

better paper and more generous handling.

For indeed this is an excellent work, surely destined to become a classic reference in the history of polar science. I cannot recommend it too highly, not only for its scholarly precision, but also for the sense of excitement (and, at times, of frustration) so well conveyed in the telling of a fascinating story.

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## Scenes from Deep Time. Early Pictorial Representations of the Prehistoric World

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By Martin J.S. Rudwick  
*University of Chicago Press*  
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Scientific historian Martin Rudwick has previously drawn attention to "the excessively textual orientation of scholarly work in all branches of the history of science, and ... urged the need for greater analytical attention to pictorial sources." In this work, he has splendidly redressed that imbalance by bringing together a wonderful series of illustrations from geological works of the early to mid-19th century, accompanied by contemporary texts and his own illuminating commentary. The book will be of particular interest to anyone interested in the development of paleontology and scientific illustration, but can be enjoyed by anyone involved in the sciences and their development, and presents fascinating sidelights in many other fields.

Intriguingly, Rudwick's starting point is with biblical illustration, where early attempts to create a visual commentary on the creation, flood and Garden of Eden stories of Genesis provided a precedent for those who later attempted more scientific visual interpretations of events and ecologies that had never been witnessed by humankind. Johann Jacob Scheuchzer (whose supposed

fossil man is a familiar figure in paleontological history) provides the earliest picture (1709), but the bulk of the illustrations are drawn from the first six decades of the 19th century. Here a rapidly developing science is visually served by Conybeare's delightful conceit of William Buckland crawling into a den of still living hyenas (1821), while De la Beche's cartoon of life in "a more ancient Dorset" (1830) initiates the tradition of ancient beasts in dramatic confrontation. In 1852, Austrian botanist Franz Unger published the first continuous sequence of scenes from different periods. A fascinating chapter gives the background to Waterhouse Hawkin's well-known sculptures for the Crystal Palace — the first life-sized, three-dimensional restorations of prehistoric animals — and reproduces Hawkin's posters, but not, alas, his miniature model, ancestor to the millions of plastic dinosaurs of today.

Another intriguing section presents illustrations used in geologist Pierre Boitard's fictional treatment of the past in *Paris Before Men* (1862), which appears (although Rudwick does not say so) to be the first "time travel" science fiction story. With Guillaume Figuier's *Earth Before the Deluge* (1863), the genre of illustrations of scenes of the past is fully established, and Rudwick reproduces a full series of plates from this important work of scientific popularization. (As the book ends in the 1860s, there is no exploration of the Canadian use of such illustrations; it is interesting to note that J.W. Dawson was using one of Waterhouse Hawkins' illustrations at the end of the century.) A variety of other illustrations includes restorations of skeletons and individual animals, and even *Punch* cartoons. A useful summary chapter, detailed notes, sources of illustrations, bibliography and index complete the work.

The text develops some interesting sub-themes. For instance, some geologists had doubts about the scientific propriety of imaginative visual reconstructions in case their work be regarded as "too popular" and thus suspect. The underwater viewpoint often used by modern artists did not develop until the aquarium became popular, and illustrations of Adam- and Eve-like first humans were only abandoned in the second edition of Figuier, after the discovery of a human jaw in the Somme gravels.

Although some of the illustrations are familiar, most will be new to most readers. They are well reproduced, all in black and white except the colour version of "ancient Dorset" on the cover. (Most originals were presumably monochrome, but we are not always told.) The accompanying texts are generally well laid out, although the effort to relate illustration, contemporary text, and the author's continuous commentary sometimes creates an awkward flow. One of the most valuable features of the work is inclusion of the contemporary texts, which allows the original author's interpretation of the illustrations to be appreciated.

It is unfortunate that the artists are not discussed much except where they were themselves geologists. In some instances, the information is perhaps not available, but it would be interesting to have more information about their experience in nature art, and their relationship to the material and the authors of the publications they illustrated. Such information would have allowed discussion of the relationship of scenes of past ecology to the developing tradition of landscape illustration of living animals, and perhaps the relationship of prehistoric animals to the iconography of animals in general; vivid depictions of animal conflict, for instance, date back at least to Roman times.

These comments are not so much criticisms as indications of the wide range of possibilities opened up by this engrossing work. And indeed, its importance is apparent when one looks for other works discussing later developments in the field. Until one comes to the fine study of the 20th century work of Charles R. Knight, there is no comparable work.

## REFERENCE

- Czerkas, S.M. and Glut, D.F., 1982. *Dinosaurs, Mammoths and Cavemen*. The Art of Charles R. Knight: E.P. Dutton, New York, 120 p.