
“maximalist” socialist ideology and its ultimately fatal consequences, Malia has not only recast the historiography of the Soviet Union, but posed a powerful intellectual challenge to any attempts to revive socialism as the solution to inequity.

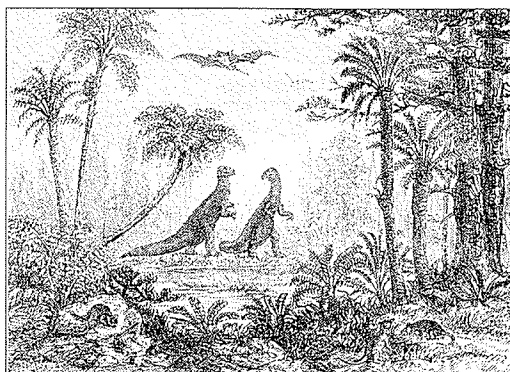
Science & Technology

THE MASS-EXTINCTION DEBATES: How Science Works in a Crisis. Ed. by William Glen. Stanford Univ. Press. 370 pp. \$49.50

Why did dinosaurs and many other large lifeforms suddenly vanish from the earth 65 million years ago? For decades, the mystery bedeviled paleontologists studying the fossil record. In 1980, however, geologist Walter Alvarez, his father Luiz (a Nobelist in physics), and a team of University of California scientists published a radical hypothesis to explain unusual concentrations of rare iridium they found in clay beds dating from the period of the dinosaur extinctions. Their proposal: A meteor, 10 kilometers across and rich in iridium, had struck the earth, filling the skies with dust that chilled the planet and doomed the dinosaurs.

As the first testable hypothesis on the subject, the impact theory should have been allowed a respectable day in the scientific marketplace. Instead, says Glen, a visiting scientist and historian at the United States Geological Survey, too many scientists rejected it out of hand. Volcanists dismissed it because it competed with their own theory—that an unprecedented level of volcanic activity was responsible for the iridium dust, having spewed it up from the earth’s core. Other scientists rejected it simply because non-paleontologists had proposed it. And doubters threw up a host of obstacles, demanding that the impact camp provide impossible kinds of proof—measurements beyond the capabilities of existing scientific instruments, for instance—and challenging them to locate the impact site.

Eventually, after a publishing boomlet produced more than 2,500 papers and books on the impact theory, scientists ended up accepting or rejecting it based on their respective loyalties. Indeed, the pace of the new discoveries, theories, and countertheories was such that, as Glen remarks,



“only few [scientists] could keep abreast.” Many ended up relying on what they read in popular magazines and scientific journals, which, according to Glen, often printed “poorly informed and biased commentary.”

Another contributor to this volume, paleontologist Digby McLaren, points out that the reception of the impact theory followed the same pattern as that given other initially controversial theories—Charles Darwin’s 1859 theory of evolution, for instance, and Alfred Wegener’s 1912 theory of continental drift. Most scientists rejected those theories outright, and it was only after considerable experimentation and study that they were reluctantly accepted. Similarly, the impact theory is now finally receiving more open-minded consideration. Indeed, most scientists today agree that one large object—and possibly more—striking the earth either triggered the dinosaur extinctions or contributed greatly to them.

Of course, scientists should be skeptical of new theories, and should insist that they be bolstered by accurate evidence, particularly when they represent radical breaks with tradition. But challenging ideas deserve to be tested in the laboratory or the field—not in conferences and the media under a cloud of hostility and doubt. As Glen concludes during a conversation with paleontologist Stephen Jay Gould, the scientific community ought to be “a guarantor of objectivity,” and yet time and again scientists greet new theories by imposing “subjectivities, and their power to do so seems to fly in the face of their philosophic purpose and stated goals.”