

that of Hellmayr, with the result that certain pairs of names representing synonyms of one race are treated in different sections and in the index as distinct taxonomic entities. I detected omission of one long-known Guerreran endemic described by Nelson. It would seem that if the birds and mammals had been listed in taxonomic order, with brief annotations on distribution (as are given anyway) and with columnar records of *known* occurrences in zones and provinces, the end-product would have enjoyed a longer period of usefulness than the elaborate breakdown by biotic units that was published. Also, such errors as mentioned above would have been detected more easily.

For the areas that members of the Merriam school studied, they attempted to work out distribution of birds and mammals and to accompany this by an analysis of life-zones. As pioneers in the biological exploration of Mexico, Nelson and Goldman could not, at least at first, have realized the staggering enormity of what they undertook. As a matter of fact, the definitive reports on birds and mammals, ambitiously planned in earlier years, never appeared. Today, only after decades of additional field work by many persons, and with collections of birds totalling easily ten times the number amassed by Nelson and Goldman, is it possible, through the cooperation of several experts, to draft a reasonably complete distributional check-list of the birds of Mexico. Because of complex physiography and the resulting abundance of ecological islands in Mexico, it is necessary to fragment the mosaic of biotas in some way for purposes of analysis. This can probably best be done by vegetation-

type. At present, for example, some knowledge is needed of the internal structure of the fauna of subtropical cloud forest, within its metropolis and at its various outposts, as in Jalisco, Sinaloa, and San Luis Potosí. Comparable studies of other major vegetation-types will later lead to the over-all picture that Nelson and Goldman had hoped to provide.

Comments on the terminal parts of this work should not reflect on the record of travel and field observations. Goldman's book is an important historical document, useful to ecologists, geographers, and historians. Anyone seriously interested in Mexico should be acquainted with this volume, for its text and also for its collection of 136 excellent photographs, many of them showing conditions and scenes no longer existing.

One last point: Here, at long last, is the full record of Nelson and Goldman's travels, accessible to anyone interested, with clues to all the puzzling localities that plagued students of Mexican birds and mammals in earlier years. Goldman's book is a fitting marker to the close of a period in taxonomic work on birds and mammals in this country, when the excitement of exploration and discovery promoted a competitiveness and possessiveness that only interfered with progress. It is one of the tributes to the labors of Nelson and Goldman that today students of Mexican biotas see clearly many of the field problems before them, convinced of the necessity of cooperation and the free exchange of information.

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INTEMPERATE MAN IN THE TROPICS¹

Marston Bates' new book draws a broad picture of the warmer regions of our planet in a somewhat new perspective and offers many valuable and disturbing comments on our current thinking about the tropics. It is written in a cursive and informal though well-disciplined style, free of technical phrasing and soberly but attractively illustrated. Its scope is very wide (it broadens almost beyond relevance to the subject in the last chapter) and the treatment of physical, biological, anthropological, cultural, economic, and political aspects is almost symmetrical. The designs of the book are very aptly drawn in the opening chapter and the issues to be considered are each set in their

¹ Bates, Marston. 1952. Where winter never comes. A study of man and nature in the tropics. 310 pp. New York, Scribner's, \$3.50.

proper order so that they may be dealt with separately without being out of perspective. Such clearness of purpose is of great advantage to a book that addresses itself to a large public. Each reader is likely to have relative competence in one of the fields over which the study extends and will gain a firmer footing there, whence he can estimate the relevance of the description and interpretation of other fields.

From almost any point of view, however, one will find fault with the delimitation of the tropics as that area encompassed by the 23° 30' degrees of latitude north and south. The light factor is strictly the only one to be affected in a constantly predictable way by latitude. The other elements of tropicality in places extend beyond and in others fall short of Cancer and Capricorn. One had expected more awareness of this relationship from the author of "The Nature of Natural History." Actually, a brief statement

and a diagram are presented on page 97 that make the obvious distinctions, but later the author mentions the pine forests of tropical Honduras (page 177), the tropical civilization of the Incas (pages 71-72) and "gives up" unraveling the tropical from the non-tropical in Asia (page 79). This shortcoming is to be regretted, for the book as a whole offers a personal and objective restatement of tropical problems.

