PERIODICAL LITERATURE

EDITED BY GLEN E. WOOLFENDEN

Anatomy and Embryology

Bang, B. G. 1968. Olfaction in Rallidae (Gruiformes), a morphological study of thirteen species. J. Zool., 156: 97–107.—The olfactory structures of thirteen species of Rallidae and *Turnix* are described. Rallids have an average olfactory bulb-to-hemisphere ratio of 23 per cent, about the middle of the scale in birds. The ratio in *Turnix* is 12.5 per cent. Qualitative interspecific differences in secretory cells in the olfactory and lateral nasal glands occur, which may influence the reception or inhibition of particular odorants and thus be of behavioral importance. (From author's summary.)—K. P. A.

Beer, J. V. 1968. The tracheae of hybrid Anatidae. Bull. Brit. Ornithol. Club, 88: 4–15.—Tracheae from 12 interspecific and nine intertribal hybrid male ducks from the tribes Anatini, Aythyini, and Cairinini are described. The tracheae and syringes of most hybrids were intermediate in size and structure. Syringes in Anatidae take three main forms: They may (1) lack a bulla; (2) possess a fully ossified bulla; or (3) have a bulla with membranaceous fenestrae. The syrinx of the Marbled Teal (*Anas angustirostris*) is intermediate between those of Anatini and Aythyini, and the species may be of hybrid origin.—K. P. A.

Jehl, J. R., Jr. 1968. The egg tooth of some charadriiform birds. Wilson Bull., 80: 328–330.

Jerison, H. J. 1968. Brain evolution and *Archeopteryx*. Nature, 219: 1381–1382.—Identification of the midline suture on the endocranial cast at the British Museum suggests the brain of *A. lithographica* showed ". . . an intermediate stage of evolution, clearly non-reptilian, more or less avian, but not modern."—W. B. R.

Kischer, C. W. 1968. Fine structure of the down feather during its early development. J. Morphol., 125: 185–204.—The early development of down feathers is divided into three stages: the presumptive stage, with little or no differentiation; the thickening stage, during which the basal epidermis sends projections into the mesenchyme and the mesenchyme condenses under thickened epidermal areas; and the elevation stage, when the basal epidermis flattens coincident with thickening of the entire epidermis and compaction of the mesenchyme. Fiber arrangements and changes in cell organelles, as revealed by electronmicroscopy, are described. Evidence is presented for contact between basal epidermal spurs and filopodia of mesenchymal cells and the presence of neuronal elements within the mesenchyme during the thickening stage.—A. S. G.

Voipio, P. 1968. On sex dimorphism in the Jackdaw (*Corvus monedula*). Ornis Fennica, 45: 10–16.—Statistically significant sexual dichromatism is described on the basis of 80 skins. The silvery gray nape averages lighter and the white patch of the neck larger in males. The light colors on some females were as light as in the lightest males, but the darkest specimens were all females. The reviewer hopes subsequent field observations may determine the practical significance, if any, of these findings: is the female of a pair of Jackdaws always the darker-colored bird of the couple?—(In English; Finnish summary.)—M. D. F. U.

WEST, G. C., S. SAVAGE, L. IRVING, AND L. J. PEYTON. 1968. Morphological homogeneity of a population of Alaska Willow Ptarmigan. Condor, 70: 340–347.

BEHAVIOR

BANDORF, H. 1968. Beiträge zum Verhalten des Zwergtauchers (*Podiceps ruficollis*). Vogelwelt, Beiheft 1: 7–61.—Behavior of the European Little Grebe including descriptions of swimming postures, vocalizations, courtship, and pair formation. Similar behavior by other grebes indicates the genus *Podiceps* (*sensu lato*) should be divided, with the species *ruficollis*, *novahollandiae*, *pelzelnii*, and *rufolavatus* put in the genus *Tachybaptus*, Reichenbach, 1853; the others remain in the closely-related genus *Podiceps* (*sensu stricto*).—R. C. S.

BERGER, A. J. 1968. Behavior of hand-raised Kirtland's Warblers. Living Bird, 7: 103–116.—The development of feeding, preening, head-scratching, bathing and drinking, chasing, call note, migratory restlessness, and agonistic behavior in captive *Dendroica kirtlandii*.—G. E. W.

BOUDREAU, G. W. 1968. Alarm sounds and responses of birds and their application in controlling problem species. Living Bird, 7: 27–47.—Alarm, alert, and distress calls of birds and their reactions to these and anomalous noises. Some species have no alarm sounds; most gregarious species do. Birds respond better to their alarm sounds than to their distress sounds, and response varies with conditions. Birds quickly become inured to anomalous sounds. Interspecific response results from visual conditioning. Proper use of alarm sounds may result in an 80 per cent reduction of a population within four days. Synthetic alarm sounds may cause supernormal responses.—G. E. W.

BOYLE, G. L. 1968. Foot-paddling by Pochards. Brit. Birds, 61: 308.

BROCKWAY, B. F. 1968. Influences of sex hormones on the loud and soft warbles of male Budgerigars. Anim. Behav., 16: 5–12.—The thresholds for performing soft warbles without vocal stimulation and loud warbles with and without vocal stimulation are lowered by the increased occurrence of androgens in male *Melopsittacus*. The auditory stimulus of the loud warble only stimulates the loud warble. Increased androgen and increased auditory stimulus of the loud warble may be complementary.—R. C. S.

CONWAY, W. G., AND J. BELL. 1968. Observations on the behavior of Kittlitz's Sandplovers at the New York Zoological Park. Living Bird, 7: 57–70.—Before fleeing from certain disturbances, incubating *Charadrius pecuarius* cover their eggs in as little as 6 seconds with medial kicks of the feet. After confirming the position of the eggs by bill probing, the sand is removed with backward kicks of the legs. The parents defend and brood, but do not feed the highly precocial young. Included are 17 photographs.—G. E. W.

COUTLEE, E. L. 1968. Maintenance behavior of Lesser and Lawrence's Goldfinches. Condor, 70: 378–384.

HOPCRAFT, J. B. D. 1968. Some notes on the chick-carrying behavior in the African Jacana. Living Bird, 7: 85–88.—Parent *Actophilornis africanus* carry their young beneath the wings by pressing them against their sides with the wing. Three photographs illustrate the procedure.—G. E. W.

IMMELMANN, K. 1968. Zur biologischen Bedeutung des Estrildidengesanges. J.

Ornithol., 109: 284–299.—Some Grass Finches (Estrildidae) have both "courtship" and "solitary" songs, and in some the "solitary" song has acquired new social functions, including individual recognition and pair and flock cohesion. The functions of "solitary" song seem to be more and more independent of gonadal development.—R. C. S.

JOHNSGARD, P. A., AND J. KEAR. 1968. A review of parental carrying of young by waterfowl. Living Bird, 7: 89–102.—A literature review reveals that published accounts of parent waterfowl carrying young are numerous and of diverse origins. Parental carrying on the back while swimming has been reliably seen in three species of swans, two sheldgeese, and at least seven species of ducks. Parental carrying of young in flight also has been reported for at least 16 species representing seven of the generally recognized waterfowl tribes; most such accounts involve carrying the young in the bill, a possibility that is somewhat substantiated by reliable observations of egg- or eggshell-carrying by females of several species. Those species that regularly carry the young on the back while swimming may be preadapted to similar carrying of them while flying. Occasional parental carrying by either or both techniques is probable enough to warrant additional consideration and attention.—Authors' abstract.

KENNEDY, R. J. 1968. The role of sunbathing in birds. Brit. Birds, 61: 320–322.

KILHAM, L. 1968. Reproductive behavior of Hairy Woodpeckers. II. Nesting and habitat. Wilson Bull., 80: 286–305.

MACDONALD, S. D. 1968. The courtship and territorial behavior of Franklin's race of the Spruce Grouse. Living Bird, 7: 5–25.—*Canachites canadensis franklinii* courtship was studied for five seasons in Alberta, Canada. All displays present the black and white plumage pattern, the markings functioning as visual communicators to other individuals of both sexes. Without the associated movements the same patterning is cryptic. The only loud sound produced by the male is a previously undescribed loud wing clap that advertises the position of a territorial individual. A beautiful color plate and 17 figures accompany the paper.—G. E. W.

NYHOLM, E. S. 1968. Notes on the roosting behaviour of the Great Spotted Woodpecker (*Dendrocopos major*) and the Three-toed Woodpecker (*Picoides tridactylus*). Ornis Fennica, 45: 7–9.—Three Great Spotted Woodpeckers roosted in the same tree but in different holes and one of them defended the tree against the Three-toed Woodpecker which, however, managed to roost there after the Great Spotted Woodpecker retired. The two species were seen feeding near each other without apparent conflict. (In English; Finnish summary.)—M. D. F. U.

