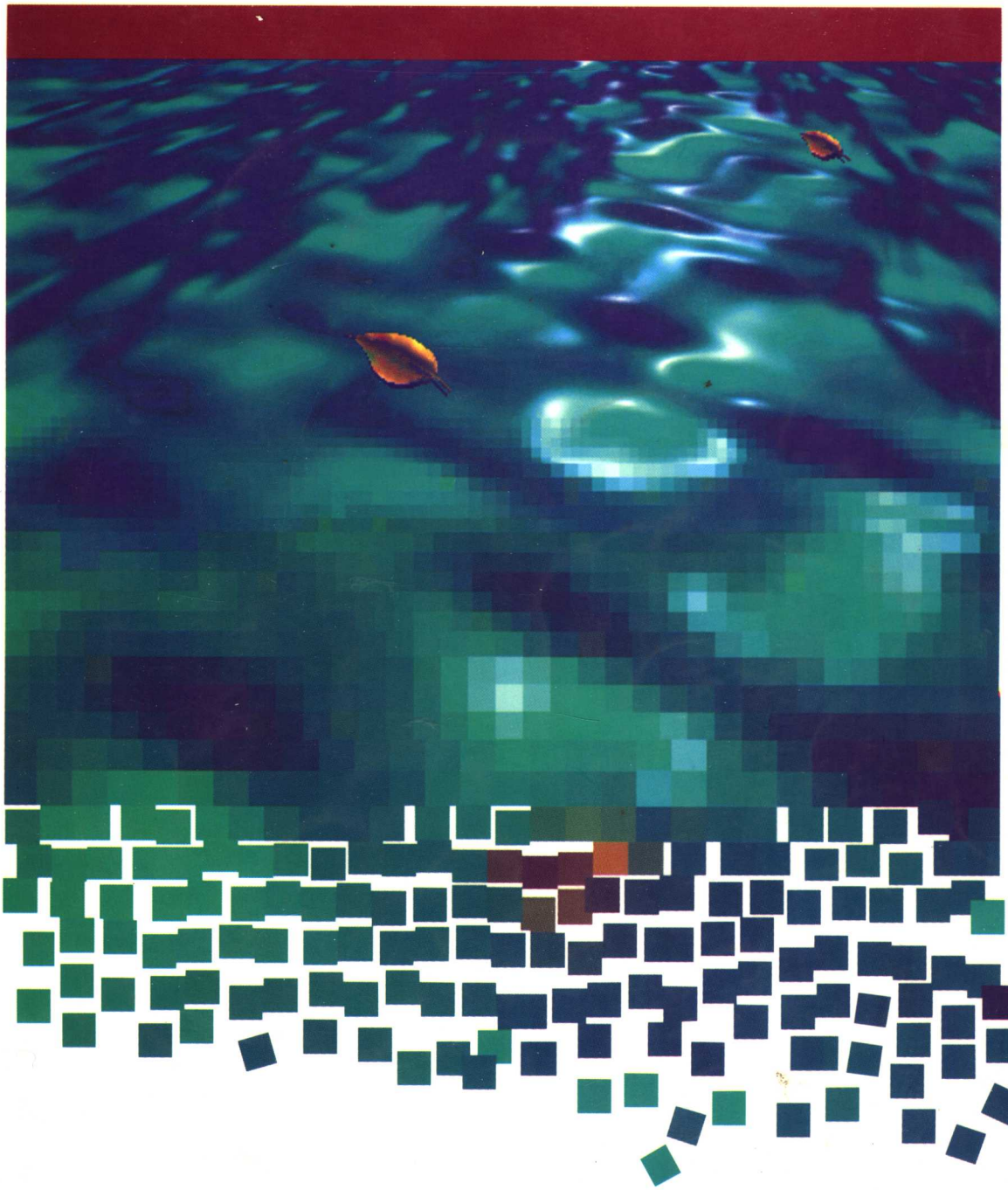
COMPUTER CURRENTS

Navigating Tomorrow's Technology

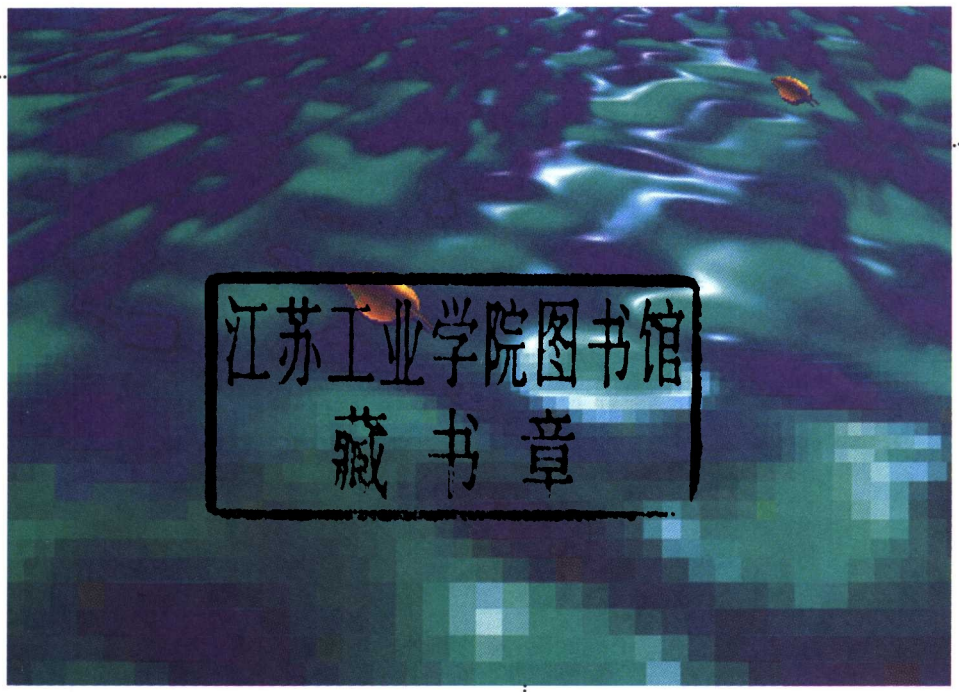


GEORGE BEEKMAN

COMPUTER CURRENTS

Navigating Tomorrow's Technology

GEORGE BEEKMAN



The Benjamin/Cummings Publishing Co., Inc.

Redwood City, California • Menlo Park, California
Reading, Massachusetts • New York • Don Mills, Ontario
Wokingham, U.K. • Amsterdam • Bonn
Singapore • Tokyo • Madrid • San Juan

Sponsoring Editor - **Maureen A. Allaire**
Senior Acquistions Editor - **Michelle Baxter**
Developmental Editor - **Jamie Spencer**
Production Editor - **Jean Lake**
Editorial Assistant - **MaryLynne Wrye**
Art and Design Manager - **Michele Carter**
Cover Art - **© Robert Stein**
Cover Designer - **Ark Stein**
Text Designer - **John Martucci**
Illustrations - **Illustrious, Inc.**
