

EARTH SCIENCES HISTORY

TABLE OF CONTENTS

EDITORIAL - <i>Earth Sciences History</i> : Past, Present and Future <i>Gerald M. Friedman</i>	1
History of Vertebrate Paleontology in the Rocky Mountain Region: Preface <i>Brent Breithaupt</i>	2
Thomas Chesmer Weston and the Red Deer River Fossil Fields <i>Loris S. Russell</i>	3
Biography of William Harlow Reed: The Story of a Frontier Fossil Collector <i>Brent Breithaupt</i>	6
Collectors and Entrepreneurs: Hatcher, Wortman, and the Structure of American Vertebrate Paleontology Circa 1900 <i>Ronald Rainger</i>	14
The Second Jurassic Dinosaur Rush <i>John S. McIntosh</i>	22
Earliest History of Vertebrate Paleontology in Utah: Last Half of the 19th Century <i>Wade E. Miller and Dee A. Hall</i>	28
Stranger in a Strange Land: A Brief History of the Paleontological Operations at Dinosaur National Monument <i>Daniel S. Chure and John S. McIntosh</i>	34
W. D. Matthew's Early Western Field Trips <i>Edwin H. Colbert</i>	41
Vertebrate Paleontology of the Green River, Wyoming, 1840-1910 <i>Robert M. West</i>	45
E. D. Cope's 1893 Expedition to the Dakotas Revisited <i>Anthony R. Fiorillo and Edward Daeschler</i>	57
George G. Simpson (1902-1984): Getting Started in the Summer of 1924 <i>Léo F. Laporte</i>	62
Book Reviews	74
Review Essay: How Did Impact Processes on Moon and Earth Become Respectable in Geological Thought? <i>Wolfgang E. Elston</i>	82
Interesting Publications	87
Announcements	89
Calendar	90
Officer Reports	91

THOMAS CHESMER WESTON AND THE RED DEER RIVER FOSSIL FIELDS

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ABSTRACT

Thomas Chesmer Weston was an English lapidary, who was employed by the Geological Survey of Canada from 1858. He enjoyed field work and made important collections of minerals and fossils in various parts of Canada. In 1889 he made a boat trip down the Red Deer River of Alberta, assisted by Roderick McKenzie of Red Deer. Weston made important fossil finds on this trip, but his most notable discovery was the "Belly River" fossil field, now the Dinosaur Provincial Park. He recognized that this field was older than that of the "Edmonton Series" of Tyrrell, and predicted that it would be one of the world's great fossil fields, a prediction that his successors have fully confirmed.

BIOGRAPHY OF WILLIAM HARLOW REED: THE STORY OF A FRONTIER FOSSIL COLLECTOR

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ABSTRACT

William Hadow Reed was born in Hartford, Connecticut in 1848. His adventurous spirit led him to the Rocky Mountain West to take positions guiding, hunting game, and fighting Indians. In 1877, while working as a foreman for the Union Pacific Railroad at Como, Wyoming, he accidentally discovered large bones on the nearby ridge. These specimens, reported to O.C. Marsh at Yale University, heralded him into a career in vertebrate paleontology that he would pursue for the next 38 years. Although frustrated by certain aspects of field work and lack of recognition as a field paleontologist, he was a diligent and loyal collector for Marsh. He gave this same dedication in later years to W. C. Knight at the University of Wyoming and W. J. Holland at the Carnegie Museum. Although not formally educated in the sciences, Reed's desire to learn, interest in natural phenomena, and association with the notable paleontologists of his time, allowed him to gain a background in geology and paleontology. After more than 25 years of significant discoveries of dinosaurs, ichthyosaurs, plesiosaurs, pterosaurs, mammals, and cycads in Wyoming, Reed was given the position as curator of the museum and instructor in geology at the University of Wyoming in 1904. He held this position until his death in 1915.

COLLECTORS AND ENTREPRENEURS: HATCHER, WORTMAN, AND THE
STRUCTURE
OF AMERICAN VERTEBRATE PALEONTOLOGY CIRCA 1900

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ABSTRACT

John Bell Hatcher (1861-1904) and Jacob L. Wortman (1856-1926) were two of the most prominent figures in late nineteenth-century American vertebrate paleontology. Working at leading centers for the science, including Yale's Peabody Museum, the American Museum of Natural History, and the Carnegie Museum of Pittsburgh, each was responsible for significant discoveries of fossil vertebrates and notable contributions to taxonomy and biostratigraphy. Yet both had itinerant and, by their own admissions, highly frustrating careers. Traditionally their problems have been explained in terms of personality, as a result of their sensitive, volatile temperaments. Yet their careers and difficulties also reflect the structure of American vertebrate paleontology at the time, a discipline centered in museums and under the direction of wealthy, powerful entrepreneurs. Men such as Othniel Charles Marsh and Henry Fairfield Osborn financed and helped to promote work in vertebrate paleontology, but the context within which such work was conducted also limited opportunities for Hatcher, Wortman, and others.

