

however, the present reviewer does not fare so well, as his name is spelled in three ways while in the index one of his works on Eastern Pennsylvania appears as "Eastern Peru"! We note very few such errors, however, and they are of small importance. The "Index Indicis" will be a great help to those using the volume although there seem to be a few errors in the allocation of certain titles, such as the inclusion of two works devoted wholly to North American mammals among the "general treatises."

All zoologists and librarians as well, as the student or general reader in search of information, owe Dr. Wood a debt of gratitude for his painstaking labor in the preparation and publication of this work, as well as his efforts for many years past in collecting the wonderful ornithological library upon which, in part at least, it is based.—W. S.

Miller on the American Shrikes of the Genus *Lanius*.—Seldom if ever has a limited group of birds been studied so exhaustively as have our shrikes in this monograph¹ of Mr. Miller's. And so completely has he covered the ground that it is hard to find anything that he has overlooked, while his method of treatment might well serve as a model for such studies.

The species considered are *Lanius borealis* and *L. ludovicianus* though he regards the former and its subspecies *invictus* as races of the Old World *L. excubitor*. The paper is divided into two nearly equal parts entitled "Systematic Revision and Analysis of Variation" and "Natural History." We like the latter term which of late years has been much less frequently used than formerly, for we should rather be known as a "naturalist" than as a scientist, ecologist or similar supposedly more brilliant title!

The first consists of a discussion of the characters exhibited by shrikes of the genus *Lanius* with tables showing their variation with regard to sex and age. Then follows the chapter on characterization of species and subspecies with synonymy, discussion of the type, and detailed description of the various plumages of each form, including a statement of its range; and finally a discussion of geographic variation of the several characters with respect to climate, environment, etc., illustrated by tables, diagrams and photographs of habitats.

Under natural history we find accounts of molt, migration, habitats, territory, courtship, nests and eggs, incubation, growth of young, food, foraging, impaling instinct, digestion, preening and bathing, modes of progression, vocal notes, causes of death and age—truly an exhaustive treatment.

With regard to the systematic discussion Mr. Miller recognizes four more races of *L. ludovicianus* than does the recent A. O. U. 'Check-List.' Doubtless with the vast amount of material at his disposal his treatment is the more logical of the two though in such cases we must remember that

¹ Systematic Revision and Natural History of the American Shrikes (*Lanius*) By Alden H. Miller. Univ. Calif. Publ. Zool., Vol. 38, No. 2, pp. 11-242, 65 figs. in text. October 24, 1931. Price \$3.00.

his view is that of one who has spent much time in an intensive study of a small group, in which process slight differences inevitably loom large, while the other is the majority vote of several ornithologists looking upon this group as they have a large number of others which they have had to consider rather briefly. There will always be differences of opinion in such matters. In his discussion of plumages Mr. Miller in the main uses the terms suggested by the late Dr. Dwight in his papers on molt and sequence of plumages, but we find the plumage following the natal down, or the bird in that plumage, referred to as "juvenal" in some places and "juvenile" in others (perhaps intentionally to distinguish bird from plumage). The latter term has been used by many in a loose manner to indicate both the "juvenal" plumage of Dwight and the first winter plumage or "first fall" plumage as Mr. Miller prefers to call it. It seems unfortunate that we cannot all use Dr. Dwight's nomenclature in its entirety and avoid possible misunderstanding.

To illustrate the care that Mr. Miller has exercised in his work and also the way in which personal opinion will enter into the question of the recognition of subspecies we note that in his tables he subdivides some of his subspecies into "northern" and "southern," or "San Francisco" and "Los Angeles" forms, which show differences in measurements but not sufficient, in his judgement, to warrant a name. So others possessing minds with perhaps less finely graduated scales have regarded some of his subspecies in the same way.

