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Remembering the Ancients: Observations on Technoscience in Čapek's *R.U.R.*

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Abstract

The technoscientific consequences of both the human drives for glory on the one hand and a comfortable life on the other potentially threaten human existence. *R.U.R.*, a science fiction play by Karel Čapek, bridges ancient writers and contemporary technoscientific endeavors, encouraging us to consider these issues in light of persistent human nature.

Keywords

technoscience, glory, human nature, science fiction, *R.U.R.*, Čapek

Just as Machiavelli (trans. 1998, chap. XV) sought to sweep away the classical philosophers who created imaginary republics apparently divorced from real politics, Sir Francis Bacon sought to do the same for science. Early in *The Great Instauration*, Bacon (1989) asserts,

> For its value and utility it must be plainly avowed that that wisdom which we have derived principally from the Greeks is but like the boyhood of knowledge, and has the characteristic property of boys: it can talk, but it cannot generate; for it is fruitful of controversies but barren of works. (p. 2)

So thorough has Bacon's housecleaning been for us, that it is startling to find a work of science fiction that unites the glorious creation of the robots with the glory of the Greek triumph over Troy. The success of the Baconian project is all around us. Modern science is anything but barren; rather, it is the rapid "fruitfulness" of our science that now presents myriad problems. However, global developments suggest that even these problems now tend to be understood as ones to be solved by ever more complex and, some might argue, invasive technology. Writers like Francis Fukuyama, Leon Kass, and others have done much to raise concerns over our developing technological capabilities in areas such as pharmacology, genetic engineering, and human cloning. Given the relatively recent development of these issues, it may seem odd to look back to a work of science fiction from the early 20th century (predating both Huxley's *Brave New World* and Orwell's *Nineteen Eighty-Four*), but the case for looking back as well as forward is eloquently made by Čapek himself. Čapek's ideas complement and expand the observations of Fukuyama and Kass.

R.U.R. (Rossum's Universal Robots)—by Czech playwright and satirist, Karel Čapek—was first published in 1921. The play might best be described as Oscar Wilde meets H. G. Wells—starting in slightly zany drawing room comedy and satire and ending in the destruction of humanity by the robots we created. The robots, which we would now describe as androids, are representative of the dehumanization of workers through mass-production factories and mindless labor, but, at the same time, the robots also represent the Frankenstein's monster problem of our own scientific creations run amok.[1] At apparent odds with the play's focus on technology—its dehumanizing consequences and potential dangers—are repeated allusions to the ancients and particularly to the story of Troy. So why, in what seems like a thoroughly modern play with modern concerns, is Čapek evoking the ancients? And second, what does this reintroduction of the ancients contribute to the conversation concerning global technology?

Some of Čapek's questions and concerns will be familiar to readers of current conversations within the philosophy of science. However, many of these discussions of the role of technology and science in our societies and world turn on the developments of World War II, particularly the concentration camp and the atomic bomb. It is perhaps impossible for those who come after, not to see these events as a watershed. Some have gone as far as to ask if these were exceptional

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events.[2] Čapek's play, written in 1920, challenges us to see the questions raised by World War II in a longer context; whereas Čapek's use of the Trojan War turns us back to fundamental questions of human nature.[3]

Forgetting the Ancients

Standing against such long-standing fundamental questions is our propensity for forgetting, which frames the key questions Čapek (1920/2004) raises in *R.U.R*. Before turning specifically to the Trojan references of the play, it will be helpful to note that Čapek warns his audience to be alert to historical—and, perhaps, particularly ancient—examples. In the Prologue of the play, the manager of R.U.R. introduces Helena to Sulla, his female secretary.[4] Helena Glory, the daughter of President Glory, arrives on the company's island in order to protest the treatment of the robots. On meeting Sulla, Helena at first refuses to believe that the secretary is a robot. Trying to convince Helena, Domin calls in a second robot, Marius, and orders him to take Sulla to be dissected. Helena intervenes and saves Sulla from Domin's orders. Still, Helena finds that the robots she has come to protect to be "abominable" (Čapek, 1920/2004, p. 12), although she cannot explain why. Helena then questions Domin:

> HELENA: Why—why did you name her Sulla?
> DOMIN: You don't think it's a pretty name?
> HELENA: It's a man's name. Sulla was a Roman general.
> DOMIN: Oh, we thought that Marius and Sulla were lovers.
> HELENA: No, Marius and Sulla were generals and fought against each other in the year—the year—I don't remember anymore. (Čapek, 1920/2004, p. 12)

Domin shifts the topic of conversation, and the problem of Sulla's name is dropped.

