

Technique for Recording Field Data in the Rain.—Most field researchers have probably often or at least occasionally had to record field data during a rainfall. This is usually difficult or at least unpleasant when no shelter is available. The following simple method of recording data in the rain has proved successful. The researcher simply places his notebook or clip-board inside a transparent polyethylene bag; then, with his writing-hand and pencil or India ink pen placed inside the bag, he proceeds to record the data watching what he is writing through the water-proof, transparent side of the bag. The size of the bag depends on the size of the notebook and how much space is required for writing and manipulating the paper.—Spencer G. Sealy, Department of Zoology, University of British Columbia, Vancouver, B. C., Canada.

Bill Deformity in a Brown Thrasher.—While participating in Island Beach (New Jersey) Operation Recovery 24 September 1967, I netted an unusual Brown Thrasher (*Toxostoma rufum*). The upper mandible was deformed so strongly on the right side of the lower mandible that its tip pointed toward the right wing. Its entire appearance and behavior was that of a healthy bird. It protested handling and flew away strongly when released. It was banded 722-56804 and recorded HY-U.

Thus, the Brown Thrasher should be added to the six species listed by Raymond McNeil (*Bird-Banding*, 38: 324-25) as having bill deformities:

- American Bittern (*Botaurus lentiginosus*)
- Willet (*Catoptrophorus semipalmatus*)
- Redshank (*Totanus calidris*)
- Robin (*Turdus migratorius*)
- Red-winged Blackbird (*Agelaius phoeniceus*)
- Black-throated Blue Warbler (*Dendroica caerulescens*)

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RECENT LITERATURE

BANDING

1. Report on Bird-ringing in 1966. Robert Spencer. 1967. *British Birds*, 60(11): 429-475. "Two milestones [in banding in Great Britain] were passed during the year: the ringing of the five millionth bird since the inception of the scheme [in 1909]; and the marking of 100,000 nestlings in a single breeding season for the first time." Seven species were new to the list — a Goshawk (*Accipiter gentilis*) caught in a mist-net (1), and six species from North America — two sandpipers and four passerines. The most amazing recovery was that of an Arctic Tern (*Sterna paradisaea*) ringed as a chick in Angelsey on June 28, 1966, found dead in New South Wales, Australia on December 31, 1966. This recovery "is much the most distant for any species to result from British ringing and would command a very high place in any world list of the most spectacular recoveries." A map is given of recoveries of Collared Doves (*Streptopelia decaocto*) which shows the continued westward expansion of the species. Other maps show all foreign recoveries of the Wheatear (*Oenanthe oenanthe*), Whinchat (*Saxicola rubetra*), Black Redstart (*Phoenicurus ochrurus*), Chaffinch (*Fringilla coelebs*), and Brambling (*F. montifringilla*). A notable report.—Margaret M. Nice.

2. Notes from Falsterbo Bird Station Summer and Fall 1964. Report No. 36. (Notiser från Falsterbo fågelstation sommaren och hösten 1964.) Gunnar Roos. 1967. *Vår Fågelvärld*, 26: 256-265. (English summary.) The decrease in common raptors appears to continue. It is estimated that the yearly totals for such species as *Falco peregrinus*, *Buteo buteo*, and *Accipiter nisus*, are now 10, 40 and 50 percent, respectively, below Rudebeck's counts in the beginning of the 1940s. By contrast, the rarer raptors, including kites, eagles and harriers, were

well represented in this year. The most notable among the invasion species was *Aegolius funereus*, while *Loxia* species and *Nucifraga caryocatactes* appeared in exceptionally small numbers. A total of 14,490 birds were banded.—Louise de K. Lawrence.

MIGRATION

(See also 18, 46, 47)

3. Further Experiments on Distance Navigation in the Adeline Penguin *Pygoscelis adeliae*. R. L. Penney and J. T. Emlen. 1967. *Ibis*, **109**: 99-109. The first paper in this series was reviewed in *Bird-Banding* in 1965 (**36**: 195), and the second in 1967 (**38**: 155). The third paper is essentially a somewhat more technical version of the second, covering experiments through the 1964-65 season, rather than covering new ground.—E. Alexander Bergstrom.

4. Lipid Levels in an Intra-tropical Migrant. C. H. Fry. 1967. *Ibis*, **109**: 118-120. White-throated Bee-Eaters *Merops albicollis* increased their fat content from below 5 percent of total weight to between 8 and 15 percent before spring migration. The migration covers only about 600 miles within Nigeria.—I. C. T. Nisbet.

5. Migration Seasons of the *Sylvia* Warblers at British Bird Observatories. Peter Davis. 1967. *Bird Study*, **14**(2): 65-95. Records of five migratory species at seven observatories which have been manned regularly for 14 or more years are summarized into frequency histograms, and the results are discussed in relation to migration patterns in Britain and western Europe, as revealed by band recoveries. There are marked differences between the British breeding-birds and adjacent continental populations in both timing and orientation of migration; these are reflected in differences between the migration seasons at different observatories. Evidence is quoted for the phenomena of drift, re-orientation, post-breeding dispersal and reversed migration. It is a pity that this long and detailed paper does not include a general summary or appraisal of the results.—I. C. T. Nisbet.

6. Migratory Flights of *Hylocichla* Thrushes in Spring: a Radio-telemetry Study. W. W. Cochran, G. G. Montgomery, and R. R. Graber. 1967. *The Living Bird*, **6**: 213-225. From Champaign, Illinois, 21 thrushes - Veery (*Hylocichla fuscescens*), Swainson's Thrush (*H. ustulata*) and Gray-cheeked Thrush (*H. minima*) — were tagged with 2.5 gram radio transmitters and followed by truck for all or a part of their night migratory flight. Most of the Gray-cheeked headed directly north and most of the Swainson's northwest. The flights started from 45 minutes to two hours after sunset and ended at dawn. They were performed at altitudes from 2,000 to 6,000 feet, at air speeds of 25 to 35 miles per hour. A remarkable study.—Margaret M. Nice.

