IBM Version

Using Microcomputers

Phyllis Yasuda • Vivian Frederick

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De Anza College

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Preface

PURPOSE

This text introduces the novice to fundamental software concepts and applications of microcomputer systems. Our primary goal is to teach students that computers are *fun:*

- Computers should not be feared.
- Computers are useful and enjoyable tools.

We have tried to write in a non-threatening and comprehensible manner. We avoid computer jargon and intimidating details. We believe that our style can help increase students' capacities to learn quickly and without fear.

We hope this book will help students gain the skills and confidence they need to use the microcomputer of their choice with ease and enjoyment.

SPECIAL FEATURES

Organization: Chapters and Modules

We have written two versions of our text. One version teaches the practical applications of the IBM PC. The other teaches the practical applications of the Apple (including Apple IIe, Apple IIc, and Apple II Plus). Part I is common to both versions of the text and introduces the fundamental concepts of computers such as the differences between hardware and software, the purposes of the different types of software packages, the importance of computers in the world of business, the selecting of software and microcomputer systems, ethical considerations, and much more.

Part II guides students through modules—practical computer applications using specific commercial software packages. Each module corresponds to its respectively numbered chapter in Part I, and

is specifically geared to each text version. Here students can apply what they learn in the conceptual chapters to a specific computer.

The IBM PC version provides hands-on experience with:

- WordStar
- PFS
- Lotus 1–2–3
- DOS
- BASIC
- Lotus Graph.

The Apple version covers:

- AppleWriter
- PFS
- VisiCalc
- DOS
- BASIC
- AppleWorks.

(Where instructions for the Apple II Plus microcomputer differ from the Apple IIe or IIc, the steps are highlighted in grey shading for easy recognizability.)

Structure of the Modules

The modules are designed for use in any order and require only the study and understanding of their respective chapters. Each module is comprised of worksheets, which include such topics as booting the software, editing, saving, and printing. Steps, instructions, and explanations are set in tabular form so each software package is easy to follow. In conjunction with "Reference Sheets" of commands, these tables provide students with the most organized method for quick, efficient learning.

DATA DISKS

Two different data disk packages are available for use with the modules in Part II: one disk for the IBM computer and two disks for the Apple computer.

The IBM version contains files that we have prepared to help students learn WordStar, Lotus 1–2–3, and the PFS family of software.

The Apple version contains files to help students learn AppleWriter IIe, PFS:FILE, VisiCalc, and AppleWorks.

These data disks are available through the publisher. Those interested should contact their local Benjamin/Cummings representative or contact the publisher directly at the following address:

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LEARNING AIDS

The text is designed to reduce confusion and to enhance rapid learning and understanding of microcomputer applications. Boxed articles, pertinent to each chapter, provide variety and spice to the pedagogical concepts. Black-and-white photographs make real the many concepts that are often difficult, abstract ideas. Terms are italicized for emphasis and are repeated in "Key Words" sections at the ends of chapters. As well, exercises, matching problems, crossword puzzles, and identifications conclude each chapter.

Throughout the modules, reproductions of screen images guide students every step of the way. These reproductions match the students' own screens as they work through the applications. "Reminders" and "Helpful Hints" are also interspersed to jog students' memories and serve as cautions.

Instructor's Guide

The instructor's guide contains suggestions for organizing the course, chapter-by-chapter teaching tips, solutions to questions and exercises, and a test bank.

