COMPUTER POWER AND HUMAN REASON

FROM JUDGMENT TO CALCULATION

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PREFACE

This book is only nominally about computers. In an important sense, the computer is used here merely as a vehicle for moving certain ideas that are much more important than computers. The reader who looks at a few of this book's pages and turns away in fright because he spots an equation or a bit of computer jargon here and there should reconsider. He may think that he does not know anything about computers, indeed, that computers are too complicated for ordinary people to understand. But a major point of this book is precisely that we, all of us, have made the world too much into a computer, and that this remaking of the world in the image of the computer started long before there were any electronic computers. Now that we have computers, it becomes somewhat easier to see this imaginative transformation we have worked on the world. Now we can use the computer itself—that is the idea of the computer—as a metaphor to help us understand what we have done and are doing.

We are all used to hearing that the computer is a powerful new instrument. But few people have any idea where the power of a computer comes from. Chapters I to III are devoted to explaining just

that. With a modest investment in time and intellectual energy, anyone who can read this Preface should be able to work his way through those chapters. Chapters II and III will be the most difficult, but the reader who cannot master them should not therefore abandon the rest of the book. Really, the only point Chapters II and III make is that computers are in some sense "universal" machines, that they can (in a certain sense which is there explained) do "anything." The reader who is willing to take that assertion on faith may well wish to skip from Chapter I (which he should read) to Chapter IV. Perhaps after he has finished the whole book, he will be tempted to try Chapters II and III again.

The rest of the book contains the major arguments, which are in essence, first, that there is a difference between man and machine, and, second, that there are certain tasks which computers *ought* not be made to do, independent of whether computers *can* be made to do them.

The writing of this book has been an adventure to me. First and most important, I have been cheered beyond my power to say by the generosity and the intellectual and emotional support given me by people who owe me absolutely nothing. But now I am very greatly in their debt. I am thinking primarily of Lewis Mumford, that grand old man, of Noam Chomsky, and of Steven Marcus, the literary critic. Each of them read large sections of the manuscript in preparation (Lewis Mumford read all of it) and contributed the wisest and most useful kinds of criticism. But more than that, each encouraged me to go on when I despaired. For there was often cause for despair. I am acutely aware, for example, that there is nothing I say in this book that has not been said better, certainly more eloquently, by others. But, as my friends continued to point out to me, it seemed important to say these things again and again. And, as Lewis Mumford often remarked, it sometimes matters that a member of the scientific establishment say some things that humanists have been shouting for ages.

More formally, I am indebted to my University, the Massachusetts Institute of Technology, for granting me a leave of two

years so that I might pursue first the thinking which preceded the writing, then the writing itself. I spent the first of those two happy years at the Center for Advanced Study in the Behavioral Sciences at Stanford, California.* It was there that I met Steven Marcus, as well as others of the Center's Fellows, who struggled mightily to educate a primitive engineer. The names John Platt, Paul Armer, Herbert Weiner, Fredrick Redlich, Alexander Mitscherlich, and Israel Scheffler immediately come to mind. I thank them for their efforts. No failure of mine should, however, be counted against any of them. I spent the second year as a Vinton Hayes Research Fellow at Harvard University. There I had the good fortune to be able to renew an old collegial association, namely, one with Professor Thomas Cheatham, an outstanding computer scientist. He took the trouble to read almost the whole manuscript as it sprang from my pen. Professor Hilary Putnam of Harvard's Philosophy Department gave me many hours of his valuable time. Without his help, encouragement, and guidance I would have fallen into many more traps than I actually did. It was also a stroke of good luck that Daniel C. Dennett, an outstanding young philosopher from Tufts University, happened to be spending the year at Harvard just when I was there. His patience with my philosophical naivety was unlimited. I can never adequately discharge my debts to all these good people.

These few words of thanks acknowledge the fact that this book—like, I suspect, most others—has many co-authors whose names will not appear on its cover. But in this instance that confession would be grievously incomplete if it did not include an acknowledgment of the critical contributions that the book's manuscript editor, Aidan Kelly, made to it. I cannot, in a few words, summarize what he did. Perhaps readers will understand if I say simply that Aidan Kelly is a poet.

Finally, everyone who has ever written a book will know what an enormous burden such a task imposes on the author's family. My wife, Ruth, suffered my retreats to my study with the utmost

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good will and patience. She helped me over the inevitable bouts with the feelings of guilt that overcome an author when he is writing—for then he is not with his family even when he is with them—and when he is not writing—for then he is not doing what he has set himself to do. My children counted the pages as they mounted on my desk. And they grieved when, as often happened, the stack of pages in the wastebasket grew more quickly than that on my desk. Most of all, they cheerfully endured the endless progress reports that punctuated our dinner-table conversation. This book is Ruth's and our children's as much as it is mine.

Fall 1975 *Joseph Weizenbaum*
Cambridge, Massachusetts