THE SECOND JURASSIC DINOSAUR RUSH

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ABSTRACT

The first great North American Dinosaur Rush, begun in 1877 and precipitated by the Marsh-Cope rivalry, was followed by an even greater second Dinosaur Rush, begun just before the turn of the century. The two major principals involved were H. F. Osborn of the American Museum of Natural History in New York and W. J. Holland of the Carnegie Museum in Pittsburgh, but a number of other institutions were also involved, among them the Field Museum in Chicago and parties from the Universities of Wyoming and Kansas. The old Marsh sites at Como Bluff, Wyoming and Garden Park, Colorado were reworked with great success, but many new quarries were also opened, among them, those in the Freezeout Hills and eastern slope of the Big Horn Mountains in Wyoming and the Grand Junction area in Colorado, but most importantly at the two greatest North American Jurassic dinosaur sites: The American Museum Bone Cabin Quarry in Wyoming and the Carnegie Museum Quarry at Dinosaur National Monument in Utah.

EARLIEST HISTORY OF VERTEBRATE PALEONTOLOGY IN
UTAH: LAST HALF OF THE 19TH CENTURY

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ABSTRACT

Aside from the recorded travels of Juan de Rivera in 1765 and the Dominguez-Escalante party in 1776, the earliest reports involving explorations into Utah were mostly those for proposed railroad lines and trade routes, or for general knowledge of the poorly known Western Territories (1840s to 1870s). These explorations were usually conducted under the auspices of the United States Army. Scientists, including geologists/paleontologists, commonly accompanied the survey parties. The first surveys whose prime objectives were to study geology and topography were commissioned by Congress in 1867.

The earliest discovery of a vertebrate fossil in Utah apparently took place on the J. N. Macomb expedition of 1859 (which generally followed the Old Spanish Trail), when J. S. Newberry collected dinosaur bones in the southeastern part of the state. F. V. Hayden's 1870 survey may have extended into northernmost Utah. It is possible that a few of the Eocene age fossils which were reported by him from southernmost Wyoming, came from here. Fossils collected during the Hayden survey prompted a vertebrate fossil collecting trip headed by J. Leidy into the same area two years later. Also in 1870, O. C. Marsh discovered and named the Uinta Basin, making a significant fossil vertebrate collection there. Numerous Eocene mammals as well as reptiles and fish were collected in the Basin proper, while a turtle shell and dinosaur teeth were recovered from the upturned Mesozoic beds on the eastern rim of the Uinta Basin. A Jurassic crocodile humerus was found by Marsh along the eastern flank of the Uinta Mountains. In subsequent years before the turn of the century several institutions sent paleontological parties into this area. E. D. Cope in 1880 identified fossil fish and a crocodile from Eocene deposits of central Utah. Pleistocene mammals were first reported by P. A. Chadbourne (1871) and C. Ring (1878) from Salt Lake and Utah valleys. While early expeditions for vertebrate fossils concentrated largely on adjacent states, many of America's prominent 19th Century vertebrate paleontologists collected fossils in Utah. Their work pioneered the way for present-day paleontologists.

STRANGER IN A STRANGE LAND: A BRIEF HISTORY OF THE
PALEONTOLOGICAL OPERATIONS AT DINOSAUR NATIONAL MONUMENT

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ABSTRACT

Discovered in 1909 by Earl Douglass of the Carnegie Museum, the Dinosaur Quarry (DQ) at Dinosaur National Monument has proven to be one of our best windows into the large vertebrate community of the Morrison Formation (Upper Jurassic). To date, the remains of several hundred individuals belonging to sixteen species of dinosaurs and other vertebrates have been found. The DQ has produced more species, skulls, juveniles, and complete skeletons than any other Morrison Formation quarry. Between 1909 and 1924, the DQ was actively quarried and over 700,000 lbs. of fossils were collected. In 1958 the National Park Service enclosed the unexcavated area of the DQ within a building with both exhibits and research facilities. Since that time over 2,000 bones have been uncovered and left in situ, just as they were deposited. The concept of an enclosed quarry with an in situ exhibit of fossils has been successfully followed at a number of parks both within the U.S. and abroad.

