millions of persons in Latin America who practice a mixed culture, derived from indigenous Indian, colonial Iberian, and modern European sources.

The semipopular style presumably required of a commercially published report makes for relatively smooth reading, at the expense, however, of the omission of details of method and data which would be of interest to specialists. The latter type of material will doubtless appear in more technical publications.

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Fossil vertebrates from western North America and Mexico. E. L. Furlong, *et al.* (Contributions to Paleontology, Publ. 551.) Washington, D. C.: Carnegie Institution of Washington, 1946. Pp. iv + 195. (Illustrated.) $2.50, paper; $3.00, cloth.

The latest volume of Contributions to Paleontology covers the years 1943–46 and includes eight articles on fossil fishes, birds, and mammals.

Three papers by Lore Rose David, entitled "Use of Fossil Fish Scales in Micropaleontology," "Some Typical Upper Eogene Fish Scales from California," and "Upper Cretaceous Fish Remains From the Western Border of the San Joaquin Valley, California," demonstrate the use of fossil fish scales in stratigraphic correlation and in paleoecology. This author states that it is nearly always possible to recognize families, genera, and often species on the basis of differences in scale sculpture—a point that might be disputed by some ichthyologists. The recognition of characines, for instance, in marine Upper Cretaceous deposits, is of considerable importance if the scale identifications are certain.

"A Review of the Pleistocene Birds of Fossil Lake, Oregon," by Hildegarde Howard, is a well-documented account of all the known bird remains from this rather famous Upper Pleistocene locality. Although there is a general resemblance between the avifauna of this deposit and that now living about the fresh-water lakes of Oregon and California, interesting examples of subspecific differences are present which indicate subdivisions of a chronocline. Unexpected members of the fauna include a flamingo and a jaeger.

The history of the badgers in North America has been greatly clarified by E. Raymond Hall in a contribution entitled "A New Genus of American Pliocene Badger, With Remarks on the Relations of Badgers of the Northern Hemisphere." The new genus, *Pliotaxidea*, is based on skull fragments originally referred to *Taxidea* and a recently discovered skull from Oregon, all of Pliocene age. It is now apparent that the Asiatic and American badgers have been separated since possibly the Upper Miocene, with *Pliotaxidea* close to the *Taxidea* line and *Parataxidea* of the Asiatic Pliocene close to the ancestral stock of *Meles*. There is no evidence of intercontinental migration within this subfamily subsequent to the early Pliocene.

To the nonspecialist, at least, the taxonomy of the North American fossil antilocaprids presents a rather confusing picture. This is due partly to the difficulty of differentiating true taxonomic characters from those associated with age and sex, and this problem is evident in a paper by E. L. Furlong, "The Pleistocene Antelope *Stockeros conklingi* From San Josecito Cave, Mexico." The exact distinction between *Tetrameryx* and *Stockoceros* is not completely clarified, although the author states that "*Stockoceros* is at least subgenerically distinct from *Tetrameryx*." A second contribution by the same author deals with the "Generic Identification of the Pleistocene Antelope From Rancho La Brea." This antilocaprid is removed from the genus *Capromeryx* and is assigned to the new Pleistocene genus *Breameryx* on the basis of apparently distinguishing dental and skull characters. It would appear that the antilocaprids offer a very fertile field for quantitative taxonomic study.

"A Miocene Mammalian Fauna From Beatty Buttes, Oregon" is described by Robert E. Wallace. The assemblage is probably Upper Miocene (Barstovian) and presumably includes grassland and woodland forms such as *Merychippus* and *Dromomeryx*. It is very similar to that found at two other Upper Miocene localities in Oregon, Sucker Creek and Skull Springs.

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Mammals of eastern Asia. G. H. H. Tate. New York: Macmillan, 1947. Pp. xiv + 366. (Illustrated.) $4.00.

The new volume in the Pacific World Series represents exactly the type of handbook that should have been available to the personnel of the U. S. forces in China during the war, and thus exactly the need the series was designed to meet. Dr. Tate was co-author with J. E. Hill and T. D. Carter of *Mammals of the Pacific world*, which described the mammals of the Pacific and Australasian islands, and the two volumes form much the sort of naturalist's Baedeker for which we may hope there will be a continuing demand. The production of such volumes is one of the duties of naturalists and one of their functions that deserves active support.

In a brief introduction the mammals as a zoological group are presented to the nonzoological reader, some account of their adaptations to the conditions of existence are given, and the use of scientific names is explained. A glossary at the end of the book supplements this chapter.

A second general chapter, which is an essay on the geography of eastern Asia, interestingly sets forth one of the two frames of reference of animal geography, namely, the climatically dominated ecological-vegetational matrix in which animals find their most obvious natural associations of range. The reviewer has elsewhere been occupied at length with the subject of ecological animal geography, and it is gratifying to have this kind of introduction to the systematic account of the mammals.

