THE MACHINE IN AMERICAN CULTURE

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At a distance, the woman seems perfectly normal, perhaps a bit too quiet, unnaturally still. But as you move closer, she turns her attention to you, eyes and head tracking in your direction. There's something a bit strange in the movement. It's a bit sharp, the way her head starts and stops. Closer, and you notice that the seated woman has a peculiar skin tone, the eyes are unexpressive. EveR-2 is a *gynoid*, a humanoid robot designed to mimic the appearance of a woman, designed by the Korean Institute of Industrial Technology and built as an answer to the Actroid, a similar gynoid designed by Osaka University and Kokoro Company. Her skin is made from a lifelike-looking silicon, and her face is capable of over a dozen expressions. She responds to touch and to speech, understanding four hundred Korean and English words with the ability to respond verbally. She is incapable of walking at this time, but the developers expect to overcome this by 2010. EveR-2 could very well be the future of the machine..something straight out of a science fiction movie. She has an irrefutable "cool" factor in the realm of technophiles. And for many, she is utterly terrifying.[1]

EveR-2, a "gynoid." Photo courtesy of Wikipedia.

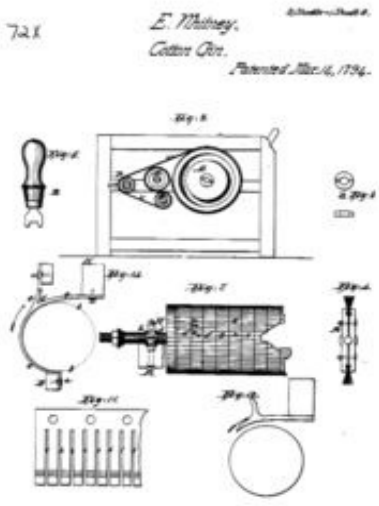
While new technologies and scientific advancements have made American life spans longer, generally increased health, and created unprecedented wealth, and while there are many

[1] "I'm Your Guide." *Science*, 312. 9 June 2006.

who embrace these vast and quickening changes, popular culture – particularly news and artistic outlets – are overwhelmingly negative about the increasing use of machines, both in the workplace and the home: the cell phone is rumored to cause cancer, automobiles are destroying the environment (despite being tremendously cleaner than their predecessors), computers and video games are "dumbing down" the youth – a claim leveled against television for decades, and previous to that, an approbation slung at comic books and radio programs. Pesticides are supposedly damaging the ecology, despite increasing food production and lowering insect-borne disease. Computers, robotic construction, and space travel were all supposed to dehumanize people. This tension between intellectual America, and the America that uses new machines and technologies to improve productivity and lifestyles is not new, but the widespread use of these tropes did not find home in American culture until the late nineteenth century.

Machines have been part of the American experience from the very beginning . The new nation had a low population density that might have hampered economic development. While some industries, such as plantation agriculture in the south, turned to forced human labor – slavery – other manufacturers and service industries had to get creative. The use of labor-saving devices had already been on the rise in Great Britain in the 18TH Century, and the former colonies imported this first Industrial Revolution. Jacquard-style looms with punch card instructions, steam pumps for mines, water-powered mills, and canals – all of these were adopted by Americans, along with the attitude toward mechanization that British entrepreneurs had: a good machine could save labor, time, and increase profit. The United States, as a mercantile nation,

needed machines to survive.[2]



The Cotton Gin, by Eli Whitney. Photo courtesy of the US Patent Office.

Throughout the early nineteenth century, American entrepreneurs continued to borrow, or steal, innovations from their European brethren. However, as the century progressed, America increasingly became the place that new technological advances were made. By the middle of the 1800s, the United States was a nation of hands-on inventors whose mechanical creations were increasing productivity, wealth creation, and otherwise providing the means to expand the youthful country across the continent. Throughout this period, there was little of the technophobic reaction seen in the European countries. Where Britain had Luddites, and French *saboteurs*, the American was generally glad for the aid their contraptions provided.

