gyrfalcons have lower residue levels, less eggshell thinning, and no population declines. Residues reflect feeding habits and wintering ranges.—J.J.M.

CECIL, H. C., J. BITMAN, AND S. J. HARRIS. 1971. Effects of dietary p,p-DDT and p,p-DDE on egg production and eggshell characteristics of Japanese Quail receiving an adequate calcium diet. Poultry Sci. 50: 657–659.

CECIL, H. C., G. F. FRIES, J. BITMAN, S. J. HARRIS, R. J. LILLIE, AND C. A. DENTON. 1972. Dietary p,p-DDT, o,p-DDT, or p,p-DDE and changes in eggshell characteristics and pesticide accumulation in egg contents and body fat of caged White Leghorns. Poultry Sci. 51: 130–139.—Also contains tabular review of residue levels in fat and eggs of wild and experimental birds. No eggshell changes were produced in these chickens by up to 300 ppm of chemicals listed in title.—J.J.M.

COULSON, J. C., I. R. DEAN, G. R. POTTS, J. ROBINSON, AND A. N. CRABTREE. 1972. Changes in organochlorine contamination of the marine environment of Eastern Britain monitored by Shag eggs. Nature 236: 454–456.—Dieldrin residues in eggs of *Phalacrocorax aristotelis* decreased 66% from 1966 to 1971. Dieldrin sales in Britain decreased about 69% from 1964 to 1970. DDE residues decreased about 47% from 1968 to 1971. Data on DDT use were not available.—J.J.M.

DAVISON, K. L., J. L. SELL, AND R. J. ROSE. 1971. Dieldrin poisoning of chickens during severe dietary restriction. Bull. Environ. Contam. Toxicol. 5: 493–501.

EBERHARDT, L. L., R. L. MEEKS, AND T. J. PETERLE. 1971. Food chain model for DDT kinetics in a freshwater marsh. Nature 230: 60–62.—From analysis of an aerial application of radiotagged DDT to a 4-acre marsh near Lake Erie, the paper derives preliminary equations expressing rate of transfer and concentration in various components of the ecosystem.—W.B.R.

FIMREITE, N. 1971. Effects of dietary methylmercury on Ring-necked Pheasants. Canadian Wildl. Serv. Occas. Pap. No. 9, 39 pp.—No effects on adults were found in most sublethal treatment groups, but serious effects on reproduction were noted. Discusses relevance to wild populations.—J.J.M.

FIMREITE, N., W. N. HOLSWORTH, J. A. KEITH, P. A. PEARCE, AND I. M. GRUCHY.

1971. Mercury in fish and fish-eating birds near sites of industrial contamination. Canadian Field-Naturalist, 85: 211–220.—Residue levels in birds are associated with trophic level. Concentrations in tern and merganser eggs are within the range indicating decreased hatchability for laboratory-tested pheasants.—J.J.M.

FINDLAY, G. M., AND A. S. W. DEFREITAS. 1971. DDT movement from adipocyte to muscle cell during lipid utilization. Nature 229: 63–65.—Pigeons (n = 18) dosed with DDT (3, 32, or 335 mg per bird) and then starved until they lost 20% of original body weight showed a 2 to 3× increase of DDT in muscle but no DDT increase in blood, heart, brain, or liver. DDT mobilized when contaminated birds utilize fat is transferred almost entirely to muscle tissue.—W.B.R.

FRIEND, M., AND D. O. TRAINER. 1972. Duck hepatitis virus interaction with DDT and dieldrin in adult mallards. Bull. Environ. Contam. Toxicol. 7: 202–206.

FOWLE, C. D. 1972. Effects of phosphamidon on forest birds in New Brunswick. Canadian Wildl. Serv. Rept. Ser. No. 16.—Field study indicates that emmissions from spray aircraft of greater than 0.28 kg/ha (0.25 pound/acre) were hazardous to birds, especially when finely atomized. Detailed before-and-after censuses in plots sprayed with higher concentrations (0.375 to 0.5 pound/acre) showed immediate and significant population decreases after spraying, with mortality and incapacitation observed on all plots. Experiments with native caged birds revealed high mortality with exposure to this organophosphate compound, with as little as 1 mg/kg being lethal orally and 50 mg/kg dermally.—J.P.H.

FOWLER, J. F., L. D. NEWSOM, J. B. GRAVES, F. L. BONNER, AND P. E. SCHILLING. 1971. Effect of dieldrin on egg hatchability, chick survival and eggshell thickness in Purple and Common Gallinules. Bull. Environ. Contam. Toxicol. 6: 495–501.

