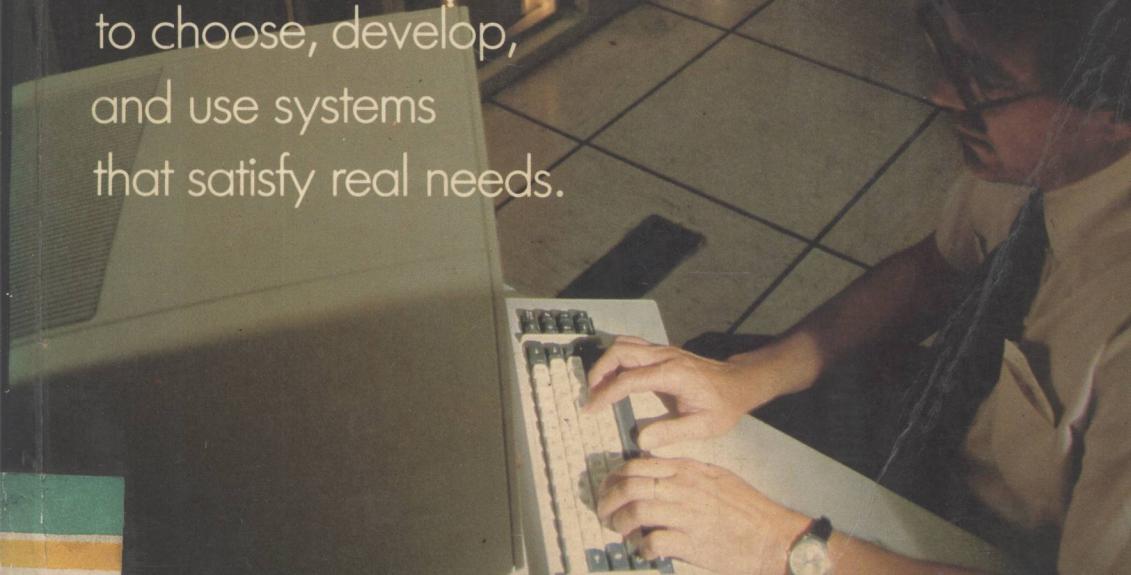


H. Dominic Covey □ Neil Harding McAlister

Computer Choices

Beware of Conspicuous Computing!

People are running out and buying computers that improve their image but don't work for them. With this book you will learn to avoid the wastefulness of hi-tech exhibitionism and to choose, develop, and use systems that satisfy real needs.



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COMPUTER CHOICES: BEWARE OF CONSPICUOUS COMPUTING

H. Dominic Covvey Neil Harding McAlister

MEDICAL COMPUTING CONSULTANTS, LTD.
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This book is dedicated to
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Foreword

In the early 1960s, western society felt the first shock wave of the computer revolution. The wild-eyed prophets of this revolution predicted that this new technology would have enormous and almost immediate impact on business, industry, education, and government. We were told to expect, in the near future, computer systems that would be capable of natural language translation, individual teaching, world-caliber chess playing, decisive, factual decision making, and instantaneous solutions to enormous mathematical problems — to name just a few applications.

Not only would these systems surpass humans in the performance of these jobs, but they would also be extremely economical. Very few of the early prophets indicated that the fruition of these grandiose predictions might cause enormous social unrest because of mass unemployment. When the issue of unemployment was raised, it was often euphemistically termed “expanded leisure time” and was extolled as a further benefit of the computer revolution. The erosion of privacy and other personal freedoms was rarely foreseen or debated during this early period of the computer society.

Amidst this fanfare, computer salespersons were exerting great social pressure on business, industry, and government. A company was led to believe that it had to have a computer in order to be considered modern and progressive. Many companies swallowed this argument and obtained a computer without properly studying the economic justification for such an acquisition. Typically, such a company would further add to the computer mystique by button-holing unsuspecting visitors and forcing them to endure a guided tour

to ogle their new computer as it blinked its lights, spun its tapes, and harassed its human slaves. Advertising hucksters were quick to crown these machines with human attributes: The computer could *read* and *write*; information was stored in *memory*; and of course, the central processing unit was referred to as the “*brain*.” In such an environment, the programmer and systems analyst became the revered priests of the new computer religion. This deification also had far-reaching effects in academia. Computer science departments offering such exotic courses as artificial intelligence, cybernetics, and computer-assisted learning began to sprout up at most universities.

Of course, the early predictions of the first computer prophets did not come true. Many businesses suffered very rude awakenings as they realized that the promised solutions to complex problems would not be forthcoming in the immediate future. An even greater jolt was the growing perception that the development of software for even relatively straightforward problems required enormous amounts of human and financial resources. The software that was painstakingly produced was often very unreliable and required considerable maintenance by skilled programmers. To compound this crisis, these skilled programmers were very scarce. Furthermore, the unreliability of software supplied by computer manufacturers greatly added to the user’s difficulty in developing his or her own software. The foundation was made of sand and the house of cards crumbled to the ground.

Ironically, these failures benefitted computer science departments in colleges and universities: The tremendous demand for computer personnel filled classrooms beyond capacity. The difficulty in solving complex problems in areas such as numerical analysis, graph theory, and computer systems provided grist for the research mills of universities and industrial laboratories. Interestingly, the projected mass unemployment did not materialize. Although many clerical jobs were lost, the scarcity of computer personnel resulted in many on-site job retraining programs.

