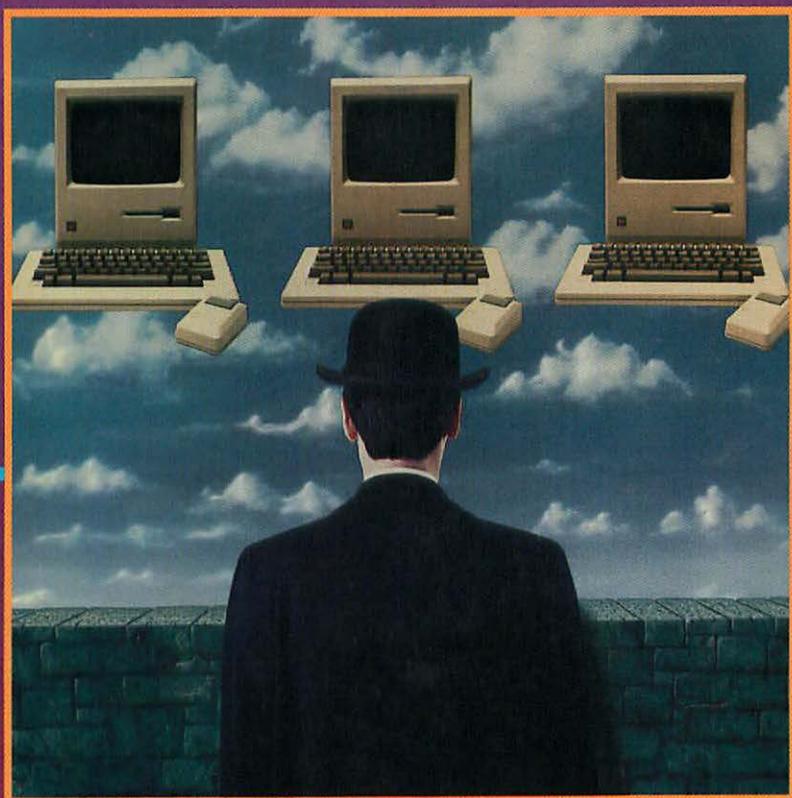


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Macintosh Library

MacBook

*The Indispensable Guide to
Macintosh™ Hardware and Software*



A r t h u r N a i m a n

1495

MacBook

The Indispensible Guide to
Macintosh™ Software and Hardware

Arthur Naiman



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Because a major purpose of this book is to comment on and criticize hardware and software products, many such products are identified by their tradenames. In most—if not all—cases, these designations are claimed as legally protected trademarks by the companies which make the products. It is not our intent to use any of these names generically, and the reader is cautioned to investigate a claimed trademark before using it for any purpose except to refer to the product to which it is attached.

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**For
Ira Rosenberg
who is kind and brave**

I am grateful to Ira Rosenberg for his help in getting the book published. He has been a great help in many ways, and I hope that his help will be of some use to you. I have also been helped by many other people, and I hope that their help will be of some use to you.

Ira's help was invaluable in getting the book published. He has been a great help in many ways, and I hope that his help will be of some use to you. I have also been helped by many other people, and I hope that their help will be of some use to you.

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Acknowledgements

In the interest of keeping the dedication short and sweet, I only mentioned two of Ira Rosenberg's many virtues. Here I have more room, so I'll tell you that in addition to being kind and brave, he's incredibly bright, astonishingly perceptive, extraordinarily loyal, delightfully witty, preternaturally articulate, enormously well read, and plays a mean jazz piano. He's also one of the few people I've met who I'd call wise.

Ira's help was invaluable in writing this (and other) books, and in many other ways as well. I consider myself lucky to have him as a friend.

Gloria Zarifa played a major role in keeping me sane—or some approximation thereof—during what was a very difficult project. Esther Wanning worked harder than she should have had to, and maintained her usual good judgment and insight throughout. Lila (a.k.a. Xenia) Lisanevich performed innumerable tasks with maximum efficiency.

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Jon Naumann and Burt Ferguson kept my Mac running (quite a chore, as it turned out) while I was writing this book, and gave me the kind of prompt, skilled service I'd always dreamed of. Eric Alderman, Kevin Layer, Scot Kamins and particularly Paul Hoffman and Steve Rosenthal answered a slew of technical questions. I also learned a lot about the Mac from articles by Lon Poole, Andy Hertzfeld, Andrew Fluegelman, Doug Clapp, Pat Ryall, Rick Barron, Daniel Farber and other writers in *Macworld*, *St. Mac* and *Club Mac News*.

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Introduction

MacBook has two uses:

- if you're thinking about buying a Mac, it will give you the facts you need to make an intelligent decision.
- if you already own a Mac, it will help you get the most out of it.

When I first decided to do this book, I planned it as a somewhat detached look at a rather interesting computer. But by the time I actually began writing it, I'd had a Mac for six months and was more enthusiastic about it than about any other computer I've ever used.

Because I like the Mac so much, I've tried to learn all I can about it; as a result, there isn't a chapter in this book that doesn't beg to be expanded into a book of its own. In deciding what to include and what to leave out, my guiding principle has been to make *MacBook* as useful as possible, with a particular emphasis on information that's hard to find elsewhere.

For example, I don't see any point in duplicating the step-by-step guide to using the Mac's basic software that's already in the Mac's own manual—though I do present a very thorough overview of how that software works and what's special about it.

To keep this book as up-to-date as possible, I've tried to stay away from information that changes rapidly, like prices. When I do mention prices, it's just to give you a rough idea of how much a particular kind of product costs. Prices are as of early 1985 and are rounded off. (Like any honest, red-blooded American, I despise \$95, \$.95 and similar nonsense at the end of prices.)

Designed to Be a Handbook

Leaving out relatively useless stuff gives me room to discuss the vast multitude of things that haven't been adequately covered in any other book or manual I've seen. There are dozens of little tricks and shortcuts that can make the difference between frustration and ecstasy on the Mac; they're all in here, systematically organized to make them as accessible as possible.

For example, the Mac provides a whole slew of symbols and other special characters. Most books and magazines show you a keyboard with these symbols printed on the keys, as if you were going to learn to touch-type them. You can spend forever trying to find the one you're looking for; after all, if you knew where it was on the keyboard, you wouldn't need the chart in the first place.

Instead, I group special characters into logical categories—foreign letters, accent marks and punctuation marks; legal symbols; monetary symbols; mathematical symbols; and so on. This makes it easy to find the information you need. I know, because I've got Reference Card #5 (from Appendix A) up on my wall, and I refer to it all the time.

In addition to organizing things logically, I've made a real effort to digest information, to give it to you in its most usable form—in tables, lists, charts and the like. Appendix A provides the most important of these, one to a page, so you can photocopy them and put them near your computer for easy reference.

I've also provided six little symbols ("icons") that appear in the margins; they make it easier to skim back over the text and find the information you're looking for. (I'll describe these margin icons in a moment.)

In other words, I've worked very hard to make sure everything in this book is genuinely useful. *MacBook* is very much a handbook, a reference you can come back to again and again.

Written Like a Real Book, Not a Computer Book

That all may sound pretty obsessive and dull, but I don't think you'll find *MacBook* boring. I'm a writer first and a computer expert second. As far as I'm concerned, it's no fun to write a book that isn't fun to read.

One thing that makes most computer books so bland is the total absence of negative comments. As the author of a regular column called *The Sleaze Patrol* (whose mission is to "expose to the searing light of day those who seek to dishonor and debase our beloved microcomputer community"), I obviously take a different approach. I have a lot of opinions and I express them—how shall I put it?—vividly. When Apple (or anybody else) screws up, I tell you about it.

The Mac Is Visual and So Is *MacBook*

MacBook contains many photographs, pictures of the screen, and other illustrations. And in the margins are icons that key in to the text and highlight interesting and important points.

The six margin icons used in *MacBook* are:

- Bargains (the software and hardware that give you the most value for your money)



BARGAIN



IMPORTANT
WARNING

- Important warnings



VERY GOOD
FEATURE

- Very good features (of hardware and software, whether from Apple or from other companies)



VERY BAD
FEATURE

- Very bad features



HOT TIP

- Hot tips (tricks that make using the Mac easier, other than warnings)



GOSSIP/
TRIVIA

- Gossip/trivia (not useful, but fun)

A Special Emphasis on Fonts and Typography

Although the ability to see hundreds of different fonts (typefaces) on the screen, each in hundreds of size and style combinations, is one of the Mac's most exciting and useful features, it isn't normally given the attention it deserves. In this book, it is.

A whole section of *MacBook* is devoted to fonts and special characters, and Appendix B lists almost two hundred fonts that are currently available from Apple and from other companies, organized into categories.

How *MacBook* Is Organized

Well, that's what's in the book—now let me tell you how to find it. *MacBook* is divided into six sections. The first, a general overview of the Mac, includes this introduction and Chapter 1, which tells you what makes the Mac different from other computers and gives you a little historical perspective on its place in the history of personal computing.

The next section (Chapters 2 through 5) discusses the hardware options you can add to the basic system—everything from hard disk drives to dust covers.

The third section (Chapters 6 through 8) describes how the Mac's revolutionary approach to software works, and introduces you to the features (like icons, windows and pop-down menus) that virtually all programs written for the Mac have in common. It also tells you what to look for when buying programs for the Mac.

The fourth section (Chapters 9 through 12) gives you the full story on fonts (like **Athens**, **Venice**, **Chicago** and **Geneva**), special characters (like ¥, ¢, Ω and §), hidden characters (like ☘, ☙, ☚ and ☛) and so on.

The fifth section (Chapters 13 to 19) covers all the kinds of software that are available to let you write, draw, keep records, process information, play games, program, learn things etc. etc. on the Mac.

The sixth section (Chapter 20 and the three appendixes) tells you the best ways to learn more about the Mac, gives you seven reference cards that help you hang onto what you've already learned, shows you hundreds of fonts, and lists the products discussed in the book, with the addresses and phone

numbers of the companies that make them. This last list is internally cross-referenced—so if you look up a product, you'll find the name of the company that makes it, and if you look up a company, you'll find the names of their products.

Finally, there's a complete index.

Although this book assumes a very basic knowledge of computers, I don't wallow in jargon. I define all but the most elementary terms, and boldface them wherever they're defined or discussed at length.

Because terms and concepts are introduced in order, you may want to read the chapters in order. But even if you skip around, you can still look up any term you don't know in the index. Whenever a term is boldfaced in the text (and sometimes even when it's not), I boldface the page number in the index, so you can find definitions and important discussions quite quickly.

When I give the name of an icon or a computer command, I put it inside single quotation marks (' ') and place all punctuation outside of them, so there's no danger you'll think the punctuation is part of the command. (This is known as the Hank Roberts convention, after its originator.)

Well, that's enough of an introduction. On with the book.

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CHAPTER

1

What's Special About the Mac

The way a computer communicates with people is called its **user interface**. So far, there have been three stages in the development of user interfaces on personal computers. (A **personal computer** is one that someone can afford to own and use alone.)

Three Stages

In the first stage, which lasted from 1975 to 1977, you had to use a programming language to get a microcomputer to listen to you. This "programming interface" was superseded in the late seventies, when already-written programs began to appear; they allowed nonprogrammers to talk to computers by means of abbreviated commands. (You could still program, of course; you just didn't *have to*.)

Depending on the skill of the person writing the program, commands can be very understandable—like "p" for "print"—or very cryptic—like "pip b:=a:*. *[v]" for "take all the files on disk A and put them on disk B." Even at its most cryptic, this "command interface" is easier to deal with than a programming language; but even at its most understandable, it's more confusing than simple English.

With Xerox's announcement of the Star computer in 1981, a third kind of user interface was introduced. Unfortunately, the Star cost \$16,000 and Apple's Lisa—which used the same interface—cost \$10,000 when it came out in January, 1983. So it wasn't until the Mac was announced—in January, 1984, for a price of \$2500—that the new interface became important in the marketplace.

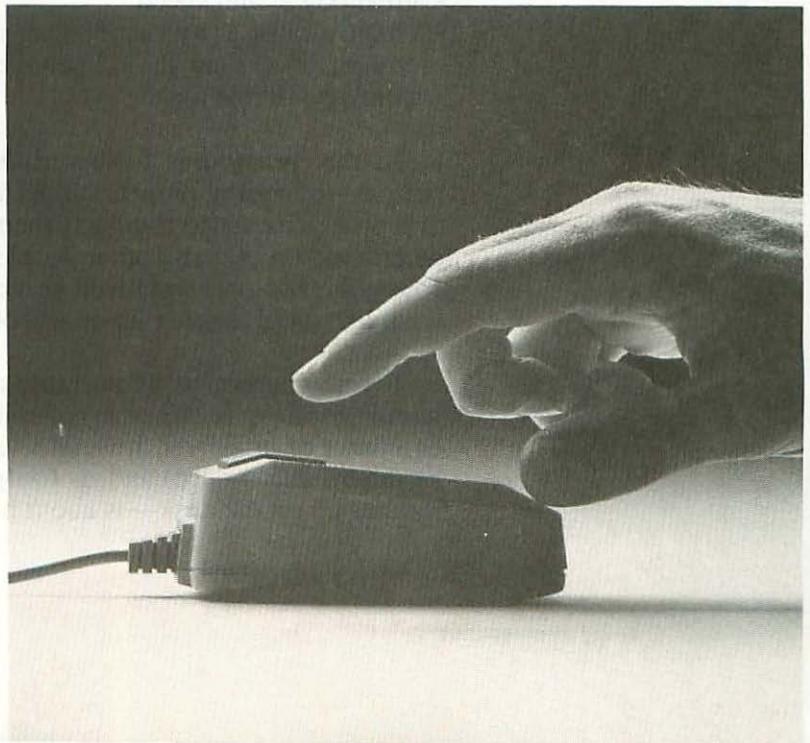


With the Mac, Lisa and Star, you communicate by *pointing* at one of a number of choices, which are written in clear, simple, unabbreviated English; represented by a cartoon symbol (called an **icon**); or both.

So, for example, if you want to copy all of the files on one disk onto another, you don't have to type "pip b:=a:*. *[v]" or some such gibberish. You just point to the first disk {  }, drag it over to the second disk, and drop it off. The improvement over having to type out commands is dramatic, even for an experienced computer user. This **pointing interface** is a quantum leap forward in making computers easy to use.

In order to point at things, you need a pointer, and the Mac gives you several. The most common is the **arrow pointer**, which looks like this:  . Another common one, called the **I-beam pointer** {  }, is used when you're dealing with text. The graphics program MacPaint has a whole slew of specialized pointers:     and  . (As you can see, the symbols used for pointers are just another kind of icon.)

A pointer doesn't do much good unless you have a way to move it. The Mac uses a device called a **mouse**—a small box with a ball on the bottom and a button on the top, connected to the rest of the system by a cord.



When you roll the mouse around, the pointer moves in the same direction on the screen (although not the same distance). You get so used to it after a while, it begins to feel almost like you're moving the pointer directly with your hand.

The mouse was invented in 1964 by Douglas Englebart, and much of the pioneering work on the pointing interface took place in the early seventies at PARC, Xerox Corporation's research center in Palo Alto, California (near San Francisco)—which was where the people from Apple first saw it in action. One of the people at PARC most responsible for this work was Alan Kay.

Kay's Wish List

Kay made up a wish list for his ideal personal computer, which he called "Dynabook." (He was the right person to do this, since he actually coined the term "personal computer.") Kay felt Dynabook should have, in addition to a pointing interface:

- portability
- a large screen with enough detail for graphics to be mixed with text
- great power and speed
- "naturalness" (by which he meant that things on the computer's screen should behave more or less the same way things do in real life)

In the years that followed Apple's visit, many PARC people—including pioneers like Larry Tessler—came to work at Apple. Thanks to their advanced ideas, and the vision and determination of many other people at Apple (particularly Steve Jobs), the Mac has achieved some of the objectives on Kay's wish list, and has a leg up on the others.

It's nowhere near as portable as Dynabook (which, as its name implies, is the size of a book), but it is tiny for a computer of its power. It weighs less than twenty pounds (with keyboard and mouse) and its **footprint**—the amount of space it takes up on the desk—is about half the size of an IBM PC's.

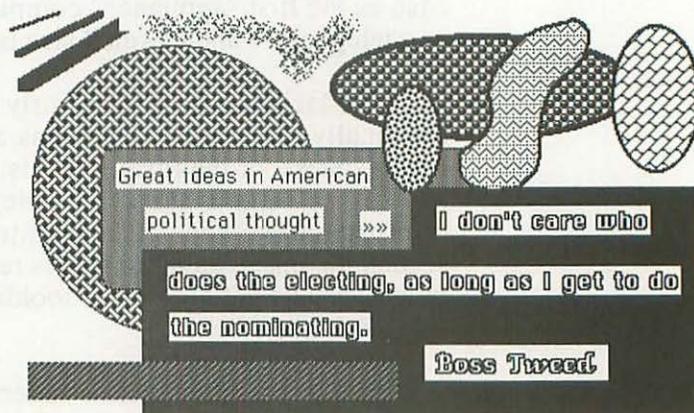
A small footprint lets you keep the Mac always within reach on a crowded desk, without it dominating the desk or interfering with other things you need to do. Apple sees the Mac as the first "appliance" computer—one you use as easily as a telephone—and its small size is an important aspect of this.

The Mac's screen is also fairly small—only 9" (measured diagonally, of course, as screens always are)—but thanks to the crispness of the image, this is quite adequate. The screen has an anti-glare surface, which is another nice touch. (Unfortunately, the "refresh rate"—how many times per second the image on the screen is rewritten—is inadequate, and your eyes can get quite tired looking at it for any appreciable length of time.)

The Mac displays black letters on a white background, thank God. I've never been able to understand the supposed advantage of green (or amber) screens. It's not natural, nor any good for your eyes, to look at one color all the time. People suggest putting some red object near a green screen, to compensate, but why bother with all that? A white surface reflects all colors, black contains all colors, and black on white is what we're used to looking at on paper. (Kay likes black-on-white screens too.)

The Mac has a brightness control right on the front, which is where it belongs. Most people keep their computer screens too bright, which puts a real strain on their eyes. A bright white background is very hard to look at—what you really want is black on grey.

As you can see from the illustration below, the Mac has no problem mixing text and graphics on the screen.



What you can't see in that picture is how quickly all those graphic elements can be manipulated—created, redrawn, moved around. For example, **windows**—separate sections of the screen—can be shrunk, stretched, squeezed, overlapped and moved around with amazing rapidity, especially given how much detail there is in them.

This is possible because the Mac's screen is bit-mapped—that is, for every little dot on the screen (called a **pixel**), there's a little switch in memory that controls it. Since you can control the screen directly, you can change it quickly.



But it takes more than hardware to get a screen image as responsive and fast at the Mac's. As usual, software is the key. The software that makes all this possible was developed by a programming genius named Bill Atkinson and is called **QuickDraw**. If you're going to be writing software on the Mac, you can access its incredible capabilities and incorporate them into your programs. (See Chapter 18 for more details.)

Even when nothing is moving, the resolution on the Mac's screen is impressive. (**Resolution** refers to the number of **pixels** on the screen). Up to about 150,000 pixels is generally considered low resolution; over about 400,000, high resolution. With 512 pixels horizontally by 342 vertically, the Mac's screen has about 175,000 overall, making it medium resolution.

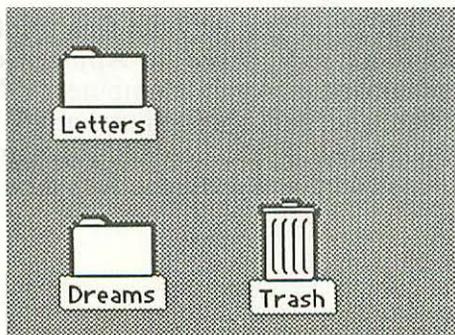
Medium resolution is better than it sounds. True high-resolution screens are too expensive for personal computers (so far), and medium-resolution screens are almost always touted as high resolution. Most small computers have low-resolution screens.

Power is the next of Kay's requirements, and the Mac is one of the most powerful personal computers ever made. It's built around the Motorola 68000 chip, which handles data in 32-bit chunks internally, but takes it in and sends it 16 bits at a time.

(The IBM PC—and most of its imitators—are built around the 8088 chip, which handles data in 16-bit chunks internally, but takes it in and sends it out 8 bits at a time. Many other computers handle data in 8-bit chunks both internally and externally. But don't take all this too seriously; according to Alan Kay, the Atari 800—an 8-bit machine—is faster than the PC for almost everything.)

The Mac's "clock"—the electronic pulses that synchronize all its operations—is 7.78 MHz (7,780,000 pulses a *second*)—although, like most computers, it doesn't always run at full speed. In comparison, the PC's clock is 4.77 MHz. Alan Kay says that Dynabook should run at 12MHz at least, so the Mac is close to this high standard, but not there yet.

When it comes to "naturalness," the Mac really shines—that's the main reason it's so easy to learn and use. You can move icons around, and arrange them just the way you would actual objects on a real desktop. You can put them inside folders (which *look* like folders). And when you don't want something on the disk any more, you just put it into an icon labelled "Trash" (which looks like a trash can).



(To give you an idea of how seductive all this naturalness can be: I felt there was something wrong with that last phrase. I tried to figure out what it was and finally realized that I don't really think of the Trash icon as something that "looks like a trash can"; I think of it *as* a trash can.)

Things work the same way everywhere in the real world, no matter where you go, and that consistency is one of the essential qualities that go to make up naturalness. The Mac shares it. One of the most wonderful things about the Mac is that once you learn how its user interface works, you don't have to keep relearning a new one for each product you use. Because of powerful routines built into the Mac's "Toolbox" (described in Chapter 18), which almost all Mac software takes advantage of, virtually all programs perform in the same, predictable way.

The Mac's naturalness is carried over into the language Apple has chosen to describe aspects of the machine. What other companies call a "cursor" is called a "pointer" on the Mac; a major part of the Mac's "operating system" is simply called the "Finder"; and so on. Even the Mac's own name is informal, relaxed. (I feel a digression coming on....)

"Macintosh" obviously originated as a play on "apple," since there's a variety of apple with that name. ("Pippin" might have been even better, since they then could have nicknamed the machine "the Pip.") You may wonder why Apple didn't spell it Mackintosh, which is the most common spelling, or McIntosh, which is how the kind of apple is spelled. I wonder too, since the official explanation—that some people working on the project in the early days simply misspelled it and the misspelling stuck—somehow just doesn't ring true. But I haven't heard a better one.



I can tell you why the fine print says that "Macintosh is a trademark *licensed to* Apple Computer" rather than "a trademark *of* Apple Computer." "McIntosh" was already an established, uncontested trademark for a line of top-notch hi-fi equipment; Apple licensed the name from them, even though the spelling was different, just to be on the safe side.

The things that are special about the Mac don't stop with the items on Kay's wish list. (Kay now works for Apple, by the way, so there's speculation that we may be seeing Dynabook—possibly called DynaMac—sometime in the next few years. He certainly has the vision for it, and they certainly have the resources.)

Beyond Kay's Wish List

Safety—not losing hours (or, God forbid, days) of your work—is one of the most important aspects of a computer, and one that seldom gets the attention it deserves. The Mac is designed to be an extremely safe machine (the only one I've seen that pays more attention to safety is the now-defunct Lisa).

The Mac backs up whatever it does and it's always reminding you to save your changes, asking you if you're sure you want to delete this or replace that, and the like. I'll be pointing out various safety features—as well as problems and how to recover from them—in later chapters.



From a purely technical point of view, the Mac is very well engineered. One measure of good computer design is how much you can manage to do with the fewest number of chips (since chips blowing out are a major cause of reliability problems). The Mac has an amazingly small number of chips—just 45. In comparison, the IBM PC has more than 200 chips, and there are single boards for the PC that have more than 45 all by themselves.

Unfortunately, the Mac's actual construction doesn't always live up to the excellence of its design. Hardware failures—particularly in nonelectronic components like the printer and power supply—are fairly common.



The Mac has great sound-generation capabilities. It can produce four separate sounds simultaneously, at any one of more than 16 *million* pitches, and it can change each sound more than 22 thousand times a *second*. As a result, music software for the Mac is sensational (see Chapter 19 for more details).

But I'm even more in love with the Mac's silence. (This is at least partly because I'm so easily disturbed by noise.) The computers I've used before the Mac not only had fans but also disk drives that ran without stopping—making them sound, to my sensitive ears, like billions of blenders in a wind tunnel. I rigged up switches to turn off the drives, wore ear plugs to drown out the sound of the fan, and so on. This was the one thing I really disliked about working with computers.

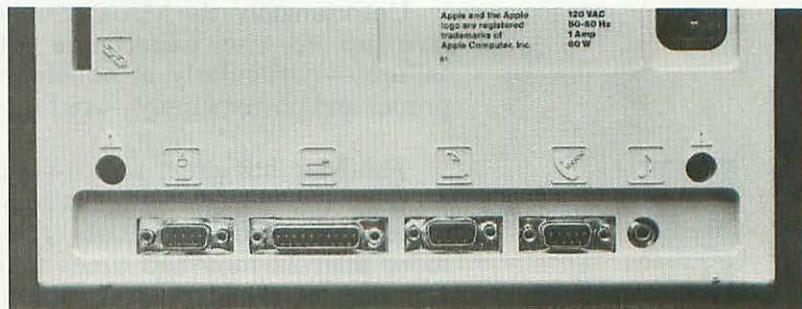


What a delight, then, to use the Mac, which has no fan, and makes only a barely audible purr. And when it does make noise, it's almost musical—the disk drives sing to themselves, in sort of a throaty hum.

The disks themselves are great too. Small enough to be put in a shirt pocket, tough enough to be mailed in a regular envelope, they're like a dream come true for all of us who are tired of the delicate handling required by 5-1/4" and 8" disks. (More about the Mac's disks in Chapter 3.)

The way the Mac is made is special too. The main manufacturing plant (in Fremont, California, near San Francisco) is one of the most automated factories in the country, and can produce a million Macs a year—one every 27 seconds—with a work force of just 540.

Apple has traditionally sold about 25% of their computers to foreign markets (about 15% in Europe, mostly in France), so they designed the Mac from the ground up with this international market in mind. The brightness control and all the jacks are identified by standard international symbols, and the only written word on the case is "Macintosh" (on the back).



Even Apple is identified simply by its logo (a rainbow-colored apple with a bite out of it); the word "Apple" doesn't appear (except on the sticker which lists the required FCC language and the like, and which changes from country to country).

The built-in 64K memory chip which provides the Mac with most of its basic software contains not a word of English. All Mac programs are divided into two parts—the "code" that makes them do what they do, and the "resource files" that contain the language and symbols that appear on the screen. To adapt a program for a foreign market, you only have to change the resource files, not the code, and that takes virtually no time.

Because of its bit-mapped graphics and relatively high resolution, the Mac could become the first low-cost computer used by the Japanese to deal with their traditional (Kanji) alphabet, composed of many thousands of characters. There's already Mac software that provides the simplified Japanese (Katakana) alphabet, as well as Greek, Hebrew, Linear B and the language of the Coeur d'Alene Indians. (See Chapter 12 for details.)

The same graphic power that produces foreign alphabets also lets the Mac display thousands of different typefaces (called **fonts**)—one of its most exciting capabilities. (More about this in Chapters 9 and 10.)



The regular keyboard can generate dozens of foreign accent marks, punctuation marks, letters, letter combinations, abbreviations and symbols—which are useful in English as well as foreign languages. (Chapter 11 describes all this in detail.)

Finally, I should mention the Mac's beautiful package design. The Mac itself is cute and interesting, and even elegant in a bizarre sort of way, but its packaging, labelling and collateral design (including the manuals) are really lovely. For example, the box the Mac comes in—pure white, with just the word "Macintosh" and the Mac's Matisse-like logo on it—is absolutely exquisite. (I'm not alone in thinking this; the Mac's packaging has won awards.)

Package design certainly isn't the most important thing in the world, but after years of hideous high-tech design, I say: "thank heaven for little favors."



Four Standards

At the beginning of this chapter, I talked about three stages in the evolution of user interfaces. Now it's time to talk about another kind of evolution in personal computers—that of standards. (A **standard** is a hardware/software combination so popular that other manufacturers imitate it and a lot of programs are written to run on it.)

The world's first personal computer was the Altair 8800, introduced to the world on the January, 1975 cover of *Popular Electronics*. Many companies imitated the Altair's design, and built their computers around the same chip—the Intel 8080—or an upgrade of it—the Zilog Z80. Almost all of them used an operating system called CP/M. (An **operating system** is the basic, underlying program that tells your computer what to do).

Many programs were written that would run under CP/M on all these different machines, and the 8080/Z80 version of CP/M (sometimes called CP/M-80), running at first on Altair-like computers, became the first standard.

In early 1977, Apple introduced what was destined to become the second standard—the **Apple II**. It was built around a different chip—the 6502—and used a different operating system—**AppleDOS** (Apple Disk Operating System). The Apple II was brilliantly engineered and, with its pretty case, it became the first personal computer that appealed to nonhobbyists. Immensely popular, the Apple II continues to sell (in two new incarnations—the IIe and IIc).



These two microcomputer standards competed for more than four years, with the Apple having more games and graphics applications, and the CPM computers more serious business programs (although there were plenty of those on the Apple too).

Then in the summer of 1981, IBM announced its Personal Computer. People flocked to buy it—mostly just because they



figured that if IBM made a computer, it must be good. The PC became the third standard, and soon there were thousands of programs written for it.

But this third standard was not much of an improvement over the earlier two. In most respects, using a PC is not very different from using a CP/M machine. Its MS-DOS operating system (also called PC-DOS) is virtually indistinguishable from CP/M, at least from the user's point of view, and much of the most popular PC software—WordStar, dBASE II and so on—originated on CP/M machines and runs no differently on PCs.

The same can't be said of the Mac (or its more expensive colleagues, the Xerox Star and the now-defunct Lisa). They are radical improvements over earlier computers, with a user interface that's dramatically easier to use.

Of these three machines, the Mac is the one that's selling like crazy, so it's become the fourth standard. (Software written for the Lisa and the Star won't run on the Mac—although most Mac software will run on the Lisa, under a program called MacWorks.)

By early 1985 there were already hundreds of programs available for the Mac, with many more on the way. By the end of this decade, virtually all computers will use the new pointing interface.

Apple is making sure this will happen by spending a fair amount of time and money supporting independent companies who are writing Mac software. The response to this "Certified Developer" program has been so great (with thousands of companies signing up in the first year) that Apple has been swamped and hasn't been able to provide the level of service the developers have a right to expect. But this program is certainly the right idea, and Apple will probably get things straightened out eventually. (More on this program in Chapter 18.)

One common criticism leveled at the Mac when it first appeared was its lack of **PC compatibility** (the ability to run programs written for the IBM PC standard). Interestingly enough, the exact same criticism was leveled at the PC when it came out: why wasn't it compatible with the huge number of CP/M programs already written? But so much software was written so quickly for both machines that this complaint soon seemed irrelevant.

In the (now-defunct, much-lamented) *St. Mac* magazine, Mac programming genius Andy Hertzfeld went even farther than that, arguing that PC compatibility wasn't merely unnecessary, but undesirable:

"One of the joys of Macintosh is [that] all applications share a common user interface and can easily share information. Mac applications are usually far easier and more fun to use than their older-generation counterparts; if we could run the older generation of programs, software vendors would be less motivated to 'go for it' and rewrite their programs for this new, far superior standard. Once Mac acquires a substantial library of applications, they will be so much better than IBM PC or Apple [II] programs that very few people will want to run the old stuff."

The Bad with the Good

With all the glowing things I've been saying about the Mac, I don't want you to think it doesn't have problems. Here are a few of the more important ones:

- Apple is an innovative company that provides you with "tomorrow's technology today." But there ain't no such thing as a free lunch. As strong as Apple is on research and development, it's equally weak on service and support. I myself have been messed up by parts shortages, and all the Apple departments that have to do with serving their customers, either directly or indirectly, seem to be chronically understaffed.



I thought Michael Ward summed it up nicely in *Club Mac News*: "IBM has gained its position by selling mediocre machines while providing maximum support to their users. Apple seems to think they can compete by selling superb machines while providing no support to their users."

IMPORTANT
WARNING

- The Mac is not the most reliable machine ever built. Here's my own personal experience with it, in slightly more than one year: In one two-week period, I had to have the power supply board replaced *twice*. My keyboard broke and had to be replaced. I needed new cables on both the printer and the external disk drive. And when the printer itself broke down, I had to wait over three months for the necessary replacement part. (Although some of this delay was the fault of the incredible bureaucracy at Computerland's corporate headquarters, when they finally went to Apple and begged for help, Apple had absolutely no Imagewriters in stock, and none of the right parts either.)

VERY BAD
FEATURE

- Apple has been careless about informing users when software updates come out, and about reporting bugs. I can think of at least three separate instances where I had to rely on magazines to find out about serious—or potentially serious—problems with the Mac.

IMPORTANT
WARNING

- The Mac comes with only one disk drive; in my opinion, it's not really usable without a second one. A hard disk drive would also be a nice addition, but the Mac's operating system has trouble accommodating one, unless it's installed internally. (For more about this, see Chapter 3.)

Confessions of a Hopeless Macophile

I'll end this chapter on a personal note. When I got my Mac, I had owned a microcomputer—a standard CP/M machine—for over three years, and had written six books on it, all with the same word processing program. I used it all the time, loved it, and felt that it had really changed my life. I had just replaced it with a new, expensive, top-of-the-line CP/M machine (running the same software), and I figured the Mac would be a mere supplement, good for graphics and games but not for anything else.

By way of doing research for this book (under the heading of "what it's like to write on a machine not really intended for writing"), I dashed off a couple of letters on the Mac. Soon I discovered—much to my surprise—that I was looking forward to the writing I planned to do on the Mac, and avoiding any I had to do on the CP/M machine. Before long, I was using the Mac to write all my letters and found that instead of getting around to the letters last, as was my wont, I was pushing other, more important tasks aside to do them.

So I switched more and more stuff over to the Mac and eventually ended up using it for everything, including writing this book and another one. Now my CP/M computer mostly sits around and gathers dust.

Many business people feel that the Mac is a cute machine, a lot of fun, but not really usable for serious work. That certainly hasn't been my experience. I think the rest of this book will convince you that the Mac not only can handle virtually any business task but also makes doing it a lot more enjoyable.

I don't say all this as some starry-eyed Apple groupie. I've had my share of problems with Apple, and I'm not afraid to criticize them when they deserve it (which is all too often). But the Mac is really a terrific machine—far and away the most versatile and exciting computer I've ever had anything to do with.

CHAPTER

2

Printers

The most basic Mac comes with a keyboard, mouse and main unit containing:

- 128K of RAM (user memory, into which you put your work and the programs you're using to do it)
- 64K of ROM (read-only memory), which provides the core of the Mac's operating system
- a high-quality 9" screen
- one built-in floppy disk drive, whose 3-1/2" disks hold 400K each
- jacks for a printer, external disk drive, modem, keyboard, mouse, security cable and sound output

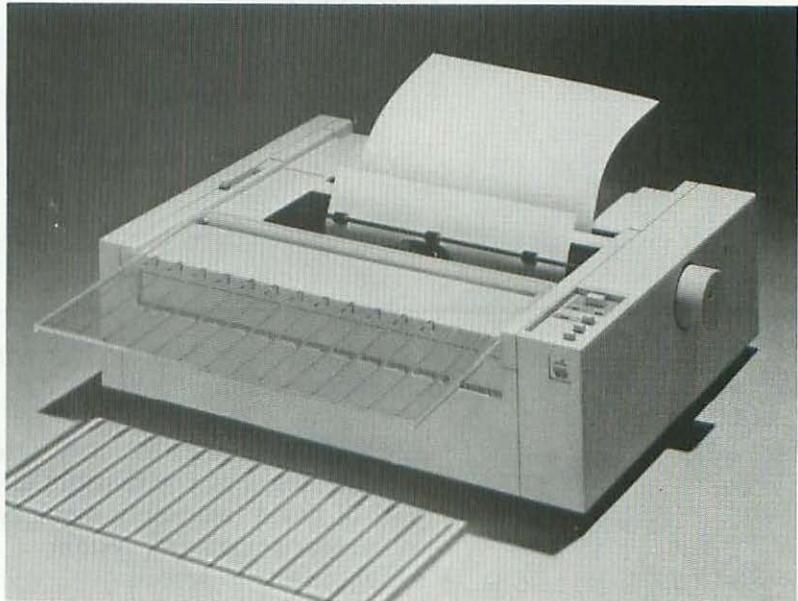
For most purposes, though, you'll want a 512K Mac (usually called a FatMac). As its name indicates, this machine has an additional 384K of RAM.

To either of these configurations, you definitely will want to add the Imagewriter printer (unless you can afford a laser printer) and an external floppy disk drive (unless you can afford a hard disk).

This chapter tells you about printers and related hardware; the next about disk drives and extra memory. There are lots of other hardware accessories you *might* want to add; Chapters 4 and 5 cover those.

The Imagewriter

The Imagewriter is a very well engineered dot-matrix printer (designed to Apple's specifications and manufactured for them by Tokyo Electric, which also makes some of the C. Itoh printers). The Mac and the Imagewriter go together like...let's see...love and marriage?—no, better than that.



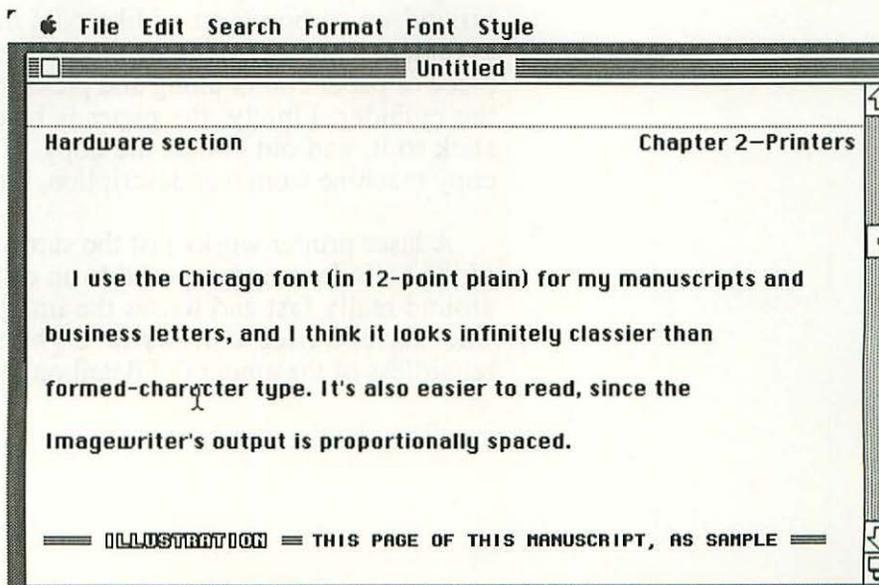
The Imagewriter reproduces just what you see on the Mac's screen. This means you can print out incredibly detailed graphics, as well as hundreds of different typefaces (or "fonts," as they're called on the Mac), in 9 different type sizes and 32 different type styles. (More details about that in Chapters 9 and 10.)

Actually, the Imagewriter doesn't reproduce the screen quite exactly. Because the pixels on the screen are square, with nice sharp edges, and the dots of ink the Imagewriter puts on paper are (of necessity) tiny round splotches, the printout appears very slightly smudged. Sometimes this makes things look better—by blending the dots together to smooth out jagged edges, for example; usually it makes them look a little worse. But this smudging happens with any impact dot-matrix printer, and the Imagewriter's output is among the best.

Many business people assume you need a "letter-quality" (i.e., formed-character) printer to do any serious work. ("Formed-character" printers produce images the same way typewriters do—by pushing something in the shape of a character against an inked ribbon and into the paper. They're often referred to as "daisy wheel printers," but one of the best of them—the spectacularly reliable NEC Spinwriter—uses a thimble, not a daisy wheel.)

When I first got the Mac, I figured it wouldn't really be of much use to me until I had a way to connect it to my NEC Spinwriter (formed-character printer). Now, more than a year later, lots of companies have come out with software/cable combinations that make the connection. They cost less than \$100, and I haven't bothered to buy one. My God, with the Spinwriter, I wouldn't have *fonts!*

I use the Chicago font (in 12-point plain) for my manuscripts and business letters, and I think it looks infinitely classier than formed-character type. It's also easier to read, since the Imagewriter's output is proportionally spaced.