Concerning climate, another major point is not made sufficiently clear: the difference between the warm-moist (typically tropical) regions and other areas to which they are compared resides as much, if not more, in the amplitude of fluctuation as in the lowering of absolute and mean values of temperature and rainfall. Therefore, the "genial" (page 36) climates of tropical areas contrast with the "intemperate" (page 91) climates of the middle latitudes. Equability vs. anomaly as a major item in climatic classification to some extent cuts across the conventional climatological classifications. Thus New Zealand, Northern Coastal California, Western Ireland would not be part of the intemperate zone!

The point, however, which is repeatedly made and stands out as Bates' thesis, is the influence of the cool continental environment and the habits developed by Western man therein on our thinking about the tropics. Our studies, scientific and otherwise, almost all suffer from a strong cultural bias. Very few of us are able to approach flora, soils, ecology, agriculture, economy or politics in the tropical lands by making a direct assessment of the actual elements and factors of the tropical environment itself. Instead, an attempt too often is made to apply directly standards that are workable in the context of our own environment and culture.

With a fine disregard for both authority and orthodoxy (for instance on the subject of race, page 38), Bates uses the acquisitions of the natural and social sciences to develop his thesis and to convey a well-rounded picture of tropical man. This will no doubt displease a number of specialists who would require a more reverent and more thorough utilization of their tenets.

Plant ecologists may regret the unqualified use of the confused term "jungle" which here (page 93) means rainforest, whereas so often it designates dense second-growth and even shrubby grassland. In fact, after the rainforest has been described (Chapter XI), almost nothing is said of other vegetation types in spite of their relevance to man's utilization of the tropical landscape which is the primary objective of the book. On page 243 he writes: "How can the soils be 'poor' that support the most complex vegetative growth known on the planet? It seems to me that it is simply that we haven't learned how to work with the environ-

ment." This paradox is far from well understood even by agriculturists and ecologists and would have lent itself to much further development. Our warped ideas concerning soil fertility are much in need of refocusing and the tropical situation offers a perfect test!

Above all, Bates makes out a very strong case for man's mismanagement of his own affairs, for the absurdity of the social customs exalted by Kipling and other colonial educators. A closer scrutiny, of course, reveals that many sartorial and alimentary habits are just as wrong under a colder climate as they are in the tropics. The willingness of man to work strictly within tradition is certainly illustrated no more strikingly anywhere than by the fact that he "has not domesticated any basic food-plant within historic times." Very few geneticists, taxonomists, plant breeders or other biologists have focused their attention and oriented their work in this direction.

Lest some of the reservations made in the paragraphs above underline too heavily what is missing in this book, I shall conclude by saying that the very excellence of presentation, the vividness of style and the interest aroused are the true cause of the conspicuousness of these gaps. From an author who can give us what this book has to offer, we require more! It must be remembered that the book is meant for a general audience. The technically informed will feel that Bates is well aware of most of the controversial points and conflicting interpretations in various fields. But also such a reader may well re-adjust his own sense of proportion and gain a fresh evaluation and new integration of his own ideas.

The following paragraphs contain capital statements (page 239, paragraphs 2 and 3):

"For present purposes, however, we are not so much concerned with the internal problems of western civilization, as with its relation to the tropics. In this, I am always bothered by the Western arrogance, by its assurance that it knows all of the answers and can quite readily fix everything so that the tropical peoples can live happily ever after, if they will only listen. This philosophy underlies all of the various programs of international technical assistance that are so popular these days, and especially the programs of the United States which are aimed at the uplift of practically everybody else."

"I suppose I have been a part of this American missionary movement myself for most of my life, so that it would be ungrateful of me to start throwing stones at it now. But I have taken comfort from the fact that I belonged to the rather small and subsidiary wing of the missionary movement that was trying to learn about things, instead of trying to change things: though I and my fellows have always been

conscious that the things that we learned would, sometime, by someone, be used as a basis for action."