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P. Yasuda
V. Frederick

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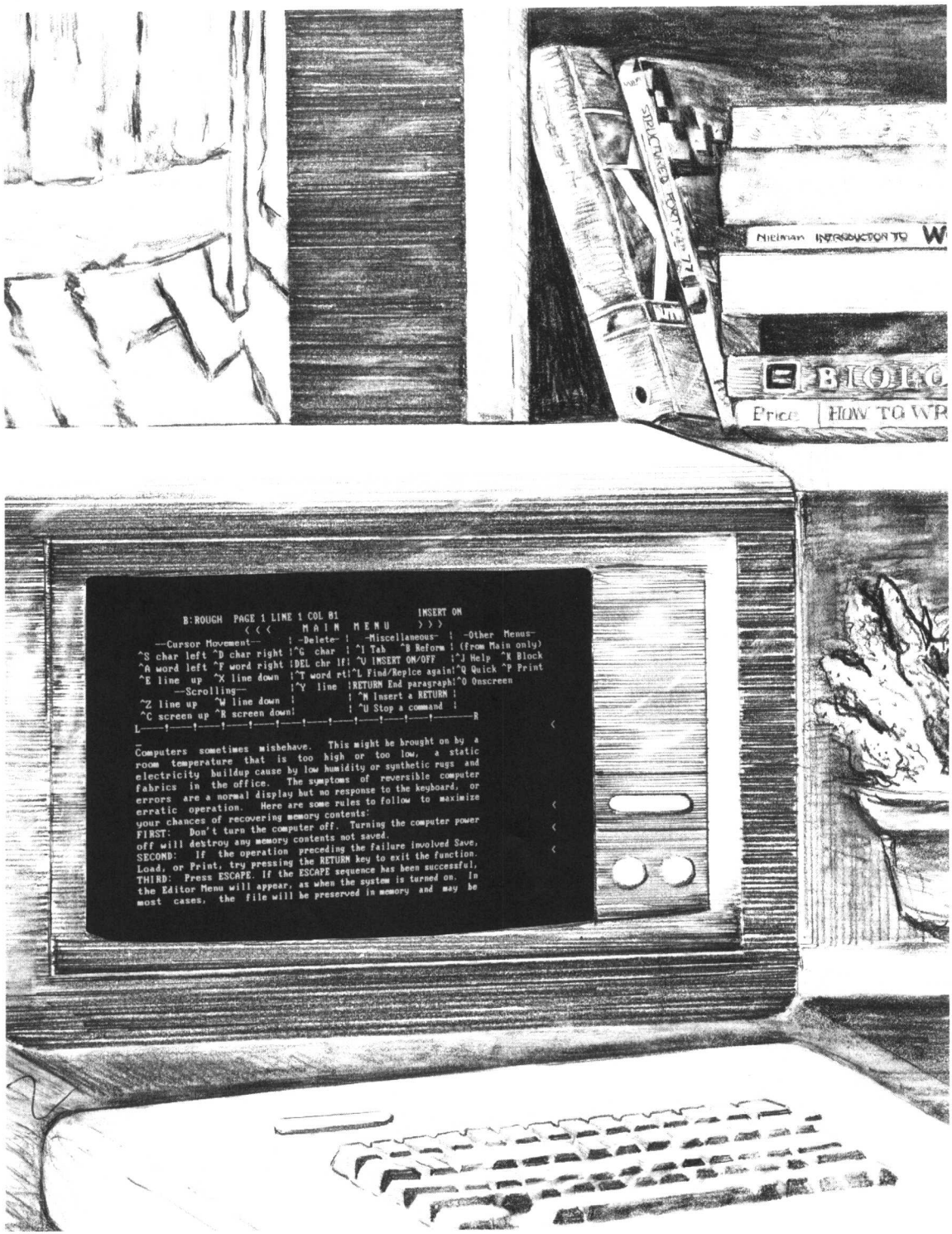
PART ONE

Getting to Know Your Microcomputer


B:ROUGH PAGE 1 LINE 1 COL 01 INSERT ON
MAIN MENU
--Cursor Movement-- -Delete- -Miscellaneous- -Other Menus-
^S char left ^D char right ^G char ^I Tab ^B Reform (from Main only)
^A word left ^F word right DEL chr lf ^V INSERT ON/OFF ^J Help ^K Block
^E line up ^X line down ^T word rt ^L Find/Replce again ^Q Quick ^P Print
--Scrolling-- ^Y line RETURN End paragraph ^O Onscreen
^Z line up ^W line down ^M Insert a RETURN
^C screen up ^R screen down ^U Stop a command
Computers sometimes misbehave. This might be brought on by a room temperature that is too high or too low, a static electricity buildup cause by low humidity or synthetic rugs and fabrics in the office. The symptoms of reversible computer errors are a normal display but no response to the keyboard, or erratic operation. Here are some rules to follow to maximize your chances of recovering memory contents:
FIRST: Don't turn the computer off. Turning the computer power off will destroy any memory contents not saved.
SECOND: If the operation preceding the failure involved Save, Load, or Print, try pressing the RETURN key to exit the function.
THIRD: Press ESCAPE. If the ESCAPE sequence has been successful, the Editor Menu will appear, as when the system is turned on. In most cases, the file will be preserved in memory and may be