RAIKOW, R. J. 1968. Maintenance behavior of the Common Rhea. Wilson Bull., 80: 312–319.

SIMMONS, K. E. L. 1968. Occurrence and behavior of the Red-footed Booby at Ascension Island, 1962–64. Bull. Brit. Ornithol. Club, 88: 15–20.—Recent behavioral observations of *Sula sula* on Ascension Island where the species is now rare. The displays and other behavior of a single white-phased bird are described and compared with those of the Brown Booby (*S. leucogaster*). The Red-footed Booby responded to displays (including advertising displays) of the Brown Boobies. —K. P. A.

SIMPSON, K. G., AND D. J. NOONAN. 1967. Diving display flights of the spine-tailed swift *Hirundapus caudacutus*. Emu, 76: 27–31.—Observations in Australia of indi-

viduals diving down from, and then returning to, feeding flocks. A courtship function is assumed.—C. T. C.

SNOW, D. W. 1968. The singing assemblies of Little Hermits. Living Bird, 7: 47–55.—Males of several species of hummingbirds of the genus *Phaethornis* form singing assemblies. *P. longuemareus* assemblies are situated high up on forested ridges in the Northern Range of Trinidad. The assembly places are traditional and within each the same song perches are occupied year after year from November to July; a male is on his perch most of the day. The song, a high-pitched phrase lasting one second, varies but tends to be similar for birds at neighboring perches. Several aerial displays exist.—G. E. W.

STEIN, R. C. 1968. Correlations among song pattern, morphology and distribution within the genus *Vermivora* (Parulidae). Vogelwelt, Beiheft 1: 139–146.—Three species groups, each with three species, are recognized within the genus *Vermivora* in the United States and Canada. The southeastern group (Golden-winged, Blue-winged, and Bachman's Warblers) with its buzzy song patterns differs more from the transcontinental (Tennessee, Orange-crowned, and Nashville Warblers) and southwestern (Virginia's, Lucy's, and Colima Warblers) groups than the two do from each other.—R. C. S.

THIELCKE, G. 1968. Zur Phylogenese einiger Lautäusserungen der europäischen Baumläufer (*Certhia brachydactyla* Brehm und *Certhia familiaris* L.). Z. Zool. Syst. Evolut.-Forsch., 2: 383-413.—The two European tree creepers have at least two homologous songs. The song of the Short-toed Tree Creeper is relatively stereotyped, readily comparable geographically, and consists of four to nine syllables, which are considered homologous to certain calls. The latter homology may be due to the calls being formed into a "framework" during ontogeny or the result of some calls influencing the individual song syllables during evolution.—R. C. S.

DISEASES AND PARASITES

BARUŠ, V. 1966. Nemátodos Parásitos de Aves en Cuba. I. Poeyana. Institute de Biología, Cuba, Ser. A, no. 22: 37 pp.—List or description of 29 nematode species. Parasites and hosts are included in the abstract. (From Helminthol. Abstr., 37: no. 758, 1968; English summary.)—J. S. M.

BELOPOL'SKAYA, M. M. 1966. [Trematode parasites of the White Sea shorebirds.] Tr. Gelmintol. Lab. Akad. Nauk SSSR. 17: 9–18.—(From Biol. Abstr., 48(24), 1967; transl. of Russian abstr.)—J. S. M.

BRAUN, C. E., AND W. B. WILLEN. 1967. The helminth and protozoan parasites of North American grouse (family: Tetraonidae): a checklist. Avian Dis., 11: 170–187.—List of 53 genera of endoparasites. (From Wildl. Rev., no. 128, 1967.) —J. S. M.

BYKHOUSKAYA-PAVLOVSKAYA, I. E., K. M. RYZHIDOU, AND I. A. KHOTENOVSKII. 1966. [Trematodes of the genus *Psilotrema* from Anseriform birds in Yakutia]. Tr. Gelmintol. Lab. Akad. Nauk SSSR, 17: 35–46.—(From Biol. Abstr., 48(24), 1967; transl. of Russian abstr.)—J. S. M.

EHRHARDT, W. R., R. HARKEMA, AND G. C. MILLER. 1967. Cestodes of two species of gulls from North Carolina. Elisha Mitchell Sci. Soc., 83: 131–135.—Ten species of cestodes were recovered from 64 Herring Gulls, *Larus argentatus*, and 54 Laughing

Gulls, *Larus atricilla*. Cestode infections occurred in 85.9 per cent of the Herring and 62.9 per cent of the Laughing Gulls. Two or more cestode species were found in 20.3 per cent of the Herring and 5.6 per cent of the Laughing Gulls. No relationship between number of cestodes present and numbers and species of trematodes present in the same infection was apparent. *Tetrabothrius cylindraceus* was the most frequently occurring cestode in both hosts.—R. J.

FADDOUL, G. P., G. W. FELLOWS, AND J. BAIRD. 1967. Pasteurellosis in wild birds in Massachusetts. Avian Dis., 11: 413–418.—Of 248 wild bird consignments, septicemis *Pasteurella* infection was found in 5 Robins, 3 Starlings, and 1 each of the Common Grackle, Evening Grosbeak, Ring-necked Pheasant, Baltimore Oriole, and Screech Owl. (From Wildl. Rev., no. 129, 1968.)—J. S. M.

JASKOSKI, B. J., AND J. D. PLANK. 1967. Research note: Incidence of endoparasitism in a group of pigeons in the Chicago area. Avian Dis., 11: 342–344.—Intestinal parasites, trichomonads, trypanosomes, and blood parasites from 116 fully grown *Columba livia*. (From Wildl. Rev., no. 129, 1968.)—J. S. M.

KHAN, D., AND HABIBULLAH. 1967. Avian cestodes from Lahore, West Pakistan. Bull. Dept. Zool. Univ. Panjab, no. 1, 34 pp.—Reports of 12 species, 3 new, from hosts that include: *Streptopelia decaocto*, *Pycnonotus jocosus*, and *Columba livia*. (From Helminthol. Abstr., 37, no. 177, 1968.)—J. S. M.

KLUGE, J. P. 1967. Avian parasitic (*Sarconema eurycerca*) pancarditis. Bull. Wildl. Dis. Assoc., 3: 114–117.

LEIBOVITZ, L., AND J. HWANG. 1968. Duck plague in American Anseriformes. Bull. Wildl. Dis. Assoc., 4: 13–14.—*Cygnus olor* and *Cairina moschata* were the two cases of 17 examined. (From Wildl. Rev., no. 130, 1968.)—J. S. M.

MACY, R. W., AND W. D. BELL. 1968. *Metoliophilus uvaticus* gen. et sp. n. (Lecilhodendriidae:Metoliophilinae subf. n.) from the Dipper, *Cinclus mexicanus*, in Oregon. J. Parasitol., 54: 761–764.—From the intestines of adult and nestling birds.—J. S. M.

RYSAVY, B. 1967. Nuevas Especies de Cestodos del Género *Nadejdolepis* Spassky et Spasskaja, 1954. (Cestodos: Hymenolepididae) de Aves Cubanas del Orden Charadriiformes. Poeyana (Institute de Biología, Cuba), Ser. A, no. 47: 12 pp.—The new species are *N. morenoi* from the Ruddy Turnstone; *N. viguerasi* and *N. saguei*, both from the Sanderling. Includes a dichotomous key to the 16 species of these small tapeworms known from charadriiform birds.—W. B. R.

SCHLEGEL, M. W., S. E. KNAPP, AND R. E. MILLEMANN. 1968. "Salmon Poisoning" disease. V. Definitive hosts of the Trematode vector, *Nanophetus salmincola*. J. Parasitol., 54: 770–774.—*Ardea herodias* and *Lophodytes cucullatus* from Oregon were infected while nine other bird species were negative; 19 species of mammals also were examined. Other hosts, including *Megaceryle alcyon*, are tabulated from northwestern U.S.A. and eastern Siberia.—J. S. M.

SCHWARTZ, L. D. 1967. Diseases of gamebirds. Mod. Game Breeding, 3: 19–20. —Most are: (1) noninfectious diseases from nutritional deficiencies or mismanagement; (2) protozoan disease; and (3) internal parasites. (From Wildl. Rev., no. 129, 1968.)—J. S. M.