One possible reason for this was the social mobility that America afford people, as compared to the more static social constructs of Europe. Much of the work that early machines did involved textiles and farming. Whereas the low population density of the United States required mechanical assistance, these were cottage industries in Britain (as an example); families would increase their earnings by having different jobs out of the home. While men tended to fields, women and children could do piecework weaving out of the house. Socially concerned politicians and writers like Thomas Carlyle or Charles Dickens railed against industrialism, but in America, there was a distinctly different opinion at large.

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[2] Chapters 1 and 2, Pursell, *The Machine in America*, covers the beginnings of the Industrial Revolution in the colonies and early United States.

Timothy Walker responded to Carlyle's call to cultivate a more spiritual life, by pointing out that automation (a term not coined until the 1940s) would free people from difficult and dull labor to "be creative or reflective."[3] That the inventors of these machines were often not particularly educated, not of the moneyed class, was seen as another example of how the use of technology improved the position of the creative and hard-working...an idea that played right into the trope of America as a place where with hard work and a bit of luck, anyone could make it. John Etzler thought that mechanization would eventually tend to all human needs within a decade of his 1833 *The Paradise Within the Reach of All Men, Without Labor, by Powers of Nature and Machinery*. This "joyous embrace of an egalitarian industrialism sometimes overcame the traditional republican scruples against luxury and excessive comfort."[4] However, because the rising affluence of Americans was not just reserved for the rich, pundits like the minister Henry Bellows found that industrialism provided the average man with the "democratic" freedom to spend or not, and gave him choice in goods to purchase, many of the technophiles of the period saw this wealth creation as not unrepublican.[5]

The real criticism on machines in American came from the Romantics and from those intellectuals who subscribed to the "pastoral ideal of America", as Leo Marx calls it.[6] Thomas Jefferson was the ultimate booster of the yeoman farmer, on whom he thought the republic depended for good sense and honesty. James Fenimore Cooper's heros were rough and tumble

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3 Cross paraphrasing Walker, *Technology and American Society, A History*, 140.

4 Cross paraphrasing the minister Henry Bellows, 139.

5 Henry Bellows cited by Kasson, *Civilizing the Machine*, 40.

6 Marx, *The Machine in the Garden*, examine this idea.

men of the wilderness, but with that core of civilized, republican common sense. Henry David Thoreau, the precursor to the "living off the grid" fad, took time out from his academic, urban life to live in the woods of Walden, to contemplate nature and escape the quest for money and the machines that served that cause.[7] As with the critics in Europe, machines were seen as desensitizing, if not dehumanizing – a meme that remains powerful in the critiques of modern life.

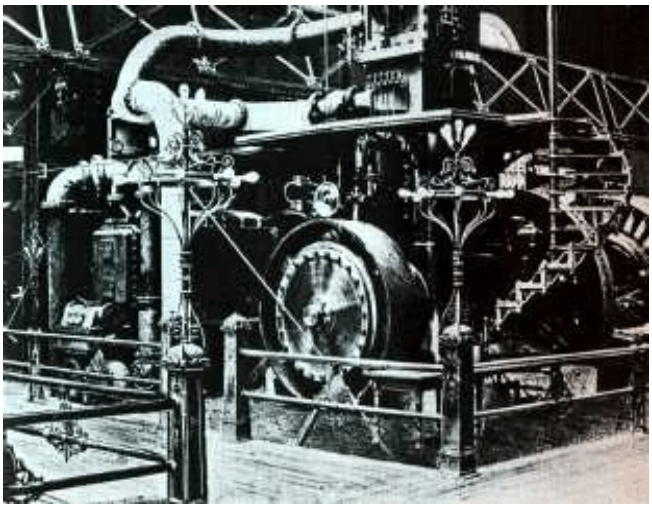
Governor Stanford, a 4-4-0 locomotive common in the US West in the nineteenth century.

