Some directions for the research paper
History of Biological Thought
Spring 2007

Over the semester, you will be working sequentially on a large research paper that should focus on the development of a *theory or idea* in biology over at least 50 years. The paper will be written in three stages. During the first stage, you will focus on the early period of consideration of the theory, and during the second, the later stages of the theory (these periods will be defined in consultation with me). These papers should concentrate on defining the important events, people and results involved in the development of the ideas; thus, they should indicate a careful reading of the primary literature. The final paper will involve the integration of these two papers into a single research paper; in this synthesis, you should revise your own conclusions concerning the nature of the theory and the process of its acceptance, rejection or modification.

Here are my expectations regarding this first paper:

General approach: While this paper will eventually form the first part of a longer final paper, it should be able to stand on its own as well. In other words, it should have the structure of a research paper, clearly developing a thesis based on your research and reaching some (limited) conclusion about your subject. It should *not* be based primarily on secondary sources (though, of course, you may consult such sources), but show significant evidence of reading of the primary literature. So that I can be sure you are succeeding with this, I'll ask for a bibliography of your sources by **Feb 27th. The full paper is due March 5 at 5 pm.**

Format: Use double-spacing, standard 1 inch margins and number your pages! Stick with a font size similar to 12 point Times. If you hate MLA format (the way that I do) you may use another one (i.e., APA or scientific style format). But be consistent! Unlike for scientific journal-style papers you may have written in other Bio classes, you **may** use footnotes and quotations in this paper.

Length: My guess is that it should take you about 10-15 pages, if you write efficiently. Don't write to fill that length, however. Remember that you will have an opportunity to expand or cut out parts in your final synthesis. If you find yourself writing a major historical tome, please consult with me on how to focus your project appropriately.

Below are some questions to consider as you research and write your papers. You needn't address all of them in your paper. They are just suggestions for ways about thinking about history of biology. (Note I use the term *theory* here in a broad sense).

- How is the theory related to larger issues in biology?
- What is the origin of the theory? Was it a modification of earlier theories or was a fundamental shift from the status quo?
- If there was opposition to the theory, what was its origin?
- Were there critical experimental or observational tests that helped refute or support the theory? Were there critical conceptual or social barriers to acceptance of the theory?

- What were the ramifications of the theory outside of biology? Did they influence its development or acceptance?

Getting going on this paper is going to be difficult for you – my experience in having students do these papers is that it gets easier as you go along, especially as you narrow your focus.

Rule No. 1: Come talk to me often about your progress or lack of it on this major assignment!

In order to illustrate the variety of possible topics/approaches, here is a list of titles of the final research papers previously done for this class:

- *The history of the definition and theories of causes of autism*
- *The history of the origins of "fear": the differing theories of mind and brain*
- *Monogeny and Polygeny: pre- and post-Darwinian concepts of racial inferiority*
- *Crisis in Ethics: reintroducing the subject in biological thought*
- *The Species Problem: what's in a name?*
- *Plant succession: the change of the theory over time*
- *A history of the ecosystem concept*
- *Homeopathy in America: past, present and future*
- *A history of mammalian cloning: and should humans be cloned next?*
- *Society, feminism, and the history of female choice*
- *Succession and species diversity*
- *The history of oral contraceptives*