Mr. Miller speaking of the formation of subspecies makes the interesting suggestion that while some birds are regarded as plastic in this respect, "is this apparent plasticity due so much to an inherent plasticity of genetic composition as to a lack of individual plasticity, that is to say, close dependence on some narrowly defined ecological niche, which, therefore, requires the species to change in response to all minor differences in habitat whether or not it is especially plastic genetically?" He moreover states that the Loggerhead Shrikes find the barriers to their distribution in faunal and associational categories rather than in zonal or temperature control.

It is impossible to cover all the interesting points raised in this paper but the impaling of prey by Shrikes has been subject to so many extravagant theories that it is interesting to learn that Mr. Miller agrees with Seeborn that the habit is due to the lack of sufficiently powerful feet on the part of the bird to hold its prey while he further considers, from a study of both wild and cage birds, that the shrike reacts at once to the sight of moving prey, kills it and impales it but fails to carry out the feeding action if hunger is already satisfied. In other words the shrike kills in response to external stimuli whether hungry or not, and it is so constructed that it must instinctively capture moving objects, so that the attributing to it of cruel or wanton actions, as we should do in the case of a reasoning human being, is entirely unwarranted as in many other attempts to interpret animal behaviour. While shrikes do return to partly eaten, impaled food they do so less frequently if they do not eat part of it at the time of killing and will be

diverted entirely in the presence of freshly killed food. This habit, therefore, while it may be potential storage, has not developed into true storage as in the case of rodents storing nuts, largely, perhaps, to the impossibility of keeping animal food fresh.

Another outstanding portion of the work deals with territory and contains much valuable and interesting data largely confirmatory of Mr. Howard's theories on the subject. Especially important is the extension of territorial behaviour to wintering shrikes which have as definite a winter feeding area as they do a breeding area. The account of singing by females is also a contribution to a neglected field.

Mr. Miller is to be congratulated upon a splendid piece of work bearing, as we have indicated, upon several distinct lines of research.—W. S.

'A Bird Painter's Sketch Book.'—For those who delight in handsome bird books Philip Rickman's 'Bird Painter's Sketch Book'¹ will have a strong appeal. It consists of thirty-four plates of British birds, eleven in color and twenty-three black and white reproductions of pencil sketches. Each plate is accompanied by a short account of the bird from the author's experience or compiled from recognized authorities, and in case of the color plates an account of the locality represented in the painting.

It is the black and white plates that have the most charm, the birds being drawn with great softness and delicacy, and the reproduction remarkably accurate. Some are finished pictures, others single figures of birds and still others whole pages from the sketch book with many figures in various positions with details of plumage, bills, etc., added here and there. The birds in this series include among others the Raven, Magpie, Bullfinch, Barn Owl, Greenland Falcon, Woodcock, Snipe, and several ducks and plover.

The color plates are not so satisfying, the landscape being the chief motif and the bird figures usually very small and apparently secondary to the view. The reproduction on very highly sized paper, too, is not so satisfactory although the pictures are often very attractive.

In the text will be found much information on the colors of the soft parts of the bill and feet and quotations from different works on this point, which is evidently a matter of much interest to the author. Mr. Rickman has made a notable contribution to the artistic side of ornithology.—W. S.

Nicholson's 'The Art of Bird Watching.'—Until we read Mr. Nicholson's book² we had not realized what a science bird-watching had become,

¹ A Bird Painter's Sketch Book Written and Illustrated by Philip Rickman, Illustrator of "Game Birds," "The Gun Room Guide," etc. Published in London by Eyre & Spottiswoode and in New York by Charles Scribner's Sons. MCMXXXI. Pp. 150 and 11 plates. Price \$10.00.

² The Art of Bird-Watching, A Practical Guide to Field Observation. By E. M. Nicholson, Author of "Birds in England," "How Birds Live," "The Study of Birds." Illustrated by Photographs, Maps and Diagrams. The Sports and Pastimes Library. H. F. and G. Witherby, 326 High Holborn, London, W. C. 1931. pp. 1-218. Price 10 shillings 6 pence, net.