

secured specimens of 137 species of birds of which 21 had not previously been recorded from that country.

The present report¹ is based primarily upon this collection and the observations of the party but the author has wisely made it a complete list of Liberian birds including all species that had been recorded by previous writers. Following the name and reference to place of publication there "comes a very brief description designed to help in the identification of specimens, particularly for anyone slightly familiar with birds who may live in Liberia; the range in Africa follows and then a summary of what has been published on the habits and occurrence of the species in Liberia, together with our own notes where these seemed sufficiently important." From this it will be seen that the report which covers 281 species is far more than a list and will prove most valuable as a work of reference. The author, moreover, has carried out his plan with excellent judgement and writes with his usual clarity and facility of expression. There are preliminary chapters on Ecology, River Birds, the Forest, Alterations of the Forested Areas, Migrants from Europe, and Local Migrations.—W. S.

Burt on 'Adaptive Modifications in the Woodpeckers.'—This detailed study² of the skeleton and musculature of all of the genera of North American Woodpeckers with the exception of the Ivorybill (*Campephilus*) presents a large amount of interesting data which when summarized shows that the most obvious adaptive modifications are in the skull, with a positive correlation between its structure and the habits of the birds. Arboreal habits are correlated with a wider cranium, wider straighter bill, with a folding under of the frontals along their line of contact with the premaxillae, and in general a stronger built skull than is found in the less arboreal types. As to muscles the family may be divided into two sections as to the presence or absence of the accessory semitendinosus muscle.

The author regards the Flicker (*Colaptes*) as the most generalized type of Woodpecker and the Three-toed Woodpecker as the most specialized which would involve the theory that Woodpeckers were originally terrestrial and that the arboreal habit is a later specialization, a conclusion with which we think most students of the group will agree. Mr. Burt has made a valuable contribution to bird phylogeny and anatomy.—W. S.

Gross on Wisconsin Prairie Chickens.—The investigation reported upon in the present publication³ was undertaken for the Research Bureau of

¹ The Birds of Liberia. By Glover M. Allen. Reprinted from the Report of the Harvard-African Expedition upon the African Republic of Liberia and the Belgian Congo. pp. 636-748.

² Adaptive Modifications in the Woodpeckers. By William Henry Burt, Univ. of Calif. Publ. in Zool., Vol. 32, No. 8, pp. 455-524. December 10, 1930.

³ Progress Report of the Wisconsin Prairie Chicken Investigation. By Alfred O. Gross, Ph.D., Special Investigator for the Research Bureau of the Wisconsin Conservation Commission. Madison, Wisconsin. 1930. Pp. 1-112, numerous illustrations.

the Wisconsin Conservation Commission and Dr. Gross with his long experience with the Heath Hen was an admirable selection for the task.

The subject is approached from every angle and details are presented on factors controlling Wisconsin Grouse, the climate, soil, and vegetation of the state, distribution and abundance of the bird, laws pertaining to it, migration, parasites and disease, food, and a complete life history.

Attention is called to the cycle of abundance that seems to exist in which this and other upland game birds, notably the Ruffed Grouse, abound one year and are very scarce the next, the reason for this condition being still unexplained. Refuges are urged as an important factor in increasing the birds but the need of restoring the marsh lands in order to improve Grouse conditions and reduce fire hazards is most urgent. As to predators Dr. Gross wisely says "The indiscriminate wholesale destruction of all predators is to be rigidly avoided as such a procedure is destined to upset the balance of nature in such a way as to act as a boomerang to the objective. The shortening of the hunting season is also urged as a necessity and in this connection Dr. Gross says: "Too often we may think of game birds as just so many birds to kill and overlook the interests of other citizens who value the birds in a different way. The farmer who protects and feeds the Prairie Chickens because he likes to see them on his farm has rights which we should all respect." If the two quotations above noted were taken to heart by our game commissions and game breeders many of our wild birds would be better off and we should not be in danger of having to reap the whirlwind that will follow the present destruction of nature's balance.

Dr. Gross has given us an admirable report and we hope that the Wisconsin authorities will follow the advice that he has laid down and that ornithologists and others in Wisconsin will cooperate in gathering the detailed data that is necessary to properly carry out the salvation of this valuable and interesting bird.—W. S.

Koslova on Birds of Trans-Baikalia and Mongolia.—In a paper¹ of 396 pages entirely in Russian E. V. Koslova describes the birds of the Trans-Baikal country, northern Mongolia and central Gobi. The annotations are very full and there are lists of the specimens obtained on explorations which were made in 1924 and 1926. A number of half-tone reproductions of photographs illustrate the character of the country as well as skins of several species of birds.—W. S.

Annals of the Zoological Museum of the Academy of Sciences U.S.S.R. 1928.—This volume entirely devoted to ornithology and wholly in Russian opens with a memoir of the late Peter P. Sushkin with a portrait and bibliography. Other papers are 'The Bluethroats of the Eastern

¹ Acad. Sci. U.S.S.R. Materials of the Commission for the Investigation of the Mongoliana and Tuvinsk Peoples' Republics and the Buriat-Mongolian Autonomous S.S.R. No. 12.