HOT TIP

If you have some compelling need for formed-character printouts, you won't have any problem getting them from the Mac, but you'll be wasting its capabilities. Apple hardware ace Dan Kottke made an excellent point (in an interview with Doug Clapp) when he said, "The whole thing of 'letter-quality' is like wearing a tie and jacket to work. It's the same ethic. The real question is flexibility and...aesthetics, and whether it makes your job easier." By those criteria, the Imagewriter wins hands down.

The LaserWriter

If you're going to improve on the Imagewriter, the way to do it is by expanding upon its virtues, not by eliminating them. That's just what Apple has done with its first laser printer, the LaserWriter. Laser printers work the same basic way as photocopy machines. And how do photocopy machines work? you ask.

Well...a cylinder spins around and is exposed to whatever you're copying. Because there's a charge on the cylinder, an image of your original is transferred onto it. Then some ground-up carbon (sort of like coal dust) is sprayed onto the cylinder, where it sticks in the pattern of the image. Then a piece of paper comes along and picks up the carbon image from the cylinder. Finally, the paper is heated to make the carbon stick to it, and out comes the copy. (I wouldn't try building a copy machine from that description, but it gives you the idea.)

A laser printer works just the same way, except that instead of the cylinder being exposed to an original image, a laser zips around really fast and *writes* the image of a whole page on it. The LaserWriter can write eight such pages a minute, regardless of the amount of detail on them.



Like most inexpensive laser printers, the LaserWriter is built around the Canon LBP-CX "engine" (mechanism). To this basic engine, Apple has added 1.5 *megabytes* (1536K) of RAM, 512K of ROM, a 68000 chip just like the one in the Mac (except this one runs 50% faster), and an interface to **AppleTalk**, Apple's "local area network" that links computers and peripherals together.

This hardware bonanza accounts for the LaserWriter's hefty price, but also provides a number of remarkable capabilities. For example, there are thirteen fonts built in—Times Roman, Helvetica and Courier (yuck!), each in plain text, bold, italic and bold italic, and a font of symbols. Many more LaserWriter fonts—like those in the extensive Mergenthaler and ITC font libraries—will become available as time goes by.

Unlike Imagewriter fonts, which have resolution of 80 dots per inch (dpi), LaserWriter fonts have a resolution of 300 dpi. True typesetting fonts have resolutions of about 1000 dpi, but most people can't tell the difference between 300 dpi and 1000 dpi fonts without looking at them very carefully, or even through a magnifying glass. Anyone who isn't some sort of graphics professional will look at a document produced by the LaserWriter and say, "It's typeset," without a second thought.

Helvetica

Times

Courier

Συμβολοσ (Symbols)



You can scale these four fonts to any size you want. You can also print out normal 80-dpi Mac fonts; the LaserWriter will scale and smooth them. It will also reproduce any graphic image you can create on the Mac, including business forms, in precise high resolution. Thanks to AppleTalk, the LaserWriter can be shared among several computers.

Another advantage of the LaserWriter—it's silent! (The Imagewriter makes an annoying, high-pitched whine while printing. You can get a sound-deadening enclosure for it, but I've come up with a simpler, and cheaper, solution—just buy a pair of those earmuff-type hearing protectors and wear them when the Imagewriter is running. Still, it's nice not to have to bother.)



With a Mac and an LaserWriter, you can put together a system costing less than \$10,000 that can typeset anything from a flyer to a book. As far as mere business communications are concerned, the LaserWriter sets a new standard—not "near letter-quality," not "true letter-quality," but "beyond letter-quality."

Print Buffers

One nice accessory to a printer is a **print buffer**. This is basically a box with some memory chips and control circuitry in it, which you connect between the Mac and your printer. When you want to print out, all the information needed by the printer—the text, the formatting instructions, everything—is stored in the print buffer and doled out to the printer at a rate it can handle. This frees the Mac to do other things while the printout is going on.

Nice, huh? Unfortunately, you have to pay for it; printer buffers cost between about \$150 and \$700.

Applied Creative Technology makes a high-powered one called the Printer Optimizer. In addition to giving you up to 256K's worth of memory (an insane amount—more than you'd ever need), it lets you connect up to three printers—anything from formed-character printers to electronic typewriters to laser printers to plotters—and switch between them by pushing buttons on the Optimizer. It even enhances some of the Imagewriter's abilities.

The Printer Optimizer manual is clear and to-the-point, and comes with separate sheets that tell you exactly how to connect it to a Mac. Unfortunately, the same wasn't true of the manual for another print buffer called Microbuffer (from Practical Peripherals; they make a full line of Microbuffers that work with virtually any computer/printer combination...if you can figure out how to install them).

For those of you lucky enough not to know what it means to "install" a piece of hardware or software, it simply means to adapt it to your particular machine. "But won't the people I buy it from do that for me?" Well, they should, but they usually don't.



Here's a sample, chosen pretty much at random, from the installation section of the Microbuffer manual: "Positions 1, 2, 3 and 4 of the output configuration blocks are used to tell the [buffer] which pin, either 2 or 3, will be Source of data and which will be the pin to send software handshaking."

Or listen to this description of pin 1: "Frame ground. Connected to pin 7 logic ground through 100 ohms. Connection not necessary, in some instances not recommended." (How fascinating! What instances might those be?)

Now some of this does, in fact, make some sense to me. And I could, no doubt, muddle through it and get the buffer working. But why should *I* have to figure out how to set up the buffer? Practical Peripherals knew that I had a Mac connected to an Imagewriter, a standard configuration which they hope they'll sell thousands of units for. They could do it ten times faster for me (and a hundred times faster for their next Mac customer). At the very least, they could make up a set of customized instructions for the Mac.

This attitude of "it's *your* job to make our product work" is all too common among peripheral manufacturers. For example, both Practical Peripherals and Applied Creative Technology sent me printer buffers on loan, so I could evaluate them for this book, but neither thought to include a cable. I had to call them up and ask them if they seriously expected me to go out and buy cables just so I could test their products.

I don't mean to pick on these two manufacturers, who both make perfectly decent products, nor on print buffers in general. But there seem to be a lot of companies that assume you have nothing better to do with your time than to spend an evening or two adapting their product to your machine. Some computer users might be willing to put up with this nonsense, but that's precisely what most people buy the Mac to avoid. Too many manufacturers are still back in the Dark Ages of CP/M, and they're not going to sell many products for the Mac that way.



HOT TIP

So here's my advice: Don't buy any printer buffer unless the people you buy it from set it up to work with your computer and printer, and unless they give you a money-back guarantee, good for at least thirty days, that it *will* work, just the way they say it will. And apply that same principle to any product you buy.

CHAPTER

3

Additional Storage and Memory

The External Floppy Disk Drive

After an Imagewriter printer, the next essential addition to the basic Mac is a second storage device—typically, an external floppy disk drive to supplement the one that comes built into the Mac's main unit. A one-drive Mac forces you to spend an incredible amount of time **swapping disks**—taking one disk out and putting another one in.

On a one-drive Mac, this message:



(with the name of the disk changing) will become your most familiar sight, and you'll be afflicted with the dread "swappers elbow".



So it's not surprising that more than half the people who buy Macs also get an external drive. Of course a second drive adds to the cost of the Mac, which is not an inexpensive machine to begin with (except when you consider what it can do). But I say—if you can't afford a second drive, don't get a Mac.

The external drive from Apple is identical to the built-in one, except (of course) for the fact that it has its own case. I've had one for about half a year and it's worked fine. Other manufacturers also sell external drives, but I haven't tested any of them.

At some point—but probably not very soon—double-sided disk drives will become available. These will have a capacity of 800K instead of 400K, which will make quite a difference.

You can put the external drive on top of the Mac; it's just the right size not to block the cooling vents. (They say that's not really the ideal place, because it's near a powerful magnet used by the CRT, but I've always kept mine up there, and I haven't had any problems.) Or you can turn it sideways and put it against the Mac's side (just be sure to put it on the right; the left side gets too hot).



A little plastic antistatic bag comes with the external drive; make sure you keep it over the end of the cable whenever the drive isn't connected to the Mac. Otherwise static electricity can zap the drive and destroy it.

The original external drives didn't come with this bag, and Apple never bothered to inform early owners—like yours truly—of the need for it. I had to read about it in a magazine article written by another user, not by anyone from Apple.

Hard Disk Drives

Another possible add-on to a Mac is a hard disk drive. **Hard disk drives** have solid, nonflexible platters inside that differ from floppy disks in three essential ways: they spin faster, hold more information, and get to it more quickly. (There used to be two other differences between floppies and hard disks: all floppies used to be flexible—unlike the Mac's 3—1/2" disks,

in their hard shell cases—and almost all hard disks used to be fixed forever in their drives—unlike the new removable ones.)

Since you can probably get a hard disk drive for three to four times what you pay for a second floppy drive, and since it will not only hold at least ten times as much data but will also speed up the operation of your Mac, this seems—on the surface of it—to be the way to go.

Unfortunately, the Mac's operating system, described in Chapter 7, wasn't really set up to accommodate hard disks—although installing them inside the case, rather than connecting them through the serial port, helps somewhat.

The changeable part of the operating system (called the Finder) will be rewritten at some point, maybe even by the time you read this, but here's a rundown of its present inadequacies (through version 1.1g), just for the record:

- Because the Finder limits the number of documents you can have on any one disk, you can't use more than half the capacity of a 5-megabyte disk (making it pointless to buy anything larger). Some manufacturers get around that by breaking their disks into separate "volumes," each of which can have the maximum number of documents—but then you can run into problems with how many volumes you can have "mounted" at any one time, how easy or hard it is to switch between volumes, and so on.

The Finder's operations also slow down when there are a lot of documents on a disk.

- Various pieces of software won't work with various hard disks. As of the fall of 1984, every hard disk on the market had a problem with one kind of software or another.
- It's hard to get fonts you want onto a hard disk, due to congestion in the "system heap" (you don't need to know anything at all about the system heap—it's just such a great name, I couldn't resist using it).
- You can't make the hard disk the "startup disk" (see Chapter 7 for more details). This means you have to always begin work by inserting a floppy, which then surrenders control to the hard disk.



- The Mac's design limits the rate at which data can be transferred, so that a typical (external) hard disk drive runs only about a sixth as fast on the Mac as on the IBM PC or Apple II.
- Hard disks spin, and are cooled by fans, so if—like me—you love the silence of the Mac, you won't want a hard disk drive disturbing it (unless you *really* need one). Some drives come with much longer cables than others, and this might mitigate the problem. You can't put the drive in too small an enclosure (that defeats the purpose of the fan), but a closet should be OK.

If the noise doesn't bother you, you can put the drive underneath the Mac; this is a nice place for it, since it helps raise the screen to eye level.

All but the last of these problems will probably be solved by hard disk drives that are installed inside the Mac's case and therefore bypass the external jacks.

Here's a short check list for buying a hard disk drive for the Mac:

- ✓ Don't pay too much attention to the supposed capacity of the drive; instead, find out how much of that capacity the Mac can actually *use*.
- ✓ Make sure the programs that are important to you will run on the particular drive, and that you can load the fonts you want onto it. Actually *see* them loaded and running in the store.
- ✓ If you're sensitive to noise, figure out some place to put the drive that will muffle it without interfering with ventilation, and buy a drive with a cord long enough to reach there.
- ✓ Most hard disk drives operate off the modem jack, so if you want to use a modem and the drive at the same time, make sure there's a provision for that. (Or, if the drive operates off the external drive port—which is less used, because it transmits data more slowly—and you want to use a floppy drive at the same time, make sure you can do that.)



IMPORTANT
WARNING

- √ Here are three technical features to look for (I won't bother explaining what they all mean—just ask for them): shock mounts; a dedicated head landing zone; and an average access time of less than 85 milliseconds. Half-height drives are also worth considering, because they draw 50% less power and take up 50% less room.
- √ In general, an internally mounted hard disk is a better bet than an external one.
- √ As with anything you buy, try to get a money-back guarantee from the vendor (the company you buy it from), and make sure they will be there to service it if you need them. Obviously, the drive should also have a decent manufacturer's warranty.

Disks

As long as I'm talking about storage, there are a few things I want to tell you about the Mac's 3-1/2" nonfloppy floppies (developed by Sony, and also used on the Lisa and some other computers). They're one of my favorite things about the Mac.

Because they're protected in a hard plastic case, with a sliding metal shutter covering the "media" (the actual recording surface inside), you can toss these disks around on your desk without worrying about damaging them, or mail them in a standard envelope (but write "HAND CANCEL" on the outside so the post office doesn't send it through the canceling machine). Because they're small, you can put them in your pocket. They're pretty, compact, safe—they're great.

Another nice touch is their **write-protection device** (the mechanism for changing a disk so that the data on it can't be changed). On other floppies, this is a little sticky tab you use to cover (or uncover) a notch in the side of the disk. These stickers are a pain to deal with, and if you have to remove one after you've attached it, it leaves a sticky residue on the disk—which isn't good for the disk drive.

Instead of this messy arrangement, most Mac disks have a sliding plastic tab. Move it up and you can see through a little hole; now the disk is write-protected (the data on it can't be

changed). Push it down and you can't see through the little hole; now the disk is changeable.

(You should see the bizarre diagrams some people use to explain that simple system. As anyone knows who's ever read one of the little manuals that come with Casio watches, pictures aren't always clearer than words. In this case, it would be hard to find a picture clearer than "see through = can't change.")



Naturally, anything as simple and elegant as this system of disk protection is going to stick in the craw of some manufacturer. "But it's too easy!" you can almost hear them whine. "Why, it...it makes *sense!*" So instead of using a sliding tab, they give you one that pulls out, and has to be put back in sideways...I don't even want to try to explain this idiotic system. The upshot is that you can't see through the disk whether it's write-protected or not.

This probably saves the disk manufacturer—what, 1/10¢ per disk? Probably even less than that. Fortunately, there's an easy way around this problem—if a disk doesn't have a sliding tab, don't buy it.



As far as which disks it does make sense to buy, I have a simple piece of advice: get the best. No matter how poor you are, there's no way you could possibly save money on disks that even occasionally fail and cost you hours of work. I personally will only buy disks that Apple has certified as meeting their specifications. It should say on the box if the disks are certified; at least I'd put it there, if I were a disk manufacturer.



Hewlett-Packard disks have a strange feature that makes me want to avoid them. The shutter which covers and protects the media can be latched open; to close it, you have to squeeze the disk at a certain point on the edge. I can't for the life of me imagine any situation where you'd want to lock that shutter open.

Disk Files

There are a number of different kinds of **disk files** available for storing disks—everything from space-consuming and clumsy carousels to compact and efficient flip-top plastic boxes (Kensington Microware makes one of the latter). Unfortunately, they all seem to be tricked out with weird little doodads that interfere with straightforward functioning. (I guess this is so they can somehow justify charging you \$15 to \$30 for a plastic box.) I use wire snips to eliminate these "features" and return the box to its pristine functional simplicity.



HOT TIP

I've heard that children's shoe boxes make great disk files. Naturally, they'll only be the right size if your kid is a certain age. Just measure your kid's foot from side to side; if it's about 3-1/2", you're in business. (No, wait a minute...it might be even easier to measure *the box*. What an insight!)

One problem with kids' shoe boxes is that they don't have a flip-top lid, a genuinely useful feature. (You need a lid to keep dust out, so it can't work its way into the disk, and flip-top lids don't get lost.)

More Memory

Of the Mac's basic 128K of RAM, only 85K are available. The video bit map (the switches in memory that control the dots on the screen) takes up 21K, the "Pascal library" 6K and the "system heap" (got to use that wonderful name again) 16K. Into the remaining 85K you have to load both the program you're using and your own data, and it's almost never enough room for really efficient operation.

So If you have some money left over after having bought an Imagewriter and an external drive, the next thing I recommend spending it on is more memory. You can't add memory in little dribs and drabs; you have to jump straight up to the 512K **FatMac**. (They were going to call it a Big Mac, but guess who objected.)

Most programs that run on a 128K Mac will also run on a 512K Mac (the reverse, of course, is not true). But that doesn't mean they'll take advantage of the FatMac's extra memory; some can and some can't.

There is, however, a simple piece of software that gives all programs the benefit of the additional memory, by creating a RAM disk. Here's how it works:

Disk access—going to the disk to get or deposit information—is what slows most software down; RAM-disk software works by eliminating disk access. It cons the program you're using into thinking that a certain portion of memory is a disk. When the program needs to go to the disk to load in a different part of itself, it goes to this portion of RAM instead.

If you get a 512K Mac, RAM-disk software is an absolute necessity. Here's the best news—it only costs about \$25.



The 128K and 512K Macs look the same, except for a small identifying mark on the rear panel. If you already have a 128K Mac, you can upgrade it to 512K at your dealer. This is a simple operation that takes about half an hour; like most operations, it costs a lot of money.

The upgrade's hefty price outraged owners of the original Mac when it was first announced in September, 1984. A software developer named Rick Thomas summed up our feelings by saying, "It's a shame that Apple did not find some way to be a little more generous with the already established base of Macintosh owners.... Early buyers should be rewarded instead of insulted."

But actually, given the cost of the chips and the economics of distribution, Apple really couldn't have done it any cheaper. As Michael Kimble pointed out in a letter to *Club Mac News*, IBM's 512K upgrade for the AT and for the PC, and Apple's upgrade for the Lisa for 512K to 1 megabyte, all cost a thousand dollars or more.

CHAPTER

4

Miscellaneous Hardware Options

Digitizers

There are more ways to get information into the Mac than with the keyboard and the mouse. One of the most exciting of these is the digitizer. **Digitizers** take things in the real world—pictures, objects or whatever—and convert them into patterns of dots that can be stored in a computer's memory (or on disk), copied, altered, printed out, etc.

As Mac programming genius Andy Hertzfeld puts it, digitizers are "MacPaint for the rest of us" who can't draw but still want to have beautiful and/or useful images to play around with or use in our work. As somebody who draws like a third-grader, I couldn't agree more. After a printer and a second disk drive, I'd say that a digitizer is the most useful piece of hardware you can buy for the Mac.

There are three basic parts to a digitizer:

1. the device that captures the image
2. the hardware that transmits the image to the computer in a form it can accept
3. the software that tells the computer what to do with the image once it gets it

Two kinds of devices are used for capturing images—cameras and optical scanners (which work the same basic way as the bar code readers used at supermarket checkout counters). Camera-based digitizers can use regular video cameras like the kind you attach to VCRs. They can also use security cameras, like the ones used in stores to catch shoplifters; the price is much lower, but so is the quality.

(Don't confuse a scanner-based digitizer with an optical character reader [OCR]. OCRs read text and give you something you can word process; a digitizer can capture an image made up of text, but it won't know one letter from the next. In other words, digitizers don't know what the letter shapes stand for, and OCRs do. On the other hand, OCRs can only capture text, not any other kind of image.)

The first scanner digitizer was called ThunderScan (how "thunder" got in there I'm not quite sure). Its optical scanner looks like an Imagewriter ribbon with a wire coming out of it—which isn't surprising, since to use it, you take the ribbon off an Imagewriter and put the scanner in its place. Then you simply roll the image you want to capture into the Imagewriter—it obviously has to be on a loose sheet of paper—and the Imagewriter moves the optical scanner over it.

Scanner-based digitizers have two basic advantages—they can produce very detailed images and they're less expensive (half the price of a camera-based digitizer, or even less if you buy a good camera). Camera-based digitizers also have two basic advantages—they can scan an image much more quickly (several seconds versus several minutes for a typical scanner-based digitizer) and they can take a picture of anything (scanners, of course, can only capture printed images—and if they're not on a loose sheet of paper, they have to be photocopied, or torn out, first).

Here's a short check list for digitizers:

- ✓ Make sure the package you're buying contains all three basic components—camera or scanner, hardware connection, software—or at least be sure to compare equivalent systems. It's fairly common for something advertised as a digitizer not to include the camera.



IMPORTANT
WARNING

- √ See enough samples of the captured images to make sure you're getting the resolution you want. Picture quality varies fairly widely between different products, and is often quite fuzzy. Cameras make an enormous difference, and a really good one can cost more than \$500.
- √ Watch the digitizer scan enough pictures to give you a good feeling for its speed. Is it really fast enough for you, or are you going to feel frustrated after a while?
- √ Try to figure out all the different things you're likely to want to scan, and don't get a digitizer that won't accommodate them. You're obviously going to be unhappy if you want to capture the image of a three-dimensional object and the digitizer you have only accommodates loose sheets of paper.
- √ Try to figure out how much you're actually going use a digitizer and don't spend \$800 for a top-of-the-line camera-based digitizer when a \$200 scanner-based one is all your usage really justifies.

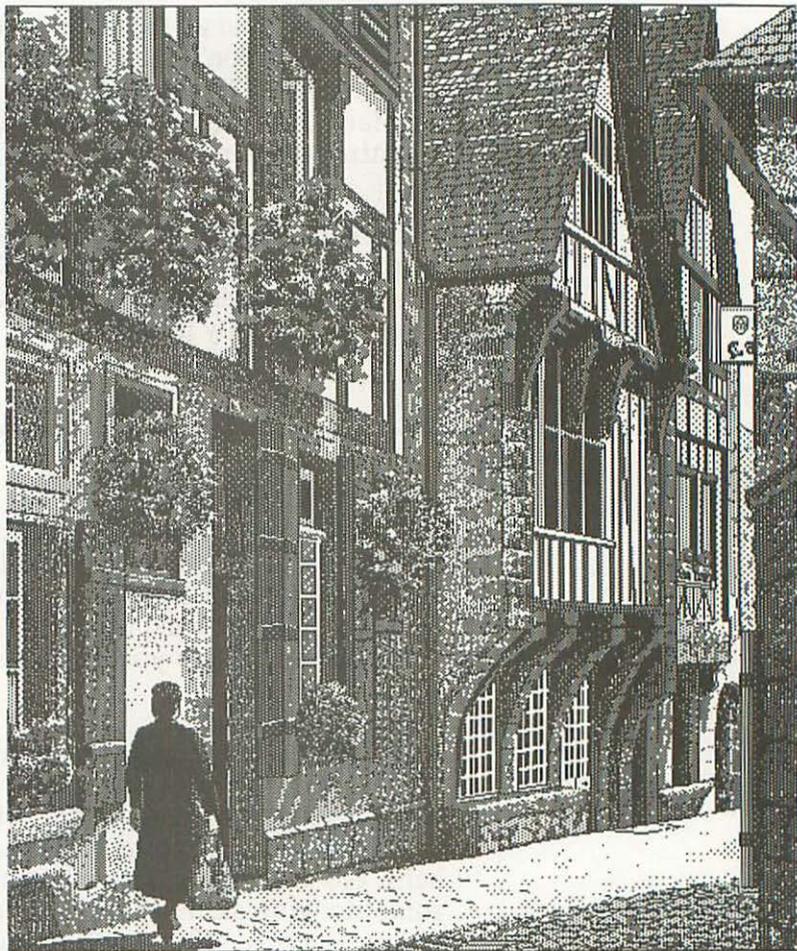
Digitizer Substitutes

A device called PaintMate can serve as an inexpensive alternative to a digitizer (in a limited sort of way). It consists of a sheet of smoked hard plastic that hangs on a metal armature at a 45° angle in front of the Mac's screen. You put something on the desk in front of the Mac and its reflection appears on the Mac's screen, where you can trace it using regular graphics software.

PaintMate works as advertised, expect that it takes a bit of futzing with the lights and screen brightness to be able to see both the reflection and your drawing on the screen. It will save you time blocking out the basic shape of something, and even helps you with highlights and other details, but it does require some drawing skills to produce a useful image. As of this writing, it costs \$40—which I think is way too much for what it is.

For capturing flat images, I prefer MacGrid. The package contains two plastic grids (one for the whole image and one for details) and a detailed tutorial on disk that not only teaches you how to use the product, but something about how to draw as well.

MacGrid makes it possible to produce quite impressive images, a few of which are included on the disk. Here's an example drawn by MacGrid's inventor, Jerry Clement:



Like PaintMate, MacGrid costs \$40, but in this case, I'd say it's a bargain.



Other Input Devices

I've always hated keyboards with built-in **numeric keypads** (ten number keys arranged in a square, as on a calculator, used for entering lots of numbers), because they make the keyboard bulkier and heavier without yielding me anything in return (I use a numeric keypad about as often as I watch the Lawrence Welk Show).

So I was delighted to see Apple provide a light, trim, little keyboard as standard equipment (with *great* key action, by the way, the best I've ever felt), and offer the numeric keypad as an optional extra.

This even benefits those people who use a numeric keypad all the time—if they're left-handed. In return for no more inconvenience than a couple of crossed wires, they can put the keypad to the left of the keyboard, and use it with their dominant hand. (The same thing can be done with the mouse, of course.)



Another kind of alternate input device is the mouse substitute. Usually a ball you spin or a disk you push down the edges of, it sits next to the keyboard (much as a numeric keypad does) and lets you move the pointer around the screen with your fingers instead of your arm. The makers of some mouse substitutes claim that they're faster, more accurate and easier to use than a mouse; at the very least, they cut down on how much physical work you have to do.

Communications Equipment

Modems—hardware that enables the Mac to communicate with other computers—are covered in Chapter 19.

External Monitors and Large Display Screens

The Mac's screen is only 9" across, and sometimes you need something bigger than that (because you're teaching a class or giving a demo or delivering a lecture). Professional Data Systems will modify your Mac to drive either a 6' video projection screen and/or several 23" high-resolution monitors. Another company, Micrographic Images, sells a similar modification, which allows the Mac not only to drive an external monitor or a video projector, but also to create slides on a 35mm film recorder.

Swivels



HOT TIP

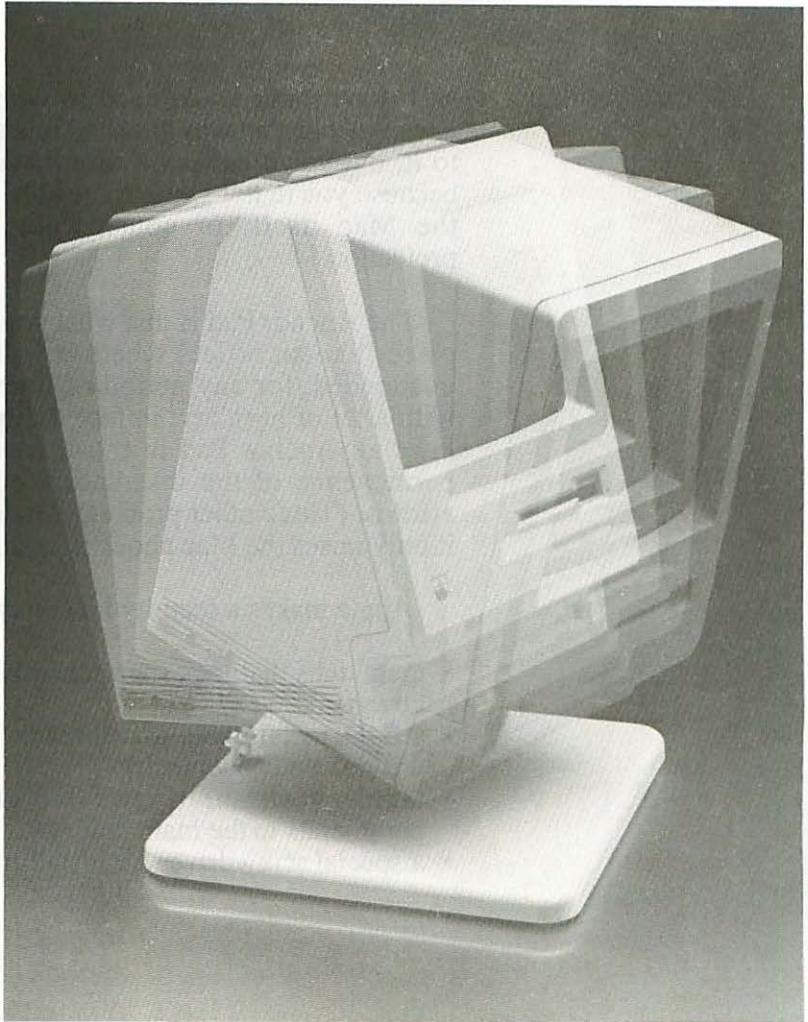
To be comfortable while using the Mac (or any computer), the surface your keyboard is resting on should be no higher than 24 - 27" off the floor. Most people put the keyboard on a normal table or desk (28 - 30" high), and that's sure to cause a strain (unless you're 6' 4" and are sitting in an oversized chair). Here's a simple rule of thumb: if your wrists are higher than your elbows, the keyboard is too high.



HOT TIP

The main unit should be set on something at least 4 - 8" higher than the surface the keyboard's resting on, and it should be at least a foot farther away from you. You can put it on a box or a pile of telephone books (they're almost exactly the right size), but it's nice to look at something a little prettier than that. It's also important to be able to fight glare—reflections on the screen—by tilting and swiveling the screen (a feature that also comes in handy when you want to show somebody something on it).

The best device I've seen for meeting these goals is MacTilt from Ergotron. This is a rock-solid, all-metal stand that lets you swivel the Mac 360° and tilt it 30°, and raises it 4" to boot. According to the guy at Ergotron, it's so tough you can stand on it. (They also make tilting swivels for about 150 other machines.)



There is one problem with MacTilt—it costs about \$100 (as of January, 1985). If that's more than you want to spend on a phone-book substitute, Inland's Macswivel/Mactilt costs only a third as much. It's quite similar, but it's made mostly of plastic and isn't as sturdy. It also doesn't swivel and tilt as smoothly, and only raises the Mac about 1-1/2". Still, you can pay \$35 for a chintzy, little, wafer-thin swivel that doesn't tilt at all, so this is a good deal for the money.

Theft Protection

The Mac swivel from Anchor Pad weighs almost nine pounds; it seems to be made of armor plate. This would be overkill if it was merely a swivel, but its main function is as a security device.

I don't think you'd need to worry about losing your Mac once Anchor Pad was attached to a desk and the Mac locked in to it, but you'd better be sure that's where you want it to be, because you're not going to be able to move it. (You can move the Mac itself, of course, but then you lose the theft protection.)

The Anchor Pad is just what you want for a Mac in a public place (like an office) where it will be in an unlocked room, unattended, for any period of time, or if you live in an area with a lot of burglary; in fact, I think it would be crazy not to have an Anchor Pad in those situations. But otherwise, the permanence of the installation outweighs the protection it affords. (Three other problems: it doesn't protect the keyboard, it only raises the Mac about an inch, and it doesn't tilt.)

Apple makes a security kit consisting of:

- metal tabs that lock (permanently) into the main unit and the keyboard
- a light metal cable that threads through them (you have to provide your own lock)
- tamper-resistant screws for attaching the cables from peripherals to the main unit
- a special screwdriver for installing the screws

Obviously, Apple's Security Kit isn't going to stop a professional thief (what is?), but it will slow down the snatch-and-run amateurs, and it's a whole lot better than nothing. Sometimes all you need to do is make your Mac just a little bit harder to steal than the next guy's.

Electronic Protection

Variations in the electrical power coming out of the wall can turn the insides of the Mac—or any computer—to guacamole. Although the Mac has some internal protection against this threat, I think it's always a good idea to buy a little additional insurance.

There are many different kinds of devices to protect you from "dirty power"; I'll just mention a couple. Electronic Specialists makes a **line conditioner** that filters the electricity coming into your Mac and smoothes out surges and dips. This is a heavy-duty industrial unit that looks like it would withstand a direct hit from a bazooka. It certainly will protect your Mac from anything short of a blackout, but it does make a very loud hum that you may find annoying.

For even more protection, you can get a **noninterruptible power source**. In addition to smoothing out surges and dips and filtering out electrical noise, it has a battery that will give you a few minutes of continued service *after* the power goes out, so you can protect your data by saving it to disk and ejecting the disk. (When the power goes off, a light starts flashing and a buzzer sounds—in case you're in another room.)

One good noninterruptible power source for the Mac is the Datasaver from Cuesta Systems, and it doesn't even cost much more than an equivalent line conditioner (both are in the \$250-500 range).

If you don't want to spend that kind of money, you might be interested in the Maccessories Control Center. It fits under an external disk drive and contains a light-duty surge suppressor and noise filter. It also has a master switch to power the whole system on, and separate switches for a printer, modem and one other accessory.

Breakdown Protection



HOT TIP

You can add a year onto Apple's standard 90-day warranty by buying something called AppleCare. Even though it costs \$100-200 or so (depending on what's covered), it's a good idea. Before you decide not to spend the extra money, ask your computer dealer what their hourly rate is for repairs, and figure that your Mac will need at least one during that year (it's not the most reliable machine ever built).

Dust Protection



IMPORTANT
WARNING

A number of people make dust covers for the Mac and it's a good idea to put one over it if you aren't going to be using it for a couple of days (particularly over the keyboard).

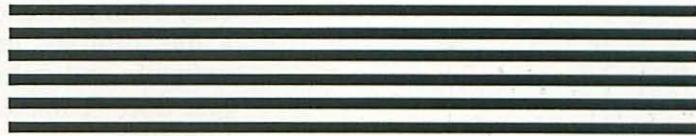
The important thing here is to get nylon, not vinyl, because vinyl fumes are terrible for you. Here's what Debra Dadd says about them in her excellent book *Nontoxic & Natural*: "Polyvinyl Chloride (PVC) releases vinyl chloride, especially when [the] product is new. Vinyl chloride is carcinogenic, mutagenic and teratogenic, and can cause mucous membrane dryness, numbness to the fingers, stomach pains, hepatitis, indigestion, chronic bronchitis, ulcers, Raynaud's syndrome and allergic skin reactions."

Computer Cover Company sells woven nylon covers for the main unit, keyboard and the Imagewriter. The samples I've seen are attractive and well made.

CHAPTER



5



Transporting the Mac

The Mac (with keyboard and mouse) weighs less than twenty pounds, and has a handy recess on the top intended—like the similar one on standard desk phones—to be used as a handle. But the Mac comes in three (or more) separate pieces, plus cables, so if you actually want to carry it farther than across the room, you need a carrying case.

Carrying Cases

Apple makes one, and so do a dozen other manufacturers. In deciding which one (if any) to buy, you need to figure out how often you're going to transport your Mac, and by what means. It's one thing just to lug it in and out of the trunk of your car, quite a different thing to walk some distance with it, and quite a different thing again to take it on public transportation during rush hour (perish the thought).

Now don't get me wrong—I'm all for public transportation...in principle. It's like Calvin Trillin's line about hating cats. He doesn't want to teach his daughters prejudice, so he tells them that he doesn't hate cats—he's simply never met a cat he likes.

The New York subway is a fascinating human zoo, riding BART is as comfortable—and fast-moving—as sitting in an easy chair at home, and I even met a man who claimed he saw a bus running in L.A. But for transporting something as valuable and vulnerable as a computer, public transportation just doesn't make the grade. There are worse ways to do it, however...

At the beginning of Chapter 7 in the Macintosh manual, there's a picture showing an incredibly handsome guy riding a bicycle across the Stanford University campus (which is also gorgeous). Everything is sweetness and light, except for one jarring note: in the basket of his bike is a Macintosh carrying case—just sitting there loose, no bungee cords or anything.

There are three possible explanations for this:

1. the case is empty.
2. the guy is brain-damaged.
3. the guy is so good-looking, nothing bad can happen to him.

Clearly, nobody with an IQ in three figures would put \$2000 worth of electronic equipment in the basket of a bicycle. I used to ride my bike to work in midtown Manhattan during rush hours, snaking through the trucks and cabs like a fish through water, but I wouldn't dream of riding ten feet in an empty parking lot with a Mac in my basket.

The same goes for putting it the luggage rack of a motorcycle, scooter or any other two-wheeled vehicle; even if you strap it in, the whole vehicle can fall over, crash into things, and so on. (It might be OK if you put the Mac in a rigid shipping case, not just a soft carrying case, but even then it's pretty risky.)

Which brings us to the first choice you have to make: you can either get a rigid, tough shipping case that will protect your Mac just about anywhere you take it (or send it) but is clumsy to carry, always rubbing your leg and banging into your knees, or you can get a soft carrying case, which is lighter, more comfortable and less expensive, but offers significantly less protection.

The carrying case is a better bet if you'll be personally transporting your Mac locally and frequently—from your home to your office several times a week, for example; the shipping case is better if it will be out of your hands—checked through as luggage, for example—on a fairly regular basis.



HOT TIP

You may need both kinds of case; neither will really substitute for the other. On the other hand, if you only carry or ship the Mac infrequently, you won't need either kind, since you can simply use the pretty box it came in (be sure to save it, and the foam cushions that go inside it).

Below are three check lists: what to look for in a soft carrying case, what to look for in a rigid shipping case, and what to look for in both.

Checklist for carrying and shipping cases

✓ *Well-made (and guaranteed to be).* The most obvious requirement for a carrying or shipping case is that it be well constructed out of tough material. Unfortunately, unless you know a lot about luggage, this is a difficult thing to judge. So look for a good, long guarantee instead—ideally a lifetime one.

Totem has one that's just about ideal—a lifetime guarantee that covers "all stitching and...materials"; they even reimburse you for the cost of shipping the pack back to them. The only things excluded are damage caused by the user (burns, tears, etc.) and "reasonable wear of materials."

It's also nice if the company is old and established, so you know they'll be around to honor the warranty, but a lifetime guarantee is a good sign even when it comes from a small, new company, since they're not likely to offer it on a shoddy product.

✓ *Room for everything.* This may seem obvious, but some packs have no place for the external disk drive (which, as I've said, is an absolutely essential piece of equipment). And some have more room for disks and papers than others.

The space should be divided into pockets that hold each component (the keyboard, the mouse and the external drive, in addition to the Mac itself) snugly in place. Ideally, there should be flaps with Velcro to make sure nothing slips out of its pocket.

✓ *Lots of padding.* There should be padding all around the case, and around each of the internal pockets—the thicker the better (within reason). The foam should also be dense, so it can absorb a lot of impact. Test it out by seeing how hard it is to compress between your fingers.



HOT TIP

✓ *A padded handle.* Twenty pounds is a lot to haul around by a nylon strap or hard plastic handle (and with a second drive, disks, etc., it can be more like 25), so you definitely want cushioning in the handle. A standard handle on top of the carrying case is only useful for short distances (say, 50 yards or less at a time). For longer distances, you need a shoulder strap or back straps (and thus a soft carrying case, not a rigid shipping case).

✓ *It might as well be pretty.* It usually doesn't cost any more to make the case look nice, but it should make it worth more to you.

Checklist for soft carrying cases

✓ *Shoulder strap.* This is convenient for medium distances (like out of your office, down an elevator, and a block or less to a cab or car), but try it for long distances and you'll end up looking like Quasimodo. The strap should be adjustable and padded, with a cushion that can be slid along to rest on your shoulder.

✓ *Back straps.* This is the ideal way to carry a heavy load for any considerable distance (for short distances, it isn't worth the hassle of getting the load up on your back). The straps should be fully padded and fully adjustable, and wide enough that they don't dig into your pectoral muscles.

Be sure to try out the pack with a Mac in it; I haven't found one yet that's comfortable on my back. Either the board that runs across the bottom of the pack digs into the small of my back, or the straps cut into my pectorals uncomfortably.

- ✓ *A rigid, protected bottom.* There should be a flat board of some kind (covered with fabric, of course) to distribute the weight of the Mac evenly across the bottom of the case. On the outside, there should be little plastic feet to protect the fabric from abrasion when you set the case down.
- ✓ *Collapsible.* One advantage of a soft case is that you can fold it up and store it in a relatively small space (under a desk, say, or in a drawer), and you can do that if the board that goes across the bottom and the dividers that make up the internal pockets can all be folded up flat or taken out completely.
- ✓ *Small enough to fit under an airplane seat.* If you're flying, carry the Mac on with you as hand luggage. It's nuts to check a soft carrying case through as luggage. If, for some reason, you absolutely have to do that, be sure to take out the extra insurance on it (if they'll give it to you).

The amount of space under an airplane seat seems to vary fairly widely between airlines, and it can be very hard to get a carrying case under one. So if you're going to be doing a lot of flying with your Mac, get the smallest carrying case you can find.

- ✓ *With an attachable printer case.* If you're planning to be gone for a while, and to do serious work while you're there, you'll probably want to take your printer with you. It's handy if the printer case attaches to the Mac case, so they can be moved as one unit. (But they won't both fit under an airplane seat, so if you're going to be doing a lot of flying with your printer, you'll need a shipping case—or two.)

Checklist for rigid shipping cases

There's just one item on this checklist, and that's what you always buy a shipping case for:

- ✓ *Indestructibility.* There are some rigid cases out there that aren't meant for shipping. They look a little like cosmetic cases, with chintzy latches and locks, and just generally aren't very heavy-duty. These strike me as the worst of both worlds—not as comfortable as a soft carrying case, and yet

not tough enough for shipping. You want something *tough*, with reinforced edges and corners, lots of padding, and sturdy latches or locks.