The United States of the nineteenth century, particularly from the period of the Civil War on, was a place awash in rapid and accelerating technological change, particularly in the West. Inventions like the revolver and the repeating rifle gave the Western settler a distinct advantage over the natives of the continent (although these same weapons would be bought and used by the tribes against the US Army with some effect until the 1870s.) The train and later the refrigerated car made it possible to settle the Great Plains, to move massive amounts of food products to the cities of the nation and abroad. Telegraphs connected the countryside to the cities, and through the Transatlantic Cable to the world. Reapers and threshers aided the farmer and made him more productive with a fraction of the labor that European agriculture required. In the West, new techniques for logging and mining often involved the introduction of new devices – the whipsaw,

[7] ...and documented it in Thoreau, *Walden*, p158-161.

steam drills.[8] The pace of change continued to increase throughout the turn of the century with a dizzying array of developments – the telephone, phonograph, bicycle, motor vehicles, electric light.[9]

Futurist Alvin Toffler called the anome created by rapid technological change appropriately, "future shock".[10] This spectacular period of change in the lifestyles of Americans created a sense of disconnection with the past, and a distrust of the people pushing this new future. Perhaps the first American articulation of this future shock was by Henry Adams in his 1907 piece *The Virgin and the Dynamo*. In it, he takes a stereotypical view of medieval life, with its devotion to the Virgin (or more appropriately, their connection to the church) as the stable center of their lives, drawing their love and actions inward. He juxtaposes the dynamo – an electromagnetic means of creating electricity – as the modern agent of chaos, a rampaging thing which spills out its energies, without care or humanity into the world at large.[11]



The Westinghouse Dynamo from the 1893 Chicago World's Fair that so distressed Henry Adams.

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[8] Walter Prescott Webb deals with these issues in his massive *the Great Plains*.

[9] For more on this period of technology, see Hughes, *American Genesis*; Cross, *Technology and American Society*; or Timmons' *Science and Technology in 19TH Century America*. The nature of accelerating returns on technological development are well detailed in Kurzweil, *The Singularity is Near*.

[10] Toffler, *Future* Shock, I.

[11] See the eponymous chapter in *The Education of Henry Adams* for more.

Suspicion of machines in the workplace began to creep into the popular culture, and was disseminated by the new popular press which was also developing around the turn of the century. Much of this ambivalence was driven by the increasing influx of immigrant labor from Europe from the 1850s on. Immigration had been steady throughout the early part of the nineteenth century, but with the Potato Famine in 1847-49 a surge of Celtic immigrants hit the shores of the United States. They were followed closely by Germans fleeing conscription laws at home, Italians and Eastern Europeans fleeing poor economic conditions. These people brought their prejudices, already detailed, with them to America, and when troubles with the economy or labor ensued in the 1870s and 1890s, the mechanization of capitalists' factories was one of the culprits blamed.

The notion of mechanization as yoked to industrialism and business was not new. As discussed earlier, men like Timothy Walker or Henry Bellows touted this juncture as essential to the enrichment of the average man. In the heady days of the Gilded Age, however, it was obvious that certain elements of society were better served by these massive industries – steel, oil, and railway – than the common man. It was not that people in general were getting poorer, although the cry of "the rich get richer and the poor get poorer" is nothing new to the United States political scene – it was that the men of capital stood to benefit disproportionately to their workers, or small businesses. All of these huge businesses revolved around the creation or servicing of machines, primarily the train. From the steel to build the carriages and rails, to the coal and later diesel to fuel them, to the distribution of land rights in the West and the creation of grain storage systems that stored the primary cargo of the Midwest, American businesses and

farms in the late nineteenth century were slaved to the railroads.[12]

Negative views of technology were further reinforced by the industrialized slaughter of the Boer War and World War I. Writers like Jules Verne and HG Wells had anticipated the scope of destruction modern warfare could incur, but the actual experience was visceral. Returning servicemen experienced "shell shock" from the heavy artillery barrages, and from the creative use of science on the battlefield – poison gasses, hollow-point bullet, machineguns, and the use of aerial bombing. Disillusionment with modernity was widespread in Europe, and among the American *intelligentsia*, and many of the memes of dehumanizing science and apocalyptic wars would carry forward to the modern day.