Photo Editors - **Cecilia Mills, Kelli d'Angona West**
Photo Researchers - **Sarah Bendersky, PhotoSynthesis**
Copy Editor - **Barbara Conway**
Desktop Composition - **Bookman Productions**
Film - **Color Tech**
Printing and Binding - **R. R. Donnelley & Sons Company**

Library of Congress Cataloging-in-Publication Data

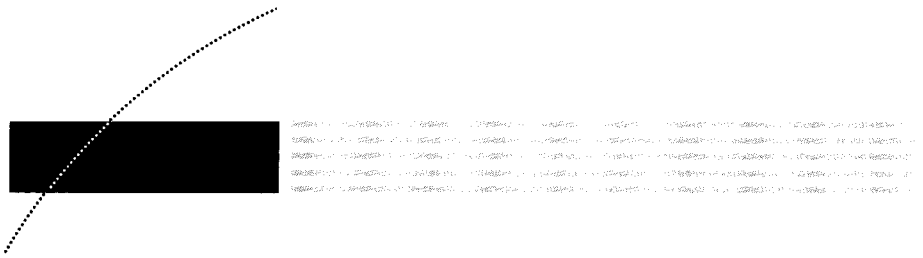
Beekman, George.
Computer currents / George Beekman.
p. cm.
Includes bibliographical references and index.
ISBN 0-8053-2448-8. — ISBN 0-8053-2454-2
1. Computers. 2. Computer software. I. Title.
QA76.5.B3653 1993
004—dc20

93-36698
CIP

SE ISBN 0-8053-2448-8
IE ISBN 0-8053-2454-2

2 3 4 5 6 7 8 9 10 - DO - 97 96 95 94

The Benjamin/Cummings Publishing Company, Inc.
390 Bridge Parkway
Redwood City, CA 94065



To my children, Ben and Johanna,
and to all children and young adults.