Helena, coming from outside the R.U.R. Island and its factories, is a little vague on the facts, but she is right in the basic outline: Marius and Sulla were generals and did fight each other. What Helena and the R.U.R. managers have forgotten is that both men, leaders of Rome, lost sight of their responsibilities in their rivalry with each other. Lucius Cornelius (Felix) Sulla (138-178 BCE) has the dubious distinction of being the first Roman to march a Roman army on the Republic. Gaius Marius (157-186 BCE) then followed suit. In his *Life of Marius*, Plutarch (trans. 1972) reports that at one point in the conflict between the two men, "Marius nearly went out of his mind with rage and jealous anger at the idea of Sulla stealing the glory of his achievements" (p. 46). The names of the robots foreshadow the coming revolution of the robots, but more important, they highlight the forgetting of the past. There is no shortage of rebellious Romans (or others) Čapek might have used as his examples, but Sulla and Marius seem particularly useful for two reasons. First, they are chosen from the late days of the Republic; they are a reminder that republican freedoms may be quickly lost to dictatorship and empire. Second, the story of Marius and Sulla is one used by Plutarch to reflect specifically on the dangers of ambition and glory-seeking—dangers which led to a civil war and bloodbath in Rome. In his *Life of Sulla*, Plutarch (trans. 1972) observes of the two generals that

> the hatred between the two of them was originally based on slight and childish causes . . . yet later it led them on to the shedding of blood in civil war, to irreconcilable antagonisms, to tyranny and the utter confusion of the whole state. This proves how wise Euripides was and how well he knew the pathology of politics when he recommended us to beware of ambition, which he calls the most destructive of all powers and the most damaging to those who worship her. (p. 69)

Just as Plutarch remembers the nearly 500-year-old (for him) lesson of Euripides, Čapek offers us Marius and Sulla as a dramatic historical example of the cost of ambition.

However, even as he presents his warning, Čapek shows us a lesson completely lost on his characters and likely on a considerable portion of his audience. Within the play, Helena comes the closest to knowing anything about the past, and her knowledge is reduced to the barest of isolated facts (and not even dates). The idea that we might turn to history or read something like Plutarch's analysis in order to better understand human nature, behavior, and politics would be utterly alien to the R.U.R. managers. But before we assume that Čapek is exaggerating for the sake of comedy and satire, we need to recognize the modern tendency to sever the present from the past in just this way. A telling example is as follows: Robin Seagar, the Penguin editor of Plutarch (trans. 1972), begins his note on the *Life of Marius* complaining that "the biography of Marius is one of the least satisfactory of Plutarch's Roman lives from the historian's point of view. Marius and his political importance disappear almost completely behind a smokescreen of moralizing" (p. 13). Academically trained readers like Seager seem just as likely to miss Čapek's point as his business and technology-oriented managers. History in Seager's sense is exactly what Plutarch is not writing. For most moderns, the use of *exempla* as Plutarch and others would use them seems unsystematic—that is unscientific. Bacon's desire to sweep aside the ancients from the field of scientific endeavor has been more successful and far-reaching than he might ever have dreamed.

The Glorious Pursuit

Having alerted us to the problem of historical amnesia, Čapek goes on to allude repeatedly to the Trojan War. First, the central female character of the play is named Helena, and

like Helen of Troy, men no sooner see her, than they fall in love with her. Although she marries Harry Domin, all the managers of Rossum's Universal Robots remain in love with her throughout the course of the play. Second, from the end of the prologue to the start of the first act, Čapek (1920/2004) shifts us from the arrival of Helena on the island to the beginning of the end of humanity. During this gap in the play, 10 years pass—the same length of time as the war at Troy (p. 27). Third, at the climax of the revolution of the Robots, when a ship appears on schedule, the humans of R.U.R. celebrate their apparent rescue, only to discover that the ship carries the Robots that will destroy them (Čapek, 1920/2004, pp. 42-47). The allusion to the wooden horse and the attacking Greeks seems obvious. To figure out what Čapek may be doing with these allusions, it will be necessary to turn to Homer.

That *kléos* or glory was a central concern for the ancient Greeks seems apparent when we consider Homer's *Iliad*. By risking his life in battle, a warrior makes his life meaningful through the acquisition of honor and glory (Schein, 1984, pp. 68-70). When Hector, for instance, seeks to motivate his men, the ultimate reward is not simply material. Hector offers the man who succeeds "one half the bloody spoils, keep half for myself—his glory will equal mine" (Homer, trans. 1990, pp. 449-450). Agamemnon, unlike Hector, has sent his best warrior, Achilles, off sulking to his tent because Agamemnon has denied Achilles the glory he deserves.

Although martial glory may be the most familiar to us when we consider the ancient epics, *kléos* can be extended to other "difficult and important exploit[s]" (Redfield, 1975, p. 33). Homer's *Odyssey* depends on this more expansive understanding of *kléos*. Odysseus is accorded *kléos* both for his martial prowess at Troy and also for his cleverness. Odysseus himself connects his craftiness to *kléos* when he asserts his identity as he tells his story to another character: "I am Odysseus, son of Laertes, known to the world/for every kind of craft—my fame has reached the skies" (Homer, trans. 1996, p. 212). Both sources of glory are also recognized by Telemachus: "Father, . . ./All my life I've heard of your great fame—/a brave man in war and a deep mind in counsel" (Homer, trans. 1996, p. 346). The ancients recognized that *kléos* might come from more than one area of human excellence—a possibility fully realized by modernity.

