

## COMPUTERS AND THE NATURE OF MAN: A HISTORIAN'S PERSPECTIVE ON CONTROVERSIES ABOUT ARTIFICIAL INTELLIGENCE

BY JUDITH V. GRABINER

Throughout history, developments in the sciences have caused people to change their views of man and his place in the universe. The Copernican Revolution placed man on a planet, adrift in space; the Darwinian Revolution changed our view of human origins. Computers, too, raise questions about the nature of man: can computers think the way we do, and, if so, are we—like them—just thinking machines? Of course the question “can a machine think?” has been raised before, as long ago as the seventeenth century: by Descartes and Pascal, who said no; by Hobbes, who said that thought was mechanical; and somewhat later by La Mettrie, who saw man himself as a machine. But only in our century, as a result of work in the mathematical sciences, has the question “can a machine think?” been given widespread and rigorous discussion. Today computer scientists have devised programs that solve problems which, if solved by people, would seem to require intelligent thought. This point is made explicit by John McCarthy’s name for the field: “artificial intelligence.” As we shall see, the real controversy about artificial intelligence (AI) is not about the nature of computers and programs; it is about the nature of man.

But first, how would we possibly decide whether computers can think at all? Some 35 years ago, Alan Turing suggested a way of testing the assertion that a machine could think, without having to worry about the internal workings of the machine. If, he said, a machine could successfully imitate a human being in a full range of possible conversations, fooling its human conversational partner into believing the machine to be human, we ought to conclude that the machine was indeed thinking [39]. A machine that could do this would be said, in modern terminology, to have “passed the Turing test.” Turing’s proposed test has set the agenda for many subsequent debates over machine and human intellectual performance.

The purpose of the present paper is to provide a historical perspective on recent controversies, from Turing’s time on, about artificial intelligence, and to make clear that these are in fact controversies about the nature of man. First, I shall briefly review three recent controversies about artificial intelligence, controversies over whether computers can think and over whether people are

---

1980 *Mathematics Subject Classification* (1985 Revision). Primary 01A60, 68-03; Secondary 68T01.

Based on a paper given at the AMS-MAA Joint Session on the History and Development of Modern Mathematics, Eugene, Oregon, August 17, 1984; received by the editors October 30, 1985.