

Great Men and Women of Early 20th Century Science (Humanities project) – David I. Spanagel

Description - This History of Science “inquiry seminar” (i.e. capstone experience for the Humanities and Arts requirement) embodied my latest attempt to bring budding scientists and engineers into a critical space of thinking about the lives and careers of a few of their most famous and accomplished predecessors. Before I began our term together, each student ranked their preferences from a list of possible scientists to spend the term studying. Then I assigned each student one distinct identity, and I selected twelve different scholarly biographies to distribute among the students based on those assignments, so that every student could prepare in advance for the term by reading up on that person. The 12 biographies I assigned were:

Evelyn Fox Keller, *A Feeling for the Organism: The Life and Work of **Barbara McClintock*** (Times Books 10th Anniversary edition, 1984)

Mott Greene, ***Alfred Wegener: Science, Exploration, and the Theory of Continental Drift*** (Johns Hopkins U. Press, 2015)

Graham Farmelo, *The Strangest Man: The Hidden Life of **Paul Dirac, Mystic of the Atom*** (Basic Books, 2011)

Theodore Porter, ***Karl Pearson: The Scientific Life in a Statistical Age*** (Princeton U. Press, 2006)

Walter Isaacson, ***Einstein: His Life and Universe*** (Simon & Schuster, 2008)

Matthew Stanley, *Practical Mystic: Religion, Science, and **A. S. Eddington*** (U. Chicago Press, 2007)

Ruth Lewin Sime, ***Lise Meitner: A Life in Physics*** (U. California Press, 1997)

Bernard Paris, ***Karen Horney: A Psychoanalyst's Search for Self-Understanding*** (Yale U. Press, 1996)

Susan Quinn, ***Marie Curie: A Life*** (DaCapo Press, 1996)

Linda Lear, ***Rachel Carson: Witness for Nature*** (Mariner Books, 2009)

Michael Eckert, ***Arnold Sommerfeld: Science, Life and Turbulent Times 1868-1951*** (Springer, 2013)

Gwen MacFarlane, ***Alexander Fleming: The Man and the Myth*** (Harvard U. Press, 1984)

Initial Trading Card assignment DUE March 17, 2017 - For our first seminar meeting, each student had to introduce their character. Everyone was asked to create and bring to that class meeting 12 identical "trading cards" to distribute to the rest of us. Like a baseball card, this was approximately playing card-sized (2½ inches by 3½ inches, or 6.4 cm by 8.9 cm), and either printed directly onto card stock, or else printed on paper that you have trimmed and affixed to both sides of a card. The cards featured an "action" photograph or a portrait/drawing and the printed name of the subject on their front side, and a brief listing/description of all the person's key professional highlights and scientific accomplishments (in lieu of the annual performance "statistics" that are used to summarize an athlete's career), on their reverse side. I asked them to think carefully about how to present highlights (jobs, honors, and positions of authority) and accomplishments (discoveries, critical experiments, theoretical breakthroughs, influential publications), and to balance the amount of content included with legibility and design choices.

Weekly Writing Prompts

Ethnic/Gender/Religious identity essay assignment **DUE March 24, 2017** - In a brief essay of about 750 words (3 pages double-spaced), outline the various elements of ethnic, gender, and religious identity that best describe the particular scientist you are especially focusing on for this inquiry seminar. With specific reference to biographical details and evidence, present and analyze what kinds of circumstances either enabled or constrained the ability of your persona to pursue his/her scientific education and career. What difference did any of these aspects of identity make, to the course of that person's life?

Primary Source Analysis essay assignment **DUE March 31, 2017** - In an expository essay paper of from 1500-2000 words (6-8 pages double-spaced), provide a close reading of one important selected publication originally written by your alter ego. Incorporate relevant biographical details and contextual evidence to explain how and why this work came about in the first place. Focus the bulk of your paper on a description and explanation of what that publication was about, and assess its contribution to knowledge. Devote some space in your paper's conclusion to a discussion of how and why that work turned out to be influential on other work in the field or beyond.

Impact of the World War essay assignment **DUE April 7, 2017** - In a brief essay of about 750 words (3 pages double-spaced), describe what your scientist's experience was like in during the First World War (or if too young to have been much affected, the Second World War). With specific reference to biographical details and evidence, present and analyze what kinds of situations the war presented, whether directly or indirectly, which influenced the ability of your persona to pursue his/her scientific interests. What difference did the outbreak and continuation of hostilities make, to the course of that person's life and scientific career? How, and to what degree, would it be fair to say that the war was a life-changing event?

Theory and practice essay assignment **DUE April 14, 2017** - In a brief essay of about 750 words (3 pages double-spaced), examine from the perspective of your scientist's career how he/she viewed the relationship between theory and the practice of his/her discipline. Did theoretical conjectures drive investigations (whether observational, experimental, or mathematical), or did empirical data and findings have to precede the effort to formulate new theories? Did your persona's attitude toward this question change significantly over time, perhaps resulting from personal research experiences, involvement in disputes with other scientists, or other factors beyond his/her control happening in the scientific field itself?

Public Product = a Collaborative Final Project – Writing and Performing an **Original Play for 3 characters** – organized around issues of mutual concern to those 3 historical figures

Draft Scripts DUE April 21, 2017 - April 21 was primarily a working day. Small groups had formed by the end of March. Within the first 3 weeks of April each group was asked to compose and be ready to share a fairly complete draft of the play's dialogue (preferably with footnotes containing contextual explanations and citations included). They had to bring 3 hard copies of the working draft, double-spaced, for classmates from other groups to read and comment upon.

Play performances took place during the final meeting of the term April 28, 2017