Glory, in the martial sense, seems conspicuously absent from Čapek's play. The final battle against the rebelling Robots takes something closer to 10 minutes than 10 years and is more of a slaughter than a battle. Only Alquist, the head of construction at R.U.R. is left alive by the Robots. And yet, glory does seem to be the key connection between the stories of Troy and *R.U.R.* Čapek points rather obviously in this direction by giving Helena the last name "Glory," and she is the one all the men desire.[5]

Čapek's suggestion is not that modernity has moved beyond a desire for glory as a critical motivation but that we have completely shifted the arena for acquisition. Technoscience—the modern combination of science, technology, and engineering—is the field that has replaced the field of battle (Sassower, 1997, p. 2).[6] That Domin is desirous of glory is apparent early in the play. His pride when he offers to show Helena the factory is obvious: "Good old Europe is talking about nothing else" (Čapek, 1920/2004, p. 4), he crows. Domin's vision sees himself as the savior of humanity. Even as they are about to be destroyed by the Robots, Domin defends his dream: "I did this for myself, do you hear? For my own satisfaction! I wanted man to become a master!" (Čapek, 1920/2004, p. 54). There are echoes of Victor Frankenstein's lofty ambitions in Domin's desires, and, long before Shelley's *Frankenstein*, Hesiod's *Works and Days*. The myth of Prometheus links the technological development of humanity in the image of fire to the ambition which leads Prometheus to trick and steal from the gods. Angered by Prometheus, "Zeus made life hard for humans./He hid fire" (Hesiod, trans. 1993, p. 25). The fire has been variously interpreted, but science and technology seem implicit in the idea that the gods have kept secret

> How humans might make a living. Else,
> You might get enough done in one day
> To keep you fixed for a year without working.
> (Hesiod, trans. 1993, p. 24)

Shelley, of course, invokes this myth in her subtitle *The Modern Prometheus*.

Ambitious scientists, no doubt, make for great fiction, but is there any truth to the fears that are raised? Does it ultimately matter if individuals within the technoscientific community are motivated by a desire for glory? The attribution of ambition to scientists or proto-scientists is not simply a literary construction. Scientists such as the chemist, Michael Polanyi, have acknowledged the problem of ambition. Polanyi, for instance, "noted that ambition, like curiosity, is something a scientist should have neither too little nor too much of" (Scott, 1983, p. 287). Polanyi admits that at one point he "was led to publish four papers in a wild-goose chase for what he thought was going to be a great discovery. It was one of several cases he described later as failures caused by excessive ambition" (Scott, 1983, p. 287). Additionally, the Nobel winner Peter Medawar (1991) suspects "that personal advancement is [not] a principal motive for cheating in science: rather, it is the hunger for scientific reputation and the esteem of colleagues" (p. 65). Ambition, though not always acknowledged, plays an important part in the scientific community, not only spurring discovery but also creating an opening for mistakes and fraud.[7]

Setting aside the possibility of bad science, the desire for glory may be more broadly problematic. In the ancient stories of glory that Čapek references, a desire for glory may lead to great deeds, but it is also based in ultimately destructive activities as one critic puts it,

> Although war in Homer is . . . a socially validated way of life, it is at the same time supremely antisocial . . . the only way for an individual to achieve greatness and meaning in life is by the destruction of other individuals engaged in the same pursuit . . . The aim of the war is to destroy a socially evolved human community just like the community that each Greek left behind him when he set sail for Troy. The price of individual self-assertion and self-fulfillment is social annihilation. (Schein, 1984, p. 82)

Here the analogy between the ancient martial pursuit of glory and the modern technoscientific pursuit would seem to break down. Science—at least in the popular imagination—is isolated from problems of personal motivation by the practices of the scientific community, but even if we accept that this is too simple a view of objectivity, the *products* of technoscience remain value neutral. More important, the end of science is ultimately to benefit humanity, unlike the destructive ends of the ancient warriors. Čapek challenges these assumptions.

In *The Philosophy of Science: Science and Objectivity*, George Couvalis (1997) observes that when the high social and individual costs of some science are raised, "[a]pologists for science reply . . . that the misuse of scientific knowledge does not affect the value of seeking scientific knowledge. It only affects the value of *applying* scientific knowledge in an immoral manner" (p. 124). This morally neutral view of scientific investigation and knowledge is represented in *R.U.R.* Domin is clearly Čapek's (1920/2004) most ambitious character. He dreams on a grand scale, yet Domin himself recognizes that the Robots began from less than purely objective motivations. He points with derision to the godlike ambitions of Old Rossum, the original discoverer of the principle necessary for the creation of the Robots.[8] Old Rossum, according to Domin,