SMITH, D. G. 1967. A survey of the occurrence of blood parasites in the local bird population in the Hiram, Ohio, area. Bull. Wildl. Dis. Assoc., 3: 185–186.

WAKELIN, D. 1967. Nematodes of the genus *Capillaria* Zeder, 1800 from the collection of the London School of Hygiene and Tropical Medicine. II. Capillariids from British birds. J. Helminthol., 41: 401–408.—Report of 9 species from *Phasianus*, *Perdix*, *Gallus*, *Sturnus*, *Corvus*, and *Columba*. (From Helminthol. Abstr., 37: no. 944, 1968.)—J. S. M.

WILSON, N. 1968. New records and a new species of *Mesonyssus* (Mesostigmata: Rhinonyssidae) from parrots (Psittaciformes:Psittacidae). J. Parasitol., 54: 395–401.—Mites of 7 species from the South Pacific and a host and locality list of all *Mesonyssus* mites.—J. S. M.

DISTRIBUTION AND ANNOTATED LISTS

ABE, M. 1968. Notes on the zoogeographical distribution of the Snow Bunting, *Plectrophenax nivalis pallidior* Salomonsen in Japan. Tori, 18: 252–259.—The Snow Bunting, usually regarded as a stray or rare winter visitor to Hokkaido, may be a common and regular winter visitor in the northern part of that island. All Japanese records (including six south of Hokkaido) are listed, with measurements of 18 specimens and the stomach contents of one. (In Japanese; English summary.) —K. C. P.

ABE, M., AND K. MATSUKI. 1968. Some avifaunal observations in the vicinity of Hanasaki Harbor, eastern Hokkaido. Tori, 18: 227–246.—Seven species of water birds, hitherto known from Japan only in winter, were recorded in summer in northeasternmost Hokkaido as nonbreeding visitors. Breeding range extensions are given for *Phalacrocorax urile*, *P. pelagicus*, and *Uria aalge*. Population figures and nest-site information are given for breeding birds. Seven photographs include one of an albino *Larus schistisagus*. (In Japanese; English captions and summary.) —K. C. P.

AUSTIN, G. T. 1968. The occurrence of certain nonpasserine birds in southern Nevada. Condor, 70: 391.

CAMPBELL, J. M. 1967. The Upland Plover in Arctic Alaska. Murrelet, 48: 28–33. —Recent records of *Bartramia* in northern interior Alaska in summer include nesting at the upper Sheenjek and upper Noatak Rivers and summering on the head of the East Fork of the Chandalar River. Its occurrence just north of the Brooks Range divide in Anaktuvuk Pass, along with the breeding records, suggests the species may eventually be found on the tundra beyond this range. Old records are summarized and evaluated.—K. P. A.

CAMPBELL, R. W. 1968. Occurrence and nesting of the Black Oystercatcher near Vancouver, British Columbia. Murrelet, 49: 11.

DAVIS, J. A. 1968. A Hermit Warbler and other noteworthy records of birds from Finney County, Kansas. Kansas Ornithol. Soc. Bull., 19: 15–16.—Records of interest, including the first Kansas specimen of *Dendroica occidentalis*, a male taken 7 May 1964.—M. A. J.

DAVIS, T. H. 1968. Willet nesting on Long Island, New York. Wilson Bull., 80: 330.

DOWNING, G. R., AND E. FICHTER. 1968. First specimen records of the Dunlin and the Snowy Plover in Idaho. Condor, 70: 390.

ELY, C. E., AND J. A. DAVIS. 1968. Records of the Curve-billed Thrasher (*Toxostoma curvirostre*) from Kansas. Kansas Ornithol. Soc. Bull., 19: 14–15.—Recent

observations suggest this species should be regarded as an irregular visitant in Kansas.—M. A. J.

GYLLIN, R., H. JOHANNESSON, AND K. LARSSON. 1968. Diurnal raptors and owls in central Sweden during the winters 1954/55 through 1966/67. Vår Fågelvärld, 27: 196–219.—Records of 10 species of raptors and 5 of owls. (English summary.)—L. DE K. L.

HARRIS, S. W., AND C. F. YOCOM. 1968. Records of Snowy Owls in California. Condor, 70: 392.

HARRISON, J. G., E. CHAPMAN, AND A. MEIKLE. 1968. Semipalmated Sandpiper in Kent. Brit. Birds, 61: 414.—10 September 1967.—H. B.

HUGHES, R. A. 1968. Notes on the occurrence of the Grey-hooded Gull *Larus cirrocephalus* on the west coast of South America. Ibis, 110: 357–358.—Occurs from Guayaquil (common all year) to southern Peru (scarcer, May-November). Where this population breeds is not known, possibly in seasonal swamps in western Ecuador.—W. B. R.

JANKOWSKI, J. 1967. [Contribution to the avifauna of Łódź.] Acta Ornithol., 10: 238–242.—(In Polish; English summary.)

JANOWSKI, K. 1967. [On some birds observed in Niemodlin district, 1964–1965.] Acta Ornithol., 10: 243–253.—Discusses water and marsh birds, including some breeding data. (In Polish; English summary.)—M. A. J.

KLAAS, E. E. 1968. Summer birds from the Yucatan Peninsula. Univ. Kansas Publ. Mus. Nat. Hist., 17: 579–611.—Birds collected or observed during July and August 1962 in the three Mexican states of the Yucatan Peninsula. In addition to a few new distributional records, the paper gives weights, gonadal data, and often molt condition, of 493 specimens of 136 species. *Charadrius alexandrinus* was found breeding. The motmot *Eumomota superciliosa* seems definitely colonial, for one gravel pit had 101 active or recently used burrows. Two broods a season were indicated. On one moonlit night in August, 27 potoos, *Nyctibius griseus*, were seen perched along a 12-km stretch of road; specimens were very fat.—E. E.

KREUGER, R. 1967. [*Somateria spectabilis* bred in Finland.] Ornis Fennica, 44: 111–114.—The identity of an egg taken from a clutch of five on the Aland Islands in the spring of 1883 is verified. The author saw two separate male King Eiders remain late into the spring in southern Finland. (In Swedish; English summary.)—M. D. F. U.

KRUTIKOW, A. 1967. [Birds of the north-western part of Olkusz district.] Acta Ornithol., 10: 254–265.—Observations from 1931–1962 on 136 species, of which at least 93 breed in the area. (In Polish; English summary.)—M. A. J.

KUŹNIAK, S. 1967. [Penduline Tit and Mute Swan in distr. Leszno, prov. Poznan.] Acta Ornithol., 10: 265–267.—Additional records of breeding by *Remiz pendulinus* and *Cygnus olor* in this area. (In Polish; English summary.)—M. A. J.

OLROG, C. C. 1967. Observaciones sobre aves migratorias del hemisferio norte. Hornero, 10: 292–298.—Observations of North American migrants from eastern Buenos Aires province, Argentina in 1958–62 and 1966. (English summary.)—E. E.

PATERSON, A. 1968. A frigate-bird off Yorkshire. Bull. Brit. Ornithol. Club, 88:

55–56.—A frigate-bird, thought to have been *Fregata minor*, was observed 15 October 1966 at Filey Brigg on the northeast coast of England.—K.P.A.

PEPPER, S. R. 1968. On the birds of the Pjorsarver district in central Iceland, with special reference to the Pink-footed Goose. Bull. Brit. Ornithol. Club, 88: 37–43.

PIETERS, A. L., AND C. VAN ORDEN. 1968. De Blauwstaart (*Tarsiger cyanurus*), nieuw voor Nederland. Limosa, 41: 18.—A male specimen taken in a Heligoland trap on 16 October 1967 is the first record of this species in the Netherlands. (English summary.)—K.P.A.

RYDZEWSKI, W. (Ed.) 1967. [Contributions to the avifauna of Poland.] Acta Ornithol., 10: 229–235.—Reports single observations, by various contributors, on 23 species. (In Polish; English summary.)—M.A.J.

SMITH, F. R., AND THE RARITIES COMMITTEE. 1968. Report on rare birds in Great Britain 1967 (with 1963, 1964, 1965 and 1966 additions). Brit. Birds, 61: 329–365.—Includes 27 North American species.—H.B.

STRANGE, I. J. 1968. A breeding colony of *Pachyptila turtur* in the Falkland Islands. Ibis, 110: 358–359.—A colony of 150 on Beauchêne Island in January 1967 is the first known nesting of the Fairy Prion in the Western Hemisphere. Specimens are inseparable from *P. t. turtur* of New Zealand.—W.B.R.