The promise of the future lies not in technology but in you.

Lead Your Students Into the Future With an Outstanding Instructional Support System

Instructor's Edition You'll have course and lecture organization at your fingertips with the instructor's version of the student text, written by George Beekman and Shelly Langman. In a special section found at the end of the book, this important resource includes teaching tips, teaching extras, in-class exercises, and answers to review and discussion questions. (32454-2)

Instructor's Manual Supplement your lecture material with this useful manual written by George Beekman and Shelly Langman that extends the information in both the text and the *Instructor's Edition* with behavioral objectives, chapter overview, key terms, outline, and transparency masters. (32452-6)

Printed Test Bank Written by Karen Forcht and George Beekman, the test bank contains approximately 1500 items, including multiple choice, true/false, matching, completion, and situational essay questions. (32457-7)

Electronic Transparencies Prepared by George Beekman, these innovative "animated" transparencies integrate information from the text into a format that you can manipulate, print as handouts, make into transparencies, or display directly from a computer for use in lectures. Available for the Macintosh (32462-3), IBM (32463-1), and PS/2 (32456-9).

Computerized Test Bank This software provides the same test items as the printed test bank and allows you to edit questions and generate multiple test forms. Available for the Macintosh (32458-5), IBM (32461-5), and PS/2 (32459-3).

Color Transparency Acetates This collection of full-color acetates provides you with excellent visual support in your lectures, bringing the art, diagrams, and application screens from the text to your classroom. (32449-6)

***How Computers Work* CD-ROM Package** Bring the exciting world of computers to life with this CD-ROM package for the Macintosh. For use in either lecture or lab, this completely interactive tool lets you expand on the text while examining the past, present, and future of desktop computing. This package also includes sample versions of popular software programs, an easy-to-use LOGO programming activity, an illustrated look at input and output, and more.

***ComputerWorks* CD-ROM or Software for the PC** Let your students explore the world of computers with this interactive package for the PC. Colorful animated graphics are combined with text to illustrate the inner workings of computer components, chart the evolution of computer technology, and examine related topics, such as artificial intelligence, virtual reality, and multimedia. *ComputerWorks* also features detailed lesson plans, challenging quizzes, and an advanced interactive interface that allows students to take notes on-line, export text and graphics, and print customized reports.

Videos Benjamin/Cummings offers videotapes from our library of commercially produced videos to qualified adopters. This valuable resource is an excellent way to

enhance your lectures. Contact your Benjamin/Cummings sales representative for details.

The Machine That Changed the World This award-winning PBS series highlights the 50-year revolution in computing and its profound and unexpected impact on society. The videos chart the course of information technology from data processing to personal computers to the world of virtual reality.

Annenberg Video Series Give your students a comprehensive overview of the computer with this excellent series. Dozens of computer experts, including Grace M. Hopper, Isaac Asimov, and Michael Crichton, place textbook knowledge in a real-world setting.

How Computers Work: A Journey Into the Walk-Through Computer™ An entertaining and educational trip through The Computer Museum's one-of-a-kind working model of a desktop computer.

State of the Art of Computer Animation This collection of computer animation shows works ranging from flights of fancy to realistic simulations to never-seen-before commercials.

University Gradebook A complete recordkeeping system available for the IBM PC and compatibles. (32268-X)

≡ The SELECT System for Custom Publishing

Create a text that fits your course needs exactly with the SELECT System, Benjamin/Cummings' innovative custom publishing program. With SELECT, you can build a custom edition of *Computer Currents* by combining the text with one or more hands-on application modules. Or you can combine the modules with each other to create a custom-bound lab manual.

Written for the beginning student, all of the application modules follow a consistent, pedagogically sound format. The modules include a brief introduction to key concepts plus six to nine increasingly challenging projects. Most modules are 128 to 180 pages in length. Modules for integrated packages are approximately 400 pages in length.

To better provide you with information about pricing, ISBN numbers, and ordering, Benjamin/Cummings offers the SELECT Hotline, a toll-free information line dedicated to answering your questions about custom publishing. Just call 800/854-2595 between 8:30 and 4:30 Pacific time.

≡ Lotus 1-2-3 Software

Teach your students the world's leading business productivity software with "Basic" Lotus 1-2-3 for Students. This affordably priced, fully functional application contains a full-sized spreadsheet and is compatible with the professional version of Lotus 1-2-3, Release 2.2.

Benjamin/Cummings also offers student edition software with tutorial guides for Lotus 1-2-3, Releases 2.2 and 2.3. If you would like more information, contact your local sales representative.

