

Organization of Academic Science

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October 13, 2021

This handout outlines the readings and discussion plan for PUBP6417: Critical Perspectives on Science and Technology. The readings for this week are: Chapter 5 in Galison et al. [1992], Chapter 4 in Zuckerman [1977], Chait [2002] and Lee and Walsh [2021].

Part I: Labs and Teams

- Craft production, apprenticeship and vocation
- The bureaucratization of science²
- Effects of bureaucracy on research production, doctoral education and careers.

2. Increasing size begetting *specialization, hierarchy, standardization, formalization, decentralization.*

Discussion Questions

1. Weber, Schumpeter and Marx each generate predictions about the effects of bureaucratization on science. Which do you think will be closest to the truth? Why?
2. Lee and Walsh [2021] claim that *expectations* about scientific careers have largely remained the same so far, despite bureaucratization. Why would this be the case?
3. BONUS QUESTION: Do you have vocation?



Figure 1: Members of Robert Langer's lab enjoying a day at the beach.

Part II: Large Centers and Universities

- The academic revolution and the rise of faculty control
- Stanford Linear Accelerator Center and large government projects²

2. Explicitly pursued this type of project as a strategy to retain technical staff.

Discussion Questions

1. What should we think about SLAC being funded off of a 100-page proposal, when later large-scale projects (like SSC) require close to a million dollars to write the proposal alone?
2. Does it make sense that the most knowledgeable individuals in relevant fields have to disqualify themselves from discussions of large projects?
3. Where should the line be between university facilities and a "national facility" like SLAC?
4. How should facilities weigh short-term output against broad participation as goals?
5. The ability of faculty to self-govern their work is higher in prestigious institutions and lower elsewhere. How might this affect students and faculty?
6. Chait [2002] discusses a lot about the state of fights over tenure at the time the article was written, are these observations reflected in what's happening in Georgia in 2021?

References

Richard Chait. The "academic revolution" revisited. *The future of the city of intellect*, pages 293–321, 2002.

Peter Galison, Bruce Hevly, and Alvin M Weinberg. Big science: The growth of large-scale research. *Physics Today*, 45(11):89, 1992.

You-Na Lee and John P Walsh. Rethinking science as a vocation: One hundred years of bureaucratization of academic science. *Science, Technology, & Human Values*, page 01622439211026020, 2021.

Harriet Zuckerman. *Scientific elite: Nobel laureates in the United States*. Transaction Publishers, 1977.