CHAPTER ONE

Hardware and Software: The Nuts, Bolts, and Brains

Objectives

When you finish this chapter and the associated worksheet you will understand:

- **The difference between computer hardware and computer software.**
- **The components of a microcomputer system.**
- **The components of a microcomputer applications software package.**
- **How to start up a microcomputer system.**
- **How to use the keyboard of a microcomputer system.**
- **How to use a disk drive and a floppy disk.**
- **Precautions to observe when using a microcomputer system.**

Introduction

Why are so many people so excited about learning to use a microcomputer? A microcomputer is really nothing more than a machine made up of electronic and mechanical parts, designed to add convenience and enjoyment to our business and personal lives. That same statement also describes a refrigerator, telephone, typewriter, or stereo. They too are machines made up of electronic and mechanical parts, designed to add convenience and enjoyment to our business and personal lives.

What sets the microcomputer apart and imbues it with a glamour and mystique not associated with more mundane machines? We believe the answer relates to the concepts of diversity and control and to the perceived absence of limits associated with microcomputers.

The microcomputer is the first machine readily available to large segments of the public that can assume widely divergent roles depending on an individual's needs and interests. An author uses a microcomputer to produce a book or an article. A teacher uses a microcomputer to print class lists, calculate grades, or save test questions so they can be rewritten and used again. A student uses a microcomputer to prepare research papers or to learn new computing languages. A stockbroker uses a microcomputer to obtain current stock-price information. A financial planner uses a microcomputer to create budget forecasts. An artist uses a microcomputer to explore the world of shape and color. An accountant uses a microcomputer to automate tedious calculations. A musician uses a microcomputer to generate tones so technically perfect that they cannot be reproduced on conventional instruments. These are all examples of people using the microcomputer as a tool to increase their personal productivity. These people could conceivably be using identical microcomputers that have been especially configured to achieve their objectives or to solve their problems.

You may choose to ignore the microcomputer. You may also ignore the airplane, the space shuttle, the microwave oven, or any of hundreds of other technological advances—but you cannot escape them. The microcomputer is here to stay. When microcomputers were first introduced in 1977, it took Apple Computer 2½ years to sell 50,000 Apple II and II Plus computers. Later, when IBM entered the microcomputer market it took only 7 months to sell 50,000 IBM Personal Computers. Apple introduced the Macintosh computer in January 1984 and sold 50,000 "Macs" in only 74 days. Then in April 1984 Apple sold 50,000 Apple IIc computers in only 7½ hours during a well-orchestrated marketing extravaganza.

Ten years ago *microcomputer* was not listed in the dictionary. Today, even kindergarten and preschool students use and discuss mi-

crocomputers with assurance. The microcomputer has invaded every facet of our lives. In many cases it is unseen but helpful; in other cases it is highly visible and just as helpful. Some of the "hidden" computers we encounter every day are found in automobiles, cameras, and vending machines. More visible are automatic-teller machines at banks, video-game machines, special-purpose cash registers in department stores, word-processing machines in business offices, and personal desktop computers in homes and offices.

