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The Anxiety of Automation: Attending to the Deep History of Automated Entities

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The times shift beneath our feet these days – nearly every day, in fact, as new developments in artificial intelligence and automation roll out and are reported in the media. The ramifications are huge, as we all know. What will we do about job sector transitions and the problem of a guaranteed minimum income? How will we identify news and media products created by bots, and what are the implications of automated creative labor (if indeed we can call it creative)? What ethical standards should we develop for sex bots or for automated warfare? What complexities do household bots pose for privacy when your Roomba is mapping your floorplan and Alexa may well be logging your conversations (Moynihan 2016; Shaban 2017)? All of these contemporary questions and many more demand our careful consideration and active responses. They are the problems of the here and now – and yet they are also longstanding problems, as Dowd noted in his apt introduction to this forum. In this essay, I contend that one of the major social considerations that requires our attention at this juncture is awareness of the deep history of automation and artificial intelligence. There is a danger in assuming that our problems are contemporary problems and thus in viewing them solely within what are, historically speaking, the relatively recent contexts of recent centuries. Doing so contributes to a focus on evolutionary narratives that overemphasize progress at the expense of examining core human motivations that shape design, development and deployment of automation.

As Dowd argues, awareness of the history of automation is vital for establishing context, and those of us familiar with the history of the Industrial Revolution commonly trace concerns about automation back to the steam engine as well as to the jacquard loom. But there is value in

going back even further and taking a deep look into the tangled ecologies of ancient myth, fable and invention, all of which have much to tell us about the long record of human hope, confusion and outright fear about automation. This complex record of cultural anxieties is not even as new as the Industrial Revolution; it reaches all the way back to the origins of civilization.

We worry, we humans do. We worry now and we worried a long, long time ago. Ostensibly, we worry about robots, but excavating down through more centuries of story reveals that really, we worry about ourselves and our humanness. Our fragile bodies with their limited strength, our unreliable and limited memories, our awe of the sublime and terror of the occult (Sawday 2007), our troubles with defending ourselves against enemies, our wish for a workforce that never tires and does not form unions (LaGrandeur 2013), our hateful hopes that anyone we consider to be lesser than ourselves will just stay in their place and silently do as they are told. Our quest never wavers for proxies that will execute perfectly the actions that our imperfect selves stumble through (Chapius and Droz 1958; King 2002; Voskuhl 2013). The examples I discuss in the remainder of this short forum contribution are necessarily limited, but they illustrate the range of these concerns across history and cultures.

The hope for perfected automated labor has been a central issue from the beginning. Humans are messy, and managing humans even messier; as Aristotle wrote in the *Politics*, 'if, in like manner, the shuttle would weave and the plectrum touch the lyre, the chief workmen would not want servants, nor masters slaves' (1254a). Even earlier, Homer told in *The Iliad* of the *tripodes khryseoi*, or automated golden tripods crafted of gold by Hephaistos for service in the halls and residences of Olympian gods. They wheeled themselves in and out of the spaces, bearing items as required. LaGrandeur traces other examples before Aristotle in Greek mythology, particularly the moving statues said to be made by both Hephaistos and Daedalus

(2013: 21). Among these were golden servant girls, the *kourai khryseai*, intelligent servants who spoke and 'stirred nimbly in support of their master'. Legends of perfect, obedient, attractive servants also came from as far away North India and China (2013: 20). All of these tales celebrate automated entities as perfect laborers and objects of wonder adjacent to power, but they don't ask questions about the human laborers who are conspicuous through their absence.

Ancient development of automation existed outside of myth as well. Among the earliest automated tools for marking or keeping track of information were the water clocks built during the sixteenth century BCE in Babylon and Egypt (Cowan 1958), and the Greek engineer Ctesibius developed a complex water clock that incorporated automated moving figures around 270 BCE. In the following century, the Greeks built the antikythera mechanism as a computer for calculating astronomical phenomena. It automatically solved calculations faster and more accurately than humans could, predating our own computers by millennia (Antikythera Mechanism Project 2017). Later, Hero of Alexandria drew on Ctesibius' research in his handbooks *Automata*, *Pneumatica* and *Mechanica*, which included the first documentation on workable robots outside mythology (Rosheim 1994).

This search for power beyond what human minds and bodies are capable of mustering extends to anxieties concerning national defense. Among Hephaistos' mythical creations was Talos, a metal giant who defended the island of Crete from invaders. The vagaries of naval warfare are removed as a concern for humans, since Talos threw boulders at invading ships or simply picked them up from the water altogether. Once captured in his brass grasp, the ships were held to his heated metal chest until they ignited. As LaGrandeur notes, Talos appears in multiple Greek texts, including Apollodorus of Athens's *Bibliotheke* and the *Argonautica* by Apollonius of Rhodes (2013: 21). Many nations since have hoped for military might without the

cost of human lives and damage to frail human bodies, with the current result of remote drone warfare.

Considering automation and artificial intelligence solely within post-Enlightenment contexts can obscure central ethical questions as we are dazzled by evolutionary narratives of scientific progress and innovation as well as by promises of the very real benefits that closer living with automation can bring. But considering automation and AI within the context of their deep history centers one of the foundational questions that should guide development and deployment efforts: simply, who benefits? In ecologies of myth and fable, usually a god or a wizard or a priest. Unless it's in the context of national defense, not women. Not peasants. Not servants. Certainly not slaves. Compensation for human frailties is so often about power and preservation of power, whether the superiority is military, scientific or efficiency. It is about mastery of known and unknown opponents, including nature and the realm of spirits. It is about mastery of the self and the soul through standards of perfection. Nowadays, we are not so very different with our military drones, our algorithms, our Fitbits on our wrists and Google Home on the shelf. The foundational question we must always ask is: who benefits? Jeff Bezos, who recently became the richest man in the world? The very wealthy who can afford access to nanobot-based treatment as it becomes available? In other words, the modern-day gods, wizards and priests? It is swiftly becoming too late for us to shift our first principles for development and deployment of automated entities, but it not too late to shift our starting point for developing ethical guidelines to another standpoint, one that functions from hopefulness rather than fear and from a goal of providing equitable benefits that are accessible to as many humans as possible.

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