But there are some limited uses for these flimsy rigid cases. For example, if you're going on a long car trip with a Mac, they take up less room than a shipping case, but afford more protection than a soft case.

There are also soft cases with so much dense padding their manufacturers claim they're tough enough for shipping. I haven't actually seen one of these, but they may be worth looking into.

Well, that's enough for the checklist. I know one thing for certain—no other book on the Mac is going to give you more detailed guidelines on what to look for in a carrying case. Now, to give you a taste of what's actually available, here are brief descriptions of three cases:

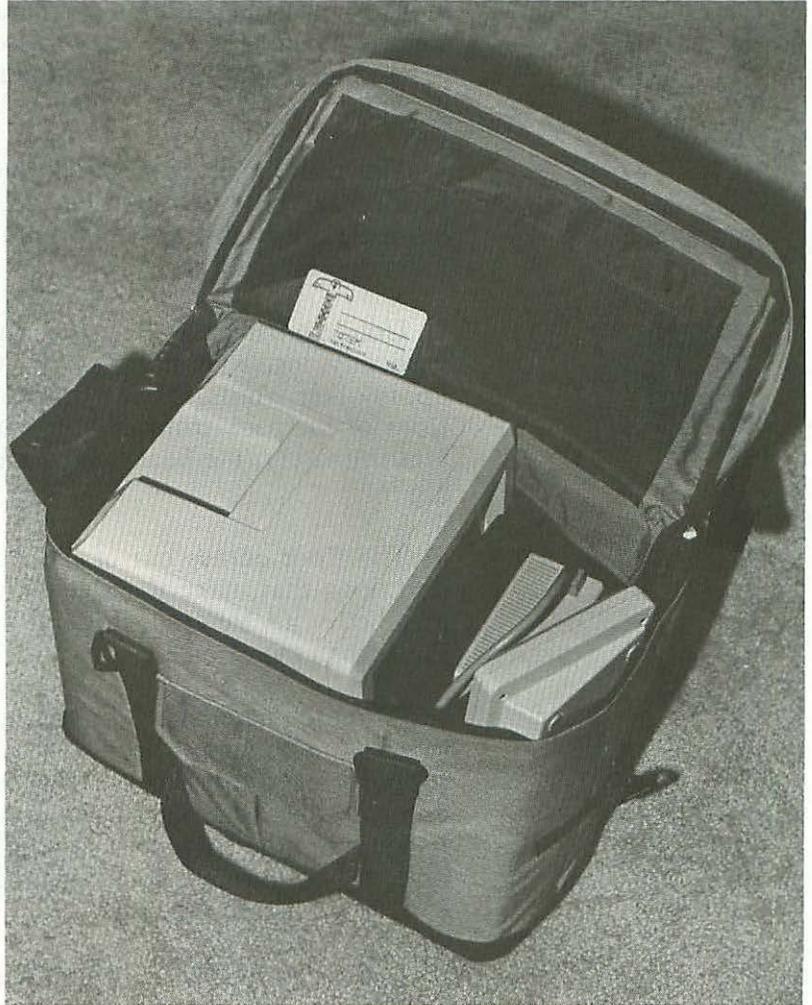
MacTote is a typical, standard Mac carrying case—nothing particularly great about it, nothing particularly terrible. It seems to be reasonably well made and comes with a one-year guarantee (you pay the shipping). It has an open sleeve for the keyboard, and pockets with flaps for the mouse and external drive. There are four external pockets (three with zippers, one open), but none is large enough to hold 8 1/2 x 11 sheets of paper.

Padding is just fair—not very thick and not very dense. The handle is padded, and there's also a shoulder strap with a sliding cushion. There's no provision for back straps. The MacTote is reasonably good looking. Its bottom is protected with little plastic feet.

I haven't actually tried it, but MacTote looks too thick to fit under an airplane seat, and the brochure that comes with it doesn't say anything about that. The bottom comes out of the case, so it is collapsible.

The carrying case from Totem Inc. (these guys all use the same puns) is more nicely made than any of the others I've seen, and the colors it comes in are richer and brighter. (Except

for camouflage! Can you imagine owning a computer carrying case covered with *camouflage* fabric? I guess it would come in handy if you wanted to take your Mac duck hunting.)



The fabric inside is nicer too—smoother, more silky than in other cases. The bottom of the case is leather, which looks great (and even smells great). But there are no little feet to protect the leather, so I imagine it will wear through eventually. And it's much more likely to get soaked if you put it on a wet surface.

The Totem pack is definitely small enough to squeeze under an airline seat—it's the most compact case I've seen—but it

still has plenty of room inside (although I must say I've done easier things in my life than closing that zipper). There are sleeves for the keyboard and external drive, and a pouch for the mouse (unfortunately, it's a separate piece that attaches with Velcro and thus is very easy to lose). There's also a place to put a modem and two boxes of ten disks, and three additional pockets.

The padding is fairly thick and dense, and the handle is padded and covered with leather. There's no shoulder strap, but there are backstraps, and quite intelligently designed ones (although far from perfect).



VERY GOOD
FEATURE

Unlike other packs I've seen, the Totem rides on your back vertically, instead of horizontally (with the Mac's screen facing up, in other words, instead of sideways). This keeps the rigid floor of the pack from jabbing you in the small of the back. Unfortunately, the back straps aren't wide enough, and they dig in.

The floor comes out of the Totem case, and the padded partitions that make the sleeves can be pulled free (they're attached with Velcro, allowing you to fold this pack much flatter than most).

Of these three cases I looked at, Apple's is far and away the dinkiest. Although it seems to be fairly well made, and has room for everything in it, the padding is both thin and easily compressible, offering only minimal protection. The handle is padded, but the shoulder strap isn't, and back straps aren't an option. The bottom is semirigid and nonremovable, so the case can't be collapsed very flat.

List prices for Mac carrying cases generally run from \$80 to \$120 or so, although you can usually buy them at a discount both from mail order sources and local stores. As of this writing, Apple's carrying case and the MacTote both list for \$100, and the Totem for \$110 without backstraps, \$120 with.

Well, I guess that about covers the subject of carrying cases. Sorry to have rushed through it like that....

Alternate Configurations for the Whole Machine

No matter how good a carrying case is, it can't save you the hassle of disconnecting all the separate pieces, and plugging them all back together again when you get to where you're going. So if you need to move your Mac more often than once a week, you might want to consider the MacColby. This is a rugged aluminum box that encloses all the standard Mac components. The keyboard snaps onto the front, there's a built-in handle, and the whole thing fits under an airplane seat.



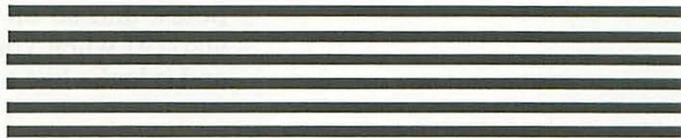
This repackaged Mac has a fan, and there's also room in the box for a second disk drive (or a hard disk), a video output board (for driving external monitors), a DC converter (so you can run it off your car battery) and a modem. You can buy it two different ways—all put together (for about \$500 more than an equivalent Mac in the standard configuration), or as a conversion module that lets you convert a conventional Mac to a MacColby.

Heard enough about hardware? Me too. Let's talk about software for the next thirteen chapters.

CHAPTER



6



The Basics

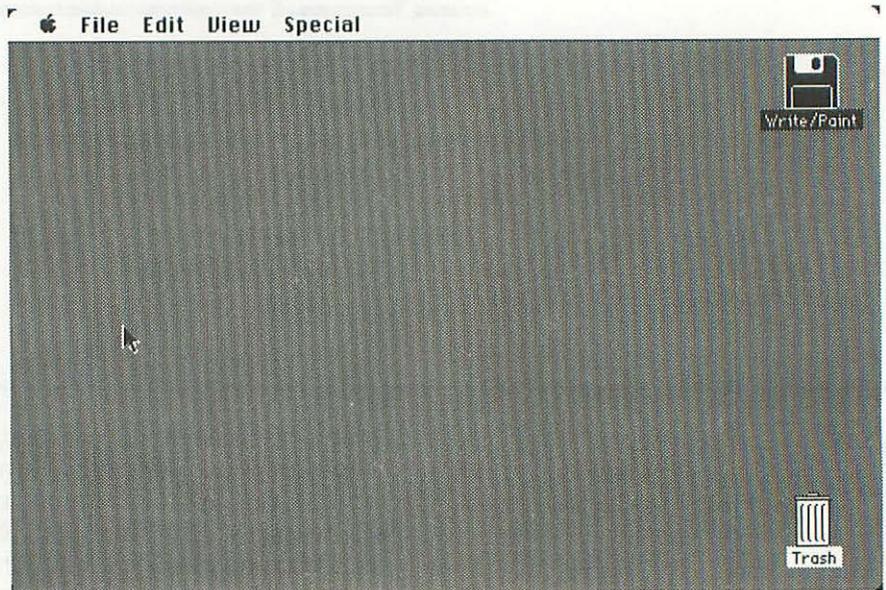
I've already discussed the **pointing interface** and how it lets you direct the Mac by pointing at clear, simple, unabbreviated English statements or **icons** (small cartoon symbols), instead of forcing you to memorize a bunch of abbreviated commands. This chapter begins to describe the specifics of how that interface actually works.

This is not a step-by-step guide to using the Mac. The Macintosh manual provides that, but you don't really need it, since the Mac is so easy to use.

The Desktop

I'll begin with what the people at Apple call the **desktop metaphor**. They figured that since the kind of work the Mac is replacing is mostly done at a desk, the Mac will feel more natural to you if it simulates that environment. So they created a grey area that covers most of the screen, and called it the **desktop**.

Just as on a real desktop, you can shuffle objects around this grey area, open folders and read what's in them, write notes, and so on. The desktop is where you (almost always) start off when you insert a disk in the Mac and begin working, and it looks like this:



Before I describe how things work on the desktop, I need to cover the only thing on the screen that isn't part of it—that line of words across the top.

Menus

It's called the **menu bar**, and the words on it are called **menu titles**. If you put the pointer on a menu title, then push and hold down the mouse button, a menu pops down over the desktop. (As you may know from other computers, a **menu** is a list of commands available to you at a particular time. **Commands**, of course, are things you can tell the program to do.)

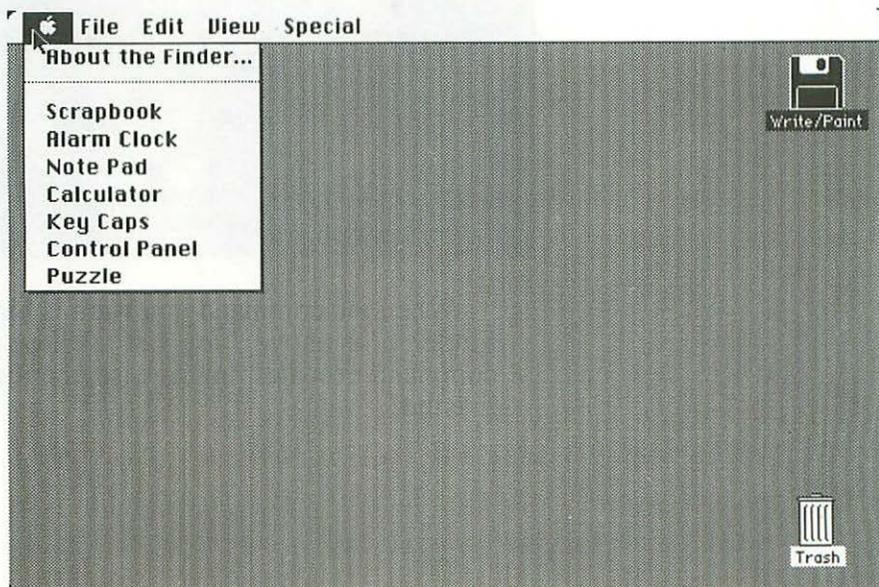
Apple insists on calling these "pull-down menus"—presumably on the theory that, in real life, things pop *up* but *pull* down (like window shades). Well, for one thing, that isn't always the case; for example, those oxygen masks stewardesses demonstrate before a flight pop *down* from overhead if the cabin becomes depressurized (at least you hope they do).



GOSSIP/
TRIVIA

But even if nothing in the real world ever popped down, that's still what the Mac's menus do. You don't grab the menu title and pull the menu down over the desktop; you touch the menu title, click the mouse button, and the menu *pops* down over the desktop. The pointer stays up at the menu title, not down at the bottom of the menu where it would be if you were pulling it.

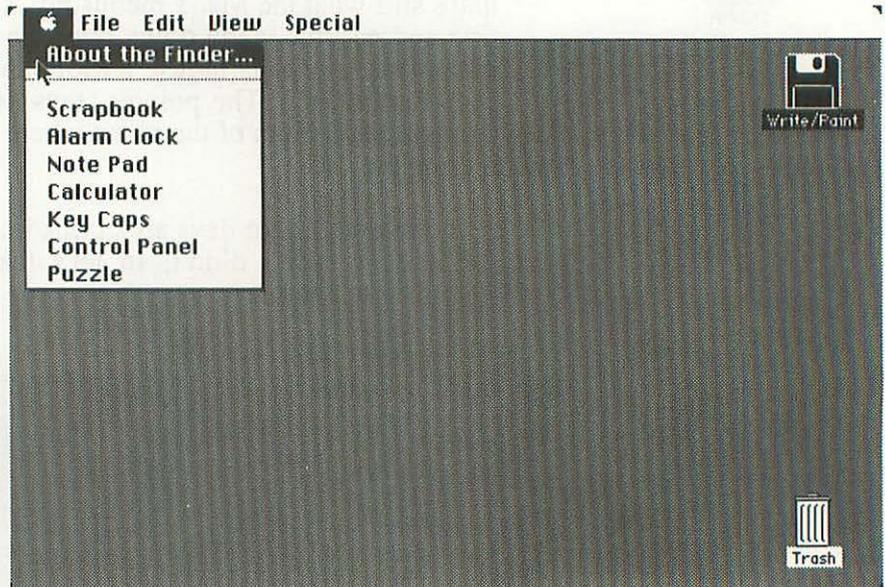
I could go on for days about this important point, but you'd probably prefer I didn't, so let's take a look at an actual **pop-down menu**:



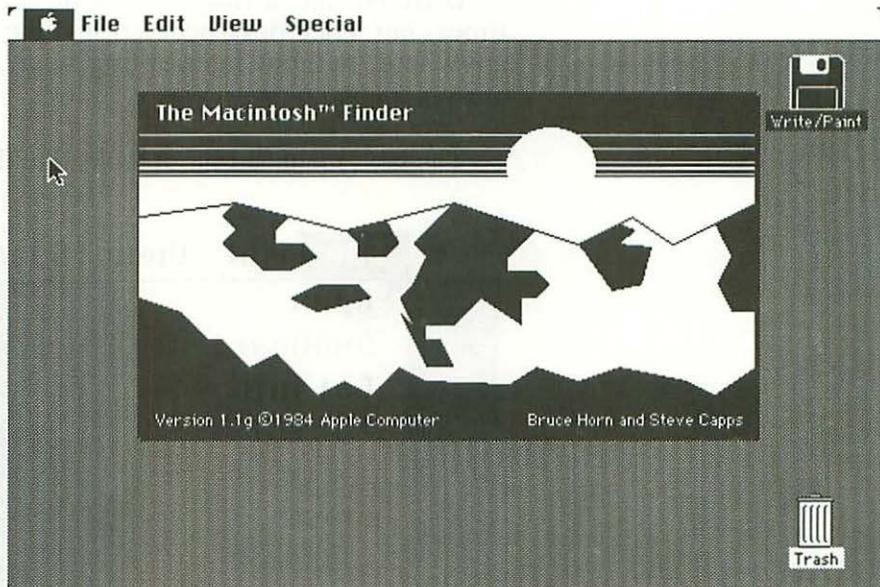
This is called the "Apple menu" (since so few people can pronounce 🍏). Typically, the first command on it always tells you about the software you're using—what version it is, who wrote it, etc. Sometimes you also get other information—it

depends on the program you're using. In this case, we're using the Finder (I'll tell you more about that in a page or two).

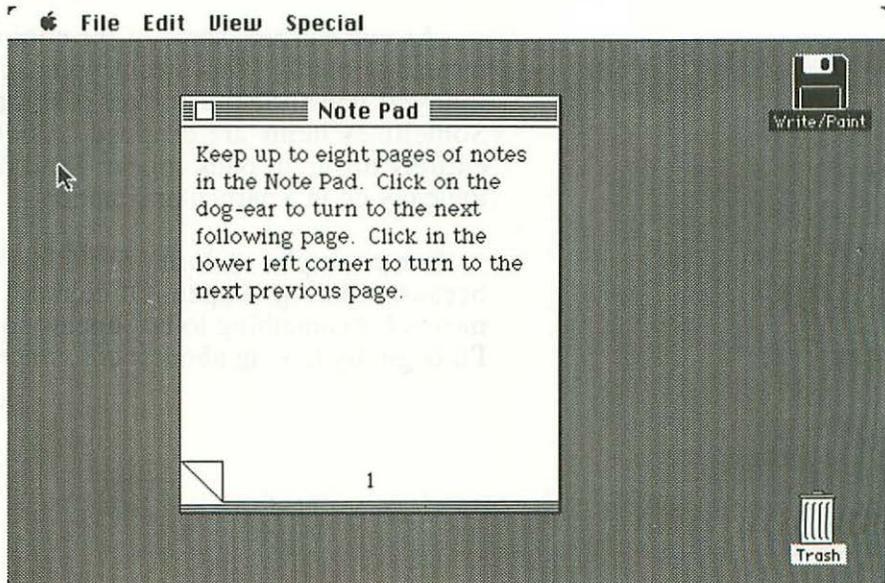
To select a command, you slide the pointer down the menu, keeping your finger on the mouse button. As you pass each command, it **highlights** (that is, instead of appearing as black letters on a white background, it appears as white letters on a black background).



When the command you want is highlighted (as 'About the Finder...' is above), you just release the mouse button and the command executes. In this case, the result is a screen that looks like this:

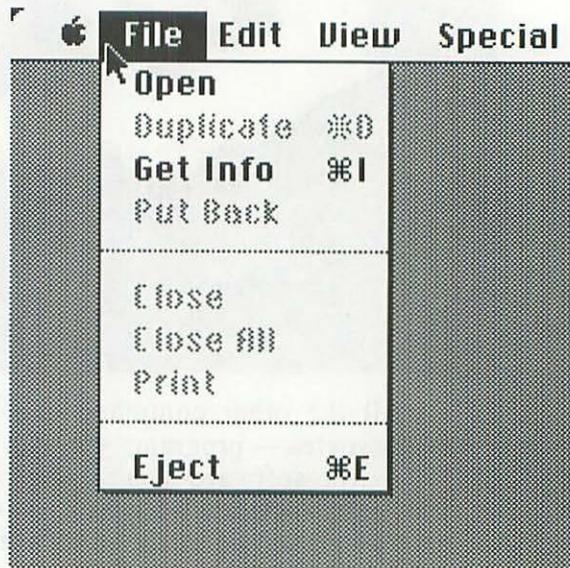


All the other commands on the  menu are for **desk accessories**— programs you can use without having to exit whatever software you're working with at the time. For example, **Note Pad** lets you jot down eight pages of notes (with a maximum of about 40 words on each page) in a small area that appears on top of your current work.



Different menu titles appear on the menu bar at different times, but since desk accessories like Note Pad can be used anywhere, without interrupting what you're doing, the  is always there.

The next menu is File. It looks like this:



As you can see, some of the commands are **dimmed** (grey instead of black). This means you can't use them at the present time—if you slide the pointer past them, they won't highlight. Sometimes items are dropped completely from a menu, and entirely different ones appear. It all depends on what you can logically do in a particular situation.

For example, 'Close' or 'Close All' are dimmed now because nothing is open. Of course I haven't told you what it means for something to be "open," so let me explain that now. I'll begin by talking about icons, since they're what you open.

Icons

The icon in the upper right corner of the desktop represents the disk I inserted—which, as you can see, is named ‘Write/Paint’. In the lower right corner is the **Trash** icon; this is where you put things when you don't want them any more. (The arrow in the middle of the screen is, of course, the **pointer**.)

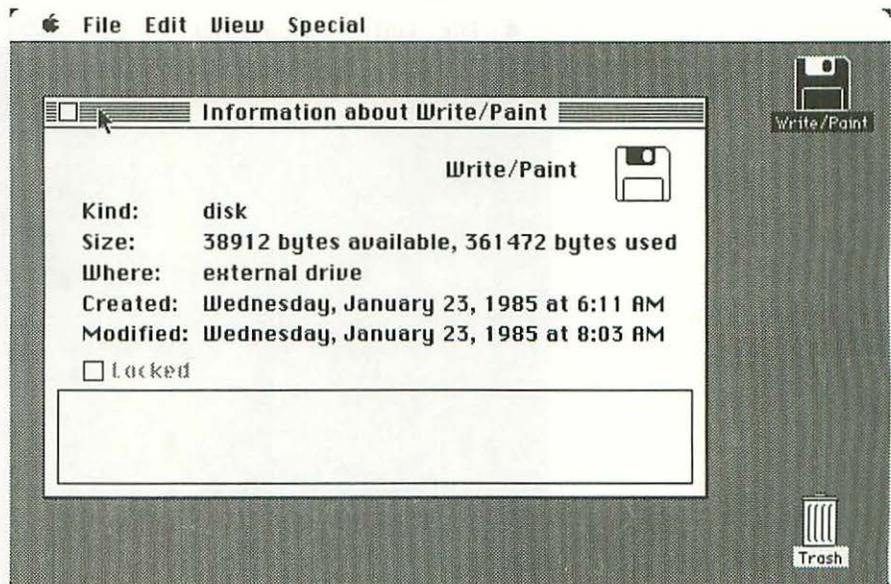
The Trash icon is white with black lines and lettering, which is the normal way for icons to look. But the disk icon is black with white lines and lettering; as with a command on a menu, that means it's **selected**.



HOT TIP

Selection is the single most important concept for understanding how Mac software works. The basic principle is: *You always have to select something before you can do anything with it.* Trying to do something when nothing is selected, or with something different from what you think is selected, is the cause of 90% of the confusion people have when learning to use the Mac.

Let's say you go to the File menu and choose the Get Info command. Obviously, if you want information, the Mac needs



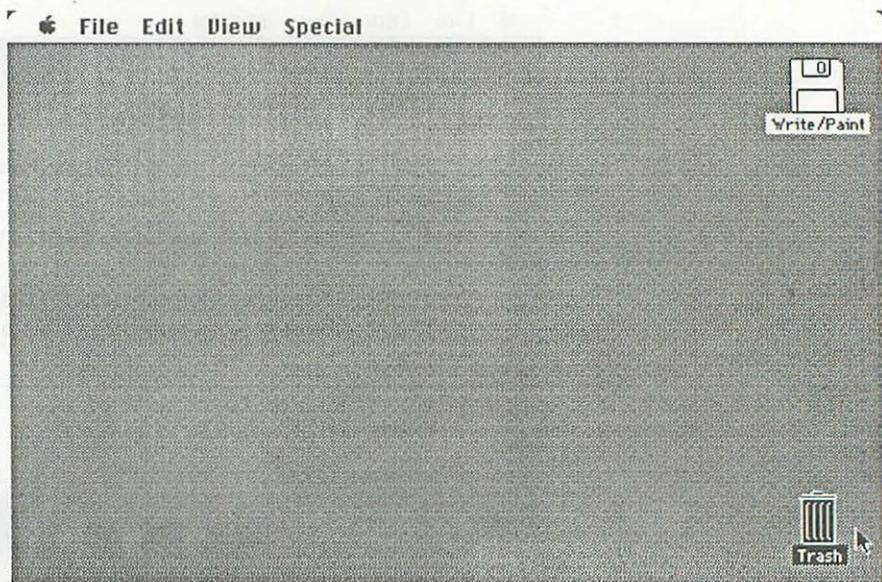
to know what you want information about. You tell it by selecting something (in this case, the Write/Paint icon).

If you look back at the Get Info command on the File menu (on the screen before last), you'll see that '⌘ I' follows it. That cloverleaf symbol appears on a special key on the Mac keyboard and is called "clover" or "daisy" or "butterfly" or "command" (the official name).

'⌘ I' means that instead of using the mouse to take the pointer up to the File menu, then clicking the mouse button to make the menu pop down, then going down the menu to the Get Info command, then releasing the mouse button, you can just hold down the ⌘ key, hit the i key, and get the same result.

We haven't had to select the Write/Paint icon, because a disk is automatically selected when you load it into the Mac. But let's say you want to select something else. To do that, you just put the pointer on it, then press and release the mouse button (this is called **clicking**).

In the screen below, I've clicked on Trash; now it's selected, and the Write/Paint icon has been automatically



de-selected. (That's not inevitable, though—you can select more than one icon at a time by holding down the **Shift** key while clicking on them. This is called **shift-clicking**.)

You can move an icon around the desktop quite easily. To do that, put the pointer on it, then press and hold the mouse button. The icon will stick to the pointer until you release the mouse button. This is called **dragging**.

You can also rename icons, just by typing the new name while the icon is selected. You can use any character but the colon (:) in an icon name, including spaces.

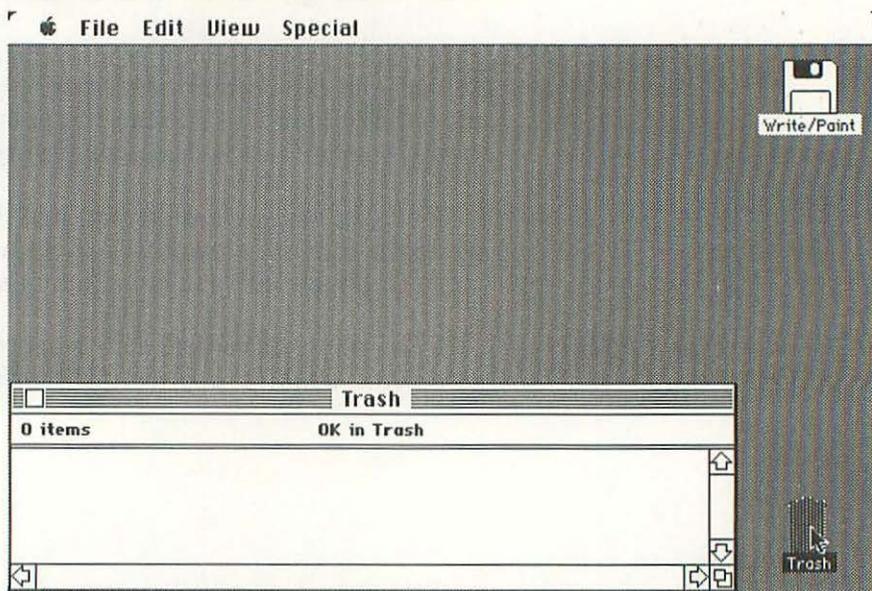
OK—now you're ready for a second basic concept: *Icons can (and usually do) contain other things.*

Windows

To see what's in an icon, you **open** it (thought I'd forgotten about that, didn't you?). To open an icon, you point to it and click the mouse button twice in rapid succession. The first click selects it, the second click opens it. If it's already selected, the first click does nothing. This is called **double-clicking**.

(You can also click once on the icon, and then go up to the File menu and select the Open command, but that's a whole lot more trouble than double-clicking.)

Double-clicking on the Trash icon produces a screen that looks like this:

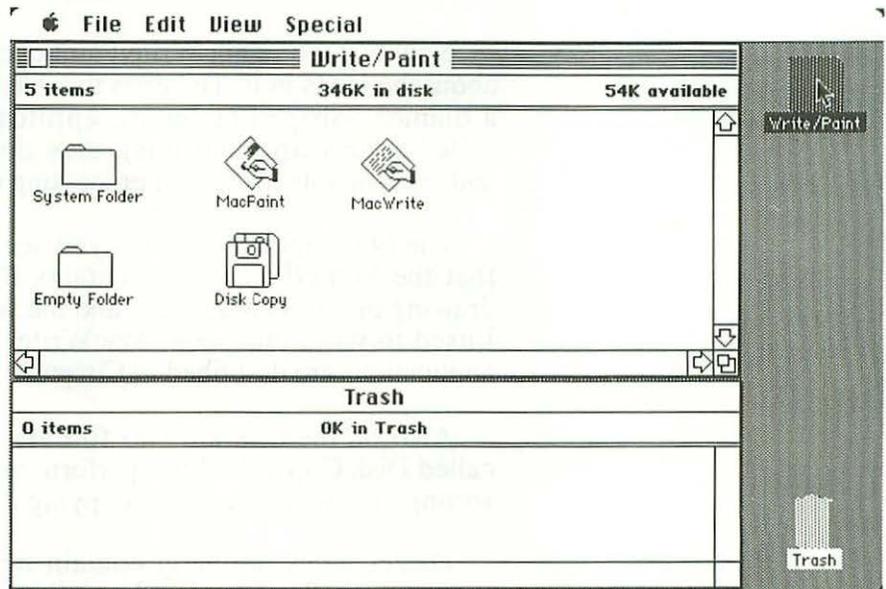


That large box you see, titled 'Trash', is called a **window**. This kind of window is an icon that's been opened to show what's inside of it. Another kind is produced by a menu command, like the Note Pad window I showed you a little while ago. Windows are also used in most Mac software, as the place where you view your documents. (A **document** is anything you create on the Mac.)

The Trash window is empty, because nothing has been thrown into Trash since we began working. When you throw a file icon into Trash, it's kept there for a while in case you change your mind. If you do, you just open the Trash icon to a window (as we have here) and retrieve it. Icons only disappear from Trash when you:

- select the 'Empty Trash' command from the Special menu
- eject the disk that the icon came from
- run an application program
- throw so many things away that there's no more room in Trash for all of them

To see a window that has things in it, let's open Write/Paint.



In order to do anything with (or to) a window, it must be selected. This is indicated by black lines that fill the **title bar** (which runs across the top of the window and has the title in the middle).

Another indication that a window is selected is the grey **scroll bar** that appears along the right side, across the bottom, or in both places (as it does on the Write/Paint window above). The scroll bar only appears if the window contains more information than can be shown in it. The various controls in the scroll bar allow you to bring all the icons (or other data) into view.

It's never particularly hard to see all the icons in a window on the desktop, but scroll bars are particularly useful when you have a long document—a chapter of a book, say—only a tiny portion of which can appear in the window at any one time.

A window is always selected when it first opens, because you have to select its icon to open it. To select a different window, all you have to do is click anywhere in it. To close a

window, you click in that little box in the upper left corner, or choose the Close command from the File menu (in both cases, the window must be selected first).

Now that we've got Write/Paint open and selected, let's talk about the icons in it. The ones that have little hands writing on a diamond-shaped tablet are **application programs** (often called simply **applications**); they do relatively complicated and specific jobs like word processing or accounting.

The two application icons you see in the window tell you that the Write/Paint disk contains Bill Atkinson's fantastic drawing program, MacPaint, and the word processing program I used to write this book, MacWrite. (These and many other applications are described in Chapters 14 - 19.)

Also on the disk are two **folders** and a **utility program** called Disk Copy. (Utilities perform relatively simple tasks like sorting or—as in this case—copying a whole disk.)

Folder icons normally contain more icons. One obvious exception is **Empty Folder**, which is present on all Mac disks. Empty Folder is there so you can create more folders whenever you want.

To do that, you select Empty Folder, then go up to the File menu and choose 'Duplicate' (or give the '⌘ D' command from the keyboard). When you get the duplicate (which is always labelled 'Copy of Empty Folder'), you just rename it and start putting things in it.



Unlike folders and disk icons, applications and utilities don't have more icons inside. If you double-click on them, they just start doing their thing: they give you a window to draw or write in, ask you which disk you want to copy, or whatever.

Odds and Ends

Documents are represented by icons only on the desktop; in most other places, they're identified simply by their names. The View menu lets you display documents by names instead of icons on the desktop as well.

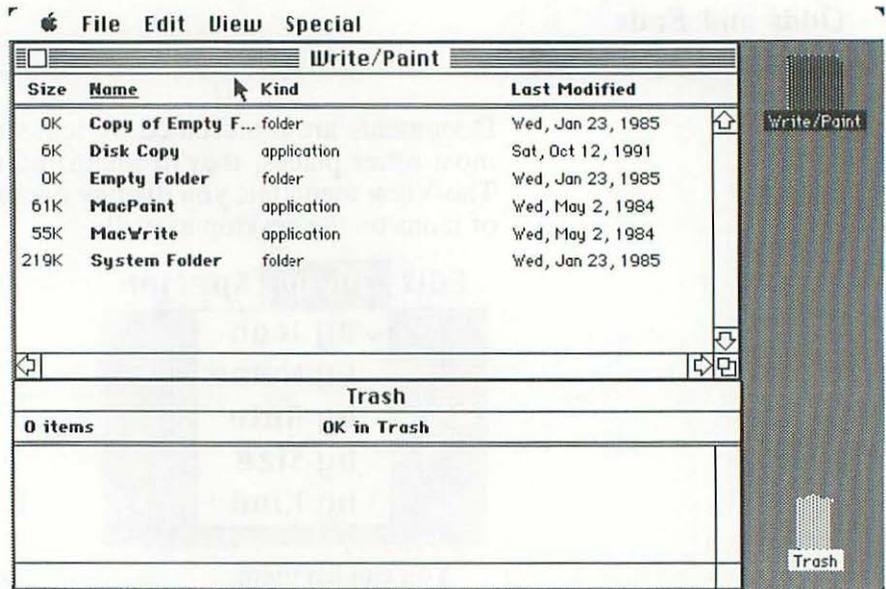


You can list them:

- in alphabetical order (the 'By Name' command)
- in order of when you last changed them, with the most recent one first
- by size, with the biggest first
- in categories, with all the documents of a particular kind (applications programs, folders, MacWrite documents, MacPaint documents, etc.) grouped together

But you only see how much space is left on the disk when you view by icon.

Virtually any application has a way for you to print documents from within itself, but you can also print them directly from the desktop. You do that by selecting them and then choosing the Print command from the File menu. To chain several documents together for printing, you just shift-click on their icons before selecting the Print command.

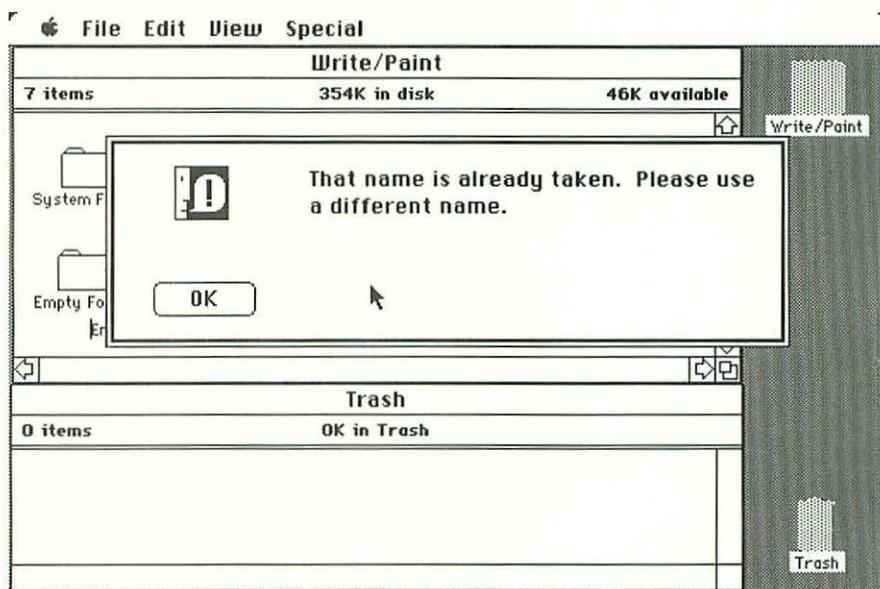


Sometimes you accidentally hit a key while an icon is selected, and find the icon "renamed" by mistake; this happens fairly frequently to a lot of people. There's a command called 'Undo' on the Edit menu, but unfortunately it doesn't work here. If you remember exactly what the icon was called, you can just retype the name; if you don't, here's a procedure that will retrieve it:

First of all, be sure not to touch the mouse button (that will select something else and lock in the new "name" on the icon). Now backspace over the new name until it's completely erased. Then type 'Empty Folder' (just like that, with a capital E and F).

Now hit the RETURN or ENTER key, or click the mouse button. Because all Mac disks contain an icon named Empty

Folder, and because the Mac won't let you give two icons the same name, you get a screen that looks like this:



This is called is called a **dialog box** (because the Mac is telling you something and asking for a response). Dialog boxes look a little like windows, but what you can do in—and with—they is much more limited. The oval space in the lower right with the word "OK" in it is called a **button**.

In this particular dialog box, clicking on the OK button is the only response you're allowed to make. Click anywhere else on the screen and the Mac will just beep at you and do nothing. (Most other dialog boxes give you more latitude.)

Anyway, when you click on the OK button, the Mac dumps the new name you typed and gives the icon back its original one (always trying to compensate for your mistakes, the Mac kept that old name around in case you needed it).

This will work just as well if you substitute the name of any other icon you know is on the disk for 'Empty Folder'. For example, if you started the Mac up with the disk, 'System' is a safe bet. But 'Empty Folder' is the surest bet of all, because an icon with that name is on absolutely every Mac disk.

CHAPTER

7

The System Folder

The System Folder contains the **operating system** (the basic program that lies behind the desktop, windows, icons, etc. and tells them how to act) and various **resource files** that help the operating system do its job (some examples are given below).

The System Folder that comes with your Mac has six icons in it:



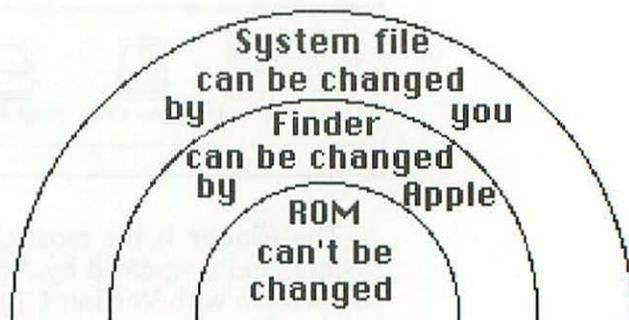
The **Finder** is the most changeable part of the operating system, and is updated by Apple fairly frequently. This book was written with Version 1.1g of the Finder, and some of what I say may not apply to later versions.

A more basic part of the Mac's operating system is frozen into the Mac's hardware, in two 32K ROM ("read-only memory") chips; to change that would require replacing ROM's in all the hundreds of thousands (or millions) of Macs that have already been sold. So when "bugs" (errors) were found in the ROM, "patches" (corrections) were put in the **System file**. (Don't confuse the System file with the System Folder, by the way; the System file goes inside the System Folder, along with a number of other icons.)

Patches take up only a very small part of the System file; mostly it contains things like fonts (typefaces), the desk accessories, icons for the various pointers, the text of messages that appear on the screen, and so on. You can change the System file yourself, by adding and removing fonts (using a utility program called Font Mover, described in Chapter 10), or by adding and removing desk accessories (using another utility program called Desk Accessory Mover, described in Chapter 8).

If you want to remove a bunch of fonts and desk accessories from a disk, it's often easier just to replace its System file with one that's already been modified. Just make sure that the System file you end up with is the right one for the application you'll be running.

The next illustration is a diagram of the operating system; as you go out from the center, things get less basic, and easier to change.



The **Imagewriter** file tells the Mac how to print out in "standard" and "high-resolution" mode (I'll explain what those are in Chapter 14). That leaves the **Clipboard**, **Scrapbook** and **Note Pad** files.

I've already described Note Pad. Personally, I never use it, because I find it infinitely easier and more convenient simply to jot down notes on actual, physical pieces of paper with primitive devices like pens and pencils (how old-fashioned can you get?).

Clipboard and Scrapbook

Clipboard and Scrapbook differ from Note Pad in one major way—you can't write directly in them. Instead, you use Cut, Copy and Paste.

