

SILICON VISIONS

The Waite Group
Dan Shafer

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The Future of Microcomputer Technology

**The Waite Group
Dan Shafer**

A Brady Book

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SILICON VISIONS

DEDICATION

This book is lovingly dedicated to my children: Sheila, Mary, Christy, and Heather. It is to them and their generation that the future only hinted at here truly belongs. I pray they will have better wisdom than this generation in using it.

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PREFACE

Predicting is difficult, particularly when it concerns the future.—
Anonymous

The prophesying business is like writing fugues; it is fatal to everyone save the man of absolute genius.—H. L. Mencken,
Prejudices

I have, in the course of writing this book, talked to more than 200 people. Some I've met personally. Others I've talked with only by telephone. Still others are telecommunications friends whose voices I would not recognize. I know, though, that I could have talked to 2,000 such people and still not made a significant dent in the cadre of thinkers and visionaries, producers and movers and shakers, who are "out there" somewhere.

No one book could hope to be comprehensive in its review of all the possible scenarios, products, technologies, people, and ideas that will shape the electronics revolution in the last half of the 1980's. This book does not claim to do so. If I omitted something you strongly feel should have been included, please write to me about it. I'm still in a learning mode, and I do publish a monthly newsletter designed to provide people with continuing updates of the information in this book. Feel free to drop me a line at 1220 Edgewood Rd., Redwood City, CA 94062, or on CompuServe at ID 71246,402. Leave me an address and a phone and I promise I'll contact you.

Yet, despite all of the people I've met and interviewed, read and argued with, laughed and agreed with, the final responsibility for what is in this book is mine and cannot justly be shared with anyone else. Mistakes, and there are always some, are attributable to me and not to any other person. So, too, with oversights.

I hope you enjoy this book. May you find here a future in which to participate in some exciting way. The future does indeed belong to those who are prepared for its promise and its pitfalls.

ACKNOWLEDGMENTS

The primary thanks for the reality of this book goes to two groups of people. The first group includes Mitchell Waite, Barry Richmond, and Robert Lafore, all of the Waite Group and all of whom believed enough in this project to give me the freedom to research and write, and guess and be wrong. There is more creativity in that group than I have had the pleasure to encounter in many other places in my life.

The second group includes hundreds of people whose ideas, thoughts, opinions, writings, projections, and conversations have somehow influenced the contents of this book. Many of them are mentioned by name, but the vast majority are not. This is not because they are not worthy to be included; they are. It is simply because, for various reasons ranging from space and time limitations to their own need for anonymity, they have not been included specifically.

As with my other books, Don Huntington has been an invaluable and very human resource throughout this project. He has worked late nights, deprived himself of sleep, and his family of himself, researched, written, and edited. The quality of the technical tutorials in this book can largely be attributed to his willingness to research, revise, discuss, revise, and revise some more. Thanks, Don.

My family and many of my friends also deserve thanks for not making me feel guilty for the many, many hours I spent in dialogue with subjects, on the telephone, locked in my den writing, or otherwise being inaccessible.

If this book enjoys any success, I would like to publicly share it with all of these people. They deserve it at least as much as I.

ABOUT THIS BOOK

This is a book about the future of microcomputer technology. It does not deal with computers in the distant future, but focuses on things you should know about the technology, and what is likely to happen to it in the next five years or so. Furthermore, this book concentrates exclusively on the *small* end of high technology: microcomputers and systems built around or using them. The small systems will have the most immediate and fundamental impact on the daily lives of Americans in the next five years.

Silicon Visions: The Future of Microcomputer Technology will demonstrate that the most important and fundamental changes in the microcomputer industry in the next few years will focus on making computers at once more *human* and more *humane*. By “human,” we mean more usable and understandable by and accessible to humans. In other words, a great leap beyond “user-friendly.”

The next five years will move us close to the place where we won't have to think about computers; they will simply be tools and appliances for dealing with our world.

By “humane,” we mean that computers in the next few years will be brought to bear on solving problems and addressing needs that transcend the world of business, the searches of science, and the demands of education. The emphasis will be on creativity at a personal level, extending our minds, enabling us to develop more interpersonal relationships and become key players in adding to the culture around us.