This book is an important contribution for such understanding and a revised plan of action. It is written with a rare independence and an unusual sense of balance. Most scientists are all too readily intimidated by the dicta of "experts" in fields adjoining their own. Because of this they indefinitely delay the achievement of a comprehensive and well-integrated social philosophy. Bates reveals his fully with its main emphasis on Science and its firmest

grounding in Biology. The properly political aspect of man's behaviour is visibly more foreign to him and on this he has little to say although he does conduct the reader by quite logical steps out from physiology to ecology, to economics and to politics.

This thread is repeatedly woven through the basic fabric of the book, and the way in which Bates does so shows in him an artistic vein which is not his least asset as a scientist.

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FIELD GUIDE TO THE MAMMALS¹

Here is what the teacher ordered—a pocket-sized compendium (12 × 19 cm.) on the mammals of North America. The felicitous cooperation of author Burt and artist Grossenheider has provided a most excellent small volume that will be a boon to everyone from the eager Boy Scout to the business or professional man eager for a new avocational interest in his mature years.

After a compact tabular "life list" where each owner may check the species he has seen and a word on "how to use this book," the volume begins with opossums and contains terse characterizations, with measurements and weights, of 373 species in systematic sequence, ending with the beaked whales. The accounts are of species (subspecies being ignored) and the recognition marks for each are followed by brief differentia for "similar species." There are three running continuities—text, distribution maps, and color illustrations, besides sketches of tracks and a few drawings of nests and workings. Each map patterns the current distribution of one or more species without overlap so the reader may quickly visualize the total range. Each plate combines several large or many small species of related forms but individual illustrations are large and clear enough to provide adequate portrayal. The three parts are often closely aligned but in some places the mere mechanics of book making separates text, map, and illustration. Cross referencing, by pages, largely overcomes this inconvenience.

The author has been skillful in compressing text matter to essentials and in the choice of vernacular names. Also, while addressing the non-technical amateur, he has managed to indicate diagnostic features without using the

terminology of mammalogists. A plate of line drawings indicating some of these, however, would be useful. Extreme measurements in millimeters also might have been added for the convenience of more advanced students.

Several details that catch the eye of a critical reviewer could be improved in a later edition: The headings for families and for orders shown in the contents and used to subdivide the text should be distinguished typographically; tri-color (p. 6) is scarcely a color; front claws of black bears (p. 32) are short whereas those of grizzlies are long, but both show some curve; sea otters, when present, are on the central California coast (p. 42); the stink (not odor) is characteristic of all skunks (pp. 42–43); a word about recent coyote spread and transplants would be in order (p. 51); the mountain lion still has considerable western forest in which to roam (p. 58) and formerly inhabited the East; also it has alternative vernacular names; the western marmot is the yellow-bellied (pp. 63, 64), and the hoary (p. 64) is a whistler (voices of mammals are rarely mentioned in the book); the Douglas ground squirrel is a distinct species in the "California" complex (pp. 63–69), as separate as many chipmunks; the color differences in valley pocket gophers (pl. at p. 104) and in deer mice (pl. at p. 121) are not "phases" in the sense of black vs. cinnamon bears but differences between species or subspecies; the black (Alexandrine) rat occupies much of the Great Valley of California but doubtfully the desert of southwestern Nevada (p. 137) and the Norway rat is unknown in the latter state (p. 137).

The volume closes with a list of dental formulas, photo-plates of the skull of 101 species, a short list of references to state and provincial publications on mammals, and an index. There is, however, no mention of the now *century old* classic "Quadrupeds of North America" by Audubon and Bachman, the patron saints of American mammalogists.

¹ Burt, W. H., and R. P. Grossenheider. 1952. A field guide to the mammals giving field marks of all [North American] species found north of the Mexican Boundary. xxii + 2 + 1–200 pp., illus. (color pls., maps, figs.). Boston; Houghton Mifflin Co. \$3.75.