Edit	
Undo	⌘Z

Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Select All	⌘A

Show Clipboard	

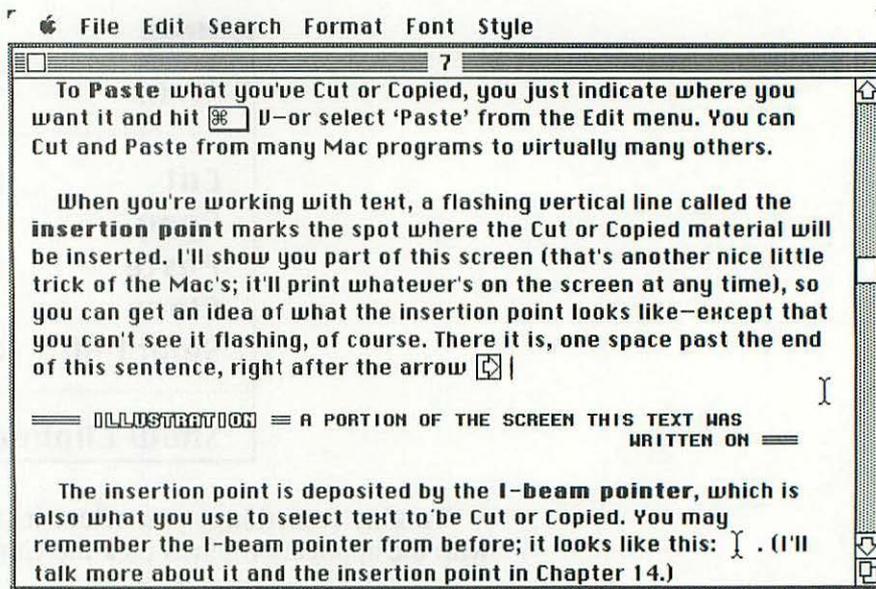
To **Cut** something, you select it (how you do that varies with the application), then pick the Cut command from the Edit menu—or just hit **⌘X**. The text—or drawing, numbers, or whatever you've selected—disappears from its original location and is stored in Clipboard. (You can check the contents of Clipboard at any time by choosing 'Show Clipboard' from the Edit menu.)

Copy (⌘ C) works the same way as Cut, except that the selected material stays in the original location, in addition to moving to the Clipboard.

To **Paste** what you've Cut or Copied, you just indicate where you want it and hit ⌘ V—or select 'Paste' from the Edit menu. You can Cut and Paste from many Mac programs to many others.



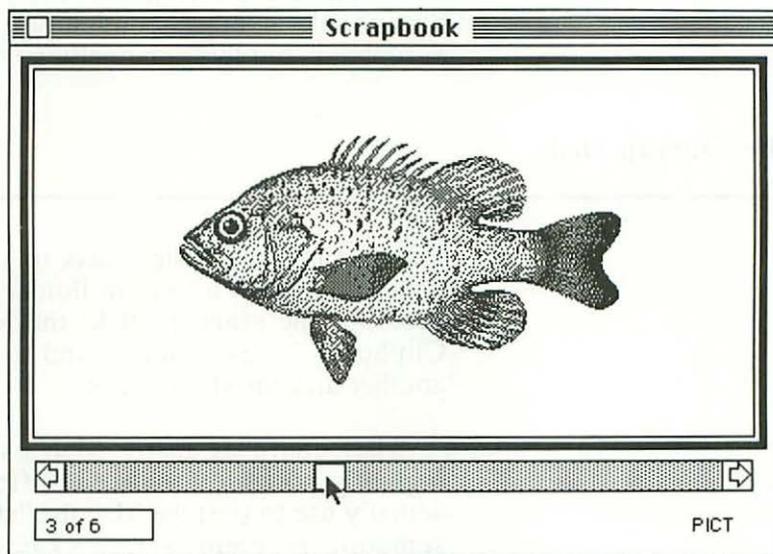
When you're working with text, a flashing vertical line called the **insertion point** marks the spot where the Cut or Copied material will be inserted. I'll show you part of this screen (that's another nice little trick of the Mac's; it'll print whatever's on the screen at any time), so you can get an idea of what the insertion point looks like—except that you can't see it flashing, of course. There it is, one space past the end of this sentence, right after the arrow ↗



The insertion point is deposited by the **I-beam pointer**, which is also what you use to select text to be Cut or Copied. You may remember the I-beam pointer from before; it looks like this: ¶ . (I'll talk more about it and the insertion point in Chapter 14.)

You can Cut or Copy huge amounts of material (in some applications, the limitation is the amount of memory available; in others, the amount of space on the disk), but Clipboard will only hold one selection at a time. So each time you Cut or Copy something new, the previous material is dumped (that is, lost irretrievably).

On the other hand, since it stays in the Clipboard until then, you can Paste the same thing many different places—as long as you remember not to Cut or Copy anything else.



If you simply want to get rid of something, you can just Cut it and never Paste it. It will disappear the next time you Cut or Copy, or when you eject the disk. Or you can just hit the **Backspace** key after it's selected and it will disappear for good, without even going to the Clipboard.

A good definition for **Clipboard** is "a temporary holding area for Cut or Copied material." **Scrapbook**, on the other hand, is a permanent file for Cut or Copied material. What you put in Scrapbook stays there not only when you add more stuff, but also when you turn the machine off. (You can, of course, remove it when you want.) Since you use Cut, Copy and Paste to get things into and out of Scrapbook, they all pass through Clipboard on the way.

Like Note Pad, Scrapbook is a desk accessory (on the  menu), so whatever's in it is always available to you, regardless of what application you're working in. It holds up to 256 separate "pages" of material (if there's room for that many on the disk).

If you're transferring just a few things from one place to another, it's easier to move them one at a time with Clipboard (that is, to simply Cut and Paste them). If you have several things to transfer at one time, or if you want them to be available for Pasting for more than one work session, Scrapbook is more convenient. Some people really like Scrapbook, but I've personally never found much use for it.

The Startup Disk

You can use any system disk to start up the Mac. (A **system disk** is one with a System Folder on it.) The one you do use becomes the **startup disk**; the Mac uses its Scrapbook, its Clipboard, its System file, and so on. But you can also make another disk the startup disk.

That confuses many Mac users, since it doesn't seem logically possible to make a different disk than the one you actually use to start the Mac the "startup disk." This is mostly a semantic problem, a rare example of the Mac's term for something being more confusing than the standard computer term—which, in this case, is "default disk."

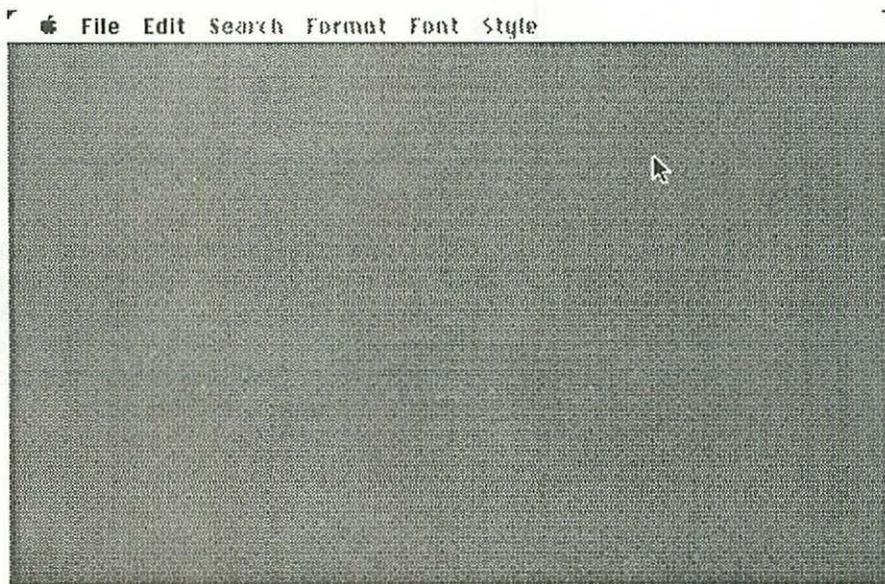
Whether you call it the startup disk or the default disk, it's good you can switch it, because that lets you use a different Scrapbook, different fonts, and so on. You make a new disk the startup disk simply by running an application on it. It doesn't matter which application, and you can just enter the application and immediately exit it if you want. (You can also do this by running the Finder on the new disk, which you do by holding down   and double-clicking on its Finder icon.)

This is a pretty clumsy way to go about things, but the alternative to it—ejecting the disk, turning off the Mac, turning it on again, and inserting the new disk—isn't much better. (If you've installed the little plastic **programmer's switch** on the side of your Mac, you can just push that instead of turning off the Mac; this is slightly preferable, since it's rough on a computer to be turned on and off too much.)

What the Mac needs is a menu command to 'Switch Startup Disk'. Although there is no such command on the desktop, there is an equivalent to it inside applications, in a place called the List Box.

The Nothing Screen and the List Box

Let's say you're working on a MacWrite document and want to leave it to go on to some other work. The File menu gives you two choices: Close or Quit. Quit takes you out of MacWrite and puts you back on the desktop, with all the windows and icons that were there before you entered MacWrite. But Close puts you on a blank desktop *within* MacWrite that looks like this:



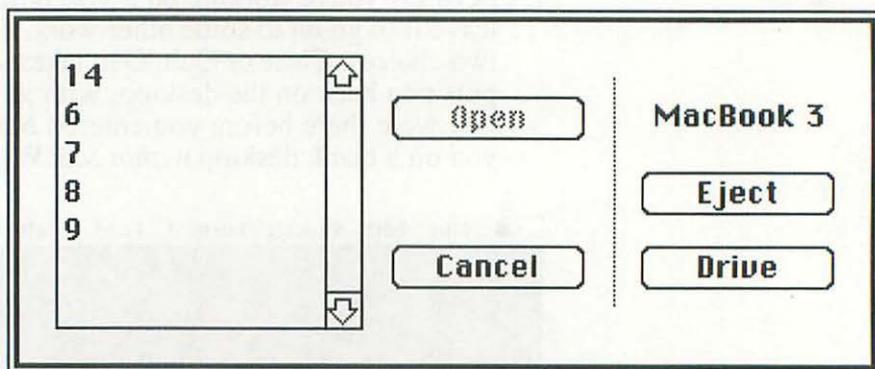
I think of this as **the nothing screen**; it's a place where a lot of beginning Mac users get lost. Many applications put you in the nothing screen (or something like it), and even after all my experience with the Mac, it still flusters me a bit. A little voice inside of me whimpers, "Now what?"



HOT TIP

The thing to remember is that no desktop is completely blank; there's always the menu bar across the top. So—*when in doubt, explore the menu bar.*

On this nothing screen (and most others), the Edit menu doesn't let you do anything more interesting or useful than see what's on the Clipboard. The  menu gives you the same old desk accessories you get anywhere. But the File menu offers you the 'Open...' command. Selecting that takes you to the **List Box**.



You can scroll through the documents listed in the little window on the left, and select and open them; because of this, the List Box is sometimes called the **Mini-Finder**. But that's a little misleading, since the List Box can't "find" all the documents on a disk, only the ones created by the application you're in—in this case, MacWrite.



HOT TIP

There are several ways to scroll through the document names. You can:

- use the scroll bar
- click inside the window and move the pointer down (the names will scroll by, with the one under the pointer always being selected)
- type a character on the keyboard. The first document with that name will be selected and will scroll into view. (If there's no file beginning with that character, the next one down will be selected.)

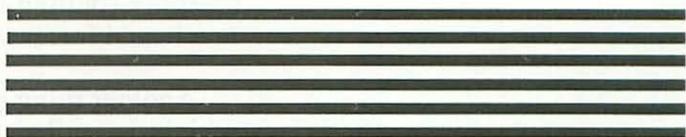
The name of the disk is in the upper right. If you have a two-drive system and a disk in the other drive, clicking on the button marked 'Drive' switches you over to it. The name of the disk in that drive then appears in the upper right, and its documents appear in the little window on the left. When you leave the List Box (by clicking on 'Cancel' or by opening a document), that disk remains the startup disk.

If you have a one-drive Mac, you can use the List Box to eject the present disk without leaving the application you're in. When you insert a new disk, its name and its documents appear. (You can also use the Eject button with a two-drive Mac, of course.)

CHAPTER



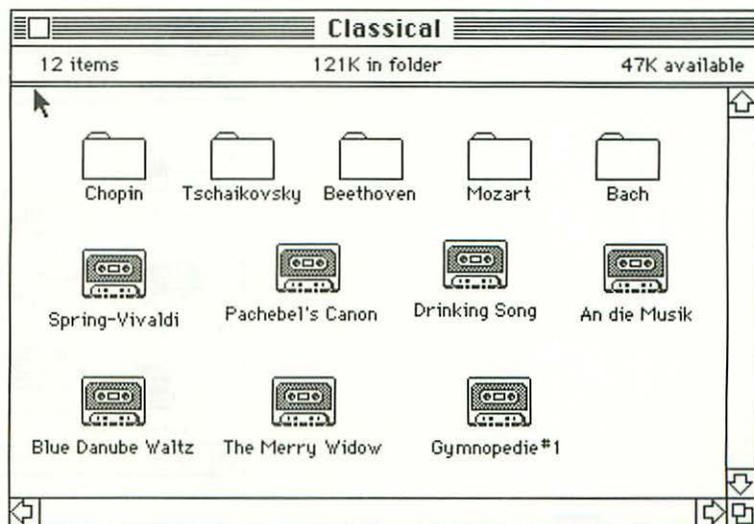
8



Managing Documents, Windows and Disks

Sizing, Moving and Naimanizing Windows

The Mac's screen is fairly small, and you often want to have several windows open on it. So it's important to make them as compact as possible. Unfortunately, when most disks come to you, icons are strewn all over the disk window, as if the only thing you have to do on your desktop is open the window for that particular disk.



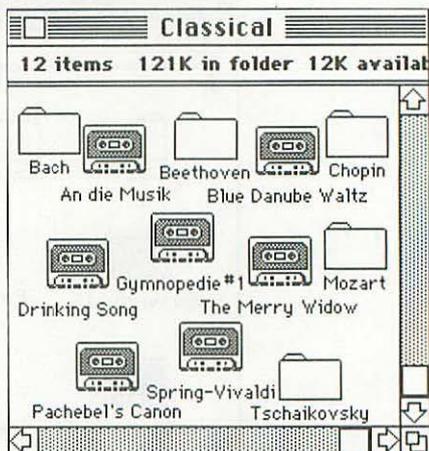
One way to conserve space is to put icons in folders. This works fine if you have three or more icons in one logical category (putting less than three into a folder doesn't gain you much, and forces you to open the folder to see what they are).

Another thing you can do is tuck the icons into each other, which is called **naimanizing** (NAY-mun-eye-zing). Amazingly, this is the only book on the Mac—or on any subject, for that matter—that gives the topic of naimanizing anything like the attention it deserves.

The key to naimanizing is the fact that in most icons, the name runs wider than the picture, giving them the shape of stovepipe hats (with the name as the brim). In addition, the names usually vary in length, so that some icons have very wide brims, while others have much narrower ones, and some have no brim at all.

To naimanize icons, you arrange them in a double row (or several double rows), with the shorter-named icons on top and the longer-named icons on the bottom. Then you simply tuck the wider brims under the narrower icons. (You can do this even if all the names are the same length, but you won't save as much space.) If all your icons have very short names, just put them right next to each other in a single row.

Compare the screen below with the screen above to see how much room naimanizing can save:

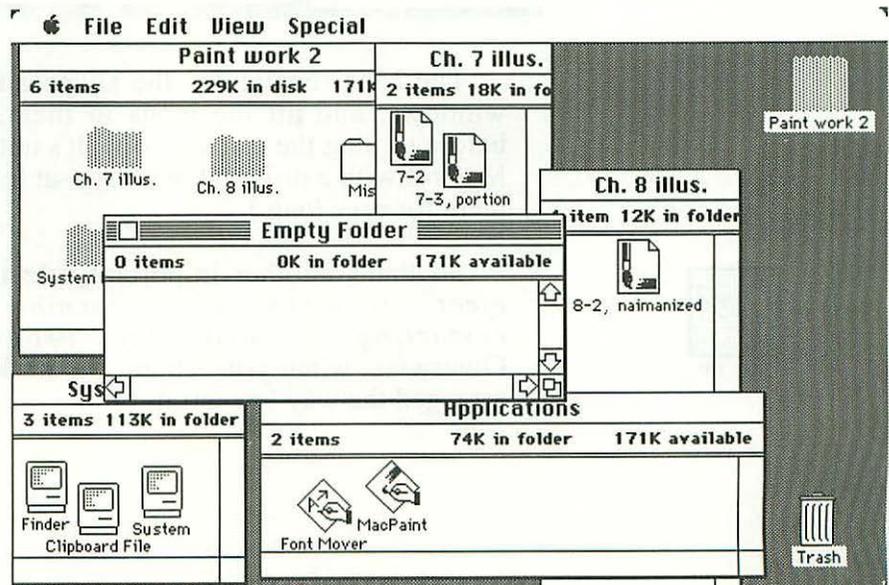


As long as you're naimanizing, it makes sense to alphabetize the icons too (departing from strict alphabetical order whenever name length requires it for efficient fitting-together)—unless there are so few icons that it's not worth the trouble.

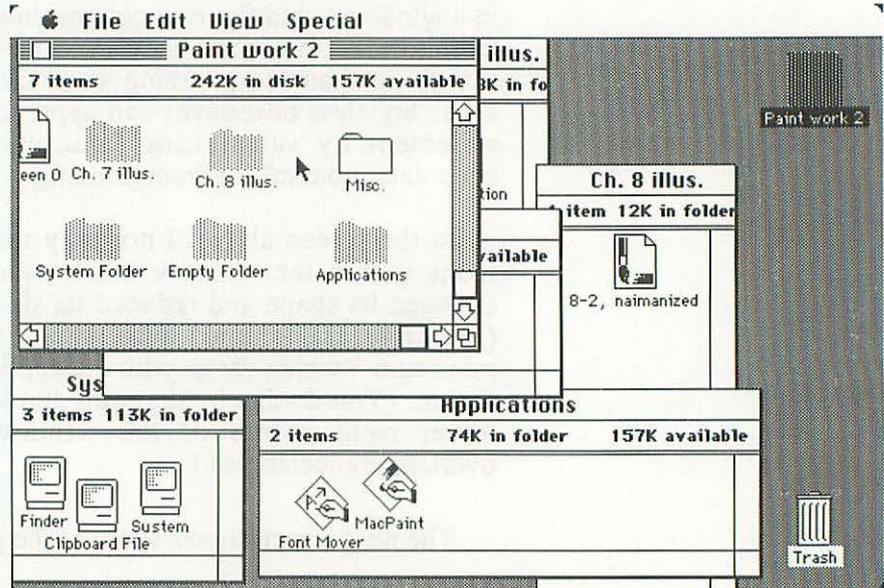
For those of you who—like the author—are hopeless obsessives, I'd just like to mention that naimanizing the icons in a window—and figuring out absolutely the best arrangement to minimize the space they take up—is even more deeply satisfying than reorganizing your files! (Those of you who aren't hopeless obsessives can appreciate the enormity of that statement by substituting "multiple orgasms" or "white chocolate mousse" for "reorganizing your files.")

In the screen above, I not only made the arrangement of icons within the window much more compact, but I also changed its shape and reduced its size. Windows can be any (rectangular) shape and size, from a very small minimum—which varies with the application—up to the whole screen. (You do that by dragging the **size box**, which is in the lower right corner of the window and contains two overlapping rectangles.)

The next screen shows some of the possibilities:



You can also move windows around (by putting the pointer anywhere on the title bar and dragging them). But if you have enough windows on the screen, even moving them around, changing their shape and naimanizing them won't be enough to prevent some overlap (as in the screen above). This isn't as much of a problem as it seems, because you can always bring a window to the top of the pile simply by selecting it.



The Mac remembers the shape and location of all your windows, and all the icons in them, *if* you eject the disk before turning the machine off. (It's not a good idea to turn the Mac off with a disk in it anyway—at least not if you leave it in there for very long.)

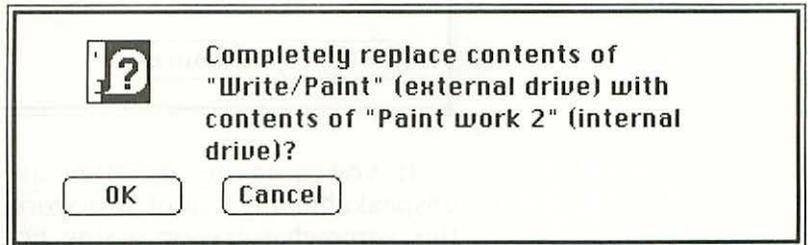


HOT TIP

So that's another important rule to remember: *Always eject all disks before turning off the Mac (or restarting it with the programmer's switch).* Otherwise, when you reboot, the desktop probably won't be arranged the way you left it.

Copying Documents and Disks

To copy the entire contents of one disk (called the **source** disk) to another (called the **target** disk), you just drag the source disk icon and place it on top of the target disk icon. The Mac, worried that you might be making a horrible mistake, asks you:

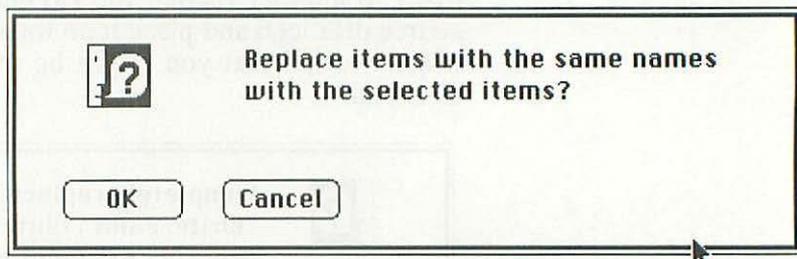


To copy a document from one disk to another, you just drag its icon from the source disk window to the target disk window. Instead of simply moving the document, as you'd expect, the Mac makes a copy of it for the target disk, so that you have it both places. (To remove it from the source disk, you have to drag it to Trash.)



If the Mac were perfectly lifelike, the document would just move, without any copy being made; after all, when you move a bottle of juice to the kitchen table, a copy of it isn't created to remain in the refrigerator (unfortunately). But it's *safer* to leave a copy of the document in the source disk window, so that's what the Mac does. It's nice to know that when the Mac departs from naturalness, it usually does so in the interest of safety.

Another safety feature is the message you get when you try to copy a document onto a disk that already has a document with the same name on it. The Mac asks you, in one of the more inelegant English sentences ever written:



If you're saving as often as you should to avoid the unspeakable anguish of lost work, you get so used to seeing this somewhat cryptic dialog box that you don't even read it—you just click on the OK button. But I puzzled over it for a while when I first saw it, and finally came up with a full translation: "Are you sure you want to replace—and therefore eliminate—those items on the target disk that have the same names as the items you're copying over from the source disk?"

(Of course you can't expect the Mac to bother with a jawbreaker like that, but even in its abbreviated form, the message would be clearer if they changed the second "with" to "as," making it: "Replace items with the same names as the selected items?")

Protecting your work

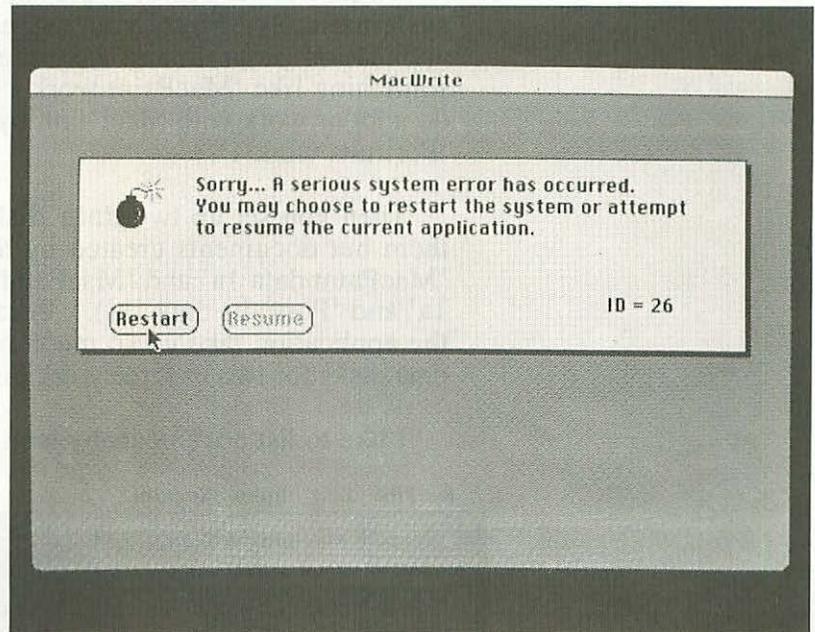
Speaking of saving as often as you should, I think it's time for my standard safety lecture. I have three—count 'em, three—copies, on three separate disks, of absolutely every piece of work I ever do—which means that when I'm actually working on a document, I have four (three on disk and one in memory).

Tony Pietsch got me into this habit years ago, when he described the following scenario: "Let's say you only have two copies of something and your disk drive screws up. You insert the first disk and see garbage on the screen. Naturally you assume there's something wrong with that disk, but you're not worried, because you have a second disk with the same

document on it. So you insert the second disk and the drive zaps that too. Then you realize the problem is with the drive, not the disk, but it's too late—unless you have a third copy."



If you're as absent-minded as I am, you don't even need hardware problems in order to lose a document on two disks. Not that hardware problems are rare—every computer I've ever worked on has crashed with depressing regularity, and many's the time I've been glad for that third copy. The Mac is no exception to this rule, and its various bomb messages become a familiar sight.



Bomb messages are no problem if you save frequently; if you don't, they turn your blood to ice. Not saving at least every half hour isn't careless or lackadaisical or laid back or sloppy—it's psychotic.

Disks cost from \$3 - \$5 each, and your time is certainly worth at least that. You should always have enough disks around to make sure that you *never* fail to make a copy of something simply because you don't have a disk to do it on. Having enough disks also stops you from having your disks too full, another endless source of problems.

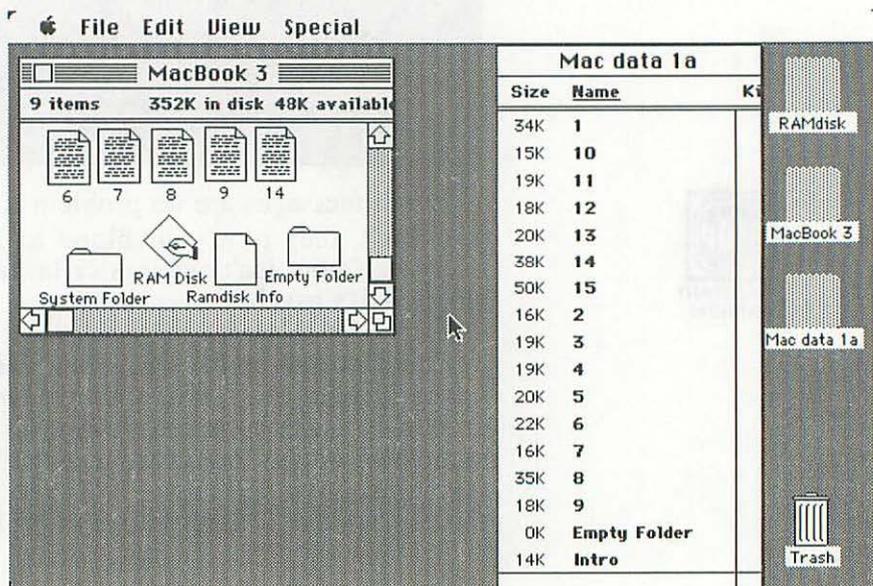
If buying thirty or forty disks is going to break you, you shouldn't waste your money on a computer in the first place. (I just want to say that the seaplane and the small island off Kauai the Disk Manufacturers Association bought me have *nothing at all* to do with the above remarks.)

You also should make backups of all software you buy (unless it can't be copied, in which case you should get a backup copy from the publisher).

It's easy to keep three copies of every document if you do it systematically. First, you set up a **work disk** with an application program and a System Folder on it, and label it something like 'MacPaint work 1'—or, if you're planning to do a lot of work with MacPaint, by a more specific name, like 'Portraits work 1'.

Then you set up two **data disks**, which have nothing on them but documents created by that application; label them 'MacPaint data 1a' and 'MacPaint data 1b' (or 'Portraits data 1a' and 'Portraits data 1b'). Because the System Folder and the application take up so much room, you can use the same data disks for two or three work disks.

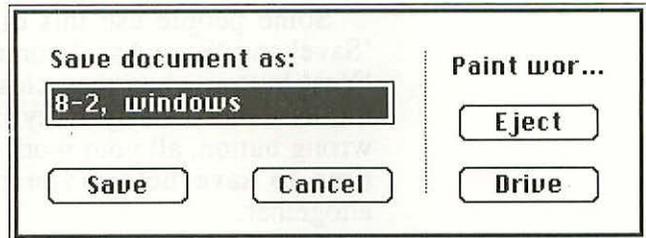
I like to list documents by icon on the work disks (so I can



put them in folders) and by name on the data disks (because then I also get the size in K, without having to Get Info on each one).

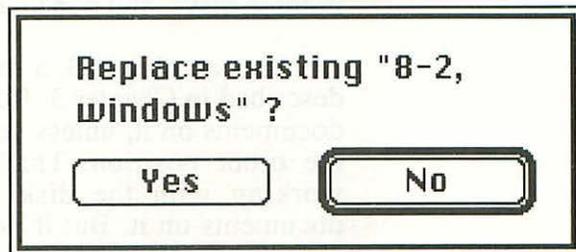
On a two-drive system, you put the work disk in the internal drive and start up the Mac with it; in the external drive, you put one of the data disks (it doesn't matter which one). Then each time you save, you save to a different disk—work disk, data disk, work disk, and so on.

The **Save As...** command on the File menu lets you alternate disks in this way. It produces the dialog box below. (Whenever a command is followed by three dots, it produces a dialog box.)



To save to a different disk, you just click on the Drive button. As with the List Box, the name of the disk (in the upper right corner) changes, and then you click on Save. In all but the most poorly designed applications, you won't have to retype the name of the document—although you can change it if you want.

The Mac, always playing it safe, asks you if you're sure you want to—



On a one-drive system, you can use the Eject button to eject the work disk, insert a data disk, and save onto it. But it's very likely you'll have to put the work disk back in at some point (unless you have a FatMac and have loaded all the application and system files into memory). There'll be a temptation, which you should resist, to wait until your work session is over and save the document to both data disks then.

You can use the 'Save As...' dialog box to switch and eject disks, even if you have no intention of saving, simply by clicking on the Cancel button when you're done.

You get a different dialog box if you try to close a document or quit an application without having saved your changes.

Some people use this dialog box as a substitute for the 'Save' and 'Save As...' commands—by simply clicking on the 'Yes' button when they close the document—but this strikes me as unnecessarily risky; if you accidentally click on the wrong button, all your work is lost. It doesn't take much more time to save before you quit and avoid this dialog box altogether.

A much smaller measure of safety can be obtained by **locking** a document. To do that, you call up its information window (with  I or the Get Info command), then click the box next to 'Locked'; an X appears in the box to indicate that the document is locked.

Although you can't remove a locked document from a disk, you can screw it up while working on it, or the disk it's on can get zapped, so locking a document doesn't really do much for you. I find it an incredible pain, and never do it. I put my faith in three disks, and don't have to bother with this nonsense.

You can also lock a disk, with the **write-protect device** described in Chapter 3. But then you can't work on any of the documents on it, unless you eject the disk and slide the tab to the other position. That's OK if you're completely done working with the disk and simply want to protect the documents on it. But if you're not going to be working on a disk anymore, why do you need to write-protect it?

Here again, it makes *much* more sense simply to keep multiple copies of every document or disk (if you really are done working with it, two copies are sufficient). But the write-protect tab does nothing for you. I have more than a hundred Mac disks, and the write-protect tab isn't thrown on any of them.

Rescuing Zapped Disks



HOT TIP

If you ignore my advice, zap a disk (damage it somehow), and don't have a backup for it, there still may be a way to rescue the information on it. For example, if you get the bomb message as soon as you insert a disk (and again and again when you click on the 'Restart' button), you can try holding down **Option** and **⌘** while starting the Mac with that disk (let up on the keys when the menu bar appears on the screen). This will remove all the folders you've set up, but you may be able to salvage the documents themselves.



HOT TIP

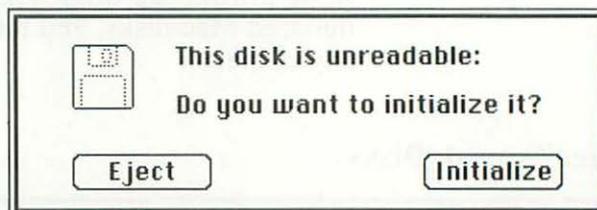
If that doesn't work, try this technique: Start up the Mac with another disk that has the same application on it that you used to create the documents on the zapped disk. Now enter the application and get to the List Box. Then eject the original disk and insert the damaged one. If it's not too badly zapped, its documents will show up in the List Box. Then you can load them into memory, one at a time, and save them to a good disk.



HOT TIP

Sometimes a disk is just so badly damaged that you have to give up on recovering your data from it. You can try erasing it with the Erase Disk command, but on a badly damaged disk, this won't work either. But you can still initialize and reuse it (**initializing** sets up a disk to accept data; if it's already been used, the old data gets erased).

To trick the Mac into initializing a disk with data on it, insert a blank disk, one that's never been used. You'll get the following dialog box:



Now stick a straightened-out paper clip into the little hole next to the slot on the disk drive. This will eject the blank disk. Then insert your unusable disk and click on 'Go Ahead'. Unless it's *really* zapped, the Mac will initialize it.

If you don't have a blank disk, some people recommend sticking *your finger* into the drive and pushing a small metal tab in there, to fool the drive into thinking you've inserted a blank disk. Needless to say, this risks damaging the drive by bending the little tab. Even the paper clip method entails some risk, but at least that function was designed into the Mac; that's what the little hole is there for.

These procedures are a lot of trouble, and they don't always work. So be good to yourself, and make backup copies of all your disks.

Making More Room on Disks

Single-sided Mac disks hold 400K; that sounds like a lot, and it would be, except the System Folder and an application program can easily take up more than half of it. So in this section, I talk about ways to maximize the room on your work disks (on data disks, of course, you can use the whole 400K).

1. Remove unnecessary fonts

This is the easiest and most obvious way to make room on a work disk. You have to keep a minimum of four fonts (12-point Chicago, 9-point Geneva, 12-point Geneva and

9-point Monaco) in the System file, since the operating system uses them itself. Together they take up about 10K. But beyond that, you can customize the selection of fonts in the System file to meet the needs of whatever work you do with that particular disk.

Individual fonts vary in size from around 2K to over 10K, and you can have dozens on a disk, so removing unnecessary ones shrinks the size of the System Folder more significantly and dramatically than any other method (with the possible exception of #4 below).

Fonts are added to and removed from the System file with a utility program called **Font Mover**. It's described in Chapter 10, which also presents several sample **font packages** (collections of fonts to be used for different purposes), and tells you how large a System Folder each of these produces. Appendix B shows 180 fonts, organized into logical categories.

2. Remove unnecessary desk accessories



HOT TIP

Desk accessories (listed on the  menu) take up about 22K and most of them are pretty trivial. For example, you probably don't need the sliding-tile Puzzle on every one of your work disks; if you're totally addicted to the game, just buy one of the old-fashioned plastic ones. (You probably remember this game from your wasted youth, but if you don't, this picture of the Mac version will jog your memory).

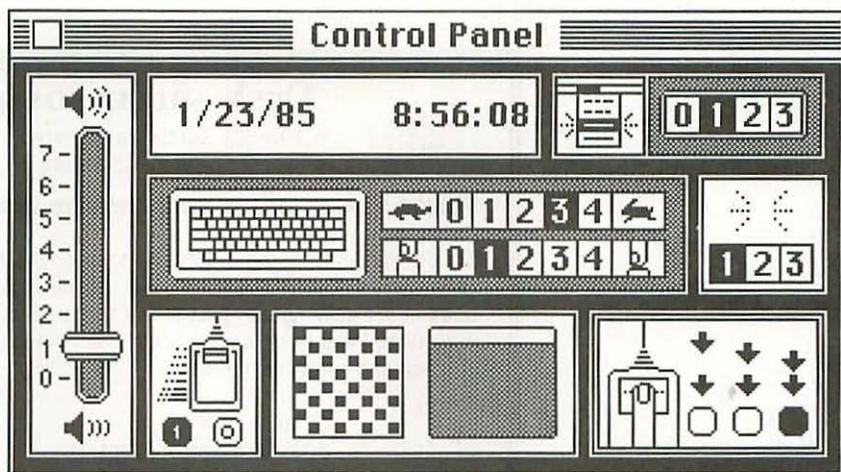


As you know, I just don't see the point of Scrapbook or Note Pad. Another desk accessory you can probably live without is Calculator, which duplicates the functions of an ordinary pocket calculator (with one slight advantage—you can cut and paste the results into any Mac document). And if you're rich enough to possess your very own alarm clock, you'll be able to dispense with the Alarm Clock desk accessory as well.

Key Caps shows you which keys produce which special characters, but the listing in Chapter 11 is a lot more useful. (The same information is also summarized on the Special Characters reference card in Appendix A.)

Unlike the other desk accessories, Control Panel actually is useful. With it, you can control:

- how loud the Mac beeps at you (or makes other sounds)
- how fast an on-screen marker called the "insertion point" blinks (what a great control! I've been driven half-batty—and that's a conservative estimate—by rapidly flashing cursors on other machines)
- how fast the keys repeat when you hold them down (or whether they repeat at all)
- how long you have to hold a key down before it starts repeating
- how close together your clicks have to be for the Mac to read them as double-clicking (this is important because if you set them too far apart, you'll find yourself double-clicking all the time when you don't mean to)
- and other useful stuff



The Control Panel is also where you reset the time and date that the Mac attaches to all your documents (so you can Get Info on them and find out when they were created and last modified). This information is kept—along with several of the other Control Panel settings—in a tiny 20-byte (not Kbyte) piece of memory called "parameter RAM."

Because parameter RAM is powered by a AA battery, the information in it doesn't disappear when the Mac is turned off, and because it's in memory, it stays the same, no matter what disk you use (until you change it, of course).

It would have made sense for Apple to include a utility program for removing desk accessories in the basic Mac software, but they didn't, so Donald Brown leapt into the breach. His program is called—straightforwardly enough—**Desk Accessory Mover** and is distributed as **shareware** (which means that you can try it out and only buy it if you like it). Here are the details, from the program's first screen:

Desk Accessory Mover



© 1984 CE Software Written by Donald Brown
Version 1.3 July 18, 1984

Please give copies of this diskette to all your MacFriends.

This program is being distributed under the **MacHonor™ System**. Please take this diskette, try it out, and see how you like it. If you decide it doesn't fit your needs, just erase the diskette and forget about it. If you choose to keep Desk Accessory Mover, please send \$15.00 for a user's license and registration to:

CE Software
801 73rd Street Dept. M
Des Moines, IA 50312
(515) 224-1995

They may laugh at us, but we trust you! **Click the Mouse to continue**

I've found Desk Accessory Mover to be quite useful, an incredible bargain at \$15 (it's worth closer to \$50). You can get your free trial copy at a user group, on a bulletin board (both described in Chapter 20), from a good computer store, or by sending a disk and a SASE to CE Software.

If you like the program, don't forget to send in your money. From the consumer's point of view, shareware is the ideal way for software to be sold, so do your little bit for a better world, instead of taking the lazy way out.

I have only two quibbles with Desk Accessory Mover—it's kind of slow (which Paul Hoffman tells me is hard to avoid in this kind of software) and it lets you remove all the desk accessories. This is a problem because removing all the desk accessories crashes the disk; you have to leave at least one.

Ah, but which one? Control Panel is the most useful, but it's also by far the largest—about 8K. And since its settings are kept in parameter RAM, you don't need Control Panel itself on each disk; you can just insert a disk that contains it when you want to reset one. I usually keep Puzzle on my disks, since it's the smallest desk accessory (less than 1K), even though I never use it.

You'll have to decide for yourself which desk accessory (or accessories) to leave. It doesn't make a lot of difference, just as long as you keep copies of each one somewhere (ideally on a pair of archive disks you squirrel away somewhere), so you can change your mind later on if you want.

3. Remove unnecessary icons from the System Folder



HOT TIP

The Imagewriter file takes up 17K. You don't need it on MacPaint disks at all, and you can even leave it off MacWrite disk if you're satisfied with the draft printouts, and never need printouts in the higher quality standard and high-resolution modes (described in Chapter 14). As far as other applications, some use the Imagewriter file and some don't. (To remind yourself what they are, take a look at the first illustration in Chapter 7.)