TEKKE, M. J. 1968. Een herfstinvasie in 1967 van Blodkoninkje (*Phylloscopus inornatus*)en Grote Pieper (*Anthus richardi*). Limosa, 41: 31–34.—Lists 35 sight records of the Yellow-browed Warbler and 47 of Richard's Pipit in the Netherlands during 1967. (In Dutch; English summary.)—K.P.A.

TOMIAŁOJĆ, L. 1967. [Dusky Warbler, *Phylloscopus fuscatus* (Blyth) in Poland.] Acta Ornithol., 10: 279–282.—An adult female, taken on 21 October 1965 near Krynica Morska, Baltic coast, represents the first Polish record and third European record of this species. (In Polish; detailed English summary.)—M.A.J.

WETMORE, A. 1968. Additions to the list of birds recorded from Colombia. Wilson Bull., 80: 325–326.

WOŁK, K. 1967. [Ornithological observations at the river Wołczenica delta, district Kamień Pomorski.] Acta Ornithol., 10: 282–284.—(In Polish; English summary.)

ZIMMERMAN, D. A. 1968. Specimen of the Magnificent Frigatebird from New Mexico. Condor, 70: 398.

ECOLOGY AND POPULATION

ABE, M., AND Y. FUJIMAKI. 1968. An additional breeding record of *Mergus* in Hokkaido. Tori, 18: 272–275.—Common and Red-breasted Mergansers (*Mergus merganser* and *M. serrator*), long known only as winter visitors to Japan, have recently been shown to breed on Hokkaido, the northernmost island. On 8 and 9 July 1964 a brood of 8 *serrator* and one of 3 *merganser* were seen at Iwamatsu Reservoir in central Hokkaido. (In Japanese; English captions and summary.)—K.C.P.

ANDERSSON, G., R. GERELL, H. KÄLLANDER, AND T. LARSSON. 1968. Notes on the habitat of the Little Bunting (*Emberiza pusilla*). Vår Fågelvärld, 27: 136–141.—Habitat requirements in Lapland included forest edges and humid places with thick ground vegetation. (English summary.)—L.DEK.L.

ASHMOLE, N. P. 1968. Body size, prey size, and ecological segregation in five

sympatric tropical terns (Aves: Laridae). Syst. Zool., 17: 292–304.—Five species of terns that nest on Christmas Island, Pacific Ocean, divide the food resources by a variety of mechanisms including differential prey size. The size of prey items decreases absolutely and also relatively with decreasing size of the birds. When a continuum of prey sizes exists, smaller predators may benefit by exploiting prey that would be uneconomical for larger competitors and, perhaps, by simultaneously dropping to a lower trophic level. However, the rather considerable overlap of prey items among the five species indicates that ecologic segregation need not imply competitive exclusion, and natural habitats may not contain the maximum number of related species that could be supported.—A.S.G.

EMLEN, J. M. 1968. Optimal choice in animals. Amer. Naturalist, 102: 385–389.—A model is presented describing optimal food selection. It is concluded that " Animals, unless recently introduced, should seldom show preferences for food occurring naturally but rarely in their habitat" and that "the feedback relation between a food's use and its value leads toward increased specialization both on a somatic and, ultimately, on a genetic basis."—G.D.S.

FIELD, G. D. 1968. Utilization of mangroves by birds on the Freetown Peninsula, Sierra Leone. Ibis, 110: 354–357.—Eighty species of 34 families occur. Land birds locally limited to mangroves include two hornbills, a sunbird, a sylviid, and a shrike. —W.B.R.

GERELL, R. 1968. The food of the Long-eared Owl (*Asio otus*) in Scania. Vår Fågelvärld, 27: 193–195.—*Microtus agrestis* and *Apodemus sylvaticus* made up 98.5 per cent of the food items. (English summary.)—L.DEK.L.

GERZENSTEIN, E., AND F. ACHAVAL. 1967. Nuevos datos sobre *Limnoctites rectirostris*. Hornero, 10: 307–314.—This furnariid, hitherto thought restricted to reedbeds and high marsh grass, was found in numbers along small creeks in a rocky region. (English summary.)—E.E.

GULLION, G. W., AND W. H. MARSHALL. 1968. Survival of Ruffed Grouse in a boreal forest. Living Bird, 7: 117–167.—An 11-year study of male *Bonasa umbellus* demography in northern Minnesota boreal forest based on historical status of drumming sites, influence of predominant forest type, protection afforded by a refuge, and color phases, supported by information presented in 14 tables and 22 figures. Female and immature grouse survival also are examined. Over 900 individuals were banded, of which almost 400 males from known drumming logs provided usable data. Forest cover was evaluated on the features that affect longevity. Male grouse using previously unused drumming logs live longer than those that replace earlier drummers on perennial logs. Forest cover of the activity center of a male grouse seems as important to survival as that immediately adjacent to the drumming log, and refuges do not have a significant effect on longevity. About 45 per cent of young male grouse survive each winter. Based on 1,000 individuals the life table would be 450 surviving to the first spring, and 185, 78, 41, 13, and 3 in the springs that follow. No evidence was found to support the idea that certain age groups carry a population through seasons of "cyclic" lows, or to support a "crash-decline" during the 11 years.—G.E.W.

HAFFER, J. 1967. Zoogeographical notes on the "nonforest" lowland bird faunas of northwestern South America. Hornero, 10: 315–333.—Nonforest areas of Brazil, now separated by heavy forest, probably were connected in previous dry climatic periods.—E.E.

HOUCK, W. J. 1967. A note on the food of the Common or Great Egret. Murrelet, 48: 51.—Small mammals are thought to form a major portion of the diet of Common Egrets (*Casmerodius albus*) in the Humboldt Bay area, California. The birds frequently forage in fields near the bay and have been seen capturing and eating *Microtus californicus*.—K.P.A.

KARR, J. R. 1968. Habitat and avian diversity on strip-mined land in east-central Illinois. Condor, 70: 348–357.

KAZAMA, T. 1968. On the mass destruction of *Rissa tridactyla* and *Calonectris leucomelas* and their migration at Kashiwazaki, Niigata Prefecture. Tori, 18: 260–266.—Large numbers of Black-legged Kittiwakes and Streaked Shearwaters are seen offshore on the eastern coast of the Japan Sea in March and April. In March 1965 at least 150 kittiwakes and 16 shearwaters were picked up dead along the shore. Dead birds are usually found after storms, have empty stomachs, and are often oiled. (In Japanese; brief English summary.)—K.C.P.

KAZAMA, T., AND S. CHIBA. 1968. About the habitat segregation between House [= Barn] Swallows *Hirundo rustica* and Striated Swallows *H. daurica*, breeding in Kashiwazaki City, Niigata Pref. Tori, 18: 276–282.—*Hirundo rustica* bred widely, nested by single pairs, and mostly (92 per cent) selected the wooden houses of the peripheral part of the city, while *H. daurica* concentrated in the central part where they used mortar houses and nested in groups. *H. daurica* tended to expand to the peripheral part, however. Here it nested singly and dominated its congener. From author's summary. (In Japanese; English captions and summary.)—K.C.P.

LEBERT, T., AND A. TIMMERMAN. 1968. Een concentratie van ruiende Grauwe Ganzen (*Anser anser*) in Nederland. Limosa, 41: 2–17.—From May to July large numbers of Gray-lag Geese (*Anser anser*) concentrate in an area of extensive hay fields on the Netherlands coast. Their primary food in this area is *Potamogeton* and feeding is both diurnal and nocturnal. Simultaneous wing molt occurs during this period. The geese are flightless about 28 days, which is less time than in semi-domestic flocks. Wing molt begins in some individuals as early as mid-May, and the last birds regain flight by about mid-July. (English summary.)—K.P.A.

LIGON, J. D. 1968. Starvation of spring migrants in the Chiricahua Mountains, Arizona. Condor, 70: 387–388.

LÖFGREN, S. 1967. [On the composition of the bird fauna on lakes and ponds in Lappeenranta, southeastern Finland.] Ornis Fennica, 44: 99–106.—Census work involving two breeding seasons and 33 species of water, shore, and marsh birds on four limnologically different lake types. For each type of lake the number of breeding pairs per water area and per length of shore line and the frequency of occurrence are calculated with some interesting results. (In Finnish; English summary.)—M.D.F.U.

