Rise of the Machines

By Thomas Reid

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By MICHAEL SALES

LARGELY FORGOTTEN today, Norbert Wiener’s “cybernetics” is a potent force in the study of organisms and machines as mutually important feedback systems—captivated scholars and the public alike from the late 1940s through the 1960s. “In Rise of the Machines,” however, Thomas Reid explains how Wiener’s “eccentric mathematician,” “stubborn scientist,” “roly-poly professor,” “rhapso- phile” radical and (more ambiguously) “M.I.T. professor” of radio showed that a “true cybernetic” is a theorist who could “understand the technic of ciphers” but “with one eye actually of the twentieth century’s biggest ideas.” In his heyday, cybernetics highlighted the similarities between humans and machines and envisioned their symbiotic relationship. The myth could range from buddy-buddy (think R2-D2 to predictor-pred (think HAL 9000) to cybernetics as a popular field by the early 1970s, but many of its early critics shared a common prefix: “cyber—” to stifle public expectations about technology. M. Reid argues that the seeds of the “cybernetics myth” have a quasi-religious character: They tend to be faith-based and主教练, either obtusely optimistic about the liberating effects of machines or darkly pessimistic about their dehumanizing, destructive potentials. Indeed, M. Reid’s account is less a history of cybernetics as a scientific discipline than a cultural history of cybernetics, in which the myth—his myth—is the same as the one-human-machine synchrony that is now enduring. The myth’s auguries—hopeful ones of human-machine synergy; dire ones of oppressive artificial intelligence—are couched in scientific terms and thus appear real and inevitable. Lives in society that are becoming “cybernetic” seem to resolve inescapable contradictions through emotionally resonant symbols, such as the “cybernetic” man who might be split by being uploaded into more intelligent machines. Most, though, have turned out to be scientific fictions (some inspired by science fiction). In the end, M. Reid shows us that they are “dangerous” because they undermine rational considerations of how technologies are used and abused.

Something of a cyber-Canadian himself, M. Reid finds that many of the prophecies he exhumes are being repeated today in new guises: The “destructive power of the cybernetic myth is perhaps increased but not decreased.”

Wiener formulated his theory of cybernetics during World War II, while exploring the interactions between human beings and machines in the heat of battle. He found that both adjusted to rapidly changing conditions through feedback loops. This insight, he says, prompted him to “reshuffle the case of a genera- tor calculating when and where to fire or radar equipment locating objects through the beam of a search- light.” Wiener developed a central theme: Organs and machines were alike in their ability to adapt themselves and their environment through communications. Brains and computers were essentially input-output devices, a conclusion reflecting the reigning belief of behaviorist psychology. In turn, humans and machines could form a dynamic and powerful system; left to themselves, machines could, in principle, develop intelligence and the ability to self-replicate. They might even replace humanity.

Wiener presented his new dispensa- tion in “Cybernetics: Or Control and Communication in the Animal and the Machine” (1948). The maestro processed the book’s theory arguments into mythic folklore, popularizing both a glamorous image of artificially aug- mented human potential and a more horrific vision of robot-apocalypse. The book appeared at an opportune moment, as cybernetics provided a compelling way to understand the computer ("big brain") first developed during the war, as well as the vast ex- tension of business automation ("cy- bernetics") in the postwar period.

Cybernetics also became a trendy interdisciplinary field, uniting scientists, engineers and social scientists. The definition of ‘communication en- tity’ soon became highly elastic: It was applied to computers, individuals, societies and the globe, all of which were defined as regulating their behavior through feedback loops (feedback with worst always perfect: Anthropo- logist Margaret Mead recalled being so excited at a cybernetics conference that she didn’t notice that I had broken one of my teeth until the conference was over). An entire era of war studies at King’s College London, M. Reid notes, led to the U.S. defense services made greater practical use of cybernetic tower intellectuals like Wiener. He loy- ally details the military applications of cybernetics, such as the large au- tomated air-defense system of the 1960s. (Decentralized communica- tions systems of greater or lesser importance are un- discussed.) In 1960, the Air Force first proposed cybernetics, or “cybernetic cy- tombs” of use in space, and later in the decade the Army developed com- batron “exoskeletons” for deploy- ment in the Vietnam War. Neither pro- gram fulfilled its larger scope: a common thread in cybernetic theory.

