
Open Source, Outsourced: Synthetic Biology in the Age of Biological Taylorism

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Abstract

Session: Outsourcing biomedicine (Birgit Nemec, Lukas Rieppel, Sophia Roosth, Hallam Stevens) Synthetic biologists are a community of bioengineers who seek to standardize genetic parts, applying principles borrowed from electrical and mechanical engineering to biological substance. As this paper reports, their project extends to standardizing labor practices as well. Entering the lab of a Boston start-up company that built what members termed a biological "assembly line" following the principles of Taylorism, I compare it to a much larger for-profit synthetic biology company in the Bay Area, in which the corporate ethos is suffused by management theories emphasizing efficiency. Scientists in both companies subscribe to the "Toyota Way" production cycle forged in Japanese factories and popularized in American manufacturing philosophies such as General Electric's "Six Sigma." Touring both labs, I observed the deskilling of PhD benchwork in favor of undergraduate labor in one company and short-term manual laborers manning robots in the other. Biological labor is being outsourced and routinized, first from academic laboratories to companies, then from humans to machines. Comparing these two companies, I reflect on how engineers have imported not only technical principles of manufacture (such as standardization and abstraction) into biology, but also the labor relations and forms of alienation that underwrite mass production in late capitalism.

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