

# REFLECTIONS

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## ONE HUNDRED YEARS OF ROBOTS

On a visit to Poland about fifteen years ago I was startled to see, across the street from my hotel, a poster on the wall that was headed with the word **ROBOTA** in big letters, followed by seven or eight paragraphs in Polish, a language of which I understand about four words.

ROBOTA? “Robots,” was it? Was somebody in Warsaw advertising robots for rent? This was in the early years of the century, remember, when the world was not quite as digital as it is now, and robots, to me, were the stuff of science fiction, not commodities to be advertised on wall posters in Poland.

I asked a Polish friend. Sorry, he said. No robots here. “Robota” was simply the Polish word for “job” or “work.” The poster was that of an employment agency looking for clients.

“Robota,” and words similar to it, are found in many Slavic languages, among them Russian, Ukrainian, Bulgarian, Serbian, and Czech. They all are derived from the ancient Slavic word “orbota,” meaning “work, hard work, obligatory work for the king.” In Czech, “robota” carries the connotation of “drudgery” or even “slave labor.” And it was just a hundred years ago, in January 1921, that Prague saw the first performance of a play called *R.U.R.*, by a young and gifted Czech writer named Karel Čapek (his name is pronounced Tchopek). “R.U.R.” stands for “Rossum’s Universal Robots,” in which a scientist named Rossum develops synthetic human beings designed to free us from most of the dreary toil of everyday life, and it was Čapek’s play that put the word “robot” into the world’s vocabulary. The concept of robots was nothing new, of course. Two and a half millennia ago Greek mythology gave us Talos, a man whom Hephaestus fashioned out of brass to protect the islands of Greece against invaders. The Golem of medieval Jewish legend was an artificial human being. So was the creature that Dr. Frankenstein assembled in Mary Shelley’s novel. I first encountered robots when I was about thirteen in Jack Williamson’s story “With Folded Hands,” in which mechanical men, described as “The Perfect Mechanicals/To Serve and Obey,” not only serve and obey mankind, but come completely to dominate it. It is a story that owes more than a little to the theme of the Čapek play, though I have no idea whether Williamson was familiar with it. Another story that I read about the same time was Anthony Boucher’s “Q.U.R.,” which pays open homage to Čapek in its title: the initials here stand for “Quinby’s Usuforn Robots.” The Boucher story, first published in 1943, actually foretells today’s robot industry, because its “usuforn” robots make no attempt to imitate the human body, but are simply artificial brains in a box with attachments designed to perform the robot’s allotted task. (In this case, a robot bartender.)

But it was Čapek who put the word “robot” into the world’s languages. Or, rather, his brother Josef, who supplied the word to replace Karel’s own inadequate choice.

Karel Čapek was born in 1890 in northeastern Bohemia, in what is now the Czech Republic. When he was seventeen he moved to the capital city of Prague, where he studied philosophy at Charles University. After further studies in Berlin and Paris, he returned to Prague to begin a lifelong career as a journalist. But he took up writing plays as a secondary profession, beginning with *The Outlaw* in 1920 and following it almost immediately with the play that would bring him worldwide fame, *R.U.R.*, depicting the advent of synthetic human beings that ultimately make the original ones obsolete.

“Rossum” in Czech means “wisdom,” or “reason.” The most recent English translation of the play rather ungracefully calls the inventor of the robots “Dr. Reason.” (He is simply “Rossum” in the earlier translations.) Čapek thought he might call his artificial humans “Labori,” but the name didn’t seem forceful enough to him. He told his older brother Josef, a writer and artist with whom he would maintain a close friendship all his life, that he was thinking of writing a play about the creation of a non-human work force that would spare mankind from unpleasant travail, but needed a good name for his synthetic beings. Josef, who was working on a painting at the time, said, without turning his attention away from his canvas, “Call them robots.” And so it came to pass.

Robots, of course, quickly became part of the apparatus of the developing new field of science fiction, featured in such early stories as Abner J. Gelula’s “Automaton” (1931), Harl Vincent’s “Rex” (1934), and Robert Moore Williams’s “Robots Return” (1938). Isaac Asimov made robots virtually his own property with the series of stories begun in 1941 that later was collected in book form under the title of *I, Robot*, in which he formulated the famous Three Laws of Robotics that defined a pre-programmed system intended to prevent robots from doing harm to their human overlords. From these early robot stories there quickly emerged a convention that established a distinction between *robots*, mechanical entities of one sort or another, and *androids*, creatures of synthetic flesh nearly or totally indistinguishable from human beings. (This distinction, which nearly all science fiction writers observed for decades, began to break down in the 1970s when George Lucas called the mechanical men of his *Star Wars* movie “droids,” short for “androids.”)