≡ The ATI *Teach Me* Tutorials for Hands-On Instruction

Imagine teaching Lotus 1-2-3, dBASE, or any other program without access to the software. American Training International's (ATI) unique *Teach Me* series helps your students learn popular software packages quickly, easily, and effectively. Created by an educator, this affordable series provides computer-based training in a pedagogical framework that reinforces learning with review material, objectives, and immediate feedback. Offered exclusively from Benjamin/Cummings, this outstanding tutorial software features self-contained training programs, split-screen tutorials, and self-paced learning.

ATI's broad spectrum of training programs provides the latest versions of popular software packages such as dBASE IV Version 1.5, Lotus 1-2-3, Releases 2.2 and 2.4, WordPerfect 5.1, Windows 3.1, and MS DOS 5.0. Programs are available individually for complete instruction in a package or in a multipack that offers broad coverage for survey classes.

For more information and a complete list of the packages available, please contact your Benjamin/Cummings sales representative or call 800/552-2499.

Even if you're on the right track, you'll get run over if you just sit on it.

—— *Pat Koppman*

In the world of computers and information technology, it sometimes seems like change is the only constant. Every day brings news of smaller computers, faster processors, larger networks, and smarter software. And as we think up new ways to put computer technology to work, our world becomes evermore computerized. In less than a human lifetime, the computer has transformed virtually every facet of our society—and the transformation is just beginning. The pace of the computer revolution has become so explosive that farfetched predictions routinely come true.

This headlong rush into the high-tech future poses a formidable challenge to educators: How do we provide timely information on a subject about which last year's news seems antiquated? How can we be sure that a freshman-level Introduction to Computers class won't seem like a History of Computers class by the time those freshmen graduate? How do we design courses that provide students with practical, expansive, lasting knowledge about computers and information technology?

It's no longer enough to teach students the fundamentals of programming in assembly language or BASIC and call them "computer literate." Nor can we assume that students who know WordStar and VisiCalc keystrokes are properly equipped to survive and prosper in the computer age. In fact, any hands-on experience is likely to have a short shelf life unless it's accompanied by material that provides a broader context.

Computer Currents presents computers and information technology on three levels:

- Explanations: *Computer Currents* clearly explains what a computer is and what it can (and can't) do.
- Applications: *Computer Currents* clearly illustrates how computers can be used as practical tools to accomplish a wide variety of tasks and solve a wide variety of problems.
- Implications: *Computer Currents* puts computers in a human context, illustrating how computers affect our lives, our world, and our future.

Who Is This Book For?

Computer Currents: Navigating Tomorrow's Technology is especially written for the introductory computer class for college freshmen, majors and nonmajors. A growing number of computer science departments are developing courses for nonmajors. Business departments are increasingly finding that their introductory computing classes are popular with majors and nonmajors alike. *Computer Currents: Navigating Tomorrow's Technology* is designed for these classes.

Most introductory computer courses are divided into lecture and lab sections. In some courses the labs cover computer applications like Microsoft Excel, WordPerfect, and LotusWorks; in others the labs cover programming with BASIC, Pascal, or HyperCard; still others cover both. Since this book focuses on the concepts covered in lecture, it can be used in any of these classes. There are dozens of books covering applications and programming languages that can be used for the lab segment of this course. The Benjamin/Cummings SELECT System includes hands-on modules covering many of the most popular applications and programming languages. These modules may be purchased separately or bound together with *Computer Currents* in a custom book.

Computer Currents: Navigating Tomorrow's Technology is also ideal for many introductory computer science classes, discipline-specific computer courses offered through other departments, high school courses, and adult education courses.

How Is This Book Different?

Computer Currents: Navigating Tomorrow's Technology is designed for the 90s.