7. Visual Diurnal Migratory Movements. Jørgen Rabøl. 1967. *Dansk Orn. Forenings Tidsskrift*, **61**(2): 73-99. This paper is a somewhat philosophical attempt to classify observations of the behavior of diurnal migrants into a system of underlying "causes", using ethological terminology. A migratory bird's behavior is supposed to be determined by the interaction of a migratory drive and various sign-stimuli, such as the sun, stars, wind and topographic features. Both the intensity of the drive and the nature of the interaction may vary. For low-flying birds, the most important sign-stimuli are the topography and the wind: these do not act independently, but interact so that birds usually follow leading-lines against the wind. This is interpreted functionally as compensation for drift.—I. C. T. Nisbet.

POPULATION DYNAMICS

(See 44)

NIDIFICATION AND REPRODUCTION

(See also 35, 47)

8. Adaptive Limitation of the Reproductive Rate of Birds. Alexander F. Skutch. 1967, *Ibis*, **109**(4): 579-599. A convincing rebuttal to David Lack's insistence that all bird species raise as many young as they can nourish. Dr. Skutch calls this the "theory of maximum reproduction" and concedes that it may be the rule with some species, but marshalls many data that refute it for tropical birds. Here, with low mortality of adults, species in general follow what he calls "adjusted reproduction." "The more stable the environment, the more closely the reproductive rate tends to be adjusted to the mortality; the more a population is subject to catastrophic reductions, the more the rate will approach the maximum."—Margaret M. Nice.

9. Avian Nesting Behavior and Weather Forecasting. (Gnezdovoe povedenie i prognoz pogody.) V. A. Zhelnin. 1967. *Ornitologiya*, **8**: 350, 351. (In Russian.) Based on 25 years of observations in Esthonia it was found that if the number of breeding Lapwings (*Vanellus vanellus*) in the fields is moderate then the spring weather will be warm and brief; if Lapwings are unusually numerous with some reverse flights southward, then the spring will be prolonged and cold. If a rainy summer is in prospect the Lapwings nest on dry and elevated fields; preceding dry summers they select low areas or even swampy fields. The same is true of the nesting of Mallards and the Curlew (*Numenius arquata*). It is suggested that avian forecasting may be more reliable for restricted localities than the general regional forecasts of meteorological stations.—Leon Kelso.

10. The Breeding Biology and Behaviour of the Double-banded Courser, *Rhinoptilus africanus* (Temminck). G. L. Maclean. 1967. *Ibis*, **109**(4): 556-569. In the Kalahari Gemsbok National Park this courser lives in stony terrain with low vegetation and good visibility. Nests are always exposed. Nest relief occurs about every two hours; incubation of the single egg lasts 26 days. The newly-hatched chick is fed insects by its parents for the first week and occasionally thereafter until it can fly at the age of six weeks. "At no time is the Double-banded Courser sociable. Groups of up to four birds may occur together, but are probably always family parties consisting of the parents and the young of the previous two broods." "Adult coursers are subjected to an intense heat load in summer;" their behavioral heat-loss mechanisms are described. They are vigilant in protecting the egg and chick from the sun. A very interesting paper.—Margaret M. Nice.

11. The Effect of Fluctuations of Baikal Water Levels on Waterfowl. (Vliyaniye kolebaniy uroviya Baikala na vodoplayayushchikh ptits.) N. G. Skryabin. 1967. *Ornitologiya*, **8**: 285-293. (In Russian.) Normal seasonal fluctuations of water level exert but little negative effect on waterfowl, while high-water years affect migrant waterfowl favorably, and resident ducks adversely. In the latter case, by forcing more ducks onto reduced available nesting space remaining above water, more nest losses, and more second clutches with fewer eggs each result. Also, nest parasitism, a rarity here at normal water levels, occurs occasionally at floodwater levels in the six more common duck species.—Leon Kelso.

12. Functional Aspects of Incubation in the Herring Gull (*Larus argentatus* Pont.). R. H. Drent. 1967. *Behaviour*, Suppl. XVIII: 1-132. A careful and exhaustive study, based on extensive observation of natural incubation on a large colony of Herring Gulls, on many well-planned, ingenious experiments both in the field and laboratory, and on statistical analysis of the results. The clutch size averaged three; the incubation period was 27 days. Hatching success was 66 per cent, a figure typical of other studies of this species both in the Old World and the New. Dr. Drent's colony lost about a fifth of their eggs to predation, Herring Gulls and Norway rats being seen in such acts. Parents

incubate tenaciously in shifts averaging 4.7 hours, for about 98 percent of the time, thus protecting the eggs from cooling and over-heating as well as from predators.—Margaret M. Nice.

13. On the Nesting of *Parus rufonuchalis* in Western Tyan-Shan. (O gnezdovanii ryzhesheinoi sinitsy v zapadnom Tyan-Shane.) A. F. Kovshar. 1967. *Ornitologiya*, **8**: 359-360. (In Russian.) The first description of the nest, eggs, and young of this species, the details of which show a particularly close resemblance to *Parus cyanus flavipectus*.—Leon Kelso

14. Parasitism and Ecological Races of the Common and Glukha Cuckoos in Asiatic USSR. (Parazitizmi i ekologicheskie rasy obyknovnennoi i glukhoi kukushek v aziatskoi chasti USSR.) G. A. Kisenko, and R. L. Naumov. 1967. *Ornitologiya* **8**: 79-97. (In Russian.) This summarizes 4 years of field work on cuckoos around Bolshoi Kemchug village in Krasnoyarsk Country, and the information from 65 bibliographic titles. The field work found 20 instances of nest parasitism by 3 ecological races of the Common Cuckoo (*Cuculus canorus*) on 9 species, 8 genera and 7 families of passerines, out of 140 nests of those species examined; and 5 cases of Glukha Cuckoo (*Cuculus saturatus*) parasitism on 4 species of the genus *Phylloscopus* only.

