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## Gabriel Moshenska's "Reverse engineering and the archaeology of the modern world": a response

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Moshenska draws a convincing parallel between reverse engineering of obsolete technology and archaeological inference. Interestingly, many of the arcane experts in orphaned software and discontinued machinery themselves recognize this parallel with their cooption of the term 'archaeology' (they are 'digital archaeologists' and perform 'software digs'). What is not clear from either their appropriation or from Moshenska's summary is whether archaeology itself works as 'tacit knowledge' of past know-how. Also left unresolved is whether we could take a more ambitious step of inference from 'how things work' to 'how society works.' The suggestion that the logic of archaeological inference could be tightened up with deployment of the methodical problem-solving techniques of forensic engineers is intriguing. Perhaps I am more hopeful than Moshenska, who shrugs his shoulders at the end of the paper and says, "I remain uncertain" about the paper's contribution to the field. Like the *chaîne opératoire* mentioned, is there a map for a *chaîne logique* that we could follow, or what used to be taught in required philosophy courses as 'formal logic'? As he also suggests, the parallel to processual archaeology, with its deductive modeling and fixation on material prime movers, comes to mind. But processual archaeology, in its heyday, was rarely interested in questions of political power (except as always, already evident in monumental structures) or the informal beliefs and practices of daily life that we awkwardly call culture. Thus, the possible retrofitting of old logics to newer questions holds promise. This writer, for one, does sometimes become weary of the loose poetics of much archaeological writing today in which the links between argument and evidence are hazy at best. Reverse engineering seems to offer a standard of precision that the field may just now need.

In terms of the larger theoretical stakes, the paper points towards Marxism, and makes a critical complaint about outmoded ideas about modernity, but ultimately there are some spare parts left over. Some major claims in the paper made me scratch my head. They regard the problem of the 'inhuman' and the nature of 'modernity.'

Moshenska says, "In this paper I have tried to show that the vision of modern industry as an inhuman, technological edifice was always to some extent an Oz-like illusion maintained by skilled human beings." It is unclear who maintain this characterization of modernity. Certainly, popular anxieties about industrialization were expressed during the machine age, perhaps most beautifully by Fritz Lang in the 1927 film *Metropolis*. However, it is no coincidence that Lang's influential film found its first audience during a global peak of socialist sentiment and Marxist membership, just before those political waters were poisoned by Stalin and Hitler in the 1930s. Lang's critique is not about a modernity in which machines have replaced humans but about one in which the needs of machines justify a futurist form of slavery. In the paper, some unintentional elision may exist between the 'inhuman' environment and Marx's idea of the alienation of labor. It is entirely common to have humans and machines operate as an integrated unit, or a relationship of interdependency. The result of Fordism is that workers are deskilled -- performing repetitive, mindless operations *like* the machines to which they are shackled. 'Fordism' is a reverse anachronism; the practices it describes really date to the early English textile mills of the early 19th century, so familiar to Marx and Engels.

To get an idea of how this principle could drive a downward spiral of conditions in which the worker's needs were subsumed to those of the machine, let me quote from an archaeological report on a New Orleans cotton mill I wrote many years ago, summarizing first-hand accounts from newspapers and testimony from an 1894 strike:

New Orleans' subtropical heat and humidity were amplified by the friction of thousands of machines and radiation from steam-powered motors. Temperatures inside the mill during the summer went well into the 100s. The noise of millions of machine parts clanking, spinning, whirling, pumping, and humming all at once must have made conversation at a normal tone impossible. The heat and noise exacerbated fatigue from 10 to 12 hour days spent doing repetitive tasks in a standing position. Workers were responsible for keeping a certain group of machines constantly running, so that lunch breaks were only possible if or when workers were able to get ahead of the machines' need to be loaded, threaded, and adjusted. (Dawdy and Ibáñez 1997:42)

This is the 'dehumanization' that most people probably have in mind when they think about mechanized modernity. *Metropolis*, not *Wizard of Oz*. Moshenska's argument is weakened by not better setting up the 'dehumanization' thesis he wants to counter (despite his protests, it remains a ghostly straw man), but a second problem of an evidentiary nature leads to an interesting insight. That is, the counterexamples he uses are of extremely complex (even hand-built) technologies that were produced in low numbers by highly skilled workers – a.k.a, nuclear bomber planes. This type of technology (akin to the massive, temperamental Corliss steam engine that powered the cotton mill's moving parts) requires a different kind of human relation than does a row of identical spinning spools. Thus, one of the most powerful, though hidden, implications of this paper is that we need to find a way to talk about different species of machines and the different human relations they required for their creation, operation, and repair. One size does not fit all, even in the era of laser-cut mass production. What if we let machines be as variable in their character as their human interlocutors, rather than trying to come up with theories that lump all historic technologies into a single scrap heap of analysis?

## **Bibliography**

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