

Olive Thorne Miller, and of an 's' in the last name of Harriet E. Richards. While the narrative loses somewhat in continuity through frequently going back in time in order to trace the earlier stages in various of the "adventures," this is perhaps unavoidable in the presentation of the many-sided problems involved. This work is unquestionably a valuable document of human history.—G. M. A.

Hudson on Muscles of the Hind Limb in Birds.—This¹ is an important contribution to the study of comparative myology in birds, a subject too much neglected in recent decades. The author has made a detailed analysis of the hind-leg muscles in representatives of sixteen of the twenty orders of birds included in the A. O. U. Check-list, using special methods of preservation and fixation. From his brief review of important literature, it is apparent how little has been done since Gadow's great work in Bronn's 'Tier-reichs', while of American birds, the myology of less than half a dozen species has been carefully worked out. The author takes the common Crow as a type for detailed study, and by means of unusually clear and well-conceived line drawings, illustrates the various muscles of the leg, their origin and insertion, and relations. A unique feature is a series of cross-sections taken at different levels, and worked out with great care to show the arrangement of the muscle masses and tendons. A brief historical review of important works on avian musculature precedes a systematic account of all "muscles known to occur in the pelvic limb of birds," but one misses any reference to the work of Fürbringer, Beddard, or the more recent account by Stolpe. For each muscle is given the accepted name of the Basle 'Nomina Anatomica,' 1895, and as synonyms the names (often coined) used by Shufeldt in his 'Myology of the Raven,' together with the corresponding nomenclature of Gadow. Then follow: description, action of the muscle, its homology, and brief comparisons with those of other groups of birds. It might have been better, however, to have formally adopted the names suggested by Gadow, which are well considered and based on avian musculature, whereas those of the Basle list are based on human anatomy; for as Romer has shown in his study of the development of muscles in the embryo Domestic Fowl, it is not always certain that the portion of an embryonic muscle mass which finally develops into the adult muscle is homologous with the part that develops into a similar muscle in a mammal. Nevertheless the author is justified in following a standard set of names and he has given the equivalents as synonyms. The author shows that the ambiens muscle, the presence or absence of which Garrod regarded as of great significance in avian classification, is less important than generally supposed. Instead of the familiar formula including this and four other thigh muscles, designated as A, B, X, Y, as proposed by Garrod, the author extends this to include two other muscles of the thigh, the ilio-trochantericus medius and gluteus medius et minimus, and a vinculum connecting two of the digital tendons, or not. In this way, by using eight letter-symbols, it is possible to indicate for each taxonomic group of birds its particular and characteristic musculature. Thus one may see at a glance the specialization that has taken place through loss or parallel development in different groups. Fowls are generalized in having the full formula, while owls are specialized in having but two and swifts but one of the elements. Among other points brought out, the near similarity in the formulae of woodpeckers and Passeriformes is striking, while the dissimilarity between owls and goatsuckers, once thought to be closely related, is equally obvious. Again, in *Gavia* six of the seven thigh muscles are present, but in *Colymbus* there are but three.

¹ Hudson, George Elford. Studies on the muscles of the pelvic appendage in birds. Amer. Midland Naturalist, vol. 18, no. 1, 108 pp. including 26 pls., Jan. 1937, Notre Dame, Indiana. \$0.50.

The distinctness of the falcons from other hawks is emphasized by at least a dozen muscle characters of importance. These and many other points of taxonomic value are brought out in the discussion of the different muscles and in the excellent summary. In view of the fact that dissections must often be made from poorly preserved material, it is easy to miss minor details, so that the author's re-examination of various supposedly well-known species is worth while. Thus he finds that Shufeldt overlooked three leg muscles in the Raven, which though small, prove to be present. The usually accepted statement that the ambiens is absent in the Alcidae is shown to be untrue, for Hudson finds it is small but present in the California Murre, and calls attention to an overlooked note of Gadow's on its occurrence in this genus. The probable nearness of the swallows to the tyrant flycatchers is favored by finding that both families agree in having no post-acetabular portion of the tibialis, and thus differ from twenty other families of Passeriformes examined, in which it is present. It is evident that the details of musculature in birds vary widely even among forms clearly related so that broad generalizations must be made with caution and only "with due regard to all other known morphological facts"; yet, judiciously used, they often offer valuable evidence in classification.

Dr. Hudson's paper may well serve as a guide in much needed additional work in this important field, while as a laboratory manual for the student and teacher of comparative anatomy it should prove of great service. The many important suggestions of relationship afforded by this comparative study should not be overlooked by the systematist. It remains for some future worker to study more particularly the musculature in relation to the habits of different groups of birds in an attempt to correlate these with the variations established, in order to gain further insight into their meaning.—G. M. A.

Bartlett's 'Birds of Eastern New York'¹ is a pocket-sized pamphlet with stiff paper covers, privately printed by the author. It is obviously intended to present a concise summary of the bird life of the 'region' in as small a compass as possible consistent with clarity. The brief introduction shows that the area covered by this faunal list is actually restricted to Schenectady, Albany, Rensselaer and Saratoga Counties. The records and data are compiled from Eaton's 'Birds of New York,' Judd's 'Birds of Albany County,' and the observations of a group of field enthusiasts, of from several to twenty years' experience. A commendable feature is a careful definition of the terms used in outlining the status of each species. The systematic list, in A. O. U. Check-list order, gives full migration dates and seasonal variation in numbers. A second part summarizes this information under the headings, permanent residents, winter residents, etc., in which the birds are divided into groups according to rarity. A third part is a seasonal calendar of arrivals and departures.

It is apparent that all records have been reviewed and weighed with some critical skill. The discoveries of the modern 'sight-record' period are obviously in accord with changes and developments in adjacent areas, and few are the records or dates which arouse skepticism. The type used is so painfully small that there is much more meat in these twenty-two pages than one would suppose. It is to be hoped that so compressed a summary will be followed by a real faunal report.—L. G.

¹ Bartlett, Guy. *Birds of Eastern New York*. Privately printed by the author, Rosendale Rd., R. D. 1, Schenectady, N. Y., 9.5 x 17 cm., 24 pp., 1937. Price 40 cents.