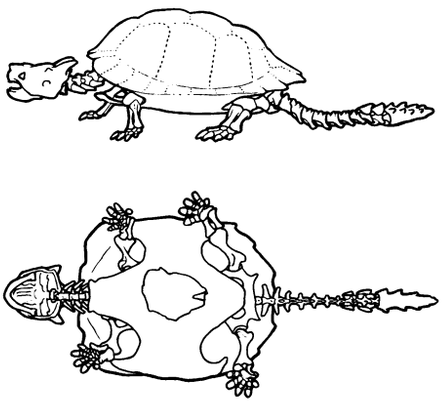

Side and bottom views of the restored skeleton of *Meiolania platyceps,* "consisting mainly of Australian Museum specimen No. 57984, found in a swimming pool at Ocean View Guest House, Lord Howe Island. Length about 2 metres." *Meiolania* resembles the earliest turtles from the Triassic in having cervical ribs and a tail club, "but the grotesque development of cranial horns and similar excrescenses is a feature peculiar to the meiolaniids." [From E. S. Gaffney's chapter in *Kadimakara*]

"Removing overburden at the Lawson Quarry, Lake Palankarinna, South Australia, 1961. Paul Lawson guides the scoop, Stirton driving the vehicle." Lake Palankarinna, "one of many saltpans isolated in the sea of sand ridges east of Lake Eyre," yielded "the first diverse array of Tertiary mammals" found in Australia. [From R. H. Tedford's chapter in *Kadimakara*]

title, where it denotes paleovertebrates from "down under." These two uses of the word may overlap, since some Abo mythology may be rooted in real encounters with giant marsupials such as *Diprotodon* and mighty birds such as *Genyornis*. Their carbon dates are synchronous for at least 10,000 years; and the Tjapwurongs of western Victoria have a name, "mihirung," for gigantic birds from "the Dreamtime" when volcanoes were still active in that area. Interaction between humans and extinct vertebrates is but one of many subjects touched upon in this beautiful book. Although *Kadimakara* is a "coffee-table" book, it is so richly larded with current scientific facts and opinions that I for one learned a lot of vertebrate paleontology from it.

The heart of *Kadimakara* consists of 32 quick takes by vertebrate paleontologists, each about one or two Australian fossils and each accompanied by a color restoration. Imagine a band of paleontologists gathered around a campfire regaling one another with tales of their discoveries and you will get the flavor of the narrative: entertaining yet substantive. I may still track down one or two of the technical papers cited under "Select references," but for the most part I am well satisfied with the summary of technical details, such as age, formation, environment, anatomy, nomenclature, and broader phylogenetic position, offered in each short chapter.

Paleontology depends ultimately on fossil discoveries, and this book is a celebration of old and new fossil discoveries. It includes a number of well-rendered sketches of the history of Australian paleontology. The pioneer generation sent many strange beasts to Sir Richard Owen in London. And now his hypotheses are being tested and altered by the often more concerted discoveries of the current generation, many of whom are resident in Australia. J. W. Gregory's camel-trek into the Lake Eyre Basin in the late 19th century paid off three generations later when the "Stirt years" (connoting the activity of R. A. Stirton of Berkeley) produced a rich Tertiary vertebrate sequence in the heart of the continent. This historical perspective introduces a degree of chauvinism; yet that is probably justified in a science such as this where the local evidence is crucial. The early scholars did indeed err in trying "to fit the unruly Australian record into the European pattern."

A special feature of Australia's history is its long northward voyage, embarking in the mid Mesozoic from Gondwanaland at very high southern latitudes, drifting in isolation, and then colliding in the Miocene with the Pacific Plate near New Guinea. The voyage theme recurs implicitly in many chapters—mammal-like reptiles; the giant boid snake, *Wanambi*; sebecosuchian crocodiles; megapode birds (possibly related to curassows and guineafowl)—and throughout the sections on marsupials. Colored paleogeographic maps of Australia, accompanied by black-and-white sketches of the world, one for each geologic period, provide a more explicit perspective.