- *Rather than dwelling on technical details, it concentrates on big ideas and significant trends in the world of computing.* This book applies a journalistic writing style to the textbook form; the result is a book that's fun to read, easy to understand, and valuable as a reference and study aid.
- *It is modular, so students can read what they need.* No two classes are the same, and this book can be used in many different kinds of courses. Chapters are relatively short and, for the most part, self-contained, so students don't need to read every chapter to learn what they need to know.
- *It doesn't dwell on button pushing. Computer Currents* is designed to provide background and breadth for students who are getting hands-on experience with other books and software packages. It deals with what and why; students can learn how in the computer labs.
- *It brings applications down to earth.* Instead of just describing computer applications in abstract paragraphs laced with technical terminology, this book balances concepts with "User's View" boxes that give students a feel for what it's like to put those applications to work.
- *It doesn't just talk about current computers, it discusses computer currents.* Even if students are working with character-based software in the labs today, they're likely to graduate into a world filled with graphical computer displays. Computing a decade from now may progress far beyond windows, icons, and mice. *Computer Currents* focuses on today's state-of-the-art graphical software for most examples, suggesting trends that are likely to lead to the next generation of applications and interfaces. While *Computer Currents* emphasizes the emerging de facto GUI standard, it doesn't ignore MS-DOS, UNIX, and other traditionally nongraphical environments.
- *It stresses the human side of computing. Computer Currents* isn't just for computer science and business majors; it's for students whose lives will be affected by computer technology. It provides clear, nontechnical answers to the questions, "What can (and can't) computers do?" and "How do they affect my life and my future?" *Computer Currents* deals with subjects ranging from databases and networks to multimedia and artificial intelligence, from a human perspective; students who read it have clear answers to the question, "How does this technology affect me?"
- *It looks at the positive and the negative aspects of the computer culture.* The computer is changing human lives and societies for better and for worse; this book deals clearly and concisely with ethical, social, and psychological issues of the computer age. The computer is always the central focus; issues surrounding computer use and abuse are raised to provide a broader perspective.

How Are Chapters Organized?

The book consists of 14 chapters organized into four broad sections:

1. *Approaching Computers: Hardware and Software Fundamentals*
2. *Using Computers: Essential Applications*
3. *Mastering Computers: From Applications to Intelligence*
4. *Living with Computers: Into the Information Age*

Part 1 provides the basics: a brief historical perspective, a nontechnical discussion of computer basics, and an overview of hardware and software options. These chapters quickly introduce key concepts that recur throughout the book, putting the student on a solid framework for understanding future chapters. Part 2 covers the most important and widely used computer applications, including word processing, spreadsheets, databases, and telecommunication. These applications, like those in Part 3, are presented in terms of concepts and trends rather than keystrokes. Part 3 explores more exotic applications and programming tools, ranging from graphics and interactive multimedia to artificial intelligence and robotics. Part 4 explores the far-reaching impact of computers on our work, our homes, our society, and our future. Throughout these four parts the book's focus gradually flows from the concrete to the controversial and from the present to the future.

Individual chapters have a similarly expanding focus. After a brief introduction, each chapter flows from concrete concepts that provide grounding for beginners toward abstract, future-oriented questions and ideas. Chapters are relatively short and nontechnical so they can be read quickly. Key terms are highlighted in boldface type for quick reference; secondary terms are italicized. All important terms are defined in context and in a glossary at the end of the text. Each chapter begins with a list of objectives and ends with a chapter summary; a list of key terms; collections of review questions, discussion questions, and projects; and an annotated list of sources and resources for students who want more information or intellectual stimulation.

Throughout *Computer Currents* special focus boxes complement the text:

- *Human Connection* boxes at the beginning of each chapter feature micro-stories of personalities who made an impact on the world of computing, and in some cases, people whose lives were transformed by computers and information technology. These short stories, along with other futuristic stories in the book, convey important concepts in an entertaining way.
- *User's View* boxes show the reader, through screens and text, what it's like to work with selected computer applications without getting bogged down in the details of button pushing. Most of the featured applications are available on both IBM-compatible and Macintosh platforms.
- *Rules of Thumb* boxes provide practical, nontechnical tips for avoiding the pitfalls and problems created by computer technology. How can you use graphics effectively and tastefully in a computer document? How can you minimize the health hazards of extended computer use? How can you protect your data from viruses and other software risks? How can you guard your personal privacy against intrusive databases? These are the types of questions that are answered in Rules of Thumb boxes.

A Word to the Student

If you're like most students, you aren't taking this course to *read* about computers—you want to *use* them. That's sensible. You can't really understand computers without some hands-on experience, and you'll be able to apply your computer skills to a wide variety of future projects.

But it's a mistake to think that you're computer savvy just because you can use a PC to write term papers and draw pie charts. It's important to understand how people use and abuse computer technology, because that technology has a powerful and growing impact on your life. (If you can't imagine how your life would be different without computers, read the vignette called "Living Without Computers" in Chapter 1.) Even if you have lots of computer experience, future trends are almost certain to make much of that experience obsolete—probably sooner than you think. In the next few years computers are likely to take on entirely new forms and roles because of

breakthroughs in artificial intelligence, voice recognition, virtual reality, interactive multimedia, hypermedia, wireless communication, networking, and cross-breeding with telephone and home entertainment technologies. If your knowledge of computers stops with a handful of PC applications, you may be standing still while the world changes around you.