> wanted to somehow scientifically dethrone God. He was a frightful materialist and did everything on that account. For him the question was just to prove that God is unnecessary. So he resolved to create a human being just like us, down to the last hair. (Čapek, 1920/2004, p. 7)

Old Rossum having dispensed with God, his son, Young Rossum, an engineer, goes on to dispense with nature. Domin explains that Young Rossum "when he saw what a scene his old man was making he said: 'This is nonsense! Ten years to produce a human being?! If you can't do it faster than nature then what's the point?'" (Čapek, 1920/2004, p. 8). According to Domin, unlike Old Rossum, Young Rossum "took a look at human anatomy [and] saw immediately that it was too complex and that a good engineer could simplify it" (Čapek, 1920/2004, p. 8). Domin, like Young Rossum, is confident in his ability to turn scientific knowledge to his own, positive ends, and as Čapek notes elsewhere, Domin is right that "technological progress emancipates man from hard manual labour" (Klíma, 2002, p. 78). Even when it is clear that humanity will be destroyed by the Robots, Domin remains unshaken in his view. When Alquist says, "The real crime was producing the Robots in the first place!" Domin responds, "No, Alquist. I don't regret that. Even today" (Čapek, 1920/2004, p. 53). As Domin continues to defend his vision, Alquist raises the problem of motivations and the science that results.[9] Domin asserts,

> "This is our final hour . . . Alquist, there was nothing wrong with our dream to do away with the labor that enslaved mankind, that degrading and terrible work that man had to endure, filthy and deadly drudgery . . . It was too hard to live. And to overcome that . . ." (Čapek, 1920/2004, p. 54)

Alquist responds, "Was not the dream of the two Rossums. Old Rossum thought only of his godless hocus-pocus and young Rossum of his billions. And that wasn't the dream of your R.U.R. shareholders, either. They dreamed of the dividends" (Čapek, 1920/2004, p. 54). Alquist's response points beyond the possibility of bad science as a consequence of overambitious scientists. He raises the very peculiar question of whether knowledge and its products can be shaped, or perhaps tainted, by the motives of its originators and developers. It is here that we may find the ancients to be of use.

At the most basic level, Aristotelian science was based on the notion of everything having four causes—from lower to higher: These causes were material, formal, efficient, and final.[10] So, for example, a wine glass' material cause is the sand and heat it is made from; its formal cause is its pattern or shape; its efficient cause is the glassmaker; and its final cause or purpose would be to hold wine so that it can be enjoyed or used in a ritual. When Bacon and others convincingly overturned Aristotelian science, the final cause and, to some extent, the efficient cause both disappeared from consideration.[11] The *R.U.R.* Robots can be used to free humanity from labor; what does it matter if that was not Old Rossum's purpose? Alquist, at least momentarily, raises the ghost of the final cause. I am not suggesting here that Čapek was some sort of luddite. His biographer, Ivan Klíma (2002), portrays Čapek as a man who embraced modernity, was skeptical of all ideologies, and was an ardent democrat. I believe, through Alquist, Čapek appeals to us not to forget the wisdom of the past. Science is about the new, the more correct, conquering and sweeping away old errors. This is how Domin can be certain he is right, even when he knows humanity is about to be destroyed.

The Relief of Man's Estate

Even if Alquist's question could be set aside, the issue of technoscience's ends remains. The pursuit of glory by Homer's ancient warriors is ultimately a private pursuit, which may prove incompatible with the public good.[12] On the other hand, the desire for glory within the scientific realm seems more easily squared with the common good, since the underlying assumption of the technoscientific community is that the good of humanity *is* the final end of their activities. Bacon (1989) makes this goal clear in *The Great Instauration*:

> Lastly, I would address one general admonition to all; that they consider what are the true ends of knowledge, and that they seek it not either for pleasure of the mind, or for contention, or for superiority to others, or for profit, or fame, or power, or any of these inferior things; but for the benefit and use of life; and that they perfect and govern it in charity. (p. 16)

The list of things Bacon admonishes against is suggestive of the problems he could foresee. By warning *against* seeking knowledge purely for the pleasure of the mind and by advocating *for* the pursuit of knowledge strictly of benefit to humanity, Bacon—at the very founding of modern science—seems to diminish, if not outright preclude, what we would consider pure science in favor of applied science. For Bacon (1974), the aim of science is "the relief of man's estate" (p. 36). And whatever the nature of Bacon's own Christianity, the moral grounding he offers rest in the Christian notion of charity—a provision that will soon be exceeded as Bacon's project goes forward.