GILBERTSON, M., AND L. M. REYOLDS. 1972. Hexachlorobenzene (HBC) in eggs of Common Terns in Hamilton Harbour, Ontario. Bull. Environ. Contam. Toxicol. 7: 371–373.

GOCHFELD, M. 1971. Premature feather loss—a "new" disease of terns on Long Island, N.Y. Kingbird 21: 206–211.—Loss of flight feathers in 3- to 5-week old Common Terns (*Sterna hirundo*) and Roseate Terns (*S. dougalli*) was first found in three colonies in 1970. Two additional colonies were involved in 1971. Exogenous poisons are suspected.—M.C.B.

GOULD, R. W. 1972. Brown Pelican eggshells: X-ray diffraction studies. Bull. Environ. Contam. Toxicol. 8: 84–88.

HALL, J. E., Y. A. GREICHUS, AND K. E. SEVERON. 1971. Effects of aldrin on young pen-reared pheasants. J. Wildl. Mgmt. 35: 429–431.—Growth was depressed by weekly dosages of 1.0 or 1.5 mg but not by 0.5 mg.—J.J.M.

HAYNES, R. J. 1972. Effects of DDT on glycogen and lipid levels in Bobwhites. J. Wildl. Mgmt. 36: 518–523.

HEATH, R. G., J. W. SPANN, E. F. HILL, AND J. R. KREITZER. 1972. Comparative dietary toxicities of pesticides to birds. Bureau Sport Fisheries Wildl., Spec. Sci. Rept. Wildl. 152.—Extensive tabular results of tests of 89 pesticides on Bobwhite, Pheasants, Mallards, and Japanese Quail and a brief discussion. Endrin was consistently the most toxic and dieldrin and aldrin were also highly toxic to all species. As other recent studies have indicated, DDE was more toxic to birds than expected from research on mammals.—J.J.M.

HILL, E. F. 1971. Toxicity of selected mosquito larvicides to some common avian species. J. Wildl. Mgmt. 35: 757–762.—The usual order of increasing lethality was Gardona, bromophos, DDT, and Abate. Blue Jays are unusually sensitive.—J.J.M.

HILL, E. F., W. E. DALE, AND J. W. MILES. 1971. DDT intoxication in birds: subchronic effects and brain residues. Toxicol. Appl. Pharmacol. 20: 502:514.

JOHNSON, L. G., R. L. MORRIS, AND R. BISHOP. 1971. Pesticide and mercury levels in migrating duck populations. Bull. Environ. Contam. Toxicol. 6: 513–516.

KREITZER, J. F. 1971. Eggshell thickness in Mourning Dove populations. J. Wildl. Mgmt. 35: 563–564.—No significant difference was found between 1969–70 eggshells and 1861–1935 eggshells in this species which suffered small population declines during the 60's.—J.J.M.

LEHNER, P. N., AND A. EGBERT. 1969. Dieldrin and eggshell thickness in ducks. Nature 224: 1218–1219.—Eggs of captive Mallards (8 groups, each of 4 males and 15 females) fed dieldrin at levels of 1.6, 4 and 10 ppm showed a highly significant decrease in shell thickness, with little difference noted in the effects at low and higher dosages.—W.B.R.

LLOYD-JONES, C. P. 1971. Evaporation of DDT. Nature 229: 65–66.—In laboratory experiments evaporation occurred at a rate that, on a field scale, would amount to loss of 0.3 to 2 pounds DDT per acre a year. "The interesting implication is that about half the DDT applied for field crops may enter the atmosphere."—W.B.R.

LONGCORE, J. R., F. B. SAMSON, AND T. W. WHITTENDALE. 1971. DDE thins eggshells and lowers reproductive success of captive Black Ducks. Bull. Environ. Contam. Toxicol. 6: 485–490.

MARTIN, W. E. 1972. Mercury and lead residues in Starling—1970. Pesticides Monit. J. 6: 27–32.—Whole Starlings, *Sturnus vulgaris*, analyzed from 125 sites in 43 states contained less than 0.5 ppm mercury, except for 2 samples. Lead residues in 23 samples ranged between 0.4 ppm to 13.3 ppm (mean, 3.18).—J.C.O.

MARTIN, W. E., AND P. R. NICKERSON. 1972. Organochlorine residues in Starlings.—1970. Pesticides Monit. J. 6: 33–40.—Whole Starlings, *Sturnus vulgaris*, from 125 sites in 42 states analyzed for 4 insecticides and PCBs contained slightly lower residues of DDT and its metabolites and dieldrin than was found during similar analyses of 1967–68 Starling samples.—J.C.O.

