

Science in the Twentieth Century
HSTS 414
Fall Quarter 2007

Oregon State University
Prof. Ronald E. Doel

MID-TERM EXAMINATION
DUE FRIDAY, 2 NOVEMBER, AT MIDNIGHT

[SUBMIT AS FILE ATTACHMENT TO DOELR@GEO.OREGONSTATE.EDU, OR VIA BLACKBOARD; YOU MAY ALSO PLACE THE EXAM UNDER MY DOOR IN THE DEPARTMENT OF HISTORY, 302C MILAM, BEFORE 5 PM IF YOU PREFER.]

Please indicate which question you are answering [simply note the question number alone – no need to write out the question]. There are *two* sections. In each section you have a choice among two questions.

“Short answer” means no more than two typed pages, double-spaced, standard font.

“Longer essay” means no more than three typed pages.

Part I. Short answer [Choose 1]

Question 1.

When major scientific revolutions occur, how do scientists shift allegiance from one conceptual framework to another? Discuss at least two conceptual revolutions in the physical sciences in the early twentieth century, including Einstein's theory of Special Relativity, Hubble's identification of external galaxies, Planck's discovery of quantum discontinuity, and /or the Heisenberg uncertainty principle. Draw on Oreskes, Smith and Cassidy in particular

Question 2.

"There is no such thing as 'Science'. There is only 'German Science', 'Jewish Science' and etc. The implied objective of this line of thought is a nightmare world in which the Leader, or some ruling clique, controls not only the future but the past."

-- George Orwell, "Looking Back on the Spanish War,"

1943

Please read this quote carefully.

In his last sentence, Orwell is commenting on the idea conveyed *in the first two sentences*.

Evaluate Orwell's critique, using your reading in Cassidy.

Part II. Longer essay [choose 1]

Question 3.

How have popular attitudes towards atomic energy and atomic power changed through the twentieth century? To what degree was the use of atomic weapons in World War II responsible for this shift, and to what degree atomic testing during the Cold War? For your analysis, draw on Cassidy, Badash, and the film *Atomic Cafe*.

Question 4.

Do scientists serve any master? That is, does the history of twentieth century science suggest that scientists recognize and support limits on the search for and application of knowledge, or that the demands of the state and the quest for priority erase such boundaries? Draw on all of our course readings and lectures, as well as *Atomic Café*, Cassidy, to defend your arguments. As with all your answers, employ specific examples and concrete evidence to back up your assertions.