MACLEAN, G. L. 1968. Field studies on the sandgrouse of the Kalahari Desert. Living Bird, 7: 209–235.—*Pterocles namaqua* inhabits rocky terrain, *P. burchelli* red sand dunes. Both feed exclusively on vegetable matter, mostly small, hard seeds, and each morning both fly to water to drink. Drinking flights may extend 50 miles. Namaqua Sandgrouse may drink again in the evening, and although breeding may occur at any time of year, it is most frequent in the dry periods. The normal clutch is three, incubation takes 21 days. Males incubate both incomplete and complete clutches during the night; females incubate complete clutches during the day.

Chicks leave the nest as soon as they dry and feed on seeds from the first day. Males transport water in their abdominal feathers to their young until they can fly at the age of 6 to 8 weeks.—G.E.W.

MELLQUIST, H., AND B. NILSSON. 1968. [The Vomb Lake area in southern Scania as stopover and wintering grounds of the Bean Goose (*Anser fabilis*).] Vår Fågelvärld, 27: 220–230.—A probable army takeover which would deprive thousands of geese of traditional feeding and wintering grounds inspired this study. —L.DEK.L.

MIKKOLA, K. 1968. Zur Überwinterung einiger kleinsäugerfressenden Vogelarten in Finnland. Ornis Fennica, 45: 48–58.—From 1956 to 1968 several avian predators of field mice wintered on the southern coast of the Bay of Finland. The winter occurrences of *Buteo lagopus*, *B. buteo*, and *Falco tinnunculus* coincided with peak years of *Microtus* populations, but while field mice were abundant during the peak year of 1961 also in Central Finland, no wintering of predatory birds was noted in those areas. The author surmises that these raptors begin their migration in the normal way even in *Microtus* years, but the abundance of prey, combined with a substantial migratory barrier, the Baltic, causes them to winter in coastal regions that abound with small rodents. (Finnish summary.)—M.D.F.U.

MILLER, R. S. 1968. Conditions of competition between Redwings and Yellowheaded Blackbirds. J. Anim. Ecol., 37: 43–62.—Examines the spatial and temporal relations of several breeding populations and discusses niche intersection and differentiation that govern competitive interactions and allow survival of both species within their range of sympatry. Three categories of selection pressure are effective mechanisms in the process of competitive interference: (1) adaptations concerned with the exploitation and utilization of environmental resources, (2) the evolution of isolating mechanisms, and (3) the retention of behavior patterns common to competing species.—H.W.K.

PEARSE, T. 1968. Feeding habits of the Sanderling and Lesser Yellowlegs. Murrelet, 49: 13–14.—Both species were seen skimming the surface of a small freshwater pond with the mandible while running through shallow water, probably to gather floating insects.—K.P.A.

PERSSON, B. 1968. [Breeding success of the Whitethroat (*Sylvia communis*) in pesticide-treated environment.] Vår Fågelvärld, 27: 231–243. (English summary.) —L.DEK.L.

PROCTOR, V. W. 1968. Long-distance dispersal of seeds by retention in digestive tract of birds. Science, 160: 321–322.—In feeding experiments, Killdeers and Least Sandpipers retained viable seeds several hundred hours (maximum 340) before regurgitating them. Proctor concludes, "many seeds can be retained long enough to be transported to the most isolated oceanic islands."—W.B.R.

PULLIAINEN, E. 1968. Sex and age ratios in a partridge (*Perdix perdix* L.) population in Ostrobothnia, West Finland. Ann. Zool. Fennica, 5: 179–182.

PULLIAINEN, E. 1968. Breeding success of a partridge (*Perdix perdix* L.) population in Ostrobothnia, West Finland, in 1967. Ann. Zool. Fennica, 5: 183–187.

SMITH, N. G. 1968. The advantage of being parasitized. Nature, 219: 690–694.—Parasitism of colonial oropendolas and caciques by Giant Cowbirds, *Scaphidura oryzivora*, in Panama differs in the colonies that share trees with bee or wasp nests.

In such colonies: botflies are few; 28 per cent of nests were parasitized (data are from samples of 500 to 2,000 nests); cowbirds lay eggs that mimic host eggs and hosts reject nonmimetic eggs; young fledged per nest averaged 0.39 for hosts and 0.76 for cowbirds. In other colonies: botflies abound; cowbirds lay and hosts accept nonmimetic eggs; 73 per cent of nests were parasitized; young fledged per nest averaged 0.43 for hosts and 0.73 for cowbirds. In the absence of cowbird nestlings, which preen fly eggs and larvae from nest-mates, botflies cause heavy mortality, "the probability of bringing off at least one host chick was about three times greater if the other chick(s) in the nest were cowbirds rather than siblings." Both morphs of hosts and parasites persist because suitable colony sites near bee-wasp nests are limited and have certain seasonal disadvantages. Though many details are not made plain in this preliminary report, the delightfully complex host-brood parasite interrelationships have great theoretical interest.—W.B.R.

SOUTHERN, H. N., AND V. P. W. LOWE. 1968. The pattern of distribution of prey and predation in Tawny Owl territories. J. Anim. Ecol., 37: 75–97.—Observations of birds and recovery of marked prey in pellets shows that Tawny Owls (*Strix aluco*) are territorial and maintain well-defined boundaries. The distribution of cover-types in these territories influences the species composition of the prey. One of several papers resulting from an extended population study (1947–59) of 20–30 pairs of Tawny Owls in Wytham Woods.—H.W.K.

STOWERS, J. F., D. T. HARKE, AND A. R. STICKLEY, JR. 1968. Vegetation used for nesting by the Red-winged Blackbird in Florida. Wilson Bull., 80: 320–324.

VON HAARTMAN, L. 1968. The evolution of resident versus migratory habit in birds. Some considerations. Ornis Fennica, 45: 1–7.—The general explanation of the evolution of migratory behavior lies in the principle of differential mortality, but the author suggests that selection through differential rates of reproduction may counteract this. Examples are chosen mainly from among hole nesters where scarcity of nest sites puts a premium on early occupation of a cavity. Hole nesters also are hole roosters, and the added protection might reduce their winter death rate. Thus the correlation between hole nesting and early nesting, hole roosting and reduced winter mortality, and hole nesting and nonmigratory habits are linked adaptively.—M.D.F.U.

VUOLANTO, S. 1968. On the breeding biology of the turnstone (*Arenaria interpres*) at Norrskär, Gulf of Bothnia. Ornis Fennica, 45: 19–24.—Of the 30 pairs on the 22-hectare island, 18 nested within tern colonies. Though no crows or ground predators were present, egg losses were heavy during the 1967 season when the birds were observed. A turnstone was seen eating turnstone eggs, a previously known habit. Therefore egg losses might have been due to intraspecific egg predation possibly caused by overpopulation. High densities lead to increased aggression and continuous territorial fighting, and thus nests probably were left unguarded. (In Finnish; English summary.)—M.D.F.U.

EVOLUTION AND GENETICS

ASHMOLE, N. P. 1968. Competition and interspecific territoriality in Empidonax flycatchers. Syst. Zool., 17: 210–212.—A critique of certain of N. K. Johnson's (Syst. Zool., 15: 70–87, 1966) interpretations of bill size and shape in *Empidonax oberholseri* and *E. wrightii* suggests that the absence of character displacement in bill dimensions does not *per se* preclude interspecific competition when the two species

are sympatric. Rather, the resources of an area may be partitioned by interspecific territoriality.—A.S.G.

HARRISON, J. 1968. A case of virilism in a female Silver Pheasant. Bull. Brit. Ornithol. Club, 88: 85–90.—A case of intersexuality in a female *Lophura nycthemera* is described and general aspects of the condition in birds are discussed. Development of male characters in this case is believed due to extra-gonadal androgen from adrenal cortical cells invading the atrophied ovary.—K.P.A.

HARRISON, J., AND P. HARRISON. 1968. A hybrid Purple × Grey Heron on the Camargue. Bull. Brit. Ornithol. Club, 88: 1–4.

HASHIMOTO, T., H. YAMAMOTO, AND M. KATO. 1968. Examples of some albinism birds. Tori, 18: 289–291.—Photographs and descriptions of abnormally plumaged Phasianus (= *Syrmaticus* of most authors) *soemmeringii subrufus*, *P. s. scintillans*, *Corvus corone orientalis*, and *Passer montanus saturatus*. (In Japanese.)—K.C.P.