Despite this negativity, devices that were directed toward the household were still well received. The 1880s saw the first spurt of "conspicuous consumption" – a trend decried by Thorstein Veblen, an economist at the University of Chicago, but it was the Interwar period of the 1920s that saw the real rise of consumer-directed machines. Throughout the early part of the twentieth century, labor-saving devices like the washing machine, the electric stove or grills, the vacuum cleaner all made life easier for the American woman, providing them with leisure time and opportunities to participate in activities outside of the home. The radio and phonograph were popular items for leisure, allowing the family access to entertainment

The 1886 Benz Patent Motorwagen, the first commercially-successful automobile.

[12] Chapters 3, 7, and 8 of Pursell, *The Machine in America* deals with the rails and systems that evolved around it.

and news. The automobile was a clean and healthy alternative to the dung-clogged streets of cities where animals powered the vehicles. Gasoline combustion engines and rubber tires made the car quieter that the rattling, whinnying, stinking choice of the horse and carriage or wagon. The move away from horses wasn't just for hygiene sake. The use of horses in a city required people or companies to rent space to stable the animals in off hours; these filled property on nearly every block and stank. It cost to feed and care for them in a way that the automobile did not; the common city dweller might not be able to afford the upkeep for a horse and carriage, but he could manage a Model T.[13]

The Great Depression, if anything, cemented the love for automobiles in the American heart. In addition to day-to-day transport, the car allowed families suffering from lack of work in an area to pick up move to greener pastures. During the Dust Bowl, the car could double as home – Okies migrating to find work lived out of their automobiles. John Steinbeck would illustrate this in *Grapes of Wrath* in 1939. The household machines that had made life easier continued to do so, but for the poor, this was a period where the conveniences were out of reach for the homeless or unemployed. Machines were not the enemy to the worker, so much as irresponsible business, or so the Roosevelt administration would intimate with its pursuit of industrialists and financiers like Andrew Mellon.[14] In fact, the much vaunted efficiency and improved production of automation did not help the bottom lines of many companies in 1939, when the economic policies of the Roosevelt administration looked fit to drive the United States

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[13] The cost of sanitation on the cities was extreme and when a horse "malfunctioned" in traffic, it required the attention of a butcher to clear the street. Today, we have been spoiled by the cleanliness and ease of transportation; we forget how dirty and difficult travel, even across town, could be without the automobile.

[14] Amity Shlaes relates a 1930s truism on the economy in this period in her *The Forgotten Man*, 9: "...the Depression was not so bad it you had a job.".

back into another cycle of deep depression.[15]


Mushroom cloud over Nagasaki.

The real sea change in the American opinion concerning the "machine" – the use of technology – really turns in the 1960s. Until this point, despite the criticisms of the industrial revolutions the country had seen, despite the industrial scale destruction and loss of life in the war and the ultimate use of the atomic bomb in 1945, the American population tended to be optimistic about the future and bout technology in general. Paul Boyer's *By the Bomb's Early Light*, recounts the impact of the bomb on the culture and psyche in the late 1940s and early 1950s. Much of the concern for an atomic Armageddon is seen in the news reporting and the arts of the period; the average person expected the government to find some kind of defense for the atom bomb, or thought the reports exaggerated. Books and films like *On the Beach* would create the post-apocalyptic tropes used in later films like *Mad Max* and *The Road Warrior* (namely that one should be in Australia for the nuclear holocaust) in which the collapse of civilization following a nuclear war leaves pockets of maddened, desperate people savagely struggling to survive. However, the 1960s saw the beginning of a real questioning of traditional values in the United States.