Čapek’s pioneering robots were in fact androids in the standard science fictional sense of that word—synthetic flesh-and-blood beings. We are told in the first act of the play that Rossum’s goal was “reproducing everything exactly as it functions in the human body. Appendix, tonsils, belly-buttons—all completely useless. Even the sexual glands! No need for those if you’re reproducing people artificially!” For Rossum the creation of robots was nothing more than an adventure in pure science. It was his son who saw that a line of robots designed to perform various kinds of work more efficiently and economically than human beings would have enormous commercial possibilities. The Rossum company proceeded to produce robots—hundreds of them, thousands, hundreds of thousands, flooding the world with them to the point where there was nothing left for humans to do, and the race, given such idleness, gradually withered away, leaving the world entirely to Rossum’s robots.

It is the fate of most pioneering works to begin to seem quaint as more sophisticated writers revisit their themes. Jack Williamson’s 1947 novella “With Folded Hands” shows us, in closer focus than Čapek’s play, the consequences of surrendering to seemingly benign labor-saving devices. Clifford D. Simak’s classic book *City* poignantly depicts a world in which the humans have vanished and the robots are in charge. And Isaac Asimov’s “The Bicentennial Man” deals in detail with the most significant aspect of Čapek’s play, the fact that the robots are human in all respects except that they lack souls, some sort of spiritual core, and the most intelligent of them, aware that in that regard they are less than human, yearn to have them. When we read *R.U.R.* today, we may smile indulgently at some of the simplicities of its storytelling—but we must remind ourselves that Čapek, the pioneer, was blazing a trail that generations of science fiction writers would follow, making new discoveries along the way.

Čapek would not have regarded himself as a science fiction writer, though he was one, and a very important one. Though he was a prolific writer of novels, short stories, children’s books, essays, and travel books, it is mainly his science fiction that has survived into our time. *The Insect Play* (1921), a satirical work, has a cast of ants

and beetles. In the novels *The Absolute at Large* (1922), *Krakatit* (1924), and *The War with the Newts* (1936), he examined the future of the industrial world, the dangers of atomic energy, and a whole range of science fictional concepts. Above all there is *The Makropoulos Secret* (1922), a brilliant exploration of what it is like to be immortal, told through the viewpoint of a woman who has lived on from Renaissance times into the twentieth century, one of the finest works on that theme ever written. (Adapted into an opera by Leoš Janáček, it still successfully holds the stage in Europe and the United States.) Čapek may never have heard of science fiction, though, and probably thought of himself primarily as a satirist, with much of his later work aimed at totalitarian regimes. He was strongly anti-Communist, and as Nazi power began to overwhelm Europe, he turned his creative attention to the growing menace of Hitler's Germany with *The White Plague* (1937), a ferociously anti-Fascist play that surely would have doomed him to one of the concentration camps had he not died of a respiratory ailment in December 1938, just as the Germans were engulfing the country then called Czechoslovakia. His works were banned by the Nazis, and his brother Josef finished his days in the Belsen camp, where he died in 1945.

Čapek's play about robots not only gave the world a useful new word but also was the first to raise serious questions about the relationship between humans and their machines: the robot, which serves and sometimes dominates or even supplants humanity, becomes a metaphor for our entire roster of ingenious and perhaps dangerous labor-saving devices. His robots are something more than clever computers with legs: they are almost human, human in all but birth, second-class citizens called forth by scientific means to serve as slaves. The entire issue of the moral standing of slavery can be looked at in a new light, thanks to Čapek: do we have the right to enslave creatures of flesh and blood, even though we have manufactured them merely to serve us?

A news story out of Prague a couple of years ago would have brought an ironic smile to Karel Čapek's face: a huge hospital-bed factory in central Bohemia let it be known that it was going to make use of robots to help it meet surging orders, because of a shortage of human workers in the Czech Republic. "We can't find enough humans," the head of the company said. "We're trying to replace people with machines wherever we can." And so the advertising poster that I had misunderstood in Warsaw fifteen years ago has finally taken on the meaning I thought it had then. That company in central Bohemia has placed an eight-million-euro order for superfast laser-powered robots to help speed up its assembly line.