The Scrapbook file—without any images in it—takes up 2K. The Note Pad file has a short message in it that also takes up 2K. (Both these files are separate things from the Scrapbook and Note Pad programs themselves, which you can remove from the  menu with Desk Accessory Mover.) Clipboard takes up no space when empty and, unlike the others, is really an essential part of the system.

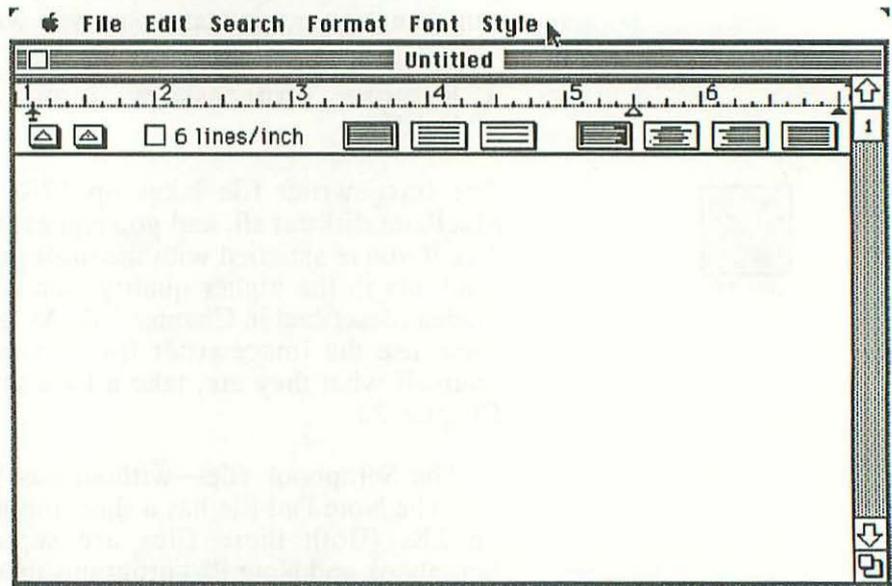
4. Remove the Finder



HOT TIP

This isn't quite as drastic as it sounds, but it does take a little getting used to. Each disk you do it on must be dedicated to one application (let's say it's MacWrite). You just throw the Finder icon in the Trash, select Empty Trash (on the Special menu), rename the MacWrite icon 'Finder', and eject the disk.

The next time you start with that disk, you'll completely bypass the desktop and arrive at the 'Untitled' MacWrite window, which looks like this:



You can start a new document (MacWrite will ask you to name it the first time you save it), or you can close it and choose the 'Open...' command (at the "nothing screen") to get to the List Box. Once there, you can open old documents, switch disks, eject disks, etc. (Basically, you'll be using the List Box as a substitute for the desktop.)

I wrote the Fonts section of this book with a Finderless MacWrite disk (because I needed a lot of room on it for fonts), and it worked just fine. But there is one other wrinkle you should know about:

When you try to quit, you don't go to the desktop (you can't, since there is no Finder to tell the Mac what the desktop looks like); instead, you end up right back at the Untitled window. To eject the disk (or disks) you're working with, you have to go to the List Box or the Save As... dialog box. Once the disks are out, just turn off the machine.

If you want to rearrange the icons on a Finderless disk, just start the Mac with a regular disk, then insert the Finderless disk and open its window (you'll be able to do this, because the other disk's Finder will tell the Mac what the desktop looks like). You can also use this method for sticking the Finder file back onto a Finderless disk, should you ever need to do that; just be sure to change the application's name back from 'Finder' to 'MacWrite' (or whatever) first.

Version 1.1g of the Finder takes up 46K on the disk. By removing it, the Imagewriter, Scrapbook and Note Pad files, all the fonts except the required four, and all the desk accessories except Puzzle, you can get the System Folder down to 45K. This is the irreducible core of the System—as small as you can make it without special programmer's tools.

For some reason, this doesn't leave 355K available, but only 352K. I don't know where the other 3K goes to, but it happens all the time on the Mac that things don't add up exactly. In any case, the disk will say that it contains 48K, even though the only two things on it are a 45K System file and Empty Folder.

This anorexic mini-System isn't really very useful, of course. At a bare minimum, you'll have to add the application you plan to use, renamed 'Finder'. Version 1.3 of MacPaint takes up 61K, which makes a total of 109K (unless the Mac decides to add a K or two, just for the fun of it). Version 2.2 of MacWrite takes up 55K, and you'll almost certainly want the Imagewriter file (17K) as well, making a total of 120K. With other applications, of course, the figures will vary.

If you've grown attached to the desktop, you'll want to add the Finder file, which increases the figures above by an additional 46K. And you'll probably want to throw in a few extra fonts beyond the obligatory four. But even so, you'll still have well over 200K available on each single-sided disk.

Here's that information summarized in a table, for easy reference. All of this only applies to version 1.1g of the Finder, and might vary widely with other versions. But the same general approach to maximizing the free space on your disks will apply.

Minimal System Configurations

(plus or minus a K or two here and there,
to allow for the Mac's idiosyncratic arithmetic)

Finderless disks

Just the system (with Clipboard)	48K.	(352K free)
With MacPaint	109K.	(291K free)
With MacWrite (and the Imagewriter file)	120K.	(280K free)

Disks that give you the desktop

Just the system (with Clipboard)	94K.	(306K free)
With MacPaint	155K.	(245K free)
With MacWrite (and the Imagewriter file)	166K.	(234K free)

CHAPTER

9

Typefaces, Sizes and Styles

Not very long ago, almost all personal computers could only display one kind of type on the screen. If you could see underlining and boldfacing as such, that was considered really hot.



Then the Mac and Lisa came along, with the ability to show literally *thousands* of different kinds of type on the screen. This was a dramatic step forward—one that has turned personal computers into much more useful and powerful tools.

These new capabilities require a new vocabulary, and the Mac's designers borrowed one from typesetting. (In the process, they changed some of the meanings, so if you know something about typography, the way certain terms are used on the Mac will seem a little screwy to you.)

There are three basic ways to change how type looks on the Mac's screen—by varying the font, the size and the style. I'll discuss each of these variables in turn.

Fonts

On the Mac, a **font** is a complete set of letters, numbers and symbols in one particular design (in other words, a typeface).

Eleven fonts come with the Mac (as of early 1985): Athens, Cairo, Chicago, Geneva, Los Angeles, London, Monaco, New York, San Francisco, Toronto and Venice. (As you can see, Apple names fonts after cities—a convention often followed by other font designers as well.) Appendix B shows you these 11 fonts, and seven from other companies.

Geneva, which looks like this, is one of the most commonly used fonts. New York, which looks like this, is another popular one. These two fonts can be used to illustrate the difference between two major kinds of type—serif and sans serif.

A **serif** is a little hook, line or blob added—as decoration—onto the basic form of a character. For example, in the w of New York above, the horizontal lines across the top of each arm are serifs, as is the squiggle at the top of the k. Some of the letters—like e and o—don't have any serifs; others, like N, Y and k, have three or four.

When any of the characters in a typeface have serifs, it's called a serif font; when none do, it's called **sans serif** ("sans" being French for "without"). Thus New York is a serif font, Geneva is sans serif.

Sans serif fonts aren't necessarily bland and boring like Geneva, by the way. **The Chicago font, which looks like this**, is used extensively by the Mac to label things and has a lot of character. (It's what I use for my manuscripts and business correspondence.)

Almost all Mac fonts—like those in conventional typesetting—are **proportionally spaced**. This means that the space allotted for each letter varies with the size of the letter (a sensible procedure). The alternative is **monospaced** fonts

(like the ones on conventional typewriters), where each letter gets the same amount of space, regardless of its size.

Monospaced fonts are harder to read than proportionally spaced ones, but are useful when you want to be able to predict how much room a given number of characters will take up, regardless of what those characters are (say, for example, if you wanted letters to line up in columns).

To tell quickly if a font is proportionally spaced or monospaced, look at the small i's and l's and capital M's and W's. If it's obvious that the M's and W's take up a whole lot more room than the i's and l's, it's proportionally spaced; if the M's and W's seem to be squished together and the i's and l's seem to be floating in space, it's monospaced.



HOT TIP

A good word to use to check—one that occurs in almost any piece of text longer than a couple of words—is the standard 24th-century spelling of "William." Here it is proportionally spaced: WWwiiiiIMMM.

The Mac comes with one monospaced font as standard equipment. Called Monaco, it looks like this. (The name must be a pun on "monospaced," since the font isn't very evocative of the Riviera.) Here's our test word: WWWiiiiIMMM. See how easy it is to distinguish that from the proportionally spaced one in the preceding paragraph?

Here's one more distinction between fonts: you can divide them into **general-purpose**—like Geneva, New York and Chicago—and **decorative**—like *Venice*, *abbey deco*, *Cactus Deco*, *London*, and *Hollywood*.

Type Sizes



Type sizes are measured in **points**, which are 72nds of an inch. (Occasionally you'll run across a pedantic stickler who'll inform you that a point is actually .0138", which isn't *precisely* 1/72nd of an inch. But the difference between the two is less than 1/10,000th of an inch. $72 \times .0138" = .9936"$, and that's close enough for me. It's like those people who price things at \$49.95. I always want to say, "Here, take the nickel. Please, I want you to have it.")

MacWrite allows you six type sizes—9 point, 10 point (which is more or less the size of elite type on typewriters), 12 point (more or less the size of pica type on typewriters), 14 point, 18 point and 24 point. MacPaint provides three more—36 point, 48 point and 72 point.

Usually a font is designed—drawn—in only one or two sizes, but the Mac is capable of scaling it to any of the other eight. Unfortunately, the results of that process tend to look pretty dreadful—unless the size is being reduced by exactly 50%. (All this applies only to 80-dpi Imagewriter fonts, not to 300-dpi LaserWriter fonts. Scaling on the LaserWriter looks great).

For example, here's *Venice*, a perfectly lovely font in the 14-point size it comes in, in the six MacWrite sizes:

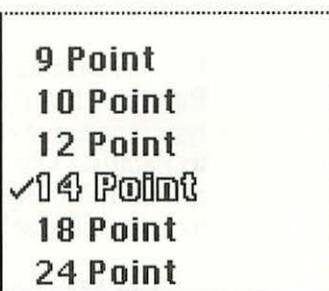
9 point—icckh!
 10 point—aaargh!
 12 point—yuck! (Let me give you a little more of this so you can see the problem. It isn't really hideous—just clunky and hard to read.)

14 point—aaahh! (See how much more graceful and legible this is? I love this font.)

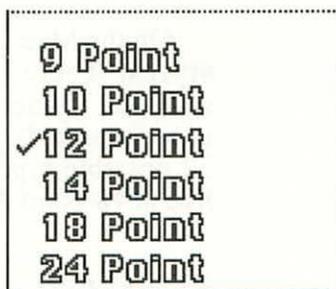
18 point—oy!

24 point—gevalt!

You can tell what size (or sizes) a font comes in because they appear in outline type on the menu:



Some of the more popular fonts come in many different sizes, so they almost never have to be scaled. For example, here's the menu for Geneva:



As you might expect, larger type sizes are used primarily for headlines and titles, while smaller ones are used for text. Big typefaces (15 point and up, say) are called **display** fonts; smaller ones (14 point or less) are called **text** fonts.

In conventional typesetting, display and text fonts are often produced on different machines, and it's quite common for a typesetting shop to set only one kind of type or the other.

The distinction between text and display isn't the same as the one between general-purpose and decorative, by the way. It's possible to have a decorative text font (like 14-point *abbey deco*) or a general-purpose display font (like 24-point Toronto).

Type Styles

In conventional typesetting, typefaces come in "families." The Palatino family, for example, includes dozens of different typefaces, everything from Palatino Regular and Palatino Bold to Palatino Ultra-Condensed Bold Italic. All of these variations are individually designed—although, of course, they're drawn to resemble each other.

The Mac approaches all this somewhat differently. It takes one basic font and uses a bunch of simple rules to convert it to all the possible style variations. For example, to make a font bold, it might add a row of dots; to make it italic, it might go up two dots, move a dot to the right, go up two more, move right again, and so on.

On the Mac, these variations on a basic font are called **type styles**. There are six basic styles—bold, italic, outline, shadow, underlined and plain text (the regular font, untransformed). Since you can combine them, you end up with 32 possible type styles for every font. Here's what they look like in 18-point Athens:



- plain text
- *italic*
- shadow
- bold outline
- bold
- outline
- *bold italic*

- **bold shadow**
- *italic outline*
- *italic shadow*
- **outline shadow**
- *bold italic outline*
- *bold italic shadow*
- **bold outline shadow**
- *italic outline shadow*
- *bold italic outline shadow*

Each of these 16 can also be combined with underlining, making a total of 32 distinct type styles.

By now you should be getting a glimmer of how incredible this all can be. Since there are 32 different styles and up to nine sizes, you can generate 288 size/style variations (in MacPaint; 192 in MacWrite) for each font.

But you're not limited to one font. Appendix B lists 180, and that's just a small sampling of what's available. Even the standard eleven Apple fonts generate 2112 font/size/style combinations in MacWrite, 3168 in MacPaint. That's the *minimum* any Mac owner has.



Not all of these thousands of variations are of any practical use, of course. To take an extreme example, 9-point San Francisco bold italic outline shadow underlined looks more like a decorative molding than a line of type:

Who thought up this horrendous typeface anyway?

But even leaving grotesques like this aside, and never scaling a font to sizes it doesn't come in, the Mac still has thousands of usable font/size/style combinations (which are usually called—not very consistently—simply "fonts"), and that's more than you'll find in a lot of typesetting shops.

CHAPTER

10

Creating Font Packages

With all the choices of fonts the Mac gives you, you have to be fairly selective, or fonts will take up your whole disk. So you need to know how to install the fonts you want on a disk, and how to remove the ones you don't want.

In order for a font to be used, it has to be in the System file, in the System folder. When you get your Mac, that's where you'll find many of the standard Apple fonts. Others—the ones Apple figures you're less likely to need right away—are in a file called Fonts.

To install a font, so that an application can use it, you move it from the Fonts file to the System file. (To move it from one disk to another, you put it in the Fonts file and copy the Fonts file to another disk.) The utility program that lets you do that is called Font Mover.



Font Mover

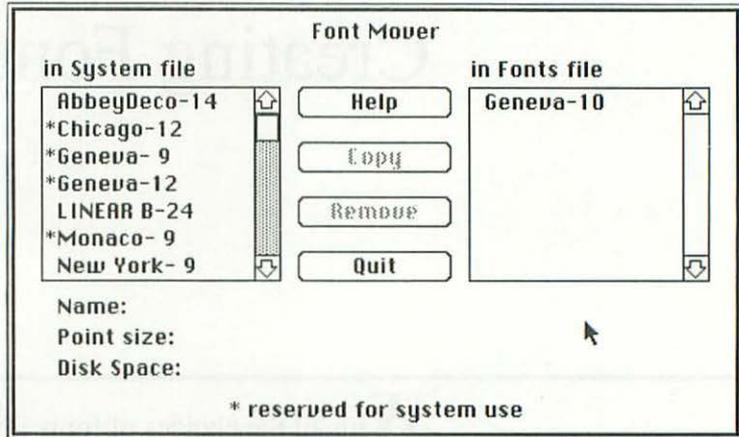


fonts

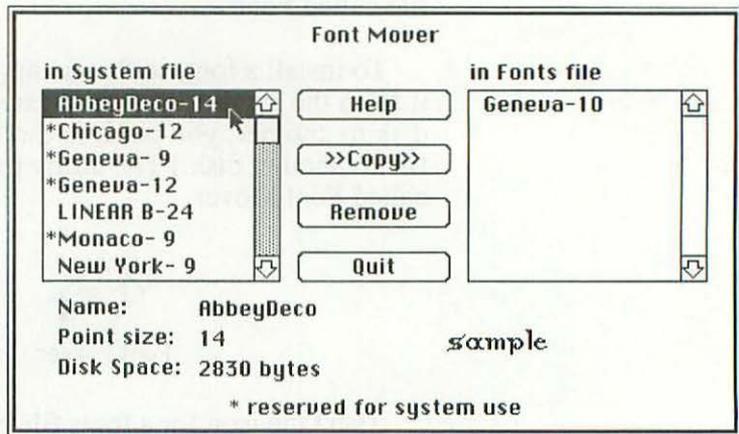
(Isn't the icon for a fonts file beautiful?)

Font Mover

When you open the Font Mover icon, you get a screen that looks like this:



As you can see, the fonts in the System file are listed in the window on the left, those in the Fonts file in the window on the right. You can copy fonts from one file to the other, or remove them from either. When you select a font (by clicking on it, of course), Font Mover tells you its size in bytes and shows you a sample of it.



The REMOVE and COPY buttons also become active, with arrows in the COPY button that indicate which way the copy will take place.



Font Mover is quite easy-to-use, but it has three major failings. One is that the fonts file you're transferring from must be on the same disk as both Font Mover and the System file you're transferring into. That means that if the fonts file is fairly large (and/or the disk is fairly full), you'll have to:

- transfer the fonts file and Font Mover onto another, more empty disk
- open Font Mover
- remove some of the fonts from the fonts file
- quit Font Mover
- transfer the new, smaller fonts file back onto the original disk

All this hassle could be avoided if Font Mover simply let you access a fonts file on another disk.

The second problem with Font Mover is that it will only recognize a fonts file named "Fonts" (with or without the capital F). If the fonts file has any other name, Font Mover simply ignores it.

So let's say you buy some more fonts. The disk you get will be full of fonts icons with all kinds of different names—Bangkok, Irkutsk, Muskegon, whatever the fonts happen to be called. In order to load them into an already existing System file, you have to select each one of them in turn, rename it "Fonts," transfer it over to the target disk, and so on.

(A publisher called Sea-ess gets around this by giving you its thirteen fonts both in individual fonts files and all together in a System file that can be transferred to a new disk. This works fine, but you end up getting only half as many fonts.)

Hopefully, either Apple or somebody will soon come out with a Font Mover that works more like the List Box—one that lets you switch drives (or, on a one-drive system, lets you eject the original disk and insert another) and that gives you a listing

of all the fonts files, so you can select the one you want to work with without having to go through the whole clumsy procedure of renaming it 'Fonts'.



The third problem with Font Mover is that it won't accommodate fonts larger than 10 to 15K. All sorts of different things affect the exact limit, but even 15K is way too small, particularly for sizes above 24 point. Hopefully this limitation will also be removed in future versions of the program.

Font Packages

Now that you know how to add and remove fonts from a disk, the next question is—which ones? This is a matter of personal taste, of course, but there are some general principles that will help you do it efficiently. The first rule is that it takes a while to learn which fonts you like, so spend some time playing with them before making your choices.

Second (and this may also be obvious), be aware that different kinds of jobs require different fonts. You might choose one group of fonts you use for your business letters, another for your personal letters, a third for your drawings, and so on.



It makes sense to put together a package of fonts for each purpose, and create separate System files with different font packages on them. Then, when you set up a new disk, you just transfer the appropriate System onto it. But make sure you keep at least two backup copies of each font on a pair of archive disks (called Font Library or something like that), so you'll always have them to use in the future.

The table below gives you samples of five such font packages, all composed of standard, unscaled Apple fonts. The first one represents the smallest number of fonts the Mac will let you have (the four it uses itself). With version 1.1g of the Finder, this gives you a System Folder of just 94K (assuming you keep the Finder and Clipboard files, but dump the Imagewriter file, Scrapbook, Note Pad and all the other desk accessories except the Puzzle).

Some Sample Font Packages

10K—minimal: three fonts, two sizes (all required by the system), creates 94K System folder (155K with MacPaint; 166K with MacWrite and the ImageWriter file)

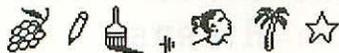
Chicago 12	(2950bytes)	9 point—Geneva, Monaco
Geneva 9	(2150)	12 point—Chicago, Geneva
Geneva 12	(2750)	
Monaco 9	(2050)	

18K—basic business: five fonts, four sizes creates 102K System folder (163K with MacPaint, 174K with MacWrite and the Imagewriter file)

This is the package I used to write this book (except, of course, for the chapters in this section), with one addition: I also used Manhattan, which is just like New York but has some very useful special characters—like ,  and so on.

Athens 18	(4450)	9 point—Geneva, Monaco
Chicago 12	(2950)	12 point—Chicago, Geneva
Geneva 9	(2150)	14point—Venice
Geneva 12	(2750)	18point—Athens
Monaco 9	(2000)	
Venice 14	(3600)	

26K—frivolous: seven fonts, four sizes, creates 110K System folder (171K with MacPaint, 182K with MacWrite and the Imagewriter file)



(Cairo18)	(5850)	
Chicago 12	(2950)	9point—Geneva, Monaco
Geneva 9	(2150)	12point—Chicago, Geneva
Geneva 12	(2750)	14point—Venice
London 18	(3250)	18point—    
Monaco 9	(2000)	(Cairo), London,
San Francisco 18	(3000)	San Francisco
Venice 14	(3600)	

29K—extended business: seven fonts, six sizes, creates 113K System folder (174K with MacPaint, 185 with MacWrite and the Imagewriter file)

Athens 18	(4450)	
Chicago 12	(2950)	9 point—Geneva, Monaco
Geneva 9	(2150)	10 point—Seattle
Geneva 12	(2750)	12 point—Chicago, Geneva
Monaco 9	(2000)	14 point—Venice
Seattle 10	(2400)	18 point—Athens
Toronto 24	(8850)	24 point—Toronto
Venice 14	(3600)	

42K—all-purpose: nine fonts, six sizes creates 126K System folder (187K with MacPaint, 198K with MacWrite and the Imagewriter file)

Athens 18	(4450)	
		
(Cairo 18)	(5850)	9 point—Geneva, Monaco
Chicago 12	(2950)	10 point—Seattle
Geneva 9	(2150)	12 point—Chicago, Geneva
Geneva 12	(2750)	14 point—Toronto, Venice
Monaco 9	(2000)	18 point—Athens,
San Francisco 18	(3000)	 (Cairo),
Seattle 10	(2400)	San Francisco
Toronto 14	(3650)	24 point—Toronto
Toronto 24	(8850)	
Venice 14	(3600)	

Version 2.2 of MacWrite takes up 55K, and requires the Imagewriter file, so if that's the application you'll be using, the total will come to 166K. Version 1.3 of MacPaint takes up 61K but doesn't require the Imagewriter file, so if that's the application you'll be using, the total will be 155K.

I show equivalent values for the other four font packages listed below. The numbers may be off by a K or two in any particular case, due to the Mac's bizarre way of adding them up (as discussed at the end of Chapter 8), but they will give you a very good general idea of how much room you can expect to have left for your own work.

On the left side of each listing, I show the fonts in alphabetical order, followed by the number of bytes each takes up on the disk (rounded to the nearest 50). On the right side, I group them by point size.

The font packages below are meant simply as examples; tastes vary, and you may find mine totally bizarre. On the other hand, if you don't want to take the time to study the fonts, just pick one of my packages and use it. It will serve you well enough until you have a better idea of what you want.

In either case, it will be worth your while to reduce the number of fonts on each of your disks to the number you really need; messages telling you the disk is full can get really frustrating.

Fonts from Other Companies

Well, that should give an idea of how to proceed. Buying fonts from other companies gives you a whole lot more latitude. For example, Apple doesn't give you any decorative fonts above 18-point, but other companies have some beauts (as Appendix B makes obvious).

There are dozens of fonts disks available; they vary in price from \$20 (a bargain) to \$60. A few representative ones are described below; some others, which contain foreign alphabets or "clip-art" fonts, are described in Chapter 12.



VERY GOOD
FEATURE

ClickArt Letters disk is published by a company called T/Maker Graphics (see the "clip art" sections of Chapters 12 and 15 for information about two of their other disks). It contains eighteen display fonts designed by R. B. Sprague; mostly general-purpose, they're really classy and well drawn. Quite a nice selection, and well worth the \$50 they charge for it. Unfortunately, the "manual" that comes with the disk is very skimpy.



VERY GOOD
FEATURE

Mac the Knife Volume II (from Miles Computing) is a great selection of fonts, everything from **Hollywood** to Katakana (a Japanese phonetic alphabet). I've used their Manhattan font, which provides symbols like `Option` and `⌘`, extensively in this book. As always with Mac the Knife, the manual is terrific. (The same company also publishes an excellent disk of clip art, described in Chapter 15.)



VERY GOOD
FEATURE

Maccessories (Kensington Microware) offers three disks of fonts designed for it by a company called Xiphias. The fonts—all named after Greek letters—closely resemble standard typesetting faces, and there's a nice balance between general-purpose and decorative. The unusual thing about these disks is the extensive range of sizes (sometimes as many as five or six) that each font comes in.



BARGAIN

The two Decowriter disks from Sea-Ess are real bargains. The first offers a wide range of fonts, some of which are quite nice. The second contains two "clip art" alphabets of 2"-high letters and 26 exotic backgrounds to put them on; it's described in more detail in Chapter 12. You can buy either Sea-Ess disk for just \$20, and both together for just \$35.

CHAPTER

11

Special Characters and Symbols

If you're not used to computers, you'll find some pretty bizarre characters on the Mac's—or just about any computer's—keyboard. There's the backslash (\), the vertical bar (|), the greater than and lesser than signs (< >), the command key (), and so on. But when people talk about special characters on the Mac, they mean ones that aren't shown on the keyboard at all. To get one of these special characters, you hold down the  key while hitting another key (or keys).

Let's say you want to type: "Hein, salopard! Parlez-vous français?" To get the special character ç in "français," you hold down  while hitting **c**. To get certain other special characters, you have to hold down the  key as well. For example, if you hit   **c**, you get an uppercase Ç instead of a lowercase one. (In this case, the  and   characters are related, but sometimes they have nothing to do with each other.)



Some fonts have idiosyncratic special characters of their own. In 24-point Hollywood, for example, ⌥ ~ (tilde) produces this: **HOLLYWOOD** (how's *that* for a special character?). And the ⌥ , ⇧ and ⌘ symbols I've been using are themselves special characters in 12-point Manhattan—⌥ o, ⌥ Q and ⌥ O (capital O) respectively.

I've listed the standard special characters below; few fonts contain all of them (in fact, as far as I know, the only two that do are Geneva and Chicago).

In the list below, I put the special character first, followed by the regular character you use to get it. I don't bother putting ⌥ in front of each of the regular keyboard characters, and I also don't use the ⇧ symbol—I just show the capital letter instead. So when you see Å followed by A, you know that to get Å, you need to hit ⌥ ⇧ a.

Sometimes I have to clarify which regular keyboard character I'm indicating—for example, when there might be a confusion between the capital letter O and the numeral 0 (or, for that matter, between a small o and a capital O, since standing alone, they can be hard to tell apart). For maximum legibility, I've set both regular and special characters in 24-point boldface type.

Unless you're a whole lot more knowledgeable than I was, you won't know what half these characters are, so I provide the name—and, when appropriate, the common foreign name—for most of them.

Every other chart of the special characters I've ever seen shows you where they are on the keyboard—not exactly the most useful way to present them. *Here*, naturally, they're organized into logical categories. (After all, this is *MacBook*.)



HOT TIP

Some special characters do double duty; for example, the square root sign doubles nicely as a check mark. When a character serves more than one function, I list it under each category where it can be used.

Accent Marks Found in Foreign Languages

Two accent marks—the tilde (~) and the accent grave (`)—are regular characters on the keyboard, marked right on the key, but it's not clear what you're supposed to use them for, since they always appear on a space all their own, never above another character.

The accent marks listed below—which include a different tilde and a different accent grave—work the way they should: when you hit `Option` + the regular character indicated, nothing shows up on the screen; then, when you type the next character, the appropriate accent mark appears above it.

These accent marks won't appear over just any letter you type—it has to be one the Mac thinks makes sense. If you try to put an accent over a different letter, the accent appears by itself on one space and the letter on the next—like this: `A. I've listed the letters that work with each accent in curly brackets after it; you can also always produce an accent over a blank space (by hitting the appropriate key for the accent, then the spacebar).

Foreign Accent Marks

- ´ acute accent, accent aigu {á é í ó ú É} **e**
- ˘ grave accent, accent grave {à è ì ò ù} ˘ (In other words, if you just hit the ˘ key by itself, you get ˘ on a space of its own; if you use `Option`, ˘ appears above the next letter you type.)
- ^ circumflex, circonflexe {â ê î ô û} **i**
- ¨ diaeresis, umlaut {ä ë ï ö ü Ä Ö Ü} **u** (lowercase u)
- ~ tilde {ã ñ õ Ñ} **n**

Foreign Letters, Letter Combinations and Abbreviations

å a	Å A
æ ' (apostrophe)	Æ "
ç c	Ç C
ø o (lowercase o)	Ø O (capital O)
œ q	Œ Q
⁹ 9 (nine)	º 0 (zero)
ß s	

Foreign Punctuation Marks

- ¿ for beginning questions in Spanish **?**
 - ¡ for beginning exclamations in Spanish **1** (one)
 - « open quotation mark in several European languages \
 - » close quotation mark in several European languages |
- These last two symbols are called **guillemets** (pronounced GEE-MAY).

Monetary Symbols**£** pound sign **3****¥** yen sign **y****¢** cent sign **4****Legal Symbols****§** section mark **6****™** trademark **2****©** copyright symbol **g****¶** paragraph mark **7****®** registered mark **r****Everyday Mathematical and Scientific Symbols****-** minus sign **-** (hyphen)**÷** division sign **/****Ø** zero (to distinguish it from a capital O) **O** (capital O)**√** square root **v** (lowercase v)**°** degree(s) ***** (asterisk)**π** pi (lowercase) **p****∞** infinity sign **5**

Less-Well-Known Mathematical and Scientific Symbols

(Since some of the symbols below can represent about a dozen different things, depending on the field of study, I simply give you their Greek names and/or what they most commonly stand for.)

\neq	not equal to	$=$
\approx	more or less equal to	X (lowercase x)
\leq	less than or equal to	$<$
\geq	greater than or equal to	$>$
\ll	much less than	\backslash
\gg	much greater than	$ $
\pm	plus or minus	$+$
\AA	Angstrom(s)	A
∂	delta (lowercase); differential, variation	d
Δ	delta (capital); increment	j
μ	mu (lowercase); micro-	m
Ω	omega (capital); ohm(s)	Z (lowercase z)
Π	pi (capital); product	P
Σ	sigma (capital); sum	W (lowercase w)
f	function, f-stop	f
\int	integral	b

Typographic and Graphic Symbols

“open quotation mark (double) [

”close quotation mark (single) {

‘ open quotation mark (single)]

’ close quotation mark (single) }

—dash (longer than a hyphen) (underline—that is, Option Shift hyphen)

...ellipsis points (to indicate something left out) ;

• bullet (for lists) **8**

✓ check mark **V** (small v)

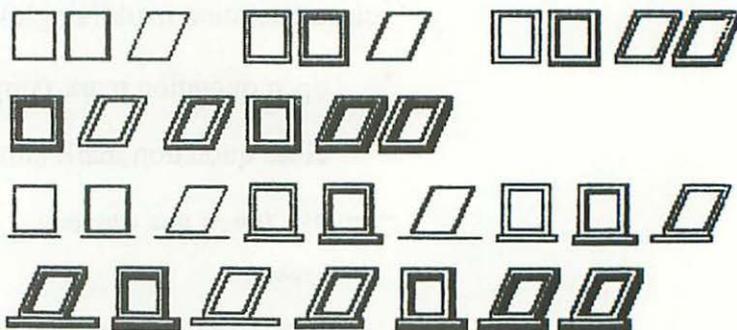
◇ diamond **V** (capital v)

† dagger **t** (used for a second footnote on a page {you use an asterisk for the first one})

Then there's **¬**. This symbol—produced by **l** (lowercase l)—was designed specially for Apple. It's used to indicate Option the same way the caret (**^**) is used to indicate the control key on many other computers. So just as **^K** means "control-K," **¬K** means "Option K."

Finally, there's the box: This is produced by **h** and **k**, or by any other key that has no special character assigned to it in the particular font you're using. For this reason, it's sometimes called the "missing character box." Some fonts have almost no special characters (London, for example, has only three), so almost any Option key you hit in one of these fonts produces this box.

The box can be quite a nice-looking graphic element, if you run it through some changes. For starters, there are 32 possible type style combinations; here's how the box looks in all of them (in 24-point Geneva):



And then, of course, there are all the various type sizes, and the constantly growing number of fonts, so you have quite a choice. One of my favorite boxes is the one you get in 24-point

Venice bold outline shadow— 



You can see how just one special character can generate literally thousands of distinct graphic elements. Thousands is not an exaggeration: as you may remember from Chapter 9, in each font there are 192 variations in MacWrite, 288 in MacPaint. Even just using the standard eleven Apple fonts, that gives you 2112 variations in MacWrite, 3168 in MacPaint (assuming the character appears in every font).

To get that many variations, you have to use scaling, and that normally doesn't look very good. But it's OK for a character like the box, which isn't very intricate.)

You're not limited to a mere eleven typefaces, of course. Appendix B shows you 182, and that's just a small sampling of what's available. Nor are you limited to one special character. There are 62 standard special characters, many exotic ones, a whole slew of hidden characters—wait a minute...we haven't gotten to hidden characters yet. Anyway, the possibilities are endless.



There's one final special character I should mention: the `Option` space. In some fonts, it's wider than a normal space but narrower than two. The `Option` space is useful between italics and plain text. *Since the Mac's italic fonts lean over so far, the words run together if you just use single spaces like these.* On the other hand, two spaces after the last italic character are too much, as you can see from this sentence. But the `Option` space is just right, not too long, not too short.

There's one other wrinkle with the `Option` space—it ties together the words on either side of it. That is, unlike a regular space, it won't break at the end of a line. This is true even when it's not wider than a regular space, and can be useful for keeping two words together that should always be on the same line, like WW II.

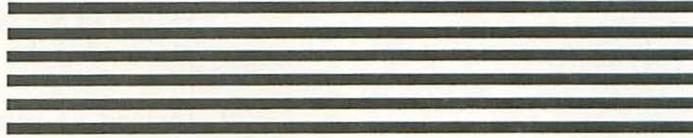
Well, that's it for the Mac's standard special characters. Most of them are well chosen, so that no matter what kind of work you do on the Mac, you're almost certain to use at least one special character more often than many of the regular keyboard characters. (In my case, it's the dash—as may be obvious.)

Because special characters are such a useful Mac feature, the list above has been summarized and put on a reference card in Appendix A.

CHAPTER



12



Pictorial Characters and Special Fonts

Pictorial Characters

The standard special characters described in the last chapter are abstract symbols; that is, they stand for ideas. But there are also **pictorial** special characters—little pictures that (usually) represent actual concrete objects.

Some fonts you buy from small publishers come with pictorial characters; for example, Miles Computing's Hollywood font gives you the Hollywood sign I showed you at the beginning of the last chapter, as well as: ♪ ♫ ☺ ★ ☹ and ☐☐☐☐ . But there are also pictorial characters buried within the fonts that come with the Mac.

These are the **hidden characters**—so called because Apple didn't mention them in their original manual (and probably not in the current one either). Unlike standard special characters, the hidden characters are whimsical rather than practical, and they differ in two additional ways as well:

1. Instead of being produced by different combinations of keys, they're all produced by one combination: `[Option]` tilde

(-)—that is, **Option** **Shift** and the key in the upper left corner of the keyboard. For this reason, they're sometimes also called the '**Option** tilde' characters.

2. Instead of remaining the same in all fonts, the hidden character varies with both the typeface and the size. Thus **Option** tilde in 14-point New York produces two joined sixteenth notes (), but the same three keys produce a heart () in 18-point New York, a robot () in 24-point New York, a running rabbit () in 24-point Geneva, and so on.

There are seventeen hidden characters in all (as of this writing—they keep adding new ones). I've listed them in alphabetical order—first in plain text, then in bold, italic, outline and shadow. (You can, of course, also use the 27 other possible combinations.)

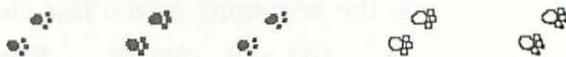
Apples

14-point Toronto—



Bear tracks

18-point Athens (scales to all other sizes)—



Birds on a wire (all trying, in their way, to be free)

14-point Geneva—



Border (branch and two leaves)

(Each character is repeated three times to show the pattern)

12-point Toronto—



24-point Toronto (scales to 48-point and 72-point)—



Border (single leaf)

(Each character is repeated three times to show the pattern)

14-point Venice (scales to all other sizes)—



Candles

12-point Monaco (scales to 10-, 14- and 24-point)—



Cars

18-point San Francisco (scales to all other sizes)—



Cubes (connected)

(Each character is repeated three times to show the pattern)

18-point Toronto (scales to 36-point)—



Diamonds (connected)

(Each character is repeated three times to show the pattern)

9-point Toronto—



Flowers

18-point London (scales to all other sizes)—



Hearts

18-point New York (scales to 9- and 36-point)—



Macintoshes

10-point Geneva—

**Musical notes**

14-point New York—

**Rabbits running**

12-point Geneva—



24-point Geneva (scales to 48-point and 72-point)—

**Robots**

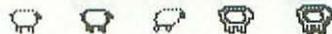
12-point New York—



24-point New York (scales to 48-point and 72-point)—

**Sheep**

18-point Geneva (scales to 9- and 36-point)—

**Triple line**

(Each character is repeated three times to show the pattern)

9-point Monaco (scales to 18-point)—





Don Briggs points out that some of these characters may not print out in high-res mode (see the next chapter for more details on what that is). If you run into that problem, you can get around it by printing out in standard mode.

Pictorial Fonts

In addition to pictorial characters, there are also whole fonts composed of nothing but pictures; one, called Cairo, comes with the Mac. (I'm sure they gave the font that name because Egyptian hieroglyphics is the most famous alphabet of little pictures, but it's a great name for some other, subtler reason that I can't put my finger on.)

Anyway, here it is, in my typical extra-ultra-superorganized format:

CAIRO

To produce a picture, hit the key (or keys) indicated below it.

Animals



z



~



U



c



e



"



K



]



d

Arrows



h



-



=



[



+

Art tools



a



j

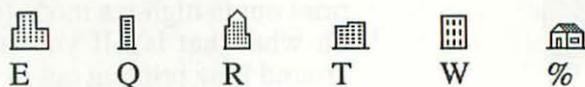


i

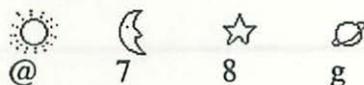


/

Buildings



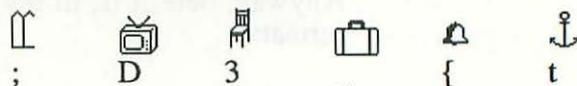
Celestial objects



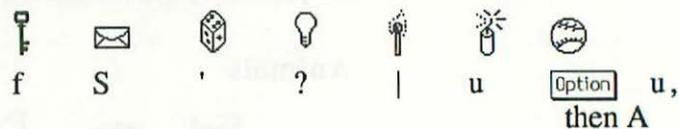
Electrical symbols



Everyday objects—bigger than a breadbox



Everyday objects—smaller than a breadbox



Food and drink



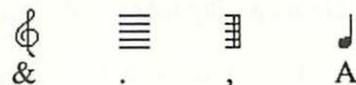
Fruits



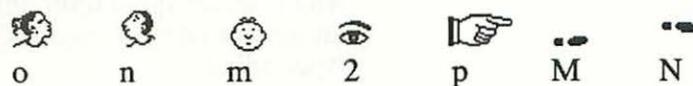
Miscellaneous



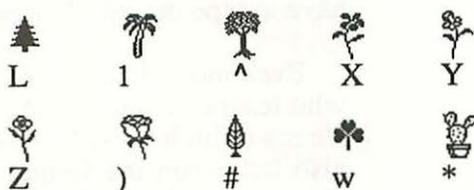
Musical symbols



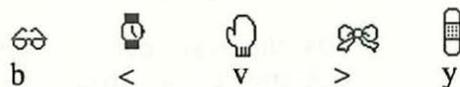
Parts of the body



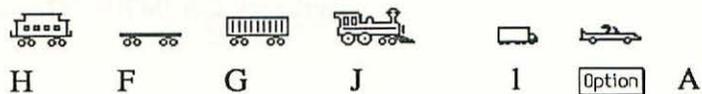
Plants and parts of plants



Things you wear



Transportation



Foreign Alphabets

Another exciting aspect of fonts on the Mac is the ability to generate foreign (that is, non-Roman) alphabets—especially since you can mix them in freely with regular text. (Roman alphabets—like the ones used for English, French and Spanish—have more or less the same letters as Latin does. Non-Roman alphabets—like the ones used for Greek, Russian, Hebrew, Japanese and Chinese—have different letters.)