At the turn of that decade, the children of those who had experienced the Great Depression and World War II were finally old enough to head to college, and the wealth of the 1950s economy was such that many could, for the first time, enjoy the fruits of higher education.

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[15] Ibid, 337-339.

At the same, influential professors like Herbert Marcuse, Robert Paul Wolff, and C Wright Mills were teaching at prestigious US universities, and were in the midst of rewriting the leftist thought. Instead of concentrating on labor activism, Marcuse and his "New Left" ilk were focusing on social activism. Their writings were highly critical of the Soviet experiment in the wake of the Hungarian invasion in 1956, and their new tack was more individualist, and more influenced by the Progressive policies and ideas of the New Deal era.[16]

The influence on the youth of the period was pronounced. New Left thinkers like Abbie Hoffmann, David Horowitz, Noam Chomsky – just to name a few – concentrated less on the struggle between labor and capital, and more feelings of anome and alienation felt by the youth in the face of the "Establishment." The Counterculture, as this movement was called, blended a heady mixed of socialism, libertarianism, and simple youthful nonconformity.[17] The memes that the Counterculture adopted for the machine were varied, of course, but the effect is quickly seen in the movies and literature of the time.

Until this time, particularly in fiction, machines had been a way for society and people to improve their lives. The comic books and science fiction of the twentieth century abounds with rocket ships, ray guns, robots and computers – but they are usually subservient to the will of the heroes of the stories. However, as the Counterculture ideas were disseminated, these notions of glorious future through machines and science began to fail.[18] Critiques of mechanization had

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[16] Marcuse, *Soviet Marxism: A Critical Analysis*. New York: Columbia University, 1958.

[17] A critical, if biased, look at the Counterculture from one of its leading lights (at the time) can be found in David Horowitz, *Radical Son*. New York: Simon and Schuster, 1998.

[18] Perhaps the last real use of the utopian themes would be found in Gene Roddenberry's *Star Trek*. However, even in this show, androids and computers were often enslaving poor races of people.

Fritz Lang's classic *Metropolis* features a gynoid which can mimic a human woman...and sow the seeds of destruction.

their start in the speculative romances of Jules Verne, with his madmen wreaking havoc with their submarines or aerial ships. *Metropolis* brought a new, moralizing version of the Pygmalion story to the screen – using the Frankenstein trope of the evil machine created by Man, and using that machine (a humanoid robot "Maria")[19] to undermine the desire of workers to free themselves from oppression at the hands of a master capitalist, whose future city of leisure relied on their toil. This similar abuse of the worker by the Machine was demonstrated in the Charley Chaplin film, *Modern Times*, in which the Little Tramp finds himself literally pulled into the gears of the machine. HG Wells had envisioned a great "air war" in the 1930s. In the 1950s, atomic disaster filled the pages of books and movies, but more often drove spacecraft across the skies, or were used as fancy artillery. Robots, such as Robby from *Forbidden Planet* (and later used in *The Invisible Boy*), and "Robot" from *Lost in Space* posited to television-viewing humans funny and useful automatons.

The futures of the 1960s and latter, however, are filled with a dizzying array of dystopias and themes of the Machine as Menace. The trope of the machine as dehumanizing had already been espoused by Thoreau, Marx, and others in the nineteenth century; the Counterculture

[19] Maria is first introduced as a golden metal woman, but is cloaked in the lifelike visage of the film's heroine. The EveR-2 from the beginning of this piece is, in many ways, her descendant.

fixation with this idea would propel this idea squarely onto the silver screen. Stanley Kubrick's classic *2001: A Space Odyssey* (based on a story by Arthur C Clarke), attempted to show viewers a realistic look at space travel in the future. Central to the story is the sentient computer HAL9000, which acts as the brain of the spacecraft *Discovery*. HAL is undeniably the most "human" character in the film. Whereas the astronauts he works with are emotionless and methodical, HAL is neurotically concerned for their mission. When HAL's neuroses cause him to malfunction, the crew attempt to shut him down, leading the computer to murder much of the crew in self-defense.[20]

