

Evolution and Explanation

S. Matheson, tentative outline

Tentatively scheduled for Wed. 20 October, 7 p.m.

I. Explanation as a way of viewing evolutionary theory

- A. What an explanation is: example of Berringer Meteor Crater
- B. Evolution is supported by evidence, but more importantly, it explains that evidence

II. Common ancestry: our topic for the evening

- A. Concept of the tree of life
- B. Not discussing mechanisms (natural selection, mutation, etc.) tonight but maybe another time

III. Evidence explained by common ancestry

A. The fossil record

- 1. Its remarkable pattern
- 2. Interesting “transitional forms”

B. Biogeography

- 1. Meaning the geographical distribution of organisms and their fossils
- 2. Examples and how common ancestry provides explanation

C. Comparative anatomy and embryology

- 1. Anatomical structures in various organisms seem to be homologous: they look similar, and develop in the same way
- 2. Examples and how common ancestry provides explanation

D. Comparative genetics and genomics

- 1. Synteny
- 2. Genetic fossils
- 3. Chromosomal fusion in *H. sapiens*
- 4. Mobile elements

IV. Evolution for Christians

- A. Problems created by an ancient earth and common ancestry (the Fall)
- B. Particular issue of human descent from an ancestral couple

C. How not to be a creationist (deny the explanatory power of common descent)

C. How to be a creationist

1. No matter what, confess “maker of heaven and earth”
2. If incorporating “biblical data,” admit what still isn’t known
3. In other words, tell the truth, no matter what kind of creationist you are.

Reason for the event

The primary purpose of the lecture is unrelated to current campus controversies or discussions. I am teaching the 300-level course in genetics and development right now, and evolution is a major theme. About $\frac{1}{4}$ (as many as $\frac{1}{3}$) of my students came to the class without any prior coverage of evolution. (A curricular loophole.) The material I’ll cover in the lecture (basic evolutionary theory, focused on the tree of life) is assumed in the course, but these kids don’t know it. So I said I’d do an evening lecture to get them up to speed, then it was suggested to me that I open it to the community. Randy offered snacks, and so here we are.