When you're cascading through white water, you need to be able to use a paddle, but it's also important to know how to read a map, a compass, and the river. *Computer Currents: Navigating Tomorrow's Technology* is designed to serve as a map, compass, and book of river lore to help you ride the information waves into the future.

Computer Currents will help you understand the important trends that will change the way you work with computers and the way computers work for you. This book discusses the promise and the problems of computer technology without overwhelming you with technobabble.

Computer Currents is intentionally nontechnical and down-to-earth. Occasional ministories bring concepts and speculations to life. User's View boxes show you what it's like to be in the driver's seat with some of the most powerful and popular software on the market today. Rules of Thumb boxes provide practical survival tips for the computer age. Illustrations and photos make abstract concepts concrete. Quotes add thought-provoking and humorous seasoning.

Whether you're a hard-core hacker or a confirmed computerphobe, there's something for you in *Computer Currents.* Dive in!

Rules of Thumb

Navigating *Computer Currents*

Here are a few pointers to aid you on your journey through *Computer Currents:*

- **Don't try to memorize every term the first time through.** Computer jargon can be overwhelming if you tackle it all at once. Throughout the text, key terms are introduced in boldface and secondary terms are italicized. Use the Key Terms list at the end of each chapter to review and the glossary to recall any forgotten terms.
- **Read it and read it again.** If possible, read each chapter twice: once for the big ideas and the second time for more detailed understanding. You may also find it helpful to survey each chapter's outline in the table of contents before reading the chapter for the first time.
- **Don't get stuck.** If a concept seems unclear on the first reading, make a note and move on. Sometimes ideas make more sense after you've seen the bigger picture. If you still don't understand the second time through, ask questions.
- **Don't overanalyze examples.** This book is designed to help you understand concepts, not memorize keystrokes. You can learn the nuts and bolts of working with computers in labs.
- **Get your hands dirty.** If possible, try the applications while you're reading about them. When you read about word processing in *Computer Currents,* get some firsthand word processing experience. Your reading and your lab work will reinforce each other and help solidify your newfound knowledge.
- **Remember that there's more than one way to accomplish something with a computer.** The examples in this text may not match the applications you learn in your lab, but the concepts are similar.
- **Study together.** There's plenty to discuss here, and discussion is a great way to learn.

ACKNOWLEDGMENTS

Writing a book requires countless hours of working alone, but it isn't just solo work. This book is undeniably a team effort. I've been fortunate to work with a wonderful team of editors and other professionals at Benjamin/Cummings—hard-working, talented people who helped turn my rough manuscript into the book you now hold in your hands. Their names may not be on the cover, but their high-quality work shows on every page. I'm delighted to have the opportunity to publicly thank them for their invaluable contributions. Throughout the project, I worked most closely with Jamie Spencer, the developmental editor who helped turn my ramblings into civilized prose. Jamie and I worked closely with Michelle Baxter and Maureen Allaire, two editors whose shared courage and vision helped make *Computer Currents* a book for the future rather than a remake of past successes. Jean Lake skillfully manuevered thousands of details through the production process. Barbara Conway's copy editing proved once again that automated spelling and style checkers are no substitute for a highly skilled human professional. The outstanding photos are here thanks to the work of a team of top-notch photo editors headed by Cecilia Mills and Kelli d'Angona West. Michele Carter's eye was central to the art and graphic design of the book. Ari Davidow and Craig Johnson wrestled with the myriad of technical issues related to the project. Shelly Langman did outstanding work on the Instructor's Manual and other ancillary materials. Kathy Galinac, May Woo, and MaryLynne Wrye handled tasks too numerous to mention. Dozens of others at B/C helped with this book. They've all been a joy to work with, and I thank them again.

