No. 1156:
THE MACHINE AS MIRROR

by John H. Lienhard

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Today, an analogy game. The University of Houston's College of Engineering presents this series about the machines that make our civilization run, and the people whose ingenuity created them.

I've often said that we and our machines mirror one another. Yet, it is a strange mirror. What do we really see when we look at a machine? We don't see ourselves at first because of a time lag in the reflection. What happened when you first looked at a computer? You felt neither need nor empathy for it. We can't need what we've never experienced! Yet that first glimpse began a long process.

You have friends who still jitter about this new medium -- wondering whether to accept the change it'll bring into their lives -- or keep dodging it. The need for transformation lies at our biological core. But we fear change, nonetheless.

The first computers I ever used filled rooms. We had to speak to them with punched cards. The simplest conversation stretched into weeks. We'd submit 3-inch decks of cards, wait 24 hours, and be handed a 500 page sheaf of nonsense output -- because a do-loop went mad when we misplaced a period.

Even as we computed things that'd been quite beyond us a few years before, we became desperately frustrated in the '60s. All we talked about was increasing the speed of calculation, but what we really needed was a more accurate mirror of our human nature.

During the 1970s we finally began speaking to computers directly with

keyboards. Then we realized we could compose text and print it out. Of course the computer took no responsibility for organizing the text. So we began demanding that word processing logic be built into the computer. The early 1980s brought in the invention of software -- canned sets of commands we could call up from the keyboard. Software now processed our words and it laid out spreadsheets. New programming languages removed the burden of speaking in the language of the machine. It became more fluent in human tongues.

If the computer has become more human, we've been adapting to the computer at the same time. We've changed our work habits and our prose. We've changed what we expect of human communication. The computer has swallowed up our old algorithms of multiplication and long division. Meanwhile, like another human being, the computer does more and more of its work behind our back.

So images flow back and forth in the mirror of our machines. How much thought did we give to the first IBM computers, isolated in clean-rooms with their big tape drives? When my father saw his first automobile chuffing by an Illinois cornfield, he had no idea he would see cities completely reshaped by that primitive device. Nor did he have any idea how cars would shape themselves to human bodies and human responses.

He had no more idea in 1900 than I did in 1959 when a student in my research group told me he was using a computer to do one of our calculations. If he'd told me he was changing human history, I would've laughed at him. But he was. For he had begun the very mirroring process -- that shapes the human species.

I'm John Lienhard, at the University of Houston, where we're interested in the way inventive minds work.

(Theme music)

For another take on mirrors, see Episode 1184.

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