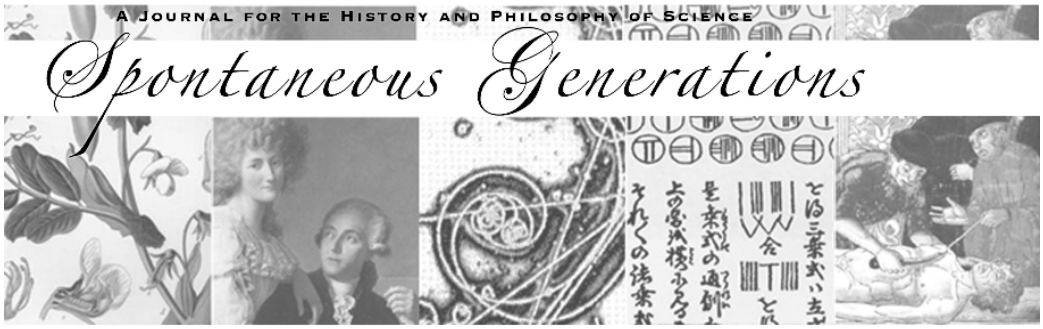

Technology and Social Inequality

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Focused Discussion Invited Paper

Technology and Social Inequality*

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In the Fall of 1977 I gave a paper at a conference organized by the Center for Twentieth Century Studies at the University of Wisconsin, Milwaukee. The title of the paper, published in 1980, was "The American Ideal of a Democratic Technology." Reading it over now, some thirty-seven years later, I am excited all over again by the debate over the nature and role of technology–a debate which was so prominent in the 1970s, but actually had its roots in the nineteenth century. But I am also profoundly dismayed by the ways in which America has squandered the insight and the momentum of that debate. Today there are issues with large components of technology and science on the political agenda: fracking and coal seam gas extraction, the spread of crops of genetically modified organisms (GMOs) and the vacuuming up of masses of private electronic data by the National Security Agency (NSA) for example. By and large, however, they are not understood to be part of the same political issue of social inequality. And of course there is still the obfuscating, and therefore dangerous, insistence on using the terms "science" and "technology" strategically when discussing these topics, and still the Sacred Cows such as space exploration and the dream of unlimited energy through fusion which seem to float above any consideration of opportunity costs where real social needs are concerned.

The existence of a sometimes robust articulation of the social role of technology in the nineteenth century is often overlooked, although it provided an important foundation for later attempts to harness it to social justice issues. Part of the problem, as it turns out, is the very term "technology" itself. It was little used during the nineteenth century and not much used before the 1930s. Terms such as "mechanic arts" and words such as "tools" and "machines" denoted actual, specific material entities that aided in the discussion of specific problems and solutions. "Technology," on the other hand, became a free-floating and empty category, which, because it was

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devoid of any specific meaning, could be filled with corporate fantasies of progress, fulfillment, and happiness. One striking example of this, embodied in corporate advertising, was the distance between the Ford company exhibit at San Francisco's 1915 Pan-Pacific Exposition and the General Motors display at the 1939 New York World's Fair. In San Francisco, Ford constructed a real, though greatly reduced, assembly line to show how his cars were actually made. In New York, General Motors drove viewers, seated in a line a small vehicles on a track, through a diorama of the future, complete with all the comforts and conveniences of a technological Xanadu. The focus had shifted decisively from what is to what one could wish: in 1915 cars took you from where you were to where you wanted to go; by 1939 they changed you from what you were to what you wanted to be.

The specificity of the earlier discourse, and the possibility of linking it to real material issues, is obvious in a letter Thomas Jefferson wrote to a steam engine inventor in 1815. "I see, indeed, in yours," he wrote, "the valuable properties of simplicity, cheapness and accommodation to the small and numerous calls of life.... The importance of your construction will be enhanced by the consideration that a smaller engine, applicable to our daily concerns, is infinitely more valuable than the greatest which can be used only for great objects. For these interest the few alone, the former the many" (Pursell 1980). Jefferson's belief that machines and tools should be judged in terms of whether or not they promoted the democratic ideal of social equality was part of a shared belief that mechanical improvements would strengthen the young nation and that the horrors of the Industrial Revolution, as they were playing out in England, could be blocked by adherence to that same ideal (Pursell 1980, 18).

It was, of course, not so easily done. As the nineteenth century progressed the great wealth and power that the new mills and railroads produced came to seem justification enough for the encouragement of mechanical progress. In 1896 a Minnesota state senator wrote that: "I have heard it asserted that the printing Press, telegraph etc. have educated the masses, that the direful relapse will not come again as in the past... Bosh! Our would be masters have a corner on the whole outfit of the inventions, and they are now just as much employed to the destruction of human rights as formerly, in the absence of those inventions, the peoples ignorance was used as a means" (Meier 1957, 18).

By the early twentieth century the shift from judging technologies in terms of the extent to which they advanced social goals of justice and democracy to judging it simply in terms of productivity and efficiency was well advanced. In 1912 Frederick Winslow Taylor, the "father" of Scientific Management and instigator of the craze for "efficiency," told a congressional committee quite explicitly that both management and labor should "take

their eyes off the division of the surplus as the all-important matter, and together turn their attention toward increasing the size of the surplus until this surplus becomes so large that it is unnecessary to quarrel over how it shall be divided" (Pursell 1980, 18). The dream that technology could be substituted for politics was a powerful one in the Progressive Era.

Not until the Depression of the 1930s did technology reenter the political agenda as something to be studied and evaluated in terms of the social and political good or ill that it produced. Engineers had bragged during the 1920s that it was they, with their labor-saving devices, which had shaped the brave new world of American modernity, but when the labor "saved" turned up in lines at soup kitchens and homeless shelters, the technical community took the position that it had been politics and society, not technology, which had failed. It was the responsibility of institutions to adapt to the new (and presumably inevitable) machine reality rather than stop "progress" by putting limits on technological developments.