The systematic account occupies 325 pages of the book. This forms a most accessible account of some of the more strikingly unfamiliar types of mammals. The insectivores include the tree shrews (now commonly placed with the primates), the hedgehogs and some of their primitive relatives, and a wealth of moles and shrews; the bats are extremely varied, including both the fruit-eating and insectivorous suborders and six families; the pangolins, or scaly anteaters, are represented by two types; the flying lemur occurs in the more southern parts of the territory considered; the lemurs are represented by the slow lorises; there is a large variety of monkeys; and the gibbons represent the higher tailless apes. The carnivores range from familiar furbearers in Siberia, belonging to well-known American types, to the remarkable

lesser panda and giant panda (which are apparently related in name only) and the great variety of civets and mongooses, which are quite unfamiliar to American zoologists. The account of the whales is limited to the forms that enter fresh water, including, of course, the peculiar isolated pigmy dolphin of Tung Ting Lake in China. The rabbits and hares are treated as an order distinct from the closely allied rodents proper, and this draws attention to the presence of a variety of montane pikas closely related to those of the western mountains of North America; the rodents proper include such familiar American genera as *Citellus*, *Marmota*, and *Eutamias* and many others, which calls further attention to the zoological resemblances between North America and Asia. The elephant group is represented by the Indian elephant, which ranges eastward to Indo-China; the aquatic coastal dugong, related to the American manatees, forms one of the most distinct of the orders; the list of even-toed ungulates includes tragulids, pigs, wild cattle, goat-antelopes, true antelopes, sheep and goats, and a wealth of deer; and finally, the odd-toed ungulates are represented by the Malay tapir and three types of rhinoceroses.

Any account of the mammals of eastern Asia necessarily leans heavily on the two large volumes on the mammals of China by the late Glover M. Allen. Because of its bulk the latter work is, however, wholly unsuited to field use, and we are fortunate to have Dr. Tate's handbook-sized work. The illustrations are in general excellent. A curious vagary of typography is the capitalization of the most familiar animal group names, such as Bat, Cat, Wolf, etc., together with the common names in general. This is entirely contrary to modern zoological practice, as may be seen by reference to the *Journal of Mammalogy* or Webster's *Dictionary*.

The high price of this book, as well as of the trade edition of the Pacific World Series in general, most unhappily limits the dispersion of these introductions to natural history at the levels where they would be most useful.

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A review of the North American species of Philanthus, north of Mexico (Hymenoptera: Sphecidae). R. W. Strandtmann. (Graduate School Studies. Conti. in Zoology and Entomology, No. 7) Columbus: Ohio State Univ. Press, 1946. Pp. 32. (Illustrated.) $2.50.

From a study of 5,500 specimens of these common wasps, Dr. Strandtmann has achieved a taxonomic analysis of the genus within the area selected. The biology, to which no contributions are made, is reviewed in a single page, and no other topics are discussed.

The well-drawn figures, both of the entire wasps and of morphological details, are pleasing. The presentation of distributional data, mostly only by state, is inadequate. From 100 to 1,200 records of each of the 7 most numerous species would have afforded a real basis for an analysis of their zoogeographic affinities and quantitative distribution—the inescapable responsibility of every taxonomist reviewing a group from adequate material.

Counting "*hirticulus*" as the male of *bicinctus*, there are 22 species, two still known from only one sex. Thirteen of these occur only west of the Mississippi, 3 are ubiquitous, 1 is Floridian, and the remaining 5, with the normal pattern of northern species, inhabit more or less of the Northeast (in one instance, entire East) and prairie and mountain states. Five species are little known, represented by 5 specimens or less, 5 by from 6 to 25, and 5 more by under 100. Of the remaining 7, three of the four represented by over 500 individuals are ubiquitous, and the fourth is widespread over the West.

The species *politus* is divided into 9 subspecies. One occupies the territory east of and including the states bordering the west shore of the Mississippi River. The others are all west of that river and, except for texana, are an aggregate of geographically intermingling forms that seem to present no basis for designating subspecies rather than variants. At least they demand a very much more detailed geographical analysis.

It is a satisfaction to see that the author has disposed of many of the unnecessary trivial names that have cluttered past literature. Yet a little time spent in correspondence could have disclosed the identity of *barbatus* Smith, *crabroniformis* Smith, and *multimaculatus* Cameron. When this has been done, we may anticipate further nomenclatorial changes.

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Forest soils and forest growth. S. A. Wilde. Waltham, Mass.: Chronica Botanica; New York: G. E. Stechert, 1946. Pp. xx + 241. (Illustrated.) $5.00.

This is the first textbook on the subject of forest soils to appear in the American literature. It represents a scholarly attempt to cover the broad fields of soil science with emphasis on soil as a medium for the growth of forest trees.

In brief, the book might be considered as a monograph on forest soils of cool-humid climates with special emphasis on the management of forest nursery soils of the Lake States. The author's familiarity with the European literature, particularly the Russian, has resulted in the unnecessary use of many foreign terms to describe conditions which have already been acceptably described in the American literature. Examples of this are the use of the terms *melanization* for incorporation of humus, *melanized* horizon for the conventional A_1 horizon, *grood* soils, and *charral* soils.

As in many books, general statements are made which, if important, should be substantiated by quantitative evidence rather than by the citation of references from which they were derived. An example of this can be found on page 65: "In general, soils with a low content of fine soil material, *i.e.* sandy soils, support only trees which have low requirements for moisture and nutrients, such as pines, scrub oaks, white birch, and aspen. On the other hand, soils with a high content of fine particles, *i.e.* loam soils, support trees which have high requirements for moisture and nutrients, such as species of spruce and fir, hard maple, basswood, elm, and white ash (Haig, 1929; Scholz, 1931; Coile, 1935; Hosley, 1936)." The work of at least two of the authorities cited (Haig, 1929, and Coile, 1935) contained little, if anything, to verify the statement as made.

In a number of places the author speaks of "plant food" in the soil. Since plant food is manufactured in the plant through the process of photosynthesis, it is apparent that the author means "plant nutrients" when he speaks of "plant food."