Much of the scientific community seems in agreement with the goal that Bacon champions. Medawar (1991), for instance, observes, "Scientists are Utopian by temperament. If asked why they do what they are doing one suspects most of them would answer that they hoped their work would one day make the world a better place to live in" (p. 39). In a speech to the Association of Los Alamos Scientists on November 2, 1945, J. Robert Oppenheimer outlined the commonly assumed purpose of science:

> If you are a scientist you believe that it is good to find out how the world works; that it is good to find out what the realities are; that it is good to turn over to mankind at large the greatest possible power to control the world and to deal with it according to its lights and its values. (Smith & Weiner, 1980, p. 317, and cited in Sassower, 1997, p. 56)

Drawing on the work of Zygmunt Bauman, Raphael Sassower (1997) describes the "technoscientific culture of modernity" as having a "proactive orientation" to science particularly with regard to the potential perfectibility of the human condition" (p. 9). And so, improving our condition gives way to making us better than we ever have been. Bauman (1989) writes,

> From the Enlightenment on, the modern world was distinguished by its activist, engineering attitude toward nature and toward itself. Science was not to be conducted for its own sake; it was seen as, first and foremost, an instrument of awesome power allowing its holder to improve on reality, to re-shape it according to human plans and designs, and to assist it in its drive to self-perfection. (p. 70)

This proactive view of technoscientific goals is readily apparent in the views of some of *R.U.R.*'s characters.

Using technology in support of social engineering, Domin dreams of his improved humanity: "I wanted to transform all of humanity into a worldwide aristocracy. Unrestricted, free, and supreme people. Something even greater than people" (Čapek, 1920/2004, p. 54). Čapek, however, suggests that neither good intentions nor a genuine concern for the common good ensure that modern technoscience will not be every bit as destructive as the ancient pursuit of glory through war.

One obvious problem of technoscience is that of unintended consequences. *R.U.R.* provides ample demonstration of such results. Čapek (1920/2004), for instance, depicts the production of Robots as implicated in the declining birthrate (an eerie foreshadowing of current problems).[13] When Helena asks Dr. Gall why no more babies are being born, he responds, "Because Robots are being made. Because there is a surplus of labor power. Because man is virtually an anachronism" (Čapek, 1920/2004, p. 39). The complete destruction of humanity by the robots in the most extreme example possible of unintended consequences, but it risks being dismissed as fictional hyperbole. Perhaps less easily dismissed is the deliberate acceptance of terrible consequences in the pursuit of the apparent common good that Čapek foresees.

Domin provides the strongest example of the potential cost of pursuing advances even when the common good is the ultimate goal. A less than confident Helena comments on how impressed she is with Domin's lack of doubts "even when everything backfired" (Čapek, 1920/2004, p. 30). When Domin asks, "what backfired?" Helena explains,

> Your plans, Harry. When workers rose up against the Robots and destroyed them, and when people gave the Robots weapons to defend themselves and the Robots killed so many people . . . And when governments began using Robots as soldiers and there were so many wars and everything, remember? (Čapek, 1920/2004, p. 30)

"Remember" is ironic, since who could forget such catastrophic consequences, particularly if even partially responsible? But Domin has not forgotten; instead, his chilling response speaks to his acceptance of a utilitarian calculus: "We predicted that, Helena. You see, this is the transition to a new system" (Čapek, 1920/2004, p. 30). Far from being a one-time rampage by an unpredictable technology, the destructiveness of the Robots is the logically acceptable continuation of the pursuit of perfectibility as understood by Domin. He has not, however, foreseen that the Robots would continue until humanity was destroyed. Perhaps, his Utopian optimism is to blame for the oversight. Domin, left to his own devices, develops and applies his technology to the rest of humanity on the basis of his own moral judgment about what constitutes humanity's good.[14]

Driving home the point, Čapek ascribes to the robot revolution motives similar to Domin's. Like Domin, the Robots are pursuing their perceived common good. In distinguishing modern genocide from that of the past, Bauman (1989) observes,

> *Modern genocide is genocide with a purpose*. Getting rid of the adversary is not an end in itself. It is a means to an end: a necessity that stems from the ultimate objective . . . *The end itself is a grand vision of a better, and radically different, society*. Modern genocide is an element of social engineering, meant to bring about a social order conforming to the design of the perfect society. (p. 91)

Bauman's observations are made in the course of his examination of the Holocaust. Čapek does not have this example in front of him when he writes *R.U.R*., but he seems to foresee the potential for this dangerous conjunction of modern science and the scientific outlook, technology, and politics. In Čapek's (1920/2004) play, at the destruction of humanity, the robot Radius celebrates,

> By seizing the factory we have become the masters of everything. The age of mankind is over. A new world has begun! The rule of Robots! . . . The world belongs to the fittest. He who wants to live must rule. We are the rulers of the earth! (p. 70)

To the Robots, people seem nothing more than parasites who live off them: As inferiors, humans must die and yield their place to the superior Robots (Čapek, 1920/2004, p. 48). Both Domin and the similarly named robot leader, Damon, seek to better the world for their own kind.