Each tale of an extinct beast is enhanced by a large color restoration by Frank Knight. His vertebrates are lively and colorful and are comfortably placed in appropriate settings. The elegant trunk and powerful claws of *Palorchestes* are as wonderful as the baby *Diprotodon* bogged in a billabong is sad. The degree of cooperation between the artist and each author is remarkable and brings great credit to the whole enterprise that produced this beautiful and informative book.

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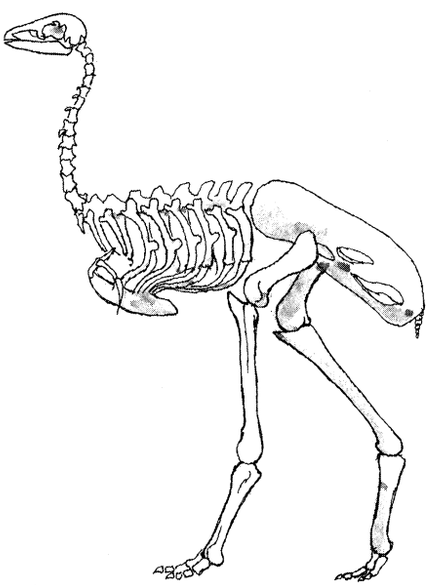

Skeleton of a "mihirung" *(Genyornis newtoni)* from Pleistocene sediments at Lake Callabonna in South Australia. "The first European to collect bones of mihirungs was probably Major Thomas L. Mitchell (1838)." Other finds were made by Aboriginals in the 1890s and by Stirton's group in the 1950s. [From P. V. Rich's chapter in *Kadimakara*]

19th-Century Ethnology

Science Encounters the Indian, 1820–1880. The Early Years of American Ethnology. ROBERT E. BIEDER. University of Oklahoma Press, Norman, 1986. xiv, 290 pp., illus. $19.95.

Among the research projects on the history of the American Indian that the Newberry Library of Chicago has fostered, Bieder's book on early American ethnology fills a gap in intellectual history. It demonstrates how the precursors of American ethnology inherited from Enlightenment philosophers of the previous century a bundle

of concepts that dominated their view of native peoples, their languages, and their ways of life. It was then believed that a severe environment adversely affected native American cultures, that the people themselves constituted an inferior race, and that, in keeping with the idea of progress, education would enable them to evolve gradually toward civilization. The entire 19th century was plagued by the "genetic fallacy," that languages and cultures were transmitted in the "blood stream." In advancing these views argument raged over human origins—over monogenism vs. polygenism, over evolution vs. degeneration, over biology vs. culture, over empirical field observation vs. armchair theorizing, and over ethnology applied to public policy. In general, the monogenists advocated evolution, the child of progress. The tendency was to measure and judge Indians by one of these received theories rather than to view them against their natural environment and record the facts of ethnography. How gradual tinkering with the idea of progress produced changes in theories of evolution is the major theme of Bieder's book.

The work is structured around the ideas of five ethnologists—Gallatin, Morton, Squire, Schoolcraft, and Morgan—each of a somewhat different field—whom Bieder treats topically with relevant biography.

It was Albert Gallatin, a native Swiss and child of the Enlightenment, most often remembered now as an early Secretary of the Treasury, who transplanted the discipline of Old World philology to the comparative study of native American languages. He and Peter Duponceau started a continuing tradition at the American Philosophical Society of American linguistics that moved from collection of vocabularies, proceeded to grammatical analysis, and resulted in classification of languages into families and stocks. Settling in New York City, in 1842 he founded the American Ethnological Society and for years presided over its activities. To Gallatin, ethnology was a humanistic discipline, as it remains today.

Samuel G. Morton, physician of Philadelphia, trained at Edinburgh, departed from Gallatin's monogenism toward polygenism and believed in the immutability of races. He collected crania from the entire Western Hemisphere, devised measurements to suit his theories, and developed a technique for ascertaining cranial capacity with mustard seed. He left a legacy of empiricism to physical anthropology, and despite its misrepresentations *Crania Americana* (1839) marked the way to human biology.

