R.U.R. and the Vision of Artificial Life
by Karel Čapek. Volume edited by Jitka Čejková and translated by Štěpán S. Šimek. Cambridge, MA: The MIT Press, 2023, 312 pp.

Go to Hell, Robots!

ERIC TRUMP

In 1920, what might be the most successful anthology in German-language publishing history appeared. *Menschheitsdämmerung*, or "Twilight of Humanity," collects 275 poems, many of which rage against the Machine Age. Viewing Europe as fallen, vulnerable, and in need of renewal, the poems echo other contemporaneous work, including Oswald Spengler's *Decline of the West* and Otto Dix's paintings, such as *Prague Street*, in which mutilated veterans evolve into their prosthetics.

In the section titled "Plea and Outrage," Kurt Heynicke's poem "Für Martinet" is representative of the anger aimed at the apparatuses that carry out humanity's work and killing: "Down with technology, down with the machine! / We don't want to know any more of your cursed infernal inventions / Your electricity, your gasses, acids, powders, wheels, and batteries!"

That same year, playwright and journalist Karel Čapek's play *R.U.R.* was published in recently created Czechoslovakia. The letters stand for "Rossum's Universal Robots," a factory that manufactures robots—or, as the company's general manager, Harry Domin, calls them, "artificial humans"—for worldwide distribution. The plot of the three-act play takes place over the course of decades and describes how humans first dominate and are then overthrown by the robots they created to serve them.

As the play opens, however, the factory's robots represent triumph, not terror. Domin informs Helena Glory, a visitor to the company's island factory and his future wife, that "a creation designed by an engineer will always be technically more refined than a creation of nature." Even better, robots cannot feel pleasure or pain. When no longer useful, they are fed into a crusher.

Foreshadowing Elon Musk's introduction of Tesla's humanoid robot, Optimus, in 2022 ("It'll be a fundamental transformation for civilization as we know it," Musk crowed), Domin kvells that robots allow humans to be masters, "boundless, free, and supreme." Robots liberate the human from being "a machine and a means of production," he says. In other words, humans, in danger of becoming robotic drudges, create robots to reclaim their humanity. A similar irony was at play in 2014 when the head of Google X, Astro Teller, promoted his lab's inventions, including Google Glass and self-driving cars, as making us "feel more human instead of less human."

In Act II, the robots become conscious of their servile condition

and rebel against their human overlords. Robots around the world kill or enslave their former masters and create their own government. The robopsychologist Dr. Hallemeier, sensing the end, pronounces, "It was a great thing to be human. It was something immeasurable."

By Act III, the last human on Earth is a mechanical engineer named Alquist. Robots, though superficially male and female, cannot reproduce and beg Alquist for the secret of their creation. However, the recipe has been destroyed. Resonating with Heynicke's jeremiad, Alquist sneers, "Machines, always the machines, on and on! Go to hell, robots! ...What, is a human of use to you now?"

In this stimulating volume from MIT Press, Štěpán S. Šimek gives us a bracing new translation of *R.U.R.* Unlike Paul Selver's 1921 translation, Šimek's version is unexpurgated. He conveys what I can only assume are the original's pathos and humor. Following the play are 20 diverse essays that refract Čapek's drama through the prism of recent research in the field of artificial life, or ALife.

Šimek preserves the word "robot," which Čapek and his brother Josef coined, derived from the Czech *robota,* or "forced labor." When we think of robots, C-3PO of *Star Wars* may come to mind. However, Čapek protests in an essay included in this volume that his robots are not "made of sheet metal and cogwheels." They are synthetically biological. He envisioned his robots not with the "hubris of a mechanical engineer, but with the metaphysical humility of a spiritualist."

Čapek's robots are composed of living "batter," with nerves and capillaries unspooled in spinning mills. This sets them apart from other designs reaching back to Hephaestus's wheeled tripods in the *Iliad*, Frank Zappa's "Sy Borg" ("a magical pig with marital aids stuck all over it"), or Douglas Adams's Marvin the Paranoid Android. R.U.R.'s robots are more like the "skin jobs" of Ridley Scott's *Blade Runner* or smooth-skinned Ava leaving the compound at the end of Alex Garland's *Ex Machina*. They are so convincingly humanoid that Helena, when she first arrives on the island, mistakes R.U.R.'s scientists for robots.

Chemical substrates behaving as living matter are also the stuff of ALife. As editor Jitka Čejková notes in her enthusiastic introduction, ALife got its start at a 1987 workshop led by Christopher G. Langton, a theoretical biologist. Today, the field explores biological processes, such as evolution and reproduction, through artificial means, including the creation of artificial cells, tissues, and organs. The geneticist Craig Venter building a bacterium genome from scratch in 2010 is an example. Such work also raises basic questions, Čejková writes, "such as 'What is life?', 'How did life originate?', 'What is consciousness?' … questions [that] were already heard in Čapek's century-old science fiction play."

The essays in this volume engage in wide-ranging discussions of ALife. Topics include panpsychism and the soul, evolution and abiogenesis, robot suffering, the history of chemical gardens, and—my favorite—the NukaBot, a food container that monitors bacteria and "speaks" for it, the goal being "to nurture human affection toward the bacteria."

In his essay, ALife researcher Nathaniel Virgo wonders if scientists might manufacture new forms of life with "the right chemicals" and the "right environmental conditions." These "enzyme machines" might help in drug discovery or waste disposal. Evolutionary biologist and writer Julie Nováková ponders the consequences of a future made jobless by automation. Robotics researcher Hemma Philamore considers the prospect of rampant humanoids and falling human birthrates. She wonders if we might "automate away the human need to reproduce." Why fight for the relationship you want when you can seduce "Samantha," wired for compliance, or "Frigid Farrah," who (which?) simulates resistance.

The larger questions pulsing behind these essays and *R.U.R.* itself have to do with just that: simulation. When does simulated life, simulated humanness, become "real"? What is the moral status, if any, of talking bacteria? If robots leave the uncanny valley and become indistinguishable from humans, does that make them a new species with robot rights? What would humans owe them? What if they are "human enough" to suffer? What effect does expanding or contracting the boundaries of humanness have on artificial life—and on humans? One celebrity robot, Sophia, made by Hong Kong company Hanson Robotics, is already more "human" than some humans, at least politically: in 2017, Saudi Arabia granted "her" citizenship. Unlike the world's millions of stateless humans, Sophia has the right to have rights.

Such a reversal occurs at the end of *R.U.R.*, when Alquist, alone in a world of robots, thinks he hears human laughter. In fact, it is two robots, Primus and Helena, laughing. Alquist duly treats them the old-fashioned way, demanding they acquiesce to dissection so the secret formula of their creation can be discovered. But they do not obey. Primus wants to sacrifice himself. Helena weeps and insists on "dying" herself. Alquist, recognizing they are in love, releases them. They belong to each other, not to him. Like Adam and Eve—God's disobedient robots—they take their solitary way, leaving behind Alquist, bereft but joyous that "life will not perish" and love "will bloom again on this garbage heap," as humanity's dusk gathers and the robots' dawn breaks.

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