Wiener was a harsh critic of the military use of cybernetics, fearing the consequences of machine error and the fatal induction of a “push-button” war. Others, like Kurt Vonnegut in “Player Piano” (1953), described the dys- topy resulting from a number of socio- etal society. Yet despite such obvious forecasts, cybernetics inspired mostly hopeful dreams through the 1960s.

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Self-help and human-potential move- ments were especially susceptible to this claim. L. Ron Hubbard’s "Dianetics" (1950) was indebted to cybernetics, depicting neurons as the result of faulty brain programming. In 1960, Maxwell Maltz, a plastic surgeon, transformed "plastic surgery" into a self- help book—"Psycho-Cybernetics”—that sold more than 30 million copies.

Where self-help goes, the counter- culture is rarely far behind. M. Reid discusses the apparent contradiction between the flower-power generation revolt against an "administrated soci- ety" and the embrace of "machines of loving grace." Stewart Brand, enthralled hippie, influential cre- ator of the Whole Earth Catalog in the 1960s and one of the earliest "diposers" of the 1980s, adopted Wiener’s mantra that machines extended human potential. M. Brand was also galvanized by anthropologist Gregory Bateson’s theory that the earth was on an vast cybernetic system whose equilib- rium depended on feedback loops.

The emergence of "ethical virtual reality" in the 1980s seems unrelated to the mechanistic tropes of cybernetics.

Lisa William Gibson, the science-fiction writer who coined the term "cyber- space" in 1982, claimed that he did so to prevent any association with the absolutely nothing. Perhaps—but M. Brand, Timothy Leary and other members of the counterculture—indeed defined cybernetically-realized realities as the high-tech equivalent of an acid trip, extending consciousness, virtual reality, the cyber- netic style. Leary proclaimed that virtual reality represented "the pan of the psychodelic and cybernetic cul- tures," and Gestalt Dead匹克里耶ser John Barry Parrish championed the appro- priate (and by now expected) neolo- gism: "cyberdelic." As usual with the cybernetic myth, these giddy visions were far ahead of what machines could actually accomplish; what he was virtually dead by the mid-1990s. Utopian hopes became attached to the rapidly expanding internet. M. Brand outlines how anarchists and libertarians wel- comed it as the new "cybernetic front" that could be fortified against government intrusion through robust forms of encryption. The "cyber- punk" propheted that the state would wither away once alternative markets, currencies and information exchanges became the norm online. Such "crypto-anarch" theory, though, is true remote from the idealized model of the original net- works of cybernetics. M. Reid justly asks its practitioners because it en- boded the unashamed cyberfuturistic faith in the machine.

According to M. Reid, the emer- gence of "cyberspace" in the 1990s marked the "fall of the machines." re- flecting more dystopian attitudes to- ward cyberculture at the turn of the century. Between the 1970s and the 1990s, the Perugia was favorably dis- posal to the original premises of cy- bernetics. "Cyberspace isn’t just for geeks," crowed one of his strongest voices. "It’s for warriors now!" The Defense Depart- ment hurriedly belatedly discovered that would always maintain technological superiority. But it was not adequately prepared for the "virtual state" in state which took place in 1998, prosecuted by hackers in More- gon. The global resistance to the cyber- cultural, "playing field, making everyone vul- nerable, and "anarchist" and "the liber- ing panama" for the cyberpunk, has since proved a tool for oppression as well as liberation.

M. Reid’s fascinating survey of the hopes and fears expressed by the cybernomy offers an im- plicit lesson. He is right to find many of its visions excessive—although this should be balanced against the value of bold dreams to inspire innovation. Perhaps a greater problem with these mythic tales is their literary nature. They are often cast in the digital "rhetoric” mode of "programming logic: Machines are either friend or foe. Even M. Reid sometimes falls into this trap, asking: “Are machines finally freezing humanism?” Or are modern soci- eties slipping into a dangerous new world of virtual reality, of course, usually lies somewhere in be- tween. Traditional prophets sacrificed clarity by speaking in binary terms. The modern cybernetic myths does so by speaking in digits.

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