

EARTH SCIENCES HISTORY

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HENRY ROWE SCHOOLCRAFT AND THE NATIVE COPPER OF THE KEWEENAW

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ABSTRACT

The Keweenaw copper district of northern Michigan is unique. All other copper mining regions of the world produce primarily ores of copper compounds, but for more than a century that began in the 1840s the Keweenaw produced copper from one mineral: native copper. A major contribution toward recognizing and understanding the importance of this form of copper was made by Henry Rowe Schoolcraft. His travels through Lake Superior occurred at a time when native copper was believed to have no economic importance by those who represented the newly emerging professional tradition in geology. Although their opinions caused him some uncertainty, the observations he made on the Cass expedition of 1820 formed the basis for his important insights into the possibilities that native copper held for future mining. Perhaps better known for his work on the ethnology of the American Indians and his discovery of the source of the Mississippi River, Schoolcraft's reports and publications on the copper of the Keweenaw brought that region to the attention of the country and helped to provide an accurate assessment of its true potential.

EARLY GEOLOGICAL MAPS OF WEST VIRGINIA

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ABSTRACT

Since Guettard presented his geological map of North America in 1752, over 100 geological maps were produced that cover all or parts of West Virginia up to 1897, when the State Geological Survey was formed. Their quality, accuracy, scale, and general content vary widely, but each contributed to our growing understanding of West Virginia and Appalachian geology. This annotated, chronologic list of maps illustrates this wide diversity and steady improvement of early geological mapping.

EARLY GEOLOGIC STUDIES IN THE LAKE SUPERIOR REGION--THE
CONTRIBUTIONS

OF H.J. SCHOOLCRAFT, J.J. BIGSBY, AND H.W. BAYFIELD

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ABSTRACT

Charles Lyell published a geologic map of the Lake Superior region in 1845 as an appendix to his epochal *Travels in North America*. One of the published sources Lyell used to compile this map was an 1829 report by H.W. Bayfield, who as a surveyor for the Royal Navy spent the years 1823 to 1825 circumnavigating the lake. Bayfield's report, in turn, included the geologic observations of two other travelers on the lake: H.R. Schoolcraft and J.J. Bigsby, both of whom, like Bayfield, had taken part in some of the earliest government-sponsored explorations in the region. Although Schoolcraft had received some formal training in the natural sciences, Bigsby and Bayfield, like many other naturalists of the time, gained their knowledge of geology while pursuing their primary professional duties. Nonetheless, they were exceptionally good observers of geologic phenomena. Their efforts produced a geologic framework for the Lake Superior region, which is even today compatible with modern interpretations. At the end of the 19th century, though, their contributions had been all but forgotten, a result of a revolutionary change in the study of geology from a more informal and descriptive pursuit to a professionally oriented and theoretical science with its own organizational structure.

EXPLOITATION AND USES OF METALS IN ANCIENT ISRAEL
ACCORDING TO BIBLICAL SOURCES AND COMMENTARIES

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ABSTRACT

Many verses of the Old Testament contain references to metals, their places of origin, their manufacture, their trading and their uses, both in cult and in everyday life. These verses appear to represent what was common knowledge at those times about gold, silver, copper, tin, lead and various alloys, and the roles they played in the economy and in some rituals.

A review is presented of these references and their translations, as well as of the comments by various classical and widely-studied Bible commentators.

USES OF HISTORY IN AN HISTORICAL SCIENCE: LEARNING FROM
TRADITIONS IN GEOLOGY

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ABSTRACT. Different academic disciplines are affected by their history and react toward history in various and sometimes changeable ways. Geology is by far the most historical science in its operational approach to problem solving. Religious, cultural, and political overtones undeniably permeated many aspects of unfolding geological thought during the last few centuries. Despite these influences, the sustained success of applied geology as a predictive tool for the location of natural resources has generated a highly tolerant climate for pure geological research within a broad array of societal systems. Thus, the main influence of history on the continuing evolution of the discipline has been supportive in a remarkably steady way. Geologists tend to react to their history conservatively, seeking no realignments. This relationship is underscored by the fact that the discipline of geology entered the academic arena only after proving itself in the practical world. Geologists were once the unchallenged students of their own history. Historians of science now claim an increasing, if not exclusive role as interpreters of the more subtle inter-relationships between science and society. Practicing geologists will continue their indulgence in history, however, if only to find a measure of continuity in their work, learn moral lessons about the conduct of their science, and gain valuable career perspective.

HISTORICAL ASPECTS OF AGASSIZ'S LECTURES ON GLACIAL GEOLOGY (1860-61)

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ABSTRACT

Louis Agassiz (1807-1873) is regarded as one of the founders of glacial geology and the originator of the ice-age theory. His public lectures and popular writings included those topics. In 1860-61 he gave a series of class-room lectures on glacial geology to his students at the Museum of Comparative Zoology at Harvard University. Excerpts have been made to show his explanation for the formation of glaciers, their movements, seasonal advancement and retreat, and their eventual covering of much of the earth. Also included were the structure of the glacier, its production of moraines, and its action on bedrocks and the landscape. He gave credit to his predecessors and colleagues, especially de Saussure, Venetz, and de Charpentier, for their pioneering work on glaciers. Brief attention was given to the effect of glaciers on the fauna, according to his interpretation, following the catastrophism theory of Cuvier.

THE CARTOON "PHILLIPSIA ATTACKING GRIFFITHIDES",
AN OBSERVATION ON A 19th CENTURY CONTROVERSY

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ABSTRACT

The cartoon "Phillipsia attacking Griffithides" dates from about 1843. It is a humorous comment on a disagreement between John Phillips and Richard Griffith as to the age of some unfossiliferous, supposedly Silurian, strata in south-west Ireland. Fossils depicted in the cartoon are traced to contemporary sources; those represented as witnesses of the dispute are aptly drawn from Murchison's "Silurian System"

URANIUM BICENTJZNARY

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ABSTRACT

September 24, 1989, will mark the two-hundredth anniversary of the discovery and naming of the chemical element uranium. In light of the prominent place uranium now holds in serving as a source for energy it is appropriate to recall the work of the chemist Martin Klaproth in Berlin in the year of the French Revolution.