REMINGTON, C. L. 1968. Suture-zones of hybrid interaction between recently joined biotas. Pp. 321–428 *in* Evolutionary biology, vol. 2 (T. Dobzhansky, Ed.). New York, Appleton-Century-Crofts.—A report containing references to birds that ought to be a significant contribution to evolutionary biology, but the author's views are largely unproved and his avian examples are mainly poor. Remington's "suture-zones" are the commonly known zones of secondary intergradation. Avian surprises include: *Sphyrapicus daggettii* as a species separate from *S. ruber*; *Spinus pinus* and *S. tristis* as suspected of hybridizing in secondary contact; *Icterus spurius* and *I. bullockii* as possibly hybridizing; *Eugenes fulgens* and *Cynanthus latirostris* (one known hybrid) as hybridizing in a "suture-zone"; and *Colinus virginianus* and *Callipepla squamata* as a "known hybridizing pair" (elsewhere *Colinus v. virginianus* and *C. v. floridanus* are listed as a "known hybridizing pair"!). A number of cases of primary intergradation are included as "hybridizing pairs" in these "suture-zones." This is most inappropriate, especially considering the author's view (p. 329) that the hybridizing forms will inevitably cease interbreeding to become separate species. Certainly no avian taxonomist would expect this of *Bonasa umbellus togata* and *B. u. umbellus*, *Meleagris gallopavo silvestris* and *M. g. osceola*, *Sitta pusilla pusilla* and *S. p. caniceps*, *Dendrocopos pubescens leucurus* and *D. p. medianus* or any other such subspecies listed as known or suspected hybrid pairs. The chief value of this report lies in its fair coverage of paleobotanical and geological literature regarding some areas of secondary contact. It contains many errors, some of which the author's list of "significant corrections" rectifies.—L.L.S.

YANG, S. Y., AND R. K. SELANDER. 1968. Hybridization in the grackle *Quiscalus quiscula* in Louisiana. Syst. Zool., 17: 107–143.—An analysis, based on 1,217 specimens (972 represent breeding populations in Louisiana), of hybridization between the northern *Quiscalus quiscula versicolor* and southern *Q. q. quiscula*. Geographic variation in several mensural characters is clinal. In contrast, color characters change completely in a stepwise manner between 30° and 31° N latitude. The hybrid zone correlates with the transition from northern pine-hardwood habitat to southern cypress-tupelo gum habitat and is wide where these habitats are separated by agriculturally disturbed areas. Introgression is more extensive in the southern form. The supposed subspecies *Q. q. stonii* actually represents a series of introgressed populations. The narrowness of the hybrid zone, despite the talk of evident reproductive isolation, indicates hybrid inferiority. Presumably the different

environments select against introgressing genes, but disruption of coadapted genotypes seems equally probable.—A.S.G.

General Biology

Aro, M. 1968. Bigamy in two instances with the Wheatear (*Oenanthe oenanthe*). Ornis Fennica, 45: 16–18.—(In Finnish; English summary.)

Ashmole, N. P. 1968. Phoebe dividing clutch between two nests. Wilson Bull., 80: 332–333.

Bolen, E. G., and B. W. Cain. 1968. Mixed Wood Duck-Tree Duck clutch in Texas. Condor, 70: 389–390.

Collins, C. T. 1968. Notes on the biology of Chapman's Swift *Chaetura chapmani* (Aves, Apodidae). Amer. Mus. Novitates, no. 2320: 15 pp.—Data on one nest, weight, and molt of adults and juveniles, and notes on ecology in Trinidad of the poorly known Chapman's Swift. A wing clapping display differs from that described for other congeners. The two races differ in size but not in plumage; color differences formerly thought to distinguish the races are caused by wear. *Chaetura c. chapmani* is a sedentary breeder from Panama to the mouth of the Amazon, breeding in northern spring and summer (the rainy season). *C. c. viridipennis* appears to breed south of the equator in southern Brazil during northern winter and migrate to Colombia during northern summer.—C.F.S.

Crafts, R. C., Jr. 1968. Turkey Vultures found to feed on coconut. Wilson Bull., 80: 327–328.

Weller, M. W. 1968. The breeding biology of the parasitic Black-headed Duck. Living Bird, 7: 169–207.—Observations of *Heteronetta atricapilla* in eastern Argentina indicate that parasitism is the sole means of reproduction, with *Fulica rufifrons*, *Netta peposaca*, *Fulica armillata*, and *Plegadis falcinellus* the primary hosts. The highly precocial ducklings desert their foster parents within 2 days. Reproductive success is enhanced by the greater abundance and breeding success of the hosts, random laying in nests containing eggs of any color, and precocity of the young. The adults inhabit dense marsh vegetation and feed mainly on seeds. They form pairs during the breeding season but become social during fall and migration. Plumage, anatomy, and behavior suggest a close relationship to the stifftails.—G.E.W.

White, S., and R. A. Hinde. 1968. Temporal relations of brood patch development, nest-building and egg-laying in domesticated canaries. J. Zool., 155: 145–155.—During the natural breeding season 12 unpaired and 8 paired canaries were studied. Defeathering of the brood patch, a certain stage in the vascularization of the patch, and the beginning of intensive nest-building occurred within a few days of each other. A period of intensive nest-building began about 8 days before egg-laying, with a peak 3 days before. Some birds exhibited longer periods of intensive nest-building behavior and in these an additional peak of activity occurred about 7 days before egg-laying.—K.P.A.

Management and Conservation

Braaksma, S. 1968. De verspreiding van het Waudaapje (*Ixobrychus minutus*) als broedvogel. Limosa, 41: 41–61.—A survey of breeding populations of the Little Bittern in the Netherlands showed definite breeding at 58 localities, with an additional 43 doubtful breeding localities. In spite of local population declines, the species

continues to expand its breeding range to the north. Certain conservation measures are advocated. (In Dutch; English summary.)—K.P.A.

CADE, T. J. 1968. The Gyrfalcon and falconry. Living Bird, 7: 237–240.—*Falco rusticolus* has long been a favorite of falconers, but little is known of its biology, primarily because of its far northern breeding distribution. Controlled harvest during previous centuries resulted in little decline of the species' population, and because of its range it has yet to suffer from chemical poisons as has the Peregrine. Since World War II a resurgent interest in falconry and other factors threaten many of the world's raptors.—G.E.W.

JARVIS, R. L., AND S. W. HARRIS. 1967. Canada Goose nest success and habitat use at Malheur Refuge. Murrelet, 48: 46–51.—Nesting began in late March and continued for 69 days. Breeding began at the normal time even though snow melt and vegetative growth were retarded nearly one month. Although predators destroyed more than one-third of all nests, more than 60 per cent of nests were successful. Islands and tule mats were the nest sites most frequently used, and island nests suffered less mammalian predation than other localities. Artificial islands and platforms are suggested as management techniques.—K.P.A.

MIGRATION AND ORIENTATION

ANDRLE, R. F. 1968. Raptors and other North American migrants in México. Condor, 70: 393–395.

BELLROSE, F. C. 1968. Waterfowl migration corridors east of the Rocky Mountains in the United States. Illinois Nat. Hist. Surv., Biol. Notes no. 61: 24 pp.—Migration corridors connecting a series of waterfowl habitats from the breeding grounds to the wintering grounds are described and mapped, based on land recoveries, radar surveillance, and visual sightings from the ground and aircraft. Corridors differ from flyways, as proposed by Lincoln (1935), "in being smaller and more precisely defined as to species and population elements using them." Migration patterns for dabbling and diving ducks and geese are discussed.—C.F.S.

GERZENSTEIN, E., AND J. CHEBATAROFF. 1965. Notas sobre distribución y migración de aves en el Uruguay. Anais do Segundo Congresso Latino-Americano de Zoologia, São Paulo, 1962: 297–304.—Bird migration in Uruguay. In addition to 25–30 North American species and a larger number from the Antarctic islands and extreme southern South America, about 25–30 species breed in Uruguay and winter to the north in tropical South America, chiefly Brazil. (In Spanish.)—E.E.

SOUTHERN, W. E. 1968. Experiments on the homing ability of Purple Martins. Living Bird, 7: 71–84.—*Progne subis* were released at varying distances up to 594 miles and different compass directions from their northern Michigan colonies. Successful return from different directions varied from 66.7 to 100 per cent with an average of 79.8 per cent, and declined with distance. Similar tendencies were shown in initial departure headings. Only 2 of 12 juveniles released at distances up to 250 miles returned; both were released within sight of the colony. For adults 44 of 56 females and all 6 males returned, and 4 of 6 subadult males returned. Initial flight behavior did not indicate homing performance. Flight speeds ranged up to 27.37 mph. Circumstantial evidence suports use of landmarks for orientation. Homing trials are not a satisfactory means of studying orientation.—G.E.W.