Philip Barton Payne has put together three very useful non-Roman alphabets—Greek, Hebrew and Katakana (Japanese phonetic characters). I'm impressed by his approach, which seems quite thorough and scholarly. He sells these fonts under the name Linguists' Software, at the address listed in Appendix C.

You should note that Mac the Knife Volume II also includes a Katakana font, although I'm not sure how complete or precise it is. Also remember unless a Hebrew font comes with a word processor that lets you write from right to left, you'll have to type out the Hebrew text backwards (from left to right).

Even more scholarly are the fonts designed by Gary Palmer, who teaches anthropology at the University of Nevada in Las Vegas (which must be a weird place to be an academic) and also helps run the Center for Computer Applications in the Humanities there. He's created a font for Linear B, an early form of Greek writing dating from around 1500 BC, as well as for the language of the Coeur d'Alene Indians.

(By the way, can anyone tell me where the name "Coeur d'Alene" comes from? It's French for "heart of the awl," but what does *that* mean? How did the tribe/town/lake get that name? If you know, please write and tell me at Box 7635, Berkeley CA 94707. Thanks.)





Dr. Palmer distributes both these fonts free to scholars (so far, anyway). Just send him a disk and a SASE at the address listed in Appendix C. Both fonts are shown in Appendix B, but I can't have you flipping pages for *all* the goodies, so here's a little Linear B:

𐀀𐀁𐀂𐀃 𐀄𐀅 𐀆 𐀇𐀈𐀉𐀊𐀋𐀌𐀍𐀎𐀏𐀐 𐀑𐀒
 𐀓𐀔𐀕𐀖𐀗𐀘𐀙 𐀚𐀛 𐀜𐀝𐀞𐀟𐀠𐀡𐀢
 𐀣𐀤𐀥𐀦𐀧𐀨𐀩𐀪𐀫𐀬𐀭𐀮𐀯𐀰𐀱𐀲𐀳𐀴𐀵𐀶𐀷𐀸𐀹𐀺𐀻𐀼𐀽𐀾𐀿

(pretty hot, huh?)

These five foreign alphabets are no doubt just a taste of things to come; soon you'll be able to spice up your letters with witty little phrases in Sanskrit and Mayan.

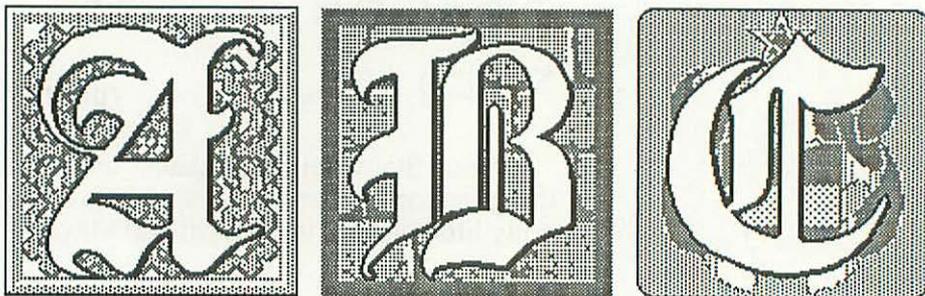
Clip-Art Fonts

Some characters are just too big to be handled in a normal font, so they're drawn in the MacPaint graphics program instead. This means you can't generate them simply by hitting a key on the keyboard, but have to treat them the way you do regular MacPaint drawings (lasso them, Cut and Paste them, and so on—see Chapter 15 for details on how MacPaint works).

Because these letters are treated just the way clip-art drawings are (see that section of Chapter 15 for more about clip art), they're called **clip-art fonts**. Clip-art fonts are nowhere near as convenient to use as true fonts, but they're better than not having the letters at all.



Sea-Ess sells a disk of 2"-high letters and exotic backgrounds to put them on. With them you can create a pretty fair imitation of the kind of illuminated letters medieval scribes spent endless hours laboring over, and which were revived by art nouveau book designers around the end of the 19th century. Called Decowriter Letters, this disk is a real bargain—just \$20, or \$35 for it and the Decowriter Fonts disk described in Chapter 10. Here's a few sample combinations:



You get two full alphabets of letters (one serif, one sans serif) and 26 backgrounds, and you can combine any of the letters with any of the backgrounds. This makes for a total of 1352 possible combinations.

The ClickArt Publications disk also contains two clip-art fonts—French Manuscript and Stencil Letters; you can see samples of both in Appendix B.

Designing Your Own Fonts

Apple has a program called **Font Editor** which allows you to design your own fonts. You construct letters dot by dot, much as you do in FatBits in MacPaint (described in Chapter 15).



Font Editor is only available to certified developers (see Chapter 18 for more on that), but you should be glad you can't get your hands on it, because it's the single most buggy program I've ever seen. Soon—probably by the time you read this—Apple (or somebody else) will have come out with an improved version.

In spite of Font Editor, it's possible to create some really nice fonts on your own. For example, here's a font my friend Paul Hoffman designed in just one day:

This is
Santa Monica
24 point

CHAPTER

13

What to Look for (and Avoid) in Mac Software

This chapter is one long list of things to look for when buying programs to use on a Mac.

Ease of Use

Most software—with its impenetrable manuals, commands reminiscent of a Shriner's initiation rite, and what Michael Ward calls "unpleasant surprises"—isn't worth the trouble it takes to learn it. (Some publishers seem to spend more time making sure you can't copy their software than in giving you any reason to.)

One of the major reasons people buy the Mac is to avoid all that intimidating, user-hostile, computer gobbledygook. Fortunately, most companies that publish software for the Mac seem to realize that. But not all. Some let a programmer's bizarre ideas about how people think get to the final product, and others let greedy marketing executives—who don't care *how* people think, as long as they spend—make decisions far beyond their competence.



You shouldn't have to put up with any of that, so *don't*—not even for a second. The Mac is an inherently easy-to-use machine. If you find yourself having *any trouble at all* learning how to use a program for the Mac, stop wasting your time and find another program that doesn't give you the same trouble. (See the section on free trials below, to make sure you have that option.)

Speed

As friends of mine who bought early models of the Epson QX-10 learned (much to their sorrow), ease of use ain't everything. How fast a program runs can be even more important. Unfortunately, that's seldom mentioned in ads or by salesclerks, and it's one of the hardest things to evaluate in an in-store tryout.



But delays of even a few seconds can be very annoying if you keep running into them. Because of that, speed is one of the prime things I look for in a program. Many computer novices tend to ignore this consideration—since doing something on a computer is so much faster than doing it by hand anyway. But mark my words—if you buy a slow program, you'll live to regret it. (Steve Michel tells me that—unfortunately—no one *ever* realizes this.)

Hierarchical Organization

For software to be easy to use, it should be hierarchically organized. This means that most basic operations are simple and central to how the program works, and the more advanced operations are off to the side, so you don't even know they're there until you need them.

Mac Software Should Be Mac-like

Aside from being terrifically easy to use, the Mac's pointing interface has another major virtue: you don't have to learn a new set of commands and procedures for each program—at least you shouldn't have to.



Fortunately, most Mac programs have all the standard Mac features: pop-down menus, icons, windows, a mouse-controlled pointer, dialog boxes and response buttons, scroll bars, Cut and Paste, etc. Some also have an Undo command (and the more circumstances it works in, the better). But other programs have simply been converted slap-dash from a version that runs on an inferior computer (usually an IBM PC), and these should definitely be avoided.

There is a third category, however—programs that take advantage of the Mac's features, but do it in a nonstandard way. One of these is ThinkTank, and whether you like it or not depends on whether you find its unique features spiffy enough to justify switching gears between it and other Mac programs.

A Free Trial

To be absolutely sure you're going to want a program before you buy it, you need to use it for some reasonable period of time. There are several ways you can do that, and you should definitely favor programs that make one of them available to you. Here they are:

Shareware



I described this in Chapter 8, when talking about the Desk Accessory Mover. Some publishers let their software be copied freely, and ask you to pay them if you like it and continue to use it. In order to encourage this proconsumer approach to software distribution, always give shareware a try before spending money for a cash-up-front program that does the same thing, and *always* pay for any shareware you end up using and keeping. (It'll save you money in the long run.)

Public-domain software

Lots of programs are available absolutely free, thanks to the generosity of their authors. (If there's anything better than a free trial, it's free use.)

You can get public-domain software from good computer stores (if you've done business with them), user groups or bulletin boards (both of which are described in Chapter 20). You often have to put up with skimpy documentation, or none at all, and early versions of most programs have bugs. But there's a lot of terrific public-domain software, some of it far better than commercial programs you pay hundreds of dollars for.

In-store tryouts

Any decent computer store will let you sit and play with software for hours at a time, as long as no one else wants to use the machine (unfortunately, someone usually will). Trying a program in a store will often give you a good enough feeling for it to decide if want to buy it.

Money-back guarantees

Since you can't make copies of most programs, money-back guarantees should be a common practice. But they aren't. You can help change this by not buying anything unless you can return it for a full refund—not a credit—within 30 days. Some mail-order software outfits do offer this guarantee, which makes them the best place to buy your programs (especially since their prices are usually lower than stores).

Friends with a lot of software

- Step 1 — Make a lot of rich friends.
- Step 2 — Convince them to buy Macs.
- Step 3 — Borrow all the software they buy.
(This may be more trouble than it's worth.)



HOT TIP

Whichever one of these five approaches you take, don't buy software without trying it out. Remember—*most software isn't worth owning.*

One last word: Magazines are great for finding out what the current version of a particular piece of software will and won't do. But don't depend on a review to tell you if you actually want to buy the product. Even when reviewers aren't under pressure from the magazine not to alienate potential advertisers, they may have completely different tastes and needs from yours. After all, would you go see a movie solely on the basis of a review, if movies cost \$100?

You Want a Great Manual You Don't Need

In all my previous rants about software (in other books), I've said that no matter how great a program is, it doesn't do you any good unless you know how to use it. As a sometime writer of computer manuals myself, I naturally felt that a well-organized, readable manual was the best way to teach someone how to use a program.

Ah, but that was before the Mac. In my post-Mac incarnation, I now say: Programs on the Mac should be so clear, their menu commands so understandable, that you don't even need a manual. I've found several Mac programs that meet this high standard (and I've described them in Chapters 14 through 19). A good manual is great to have, and there will always be something useful to learn from it, but you shouldn't really need it to run the program.

Support, Support, Support

There's a saying among real-estate agents that the three most important things to consider when buying a property are "location, location and location." I think the three most important things to consider when buying a computer product are "support, support and support." (**Support** is the availability of someone to answer your questions and fix things if they go wrong.)



HOT TIP

Support is the reason it often makes sense to pay a little more to buy from a vendor whose staff knows something (whether it's a local store or a mail-order distributor). Don't imagine you can depend on the publisher's 800-number "support hotline." Although there are some exceptions, most of them are like Microsoft's—in other words, you might as well just play a tape recording of a busy signal and not tie up your phone.

Don't Use a Hammer to Kill a Fly

You should use a computer to do things you can't do more easily in some other way (like with pencil and paper, or with some other simple tool). That's a pretty obvious point, but a fair number of Mac programs waste the Mac's potential and your money by ignoring it.

I guess computers have finally arrived, now that they're sold as solutions to problems they can't really solve. Before you know it, we'll have a program that makes you irresistible to women (or men, depending on which side of the disk you insert), a keyboard that trims off ugly pounds effortlessly while you type, and a disk drive that cures dandruff.

Copyable or Not

In the case of some programs, there are more illegal copies in existence than legal ones. (Not that this is always bad for the publisher. WordStar became an industry-standard word processing program at least partly because so many people had bootleg copies of it.)

Most of the problem is people who give copies to their friends—few computer hackers are despicable enough to steal someone else's work and then *sell* it. Still, the average program represents many person-years of labor, and you can't blame a publisher for wanting to protect that investment. So most Mac software is **copy-protected**.

There are many ways to make it difficult to copy a disk, and no way to make it impossible, so it becomes a question of percentages: "How many devious little 14-year-old hackers can we outsmart?"



The problem with copy-protected software is that there's a genuine need to make at least one copy of the program disk for yourself—so if something happens to the master (the copy you bought), you'll still be able to use the software. Different publishers have different ways of getting you that backup. (If a publisher makes *no* provision for backups, just don't buy the software—unless it's a game. It's standard for game publishers only to give you a backup if you send them the original zapped disk.)

Some publishers simply make their disks copyable. This is obviously the most convenient method for the user but, understandably enough, it's not much favored by companies who are very worried about having their software stolen.



The next best approach I've seen is the one taken by Living Videotext. When you buy a copy of their ThinkTank program, and return the registration card, they send you a backup copy absolutely free. (Companies are always complaining about how they can't get their customers to return their registration cards, but few of them are willing to take as sensible an approach to the problem as Living Videotext.)

Many other publishers will let you *buy* a backup copy when you return the registration. This isn't quite as desirable, needless to say—especially since they charge you \$10 for a disk that costs them \$2-3 (maybe), plus \$1 or so for postage, packaging and handling. Hey, if they can make a little extra money off you, why not?



A third approach is taken by Microsoft (and others). They let you copy the program disk all you want, but you have to insert the master each time you use the program. This is a clumsy, annoying procedure which defeats the purpose of making backups.

A more sensible approach is taken by ProVUE. You can copy their OverVUE program, but you need the master to make the copy, and the procedure is somewhat involved. This lets you make copies for yourself, but discourages you from making them for other people, and anybody you do give (or—if you're really a worm—sell) a copy to won't be able to make copies of their own.

One last possible approach requires the cooperation of the manufacturer. It involves installing a chip with a serial number on it (called an SSD—for "software security device") in the computer, and having all software key into it. You can make all the copies you want (all of which will run on your machine), but neither the original or any of the copies will run on any other computer.

Unfortunately, it isn't quite as simple as it sounds. Both the design of the SSD and the task of keeping a record of everybody's SSD number (so you can unlock their software and no one else's) are fraught with problems. But Apple is putting a great deal of energy into solving these problems, and hopefully their efforts will bear fruit some day soon.

Beware of Vaporware



So much software has been promised that never saw the light of day (or saw it on a day many months after it was supposed to) that there's even a special name for it—**vaporware**. A related phrase, popularized by Jerry Pournelle, has also caught on—"real soon now."

So when some salesclerk (or ad, or friend) tells you that a new product will be along "real soon now," don't depend on it. Few computer products come out on time, and lots of software ends up being nothing more than vaporware.

Trust Good Publishers

Since movie reviewers spend most of their time telling you the plot, and usually aren't bright enough even to do that with any accuracy, one of the best ways to tell if a movie is worth seeing is to judge by the director. Likewise, one of the best ways to tell if a program is worth buying is to judge by the company that publishes it. So if you like one program by a given publisher, that's a good reason to check out some of their other offerings.

Well, that should give you some things to look for when buying software. Chapters 14 through 19 tell you about some specific programs available for the Mac.

CHAPTER

14

Writing

When most people buy computers, they're not thinking primarily about **word processing** (which is what writing on a computer is called). In fact, in a study conducted at the University of California, people who were asked before they bought a computer what they planned to use it for, listed word processing fourth out of five choices. But when those same people were asked after they bought computers what they were *actually* using them for, word processing came in first.

So how a computer stacks up as a word processor is a very important consideration. The Macintosh has traditionally gotten a bum rap in this regard. But you couldn't prove it by me—in spite of the fact that I began with the assumption that there was no sense in even trying to use the Mac for writing. (As I mentioned earlier, I began with a letter or two, strictly as an experiment, and ended up doing all my writing—including this book and another one—on the Mac.)

Part of my reason for liking the Mac so much is that it's virtually silent. Still, I could have put my new, loud CP/M machine (which I'd come to think of as "the vacuum cleaner") down in the basement, and gone back to my old CP/M machine, which I'd modified to be fairly quiet. But I was never even tempted.



VERY GOOD
FEATURE



VERY GOOD
FEATURE

The Mac's minor failings as a word processor are almost entirely the fault of the few word processing programs written for it so far, and they don't even begin to outweigh what I like about the machine—its fantastic ease of use, the crispness of its screen image, its ability to display thousands of different fonts and type styles on the screen, its...elegance.

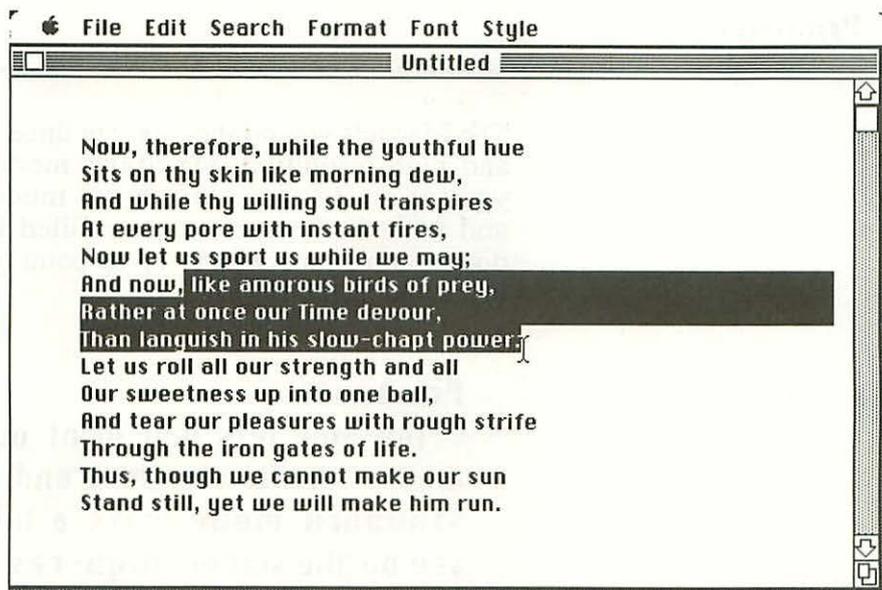
I'll begin this chapter by describing the basic way the Mac works with text, then I'll go on to describe the two main word processing programs written for it so far—MacWrite and Microsoft Word. Finally I'll cover other kinds of programs that deal with writing: those that check your spelling, help you outline, produce personalized form letters, and teach you touch-typing.

How the Mac Handles Text

Whenever the Mac deals with text—whether it's whole pages of it or just the label of an icon—it displays the **I-beam pointer** (which, as you may remember from the first chapter, looks like this: ). If you move the regular arrow pointer——into an area of the screen where you can produce or edit text, it turns into an I-beam pointer.

The I-beam pointer deposits a flashing vertical line whenever you click the mouse button; this is called the **insertion point** (even though it's a line). The insertion point marks the place where text will appear if you type. So if you wanted to insert a word between two others, you'd put the I-beam pointer between them, click the mouse button (thereby depositing the insertion point), and just type it out.

The I-beam pointer is also used for selecting text. You put it at one end of the piece of text you want to select (anything from a single character to dozens of pages), click and hold the mouse button, drag the pointer to the other end, and release the mouse button. The text becomes highlighted as you drag the pointer. Once a portion of text is selected, you can cut it, copy it or delete it (as described in Chapter 7).



To select large areas of text, you just click at one end, then hold down **Shift** when you click at the other. Everything between the two clicks is selected. This can be a real timesaver.

I thought all this extensive use of the mouse for selecting was going to be a pain, since it requires you to take your hands off the keyboard all the time, but I haven't found it to be a problem (possibly because I'm such a lousy typist anyway). Selecting with the mouse is slightly more trouble for doing things like deleting or inserting a single character, but it's much more convenient for moving and deleting even small blocks of text.

You can also delete text without selecting it—simply by backspacing over it. If you change your mind and decide you want that text back again, you can recover up to 50 characters of it by holding down **⌘** and **Backspace** at the same time. The cursor will move forward (to the right) instead of backward, redepositing the characters you just backspaced over. But remember: this method will not bring back text that you deleted by selecting it and hitting **Backspace**—only text you backspaced over character by character.

Printouts

The Mac lets you print out text in three modes—draft, standard and high-resolution. **Standard mode** looks a lot like what you see on the screen. **High-res mode** is similar but darker, and with the characters more filled in. (For this reason, it doesn't look good with 9- or 10-point type—the characters fill in too much.)

Standard mode

Printouts

The Mac lets you print out text in three modes—draft, standard and high-resolution. **Standard mode** looks a lot like what you see on the screen. **High-res mode** is similar but darker, and with the characters more filled in. (For this reason, it doesn't look good with 9- or 10-point type—the characters fill in too much.)

High-res mode

Printouts

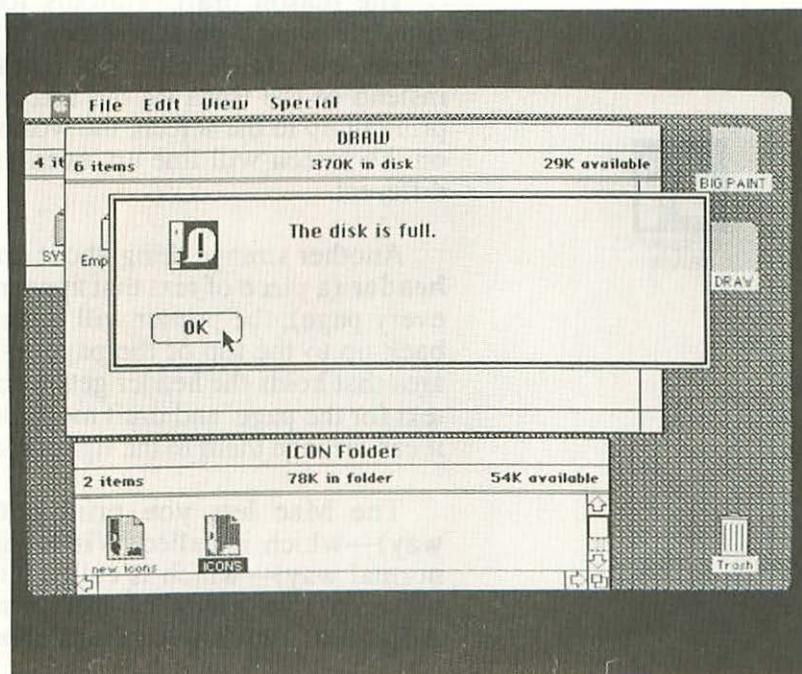
The Mac lets you print out text in three modes—draft, standard and high-resolution. **Standard mode** looks a lot like what you see on the screen. **High-res mode** is similar but darker, and with the characters more filled in. (For this reason, it doesn't look good with 9- or 10-point type—the characters fill in too much.)

You can use high-res mode to compensate for a faint ribbon (on the other hand, with a well-inked ribbon, it tends to look smeary). Since high-res printouts take twice as long as standard ones, I ink my own ribbons and use standard mode.

To print in high-res mode, the Mac looks for a size of the font you're using that's twice as big as the size you want to print out in, and then scales it down. (If it can't find a font that's twice as big, it comes as close as it can.) This is the one time scaling actually makes a font look better.

Twenty-point fonts have no other purpose than to be scaled down to 10 point in high-res printouts, since there is no menu command for 20-point type. And in MacWrite, which only goes up to 24 point, the only purpose of 36-point fonts is to be scaled down to 18 point.

The Mac takes a while to start doing a standard or high-res printout. That's because it has to figure out exactly how to put the document on the page, and it has to create a "print file" on the disk with all that information in it. If there isn't room for the print file on the disk, you'll get the following message:



Draft mode is completely different from either high-res or standard mode—it doesn't give you fonts, type sizes or type styles. Draft-mode printouts begin immediately, because they don't require the creation of print files.

Draft mode is completely is different from either high-res or standard mode—it doesn't give you fonts, type sizes or type styles. Draft-mode printouts begin immediately, because they don't require the creation of print files.

The reason draft printouts look so strange is that they simulate what's on the screen in terms of spacing and line breaks, but use the elite font that's built right into the printer, instead of the fonts on the screen. If you hold a draft-mode printout up to the screen, the words on the paper and the words on the screen will line up, even though they look completely different.



GOSSIP
TRIVIA

Another strange thing about draft mode is that if you use a **header** (a piece of text that appears automatically at the top of every page), the printer will print the whole page, then scroll back up to the top of the page to insert it. That's because the area that holds the header gets read after the area that holds the text for the page, and draft mode doesn't have a print file where it can arrange them in the right order.

The Mac lets you print out across a page (the long way)—which is called **Wide**—as well as down a page (the normal way)—which is called **Tall**. You even have a choice between two kinds of tall printouts—regular and **Tall Adjusted**. Here's what that's about:

There are 72 dots (pixels) for every inch on the Mac's screen. (This is convenient, since—as I mentioned in Chapter 9—type is traditionally measured in points, which also run 72 to the inch.) But when it's printing text in standard or high-res mode, in order to make the characters look better on paper, the

Mac takes those dots and squeezes 80 of them into each inch—unless you tell it to print out Tall Adjusted, in which case you get 72 dots per inch, just like on the screen.

The terms here are a little confusing, since regular Tall printouts are the ones that are adjusted—from 72 dpi to 80—and Tall Adjusted are the ones that are actually unadjusted (left at the standard 72 dpi).



HOT TIP

You can Cut pictures from MacPaint and most other graphics programs and Paste them into text documents, and Tall Adjusted comes in handy for keeping the proportions in

This page shows you the difference between how Tall and Tall Adjusted printouts look.

You can particularly see the difference in geometric shapes like the checkerboard and the olympic circles.

Tall

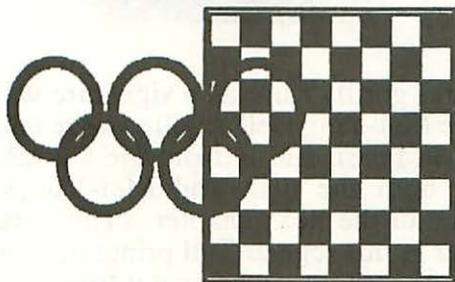
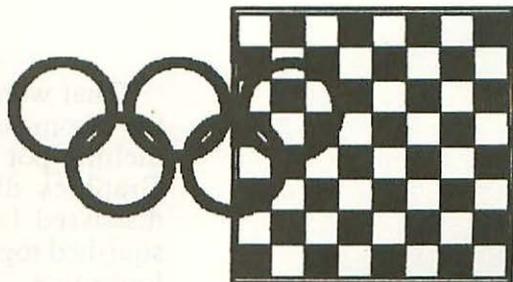
But there's also a difference in how type looks. In fact, the whole reason for the Tall printout (with more dots per inch) is that text is supposed to look better in it.

This page shows you the difference between how Tall and Tall Adjusted printouts look.

You can particularly see the difference in geometric shapes like the checkerboard and the olympic circles.

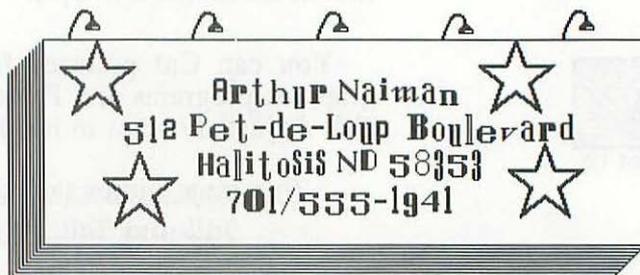
Tall Adjusted

But there's also a difference in how type looks. In fact, the whole reason for the Tall printout (with more dots per inch) is that text is supposed to look better in it.

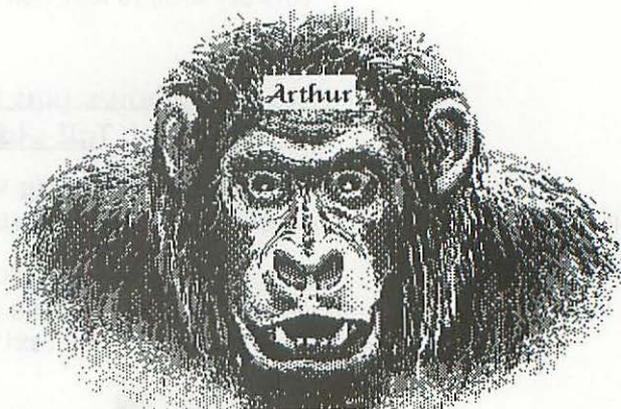
*Tall**Tall Adjusted*

these pictures unchanged. In regular Tall printouts, squares become rectangles and circles become ovals; to keep them the same shape, choose Tall Adjusted.

One thing MacPaint pictures are good for is personal letterheads; here's mine (with address and phone number changed to protect the innocent):



Dear



That wonderful gorilla I use as a signature was drawn by the incomparable Mei-Ying Dell'Aquila (we're talking serious melting-pot action here), and is from the ClickArt Personal Graphics disk; both the disk and Mei-Ying's work are discussed further in the next chapter. (The gorilla is a bit squished together in this regular Tall printout, although it still looks fine. To have it show up the way it looks in the original MacPaint document, you have to use Tall Adjusted.)

There's one problem with pictures Pasted into text documents (whether for letterheads or anything else)—they take up a whole line, which means you can't put anything next to them. This is a drag, since MacPaint only lets you Cut up to one window, and a MacPaint window is narrower than a typical line of text. (I had a cow standing next to the billboard when I put the letterhead together in MacPaint, but the image was too wide to get both of them over to MacWrite.)

This is a defect in MacPaint, of course, not in the word processing programs that accept pictures from it. Fortunately, some graphics programs—like the fantastic software that comes with the ThunderScan digitizer—do let you Cut an image that's wider than a window, and some of the ones that don't at least have a wider window than MacPaint's.

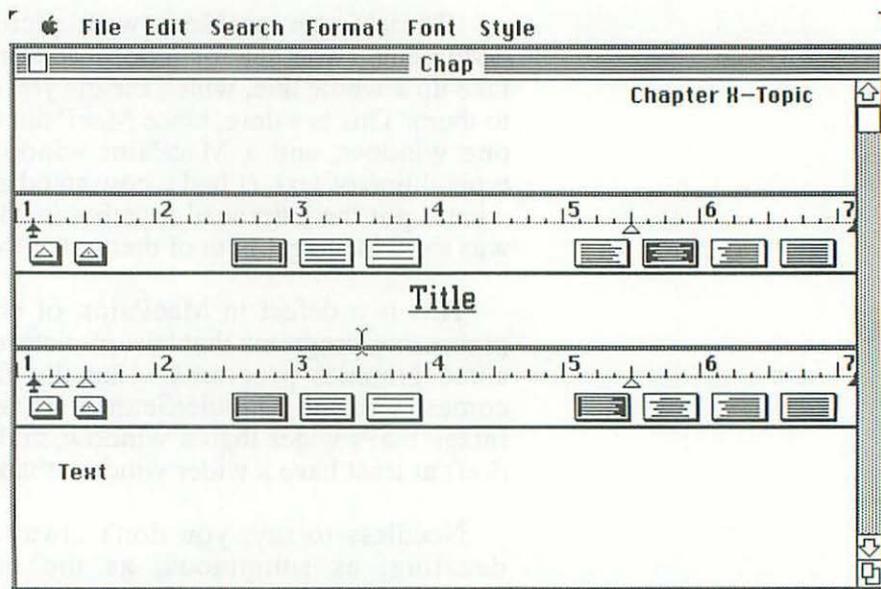
Needless to say, you don't always want a letterhead as dazzling, as sumptuous, as the one above. For some purposes—business letterhead, for example—you may not even want to use a picture(!).



HOT TIP

Letterheads are just one kind of **dummy document**. Dummy documents eliminate a lot of repetitive work, and you should set one up—with all the appropriate headers, footers, margins, fonts and so on—for each kind of writing you do.

For example, when I started writing this book, I made up a dummy document called 'Chap', the beginning of which looks like this:



To start work on this chapter, I didn't click on the MacWrite icon; I duplicated 'Chap', renamed it '14', opened it, changed the header from 'Chapter X—Topic' to 'Chapter 14—Writing', changed the title from 'Title' to 'Writing', and began scribbling.

Well, that's enough about the basics of how the Mac handles text. Now I'll discuss some of the word processing programs available for it.

MacWrite



MacWrite usually comes free with the Mac. Although it's somewhat primitive and lacks some features, it's also logical, not very buggy, and extremely easy to learn. I think all too much has been made of its limitations.

One of these is the restricted choice of margin settings. You can't set the left margin at less than 1" or the right at more than 8". This gives you a maximum print width of 7", of which you can only see about 6-1/4" on the screen at a time—assuming you leave room for the scroll bar so you can move around in the document.

(The image on the screen is actually slightly bigger than the measurements marked on the ruler. So if you put an actual physical ruler up to the screen, you'll see that the 6-1/4"-wide window actually takes up almost 7".)

An even greater limitation is in the area of headers and footers, particularly when you try to use page numbers in them. (Just as a header is a piece of text that appears automatically at the top of every page, a footer is a piece of text that appears automatically at the bottom of every page).



You can only start page numbering with the first page, and the way MacWrite deals with the page number within the header and footer is very bizarre (and not worth going into). You also can't start or stop headers or footers on a given page, or change them; they must appear on every page of a document.

But there are really two MacWrites—the original RAM-based program and the new disk-based one. In order to discuss the program further, I need to say something about the difference between them.

Ram-Based vs. Disk-Based



In a RAM-based word processor, the **workfile** (the document you're working on) is kept entirely in memory. This limits its size, but makes the program relatively fast. (You should always hold onto old versions of software; they may have features you want.)

In a disk-based word processor, only a part of the workfile is kept in memory at any one time (unless it's very short). The rest is "swapped" from the disk into memory and back again, as needed. This slows down the operation of the program, but the length of the workfile is only limited by the space left on the disk, rather than by the space left in memory. The table below shows you what this means in practical terms:

Maximum Document Lengths (approximate)

Program	K	Words	Pages (double-spaced)	Pages (single-spaced)
RAM-based MacWrite,* 128K Mac	20-25	3400- 4200	12-18	7-10
RAM-based MacWrite,* 512K Mac	70-80†	12,000- 13,500	45-55	25-35
disk-based MacWrite,* 128K Mac	70-80	12,000- 13,500	45-55	25-35
disk-based MacWrite,* 512K Mac	400	65,000- 70,000	250-300	150-175

* You can assume roughly similar values for other word processing programs.

† With 512K of memory, you'd think the FatMac would allow documents longer than this. But the limitation exists because the Mac measures the contents with a single 16-bit number.



HOT TIP

What the table doesn't show is the difference in how fast the programs run. Since speed is tremendously important in a word processor, RAM-based programs are generally preferable to disk-based ones. Maximum document length is a less important consideration. (It's true that a 512K Mac with RAM-disk software speeds up disk-based word processors quite a bit. But on a 512K Mac, you can get a workfile that's more than adequate with a RAM-based word processor.)

I've used RAM-based word processing programs to write eight books, and never had a problem with limitations on the length of the workfile. And yet you'll hear people say—as if it were some sort of axiomatic truth—that you can't do useful work with any RAM-based word processing program, because you can't create long-enough documents.



HOT TIP

In fact, a workfile longer than 50K is incredibly clumsy (at least in every word processing program I've ever used). You should always break a document in two when it gets that long, and usually way before it gets that long. So it's only on a 128K Mac that you might want a disk-based word processor. But even there, it's not so clear.

All a RAM-based word processing program needs to do is link separate documents during printout—so that they can be joined in the middle of a page, with continuous numbering from one page to the next. Then it doesn't matter how long each document is. Unfortunately, MacWrite can't do this, and it forces you to use page numbers like 1-5 and 4-3, or—if you have long chapters—2a-5 and 3b-4.

Even that doesn't matter unless the printouts from your Imagewriter are the final form your documents take, and you have to show them to the people who care about trivialities like compound page numbers.

Aside from being slower, the new disk-based MacWrite has one other failing. At least in the prerelease version I saw of it, it wipes the name of the document clean when you select 'Save As...', thus forcing you to retype it each time. The old RAM-based MacWrite provided the present document name as a default, so that you only needed to retype it if you wanted to change it.

But in most ways, the new disk-based MacWrite is an improvement over the earlier version. It displays the current page number in the scroll bar, and gives you a command that lets you go directly to a given page. You can have lines that are spaced to the inch, which is useful for filling out forms. And you can pause during printing (in the earlier version, you had to stop altogether).

There are other useful features, as well. But if it's features you want, you want Microsoft Word.

Microsoft Word

For a year after the Mac was introduced, MacWrite remained the only word processing program on the Mac. In the same period, literally dozens of data base programs were introduced. The reason for this singular lack of competition in the word processing area was that everyone was waiting for Microsoft Word to come out.



Word has a number of impressive features. It can open four separate windows on the screen, and they can contain other parts of the document you're working on, parts of different documents, or both. You can edit in any window, and Cut and Paste between them.



You can create a "glossary" of commonly used words, phrases, and sentences, and insert them into the text just by typing simple abbreviations that you make up. You can also create personalized form letters with up to 256 variables (things that change from letter to letter) of up to 200 characters each.



Word's "merge-print" capabilities are quite sophisticated. For example, most word processors have trouble making a line come out the right length when there's a variable in the middle of it (because the length of the variable changes from one letter to the next). You either have to place the variable on a line of its own or put up with different length lines in each letter. But Word is able to fill lines to the right length regardless of how long or short the variable turns out to be.



Word will put footnotes at the bottom of the correct pages, and will even renumber them if you add or subtract one. It also has great column formatting capabilities. You can have one, two or three columns on a page, vary the distance between them, edit text within them, and Cut and Paste them as columns.

Every paragraph in a Word document can be formatted separately (without the clumsiness of inserting a new ruler). You can also break a document into divisions (like chapters, for example) and format each of these differently.

Page numbers can be in arabic numerals, Roman numerals or letters. You can change headers and footers anywhere in a document, and as often as you want. You can even have Word automatically print out one kind of header or footer on odd pages, another on even pages.



Word can read MacWrite files, and you can Paste data from many other applications, like MacPaint, File, Chart and Multiplan. Finally, you can print out on a formed-character printer without the need for any additional software.



Word sounds great, doesn't it? And it is. But there are a couple of problems. Because it's disk-based, Word is relatively slow—although this isn't much of a problem on a 512K Mac with RAM-disk software. The other problem is Microsoft's annoying copy-protection scheme (described in Chapter 13), which requires you to insert the master disk each time you want to use the program.

Which Word Processing Program Is Best?



HOT TIP

The main point here has nothing to do with software: *Word processing on a Mac is much easier and much more powerful on a FatMac (with RAM-disk software) than on a 128K machine.* Disk-based MacWrite and Word both work much faster (because all the disk access that slows them down on a 128K machine goes to the RAM disk instead), and RAM-based MacWrite lets you have documents of a reasonable length.

(If the old RAM-based version of MacWrite has been officially replaced by the time you read this, it should still be widely available on bulletin boards. If you can't hunt down a copy there, you should be able to get one from a dealer, friend or fellow user group member who's kept it around on a disk somewhere. For more about bulletin boards and user groups, see Chapter 20.)

I found RAM-based MacWrite on a 512K machine fairly adequate for writing this book. If you have some extraordinary reason for needing files longer than 70-80K, you might want to consider disk-based MacWrite. But if you're going to go that route, why put up with MacWrite's primitive formatting capabilities? Get Microsoft Word instead.



HOT TIP

Whatever you do on a 512K machine, you can't really lose. On a 128K machine, however, you can't really win. Both Word and disk-based MacWrite are slow, and RAM-based MacWrite forces you to break documents into inconveniently small chunks. A 128K Mac really forces you to choose: do you want (relative) speed, or do you want documents longer than 20-25K? (Of course, you may prefer this choice to the extra money a FatMac costs.)



VERY BAD
FEATURE

On a 128K machine, even RAM-based MacWrite is fairly slow, because 128K just isn't enough for the Mac to keep everything it needs in memory. It's always running off to the disk for a font or a message or some damned thing, particularly when your document gets to be long or or when you have a lot of different fonts in it. If you keep working while you're waiting and get too many keystrokes ahead of the program, you could hang it up indefinitely.

Unless you do very little word processing, you're probably not going to want disk-based MacWrite (even though it will probably be included free with the machine). Either you'll find it too slow—in which case you'll want to dig up a copy of RAM-based MacWrite—or you won't—in which case you'll still probably want to replace it with Word, so you can get all those nifty features.

But none of these choices is ideal, even on a 512K machine. I wish someone would come up with a word processing program that's even faster than RAM-based MacWrite and also has some of Word's powerful formatting, editing and merge-print features.

By the time you read this, some one may have. Main Street Software is planning to bring out word processing software for the Mac, and they certainly won't be the only ones.

