

EDITORIAL

PALAETIOLOGICAL SCIENCE AND CULTURAL POWER

“Palaetiological science” is a term coined in 1837 by William Whewell,¹ to define “those researches in which the object is, to ascend from the present state of things to a more ancient condition, from which the present is derived by intelligible causes.” In other words, palaetiological sciences are those which use the evidence of the present in reconstructing the past. Whewell’s term has been used infrequently, but was recently promoted by an internet group calling themselves the “Darwin-L discussion group.”²

The palaetiological sciences are more generally referred to as the “historical sciences.” Two examples Whewell used were philology (the study of the history of languages) and geology. Other examples include cosmology, paleontology, paleoanthropology, evolutionary biology, systematics, and historical biogeography. Such “historical sciences” contrast with such “experimental sciences” as physics and chemistry, which do not generally attempt to reconstruct the past. (Historical science might be too broad a term — some of the “historical sciences” may have subspecialties that are more experimental than historical in nature.)

One might wonder why it is so important to make such a distinction, separating palaetiological (historical) sciences into a separate category. One reason is that there seems to be a suspicion that the historical sciences are more subjective, and thus less dependable, than the more prestigious experimental sciences such as physics and chemistry. Arthur Shapiro, a population biologist, once wrote:

*Popperism [falsification] is also widely invoked in certain schools of systematics and biogeography. Why in those places? Because all of those fields have reputations as soft, fuzzy, and ill-defined.*³

Evolutionary biology has been severely criticized as unscientific, because it has no recognized universal laws or deductive theory.⁴ Paleontology has also been criticized in this respect. Nobel prize-winning physicist Luis Alvarez once said, in an interview with the *New York Times*:

*I don't like to say bad things about paleontologists, but they're really not very good scientists. They're more like stamp collectors.*⁵

This statement raised a storm of indignation among paleontologists, but the response by Stephen Jay Gould acknowledges the problem by its

title: “A plea for the high status of natural history.”⁶ One does not plead for what one already has. Since Alvarez was a physicist rather than a paleontologist, and notorious for his ill temperament, his statement could plausibly be dismissed as a misunderstanding.

A similar explanation does not apply to recent statements by Henry Gee — a science writer for *Nature*, a vertebrate paleontologist who has worked at the British Museum (Natural History), and a practitioner of the cladistic method of systematics. He can hardly be called an outsider to paleontology. According to Gee:

*To see palaeontology as in any way ‘historical’ is a mistake in that it assumes that untestable stories have scientific value. But we already know that Deep Time does not support statements based on connected narrative, so to claim that palaeontology can be seen as an historical science is meaningless: if the dictates of Deep Time are followed, no science can ever be historical.*⁷

Again, from Gee:

*For example, the evolution of Man is said to have been driven by improvements in posture, brain size, and the coordination between hand and eye, which led to technological achievements such as fire, the manufacture of tools, and the use of language. But such scenarios are subjective. They can never be tested by experiment, and so they are unscientific. They rely for their currency not on scientific test, but on assertion and the authority of their presentation.*⁸

Not surprisingly, such statements do not go down well with historical scientists. The journal *Geology* published a paper⁹ that responded to Gee’s statements by claiming that “historical science is not inferior to experimental science when it comes to testing hypotheses.” However, the persuasiveness of this claim was significantly weakened by further statements in the paper that scientists do not really practice Popperian falsification anyway. Hypotheses that seem to fail testing are frequently salvaged by sacrificing an auxiliary assumption:

*Moreover this difficulty cannot be circumvented by varying the conditions under which a hypothesis is tested, given that the number of auxiliary conditions involved in any real-world situation is unknown and potentially infinite; it is impossible to control for them all.*¹⁰

If this is true, it would seem that the underlying hypothesis itself has not been tested; only the auxiliary assumption has been tested. If this is

true of experimentally testable hypotheses, it is even more applicable to hypotheses about unrepeatable historical events. Numerous scholars have noted that predictive theory is not a part of (evolutionary) biology.¹¹

Hence it seems that hypotheses in historical science may not necessarily be testable. Yet those who practice historical science often ask for equal recognition with the experimental sciences. This might suggest a question: Why do the practitioners of historical sciences seem to want so badly for their activities to be recognized as “science?” Why not just use the term “natural history” or something similar? Is there something magic about the use of the term “science?” The following quotation may point toward the answer:

Scientists engaging in turf battles for legitimation, authority, domination, money, power, students, laboratory space, or glory, often invoke the legitimacy reason in arguments to secure places in a ‘pecking order’ for different sciences or to reject hierarchies of authority and social status altogether.¹²

It seems the motivation for seeking “the high status of natural history” may have as much to do with sociological factors than with discovering how nature operates. There is power in the telling of history. As has been pointed out,¹³ those individuals with the authority to tell the creation story for their society function as the priests of that society, and derive from that position a great deal of power over how members of the society view themselves and their world. In our society, the authority to describe reality has been largely given over to the scientists, and it is within the “palaetiological sciences” that the credibility of various origins stories is discussed. Hence, the apparent desire by historical scientists to occupy the status of scientist-priest.

The conflict between creation and evolution, it seems, is not strictly a scientific debate. It may not even be primarily about science at all. After all, the conflict is not about experimental data, but about historical explanations. The point of contention is the authority to tell the creation story in our culture, and, thereby, to influence the direction of that culture:

What is at stake, therefore, in the interpretation of Genesis cannot be merely the historicity of ancient narratives, or the doctrine of biblical inspiration, or even the systems of theology based on an inspired historical record of Creation, Fall, and Deluge. From a critical perspective it can be argued that the ultimate issue is nothing less than the social order, its character and sanctions, as dependent on human nature, created and corrupt.¹⁴

As various groups compete for acceptance of their ideas of Earth history, it would be well to ask whether the issues might have more to do with personal philosophy than what we ordinarily consider to be “science.”

L. James Gibson

ENDNOTES

1. Whewell W. 1837. History of the inductive sciences. Cited at: <http://rjohara.uncg.edu/darwin/palaetiology.html>
2. Ibid; the term palaetiological sciences can also be found at: www.aaas.org/meetings/20016121.00.htm
3. Shapiro AM. 1993. Did Michael Ruse give away the store? *NCSE Reports* 13(1):20-21.
4. Murray BG. 2001. Are ecological and evolutionary theories scientific? *Biological Reviews* 76:255-289.
5. Browne M. 1988. The debate over dinosaur extinction takes an unusually rancorous turn. *New York Times*, 19 January 1988, p C4; cited in: Gould SJ. 1989. “A plea for the high status of natural history”; in: *Wonderful Life* (NY and London: W.W. Norton & Co.), p 280-281.
6. Gould (see Note 5).
7. Gee H. 1999. In search of deep time: beyond the fossil record to a new history of life. Ithaca NY: Comstock Publishing, p 8.
8. Ibid., p 5.
9. Cleland CE. 2001. Historical science, experimental science, and the scientific method. *Geology* 29:987-990.
10. Ibid.
11. Murray (see Note 4).
12. Griesemer JR. 2002. Some concepts of historical science. <http://philu.ucdavis.edu/zope/home/jrgriese/phil1108/assets/Griesemer/1996a.pdf>
13. Phillip Johnson, in lecture presented at Loma Linda University, 3 February 2001.
14. Moore JR. 1986. Geologists and interpreters of Genesis in the nineteenth century. In: Lindberg DC, Numbers RL, editors. *God and Nature: Historical Essays on the Encounter Between Christianity and Science*. Berkeley CA: University of California Press, p 322-350 (quote on p 327).