For the Asiatic USSR as a whole 160 cases of parasitism by the Common Cuckoo have been recorded; on 44 host species of 21 genera and 10 families, all passerine except *Crex crex*. The shrike *Lanius cristatus* was most frequently parasitized (23 instances). For the Glukha Cuckoo the record is 28 instances of parasitism on 10 passerine species, 25 of them in the genus *Phylloscopus*.—Leon Kelso.

LIFE HISTORY

(See also 13, 37, 44, 47)

15. On the Biology of the Desert Raven in the Southwestern Kyzylkums. (K biologii pustynnogo vorona v yugo-zapadnykh Kyzylkumakh.) Zh. L. Lakhanov. 1967. *Ornitologiya*, **8**: 364-366. (In Russian.) In observations at 5 nests of *Corvus ruficollis*, in sites 2-10 km. apart, in desert scrub 2m or less above the ground, it was found that the 5-6 eggs are deposited in late March and April, average of 22, 44.2 x 30.7mm; incubation lasts 20-22 days; eyes of young open on 8th day; young leave nest at 37 to 38 days of age; are able to fly by 42 to 45 days; weight increase is most rapid during 5 to 15 days of age.—Leon Kelso

16. On the Biology of the Kazakhstan Pigeon Hawk. (O biologii kazakhstanskogo derbnika.) I. A. Krivitskii. 1967. *Ornitologiya*, **8**: 362-364. (In Russian.) This is a brief condensed account of observations on *Falco columbarius pallidus* Suschkin, whose life history, like that of other races of the species, has not been well elaborated. It is fairly common along stream valleys of its range, averaging one pair per ten kilometers of stream channel; the nest is placed on various eminences afforded by the steppe and semi-desert habitat, ledges on stream banks, on haystacks and abandoned buildings, in old crow nests, but more often directly on the ground under shrubbery; clutches of five eggs are laid about mid-May; only the female incubates. The young are fed small passerine birds, chiefly *Melanocorypha leucoptera* and *Motacilla flava*. The young leave the nest at three to four weeks of age and the family drifts along stream courses, preying on juvenal passerines.—Leon Kelso.

17. On the Breeding of Some Birds of the Karakums. (O razmnozhenii nekotorykh ptits Karakumov.) O. Sopyev. 1967. *Ornitologiya*, **8**: 221-235. (In Russian.) For the purpose of studying adaptation to hot, arid desert conditions, data, including nest and egg measurements, surrounding air temperatures, attendance at nest, and food, is presented for *Streptopelia turtur arenicola*, *Aquila chrysaetus fulva*, *Buteo r. rufinus*, *Caprimulgus aegyptius arenicolor*, *Upupa epops*, *Dendrocopos leucopinus albipennis*, *Corvus ruficollis*, *Rhodospiza obsoleta*, *Parus bokharensis*, *Oenanthe isabellina*, and *Sylvia curruca sibirgrewskii*.—Leon Kelso.

18. The Dickcissel on its Wintering Grounds in Trinidad. Richard P. French. 1967. *The Living Bird*, 6: 123-140. From 1959-1966 the author trapped and banded 2,888 *Spiza americana* on their roosts in fields of sugar cane. Merlins (*Falco columbarus*) and Barn Owls (*Tyto alba*) were the most important predators, regularly capturing the Dickcissels at their roosts. "Weights of birds were constant until the last three weeks before migration, when a considerable increase took place, averaging over 50 per cent over the winter norm."—Margaret M. Nice.

19. Ecological Adaptations in the Life History of the Brown Booby at Ascension Island. K. E. L. Simmons. 1967. *The Living Bird*, 6: 187-212. Very interesting study on *Sula leucogaster* during two years in 1962-64 and later three weeks in 1966. These "are pantropical seabirds of the 'blue waters' — the impoverished seas with a low density of surface plankton and, hence, of surface-living prey fish." "The average mortality is low for adult Brown Boobies and high for their eggs and chicks mainly due to the instability of the food supply." Pairs occupy a permanent nest-site and protect it at all times with strong, aggressive behavior. The female is larger and heavier than the male and is sexually dominant over him. Many photographs illustrate the different displays performed by this species.—Margaret M. Nice.

20. Ecological and Behavioral Aspects of Predation by the Northern Shrike. Tom J. Cade. 1967. *The Living Bird*, 6: 43-86. This notable study on *Lanius excubitor* is based on observations around 27 nests in northern Alaska during nine years, on examination of more than 200 carcasses of prey from shrike larders and 500 pellets, as well as on observations on 21 captive shrikes. Interestingly enough, Dr. Cade trained several of these birds and watched their hunting behavior when taken out into the wild. "From information on adult food consumption and energy requirements of a young shrike," he calculates that "the total amount of food used by a family of two adults and seven young during the 60 days from the arrival of the parents to independence of the young is about 9,000 grams, equal to 75 adult songbirds, 222 microtine rodents, and 394 bumblebees, plus odds and ends of other insects." "The main limiting factor on numbers of shrikes is probably winter food shortage— or the relative unavailability of food in winter."—Margaret M. Nice.

21. On the Winter Roosts of Paradae spp. in Cisbaikal. (O zimnikh nochevkhakh sinits v Predbaikale.) G. B. Zonov. 1967. *Ornitologiya*, 8: 351-354. (In Russian.) The nocturnal habits of *Parus montanus*, *P. palustris*, *P. major*, *P. ater*, and *Aegithalos caudatus* in winter, based on observations in the Irkutsk area from 1962-1965 are described. By day the parids travel and feed in assemblages consisting of two or more species of their own family and other taigan passerines. In the evening each species withdraws from the assemblages to roost by themselves. Of special interest is the fact that the two most common species, *Parus montanus* and *Aegithalos caudatus*, roost in rodent burrows, or other holes in the ground, and in cavities in the snow.—Leon Kelso.

