

Week One Reading Guide: Science, power, and social responsibility

Each week's readings will be accompanied by a set of guiding questions. As you read the materials, take notes about key messages as well as questions you have. Class discussions will center around these.

September 9, 2019

Beckwith, J. 2002, *Making Genes, Making Waves: A Social Activist in Science* (Harvard University Press), Chapters 1 & 2.

Chapter 1: How were the early careers of Jon Beckwith and Bob Williams similar to and different from each other? Did either have a clear sense of their identity and life goals by the time they had completed their PhDs? What do these words of Francois mean to you: "If I had realized what it was possible to do within science about these [societal] issues, I might have stayed." What role does privilege play in the opportunities for and choices made by Beckwith and Williams?

Chapter 2: How did the culture Beckwith experienced vary between Harvard (especially Hager's group), UC Berkeley, Princeton, London, Cambridge, and Paris? In what ways did Beckwith remain constant across these environments, and in what ways did he adapt? Did the labs benefit from the cultural diversity of the researchers? How were ethics and activism related for Beckwith? Why did his press conference get so much attention? Do you think the same thing would happen now?

Rotblat, J. 1999, "A Hippocratic Oath for Scientists," *Science*, 286, 1475;
<https://doi.org/10.1126/science.286.5444.1475> (see responses at eLetters tab)

"Science is pure and scientists cannot be blamed for its misapplication." Rotblatt argues that this attitude eschews personal responsibility for likely consequences and is therefore immoral. Can you give some examples of other areas (e.g., criminal negligence in the law) where Rotblatt's argument either succeeds or fails? Can you find examples of national academies of science addressing issues of ethics and personal conduct? What are your thoughts about the Student Pugwash Group pledge? How is this similar to or different from (hypothetically) asking MIT students to endorse the Mind and Hand Book? Two of the responses note the difficulty of legal enforcement of ethical standards while two propose mentoring and education. What are your thoughts? Do you think Beckwith had, or developed, a personal code of ethics?

September 11, 2019

Bernal, J. D. 1971, *Science in History, Volume 1: The Emergence of Science* (MIT Press), “Part 1: The Emergence and Character of Science.”

J. D. Bernal was an Irish biophysicist who determined the structure of many biological molecules. He was also a Marxist and one of the earliest scholars of science and society. His chapter “The Emergence and Character of Science” gives a mid-20th century introduction to science as an institution, a method, a cumulative tradition of knowledge, an economic engine, and a source of culture. Science is far more complex than the school-taught mnemonic of hypothesis, experiment, theory.

In order to understand science activism, one must first understand science, its social construction, and its relation to society. Bernal’s chapter may be challenging because of its somewhat archaic language and the historical context. The chapter was written in the 1960s in the UK, which was still recovering from World War II even while deeply enmeshed in the Cold War between the Soviet Union and the west. Bernal was sympathetic to communism; one sees in this chapter his admiration for the scientific progress of the Soviet Union. He also emphasizes the relation between science and means of production, a concept more often discussed in Marxism than in the philosophy of science. The “Socialist countries” he refers to are principally the nations of the Warsaw Pact (the USSR and Eastern Europe), but they also include China, Cuba, and North Korea.

the jarring way that gendered language appears in this work as a reflection of Bernal’s cultural setting; few readers of his article in 1971 would even have noticed his choice of pronouns. He was personally supportive of women in science—Nobel laureate Dorothy Hodgkin was his PhD student and Rosalind Franklin (whose evidence for the double helix structure of DNA was shown to Crick and Watson without her knowledge or permission) did pioneering work at his research institute.

Keller, E. F. 2001, “Gender and Science: An Update,” in *Women, Science, and Technology: A Reader in Feminist Science Studies*, ed. M. Wyer, M. Barbercheck, D. Geisman, J. O. Ozturk, and M. Wayne (Routledge).

Evelyn Fox Keller is professor emerita of the history and philosophy of science in STS at MIT. She began as a theoretical physicist and moved into gender studies. This article addresses directly the role of gender in science, thereby resolving the puzzle of Bernal’s language. As she notes, “norms associated with masculine culture are taken as universal.” Keller has two goals in her article, which offers an excellent counterpoint to Bernal. The first is to make explicit the role of gender in science, and to distinguish it from biological sex. The second is to explore the nature and meaning of science itself. Like Bernal, she defines science operationally as what scientists do; she also discusses science as institution, method, and source of culture. She discusses at length the role of language in conditioning and constraining scientists and the work that they do, a key element of feminist scholarship. Similarly to C. P. Snow in his famous lecture about two cultures (science and the humanities), Keller contrasts working scientists and feminist critics and asks why they can’t learn from each other.

In your reading, summarize the points of similarity and difference between Bernal and Keller. How are their perspectives relevant today?

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