Techtopias: Historical and Current Themes in Discussions of Human/Machinery Interactions

*Robots are coming, but what does this mean?—Norman, 160*

In order to understand technology and production in the archaeological record, archaeologists must consider the relationship between humans and the objects involved in production. However, such considerations are relevant not only when considering the past, but also the present (and, indeed, the future). Today’s readings included three pieces concerned with contemporary technology and its effects on humans. Two of these works, those by Gaskell and Babbage, were written in the early 19th century. Thus, they can inform us about manufacturing processes at that time, but they are also helpful in understanding how thinking about human/machinery interactions has developed, and how it has changed (or not) over time. The third reading I will consider in this short paper, Norman’s “The Future of Everyday Things,” was published in 2007 and provides a modern counterpoint to the works from the Industrial Revolution, yet there are striking similarities. All three readings highlight several common and continuing tropes concerning the relationship between humans and machinery. Discussions of these relationships often become polarized between those who see technology as a looming danger and those who believe it has greatly enhanced the human present and will continue to do so in the future. For example, Babbage and Norman offer presents in which machines merely serve to make human life easier and more efficient, worlds heavily shaded with overtones of utopian futures—whether this be Norman’s future full of machines with helpful suggestions for diet and dress or Babbage’s more economically-focused “utopia” of speedy manufacture with minimum waste and wages. In contrast, many 20th century works of science fiction presented dystopian futures resulting from the breakdown of idyllic systems of interaction between humans and (often super-intelligent) technology, and Gaskell’s work anticipates this trope, though here the villains are not autonomous robots, but mechanized looms and steam engines and their human masters, unable to resist the temptations of money and free time. While these readings contain many helpful ideas, it will be important for archaeologists to move beyond viewing technology deterministically either as the inexorable salvation of humankind or as the equally unstoppable means of our eventual destruction.

Babbage, writing in 1832, extols the virtues of precise, single-purpose machines over human craftspeople in the manufacturing process. He considers manufacturing as perhaps the greatest product of the British Empire and believes that mechanization has led to greater efficiency and accuracy. For Babbage, machinery saves human time, though he is more concerned with how this can increase productivity than freeing up any leisure time for the operators of the machines in question. Babbage promotes a stringent division of labor in which each machine and each human labor conducts only one small step in the manufacturing process, believing that this will result in cheaper, more productive manufacturing. Here, Babbage strongly equates machines and people; he suggests that apprentices should be trained in only one step of the process, just as each machine should be kept “constantly employed in one kind of work” (52). Though Babbage is not as explicitly utopian as Norman, he is suggesting that the future of manufacturing will be efficient and cheap, if only the precepts he suggests are followed.

Babbage’s treatise actually echoes many themes from other works we have read this semester (or, rather, vice versa, given the 1832 publication date of *On the Economy of Machinery and Manufactures*). These ideas were evidently of (practical) concern long before 20th and 21st century theorists sunk their teeth into them. Like Leroi-Gourhan, Babbage discusses the advancement of technology from the unaided human hand through tools and machines of ever-increasing complexity. In much the same way as Ferguson, he is concerned with the loss of raw materials which can result while novices are learning a craft, though his solution, the extreme division of labor, in which any one person learns only one step in the larger manufacturing process, is quite different than Ferguson’s proposition of scaffolding, by which a “master” aids novices with the most difficult steps of production until they are able to conduct them on their own with minimal loss of material to due to failures. Babbage is perhaps also relevant to considerations of skill, given that he is insistent that machinery can produce items with more skill and accuracy than humans. Even his statement that “when the human hand, or the human head, has been for some time occupied in any kind of work, it cannot instantly change its employment with full effect,” is striking similar to more recent discussions of repetition and learning, and the structural changes the brain (and limbs) experience with repeated practice (52). Though Babbage seems to favor machinery over human agents and is less concerned with any negative consequences of an absolutely efficient manufacturing process, the themes he explores remain important in studies of technology to this day.

Norman is more explicitly focused on the future possibilities of technology, he also takes the view that one of the main goals of technology should be to increase human efficiency. For Norman, this ranges from automated robot vacuum cleaners (shout-out to DJ Roomba?) to future refrigerators which will keep track of expiration dates and suggest meal options. Norman is much more focused on the user end of the manufacturing equation and is concerned with the sociability and communication of machines, not just their efficiency. Norman’s chapter tells us we are on the edge of a major revolution in materials and boundaries between humans and machines and makes many predictions for the future. Ultimately, Norman calls for “a science of design,” which melds practical concerns of engineering with aesthetics and social concerns.

Despite the obvious differences between Babbage and Norman (chronological, material, stage of manufacturing), both seem to consider technology as a means for humans to improve their lives (or at least their accuracy and productivity). Both see technological advances as steps forward in human history. In contrast, Gaskell dwells on some of the more negative aspects of technology.

Gaskell holds the steam engine responsible for what he sees as the moral decline of craftspeople after the advent of mechanization. Propped up by unexpected wealth, and without the education and refinement Gaskell believed necessary for a savory character, according to Gaskell, the craftspeople that benefited materially from the introduction of mechanized cloth manufacture devolved into debauchery and indecency. He also discusses damaging effects of the surplus of labor created by mechanization, as well as decreases in wages. Gaskell is concerned that machines “lower the value of human labor,” and ultimately destroy it (59). Gaskell’s moral judgments aside, this view of technology as a corruptive element leading to chaos has remained popular (consider any Hollywood blockbuster about robots produced in the last 60 years). While his lamenting of the degraded character of craftspeople goes overboard, his piece does include several important insights into the ways the industrial revolution changed and supplanted workers.

While the direct archaeological application of the ideas present in these papers is far from clear, it is apparent that archaeologists will have to go beyond the extremes presented here in their conceptions of technology. Machines *can* increase our efficiency and technology has provided many improvements in living conditions. However, technology is not only a forward-moving juggernaut with only positive consequences. Changes in the organization of labor and in technology affect the lives of real people in demonstrable ways.