BEHAVIOR

(See also 7)

22. Courtship Behavior in Manakins (Pipridae): a Review. Helmut Sick. 1967. *The Living Bird*, 6: 5-22. A comparative review of the remarkable courtship displays in more than 20 species of these small, colorful passerines of the Neotropics. Mechanical sounds are generally produced by modified flight feathers. "The peaks of evolution are reached in the acoustically unique solo display of *Manacus*, the outstanding instrumental equipment of *Machaeropterus*, and the fully synchronized performances of *Chiroxiphia*." This valuable paper is illustrated by six plates of sketches and two beautiful paintings by Guy Coleach.—Margaret M. Nice.

23. Toward an Ethology of Human Conflict: a Review. Peter M. Driver. 1967. *Jour. of Conflict Resolution*, 11(3): 361-374. Four books are discussed in this review: Konrad Lorenz' *On Aggression*, 1966; Robert Ardrey's *African Genesis*, 1961, and *The Territorial Imperative*, 1966; and Claire and W. M. S. Russells' *Human Behavior - A New Approach*, 1961. The first three are current best-sellers.

All of these books should be taken seriously, for all deal constructively with the world situation—the "behavioral breakdown—a biological malfunction of mankind." "Certainly no other animal exhibits anything like the degree of intraspecific killing and maiming shown by our own species."

Lorenz' thesis, as Dr. Driver points out, is that "aggression in the proper sense of the word is intraspecific aggression and normally fulfills a *species-preserving* function," for instance, territorialism, that safeguards against overcrowding that would destroy the habitat. Intraspecific aggression is normally ritualized; in social species it is largely a matter of displays in which the aggressor threatens, his opponent shows an instinctive gesture of submission, and the aggressor instinctively relinquishes his hostility.

"No selection pressure," writes Lorenz, "arose in the prehistory of mankind to breed inhibitory mechanisms preventing the killing of conspecifics until, all of a sudden, the invention of artificial weapons upset the equilibrium of killing potential and social inhibitions." As to diction, Dr. Driver states: "Lorenz could quite well have made his statements in behavioral jargon rather than widely intelligible prose . . . But it has been well stated that the truly great scientist has no need of jargon; fundamental truths are self-evident when stated simply. It is the mediocre scientist who takes refuge in cryptic clouds of technical verbiage." How I applaud these last two sentences!

Lorenz makes several suggestions as to alleviating this crucial problem: 1) deepening our insight into the causal chains governing our behavior; 2) sublimation of aggressive drives; 3) friendship between individuals of different nations; 4) channelling of militant enthusiasm into creative services towards helping the world.

Dr. Driver goes on to discuss Ardrey's and the Russells' books, finding that they all "lend considerable weight to his [Lorenz'] conclusions." This British ethologist has written an illuminating and scholarly contribution to the understanding of this exceedingly important problem.—Margaret M. Nice.

24. Observations on Galápagos Tool-using Finches in Captivity. George C. Millikan and Robert I. Bowman. 1967. *The Living Bird*, 6: 23-41. Series of experiments were performed with six Woodpecker Finches (*Cactospiza pallida*), captured as juveniles. A great many photographs are given of these birds and also of others in tool-using and string-pulling activities; this last behavior pattern was seen in five of seven species of Darwin's Finches but in only two of seven American passerines tested — Plain Titmouse (*Parus inornatus*) and Loggerhead Shrike (*Lanius ludovicianus*). The authors "suggest that ecological, and not genetic factors, best explain the unique occurrence of twig-probing in the finches of the Galápagos Islands."—Margaret M. Nice.

25. Reproductive Behavior in the Tetraonidae. (Fortplantningsbetende inom hönsfågelfamiljen Tetraonidae.) Ingemar Hjort. 1967. *Vår Fågelvärld*, 26: 193-243. (English summary.) This paper covers the male agonistic-courtship behavior in 10 species: *Centrocerus*, *Tetrao*, *Lyrurus*, *Pedioecetes*, *Tympanuchus*, *Dendragapus*, *Canachites*, *Bonasa*, *Tetrastes*, and *Lagopus*. The behavior is divided into three preliminary parts, each representing degrees of increased motivation: advertizing, ritualized threat, high-intensity threat, all of which may be performed during encounters with either sex. The high-intensity threat usually precipitates sex recognition. This eventually leads either directly or through symbolic pairing to copulation or, in the encounter with a rival male, to symbolic fight that in most instances inhibits actual fighting.

The descriptions of the different phases of behavior reveal an experienced and keen observer who knows not only how to extract and organize his data but how to present them in highly readable form. "The size of the (tail) feathers' movements is obviously dependent on the degree of aggressive motivation . . . in some, as in the Sage Grouse, the tips of the rectrices form an almost circular 'adornment'.

Most of the other species are equipped with tailfeathers covering a half circular surface. The tail ornament is like a flag with which each cock signals his species as well as his mood."

Accepted terminology is sometimes challenged. The "nuptial bow", for instance, variously interpreted by some students, is convincingly argued as being in fact the product of redirected antagonism brought about by a conflict of motivation, thus having nothing to do with courtship.