HAL9000 is only the first of machine villains in the films of the modern era. *The Forbin Project* sees the human race held in thrall by Colossus – a super-intelligent, logic-driven computer that takes over the defense systems of the United States and Soviet Union. *Demon Seed* uses a home run by computer to terrorize its female protagonist (and provide us with one of the first machine-human rape sequences.) Before George Lucas gave us cute "droids" in *Star Wars*, he provided android secret policemen who keep the population of underground cities in line (and as mandated by law, happy) in *THX-1138*. The paranoia of machines that are indistinguishable from humans is central to the plot of *Blade Runner* – perhaps the most respected and influential of science fiction movies in the 1980s; bio-engineered androids (or replicants) hide out in a ecologically-wrecked Los Angeles and are hunted down by the protagonist, unwittingly himself a replicant. Even the machines don't know they are machines in

[20] Another venerable story device from *Frankenstein*, and replicated time and again in modern science fiction.

Ridley Scott's universe.[21] The eponymous *Terminator* of James Cameron's 1984 low-budget, cult-classic film saw the human race nearly wiped out by a Colossus-like computer network, Skynet, which uses android disguised as humans to eradicate the rebellious survivors.[22] Fears of nuclear annihilation were common in the music of the period, as well as the movies.[23]

While these science fiction themes might be compelling, they hardly prove that our machines are regarded with antipathy. However, concerns for safety are not restricted to the fictional media. Hardly a day goes by without our automobiles and industries being blamed for a rise in global temperatures over the last hundred years.

Particularly singled out for approbation is the sport utility vehicle. Jerry Flint in *Forbes* reported on the "holy war" against sport utility vehicles on 3 March, 2003, citing blame placed on the vehicles for global warming, roll-over accidents, terrorism, and one would think sunspots, if there was a remote chance of proving causality. Controversial radio show host Rush Limbaugh would lampoon news stories about the vehicles, particularly the tone of the pieces which would

Marvel or menace? Is the most recent evolution of the Mercedes Benz destroying the planet?

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[21] But only in the Director's Cut (1992) and Final Cut (2007) of the film. The original film was altered at the last minute to make the protagonist human.

[22] Eerily enough, the BBC News service reported on 8 October, 2007 the launch of SKYNET satellites – the name of the British military's orbital communications network.

[23] Just as examples I submit *99 Luftballoons*, the video for *Dancing with Myself*, and *It's the End of the World as We Know It.*

often cited the car as the active participant in an accident.[24] Anti-war vandals and Earth Liberation Front members went on a spate of car burnings in the 2003-2004 period, releasing more pollutants into the air with these acts than the vehicles would release over their useable lifetimes.[25]

Computers – and their offshoot, computer video games – have, since the 1980s, been blamed for obesity in children, low school test scores, laziness, and a host of other social maladies. Primary among these worries was the hard shift from industrial based economies of the bulk of the twentieth century to the service and information-based economies of the late twentieth and twenty-first centuries was a sharp as the move from agrarian to industrial-based economies in the late nineteenth century. Many of the same ideas and themes were resurrected by social commentators and intellectuals – the struggling worker losing his job, instead of the farmer losing his farm; fast change disrupting the social norms, creating disruption and a weakening of social ties, and the fear of the dehumanizing element of computers (and their cousins, robots.) The idea that capitalists and industrialists were having one over on the factory worker is presented in fantastic manner – humans lorded over by a conspiracy of extraterrestrial capitalists – in *They Live!*, a film done by John Carpenter during the final days of the Reagan administration. Jobs were being destroyed, it was thought; in actuality, a paradigm shift – to use Thomas Kuhn – was occurring. New, different employment was replacing older forms that were

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[24] I seem to recall one such story about an "SUV that drove over the wall of a parking garage, injuring it's occupants..." rather than the driver reverse his vehicle over the wall.