MULLER, H. D., AND D. C. LOCKMAN. 1972. Fecundity and progeny growth following subacute insecticide ingestion by the Mallard. Poultry Sci. 51: 239–241.

NEILL, D. D., H. D. MULLER, AND J. V. SHUTZE. 1971. Pesticide effects on the fecundity of the Gray Partridge. Bull. Environ. Contam. Toxicol. 6: 546–551.

OBERHEU, J. C. 1972. The occurrence of Mirex in Starlings collected in seven southeastern states—1970. Pesticides Monit. J. 6: 41–42.—Ten sample pools of whole Starlings, *Sturnus vulgaris*, contained 0.01 to 1.66 ppm Mirex.—J.C.O.

ORR, R. T. 1971. Oil, wildlife, and people. Pacific Discovery 24: 24–29.—Murres, Western Grebes, and Scoters comprised bulk of 27,000 birds killed as result of two massive oil spills off California coast.—J.T.D.

PEAKALL, D. B. 1969. Effects of DDT on calcium uptake and vitamin D metabolism in birds. Nature 224: 1219–1220.—DDT in the diet did not affect calcium uptake in 10 Zebra Finches (*Poephila guttata*), nor the rate of *in vitro* metabolism of vitamin D by liver fractions from 6 Ringed Turtle Doves (*Streptopelia risoria*). The thin eggshell effect must result from interference with the storage and mobilization of calcium, rather than with uptake and initial metabolism of calcium.—W.B.R.

PEAKALL, D. B., AND J. L. LINCER. 1972. Methyl mercury: its effect on eggshell thickness. Bull. Environ. Contam. Toxicol. 8: 89–90.

PEAKALL, D. B., AND R. J. LOVETT. 1972. Mercury: Its occurrence and effects in the ecosystem. BioScience 22: 20–25.—Because the amount of mercury that

occurs naturally in the ocean is four orders of magnitude greater than the amount released annually by man, human activity probably has not affected the general oceanic level of mercury. Episodes of mercury poisoning of wildlife have occurred where seeds treated with mercury fungicides were available to animals, and where industrial wastes containing mercury were dumped into natural waters. Highest levels are found in predatory animals at the top of food chains. Birds concentrate mercury in the feathers, but how or why this occurs is not known. Below acutely toxic levels mercury is known to reduce hatchability of eggs and retard growth in some birds. Chromosomal damage (not specifically in birds) may also occur at mercury levels below 1 ppm. Because most mercury is released from local point sources, environmental pollution by mercury should be a manageable problem. A thorough, lucidly written review.—W.B.R.

PERSSON, B. 1971. Uptake of chlorinated hydrocarbons by Whitethroats *Sylvia communis* Lath. in areas sprayed with DDT. Ornis Scandinavica 2: 127–135.

PERSSON, B. 1972. DDT content of Whitethroats lower after summer stay in Sweden. Ambio 1: 34–36.—Author suggests higher contamination is acquired during migration because DDT has been banned in Sweden since 1970.—J.J.M.

PORTER, R. D., AND S. N. WIEMEYER. 1972. DDE at low dietary levels kills captive American Kestrels. Bull. Environ. Contam. Toxicol. 8: 193–199.—Further evidence that DDE is much more toxic to birds than to mammals (see Heath et al. above)—J.J.M.

RICHERT, S. P., AND K. V. PRAHLAD. 1972. Effects of DDT and its metabolites on thyroid of the Japanese Quail, *Coturnix coturnix japonica*. Poultry Sci. 51: 196–200.

ROSS, M. A. R., AND L. C. HALL. 1972. DDE thins Screech Owl eggshells. Bull. Environ. Contam. Toxicol. 8: 65–66.—Compared with earlier studies also using 10 ppm DDE, Screech Owls are less sensitive than Black Ducks, about as sensitive as Mallards, and more sensitive than Sparrow Hawks.—J.J.M.

SAUTER, E. A., AND E. E. STEELE. 1972. The effect of low level pesticide feeding on the fertility and hatchability of chicken eggs. Poultry Sci. 51: 71–76.

SIMPSON, C. F., N. P. THOMPSON, AND J. T. NEILSON. 1972. Effect of feeding DDT to Turkeys. Bull. Environ. Contam. Toxicol. 7: 277–283. No estrogenic or other effects were noted after 15 weeks at 246 ppm of o,p or p,p-DDT.—J.J.M.

