Caribbean, or perhaps resemblances between North and South American biotas resulted from a distribution that extended the long way around, via Africa, Europe, and the north shore of the North Atlantic Ocean. No one really knows.

Complicating matters, edentate-like fossils occur in early Cenozoic formations of eastern Asia, western North America, and Europe. Just as aardvarks and pangolins once were, these fossils have been referred to the true edentates by their describers. However, others have suggested that these supposed early northern edentates are really just palaeanodonts, a diverse fossil group allied more closely to pangolins than to true edentates. Thus, a North American origin of the Edentata from "insectivores" via Cenozoic northern palaeanodonts is currently questioned.

Whatever their origin, edentates have always been primarily South American. But in the late Cenozoic, several kinds of each of their major taxonomic divisions colonized southern North America from the south, beginning with several separate sloth invasions even before the Panamanian isthmus completely formed. One kind of sloth nearly reached the Bering Straits by the Pleistocene, but apparently no edentate crossed to Asia by that route in the late Cenozoic. Fossil edentates are known from the Greater Antilles as well as from the two main American continents, but the Antillean edentates are all representatives of a single sloth subdivision, the Megalonychoidea.

This book deals with unquestioned edentates, mainly living ones. It is a very instructive compendium, organized into sections dealing with identification and classification, phylogeny, anatomy and physiology, reproduction, diseases and parasites, and facets of ecology. I found the chapters on phylogeny by George Engelmann and by Wilfried de Jong *et al.* especially thought-provoking, as were Brian McNab's on energetics, population biology, and distribution and Kent Redford's on the food habits of armadillos. Most of the other papers, though fact-filled and interesting, are definitely for the files rather than for impassioned immediate discussion, but they are nonetheless well done. Moreover, the paper by the late Ralph M. Wetzel on the characteristics of the various kinds of armadillos is an especially useful summary. Wetzel's scholarship is inspiring; we shall miss him.

This book has been long in gestation. It therefore unavoidably contains some out-of-date ideas and contradictions, but it is generally well done. It has a good balance of descriptive chapters with think-pieces. The book is well illustrated, both in the individual chapters and also by some wonderful interspersed drawings by an unidentified artist whose initials are L. R. They add charm and fascination.

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Some Other Books of Interest

Inorganic Reactions and Methods. J. J. ZUCKERMAN, Ed. Vol. 1, The Formation of Bonds to Hydrogen (Part 1). VCH, Deerfield Beach, FL, 1986. xxvi, 326 pp., illus. $92.

This volume inaugurates "a closed-end series of books designed to present the state of the art of synthetic inorganic chemistry in an unprecedented manner," that is, according to bond formation and type of reaction rather than by way of elements or classes of compounds. The principles that underlie the form of presentation are explained in detail in a section headed "How to Use This Book" and in the series preface. In brief, the material is arranged according to a decimal scheme ("1.2. The Formation of Hydrogen," "1.2.1. Introduction," "1.2.2. by Reactions of Hydride Ions," "1.2.2.1. with Hydrogen Halides," and so on) and has, according to the editor, been edited in order to "homogenize" the individual contributions and to "provide the highest practicable density of information." Names of people have been confined to the reference lists that conclude each subsection, symbols and formulas are used in preference to element and compound names, and SI equivalents are included for older data. In addition to an editorial advisory board of 11 persons, 26 editorial consultants are listed for the series. Volume 1, which has ten contributors, proceeds from the formation of H_2 to the formation of bonds between hydrogen and elements of group VIB, with the treatment of bonds to hydrogen to be completed in volume 2 of the series. At the end of the volume 90 pages are devoted to author, compound, and subject indexes keyed to section rather than page numbers. The endpapers include abbreviated tables of contents for the 17 further volumes projected.—K.L.

Ionic Currents in Development. RICHARD NUCCITELLI, Ed. Liss, New York, 1986. xxxviii, 375 pp., illus. $64. Progress in Clinical and Biological Research, vol. 210. From a meeting, Los Angeles, Aug. 1985.

The development of the vibrating probe, a technique for measuring steady or slowly changing extracellular electric currents, has given rise to "impressive advances" in the study of the role of transcellular ionic currents in development, writes the editor of this volume. The technique, he reports, is now used in some 30 laboratories around the world. The meeting from which this volume stems (a satellite meeting of the 10th international congress of the International Society of Development) brought together many of the investigators using it. Nuccitelli's introduction, which includes a brief history of the study of bioelectrical phenomena, is followed by a "tutorial" on the vibrating probe by Carl Scheffey. The main text of the volume consists of four sections: Technical Advances, divided into subsections on the detection of extracellular currents (five papers) and of intracellular calcium (three papers); Transcellular Ionic Currents and Cell Polarity, dealing with both plant (eight papers) and animal (nine papers) systems; Transembryonic Ionic Currents and Regeneration (four papers); and Galvanotropism and Galvanotaxis in Development (ten papers). The volume concludes with a Round-table Discussion consisting of two papers, "Ionic currents: an overview" by Lionel F. Jaffe and "Transcellular ion currents in tip-growing organisms: where are they taking us?" by Franklin M. Harold. It also includes a subject index.—K.L.

Books Received

Cholinesterase. Mary Whittaker. Karger, Basel, 1986. x, 132 pp., illus. $55.50. Monographs in Human Genetics, vol. 11.

A Complete Cosmology. The Cyclic Universe. L. R. Holdridge. Vantage, New York, 1986. xiv, 179 pp., illus. $11.95.

Computational Methods for Integral Equations. L. M. Delves and J. L. Mohamed. Cambridge University Press, New York, 1985. xii, 376 pp., illus. $69.50.

Computational Methods for Kinetic Models of Magnetically Confined Plasmas. J. Killeen *et al.* Springer-Verlag, New York, 1986. viii. 199 pp., illus. $38. Springer Series in Computational Physics.

A Course in Mathematical Physics. 2, Classical Field Theory. Walter Thirring. 2nd ed. Springer-Verlag, New York, 1986. x, 261 pp., illus. $35. Translated from the German edition (Vienna, 1978) by Evans M. Harrell.

The Dream of Reality. Heinz von Foerster's Constructivism. Lynn Segal. Norton, New York, 1986. xxii, 184 pp., illus. $22.95. A Norton Professional Book.

Ecology. Paul Colinvaux. Wiley, New York, 1986. x, 725 pp., illus. $32.95. A successor to the author's *Introduction to Ecology*.

Economic Aspects of Biotechnology. Andrew J. Hacking. Cambridge University Press, New York, 1986. x, 306 pp., illus. $59.50. Cambridge Studies in Biotechnology, 3.

An Invitation to Law and Social Science. Desert, Disputes, and Distribution. Richard Lempert and Joseph Sanders. Longman, New York, 1986. xvi, 528 pp., illus. $39.50; paper, $21.95.

Kinetic Theory of Particles and Photons. Theoretical Foundations of Non-LTE Plasma Spectroscopy. Joachim Oxenius. Springer-Verlag, New York, 1986. xii, 353 pp., illus. $49. Springer Series in Electrophysics, vol. 20.

Kingdom of the Ice Bear. A Portrait of the Arctic. Hugh Miles and Mike Salisbury. Published by arrange-

(*Continued on page 1105*)