There are others who contributed to *Computer Currents* in all kinds of ways, including critiquing chapters, testing programs, answering technical questions, providing equipment, tracking down obscure references, guiding me through difficult decisions, and being there when I needed support. There's no room here to detail their contributions, but I want to thank the people who gave time, energy, talent, and support during the years that this book was under development: Rajeev Pandey, Clay Cowgill, Dave Stuve, Marilyn Wallace, Michael Johnson, Walter Rudd, Bob Broeg, Eric Johnson, Kevin Djang, Karen Meyer-Arendt, Alice Trinka, Paul Ritter, Jeanne Holmes, Shawn Larson, Robert Baldwin, Lentil Bean, Bruce D'Ambrosio, Scott Anderson, Chris Kempke, John Donel, Phil Brown, Cherie Taylor, Pat Anderson, Don Abbott, Lori Maliszweski, Claudette Hastie-Baehrs, Shjoobedebop, SMILE, and the hardworking computer science office staff. Thanks to the dozens of CS 101 students who provided me with feedback on the manuscript in progress, especially Lori Carlson, Scott Paulson, Kevin Hamilton, Susan Carney, Mario Magana, Andrea Baker, Sum Yee Lai, Ann Goldsborough, Matt Killinger, and Cathy Helvin. Thanks also to the people at Apple, IBM, NCR, and all the other hardware and software companies whose cooperation made my work easier. And most of all, thanks to Susan, Ben, and Johanna, whose patience, support, and love inspired me to carry this project through to completion.

REVIEWERS

Virginia T. Anderson
University of North Dakota
Grand Forks, North Dakota

Michael H. Boster
University of Texas at Brownsville
Brownsville, Texas

Doris M. Carey
University of Colorado at Colorado Springs
Colorado Springs, Colorado

Lillian Cassel
Villanova University
Villanova, Pennsylvania

John Da Ponte
Southern Connecticut State University
New Haven, Connecticut

Philip East
University of Northern Iowa
Cedar Falls, Iowa

Doris Edwards
National Education Center
Sacramento, California

Donna J. Ehrhart
Genessee Community College
Batavia, New York

Karen A. Forcht
James Madison University
Harrisonburg, Virginia

Jeff Frates
Los Medanos College
Pittsburg, California

Kevin M. Gleason
Mount Ida College
Newton Centre, Massachusetts

Elaine Haight
Foothill Community College
Los Altos Hills, California

Cindy Meyer Hanchey
Oklahoma Baptist University
Shawnee, Oklahoma

Gerald M. Haskins
University of Florida
Gainesville, Florida

R. Wayne Headrick
New Mexico State University
Las Cruces, New Mexico

Walter Roy Hill
Cardinal Stritch College
Milwaukee, Wisconsin

H. Joel Jeffrey
Northern Illinois University
De Kalb, Illinois

Wallace Jewell
Edinboro University of Pennsylvania
Edinboro, Pennsylvania

Suzanne M. Lea
University of North Carolina at Greensboro
Greensboro, North Carolina

Barbara Maccarone
North Shore Community College
Danvers, Massachusetts

Margaret Miller
Skyline Community College
San Bruno, California

James R. F. Quirk
Kentucky Wesleyan College
Owensboro, Kentucky

Chuck Riden
Arizona State University
Tempe, Arizona

Jane M. Ritter
University of Oregon
Eugene, Oregon

Dana S. Roberson
Community College of Southern Nevada
Las Vegas, Nevada

Richard St. Andre
Central Michigan University
Mount Pleasant, Michigan

Richard Spool
Massachusetts Bay Community College
Wellesley, Massachusetts

John C. Stevens
University of Scranton
Scranton, Pennsylvania

John W. Telford
Salem State College
Salem, Massachusetts

George Upchurch
Carson-Newman College
Jefferson City, Tennessee

Santosh Venkatraman
Northeast Louisiana University
Monroe, Louisiana

Jon D. Weerts
Triton College
River Grove, Illinois

Linda Werner
University of California—Santa Cruz
Santa Cruz, California

Robert E. Wood
Drake University
Des Moines, Iowa

The SELECT System

The Benjamin/Cummings SELECT System delivers high-quality computer concepts in texts and applications modules with flexible formats. With SELECT, you can create a text customized for the course you teach. And since 1992, SELECT has been the right solution for hundreds of institutions.

