

# THE COMPUTER REVOLUTION IN PHILOSOPHY (1978)

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## PREFACE

Another book on how computers are going to change our lives? Yes, but this is more about computing than about computers, and it is more about how our thoughts may be changed than about how housework and factory chores will be taken over by a new breed of slaves.

Thoughts can be changed in many ways. The invention of painting and drawing permitted new thoughts in the processes of creating and interpreting pictures. The invention of speaking and writing also permitted profound extensions of our abilities to think and communicate. Computing is a bit like the invention of paper (a new medium of expression) and the invention of writing (new symbolisms to be embedded in the medium) combined. But the writing is more important than the paper. And computing is more important than computers: programming languages, computational theories and concepts -- these are what computing is about, not transistors, logic gates or flashing lights. Computers are pieces of machinery which permit the development of computing as pencil and paper permit the development of writing. In both cases the physical form of the medium used is not very important, provided that it can perform the required functions.

Computing can change our ways of thinking about many things, mathematics, biology, engineering, administrative procedures, and many more. But my main concern is that it can change our thinking about ourselves: giving us new models, metaphors, and other thinking tools to aid our efforts to fathom the mysteries of the human mind and heart. The new discipline of Artificial Intelligence is the branch of computing most directly concerned with this revolution. By giving us new, deeper, insights into some of our inner processes, it changes our thinking about ourselves. It therefore changes some of our inner processes, and so changes what we are, like all social, technological and intellectual revolutions.

I cannot predict all these changes, and certainly shall not try. The book is mainly about philosophical thinking, and its transformation in the light of computing. But one of my themes is that philosophy is not as limited an activity as you might think. The boundaries between philosophy and other theoretical and practical activities, notably education, software engineering, therapy and the scientific study of man, cannot be drawn as neatly as academic syllabuses might suggest. This blurring of disciplinary boundaries helps to substantiate a claim that a revolution in philosophy is intimately bound up with a revolution in the scientific study of man and its practical applications. Methodological excursions into the nature of science and philosophy therefore take up rather more of this book than I would have liked. But the issues are generally misunderstood, and I felt something needed to be done about that.

I think the revolution is also relevant to several branches of science and engineering not directly concerned with the study of man. Biology, for example, seems to be ripe for a computational revolution. And I don't mean that biologists should use computers to juggle numbers -- number crunching is not what this book is about. Nor is it what computing is essentially about. Further, it may

be useful to try to understand the relationship between chemistry and physics by thinking of physical structures as providing a computer on which chemical programs are executed. But I am not so sure about that one, and will not pursue it.

Though fascinated by the intellectual problems discussed in the book, I would find it hard to justify spending public money working on them if it were not for the possibility of important consequences, including applications to education. But perhaps I should not worry: so much public money is wasted on futile research and teaching, to say nothing of incompetent public administration, ridiculous defence preparations, profits for manufacturers and purveyors of shoddy, useless or harmful goods (like cigarettes), that a little innocent academic study is marginal.

Early drafts of this book included lots of nasty comments on the current state of philosophy, psychology, social science, and education. I have tried to remove them or tone them down, since many were based on my ignorance and prejudice. In particular, my knowledge of psychology at the time of writing was dominated by lectures, seminars, textbooks and journal articles from the 1960s. Nowadays many psychologists are as critical as I could be of such psychology (which does not mean they will agree with my criticisms and proposed remedies). And Andreski's *Social Science as Sorcery* makes many of my criticisms of social science redundant.

I expect I shall be treading on many toes in my bridge-building comments. The fact that I have not read everything relevant will no doubt lead me into howlers. Well, that's life. Criticisms and corrections, published or private will be welcomed. (Except for arguments about whether I am doing philosophy or psychology or some kind of engineering. Demarcation disputes are usually a waste of time. Instead ask: are the problems interesting or important, and is some real progress made towards dealing with them?)

Since the book is aimed at a wide variety of readers with different backgrounds, it will be found by each of them to vary in clarity and interest from section to section. One person's banal oversimplification is another's mind-stretching novelty. Partly for this reason, the different chapters vary in style and overlap in content. The importance of the topic, and the shortage of informed discussion seemed to justify offering the book for publication despite its many flaws.

One thing that will infuriate some readers is my refusal to pay close attention to published arguments in the literature about whether machines can think, or whether people are machines of some sort. People who argue about this sort of thing are usually ignorant of developments in artificial intelligence, and their grasp of the real problems and possibilities in designing intelligent machines is therefore inadequate. Alternatively, they know about machines, but are ignorant of many old philosophical problems for mechanist theories of mind.

Most of the discussions (on both sides) contain more prejudice and rhetoric than analysis or argument. I think this is because in the end there is not much scope for rational discussion on this issue. It is ultimately an ethical question whether you should treat robots like people, or at least like cats, dogs or chimpanzees; not a question of fact. And that ethical question is the real meat behind the question whether artefacts could ever think or feel, at any rate when the question is discussed without any attempt to actually *design* a thinking or feeling machine.

When intelligent robots are made (with the help of philosophers), in a few hundred or a few thousand years time, some people will respond by accepting them as communicants and friends, whereas others will use all the old racist arguments for depriving them of the status of persons. Did you know that you were a racist?

But perhaps when it comes to living and working with robots, some people will be surprised how hard it is to retain the old disbelief in their consciousness, just as people have been surprised to find that someone of a different colour may actually be good to relate to as a person. For an unusually informative and well-informed statement of the racist position concerning machines see Weizenbaum 1976. I admire his book, despite profound disagreements with it.

So, this book is an attempt to publicise an important, but largely unnoticed, facet of the computer revolution: its potential for transforming our ways of thinking about ourselves. Perhaps it will lead someone else, knowledgeable about developments in computing and Artificial Intelligence, to do a better job, and substantiate my claim that within a few years philosophers, psychologists, educationalists, psychiatrists, and others will be professionally incompetent if they are not well-informed about these developments.

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