This will happen in large part because of the kinds of people who are involved in shaping the revolution. You will have the chance to meet a few of them in the pages of this book. You will be struck, as we were, by the fact that most of them are not engineers and hobbyists designing gadgets for the admiration of their

fellow engineers and hobbyists. They are multifaceted, multi-talented people with strange amalgams of backgrounds. Deep interests in philosophy, religion, music, and art permeate their lives. Technology is not their *raison d'être* but rather one of several focal points in their filled and fulfilled lives.

For Whom It Was Written

Silicon Visions: The Future of Microcomputer Technology is aimed, in a general sense, at intelligent readers who have little or no background in high technology but are curious about microcomputers and how they are going to affect their lives.

More specifically, we have tried to provide direct advice, guidance, and interpretation of these events for three types of people:

- those making *career decisions*, either about what to study in college or how to shift a stagnating career in midlife;
- those making *investment decisions* who want to be sure they have taken into account the major, visible near-term trends in high technology;
- those making *management decisions* about how their companies are going to assimilate, respond to, and capitalize on these advances.

(To the career-minded, incidentally, we have a word of caution: The era of the multicareered life has arrived. Most people in the next decade will not go through their lives in one profession or occupation; as things change, so will their jobs. The emphasis is thus on being prepared for change more than on acquiring specific job skills.)

In each case, the ground-floor opportunities, challenges, and prospects for the rest of the 1980's are presented, discussed, and analyzed briefly to enable the reader to answer the question: "What does all of this mean to me?"

How the Book is Organized

The book is divided into two major sections, each of which is further divided into chapters. Each chapter includes a main essay and a collection of "profiles." The profiles are optional reading. Some describe in detail specific people and products, enabling the interested reader to get a more in-depth appreciation for the people who are forging the next phase of the electronics revolution and the products they are using to do so. Some profiles are tutorial in nature. If you encounter a new idea or concept in the main essay, you will often find a reference to a profile that will clarify its meaning for you.

The world of the electronics revolution does not lend itself easily to convenient compartmentalization; an intimate relationship binds the pieces together. We will, for example, discuss AI and expert systems separate from hardware and memory advances, but the two are inextricably linked to one another. How we organize our thinking about them is inevitably artificial. Nonetheless, some organizational scheme must be imposed. The one chosen interferes little with the process of reading and assimilating the information in the pages of the book.

The Proof

Our belief that the next few years will see advances destined to make microcomputers at once more human and more humane is borne out by evidence presented in the pages that follow.

It is supported by the emergence of products like Mind Reader, a word processor that tries to anticipate what we are going to type before we've even thought about it, making typing on a computer possible even for people who thought they'd never use a keyboard.

It is sustained by the development of expert system development tools that will ultimately put at everyone's disposal massive amounts of reliable data, organized, and accessible in such a way that we will all benefit from the brains and experience of a few.

It is encompassed by the emergence of on-line psychological counseling services available by computers using telephones, the creation of whole new towns built around the need for information

in our society, and by the introduction of electronic universities that permit us to enjoy a degree of freedom in education we never before thought possible.

It is perceptible in the stirrings of computer-generated music and art, including poetry.

It is found in the beginnings of a new sub-industry of speech and voice processing that will ultimately enable us to speak in plain English (or whatever our native tongue is!) to our computers and have them respond as if they were friends and collaborators.

And it is evidenced in the development and publication of computer programs that don't make demands and place expectations on us, but rather place those demands and expectations where they belong: on the computer.

The pages of this book will introduce you to products that exactly fit these descriptions—and to dozens of others that will intrigue, excite, provoke, and disquiet you.

The Revolutionaries

In its final assessment, *Silicon Visions: The Future of Micro-computer Technology* is ultimately about people. For it is people who make revolutions. Some of the products in this book will die premature deaths before the ink is dry on its pages. Others will undergo radical transformations and look entirely different from what we have predicted. But the people shaping them, whether or not the specific personalities will be the same, will continue to be the bold, aggressive, interesting, confident, and thought-provoking people you'll meet in these pages.

The other people this book is about are people like you, who read it, assimilate it, and make things happen for themselves and for others. To that end, let us begin to see if we can share a Silicon Vision together.

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