Sound and notes are analysed from tape recordings and studies of anatomical structures show how they are produced. Their derivation, place in the unfolding course of courtship and display, and intrinsic significance are subjects of penetrating discussions. "In the same way as birds use the take-off attitudes to warn of danger or to promote coordination in flight, I submit that the landing is fundamentally an announcement of presence directed to others of the same or another species. Normal landings of grouse cocks in forested areas are meaningless, for example to hens looking for contact with males. Evolution, therefore, favors those whose landings give greater sound effects. The behavior is therewith ritualized. In some species the flutter flight has evolved into the drumming flight, in others it has been reduced. In the western race of the Spruce Grouse (*franklinii*) the drumming flight has become a widely-audible wing applause, possibly an adaptation to the closed forest habitat where the bird lives. In the Ruffed Grouse the flight is entirely eliminated. The loud drumming on the ground has achieved so high a degree of ritualization that without knowledge of the behavior in related species its derivation would be difficult to surmise."

It is tempting to go into greater detail in reviewing this part of a remarkable study were it not for the assurance that a comprehensive English version is slated for publication soon.—Louise de K. Lawrence.

PARASITES AND DISEASES

(See also 14)

26. Keratinophilic Fungi from Nests of Birds in Czechoslovakia. M. Otsenášek, et al. 1967. *Sabouraudia*, **5**: 350-356. (In English.) While the existence of parasites which spend most of their life cycle on feathers is established and fairly well-known, the presence of parasitic plant life thereon is not so certain. Studies were made of the occurrence of keratinophilic fungi on feathers in 60 nests of 22 bird species in Czechoslovakia. In all, 11 species of fungi of genera *Keratinomyces*, *Microsporium*, *Trichophyton*, *Arthroderma*, and *Chrysosporium* were isolated. These forms can also survive in soil and it is still uncertain how dependent these fungi are on feathers of the living bird for completion of their life cycles.—Leon Kelso.

CONSERVATION

(See also 2, 23, 39, 41)

27. On Modes of Waterfowl Utilization (for Sport or the Market ?). (O putyakh ispolzovaniya vodoplavayushchkei dichi (sport ili zagotovki.) A. M. Cheltsov-Bebutov. 1967. *Ornitologiya*, **8**: 47-63. (In Russian.) From a general survey of the situation in the USSR and elsewhere it is concluded that the day of commercial utilization of waterfowl has passed, never to return; that any remnants of market hunting should be outlawed; and that the waterfowl stock that is still extant should be under the control of national systems of game management.—Leon Kelso.

PHYSIOLOGY

(See also 4, 40)

28. Some Adaptive Features of the Eyes of Ducks. (Nekotorye adaptivnye osobennosti glaza utinykh.) V. A. Tarchevskaya. 1967. *Ornitologiya*, **8**: 326-332. (In Russian.) The eyes of the more common representatives of river and diving ducks were measured for the following dimensions: length of axis from the apex of the corneal surface to the posterior wall of the bulbus; diameter of bulbus; length of bulbus; diameter of cornea; axis of cornea from apex to base; and angle of optical aperture. By calculation from the above measurements it was found that ducks have a large angle of aperture ($97^{\circ}11'$) and small relative area of the rear wall of the bulbus, being exceeded in this respect only by the owls, indicating that ducks are well adapted to low illumination. The river ducks showed more uniformity in all optical indices. In comparison with diving ducks they have greater angle of optical aperture; greater relative diameter of cornea at base; and greater convexity of cornea. Diving ducks have greater relative area of bulbar fundus relative to basal area of cornea, and wider span of adjustment of angle of aperture, all of which is regarded as more suitable for feeding under water at low visibility.—Leon Kelso.

29. Age Determination of Wildlife, a Bibliography. Ruth M. Madsen. 1967. XI + 111 pp. Mimeographed. Free, at U. S. Department of Interior Library. There are 864 items, including many from the literature of Russia and other Slavic countries, arranged according to major animal groups, with an index of authors.—Leon Kelso.

30. The Effect of a Super-high Frequency Electromagnetic Field on the Cardiac Activity of Chicken Embryos. T. P. Blinkova, et al. 1967. *Zhurnal evolyutsionnoi biokhimi i fiziologii*, **3**: 178-181. (In Russian. English summary.) The exposure of chick embryos 14-21 days old (314 embryos used in experiments) to ultra-high-frequency electromagnetic fields of low heat intensity for 30-minute periods increased their heartbeat rate 10-45 per cent, from 270 to 345 per minute, the effect showing immediately following exposure period. Within 1.5 - 2 hours the rate subsided to normal. Embryos of 14-16 days age subjected to such electromagnetic fields responded similarly to them at a later age, while embryos not so treated showed little or no response at 20-21 days age.—Leon Kelso.

31. A Histochemical Study of the Organ of Corti in Birds under Sound Stimulation. (Gistokhimicheskoe issledovanie kortieva organa ptits v usloviyakh zvykogo vozdeistviya.) O. Sh. Gogniashvili. 1967. *J. Evolutionary Biochemistry and Physiology*, **3**: 272-275. (In Russian. English Summary.) Sound stimulation causes changes in both content and distribution of nucleic acids, and of total protein and functional protein groups, in the Organ of Corti in domestic chicks and common pigeons (*Columba livia*). At low frequencies (300 hertz, 95 decibels) changes were effected throughout the cochlear canal, while at higher frequencies (1500 hz, 95 db) they were confined to its base. Ribonucleic acid granules disappeared in the cytoplasm, and rod-like or round bodies containing RNA were formed, linked to the nuclear membrane. This was presumably due to excretion of RNA from the nucleoli into the cytoplasm. These and other details indicate that sound reception in the avian Organ of Corti is similar to that in mammals.—Leon Kelson.

32. On The Sublingual Pouches of Fringillidae. (O podyazychnykh mezhkakh vyurkovnykh ptits.) A. F. Kovshar and B. V. Nekrasov. 1967. *Ornitologiya*, **8**: 320-325. (In Russian.) The presence of sublingual food-transporting pouches during the breeding season in 6 species of Eurasian fringillids: *Leucosticte brandtii*, *L. nemoricola*, *Pyrhula p. cineracea*, *Pinicola enucleator*, *Rhodopechys sanguinea*, and *Uragus sibiricus* is definitely established. The structure and action of the muscles involved are well described and figured for the 1st, 4th, and 5th of the species enumerated above.—Leon Kelso.