Spelling Checkers

A spelling checker is a program that compares all the words in a document to a list of words it knows are spelled correctly (which is called its **dictionary**). If any words in the document don't match up, they tell you about it, and let you decide if that's because they're misspelled or simply because you can't expect your Uncle Shmulka's name to be listed in the program's dictionary.

Here's a check list of what to look for in a spelling checker:

- ✓ *Speed.* Most people who have spelling checkers don't use them a lot of the time because they don't like having to sit around and wait for the program to check a document. So the faster a spelling checker can run through its dictionary, the better.
- ✓ *A big dictionary.* The more words a spelling checker has to compare yours with, the fewer mismatches it's going to show you (except, of course, for the actual misspellings). Dictionaries run from a few thousand to over a hundred thousand words.



HOT TIP

You should note that these first two items are opposed to each other to a great extent. All else being equal, the larger a dictionary is, the longer the program will take to check it. The smaller it is, the more time you'll waste OKing words that are correctly spelled but aren't in the program's dictionary. So you need to find the best trade-off for your purposes.

- √ *The ability to make dictionaries of your own.* No matter how large a spelling checker's dictionary is, it will never include all the specialized (or idiosyncratic) words you use. So the program should let you make a dictionary of your own—several dictionaries, ideally, each for different purposes—that get checked along with the main dictionary. This should be easy to do, an integral part of the program's normal operation.

Some people argue that the main dictionary should be small, for speed, and that you should expect to spend a few weeks building up your own dictionaries so the program isn't showing you fifty mismatched words on every document.



VERY BAD FEATURE

Well, yes, that makes sense, within reason. But it can get pretty annoying to constantly be responding to common words that really belong in the main dictionary; for example, one spelling checker I used had never heard of "shouldn't," "sticker," "tab," "modesty," "buzzer," "affords," "magnify" and hundreds of other common words. Putting words like that in a dictionary should be the programmers' job, not yours.

- √ *See words in context.* If you see a misspelled word sitting by itself, it's sometimes hard to figure out what it's supposed to be. So the program should display each word it questions in context, with at least a line of text before and after it.



VERY GOOD FEATURE

- √ *A look-up function.* Good spelling checkers also let you look up words in the dictionary that are close in spelling to the word that's flagged (like 'embarrass' when you typed 'embarass'), so you can select the correct spelling if it happens to be there, instead of having to look it up yourself in a printed dictionary.

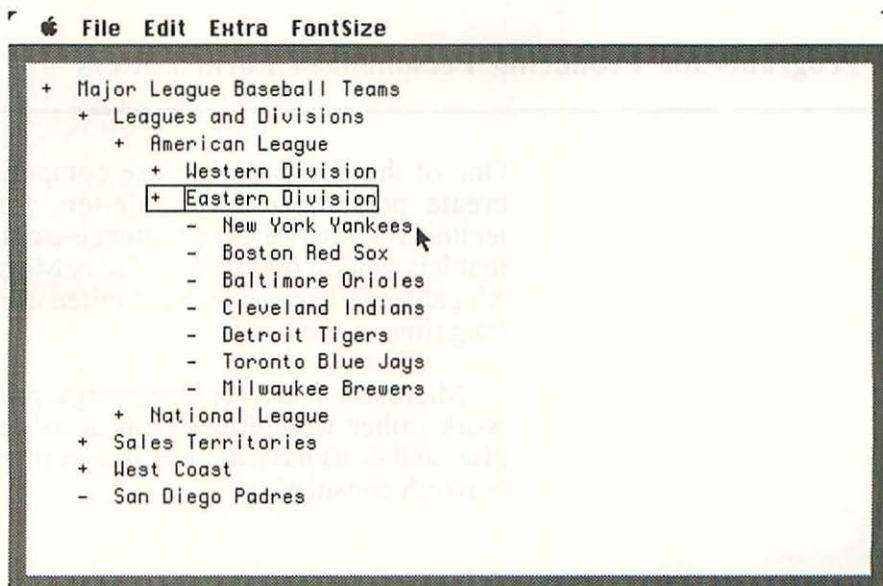


- ✓ *Automatic correction.* It's a pain to have to leave the spelling checker and go into a word processing program to correct misspelled words which have been marked by the spelling checker. Any decent spelling checker will make the corrections for you, and save the corrected document to disk when you exit.
- ✓ *Flexibility.* The more different word processing programs a spelling checker will work with, the better the chance it will work with yours.

Outlining Tools

ThinkTank is a program that helps you create outlines. Not content with this modest but perfectly valid function, it calls itself an "idea processor." Actually, I have problems with it just as an outlining tool.

One problem is that it restricts you to a single monospaced font in a single size, and I find that makes the outline hard to read. I started outlining this book with ThinkTank but soon went over to MacWrite, so I could use different fonts and type sizes for the different levels of heading (I ended up with six, from **18-point Athens** to 9-point Geneva).



ThinkTank

Not using fonts is just one of many ways in which ThinkTank isn't very Mac-like. Bruce Horn, a Mac programming genius who co-authored the Finder, doesn't like it because it doesn't follow standard Mac procedures. In a discussion in *Club Mac News*, he criticized the monospaced type, which he calls "the cheap way to go," as well as things like its inability to Cut and Paste text in the normal Mac way (you have to backspace over text to revise it) and its nonstandard scrolling (with "hot areas" around the sides of the windows which scroll the text away from the side that's clicked).

But the other participant in this discussion, *CMN's* editor, Rick Barron, finds ThinkTank's nonstandard features jazzy enough to make it worth the effort involved in switching gears for them.

There's an enhanced version of ThinkTank for 512K machines. It has many remarkable features including the ability to append up to 32K of text, or a picture, under a heading. It can also read files sequentially to produce an on-screen simulation of a slide show or even animation. Finally, the 512K version will automatically number the headings in an outline. Unfortunately, however, ThinkTank 512 still uses one, monospaced font.

Programs for Producing Personalized Form Letters

One of the things people use computers for most often is to create personalized form letters for mass mailings. The technical name for this is **merge-printing**, and one program that lets you do that on the Mac is MegaMerge. Unfortunately, MegaMerge has somewhat limited capabilities, and it takes a long time to print out.

Microsoft Word also has merge-print capabilities, and they work rather well. But if you don't need Word for anything else, and don't have a lot of merge-printing to do, MegaMerge is worth considering.

Software That Teaches You Touch Typing

Many typing tutorials use a game approach, with invading space ships and the like. A company called Palantir claims that it's easier to learn to type without all those irrelevant distractions, and so their tutorial, MacType, doesn't use them. It will not only teach you the (obsolete but ubiquitous) Qwerty keyboard layout, but also the much more rational Dvorak keyboard layout that almost no one uses.

Well, that was certainly a lot of writing about writing. The next chapter is different—it uses a lot of drawings to tell you about drawing.

CHAPTER

15

Drawing

If you took a survey of Mac users and asked them what their favorite program is, I'm sure MacPaint would win by a wide margin. It lets you do things that no other personal computer software can (or, at least, that was true when it was introduced; MacPaint has been *very* widely imitated on other machines).



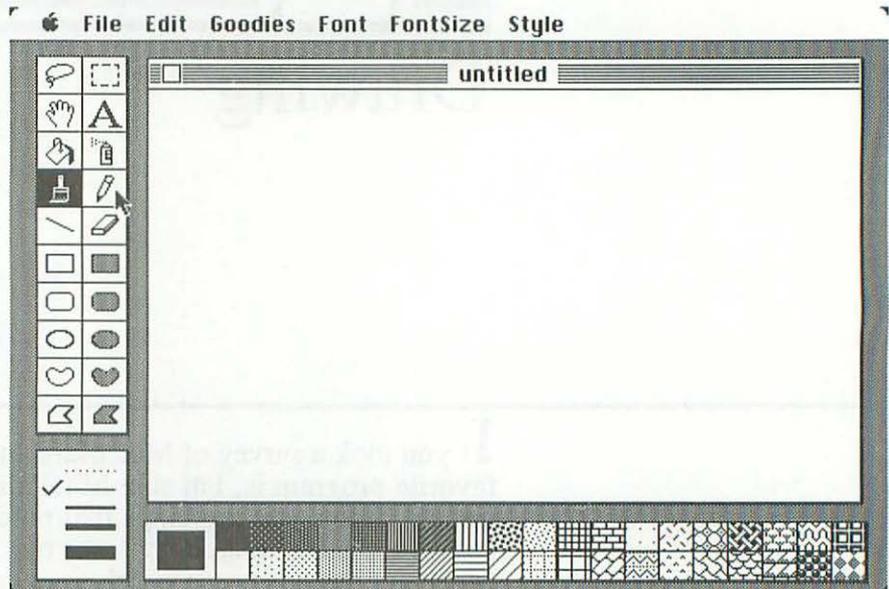
Despite MacPaint's popularity, and despite the fact that it and MacWrite are supplied free with just about every Mac sold, Apple doesn't provide a manual for it. What they give you instead is a totally inadequate "book of hints," along with an excellent candidate for the self-serving excuse of the century: "The best way to learn MacPaint is to explore the drawing tools and patterns on your own."

In fact, MacPaint is one of the hardest programs to learn on your own; MacWrite is much easier, and so is most other software. Even experienced Mac users are always discovering new little tricks about MacPaint, and the magazines are full of them.

God only knows what Apple's real reason is for not providing a manual, but don't worry about it—you're in good hands here. This chapter will give you a good, solid, systematic introduction to MacPaint, and will explain all the little tricks and shortcuts you need to know about.

How MacPaint Works

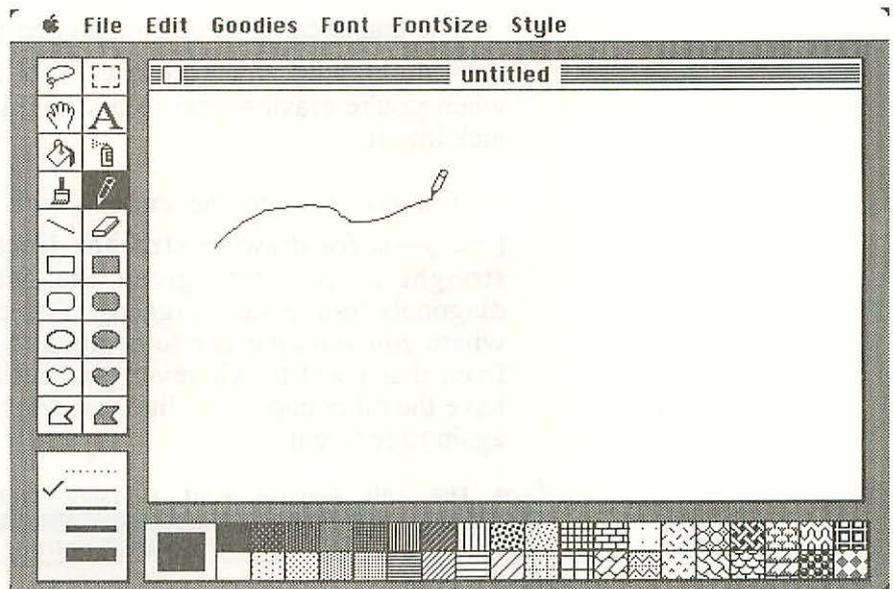
When you enter MacPaint, you see a screen that looks like this:



The area in the upper right (that takes up most of the screen) is where you do your drawing; not surprisingly, it's called the **drawing area**. Although the drawing area looks like a regular window, you can't grab it by the title bar and move it around the desktop. You also can't resize it (as you can see from the fact that there's no size box in the lower right corner).

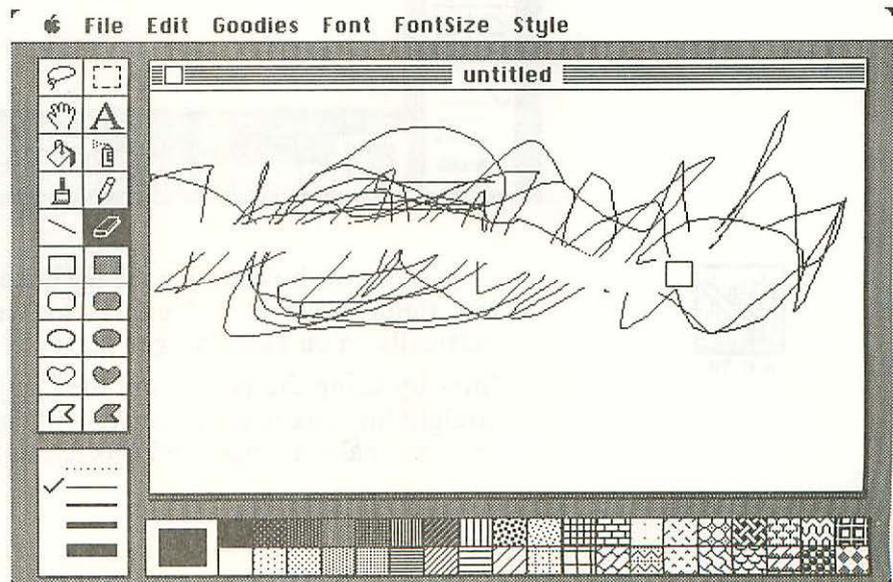
The double column of boxes on the left is called the **tool palette**; you click on the boxes in it to do different things in your drawing. The pointer changes shape depending on which box is selected, and usually assumes the shape in the box.

For example, if you click on the **pencil** (ℓ), the pointer turns into a pencil with which you can draw a squiggly line (how squiggly it is depends on how steady your hand is on the mouse).



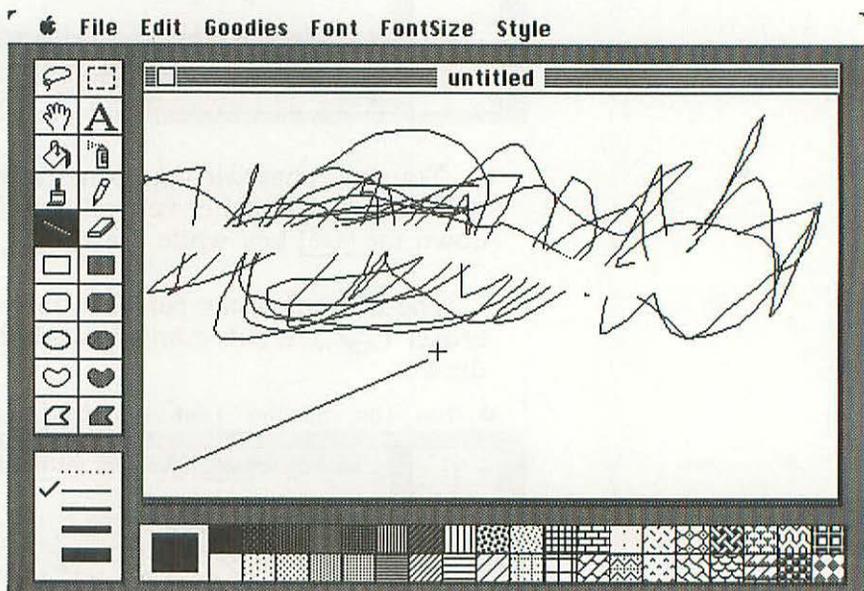
You can "constrain" the pencil's movement, so that it can only draw horizontal or vertical lines. You do that by holding down the **Shift** key while drawing.

The box below the pencil in the tool palette contains the eraser (). It cuts a broad swath through whatever you've drawn.



The eraser can also be constrained to horizontal or vertical movement with the **Shift** key. This comes in quite handy when you're erasing next to a straight line and don't want to nick into it.

The box next to the eraser—with the diagonal line in it (\)—is for drawing straight lines (or drawing them as straight as possible; given the Mac's resolution, some diagonals look a little jagged). You click to mark the place where you want the line to begin, and a straight line stretches from that point to wherever you put the pointer. When you have the other end of the line just where you want it, you click again to secure it.



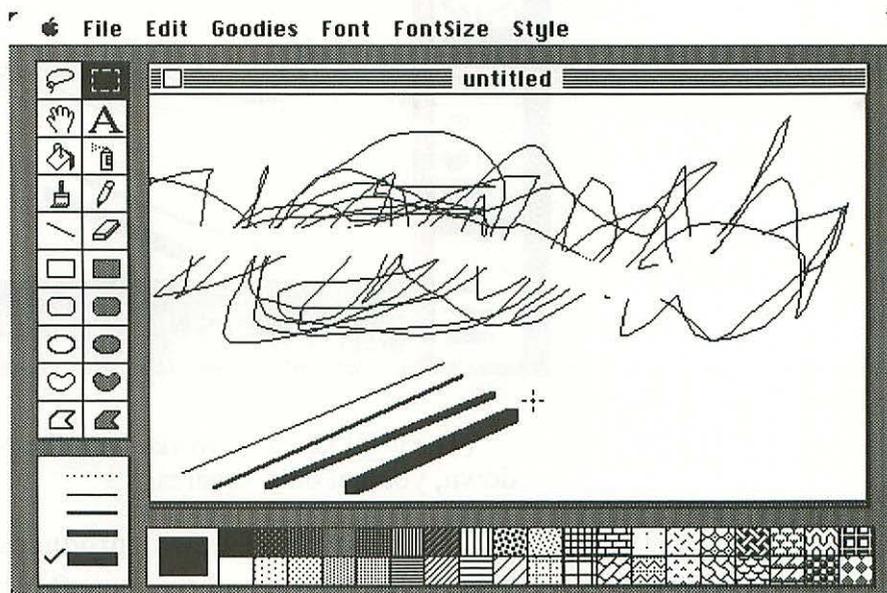
HOT TIP

When you hold down the **Shift** key with straight lines, it lets them move at 45° angles as well as horizontally and vertically. You can also get perfectly horizontal and vertical lines by using the pencil and the **Shift** key, of course, but the straight line box is more convenient, because you can futz with the line, make it longer and shorter, until you get it just right.

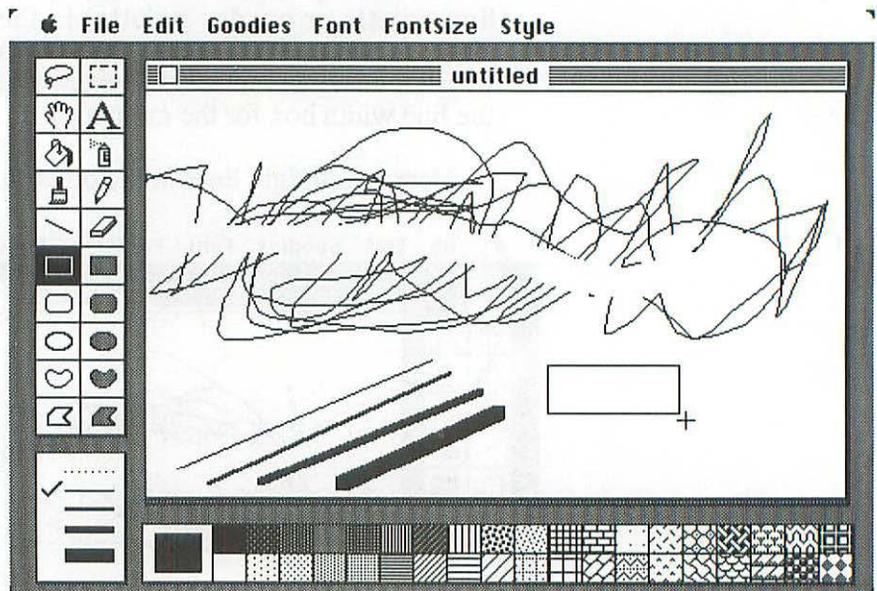
With the pencil, the line you draw is restricted to one thickness—one dot wide. But with the straight line, and all the shapes below it on the tool palette, you have four different line widths to choose from.

When you enter MacPaint, the thinnest is selected. To get a thicker line, you go to the **line width box** (also called the **line palette** or **border palette**) in the lower left corner, and click on the one you want. The check mark moves to show which thickness is selected. (Ignore that dotted line at the top of the line width box for the moment.)

Here are straight lines in the other three thicknesses:

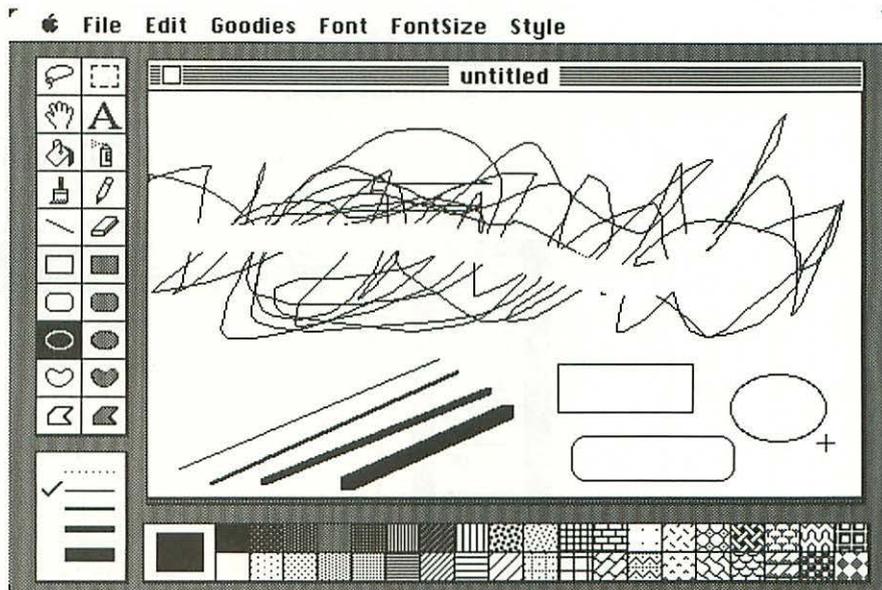


Below the straight line are tools for producing five different kinds of shapes. The first of these is the **rectangle** (□). You push the mouse button to pin down one corner of it, and hold it down; the rectangle stretches from that point to wherever you move the pointer, until you release the mouse button.



(The **Shift** key also works with the rectangle; if you hold it down, you get only squares.)

The next box down produces **rounded-corner rectangles** (◻), and the one after that **ovals** (◯)—or, to be more precise, **ellipses**. They both work the same way as regular rectangles, except that since they have no corners, you have to estimate where the first corner would be. (Here the **Shift** key gives you perfect circles and rounded-corner squares.)



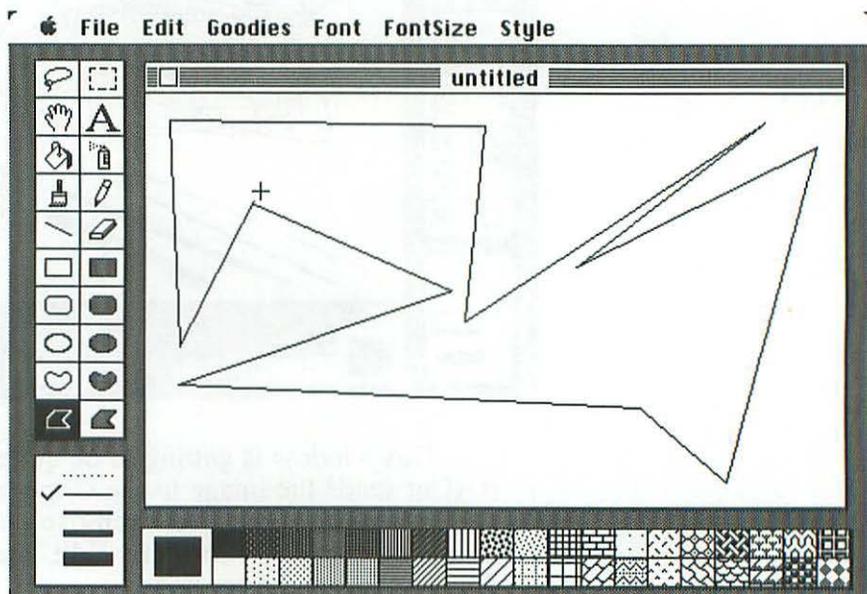
This window is getting to be quite a mess, so let's **Clear** it. (Cut sends the image to the Clipboard, so it can be Pasted somewhere else, but Clear removes it without a trace.) The Clear command is on the Edit menu, or you can just double-click on the eraser box.



If you make a mistake and want the image back, you can use the Undo command in the Edit menu to retrieve it, as long as you haven't done anything else since the mistake.  Z also Undoes things, and so does hitting the tilde key. Undo isn't limited to major changes like erasing the whole screen; it also works for smaller changes. But remember: you can only go back one step.

The next box down is the **free-form shape** (). It works just like the pencil—you hold down the mouse button to draw a line—with one difference: the pencil line is always thin, but you can change the thickness of the free-form shape with the line width box.

Finally, there's the **irregular polygon** (); it draws connected straight lines. You click to begin drawing, and click to terminate each side. To end the drawing completely, you double-click. If you hold down the **Shift** key, the sides of the polygon will be constrained to 90° and 45° angles.



Officially, the names of all the shapes I've just mentioned should be preceded by the word **hollow**, and their counterparts in the right column by the word **filled**. In practice, though, only 'filled' is used; if you just say "rectangle" or "oval" people assume you mean a hollow one.

The filled shapes work just the way the hollow ones do, except that as soon as you're done drawing them, the Mac fills them with the **current pattern**—which is the one in the large box just to the right of the line width box (at the moment, it's black).

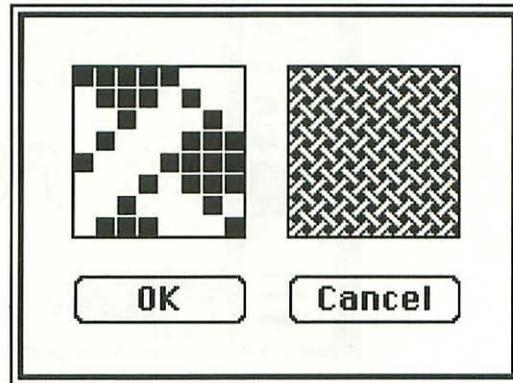
To the right of the current pattern is the **pattern palette**—38 patterns you can substitute for the current one. To do that, you just click on the one you want.



VERY GOOD
FEATURE

But those 38 patterns are just the beginning. There are over sixteen billion (2^{64}) possible patterns, and some clip art disks—like Mac the Knife Volume 1—give you hundreds of different ones to choose from.

You can also create patterns of your own, by selecting 'Edit Pattern' from the Goodies menu, or just double-clicking on the pattern you want to change. (Even if you want to create an entirely new pattern, you have to pick which one you want it to substitute for.) This gives you a dialog box that looks like this:



All patterns are made up of a repeating eight-by-eight grid of dots; that's what you see on the left. On the right is what the pattern looks like on the screen. To change it, you just click with the pointer in the left-hand box. If you click on a dot, it disappears. If you click where there isn't a dot, one appears there.

When you have a pattern you like, click on 'OK'. If you decide you want to go back to the regular pattern, unchanged, click on 'Cancel'. And that's all there is to it.

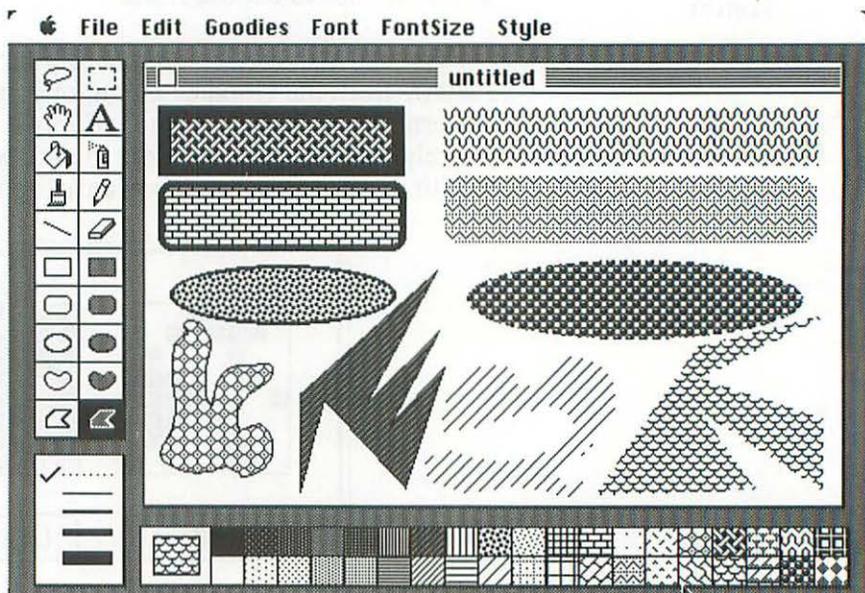


HOT TIP

There's one more wrinkle to patterns in MacPaint—if you hold down the **Option** key while drawing any object, the line around it will be in the current pattern, rather than in black. The same trick works when you're using the straight line box.

Back when I was discussing the line width box, I told you to ignore the dotted line at the top. This is the **no border** command, and gives you filled shapes without any line at all around them—just pattern out to the edges.

Below are all five kinds of shapes, each filled with a different pattern—five with borders of different widths, five without borders.



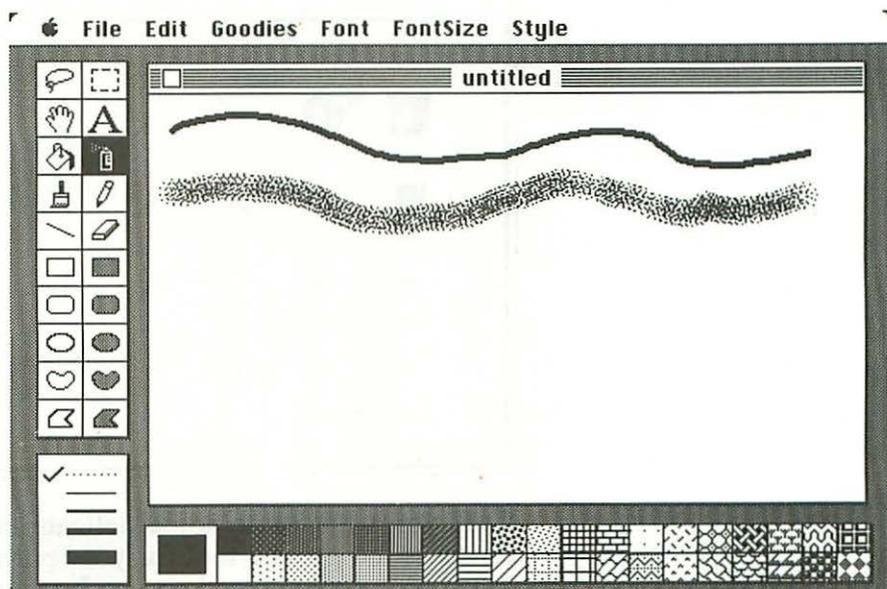
You can also fill a hollow shape with the current pattern; that's what the **paint can** () is for. When you click on that box, the pointer turns into a paint can. Then you just place it inside a hollow shape and click, and it fills up with the current pattern. But make sure the shape is closed; if it's open, the current pattern will spill out all over the window.



HOT TIP

If you have trouble getting the pattern into small shapes, be aware that the tip of the paint flowing out of the can is what counts. If that's in the shape, the pattern will flow into it; if the whole paint can is in the shape but that little tip is out, the pattern will flow somewhere else. You can use the paint can in FatBits, which is really useful for fine-tuning a drawing.

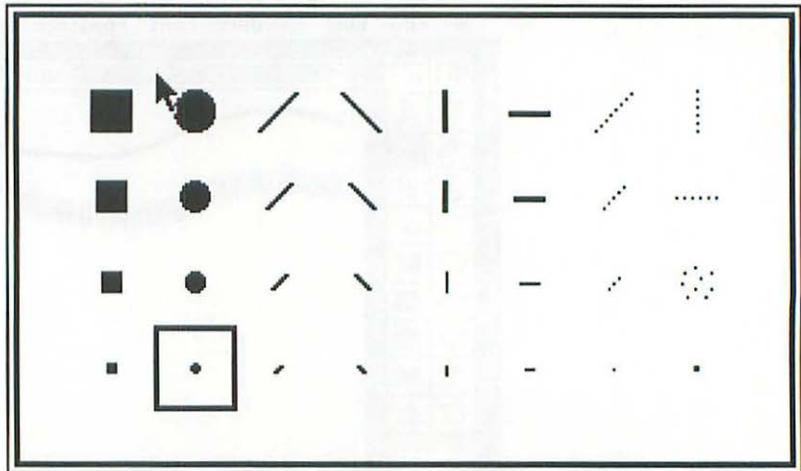
Two other tools use the current pattern—the **brush** () and the **spray can** (). The brush gives you a solid swath and the spray can breaks it up the way a real-life spray can does—faintly at first, more heavily if you go over it. This is easier to show you than to describe:



HOT TIP

The spray can is particularly useful for "modeling" objects so they look like they're three-dimensional: If you want to move the brush or the spray can in a straight line, you can use the **Shift** key to constrain their movement to horizontal and vertical. To make the colors they generate translucent, hold down **⌘** while you use them.

You can change the shape of the brush by choosing 'Brush Shape' from the Goodies menu, or simply by double-clicking on the brush box. Either way, you get a dialog box with 24 choices (just click on the one you want):



HOT TIP

If you want to do some delicate erasing and the regular eraser is too gross a tool for your purposes, you can turn the brush into a customized eraser. Just pick the brush shape you want, make white the current pattern, and erase away.

VERY GOOD
FEATURE

You can get interesting effects erasing with some of the more exotic brush shapes, like the ones made up of little dots.

The 'Brush Mirrors' command (also on the Goodies menu) lets you create symmetrical mirror images automatically. You can choose how many times the image is mirrored—from one to four—and in which directions.

To put text into your drawing, you click on the box with the big **A** in it, just above the spray can. Commands on the Style menu let you "align" (justify) the text left or right, or center it, and they all have short-cut equivalents—**⌘** **L** for Left, **⌘** **R** for Right, **⌘** **M** for Middle (centered). As you may remember, you have a choice of nine sizes of type, and all the usual style combinations.



HOT TIP

You can switch fonts and sizes using menu commands, but there are a couple of shortcuts: **⌘** **>** takes you up to the next biggest size and **⌘** **<** to the next smallest one; **⌘** **Shift** **>** takes you to the next font listed on the menu, and **⌘** **Shift** **<** to the one listed just above the one you're using.



All the text you've typed since your last mouse click changes when you change size, style or font. Thus experimenting with $\text{⌘} >$ and $\text{⌘} <$ is a great way to fit text into a given space. To freeze all the text you've typed up to a given point, so that it won't change when you select a new font, size or style, just hit Enter .



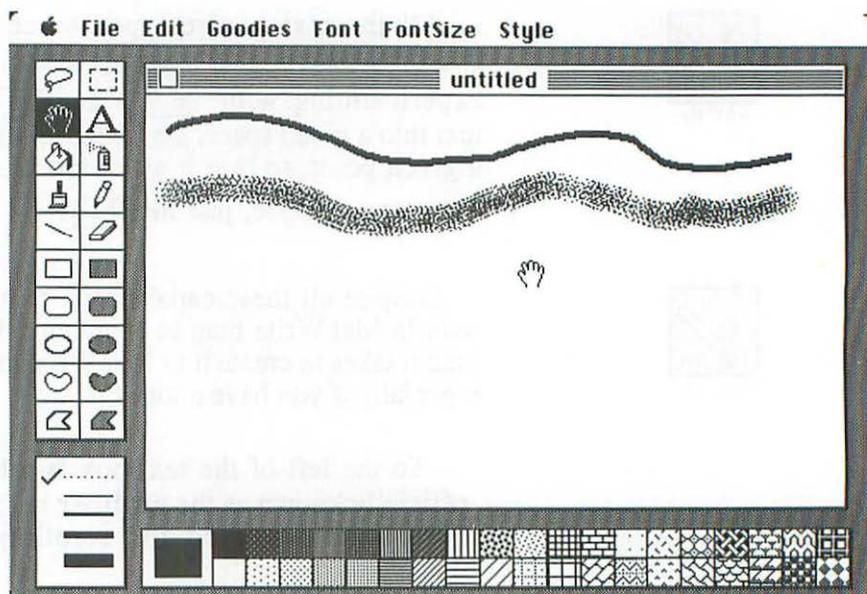
Despite all these capabilities, text is much easier to work with in MacWrite than in MacPaint. It's often worth the extra time it takes to create it in MacWrite and Paste it into MacPaint, especially if you have a lot of it.

To the left of the text box is a little hand (⏏). This is officially known as the **grabber** but most people simply call it the **hand**. It's used for scrolling around the MacPaint document.

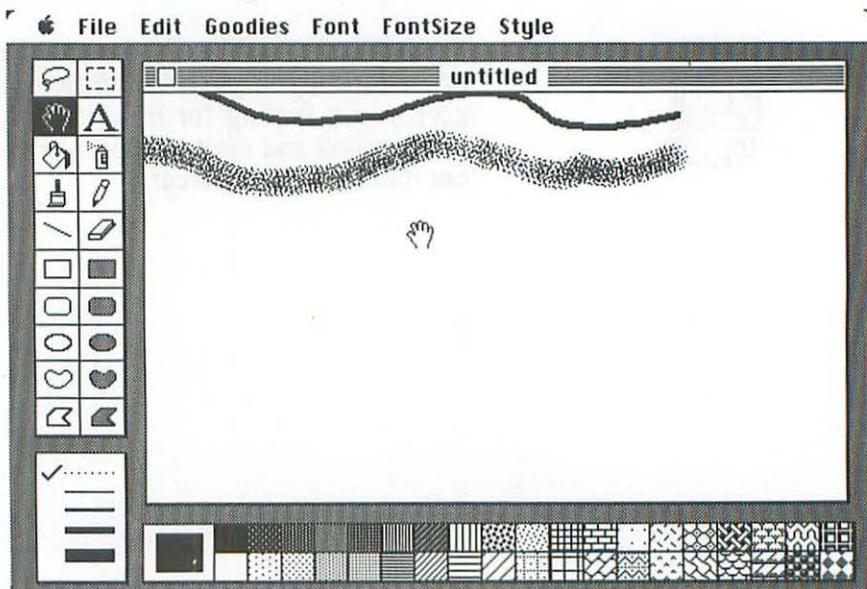
The MacPaint window we've been working in is only a portion of a whole drawing. MacPaint always sets aside an 8" x 10" drawing area, no matter how little of it you use (8" x 10" is also the maximum size.) The grabber is what you use to move the drawing around underneath the window.



Using the grabber is one of the Mac's most naturalistic operations—you push the drawing around with it. I'll try to give you a feeling for how it works. First you click on the grabber box and move the pointer (which is now a little hand) out into the drawing area:

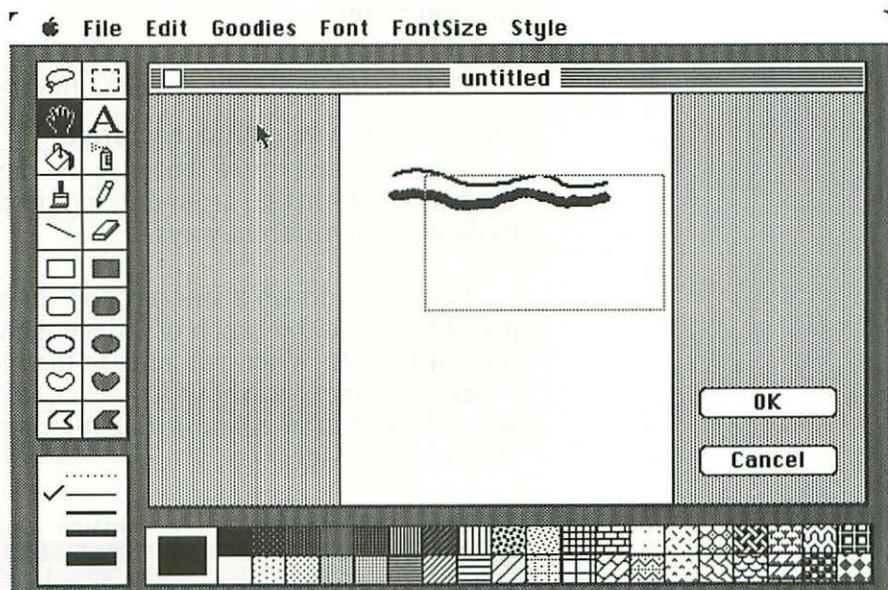


Now if you hold the mouse button down and move the grabber up and to the left, you'll get a screen that looks like this:



Does that give you the idea? This is a hard one to describe in a book, but it's very intuitive and you'll catch onto it as soon as you actually try it.

You can also see a representation of the whole 8" x 10" page, by choosing 'Show Page' from the Goodies menu, or by double-clicking on the grabber. It looks like this:



The dotted rectangle shows you the present position of the window in relation to the whole drawing. If you point inside the rectangle, you can drag it to a different position and then you go back to the drawing window (by clicking on 'OK'); that's an alternative way to move around the document. If you point outside the rectangle, you can drag the entire drawing and reposition it on the page.