At least in some fields of science, there is a clear tendency to slide into advocacy as scientists seek "a preferred decision or policy" as a result of their research (Rykiel, 2001, p. 434). The preferred decision is inevitably based on a concept of human welfare that, in turn, raises moral considerations. Kass's (1985) observations with regard to biomedical technology in particular can be applied more widely:

> We must recognize that questions of *use* of science and technology are also moral and political, never simply technical. All private or public decisions to develop or to use biomedical technology, as well as the decisions *not* to do so, inevitably contain judgments of good and bad, better and worse—what our jargon aseptically calls "values." . . . The standard of better and worse cannot be derived from biomedical science. This is true even if scientists themselves make the decisions. (p. 25)

Domin easily lapses into assuming that he knows what will benefit others because for him freedom from physical labor and the more comfortable life that ensues is a self-evident good, requiring no discussion or assent from the world at large.

From Hobbes on, the predominant view of human beings is that we are motivated by the fear of death before all else. Technoscientific achievements become our means to alleviating man's estate and to achieving long, comfortable lives. In contrast, in the martial heroic code of the ancients as presented in works such as Homer's *Iliad*, the desire for long life stands in opposition to the desire for glory. The opposition is most starkly expressed in the choice that faces Achilles. He explains that if he continues the siege at Troy, "My journey home is gone, but my glory never dies./If I voyage back to the fatherland I love,/my pride, my glory dies . . ./true, but the life that's left me will be long,/the stroke of death will not come on me quickly" (Homer, trans. 1990, p. 265).[15] In the new epic we would write for ourselves, technoscience seems to offer the possibility of reconciling the long, comfortable life with the glorious life. *R.U.R.* calls on us to question our ability to bring about this reconciliation, and, perhaps more important, to ask whether the reconciliation is as desirable as it first seems.

Domin's grand scheme is grounded in his desire to alleviate man's estate: He dreams of a time when "People will do only what they enjoy. They will live only to perfect themselves" (Čapek, 1920/2004, p. 21). One difficulty is that neither Domin nor any of the other managers have anything but the vaguest idea of what living a better—more human—life might entail. Another ancient Greek, Aristotle (trans., 1991), would point out that Domin's intended generosity to humanity is only a virtue if Domin is wise enough to "give correctly; . . . to the right people, the right amounts, at the right time" (1120a25-26). To do otherwise, in the Aristotelian view, is to risk harm to the very people you intend to help. Domin, like the current technoscientific community and many of us, assumes from the start that the alleviation of man's estate *is* a self-evident good. Even this is challenged by Alquist, who proposes that "there was something good in

the act of serving, something great in humility. Oh, Harry, there was some kind of virtue in work and fatigue" (Čapek, 1920/2004, p. 21). Alquist might not be able to make his case much more clearly than Domin does his, but through their disagreement Čapek raises a question that gets to the heart of the scientific project: Do we know with any certainty that we are better off for being freed from some of those conditions from which we would free ourselves?

Conclusion

In the *Iliad*, Achilles's pursuit of glory leads ultimately to his dehumanizing as he becomes both godlike and beast-like—more than and less than human. In his rage at the death of his friend, Patroclus, for instance, Achilles slashes his way through the Trojan lines,

> like inhuman fire raging on through the mountain gorges
> splinter-dry, setting ablaze big stands of timber,
> the wind swirling the huge fireball left and right—
> chaos of fire—Achilles storming on with brandished spear
> like a frenzied god of battle trampling all he killed
> and the earth ran black with blood. (Homer, trans. 1990, p. 519)

In his pursuit of glory, "Achilles' elemental fury takes him simultaneously far above all other heroes in numbers and quality of men killed and far below the most savage of men in brutality" (King, 1987, pp. 36-37). The final books of the epic see Achilles return to humanity: As Katherine Callen King (1987) puts it, "When Achilles killed Hektor in Book Twenty-Two, Homer portrayed his victory as a victory *over* humanity; when Achilles puts Hektor's body on Priam's wagon in Book Twenty-Four, it is a victory *of* and *for* humanity" (p. 37). *R.U.R.* portrays a similar movement away from humanity and back to it.

Just as Achilles will challenge even the gods, Old Rossum begins making the Robots in his quest to "scientifically dethrone God." Being made less than human by technology begins, then, in a dream of being more than a god. In the prologue, Domin explains to Helena that the best worker is not the most honest or dedicated, "No, it's the one that's the cheapest. The one with the fewest needs" (Čapek, 1920/2004, p. 9). The problem with a human being, according to Domin, is that it is "something that feels joy, plays the violin, wants to go for a walk, in general requires a lot of things that—that are, in effect, superfluous" (Čapek, 1920/2004, p. 9). As Čapek's satire suggests, from the perspective of the owners and industry, those things that make a human human, including a soul, are inefficient in a worker.[16]

However, if workers are dehumanized by their conditions of labor, Čapek suggests that those who benefit from that labor are equally dehumanized.[17] The introduction of the R.U.R. managers makes this connection clear. When Domin first introduces Helena to his secretary Sulla, Helena assumes that she is a young woman like herself. Pleased with himself, Domin reveals that Sulla is really a robot. Next, he introduces Helena to the other directors, Fabry, Gall, Hallemeier, Alquist, and Busman. Helena assumes that the men are all robots, and, of course, they are not. The mistake at first appears to be Helena's and a joke at her expense, but later in the play Hallemeier will show that she was not so far off. He observes, "Music is a great thing. We should have been listening all along . . . The world was beautiful . . . we . . . Boys, boys, tell me, what did we ever take the time to enjoy?" (Čapek, 1920/2004, pp. 54-55). The managers are every bit as much dehumanized as the laborers they have helped create. As C. S. Lewis (1974) puts it, "The real objection is that if man chooses to treat himself as raw material, raw material he will be" (p. 72). From being challengers to the gods, we descend to being nothing more than matter.