PLUMAGES AND MOLTS

(See also 29, 46)

33. Winglength and Errors in Measurement - Attempt at an Analysis. Kvismare Bird Station Report No. 8. (Vinglängd och mätfel - ett försök till analys.) Håkan Johannesson. 1967. *Vår Fågelvärld*, 26: 249-255. (English summary.) The difference in the winglength measurements of shorebirds taken by several cooperators are analysed. Accidental errors, including negligence, proved unimportant because eventually they cancelled out each other. Systematic errors were due mainly to variations in the flattening of the wing against the rule.—Louise de K. Lawrence.

ZOOGEOGRAPHY

(See also 2, 45, 47)

34. Features of the Avian Population of the Dwarf Juniper Belt. (O sobennosti naseleniya ptits poyasa archevogo stlanika.) P. P. Vtorov. *Ornitologiya*, 8: 254-261. (In Russian.) In the subalpine of the Terskei Alatau range in Tyan-Shan, an analysis of the 35 bird species occurring there finds that most of them are ancient relict inhabitants of evergreen savannas of pre-quaternary Neogene times and not a mixture from the adjacent forest and alpine zones.—Leon Kelso.

35. Bearded Tit in Scania 1965-66, new species for Sweden. (Skäggmessen (*Panurus biarmicus*) i Skåne 1965-66, en för landet ny fågelart.) Sven-Axel Bengtson. 1967. *Vår Fågelvärld*, 26: 244-248. (English summary.) The species was first observed in 1965 in northeastern Scania. The following year a pair with nest containing two nestlings and three eggs was found in the same locality. The species breeds predominantly in southeastern Europe northwards to the Baltic Sea.—Louise de K. Lawrence.

36. Dancing Wheatear Abundance and the Population Density of *Rhombomys opimus* in Turkmeniya. (Chislennost kamenki-plyasunii i plotnost poselenii bolshoi peschanki Turkmenii.) Kh. Babaev. 1967. *Ornitologiya*, 8: 333. (In Russian.) This is based on data of censuses of numbers of *Oenanthe isabellina* and *Rhombomys opimus* taken 1959-1962 in the southeastern Karakums desert, covering about 2,000 kilometers of field trips, observing 450 rodent colonies. Of the 20 species of rodents in the area surveyed, the wheatear had closest contact with *Rhombomys opimus* whose burrows were used for nesting sites. In an area of 4.7 rodent colonies per hectare there were 9.8 wheatears per 10 km trip. In an area of 2 rodent colonies per hectare there were 1.1 *Oe. isabellina* per 10 km.—Leon Kelso.

37. Distribution and Biology of the Red-breasted Brant in the Breeding Season. (Rasprostranenie i biologiya krasnozoboi kazarki v gnezdovoi period.) A. V. Krechmar and V. V. Lenovich. 1967. *Problemy Severa*, 11: 229-234. (In Russian.) A summary of what is known of the breeding range and life history of *Rufibrenta ruficollis*, a strikingly colored anatid, this account concludes that it is a relict species on the way to extinction. Its habits provide another symbiotic phenomenon in locating its nests near those of the Peregrine Falcon, apparently for protection from the Arctic Fox, "the most dangerous enemy of tundra birds.—Leon Kelso.

38. Geographical Variation of Abundance and Structure of Avian Populations in Forest Biocenoses. (Geograficheskaya izmenchivost obiliya i struktury naseleniya ptits lesnykh biotsenozov.) Yu. G. Puzachenko. 1967. *Ornitologiya*, 8: 109-122. (In Russian.) From the analyses of bird census in forest biocenoses (communities) of various USSR areas a quite definite correlation is

found between avian abundance and length of the warm or frostless season. The longer this period the more bird species occur, and in greater numbers. Avian species diversity depends primarily on complexity of forest biocenose structure, and may be low or high irrespective of the total numbers of the general population. Greatest diversity of species occurs in the southern taiga and broadleaf forests. Correlation of avian populations of different trophic groups to different strata of the forest biocenoses closely reflects the structural features of each community.—Leon Kelso.

39. The Wintering of the Red-breasted Brant in Eastern Azerbaidzhan. (Zimovki krasnozoboi kazarki v vostochnom Azerbaidzhane.) S. M. Uspenskii and Yu. I. Kishko. 1967. *Problemy Severa*, **11**: 235-243. (In Russian.) The behavior of this declining species on its limited winter range is described. Most of this range is under protection of the Kizyl-Agach Reserve.—Leon Kelso.

SYSTEMATICS

40. Biochemical Indicators of Ancestral Relationships of Anseriformes. (Biokhimicheskie pokazateli rodstvennykh svyazei guseobraznykh.) I. V. Andrievskii et al. 1967. *Ornitologiya*, **8**: 71-78. (In Russian.) A critique of the blood serum electrophoresis method of determining animal relationships, this summarizes analyses of blood sera of 27 species of Anseres and finds among various conclusions that *Eulabeia indica* should be in genus *Anser*; that *Rufibrenta ruficollis* should remain out of genus *Branta*; and that *Aix sponsa* and *Aix galericulata* should be in separate genera, the latter taking the name *Dendronessa*. They recommend however that not merely biochemical indices but physiological and ecological characters as well should be considered in determining ancestral relationships of large and small taxonomic units.—Leon Kelso.