[25] *San Francisco Chronicle*, April 11, 2003.

no longer as important to the national economy.[26] The fictional notion of the computer takeovers and robotic menaces aside, the reality of the computer era was more mundane, but just as frightening.

Cellular phone usage, once the rare purview of the rich, was democratized by cheap phones and service in the late 1990s. Almost immediately, concerns over cancer from the radio emissions plastered the headlines. The Food and Drug Administration, as well as the phone companies themselves, funded a battery of studies which found that the link to brain or skin cancer was tenuous, at best.[27] Rarely, outside of advertisement copy, is the utility of a cell phone – the ability to call for help when stranded on the road, to call in crimes while they are happening (and more recently, capture images of the culprits with embedded camera technology), or simply the convenience of being able to contact loved ones or coworkers in a pinch.

Robotics appears to be the next field that looks to change society as widely and surely as the automobile, cellular phone, or the computer. Since the 1970s, robotic labor has encroached into the workplace in America. Much of the American automobiles on the road today were built by automation.[28] Outside of the factory, however, the home robot was a piece of science fiction (much like the computer until the 1980s.) However, advances in robotic design and programming, and cheaper materials to build them from, have pushed the robot into the public

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[26] The notion of "creative destruction" in economies was put forth by Joseph Schumpeter in *Capitalism, Socialism, and Democracy*, 82-85. Rarely do new forms of automation create fewer jobs, but they do change the nature of employment. The unemployment rate in the United States dropped and has remained at a historical low since the shift to an information economy, according to statistics by the US Department of Labor. (www.dol.gov)

[27] *Consumer Affairs* reports on the cell phone-cancer concerns in their 22 May, 1999 issue and online. See the FDA's report at http://www.fda.gov/fdac/features/2000/600_phone.html

[28] Reducing the need for humans in car construction, but increasing the need for skilled labor to program, operate, and repair those assembly line robots.

sphere. They now work alongside our soldiers, defusing bombs, scouting buildings, aiding the handicapped. Rather than dehumanizing those they aid, robots bring out the human and poignant. In Afghanistan, an EOD robot named "Sergeant Talon" by members of the 737TH Ordinance Company was preferred over others that were ostensibly similar in performance. But Sergeant Talon was more than a tool, he was a friend to the bomb disposal unit. Its "death" brought forth an emotional connection with the little 'bot. The soldiers "promoted" it to staff sergeant and painted three Purple Hearts on its husk before they buried it. In Iraq, the destruction of Scooby Doo, their EOD robot made one of its operators break into tears.[29]

The Roomba 530 vacuum robot. Sweeping up so you don't have to...

As I write these sentences, *Vacuumus Secondus*, my Roomba vacuum robot is cleaning my carpets.[30] Made by one of the companies that produces EOD drones for the military, iRobot, my pie-plate sized minion does an excellent job and displays some very interesting behavior which I readily admit I anthropomorphize. Are these robots the precursors to a mechanically-inspired apocalypse?

A convergence of disparate technologies is coming quickly, according to some futurists. Raymond Kurzweil, a respected inventor with hundreds of patents to his name, sees a future

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[29] During a "torture test" of one robot, an army officer demanded Los Alamos scientists stop the exercise, calling it "inhuman." *Washington Post*, 6 May, 2007. http://www.fda.gov/fdac/features/2000/600_phone.html

[30] It replaced *Vacuumus Rex*, my first Roomba.

where man and machine will not only live and work side by side, but may even merge. This idea is, once again, not new. The idea of combining man and machine can be found in early science fiction, but does not really gain legs in the genre until the cyberpunk fiction of the 1980s, with computer-brain interfaces, cyborg combining man and machine to point of not being able to tell one from the other (the ultimate dehumanization), being almost *de rigeur*. Some future thinkers see machines as possibly replacing humans not be force but as a form of evolution. Marvin Minsky and Hans Moravec have both speculated that these "mind children" would be very much like us – with the same noble and flawed elements of our characters and societies.[31]