This more-than-human/less-than-human problem seems to be resolved in the conclusion of the play. At the end of the second act, the Robots kill the final remaining humans with the exception of Alquist who is left alive because the robot, Radius, declares, Alquist "is a Robot. He works with his hands like a Robot" (Čapek, 1920/2004, p. 70). In the third and final act, we see Alquist in a laboratory forced by the Robots to try to replicate Old Rossum's experiment. The secret of making the Robots has been destroyed, and without it, the Robots, unable to replicate themselves, will follow humanity into extinction. Alquist is unable to discover the secret and despairs, but then encounters two robots, Primus and Robot Helena, a female robot made in the image of Helena Glory.[18] These robots are part of an experimental line created by Dr. Gall who had been encouraged by Helena to try to make robots more human through the addition of emotions. Unlike the first robots who had no concept of death and did not fear it, or the robot rebels who preferred life over death, these two robots exhibit a new willingness to face death for the sake of each other. They dream; they laugh; they are capable of self-sacrifice and love. Calling them Adam and Eve, Alquist sends them away with his blessing. On the one hand, Alquist's role in this final scene might suggest that humanity has triumphed in its godlike aspirations, but two things work against such a reading. First, Alquist's own words place humanity below God, when he says,

> Now Lord, let Thy servant—Thy most superfluous servant Alquist—depart. Rossum, Fabry, Gall, great inventors, what did they ever invent that was great when compared to that girl, to that boy, to this first couple who have discovered love, tears, beloved laughter, the love of husband and wife? (Čapek, 1920/2004, p. 84)

In addition, this conclusion is both optimistic and mysterious. The original robots could not reproduce (thus, their need for the formula), and it is never clear that Gall alters this in them, leaving open the possibility that the outcome is indeed miraculous. Implicit in Čapek's conclusion is an appeal to maintain a mean between the more-than-human aspirations and the less-than-human consequences of technoscientific endeavors.

How is such a mean to be achieved? Kass's (1985) conclusion is that "we can be wise enough to know that we are not wise enough. When we lack sufficient wisdom to do, wisdom consists in not doing. Caution, restraint, delay, abstention are what this second-best (and, perhaps, only) wisdom dictates" (p. 41).[19] We may better appreciate Čapek's view by looking at his defense of the notion of cultural legacy. In "What Culture Is," he wrote,

> We are not speaking here about culture in the sense of forming a culture, but in the sense of education, spiritual possessions, and intellectual standards. I would say that all our education probably has this as its purpose; to know at least something about the kinds of experience, knowledge, and values that humankind has already formed—and not to lose them, not to lower ourselves below what we are now . . . education, in this sense, is the conservation, preservation, and defense of what people who came before us achieved by means of enormous effort. That is why revolutionary eras more or less hate education: precisely because its mission, of preserving a whole armful of legacies. No use in trying to pass this over without comment: above all, culture represents continuity with every human endeavour, and we must not lose it; no matter what it creates that is new, it is a continuation of the work that has been done before. (Quoted in Klíma, 2002, p. 189)

Our modern understanding of scientific endeavors runs entirely counter to this appeal to continuity. Čapek through the character of Alquist suggests that the cautious wisdom recommended by Kass or the regulatory wisdom required for Fukuyama's solution must be found in the builders (the appliers of technology) as much as in the scientists, and against Domin's drive for glory, he poses Alquist's humility and respect for earlier traditions.

What the ancient account of glory seems to offer over the story we would tell ourselves is a much clearer awareness of costs. In Hesiod's telling of the Promethean myth, man may retain the fire stolen by Prometheus, but not without cost. Zeus gloats, "things will go hard for you and for humans after this./I'm going to give them Evil in exchange for fire,/ Their very own Evil to love and embrace" (Hesiod, trans. 1993, p. 25). That Evil is Pandora with her jar of miseries. As Roger Shattuck (1996) has observed, our tellings of this myth routinely leave out Pandora, and "thus they avoid dealing with the full consequences to humankind of the knowledge Prometheus brings" (p. 15). The original myth presents knowledge and its consequences together: we tell ourselves stories of knowledge without consequences. Similarly, Achilles cannot have both lives—the long life and the glorious—either choice will cost him the other. Čapek reminds us of the ancients and of ways of thinking and asking questions about what we create without abandoning the accomplishments of modernity or succumbing entirely to them. He shows appreciation for the views of both Domin and Alquist, but also reminds us of the cost of forgetting.

