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-

tion" and "unsaturation," no discussion is offered of factors affecting the preference of a metallic species for "saturation" or "unsaturation."

The remainder of the book focuses on selected topics related to synthesis, structure, and reactivity; these chapters are up to date, but some of the discussion may be difficult to follow because of the order in which topics are treated. For example, the chapter on fundamental processes in reactions of organotransition metal complexes would have been better placed before the more comprehensive chapter on the synthesis of such complexes. The chapter on experimental techniques in organometallic chemistry is a useful addition and would also have been better located earlier in the book. Two chapters on the applications of transition metal complexes in catalysis and organic synthesis demonstrate the utility of organotransition metal chemistry in a variety of contexts. Here the strong background provided in earlier chapters helps the reader to understand the fundamental steps inherent in the processes described. The final chapter introduces new subjects for research, such as organometallics in bioinorganic chemistry and metal clusters as models for heterogeneous catalysts. Discussion of these topics provides an upbeat note on which to end.

Organotransition Metal Chemistry will be of use to practitioners of organometallic chemistry. It will also be of interest to students, especially those with an "organic" perspective, who wish to broaden their understanding of this growing field.

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