SODERGREN, A., AND S. ULFSTRAND. 1972. DDT and PCB relocate when caged Robins use fat reserves. Ambio 1: 36–40.

SPRONK, N., AND G. C. HARTOG. 1970. Mercury in birds of prey. Ardea 59: 34–37.—Tentative data indicate increasing levels in the Netherlands since 1950. Agrees with an earlier study in Sweden.—J.J.M.

STEWART, D. K., D. CHISHOLM, AND M. T. H. RAGAB. 1971. Long term persistence of parathion in soil. Nature 229: 47.—Plots in Nova Scotia treated annually at 31.4 pounds per acre in 1949–53 retained 0.1% of the total parathion applied when tested in 1969 despite the supposed nonpersistence of this organophosphate insecticide. Little lateral or downward movement in the soil was noted.—W.B.R.

STICKLE, W. H. 1971. Ecological effects of methylmercury contamination. Environ. Res. 4: 31–39.—The longest section of this useful brief review deals with birds.—J.J.M.

STURTEVANT, J. 1971. Evaluation of environmental hazard following the use of synthetic grit containing mestranol for pigeon control. Toxicol. Appl. Pharmacol. 19: 649–659.—From data on the rapid degradation of mestranol and a lack of reproductive effect on mice and fruit flies, the author concludes this chemosterilant

is not a potential environmental contaminant. Effects on other birds are not discussed.—J.J.M.

VERMEER, K., AND F. A. J. ARMSTRONG. 1972. Mercury in Canadian prairie ducks. J. Wildl. Mgmt. 38: 179–183.

WIEMEYER, S. N., B. M. MULHERN, F. J. LIGAS, R. J. HENSEL, J. E. MATHISEN, F. C. ROBARDS, AND S. POSTUPALSKY. 1972. Residues of organochlorine pesticides, polychlorinated biphenyls, and mercury in Bald Eagle eggs and changes in shell thickness—1969 and 1970. Pesticides Monit. J. 6: 50–55.—Twenty-three *Haliaeetus leucocephalus* eggs from Alaska, Maine, Michigan, Minnesota and Florida contained residues of DDE, dieldrin, PCBs, and mercury, with significant eggshell thinning in all but some from Alaska.—J.C.O.

OBITUARIES

MARIA EMILIE ANNA VON MICULICZ-RADECKI KOEPCKE was born 15 May 1924 in Leipzig, Germany and received her doctorate in Natural Sciences in 1949 from Christian-Albrechts University. She arrived in Peru in 1950 to meet her fiance and university classmate, Dr. Hans Wilhelm Koepcke. They were married 24 June of the same year. Then began the dual career of the two biologists. The husband and wife team worked so closely together in their research and publications that it is difficult to discuss Maria without mention of Hans. Together they were largely responsible for the formation of the scientific climate of Peru—directly through their investigations, teaching, conferences, and writings, and particularly by their outstanding example. Maria concentrated her studies on Peruvian ornithology and Hans on the ecology of tropical fauna. They traversed virtually every region of Peru, learning life forms firsthand. Little of the biota escaped their scrutiny and they wrote on invertebrates, ichthyology, paleontology, plant formations, and marine biology, as well as on ecology and avian biogeography and systematics.

Although a small woman, Maria's enthusiasm and vitality were infectious. While teaching at the University of San Marcos, Lima, she was in charge of the Section of Birds and Mammals of the Museum of Natural History "Javier Prado" from 1953 to 1958. She was named chief of this section in 1958, discharging this duty until her untimely death. Maria published 22 works in German, Spanish, and English and coauthored 11 other publications with Hans. Her pen-and-ink drawings illustrated many of their joint publications. She personally illustrated every species in her "Las aves del Departamento de Lima" (English ed.: 1970, Narberth, Pennsylvania, Livingston Publ. Co.). Drawings for five new Peruvian airmail stamps depicting birds of the country were submitted shortly before her death and are now in circulation. Maria was a Corresponding Fellow of the American Ornithologists' Union (1962), the Senckenbergische Naturforschungs-Gesellschaft of Germany, and the Asociación Ornitológica de la Plata of Argentina, a Field Collaborator of the Cornell Laboratory of Ornithology, as well as an active member of the Comité Nacional de Protección a la Naturaleza of Peru and the Deutsche Ornithologen Gesellschaft of Germany.

In addition to 10 new subspecies of birds, Maria described two new furnariid species and a new genus and species of cotingid. In her honor are named a species of cacique, a subspecies of curassow, and with her husband, a subspecies of lizard. Hans Koepcke is presently completing the final part of a major joint work, "Las