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Notes

1. The influence of *R.U.R.* can be seen in works such as Philip K. Dick's *Do Androids Dream of Electric Sheep* and its subsequent movie: *Blade Runner*; as well as in more recent media such as the film version of *I, Robot*. Direct reference to the play was made in the short-lived television series: *Dollhouse*.
2. See Sassower (1997), especially Chapter 4.
3. These fundamental questions are raised, Leon Kass (1985) has suggested, the moment the idea of the betterment of humanity is raised—a central theme in the play. Kass writes,

   > For example, in the biomedical area, everyone, including the most unreconstructed and technocratic reductionist, finds himself speaking about the use of powers for human betterment. Yet he has wandered unawares onto ethical ground, for one cannot speak of human betterment without considering what is meant by *human* and by the related notion of the *good for man*. These questions can be avoided only by asserting that practical matters reduce to tastes and power, and confessing that one's use of the phrase "human betterment"—and, indeed, all practical speech—is a deception to cloak one's own will to power. (p. 38)

4. Ivan Klíma (2004) points out that Domin's name "was clearly based on the Latin word, *dominus*, master" (p. xx). Domin is the central director of Rossum's Universal Robots and clearly wishes to exert his mastery over nature and society, with the best of intentions. Unless otherwise stated, all references to *R.U.R.* will be to the Penguin edition translated by Klíma.
5. In the original Czech, Helena's last name is Gloryová.
6. I prefer the term *technoscience* as used by Sassower (1997) and others to the usual phrase "science and technology." As

Sassower points out, the newer term reflects the ongoing interpenetration of these fields, whereas the older phrase implies a chronology and priority that no longer applies (although the distinction was probably always fuzzier than the popular understanding would imply).

7. Writing in the 1920s, Čapek was far ahead of the critiques of scientific objectivity that would gain momentum in the 1970s, and although even scientists now generally accept that science is not an entirely objective activity, but is one grounded in history and culture, the assumption of objectivity is still pervasive in the public imagination. For some, the answer lies in collaboration, see Nagel (1967, pp. 9-10) and Popper (1950, pp. 154-164). More recently, Joseph Hanna (2004) has attempted to chart a middle course between a problematic total acceptance of objectivity and a complete abandonment of the notion of objectivity.
8. Klimá (2004) notes, "*Rossum* is related to the Czech word *Rozum*, meaning 'reason'" (p. xx).
9. According to Klíma (2004), Čapek's editor and biographer,

   > The architect Alquist is the one figure in the play who expresses most closely Čapek's own philosophy . . . It is therefore appropriate that the name Alquist may be associated with the Latin *Aliquis* (somebody), as well as the Spanish *el quisto* (the favourite). (p. xx)

10. See Aristotle's (trans., 1998) *Metaphysics*, particularly Alpha 3.
11. Some 30 years later, Heidegger will refer to the four causes in "The Question Concerning Technology," but it is not clear that he had read the play.
12. See Michael Palmer's (1982) "Love of Glory and the Common Good."
13. P. D. James's novel *The Children of Men*, and the movie based on it, makes chilling use of this theme.
14. As C. S. Lewis (1974) puts it, "What we call Man's power over Nature turns out to be a power exercised by some men over other men with Nature as its instrument" (p. 55). Lewis explains that it is not the corrupt use of science that concerns him but the steady increase of this power over time: "The last men, far from being the heirs of power, will be of all men most subject to the dead hand of the great planners and conditioners and will themselves exercise least power upon the future" (Lewis, 1974, p. 58). Lewis writes when the greatest concern lies with psychological manipulation and eugenics, prior to the advent of the far more efficient and rapid reach of pharmacology and genetic engineering.
15. Similarly, Odysseus in his wisdom will turn away from the godlike life offered by Calypso to face the sorrows and trials attendant on a human life.
16. Fukuyama (2002) argues, "The ultimate question raised by biotechnology is, What will happen to political rights once we are able to, in effect, breed some people with saddles on their backs, and others with boots and spurs?" (pp. 9-10).
17. Kass (2085) argues,

    > In my view, our greatest problem—and one that will continue to grow in importance—will be voluntary self-denigration, or willing dehumanization—dehumanization not directly chosen, to be sure, but dehumanization nonetheless—as the unintended yet often inescapable consequence of relentlessly and successfully pursing our humanitarian goals. (p. 31)

18. This reintroduction of a "Helena" figure in the final act of the play does raise the question of whether the new race of robots will not ultimately make the same mistakes as humanity.
19. Fukuyama (2002) suggests that the answer lies in regulation through the power of the state: "And if this proves to be beyond the power of any individual nation-state to regulate, it needs to be regulated on an international basis" (p. 10). The problem then remains of how we are to know what needs regulating.

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Bio

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