Computer scientist Bill Joy would argue technology such as this would quickly escape the control of their creators (the *Frankenstein* argument.)[32] Francis Fukuyama worries about the effects of rampant technological change in *Foreign Policy*'s January 2006 issue, wondering if the changes wrought by these ideas of "transhumanism" would destroy liberal democratic society.[33] Mathematician Theodore Kaczynski's fear of this future was so great he would turn to terrorism to press for a turn away from technological development.[34]

The germ that began this paper was a question: "why do we hate our machines?" That seems to be the message of the books, films, and commentary that bombard the average

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[31] Hans Moravec, *Mind Children: The Future of Robot and Human Intelligence*, and J Storrs Hall, *Beyond AI: Creating the Conscience of the Machine* deal with this notion. The idea of robots replacing humans, but carrying all of our foibles, is on display at the end of *AI: Artificial Intelligence*, directed by Stephen Speilberg, 2001.

[32] Bill Joy, *Why the Future Doesn't Need Us*. Wired, 14 Nov, 2005. Last viewed, 30 March, 2007: http://www.wired.com/wired/archive/8.04/joy_pr.html

[33] Francis Fukuyama, "The World's Most Dangerous Ideas: Transhumanism." *Foreign Policy*, 5 Jan, 2006.

[34] Kaczynski's surprisingly lucid critique of technology and society is found in *Industrial Society and Its Future*, published in the *New York Times* and *Washington Post*, 19 September, 1995.

American. This was not always the case – the machine, be it a reaper, sewing machine, or automobile – has usually been welcomed by those who found their use gave the person more time for leisure, increased productivity and often wealth. The main criticisms of our automatons has always come from literary and social reform circles, and blends a desire for the romantically pastoral and the fear of change or the unknown. Often these critics were not directly involved in the day-to-day work that these devices made easier. Thoreau did not farm; he gardened. Marx did not work in a mine or factory, and he was loathe to visit them. Robots were decades in the future when *Metropolis* was made, and their introduction might have change the type of labor workers do, but they have not – in the long run – disenfranchised labor.

Perhaps another question would be "do we hate our machines?" While Henry Adams might have seen them as agents of chaos, and many critics of the computer and game console might agree, have these inventions truly destroyed society at large or simply changed it? The atom bomb did not destroy the world. Computers – and particularly the rise of th internet – have arguably debased journalism and culture, but they have also made it easier for the average person to communicate their ideas with their fellow man, no matter where they are on the globe, and for those desires to be heard in the halls of power.[35] Servicemen use robots to protect themselves and the public from bombs. Teenagers usually cannot be pried loose from their cell phones. Despite the alleged destruction posed by the automobile, it has freed generations to live and work where they please...and the love of the car is migrating across China and India. I would suggest the answer to this question is unequivocally "no."

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[35] Witness the ability of Russians to work together against Soviet government in 1992, or for good or bad, the American public, and internet-based outcry to prevent amnesty for Mexican workers in 2007.

A last question might be, “should we hate our machine?” Men like Moravec and Kurzweil might suggest no; that these devices will eventually set Mankind free of their bonds of poverty and ignorance. Kurzweil, particularly, postulates that better, cleaner technologies will repair ecological damage, allow humans to live longer and healthier lives, and empower the average person in ways not seen before. (A similar hope was common to the Futurists of the 1910s, and the general American population of the 1920s.) Critics of the changes wrought by mechanization – the displaced farmer, the out of work auto builder, the pollution of the Earth – most likely would have a diametrically opposed response, if the immolation of sport utility vehicles is anything to go by. Both of these intellectual vectors seem unconnected to the common American experience: The machine itself is neither good nor bad; it’s the use of the same.

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