A Text with Concepts and Customized Application Coverage

With the SELECT System, you can combine *Computer Currents* with your choice of hands-on applications modules. The modules you select are bound with *Computer Currents* into one convenient, durable text. Modules are also available separately. We offer the following selection of modules:

Operating Systems	DOS 6.0 and Windows 3.1 (180 pages) DOS 5.0 and Windows 3.1 (174 pages) DOS 3.3 and Windows 3.0 (128 pages)
Word Processing	WordPerfect 5.2 for Windows (128 pages) WordPerfect 6.0 (144 pages) WordPerfect 5.1 (128 pages)
Spreadsheets	Lotus 1-2-3, Release 2.2 (144 pages) Lotus 1-2-3, Release 2.3/2.4 (176 pages) Excel 4.0 for Windows (144 pages) Excel 3.0 for PCs (160 pages) Quattro Pro 4.0/5.0 (144 pages) Quattro Pro for Windows 1.0/5.0 (144 pages)
Databases	Paradox for Windows (144 pages) Paradox 3.5 (170 pages) dBASE IV (182 pages) dBASE III PLUS (138 pages)
Integrated Packages	Microsoft Works 3.0 for PCs (450 pages) Microsoft Works 2.0 for PCs (450 pages)
Programming Languages	Structured BASIC (96 pages) QBasic (128 pages)

Each module is written by experienced authors and instructors and follows a consistent, pedagogically sound format. The authors were assisted by an experienced team of professionals, including developmental editors, reviewers, technical editors, and copy editors. The modules begin with basic concepts such as using the program, getting help, and an explanation of the conventions used in the modules. Students learn how to use the software by solving problems in increasingly challenging projects.

These projects, based on general-interest examples and business documents, are the core of the student's learning process. Students are challenged to learn the concepts behind the keystrokes as they work through the projects.

Each project includes objectives, keystroke instructions, screen captures, and check documents; and each ends with a summary, a list of key terms, and review exercises. Each module concludes with a command reference, an extensive glossary, and an index. The modules are intended for the first time computer user and contain selected advanced topics for the more experienced student.

Advantages of the SELECT System

The SELECT System brings you and your students many advantages:

- **Flexibility.** You can adapt your textbook to your curriculum by choosing any combination of the modules you prefer. And if your course should change next term, you can choose a new selection of modules to meet your new course needs. Benjamin/Cummings will introduce additional modules that cover new and upgraded software and programming applications. For 1994, we will introduce a series of modules covering Windows applications. If we don't currently publish modules for the specific software packages you teach, please contact your Benjamin/Cummings sales representative or call the SELECT System Hotline at 800/854-2595. We will be happy to work with you to address your textbook requirements.
- **Convenience.** The SELECT System gives you computer concepts plus the exact lab coverage you want all in one text and from one publisher. And with our low minimum order policy, SELECT can be the right solution for almost every course. Also, your students will like the ease of carrying only one text to both lecture and lab.
- **Affordability.** Each module is individually priced. Because you select just those modules you plan to teach, your students pay only for what they need. And because we offer the text and modules bound into one volume, students don't pay higher prices for costly binders and packaging.
- **Improved Instructional Package.** With computers so much a part of our daily lives, your students deserve the best preparation possible. The SELECT System and *Computer Currents* give you up-to-date coverage of computer concepts, pedagogically consistent, customized lab instruction; and the most complete instructional support available.

In addition to the complete instructional support package for the *Computer Currents* textbook, qualified adopters can order an individual *Instructor's Manual with Tests and Transparency Masters* for each module. The study questions in the modules can serve as a Student Study Guide if you provide your students with the answer key from the Instructor's Manual. Also available to module adopters is the *Instructor's Data Disk,* containing electronic files, selected answers and projects, and student data files.

Complimentary Review Copies

Benjamin/Cummings prepared the following materials for review and adoption consideration:

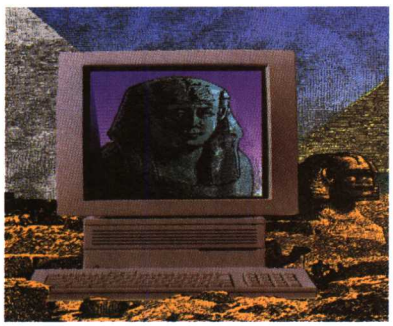
- **The Instructor's Edition of *Computer Currents.*** This edition contains the complete contents of the student text plus a 64-page, bound-in guide with various teaching materials to support instruction.

- **The Applications Modules.** The modules are bound separately as a sample for your review. Once adopted, the modules you have selected will be bound with *Computer Currents.* The *Instructor's Manual with Tests and Transparency Masters* are also available for review purposes.

Ordering and Pricing Information

Your Benjamin/Cummings representative will be happy to provide you and your bookstore manager with information about ordering, pricing, and delivery. You may also call the SELECT System Hotline at 800/854-2595 if you have questions or need complimentary review or desk copies.

Brief Table of Contents



PART ONE

Approaching Computers

Hardware and Software Fundamentals 1

PART TWO

Using Computers

Essential Applications 61