Upstate New York claims the three remaining figures as native sons. Of these E G. Squire contributed principally to archeology by systematically mapping and exploring the earthworks of the so-called "Mound Builders." His *Ancient Monuments of the Mississippi Valley* (1848) was the first Smithsonian Contribution to Knowledge. Squire's philosophical speculations are of slight interest today.

Henry Rowe Schoolcraft, remembered today for *Algic Researches* (1839), a two-volume collection of Chippewa folklore, and a monumental six-volume *Historical and Statistical Information Respecting . . . the Indian Tribes of the United States* (1851–1857), was essentially untrained, but under the influence of Lewis Cass, territorial governor of Michigan, he initiated fieldwork for gathering the ethnographic facts from living natives and then applying this knowledge to shaping Indian policy and administration. It is a pity that this pragmatism, as Bieder demonstrates, got muddled by the controversy over human origins and personal crises. Although the first of the government grant proposal writers, Schoolcraft, in contrast with Gallatin and Morgan, was no theoretician.

L. H. Morgan, lawyer of Rochester, was the most important figure of the century in shaping American ethnology as a science. Motivated to form a society of earnest young men after the model of the Iroquois Confederacy, Morgan and companions undertook systematic inquiries among the Tonawanda Senecas, where he discovered the classificatory system of relationship, collected material culture for museums, and, with the help of Ely S. Parker, a native Seneca and afterward General U. S. Grant's military secretary, observed and recorded ceremonies. *The League of the . . . Iroquois* (1851), today a classic, was the first monographic treatment of an American tribe. Morgan's corporate law practice grew as Rochester prospered, and interests in railroads and mining took him to the Upper Peninsula of Michigan, where he observed *The American Beaver and his Works* (1868) and found that both the Chippewa and Dakota Sioux shared the Iroquois kinship system. Thinking that this might be the key to unlocking the mystery of American Indian origins, after 1856 he abandoned the law and concentrated on a worldwide inquiry by questionnaires that yielded data for *Systems of Consanguinity and Affinity in the Human Family* (1871). Indeed, the legacy of kinship study and its logic has become the calculus of modern social anthropology. To the Pundits of Rochester, his colleagues, he reintroduced Enlightenment ideas of social progress and translated them into evolutionary stages of social structure, government, and inventions that culminated in *Ancient Society* (1877), soon read by Marx and Engels and revered today in the Soviet Union. The American Indian played the leading role in this interpretative process, for Morgan, a craftsman of theory, based his ideas on sound data. As Bieder says, American Indian anthropology would show European ethnology the way to empiricism. Though Morgan's thought was tinged with the racism of his century, his view of social evolution was widely held until demolished by Franz Boas and his students. The book fulfills its purpose of showing why some views were held. The one figure that Bieder overlooked is Horatio Hale, Morgan's contemporary, linguist of the Wilkes Expedition, Iroquoianist, and sponsor of Boas's early work on the Northwest Coast.

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Organometallics

Organotransition Metal Chemistry. Fundamental Concepts and Applications. AKIO YAMAMOTO. Wiley-Interscience, New York, 1986. xviii, 455 pp., illus. $39.95.

Drawing upon a series of lectures that he gave to graduate students in Tokyo, Akio Yamamoto has created a highly readable English-language book. Material is presented in a refreshing, conversational style and is augmented throughout by "intermezzi," anecdotal asides that liven up the text with tidbits of historical interest.

The first two chapters provide a solid introduction to the fundamentals of coordination chemistry and bonding in inorganic complexes. This approach enables nonspecialists in the field (especially synthetic organic chemists) to understand why certain metal complexes behave as they do, much in the same way in which a general understanding of structure and bonding in main group chemistry facilitates a mechanistic understanding of organic chemistry. In this regard, this is better than many books on organometallic chemistry; it is at a level of instruction comparable to that found in typical inorganic chemistry textbooks. Chapter 3 contains a useful discussion of practical aspects of metal-carbon bonding; the inclusion of thermochemical information here is especially welcome. This chapter also contains a comprehensive discussion of ligand types. However, the discussion of various conventions for electron and formal oxidation state counting could be confusing to someone not already familiar with these concepts, and although the "18-electron rule" is described with regard to "satura-