Society quickly started to lose its reverence for computers and their attendants. Absurdities such as a bill for \$0.00 — issued with a sternly worded note about the dire consequences of not paying the bill — were regarded as “computer errors” rather than programming

errors. It became (and still is) fashionable to sweep such blunders under the convenient rug of “you know how computers are.”

Fortunately all was not failure. Although the production of reliable software was in a crisis, hardware development was achieving spectacular success as the cost and physical size of computers rapidly decreased. Today, small businesses and individuals can purchase mini- and micro-computers that have the power of the giant machines of the past. As happened during the first wave of the computer revolution, businesses and — for the first time — individuals are subject to a barrage of unsolicited advertisements urging them to join the new, improved computer revolution. Parents are now told that they must have a home computer in order for their children to excel in this computer-oriented world. An advertisement recently appeared for a children’s summer camp where computer education was the main activity. The ad intimated that failure to provide children with this opportunity was akin to neglect! Small businesses that escaped the first computer wave because of costs, now form the bulls-eye of a very large advertising target. The salesperson’s claims once again promise grandiose applications of the new system, together with the social benefits of being in the forefront of automation. The individual and the small business face the enormous problem of deciding whether a computer is a wise purchase, and if so, how to avoid the numerous pitfalls of software development and how to cut through the hype surrounding computer technology.

In this book, Dominic Covvey and Neil McAlister refer to “this irrational desire for the aura of sophistication that surrounds automation” as “Conspicuous Computing.” They have very effectively analyzed and exposed the subtle social pressures that encourage people to jump on the computer bandwagon. Once it is shown that a computer system is really needed, they show how the various technical and management issues should be handled in order to protect the purchaser from the many pitfalls mentioned previously. These issues are treated sensitively, rationally, and at the level of the reader who knows a little about the workings of a computer. (Readers who do not have this background knowledge are strongly directed to Covvey and McAlister’s earlier book, *Computer Consciousness* — also in the Addison-Wesley Joy of Computing Series.)

My only regret about this book is that it did not appear twenty years ago. If it had, many computer crises could have been avoided. This book should be required reading before any prospective computer purchaser signs on the dotted line.

September, 1981

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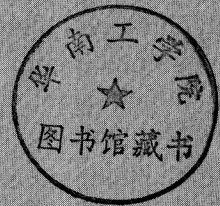


WHAT ME WORRY?



1

Introduction: The Enemy Is Us



The Computer Invasion

The computer invasion is on, and the computers are winning. Look around you. They're stealing your money, your time, your jobs, your privacy, and even some of your freedom. You no longer have any choice about whether or not computers will affect your life: they *do*. When you use a credit card, go to the bank, make an airline reservation, pay your taxes, make a long-distance telephone call, or buy something in a large department store, a computer is involved. The only choice remaining to any of us is whether we will be the ignorant, helpless victims of the computer revolution, or whether, on the other hand, we the public will acquire sufficient knowledge and confidence to insist that computers be used in accordance with acceptable standards. The choice is simple.

We believe that the intelligent person should opt to fight back. Computers are by no means the impossibly difficult, incomprehensible machines that the computer science "priesthood" of the 1960's and 1970's would have had us believe. Computer science has its share of dullards, just the same as any other field of human endeavor. Computer scientists are neither magicians nor wizards. They are, like us, human beings; and, like us, they are fallible.

As the general public is increasingly affected by computers, we all have the right to demand that we be insulated from the human failures of people who design, program, implement, and use these machines. Please note the use of the word "machine." The computer is neither all-powerful, nor all-knowing, nor even "humanlike" in its operation. Computers are *machines*, and people develop and use those machines. It is ridiculous to blame computers for mistakes: There are *occasional* "computer errors"; but likely, the ones you'll see are computers executing human errors.

In *Computer Consciousness*, another book in the Addison-Wesley "Joy of Computing" series, we examine the hardware and software of modern computer systems. The emphasis in that book is on the potentials and the limitations of computer hardware and software.

It should be borne in mind, though, that a computer system — whether it is a tiny microcomputer system for home use, or a giant,

multimillion dollar system for a large corporation — is more than machinery and programs. It is a working symbiosis of machines and the human beings who use, or are affected by, those machines. Just as we must know what to expect from the computers that we use, we must also know what to expect from those people who design the computer systems, write the programs, and use the computers that increasingly affect our everyday life.

It is not always appreciated by noncomputer scientists that computers are far from the general-purpose tools that some advertising would suggest. For example, merely acquiring a microcomputer system for your home does not automatically launch you into the “Wonderful World of Computing.” There are many different kinds of home computers, with radically differing characteristics; it is no small feat to choose the one that does the things you want it to do. The mere fact that a hobby computer is programmable solves few problems for the average consumer, since programming is both difficult and very time consuming. The same principles apply with large, commercial computer systems geared for the business community. There may be literally dozens of choices among different computing products: Finding precisely the machine that serves you best is difficult.

Whether you are a student, parent, educator, professional person, corner grocer or captain of industry, you can acquire some kind of a computer easily. However — and this is a big “however” — acquiring the right computer *system*, the mix of hardware, software, and people that best serves your particular needs, is often very problematic. This is an unfortunate truth, because the cost of choosing the wrong computer system can be high. The ill-considered decision to purchase a home computer may waste a significant chunk of the family budget on a device that, if poorly configured or supplied with little useful system programming, is little more than a boring, though expensive, toy. The business computing system chosen on the basis of one salesperson’s blandishments — instead of on the basis of sound evaluation of corporate needs — can be an economic and procedural albatross around the neck of the unlucky company that acquires it. In any computer system, the end users are part of that system. As such, the solution must be implemented in the