W. D. MATTHEW'S EARLY WESTERN FIELD TRIPS

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ABSTRACT

William Diller Matthew, who entered Columbia College in 1891 with the avowed intention of becoming a mining geologist, was influenced by Henry Fairfield Osborn to change his interests to vertebrate paleontology. In 1895 Osborn hired Matthew as assistant curator at the American Museum of Natural History, where he began his lifelong studies of fossil mammals. In line with his chosen field of research, Matthew made a series of collecting trips to western North America, from 1897 to 1908, devoted largely to the accumulation of fossil mammals, thus establishing a basis for much of his research.

VERTEBRATE PALEONTOLOGY OF
THE GREEN RIVER BASIN, WYOMING, 1840-1910

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ABSTRACT

Paleontological exploration in the Green River Basin in the first half of the nineteenth century demonstrated the presence of vertebrate fossils there. Studies of potential wagon and railroad routes revealed additional information about the occurrence and distribution of fossiliferous rocks during the 1850s. Post Civil War government geologic and geographic surveys yielded large numbers of fossil mammals and created the setting for competition and controversy among Leidy, Cope and Marsh. Numerous publications resulted, as well as Leidy's departure from paleontology. Residents of Fort Bridger worked with all the Eastern scientists to provide information about fossil localities; many specimens also were sent east. Four Princeton expeditions in the 1870s and 1880s preceded the systematic work of the American Museum of Natural History in 1893 and 1903-1906. By 1909 the geological and vertebrate paleontologic framework of the basin was firmly established.

E.D. COPE'S 1893 EXPEDITION TO THE DAKOTAS REVISITED

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ABSTRACT

Recently an uncatalogued cache of fossil reptile material was discovered in the vertebrate paleontology collection at the Academy of Natural Sciences of Philadelphia. Evidence obtained from handwritten notes on the newspaper in which the specimens were wrapped indicates that the specimens are part of the collection made by Edward Drinker Cope on his expedition to the Dakotas and Oklahoma in 1893. These fossils were collected in the vicinity of Fort Yates, North Dakota, and Hump Creek, South Dakota, and are predominantly from the Hell Creek Formation (Maastrichtian: Late Cretaceous). No fossils from the Oklahoma segment of Cope's journey were found in the collection. Details of the Dakota segment of the expedition are reconstructed from correspondence written by Cope while he was in the field and from notes on some of the field wrappings of these newly discovered specimens. These materials are significant to the Academy of Natural Sciences since they provide insight into an aspect of Academy history which had been previously lost.

GEORGE G. SIMPSON (1902-1984):
GETTING STARTED IN THE SUMMER OF 1924

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“The professional relations among scientists are important in the ongoing process of science. Unless one pays attention to them, one cannot begin to understand science.”

-- David Hull, 1988, *Science as a Process*, p. 231.

ABSTRACT

In the middle of his first year of graduate work in vertebrate paleontology at Yale, George Gaylord Simpson began looking about for employment for the coming summer. He needed a job that would not only further his paleontological education, but also, with a wife and infant daughter to support, one that would pay him a salary, however modest. He eventually obtained a position prospecting for Tertiary mammals in Texas and New Mexico as a field assistant to William Diller Matthew of the American Museum of Natural History.

By the end of the summer, Simpson established himself as an energetic and highly successful field man, having made two major fossil discoveries, thereby impressing both Richard Swan Lull, his major advisor at Yale, and Matthew, whom he would eventually succeed at the American Museum as curator of fossil mammals. When Simpson returned to Yale in the fall, Lull, despite his earlier refusal, permitted him to study the Marsh Collection of Mesozoic mammals for his dissertation. Matthew, too, was enthusiastic about Simpson's demonstrated abilities for he became Simpson's mentor, acting as informal off-campus advisor for his dissertation and eventually an advocate for Simpson's appointment at the American Museum.

Simpson also learned, the hard way, about scientific protocol and professional territoriality when a short paper he wrote describing the geologic results of his work in New Mexico was suppressed by Childs Frick, honorary curator of the Department of Vertebrate Paleontology who had supported the New Mexico (and Texas) excursion with his own funds. Frick's financial support of the Museum apparently gave him greater influence than Matthew who, as chairman of Vertebrate Paleontology, had initially approved Simpson's paper for publication in the *Museum Bulletin*.