FOOD

(See also 8, 20, 32)

41. The Dietary Features of the Curlew and the Black-tailed Godwit in Northern Kazakhstan. (Osobennosti pitaniya bolshogo kronshnepa i bolshogo veretennika v severnom Kazakhstane.) V. F. Ryabov and N. I. Mosalova. *Ornitologiya*, **8**: 21--220. (In Russian.) In Eurasia the larger Curlew (*Numenius arquata*), like its American counterpart (*N. americanus*), is largely an arid ground steppe-dwelling species notwithstanding its long-legged and long-billed equipment for aquatic feeding. Terrestrial insects, largely beetles, decidedly predominated in its summer food (75 stomachs examined). The Black-tailed Godwit (*Limosa limosa*) frequents wet ground near steppe waters where it feeds mainly near or in water. Beetles predominated in its food but there were also considerable amounts of aquatic Diptera larvae and vegetable matter (58 stomachs examined). Both birds are declining in numbers and in need of special protection.—Leon Kelso.

42. The Trophic Relationships of Birds to Insects in the Tundra Zone. (Troficheskie svyazi ptits s nasekomymi v tundrovoi zone.) Yu. I. Chernov. 1967. *Ornitologiya*, **8**: 133-149. (In Russian.) This is based on field work at six representative localities on the Siberian Arctic coast, from Waigach to the Indigirka, with analyses of 1113 stomachs. The results are discussed by major bird groups: shorebirds, diving ducks, passerines and gulls. Except for the predatory gulls they all fed mainly on Diptera, principally the larvae of the families Tipulidae and Chironomidae. In the summer marine species of the above groups tend to shift over to freshwater invertebrates as their principal foods.—Leon Kelso.

SONG

(See also 31)

43. Geographic Variation in the Song Intensity of Some Passerines. (Geograficheskaya izmenchivost intenzivnosti peniya nekotorykh vorobinykh.) V. I. Podarueva and A. S. Davidova. 1967. *Z. Zhurn.*, **46**: 1412-1314. (In Russian.) Based on three years of field census work, song intensity of passerines appears to rise proportionally to their population density. Geographically the highest song intensity occurs in the optimal region of a species' range. Northward and southward of the optimal area environmental factors tend to suppress singing. For *Turdus iliacus* this optimum is a little north of the forest zone; for *Turdus philomelos*, *Erethacus rubecula*, *Phoenicurus* spp. and *Muscicapa hypoleuca* in the mid-forest belt; and for *Turdus merula* and *Luscinia luscinia* in the forest-steppe zone. The correlation of song intensity to number of individuals in an area is regarded as proof that bird song is a signal of nest territory occupation.—Leon Kelso.

BOOKS AND MONOGRAPHS

44. The Book of the American Woodcock. William G. Sheldon. 1967. Univ. Mass. Press, Amherst, Mass. 227 pp. \$8.50. At least fifteen years have been spent by Dr. Sheldon in gathering data for this book which represents a complete account of the American Woodcock's biology. Major sections are devoted to distribution, physical characteristics, breeding and feeding habits, migration, hunting, management, and population dynamics. To many readers, this latter chapter will be of especial interest because evidence based upon natality and mortality rates leads the author to conclude (p. 147) ". . . that woodcock can sustain an annual loss of all sex and age groups of 52 per cent and still maintain a stable breeding population." Other readers will be attracted to interesting data on carrying of young, plumage differences between males and females and between juveniles and adults, migration routes, territoriality and copulation, to mention only a few.

An entire chapter is devoted to some comparisons with the European Woodcock (*Scolopax rusticola*). Several appendices terminate the book—successful trapping and netting methods, tables of molt patterns, seasonal weights, singing periods, preferred foods, band returns, and a key for aging woodcock from wings.

Written in a style particularly appealing to sportsmen and game management biologists yet including many basic biological facts, this book will serve for a long time as the definitive study of this bird with its many intriguing morphologic and behavioral features. Some 58 illustrations, mostly photographs, and 30 tables add to the value of this publication.—David W. Johnston.

45. The Biology of Forest Birds and Mammals. (Biologiya Lesnykh pti i Zveri.) G. A. Novikov, editor. 1967. "Vysshaya Skola" Publishing House, Moscow. 404 pp., 166 figures, bibliography of 125 titles. 1 rouble, 10 kopecks (about \$4.00 U. S.). This book is a thoroughly-revised enlargement of and replacement for *Forest Mammals and Birds*, by G. G. Doppelmeyer, 1951, which proved very serviceable as a vertebrate ecology text for institutes and colleges of forestry in USSR. The four large chapters deal respectively with: Birds (their identification, distribution, main features of their ecology and economic value); Mammals (*idem.*); Ecolo-geographic features of forest bird and mammal distribution; and Practical value of forest birds and mammals (including their roles in dispersal and renewal of stands of trees and shrubs, their role as vectors of parasites and diseases, practical measures for their control, and propagation and for the acclimatization of introduced species). As an indication of expansion and revision, in the old text the Nutcracker was dealt with by about 230 words on 2 pages; in the present by about 800 words in 6 different pages. The contributors to the volume, Doppelmeyer, Falkenstein, Malchevskii and Novikov, are about the most accomplished vertebrate ecologists in the USSR, and it appears to be a very thorough and reliable text.—Leon Kelso.

46. Bionika (Bionics). M. G. Haaze-Rapoport and V. E. Yakobi, editors. 1965. "Nauka" Publishing House. Moscow. 476 pp. (In Russian.) This is a collection of 75 articles devoted to that new science the purpose of which is to discover and apply in technology those processes, systems and principles thereof which living nature has evolved over the millions of years. Articles of ornithological interest are; Borodulina, Adaptations in Avian Plumage to the Flow of Air Currents; Kokshaiskii: Research on Avian Flight for Ascertaining Physical Laws for Machine Flight; Manteufel et al., Orientation and Navigation in the Animal World; Kumari, On Astronavigational Capacities of Migrating Birds; Blagoslono, Experiments on Orientation and Individual Bird Behavior; Yakobi, Probable Mechanisms of Acquisition of Navigation Skills of Birds in Flight; Mikhelson and Viksne, Navigation Capacities of Migrant Birds; Wilks, Results of Experiments on Homing in the Pied Flycatcher; Dolnik and Paevskii, On the Limits of Small Birds' Capacity for Orientation; Shumakov, Primary Results of Research on Migratory Orientation of Passerines by the Circular Cage Method; Naumov and Ilichev, Some Remarks on the Orientation Problem; Neiman, Possible Interactions of Magnetic Fields and Biological Objects.—Leon Kelso.

