

Geo 390 – Spring 2002

Essay 1: Paleontology as an Historical Science
DUE: 28 January

In lecture on 25 January and in the reading* for our discussion on 28 January, we refer to paleontology, along with ecology, biogeography, evolutionary biology, much of geology and astronomy etc. as "historical" sciences. The historical sciences use the scientific approach to asking questions about events with an important time component or events that happened in the past. We may also include "natural experiments" in our concept of historical science. Natural experiments are events or series of events that have happened in the past. They may illuminate important processes (e.g., extinction), but they have already happened and we have only the "results" to interpret.

We also recognize that words have power and the name we call something often shades how we think about it. "Experimental science" is a good descriptor for that *other* kind of science because it says exactly *how* its practitioners answer questions. In contrast, many have struggled with labeling the brand of inferential science used in paleontology and elsewhere "historical" because it conjures up visions of dusty out-of-date methods and old ideas. More importantly, "historical" doesn't really describe *how* we answer questions.

In this essay, think up a better name for the type of science practiced in paleontology and describe how this new title better illustrates the goals and methods of "historical" science.

Your essay **may not exceed 800 words**. You may use any organization you choose, but I offer the following as a suggestion:

- Provide *your own* definition of "historical science". Giving concrete examples and using a compare/contrast approach might be very helpful. Cleland (2001) may be a guide, but don't copy her definition and be sure to cite and reference all ideas taken from other sources.
- Why is "historical" not the best term to use when describing this type of study?
- What alternative do you offer?
- Explain why this solves the problems you outlined above and better describes how "historical scientists" do their work.

If you use outside references as background or supporting material, be sure to cite and reference them properly. We will be discussing citation and bibliographies in more detail in an upcoming lab. In the meantime, if you aren't sure how or when to cite resources, please be sure to ask. Using other people's ideas or work without proper attribution is plagiarism and will result in a failing grade for the assignment.

* Cleland, C.E. 2001. Historical science, experimental science, and the scientific method. *Geology* v. 29, no. 11, pp. 987–990.