The New Deal government, however, undertook a number of careful studies of the ways in which technologies changed and interacted with the social and economic fabric of the nation (Pursell 1979). During World War II, science and engineering were massively funded in the belief that new weapons would be quickly developed and older ones improved. Underproduction of weapons became shortages of weapons, and trends of the recent past that had caused grave concern were now embraced and celebrated. The fact that those trends, along with the massive new spending, decisively concentrated engineering and scientific power, and therefore economic advantage, in only a relatively few institutions was largely ignored. It was difficult to argue with success.

In the postwar world, Cold War competition over the developing countries born out of the decayed empires of Europe led the United States to develop a program to share their technology with the developing countries in the hope of bringing them into the American orbit (Pursell 1999; Pursell 2003). In June 1949 President Truman announced his Point Four Program to share both "technical, scientific, and managerial knowledge" and what he called "production goods–machinery and equipment." American business expressed the most serious concern, insisting that their interests be both paramount and protected, but a few other people also worried about the social effects of introducing modern technologies suddenly into pre-modern cultures. Senator Eugene Millikin, for example, asked: "will the intrusion of these foreign-inspired programs and their operation on the ground accentuate the cleavages between races and classes?" (Pursell 1990, 93). The majority of American technological exports to these developing countries did indeed prove massively disruptive. Stories were rife of large and powerful diesel tractors sent to areas where there was neither adequate fuel nor facilities

for maintenance. The touted Green Revolution, to increase rice production, required that peasant farming plots be merged and that farmers take out large bank loans to buy equipment, chemical fertilizers and pesticides.

A very different scenario was put forward by advocates of Appropriate (or Intermediate) Technology. Following the British economist E.F. Schumacher, whose book *Small Is Beautiful: Economics as If People Mattered* was published in 1973, they argued that technologies sent to Third World areas should be carefully chosen to create workplaces that were located where people lived, that were cheap enough for ordinary people to acquire, and used relatively simple techniques and local materials to make things for local use. Though at odds with the program of American industry, which sought to export the machines they already manufactured, the ideal spread quickly to those who realized that Appropriate Technology was as relevant to overdeveloped economies as it was to underdeveloped economies. In the context of social reform movements and countercultures, books like Ivan Illich's *Tools for Conviviality* (1973), Karl Hess' *Community Technology* (1979), Erich Fromm's *Revolution of Hope* (1968) and Stewart Brand's *Whole Earth Catalog* (1970) popularized the notion that tools have politics, and that America must turn away from what Lewis Mumford called "authoritarian technics" if the country was to reclaim its vision of a democracy based on freedom and social justice (Mumford 1964).

The rebirth of this discussion over the nature and role of technology in the nation's life was reflected in a few scattered governmental initiatives. In 1976 Governor Jerry Brown set up an Office of Appropriate Technology for the state of California; at the federal level that same year a National Center for Appropriate Technology was established (Pursell 1993). Most importantly, in 1972 the Congress established an Office of Technology Assessment following lengthy studies by the National Academy of Science, the National Academy of Engineering, and the National Academy of Public Administration. Its purpose was to evaluate proposed new technologies in terms of their likely costs and benefits. Although its emphasis tended to be on economic rather than social variables, and the data it used came mostly from the industries likely to be effected, until it was abolished in 1995 it sought to produce something analogous to the new environmental impact statements required for large development projects (Pursell 1974).

The attempt to put technology back on the political agenda–to start a national discussion around the nature, purpose and consequences of technology, did not survive the 1970s. On the ground some particular initiatives like the push for solar power lived on into our own time, but even these were largely stripped of political meaning and, at any rate, could be easily subverted by authoritarian applications. The democratic potential of making it possible for homeowners to get off the commercial electrical

grid, for example, was trumped by installations which fed power from solar "farms" directly into the preexisting grids controlled by private utilities.

The critical realization of the years of the Early Republic that technology could either bolster or undermine America's new democratic society, and that it needed to be subjected to the same scrutiny and control as other facets of national life was never quite lost, but neither has it ever been fully and forcibly acted upon. As technology becomes more powerful, however, its control becomes more urgent and necessary.

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References

Meier, Hugo. 1957. Technology and Democracy, 1800-1860. *Mississippi Valley Historical Review* 43 (March): 618-640.

Mumford, Lewis. 1964. Authoritarian and Democratic Technics. *Technology and Culture* 5 (Winter): 7.

Pursell, Carroll. 1974. Belling the Cat: A Critique of Technology Assessment. *Lex et Scientia* 10 (October-December): 130-142.

Pursell, Carroll. 1979. Government and Technology in the Great Depression. *Technology and Culture* 20(1) (Jan): 162-174.

Pursell, Carroll. 1980. The American Ideal of a Democratic Technology. In *The Technological Imagination: Theories and Fictions*, eds. Teresa de Laurentis, Andreas Huyssen and Kathleen Woodward, 11-25. Madison: Coda Press.

Pursell, Carroll. 1993. The Rise and Fall of the Appropriate Technology Movement. *Technology and Culture* 34 (July): 629-637.

Pursell, Carroll. 1999. The Hoe or the Tractor: Appropriate Technology and American Technical Aid After World War II. *Icon* 5: 90-99.

Pursell, Carroll. 2003. Appropriate Technology, Modernity and U.S. Foreign Aid. In *Science and Cultural Diversity: Proceedings of the XXIst International Congress of History of Science*, I, Plenary Lectures, 175-187. Mexico City: Universidad Nacional Autonoma de Mexico.