the science is sound and the information is topical and relevant to the interests of a general audience. The authors display a knack for making the arcane and esoteric interesting. Nonetheless, the ultimate success of a reference work depends more on its accuracy and utility than on its entertainment value; lay readers, as well as workers in the field, will learn much from perusing this volume. Stone and Darlington make it clear that the story of drug discovery is still in its early chapters and that, even with increasing costs and government regulations, we can anticipate more chemical marvels in the future.

BOOKS: PALEONTOLOGY

Ancient Reasons for Monsters

Mott T. Greene

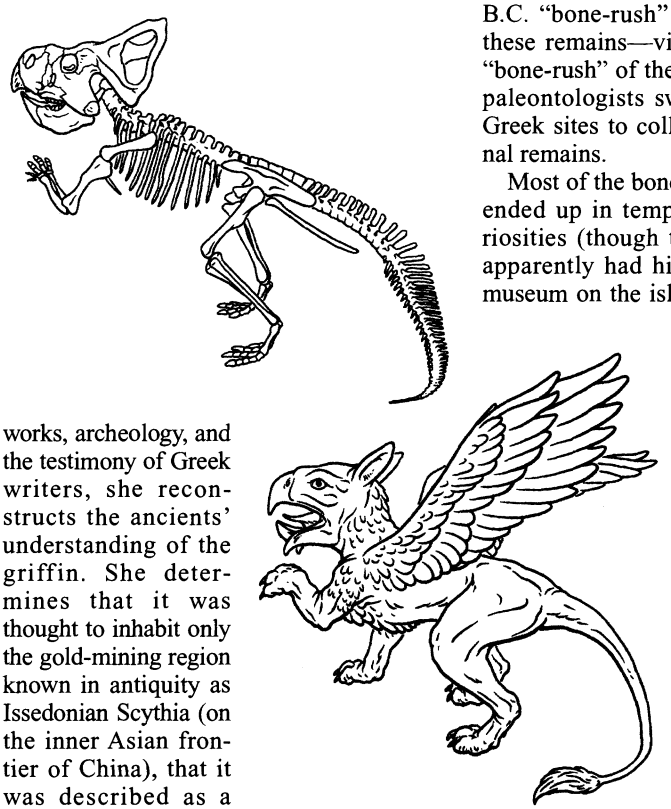
We are aware that the past has a past of its own. We know that the civilizations of antiquity had their own versions of history and prehistory. We also know of the Greek and Roman fascination with giants and monsters, and we are familiar with their versions of a "deep time" filled with battles between such creatures. What we have not heard before is that this mythology had an empirical foundation. The Greeks and Romans believed in giants and monsters not least because they had found their bones.

It is Adrienne Mayor's well-documented contention that the ancients constructed their deep time as we have constructed ours, through the discovery and analysis of the fossil bones of extinct creatures. If they told stories about these fossils that differ from our own, they examined the fossils with the same techniques we employ today: comparative anatomy, skeletal reconstruction, paleogeography, and museum display.

The First Fossil Hunters Paleontology in Greek and Roman Times
by Adrienne Mayor
Princeton University Press, Princeton, NJ, 2000. 381 pp. $35, £21.95. ISBN 0-691-05863-6.

The First Fossil Hunters is a historical and scientific detective story of the first rank. Mayor, a classical folklorist, brings together two lines of investigation that rarely meet: modern vertebrate paleontology and the study of classical Greek and Roman texts. Her results are as striking as they are entertaining. Aimed at a broad nonspecialist audience, the book will engage specialists with its serious purpose and extensive documentation and will please all readers with its profusion of maps, photographs, and drawings.

The first chapter, "The Gold-Guarding Griffin," is a showcase for Mayor's methodical ingenuity. Using inscriptions and art works, archeology, and the testimony of Greek writers, she reconstructs the ancients' understanding of the griffin. She determines that it was thought to inhabit only the gold-mining region known in antiquity as Issedonian Scythia (on the inner Asian frontier of China), that it was described as a quadrupedal and perhaps wingless bird with a fierce beak and armored head, that it nested on the ground and guarded its eggs and young, and that, though the creature was greatly feared, no informant ever claimed to have seen a living one. Then, using the tools and concepts of vertebrate paleontology, Mayor makes the case that this griffin is none other than *Protoceratops*, the dinosaur made famous by Roy Chapman Andrews in the 1920s. (His expeditions to the Gobi Desert and its environs collected abundant and widely distributed remains of *Protoceratops* along with eggs and nests attributed to the species.) How the author works her way to this conclusion makes a wonderful story, and I have no intention of spoiling it here.



Prototypical griffin. An artist's conception of the Scythian's nomads' reconstruction of the Cretaceous fossil *Protoceratops* skeleton (**top**) as a griffin (**bottom**).

Mayor then moves on to her major task, a discussion of Greek and Roman fascination with the remains of extinct mammals. Among the examples she considers are several proboscideans (mastodons, mammoths, dwarf elephants, and *Deinotherium*), woolly rhinoceroses, and giant species of cattle, giraffes, and bears. She shows us how Greek and Roman myths may be sifted for paleontological clues. Surveying the ancient geography of battlefields where "gods and giants" were supposed to have struggled, she maps these to known locations where giant mammalian fossils have been collected in abundance. She documents a 5th-century B.C. "bone-rush" to collect and display these remains—virtually identical to the "bone-rush" of the 1830s when European paleontologists swarmed over the same Greek sites to collect the same megafaunal remains.

Most of the bones collected in antiquity ended up in temples or cabinets of curiosities (though the Emperor Augustus apparently had his own paleontological museum on the isle of Capri). This is not much different than the fate of such bones before the end of the 18th century of the modern era. Indeed, the ancient mythic interpretation of the bones—bridging the gap between deep time and the historical past with stories of ancient catastrophes—differs little in spirit from the attempt to understand the surficial geology of Europe and the bones of the extinct creatures discovered there with reference to the great flood of Genesis, as was common until the 1830s.

I salute the author's refusal either to condescend to the ancients' study of fossils or to rationalize away their subsequent fabulations. The comparative anatomy of giant vertebrates was then and is now a difficult scientific study. The important point is not whether the Greeks and Romans were "correct" in their interpretations of fossils, but that the productive and serious study of fossil remains was extensively carried on in antiquity. Demonstrating this is what Adrienne Mayor has accomplished in her rich, spirited, and eminently readable book.

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CREDIT: ED HECK/FROM *THE FIRST FOSSIL HUNTERS*