VAN VELZEN, W. T. 1968. Slate-colored Junco recovery from Michigan. Maryland

Birdlife, 24: 82.—Banded at Ocean City, Maryland, 21 October 1966, trapped near L'Anse, Michigan, 20 June 1967.—H.B.

Miscellaneous

Busse, P., and M. Gromadzki. 1967. Operation Baltic 1965 [1966] bird ringing report. Acta Ornithol., 10: 291–315; 317–339.—(In Polish; English summaries).

Hildén, O. 1968. The bird stations of Finland and their activities in 1967. Ornis Fennica, 45: 58–65.—All 9 bird stations that operate in Finland are coastal and all but one on offshore islands, of which five are near lighthouses. Their geography, habitat conditions, migratory importance, and short histories are given, together with phenological events of the year as observed at these stations. The especially warm autumn of 1967 correlates with many observations of departures delayed up to 3 to 6 weeks. A total of 27,510 birds were banded in 1967.—M.D.F.U.

Hubbell, T. H. 1968. The biology of islands. *In* Symposium on the International Biological Program, Plenary Session, National Research Council, March 13, 1967. Proc. Natl. Acad. Sci., 60: 22–32.—A comparison of continental and oceanic islands, and the theory of the history of their plant and animal biotas. The oceanic group is exemplified by the Hawaiian Islands, a "product of vulcanism that began in the west sometime in mid-Tertiary and progressed southeastward." The seven larger islands are estimated to have become established from 10 million (Kaui, Oahu) to one million (Hawaii) years ago. Under present natural conditions rainfall varies from less than 10 inches annually in the lowland lee of some mountains, to a maximum record of 52 feet on Mt. Waialeale on Kaui. From a summary made in 1948, the fauna had 3,722 species of insects, 1,064 of land snails, 70 of land birds, as the estimated descendants of 233–254 immigrant ancestors in insects, 22–24 in land snails, and 15 in land birds. The 168 ferns and allies are supposed to have come from 135 original ancestors, the 1,729 flowering plants from 272.—A.W.

Kobayashi, H. 1968. A technique of pinealectomy in small birds. Tori, 18: 247–251.—In connection with studies of photoperiodism, a technique was evolved and here is described and diagrammed for pinealectomizing small birds (hitherto reported only as done on chickens). Species used were *Zonotrichia leucophrys*, *Coturnix japonica*, and *Zosterops palpebralis* (scientific names are omitted for the first two of these). (In English.)—K.C.P.

Yoshii, M., Y. Hasuo, and H. Woo. 1967. Sixth annual report on the bird ringing for the year ending 31st March 1967. Misc. Repts. Yamashina Inst. Ornithol., 5: 159–176.—During 1966–1967, 22,422 birds of 128 species were banded at more than 20 localities in Japan. Recoveries (excluding those at or near the banding site less than 6 months after banding) totalled 90 birds of 15 species, of which 35 birds of 10 species were banded outside Japan. Of North American interest is the recovery (in both directions) of banded Ruddy Turnstones and Golden Plover from Alaska. (Introduction in Japanese; tables and recovery lists bilingual.)—K.C.P.

Physiology

Calder, W. A. 1968. Respiratory and heart rates of birds at rest. Condor, 70: 358–365.

Calder, W. A., and K. Schmidt-Nielsen. 1968. Panting and blood carbon dioxide in birds. Amer. J. Physiol., 215: 477–482.—Arterial blood pCO_2 and pH levels in an array of resting birds were lower than those for mammals. Panting under heat

stress produced hypocapnia and alkalosis in all species. In *Pelecanus erythrorhynchos*, which relies heavily on gular flutter for evaporative cooling, the same changes were observed. Apparently birds have a more thorough ventilatory air renewal and effective gas exchange system than mammals. Alkalosis cannot be prevented by the mesobronchial bypass route during panting.—A.H.B.

CRAWFORD, E. C., JR., AND R. C. LASIEWSKI. 1968. Oxygen consumption and respiratory evaporation of the Emu and Rhea. Condor, 70: 333–339.

HAGIWARA, S., S. CHICHIBU, AND N. SIMPSON. 1968. Neuromuscular mechanisms of wing beat in hummingbirds. Z. Vergl. Physiol., 60: 209–218.—In the pectoralis muscle of three hummingbird species, bursts of impulses were observed with each wingbeat during flight movements. The frequency was relatively constant and remained identical in both hovering and fast flight. Wing beat amplitude was variable, being altered by increasing both the number of active motor units within the muscle and the number of impulses/motor unit/beat. Contraction for each beat is usually a "twitch" during hovering and a "tetnus" during locomotive flight. Contraction times (8 msec at $T_b = 40°C$) are extremely short when compared to most avian or mammalian data (exceptions are noted). Tetnus fusion frequency is 250–300 cps at $T_b = 40°$.—A.H.B.

MARTIN, E. W. 1968. The effects of dietary protein on the energy and nitrogen balance of the Tree Sparrow (*Spizella a. arborea*). Physiol. Zool., 41: 313–331.

MCNEIL, R., AND M. CARRERA DE ITRIAGO. 1968. Fat deposition in the Scissor-tailed Flycatcher (*Muscivora t. tyrannus*) and the Small-billed Elaenia (*Elaenia parvirostris*) during the austral migratory period in northern Venezuela. Canadian J. Zool., 46: 123–128.—The two tyrannids are migrants to Venezuela from their breeding grounds in southern South America. *Elaenia parvirostris*, abundant in Venezuela between mid-May and early October, arrived with a high fat level and before initiating molt. In this species skull ossification proved useful in aging, although in some allied tyrannids individuals breed with incompletely ossified skulls. *Muscivora t. tyrannus* (usually called Fork-tailed Flycatcher), common from mid-June through late September, arrived with a low fat level, with molt already begun. Increase in fat content (water content decreased) prior to the return migration is documented. —E.E.

NEWTON, I. 1968. The temperatures, weights, and body composition of molting Bullfinches. Condor, 70: 323–332.

NIGHTINGALE, T. E., R. A. BOSTER, AND M. R. FEDDE. 1968. Use of the oxygen electrode recording pO_2 in avian blood. J. Appl. Physiol., 25: 371–375.—In vitro measurements showed differences of pO_2 between gaseous and fluid phases when solutions of various ionic strength and viscosity were equilibrated with several gas mixtures. Authors conclude that these alterations are not caused by oxygen solubility or viscosity, but depend on other, perhaps more subtle factors. The conclusion that the electrode should be calibrated with the fluid being analyzed is valid.—A.H.B.

TRUMAN, D. E. S. 1968. Gel filtration of chick lens proteins. Exp. Eye Res., 7: 358–368.—Preparative procedures for three major classes of chick lens proteins and some details on their subsequent handling.—A.H.B.

TRUMAN, D. E. S., R. M. CLAYTON, AND J. C. CAMPBELL. 1968. Subunit structure of

chick lens proteins. Proc. Biochem. Soc., 108: 9.—Subunits of β and γ crystallins are probably not identical.—A.H.B.

ZWANN, J. 1968. Electrophoretic studies on the heterogeneity of the chicken lens crystallins. Exp. Eye Res., 7: 461–472.—A study using electrophoresis, immunoelectrophoresis, and immunodiffusion showed that chicken lens contained 17 fractions, 9 of which were β-crystallins. This fraction and all others also showed physiochemical heterogeneity combined with immunological homogeneity.—A.H.B.

TAXONOMY AND PALEONTOLOGY

BOURNE, W. R. P. 1968. Notes on the diving-petrels. Bull. Brit. Ornithol. Club, 88: 77–85.—A review of specimen material revealed that the *Pelecanoides urinatrix* (Common Diving Petrel) complex exhibits sympatry with both *P. georgicus* (*P. u. exsul*) and *P. magellani* (*P. u. berard*). Thus *P. u. exsul* is considered to be specifically distinct from *P georgicus*. The *urinatrix* group is considered to be divisible into three populations: subtropical *P. u. urinatrix*; low subantarctic *P. u. dacunhae*; intermediate *P. u. berard* and high subantarctic *P. u. exsul*. *P. u. berard*, *P. u. exsul* and *P. u. dacunhae* form an allopatric assemblage of similar behavior and are considered conspecific. Slight evidence suggests that *P. u. dacunhae* and *P. u. urinatrix* are sympatric on the Chatham Islands off the coast of New Zealand. If true, *P. urinatrix* would be considered a monotypic, large, subtropical species, while the remaining three members of the *urinatrix* complex would be considered races of *P. berard*.—K.P.A.

