*** RESEARCH REPORTS ***

This report will provide you with an opportunity to reconstruct the conceptual anatomy of a major transitional phase in the development of modern science. Because philosophical perspectives on science and scientific method require at least minimal acquaintance with the actual experimental practices of working scientists, you will find it valuable to have investigated some particular experiments in detail.

Although the written report should not exceed six (6) double-spaced pages, its format should be that of a case study, with a concentration on historical rather than theoretical matters. Examples of extended case studies are contained in the *Harvard Case Histories in Experimental Science,* Volumes 1 & 2 (ed. Conant, Cambridge, 1957); these volumes are on reserve in the Todd Library. You are not asked to produce reports of the same length or detail as those in the *Harvard Histories*, but your research strategies should allow you to approximate these examples. Another excellent source of model studies would be James Burke's PBS television series, *The Day the Universe Changed,* all segments of which are available in the LRC. Essentially, the report should portray science in process: it should depict the intertwining of experiment, observation, and theory at a particular time and in a particular context.

You may select as your topic any celebrated discovery, invention, or experiment which was, or was seen as, the impetus for major conceptual change in the fabric of a maturing science. Some possibilities are: the Michelson-Morley experiment; Galileo's experiments with falling bodies; Harvey's discovery of animal circulatory systems; Einstein's 'thought-experiments'; the Watson-Crick decoding of DNA.

Before initiating research, you should have your topic approved by your instructor. If you have not selected a topic by the appropriate due date (see course calendar), one will be assigned to you.

> Concepts which have proved useful for ordering things easily assume so great an authority over us that we forget their terrestrial origin and accept them as unalterable facts. They then become labeled as 'conceptual necessities,' 'a priori situations,' etc. The road to scientific progress is frequently blocked for long periods by such errors. It is therefore not just an idle game to exercise our ability to analyze familiar concepts, and to demonstrate the conditions on which their justification and usefulness depend, and the way in which these developed, little by little...
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> --Albert Einstein (1916)