The Microcomputer System

A microcomputer system consists of electronic and mechanical devices that can be directed, or programmed, to react in various ways, depending upon the needs and desires of the users. The electronic and mechanical devices are known as the *hardware.* The directions that control the hardware are known as the *software.* Hardware and software working together make up the total *microcomputer system.*

Computer Software

A microcomputer system contains a device capable of recognizing and following instructions properly presented to it from an external source. A complete set of instructions, organized in such a manner as to solve a problem or achieve an objective, is called a computer *program.* Computer programs, the software that turns your microcomputer into a special-purpose tool, are called *applications software.*

In the early days of computing, applications software was generally tailor made for a computer by one or more craftspeople known as computer programmers. Every computer installation needed a team of computer programmers to create and maintain the applications software. In some large computing environments that still is true. But for today's growing number of home and small-business microcomputer users, a different method of creating and maintaining applications software has evolved. An independent software company will perceive a need for a special-purpose application (a word processor, perhaps) that can be marketed to the growing number of microcomputer users. The firm will design and develop the software for the application, tailoring it to one of the popular mass-marketed computers, and will then advertise and market the software package to individual purchasers.

Most applications-software packages consist of an attractive, eye-catching container holding an instruction manual and one or

What's Not So 'Neat' About Computers

You'd expect Steve Wozniak, a founder of Apple Computer, to be full of "neat" ideas for using computers, new ways no one else has thought of. It turns out the opposite is true.

"My thinking has been going into a computer-depression stage," he says. "If I'm right, a lot of computers will start being disused. We saw it with video games. For a couple of years, every family had to have them. You don't go to houses and see them being played anymore. Computers may be entering that stage. Nobody at Apple is going to like hearing that, but as a general device for everyone, computers have been oversold. Steve Jobs (the other founder of the computer giant) is going to kill me when he hears that."

Wozniak, the lover of computers, hasn't suddenly turned against them. He thinks computers are valuable when used to help increase productivity and reduce the number of worker-hours that go into building products. Computers make it easier for businesses to organize into departments and keep accurate records. Writers produce more and their work is more coherent; secretaries turn out cleaner documents. Engineers use them to run long, complex calculations. Computers are great for playing games. But beyond that, Wozniak has real problems seeing where computers are useful.

"Almost anybody in the computer business makes it sound like *all* computers are good for reasons that *some* computers are good," Wozniak says. "Computers are used today where they are not useful, and they cost resources instead of saving them. People believe that because computers do things differently, they do them better. It takes a few years of playing with them to find out that isn't true. The computer doesn't challenge most of the things that society has spent thousands of years building."

Here's a list of areas where Wozniak thinks computers have limited use.

- **Homes:** "The paper solution works fine at home," Wozniak says. "I was as efficient and productive when I had a typewriter."

By "paper solution," Wozniak means that he wonders why housewives would put recipes in a computer when file cards work fine. Why do people try to balance their checkbooks on a screen when the transaction records in every checkbook work as well, perhaps better? Why should people list airline schedules in their PCs when the numbers for schedule information are in the phone book? Why do people who write a dozen personal letters a year need a word processor capable of moving paragraphs around and a printer that costs $800?

"(It) turns out paper works just as well, and it costs less," Wozniak says. "I think computers will end up like high-end hi-fi's in the home. They'll be a show-off piece; people will impress their friends with what their computer can do."

- **Education:** Wozniak thinks that games that promote early cognitive development are exciting because games are "very motivating" to children. But he is less certain about the role computers will play in elementary schools.

"The use of computers in schools may peak soon unless they become much less expensive," Wozniak says. "Their value in school is still being weighed."

The Woz has firsthand knowledge about the value of computers in college. In 1981, he enrolled in computer science at Berkeley. He needed one more year of classes to get his degree. "It was the right thing to do at the time," he says. "Now I can tell my kids I've got a degree."

Wozniak took along an Apple computer, of course, and discovered that it hurt more than helped him.

"I spent a lot more time on my courses because I was trying to do all the neat things a computer can do—create a beautiful word-processed document, beautiful graphs, nice spreadsheet outputs," Wozniak says. "The computer cost me so much time. Everybody else went to bed at midnight and I was still working at 6 a.m. I spent all my time using the computer, not learning about the subject I was reporting on."

- **Engineering:** Wozniak points out that when he designed the Apple I and II, he didn't use a computer because he couldn't afford to rent time on an assembler to write code. Instead, he drew diagram after diagram, filled page after page with ones and zeroes.

"I learned you could be more efficient by hand," he says. "You are more motivated by being that much a part of the process."