CLANCEY, P. A. 1968. A new name for a race of bunting from Africa. Bull. Brit. Ornithol. Club, 88: 21.—*Emberiza flaviventris carychroa* nom. nov., is proposed for *E. f. vulpecula* Clancey, which is preoccupied by *E. affinis vulpecula* Grote.—K.P.A.

CLANCEY, P. A. 1968. The southern forms of *Serinus canicollis* (Swainson). Bull. Brit. Ornithol. Club, 88: 21–24.—The three southern African subspecies of the Cape Canary, *Serinus c. canicollis*, *S. c. thompsonae*, and *S. c. griseitergum*, are described.—K.P.A.

CRACRAFT, J. 1968. A review of the Bathornithidae (Aves, Gruiformes), with remarks on the relationships of the suborder Cariamae. Amer. Mus. Novitates, no. 2326: 46 pp.—Within this family, known from Oligocene and Miocene deposits of western North America, eight species are recognized in two genera, *Bathornis* and *Paracrax* (the latter transferred from the Galliformes). Three of the species are described as new: *B. fricki* (lower Miocene of Wyoming) and *P. wetmorei* and *P. gigantea* (both upper Oligocene of South Dakota). A most peculiar sternum of *P. wetmorei*, first of this bone known for the family, establishes definitely the flightlessness of bathornithids. The probable evolution and interfamilial relationships of the Bathornithidae are discussed, culminating in a proposed sequence of the eight families (all fossil except Cariamidae) recognized in the suborder Cariamae, order Gruiformes.—K.C.P.

DE ROO, A. 1968. Taxonomic notes on swifts, with description of a new genus (Aves; Apodidae). Rev. Zool. Bot. Africa, 77: 413–417.—A new genus *Schoutedenapus* is erected for *Apus myoptilus* on the basis of its anisodactyl foot and the number of phalangi not reduced in the third and fourth toes. This is the typical condition for the Chaeturinae but not for the Apodinae. *Apus schoutedeni* is considered a synonym of *S. myoptilus*.—C.T.C.

HOWARD, H. 1968. Tertiary birds from Laguna Hills, Orange County, California. Contrib. Sci., Los Angeles Co. Mus., no. 142: 21 pp.—Nineteen species of Miocene marine birds are represented in a collection of approximately 200 bone fragments. One new genus and four new species are described: *Alcodes ulnulus*, *Puffinus calhouni*, *Fulmarus hammeri*, *Aethia rossmoori*.—H.H.

INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE. 1968. Opinion 852. *Tanagra* Linnaeus, 1764 (Aves): suppressed under the Plenary Powers. Bull. Zool. Nomen., 25, pts. 2/3: 74–79.—This opinion issues a series of rulings on the nomenclature of tanagers, settling a number of long disputed questions: 1. The ambiguous generic name *Tanagra* Linnaeus, 1764 and 1766 is suppressed; *Euphonia* Desmarest, 1806, becomes the official generic name of the group called euphonias, and *Thraupis* Boie, 1826, remains the generic name of the group to which it has been currently applied. 2. The currently used family-group name Thraupidae Wetmore and Miller, 1926, becomes the official name, and Tanagridae Bonaparte, 1838, is declared invalid. 3. The following specific names are declared valid: *minuta* Cabanis, 1849, currently in the combination *Euphonia minuta* (*E. olivacea* Desmarest, 1806, being suppressed); *ornata* Sparrman, 1789, currently in the combination *Thraupis ornata*; and *episcopus* Linnaeus, 1766, currently in the combination *Thraupis episcopus*, is to be given precedence over *virens* Linnaeus, 1766, by any zoologist who considers the names applicable to the same species. These rulings change current usage only a) in substituting the generic name *Euphonia* for *Tanagra*, and b) in restoring the specific name *episcopus*, which had been replaced by *virens* in some recent literature.—E.E.

PARKES, K. C. 1968. An undescribed subspecies of button-quail from the Philippines. Bull. Brit. Ornithol. Club, 88: 24–25.—*Turnix ocellata benguetensis* subsp. nov., described from "North Luzon" (= Mt. Data, Benguet Subprovince, Mountain Province, Luzon).—K.P.A.

PAYNE, R. B. 1968. A preliminary report on the relationships of the indigobirds. Bull. Brit. Ornithol. Club, 88: 32–36.—Male indigobirds mimic the songs of their estrildine hosts (*Lagonosticta*). Songs of males were taped and then these males and their mates were collected. Mate selection is based upon the mimic song. Thus, forms of indigobirds that mimic the same host species are members of one "traditional cultural species." Three species of indigobirds (by this definition) occur in South Africa (*Vidua funerea*, *V. chalybeata* and *V. purpurascens*). Birds previously described as *V. funerea* were found to be of two sympatric species, differing in host specificity and foot color. The indigobirds of the remainder of Africa south and east of the Congo forests are considered a single species, *V. purpurascens*. The form *codringtoni* is considered conspecific with *funerea*. Males of *codringtoni* mimic the song of *L. rubricata* as does *funerea*. Collectors should record soft part colors, the only reliable morphological species characters.—K.P.A.

SICK, H. 1968. Hennenfederige Rasse eines Pfäffchens aus Brasilien: *Sporophila bouvreuil crypta* subsp. nov. Beitr. Neotrop. Fauna, 5: 153–159.—A hen-feathered race of seedeater, *S. bouvreuil crypta*, described from Lagoa Feia, Rio de Janeiro, Brazil. (English summary.)—E.E.

SICK, H. 1963. *Aratinga cactorum paraensis* Angehöriger des Formenkreises *Aratinga pertinax*. J. Ornithol., 104: 441–443.—The describer of the parakeet *A. cactorum paraensis* from the upper Tapajos, Pará, Brazil, now concludes that this form is a subspecies of *A. pertinax* and not of *A. cactorum*.—E.E.

SIMMONS, K. E. L. 1968. The taxonomic position of the Little Grebe. Brit. Birds, 61: 322–324.

STAGER, K. E. 1968. A new piculet from Amazonian Bolivia. Contrib. Sci., Los Angeles Co. Mus. Nat. Hist., no. 143: 2 pp.—The subspecies *Picumnus rufiventris brunneifrons* is described from Todos Santos, Bolivia. The new race is distinguished from the other two subspecies of *P. rufiventris* by the presence of a brown forehead in both sexes.—H.H.

THONGLONGYA, K. 1968. A new martin of the genus *Pseudochelidon* from Thailand. Thai Natl. Sci. Pap., Fauna Ser. no. 1: 1–10.—*Pseudochelidon sirintarae* is described from nine specimens netted in marshlands of the Chao Phraya River in Nakhon Sawan Province, Central Thailand. A notable feature of this species is the extension of the central rectrices into racquets.—A.S.G.

NOTES AND NEWS

The American Ornithologists' Union will meet from 1 to 5 September 1969 at Fayetteville, Arkansas, as guests of the University of Arkansas and the Arkansas Audubon Society. A Circular of Information providing details of the meeting and a formal call for papers will be circulated to the A.O.U. membership by late April. Chairman of the Committee on the Scientific Program is Dr. S. Charles Kendeigh, University of Illinois, Vivarium Building, Wright and Healey Streets, Champaign, Illinois 61820. Chairman of the Local Committee on Arrangements is Dr. Douglas James, Department of Zoology, University of Arkansas, Fayetteville, Arkansas 72701.

Fellows and Elective Members of the A.O.U. are reminded that nominations for election of Fellows (by Fellows only) and Elective Members (by Fellows or Elective Members) must be in the hands of the Secretary 90 days prior to the annual meeting. Thus nominations complete with support data should be submitted to the Nominating Committee (Pierce Brodkorb, Chairman, Kenneth E. Stager, and Robert A. McCabe) in ample time for processing and submitting to the Secretary by **3 June 1969**. Appropriate forms may be obtained from the Secretary.

Notice to Contributors.—Do not be alarmed if your article does not appear in the next issue of Auk after you have corrected galley proof. Keeping as much material as possible ahead in galley greatly facilitates getting each issue out in reasonable time and lightens the burden for both the editorial staff and the printer. At the present moment enough leading articles and general notes are in type for the next two issues, completing this volume. Normally contributions are pubilshed in temporal sequence of acceptance. Occasionally the editor must deviate from this rule to give precedence to timely or urgent material (such as the annual report of the Committee on Conservation), to put articles of consequence to each other together, or to give sufficient variety to each issue.—ED.

Donald S. Farner, editor of Auk in 1960, 1961, and 1962, has been named chairman of the Division of Biology and Agriculture of the National Research Council.