47. Handbook of Central European Birds. (Handbuch der Vögel Mitteleuropas). Kurt M. Bauer and Urs Glutz von Blotzheim. Band 1: Gavii-formes - Phoenicopteriformes. 1966. Akademische Verlagsgesellschaft, Frankfurt am Main. 483 pp. DM. 48. (subscription price DM. 40.80 if the 11-volume set is ordered). By coincidence (perhaps it would be more apt to say *convergence*), this important book covers exactly the same ground as volume 1 of the *Handbook of North American Birds*, and 30 of its 44 species were also treated in that book. The two Handbooks are similar in many ways, but this is rather smaller and cheaper, more austere produced (some pages were already falling out when the review copy reached me), with rather more functional illustrations, but with no colour plates and few maps. It is designed to cover all the species recorded in Central Europe—*viz.*, the area extending from Belgium to Hungary and Czechoslovakia.

The species are treated in accounts which vary in length from 24 pages on the world's most thoroughly studied bird (the White Stork) to as little as 16 lines on some accidentals, including 7 pages on the Bald Ibis which was extirpated in the seventeenth century. The authors unashamedly treat each subspecies separately: this has the advantage that they have not had to comb the world's literature for information about distant subspecies, but has the disadvantage that they have had to make dogmatic and arbitrary divisions of related data—*e.g.* the food of two subspecies of the Great Cormorant. These divisions will become absurd when they reach the passerine species which have many subspecies within Europe.

As in Palmer's Handbook, the main emphasis in this book is on distribution, migration, habits, and breeding biology: the sections on these subjects together occupy some two-thirds of the total volume. These sections are admirably complete and concise summaries of the available literature on the subspecies concerned, and are supported by a complete three-level bibliography—a 27-page list of general works, a list of specialized studies of each species, and a liberal sprinkling of text-references.

In comparison with Palmer's Handbook, the accounts of migration, dispersal and band recoveries are much more comprehensive, reflecting the greater activity of European ornithologists in these fields, but the distribution accounts are otherwise more locally biased: world distribution is only sketchily described, especially that in winter. There is more emphasis on numerical abundance, but again this is treated at the subspecies level and hence is locally biased. Plumage descriptions are even briefer than in Palmer's Handbook, and the sections on moult rely heavily on Witherby's *Handbook of British Birds*, which has now been found to be unreliable on this subject. There is a good deal of material on weights and measurements, but it is based on small samples and is not treated statistically. Sections on field identification and voice are concise, but include useful references to published photographs and disks.

For the American reader, this book will be most useful for its extensive treatment and bibliography of life-history data: in this respect it is an excellent complement to Palmer's Handbook, whose coverage of German-language publications was somewhat sketchy. For the European reader, this is now much the

best ornithological Handbook. However, Europe (unlike North America) was already well-served by ornithological Handbooks: for all its excellence, this book is superior only in being up-to-date and in minor details of treatment. With the 'data-processing revolution' already under way, the concept of the all-embracing Handbook is becoming obsolete, especially when it covers only a limited geographical area. Taxonomists already require more detail than can be included in a book of this nature, and so do students of ecology, population and migration; all these types of data can be (and will be) stored and retrieved more efficiently by computer. The most important function of future ornithological Handbooks will be to serve as source-books and bibliographies of life-history data: this function will not be served adequately unless they cover wider areas, and treat the entire species as the unit.

In fairness, it should be added that the above comments apply with greater force to North America, where the efforts now being expended on the production of Handbook-style state bird books would be much better devoted to the assembly of local distribution data, and to the acceleration of the continental Handbook.—I. C. T. Nisbet.

EDITORIAL ADVISORY BOARD FOR BIRD-BANDING

In late 1967, an editorial advisory board for *Bird-Banding* was initiated, to:

- (a) advise on general editorial policy;
- (b) advise the president of NEBBA on choice of a new editor when necessary (as NEBBA continues to carry sole responsibility for financial support of the journal, its president has final discretion on appointment of the editor);
- (c) advise the editor on choice of a new review editor when necessary, and advise both of them on new reviewers;
- (d) be available to the editor for opinions on papers being considered (though the editor will seek advice elsewhere in some cases depending on the topic involved, and may accept some papers without obtaining a second opinion);
- (e) help to maintain and increase the number of subscribers to *Bird-Banding*;
- (f) advise the editor on ten-year indexes.

Establishment of the board doesn't imply a radical change in the editing of *Bird-Banding*, such as editing by committee. The board should give the editors more regular and formal access to the judgment of some active and experienced banders, and thus help to assure that the journal is responsive to the need of banders.

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OBBA: James K. Woodford, 76 Glentworth Road, Willowdale, Ont., Canada.

WBBA: L. Richard Mewaldt, Dept. of Biological Sciences, San Jose State College, San Jose, Calif. 95114.

NOTES AND NEWS

Dr. Horace Loftin (Florida State University Center for Tropical Studies, Box 930, Albrook AFB, C.Z.) needs two students for field work in autumn 1968, under conditions similar to those in 1967 (see *Bird-Banding*, **38**: 256, April, 1967). Probable place of banding, central Panama or on the eastern Caribbean coast. Three such students are working with Dr. Loftin in the spring of 1968.