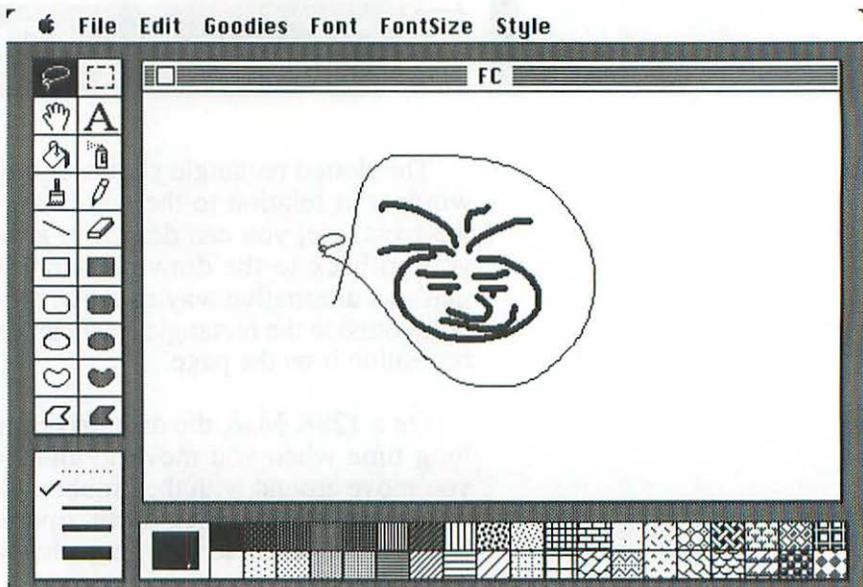
On a 128K Mac, the disk drive mumbles for an annoyingly long time when you move to and from Show Page, or when you move around with the grabber. On a FatMac (with the new version of MacPaint), both operations happen instantly, because the FatMac can keep the whole 8" x 10" MacPaint drawing in memory at one time.

And that brings us to the top of the tools palette. The two boxes there are used to select objects.

Unlike MacDraw and most other graphics programs, MacPaint is bit-mapped—that is, it creates its images on a dot-by-dot basis. To make something into an object, so you can move it around in one piece, you need to first tell the dots in the object that they belong to each other. That's what these two top boxes do.

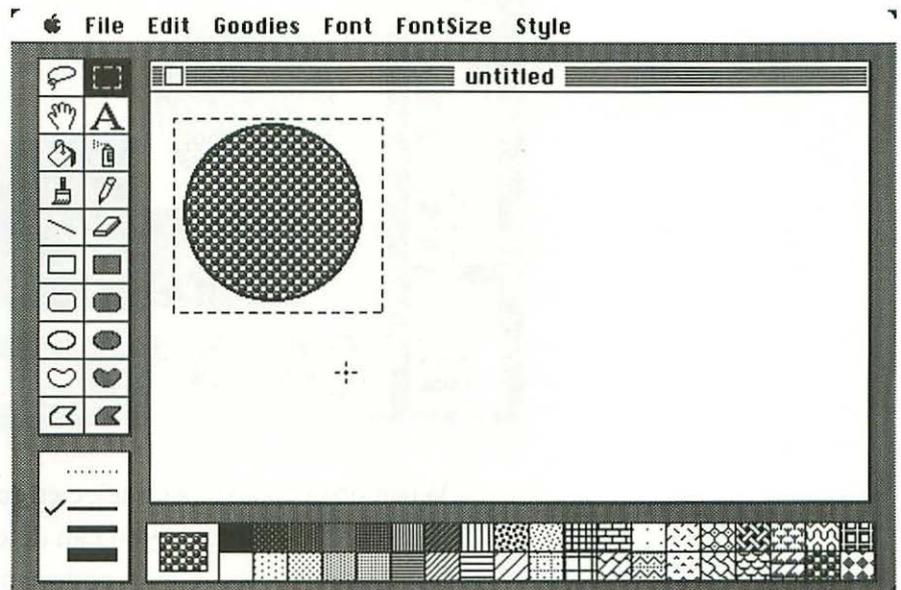
The one on the right contains the lasso () and the one on the left the selection rectangle ()—more popularly known as the **marquee**, because the dashes move around just the way the lights do around a movie-theater marquee. These tools work in different ways.

The lasso draws a line around an object (or, to be more precise, around the bunch of independent dots you want to turn into an object). When you release the mouse button, the whole object shimmers to show it's selected. There's no way I can show you that in a book, but it's one of the most exciting sights on the Mac.



If you move the lasso pointer into the shimmering object, it turns into the arrow pointer: . This means you can hold down the mouse button and drag the object anywhere you want.

The marquee works differently from the lasso. Rather than drawing a line, it creates its rectangle in the normal way—i.e. you pin down one corner, pull the rectangle out till it's the shape you want, then click to secure the other corner. You place that rectangle around whatever you want to select. (You can also select the whole window, by double-clicking on the marquee box.)

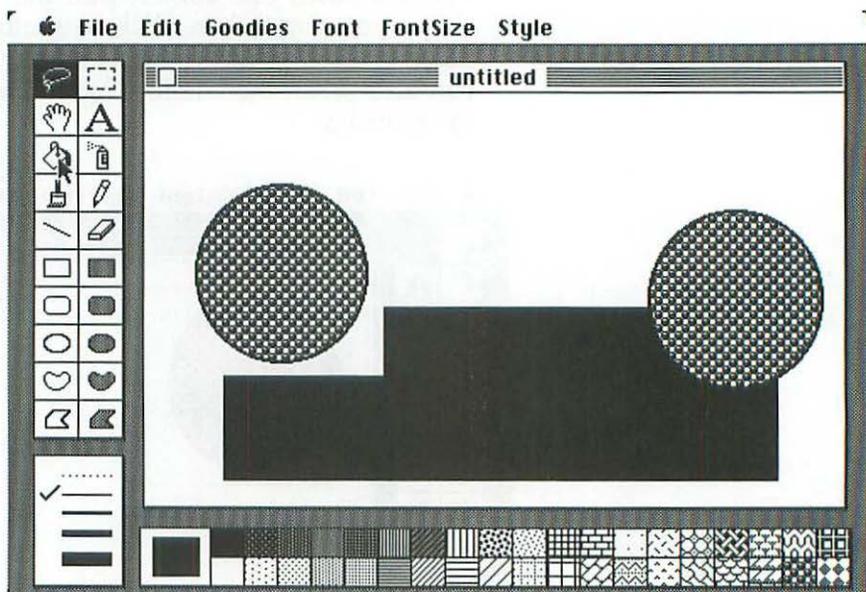


I wish you could see those dashes move around. It feels like you're on Broadway.



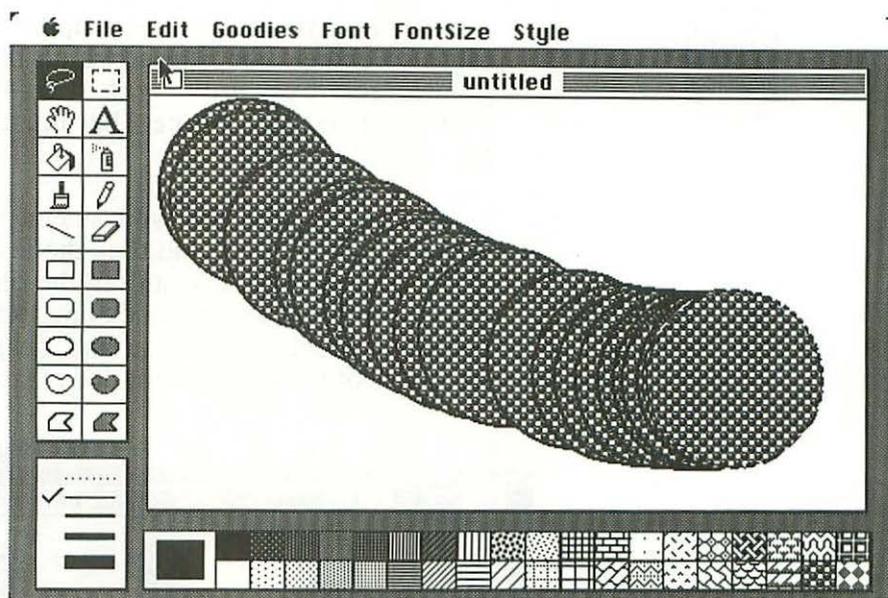
HOT TIP

Unlike the lasso, which shrinks in to select only the object you've encircled, the marquee selects everything within its borders, background and all. When you drag it, the whole rectangle moves, not just the object inside. In other words, *the lasso selects an object, but the marquee selects a portion of the drawing area.* You can see the difference if I move both of them in front of another object.

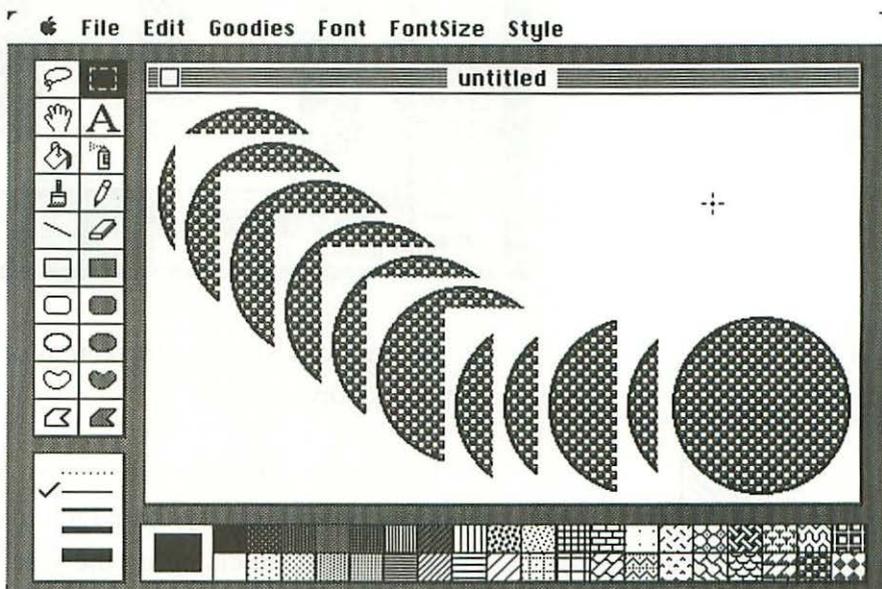


When objects have been selected (created, really) with either the lasso or the marquee, you can delete them, using either the **Backspace** key or the Clear command from the Edit menu. You can also Cut and Paste them. Another way to make a copy of them is by holding down the **Option** key while dragging the object (a separate copy will pull away).

To make continuous multiple copies, you hold down **⌘** as well as **Option** while dragging. The result—which I call a "slur"—looks like this:



That was with an object selected with the lasso. Here's how a slur looks with an area of the screen selected by the marquee:

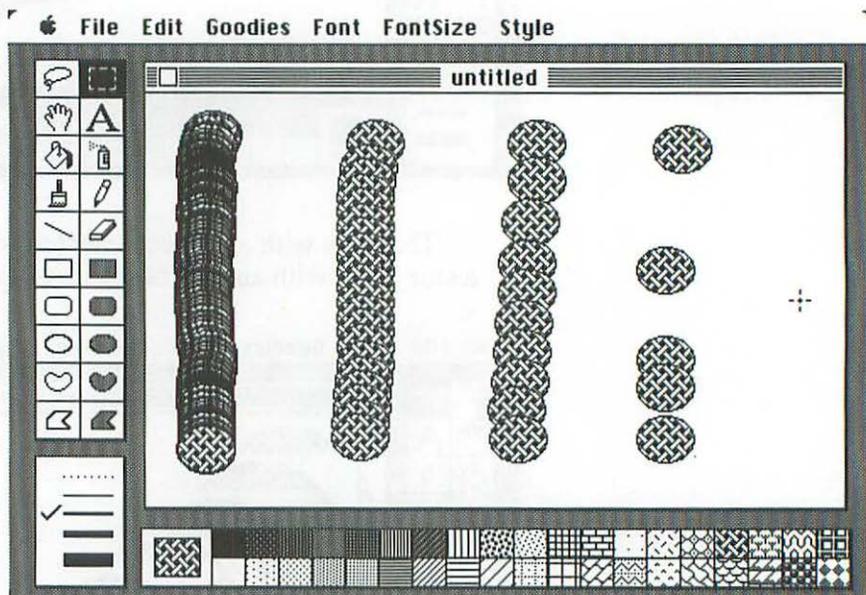




HOT TIP

The faster you drag the object, the less overlap there is. You can also change the rate at which these multiple copies are generated by—now get this—*changing the line width*. (This has to be the most bizarre command in MacPaint.)

The thicker the line you select, the slower the multiple copies are generated (and thus the less overlap there is at any given speed at which you drag the object). In other words, to get little overlap, select a thick line and drag fast. To get a lot of overlap, select a thin line and drag slow. Here are some examples of the kind of variations that are possible:



To drag in a straight horizontal or vertical line, hold down the **Shift** key.



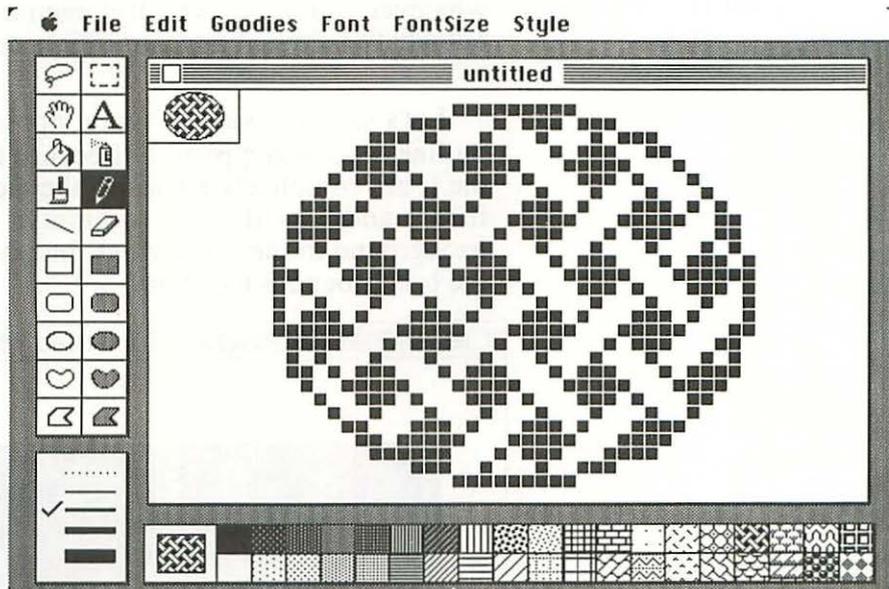
HOT TIP

To stretch objects, select them with , hold down the  key, grab them by the edge, and drag. To keep the same proportions while changing the size, hold down the **Shift** key as well. (This won't work with ; you can only stretch and resize objects with .)

It must be obvious by now that MacPaint is an incredibly powerful and flexible program. But you ain't seen nothin' yet.



One of MacPaint's most powerful features is called FatBits. It magnifies the screen enormously, so you can fine-tune your drawings dot by dot. You get to it by choosing the 'FatBits' command on the Goodies menu, by double-clicking on the pencil box, or by holding down the  key and clicking when the point is a .



As you can see, the dots that make up the Mac's screen image are square. To make one disappear, you click on it (with the pencil). To make one appear, you click anywhere there isn't one. To make a whole bunch of dots appear or disappear, hold down the mouse button while dragging the pencil.



The window in the upper left shows you where you are in the big drawing. If you use the marquee to select an area before going into FatBits, that's the area that will be magnified. If you use  , the Mac will center the FatBits screen on where you click the pencil.

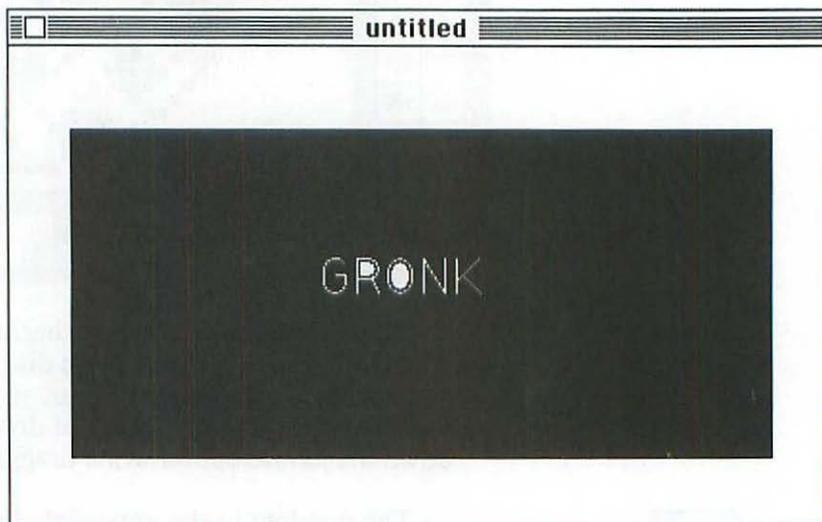


To move around in FatBits, you use the grabber, and FatBits has a nice feature that makes it easy to get from the pencil to the grabber and back. If you hold down the **Option** key, the pencil turns into the grabber. When you release it, it turns back into the pencil.

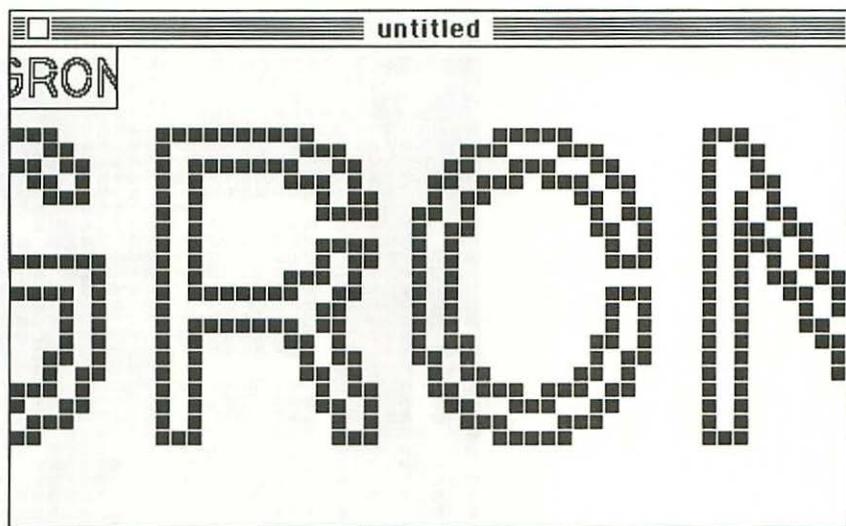


Here's another use for FatBits that might not occur to you. When you want to superimpose one image over another, you use a lassoed object, because a marquee'd object will block out whatever you put it over. But even a lassoed image can block out what's below, if any part of it is completely enclosed.

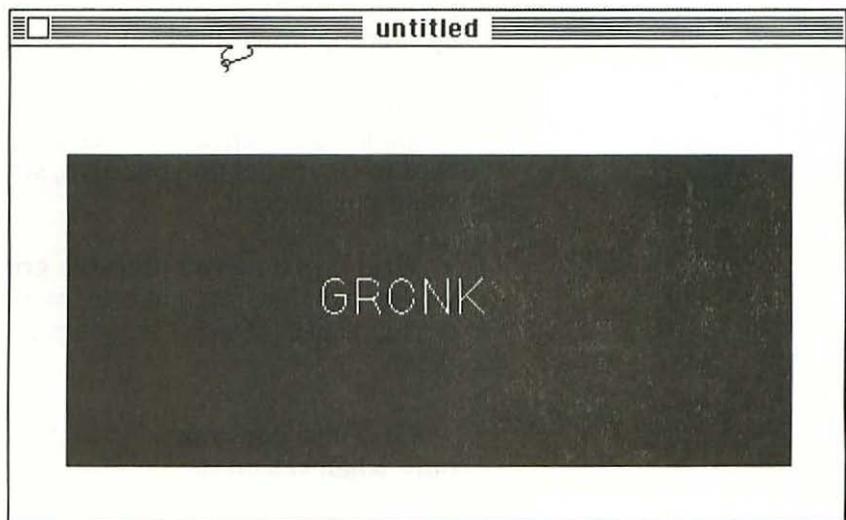
Let's say you want to superimpose the word **GRONK**—in outline type—on a picture. Because the O and the top part of the R are completely enclosed, the picture won't show through them, and it will look crummy. (I'm using black as a background in these drawings, but the principle is the same if the background is a picture.)



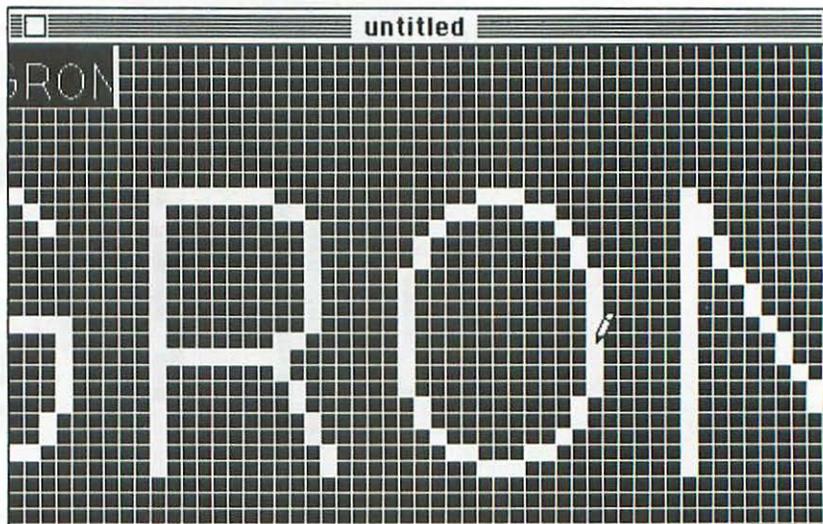
You need to make a gap in the O and the R, to let the picture leak inside. FatBits is the place to do it:



Now when you place GRONK on the picture, it will look like this:



Once you have it in place, you just go back into FatBits and seal up the gap.



You leave FatBits the same way you get into it—by going up to the Goodies menu and clicking on the 'FatBits' command (which turns it off), by double-clicking on the pencil box, or by holding down the  key when the pointer is .



HOT TIP

One feature that's barely mentioned in the MacPaint "book of hints" is the Grid command on the Goodies menu. And it's hard to figure out on your own, since nothing obvious happens when you select it.

Grid lays down an invisible grid of lines eight dots apart; if you're using the straight line, oval, irregular polygon or one of the rectangles, it won't let you place a dot anywhere in between them.

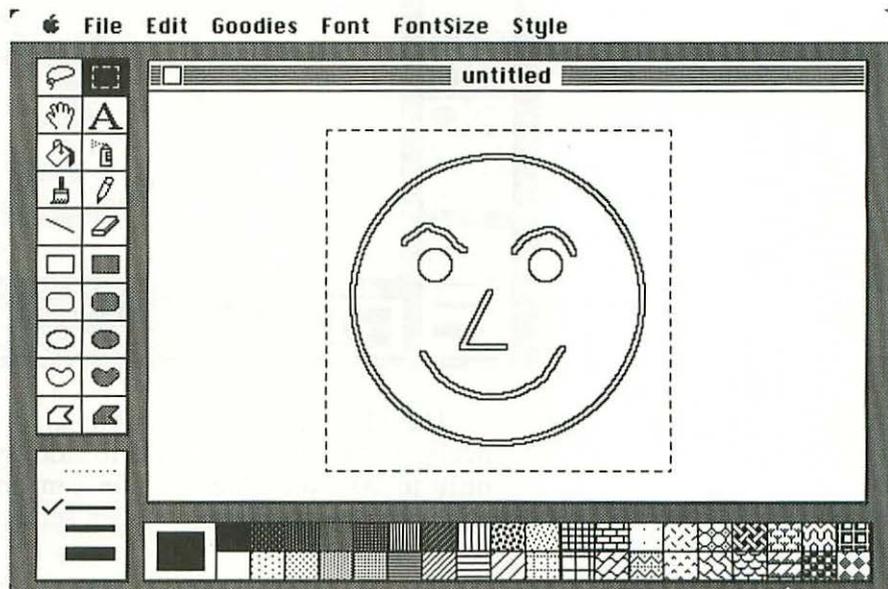
Grid also constrains  to those eight-dot increments—not only when selecting, but also when dragging a selected object or making copies of it.  is only constrained when dragging or duplicating; it ignores the grid when selecting.

Grid is useful for lining up objects exactly, because it's easier to see when something is off by eight dots than just by one or two. It can also be used to make sure the patterns of two adjoining objects mesh, instead of being offset by a few dots.

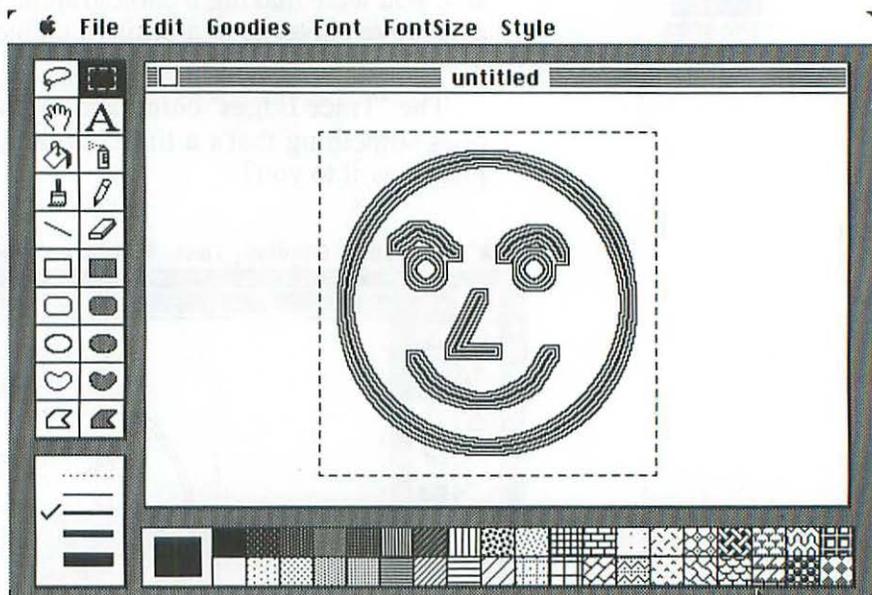


The 'Invert' command on the Edit menu turns everything that's white in a selected object to black, and vice-versa—just as if you were making a photographic print from a negative, or a negative photostat of a positive image.

The 'Trace Edges' command on the Edit menu (or  E) does something that's a little harder to describe. Why don't I just show it to you?



You can repeat Trace Edges over and over again, with progressively more bizarre results. (If you've ever made a photocopy of something, then a photocopy of the photocopy, then a photocopy of that, and watched the image fall apart, you'll have some idea of the aesthetic that's operating here.) Just to give you a taste of it, here's that same image with its edges traced three more times:



The Mac will also let you flip an object vertically (head over heels) and horizontally (side to side); you can also rotate it, but only in 90° increments. You can only flip, rotate and trace edges of objects that have been selected with the marquee; the lasso won't work.



HOT TIP

A few more specialized MacPaint commands are worth mentioning. 'Print Draft' gives you the exact image on the screen. 'Print Final' does the same thing, but just goes over it twice (unlike the high-res printout in MacWrite, it doesn't enhance the image in any way, other than by making it darker). Print Final is useful if your ribbon doesn't have enough ink on it, and generally makes lines look a little more solid, but don't use it with a well-inked ribbon—everything will fill in and smudge.



HOT TIP

'Print Catalog' can be fairly useful. It produces a very reduced picture of every MacPaint document on the disk, all on a single sheet of paper. Unfortunately, it always does it in Print Final mode, which takes twice as long. But if you have a copy of MacPaint Version 1.2 or earlier, it won't have Print Final mode, and you won't have to wait. (This is just another example of why it makes sense to hold onto old versions of software.)

MacPaint takes up more memory than most applications; on a 128K Mac, there are only *300 bytes* left over. It also takes up a lot of room on the disk. This is because it always opens two secret documents, both of which are used to back up the one you're working on. This means you need twice as much free space on the disk as the size of your document, and that causes the Mac to tell you that MacPaint disks are full even when there seems to be a whole lot of room left on them.

VERY GOOD
FEATURE

This does have a side benefit, however. If you decide you've messed up your drawing, you can choose 'Revert' from the File menu and MacPaint will throw away all the changes you've made since the last time you saved the document.

There's a whole lot more to say about MacPaint, but that should give you a good basic understanding. If you want to learn more about the program, you probably should buy a whole book about it. But before I leave the subject, I should say something about MacPaint's shortcomings.

What MacPaint Can't Do

With all the amazing things MacPaint can do, it seems a little petty to mention some of the things it can't do—particularly since some of them may have been fixed by the time you read this. Be that as it may, here's a short wish list for MacPaint:

- The most common complaint about MacPaint is that you can't Cut an image larger than the window. (This is especially bothersome in view of the fact that you can't Paste separate chunks from MacPaint together

on the same line in MacWrite.) It would be nice if, when the marquee hit the edge of the window, the window just automatically scrolled over (as it does in the software that comes with the ThunderScan digitizer).

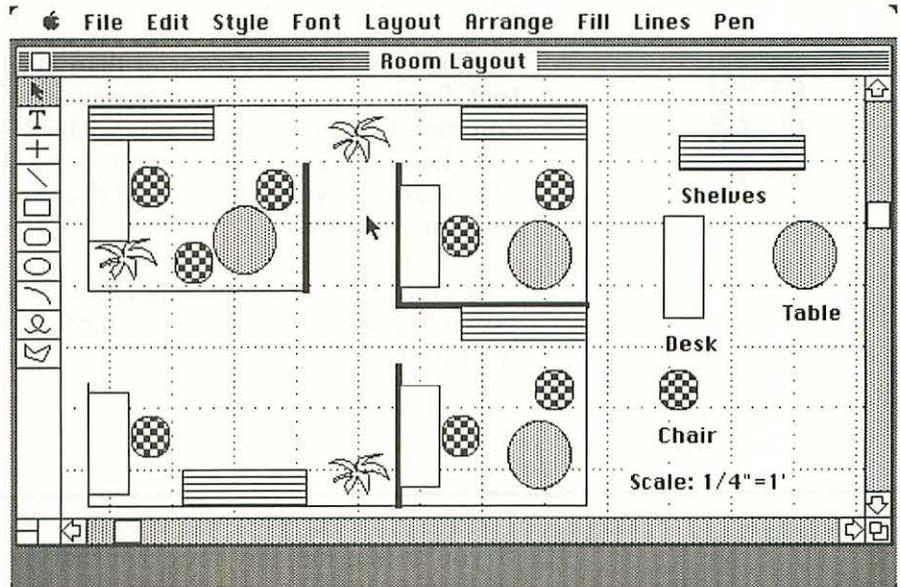
- Another nice touch in that software is that when you push the drawing with the grabber, it keeps going after you stop pushing. If you push fast, it keeps going fast; if you push it slow, it keeps going slow. To stop it, you just touch the mouse button or any key. This isn't the most important feature in the world, but it is a nice touch and MacPaint should adopt it.
- It would be very useful to be able to rotate an object in less than 90° increments. Even 45° increments would be a big improvement. (The Effects program from T/Maker gives you this capability, along with three others.)
- The *Semaphore Signal* newsletter would like it "if holding down the Shift key would cause the lasso to form a nice, rectangular enclosure, just like the selection rectangle does, but [one] which would shrink to fit as usual when the mouse button is released."
- They'd also like to be able to custom-design the size and shape of erasers and brushes, in the same way that you can edit patterns.

That's a pretty short wish list. But then, MacPaint's a pretty great program.

For about the first year of the Mac's existence, MacPaint was the only general-purpose graphics program available for it. Then MacDraw was released.

MacDraw

The basic difference between MacDraw and MacPaint is that for MacPaint, dots are the basic reality, and for MacDraw, objects are. In MacDraw, you don't have to round up dots with the lasso or the marquee to turn them into objects, the way you do in MacPaint; they *exist* as objects.



MacDraw

This difference means that MacPaint is more flexible and better suited for creative artistic expression, while MacDraw is more rigorous and better suited for tasks like drafting, figuring out where to put desks in an office, creating flowcharts, and so on.

MacDraw has some nice capabilities that MacPaint lacks. For example, it has both horizontal and vertical rulers, which can be calibrated not merely for inches, but also for centimeters, picas, cubits or whatever. You can transfer an image into MacWrite that is larger than the MacWrite window. And instead of being limited to a one-page, 8" x 10" drawing, MacDraw lets you create a 50" x 96" drawing that fills 60 pages.

The possibilities for fine-tuning a drawing are much greater in MacDraw than in MacPaint. For example, you can move objects from the background to the foreground as much as you want, because information about every object is always maintained, even when it's completely covered. There's a Smooth function that takes the rough edges off freehand drawings, and an Unsmooth function that puts them back again. The Reshape Polygon command lets you modify any shape in almost any way. And when you stretch an object, the pattern never distorts.



Changing patterns is easier than in MacPaint, as is changing text from lowercase to uppercase or vice-versa (there's a command that does it automatically). You can even have the first letter of each word capitalized automatically. Finally, MacDraw lets you have several drawings open at once, each in its own window.

I could go on about MacDraw at some length, but if I'm going to keep this chapter shorter than a book, I'd better get on to clip art.

Clip Art

If you're like me, any program that merely *helps* you draw is really inadequate. I need more than mere help; in fact, nothing short of a brain transplant is likely to get me drawing well (and even that might not be enough; I'd probably need a new wrist and new eyes too). I can futz with images once they exist, but creating them from scratch is a humbling and frustrating experience.

Fortunately, there are two alternatives to drawing things yourself—digitizers (described in Chapter 4) and **clip art**.

"Clip art" refers to pictures that are in the "public domain" (which means they can be used without charge). Graphic artists look through gigantic "clip books" that have pictures of everything under the sun until they see an image that fits their present purpose. Then they clip it out and use it. (Actually, they typically make a copy of it rather than clip it out of the book, so they can use it again sometime.)

Computer clip-art disks work the same way as clip books, except that the images are stored magnetically rather than on paper. This makes them much easier to "clip" and also much easier to modify once clipped.

Here's a short check list of what to look for in a clip-art disk:

- √ The images should either be practical or beautiful (or, ideally, both). Too many clip-art disks are full of images that are neither—like portraits of political figures, or bad cartoons—and are thus useless.
- √ The manual should show you every image on the disk, big enough for you to really see the detail. This is particularly useful when you're deciding if you want to buy the disk.
- √ If there's no catalog, or if the images in the catalog are too small for you to really see what they're like, it should be easy to print them all out. If each page of images is a separate MacPaint document, all you have to do is Select All and Print. If they're in folders, you'll have to empty all the MacPaint documents out of them first and throw the folders away, or print the contents of each folder separately.
- √ Some clip-art disks give you the images in Scrapbook folders. These are harder to deal with than MacPaint documents and such disks should be avoided.



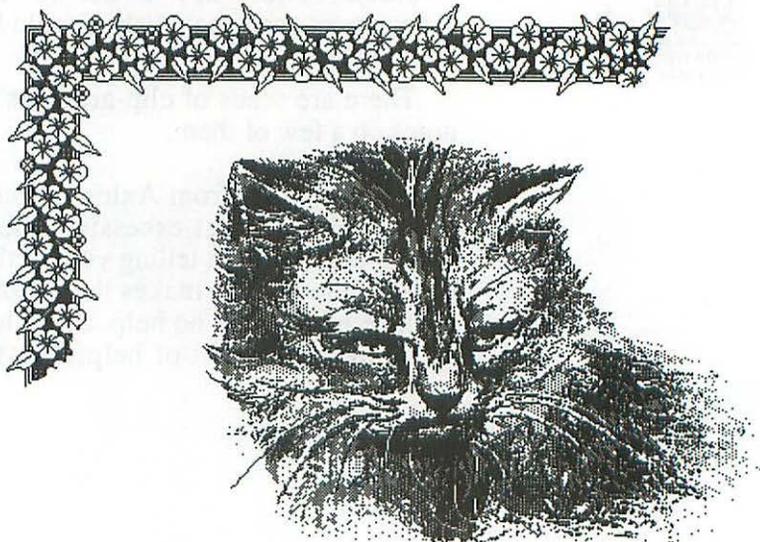
There are scads of clip-art disks for the Mac. Here are my notes on a few of them:

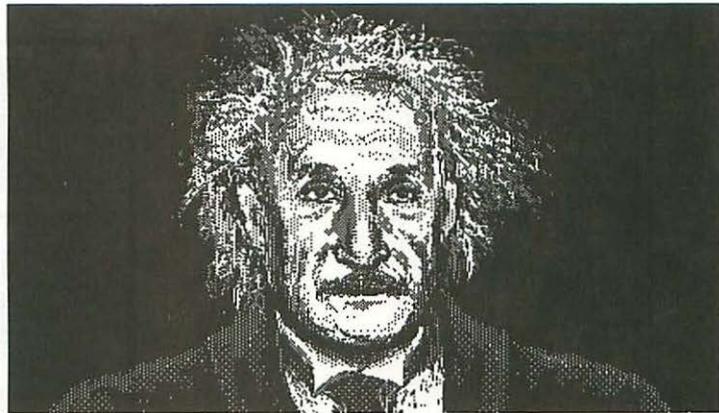
Art Portfolio (from Axlon) comes with a manual that's so complete it's almost excessive; the actual images are buried within pages of text telling you all the different things you can do with them. That makes them hard to find, and the absence of page numbers is no help. Still, the suggestions are all good and I like that spirit of helpfulness, even when it goes a bit overboard.

The images themselves are OK—better than some disks and worse than others. There's a lot of useful stuff—an award cup, a prize ribbon, a birthday cake, a hand making the OK sign, and so on. There are also a few fairly pretty images and borders.



I covered one ClickArt disk—called Letters—in Chapter 10 and Chapter 12, and I showed you a clip-art font from another—called Publications, which has some fairly useful stuff in it. A third disk of theirs is called Personal Graphics and it's really a mixed bag—some beautiful images, some useful ones, and some that are neither. Anyway, here are two images from it (both by Mei-Ying Dell'Aquila), and two borders from the Publications disk.

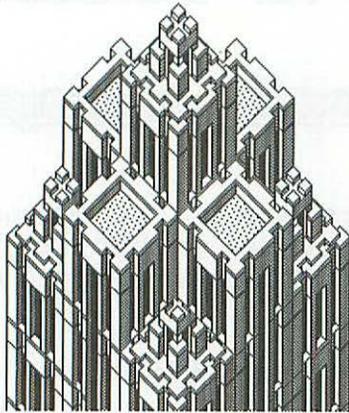
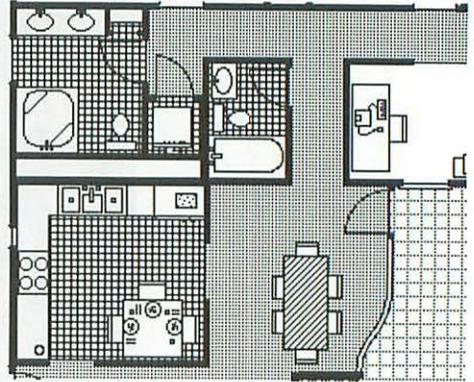
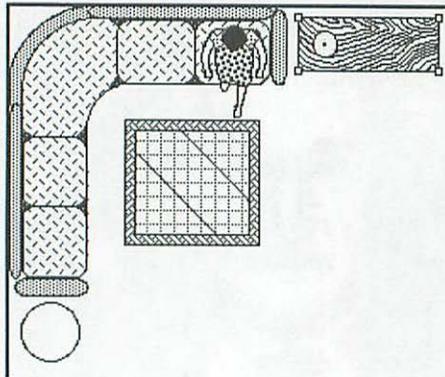




Clip 1 (from Frazier, Peper & Associates) consists almost entirely of digitized images, and for all the nice things I've said about digitizers, I find these images too fuzzy to be of any real use.

Hayden Software's Da Vinci series has come out with five disks (so far) of architectural images—Buildings, Interiors, Commercial Interiors, Landscapes and Building Blocks. They are all accompanied by superb manuals, and are well-organized and well thought out.

I'm not an architect or interior designer, so I can't say how useful these images would be to someone actually working in the field, but as a layman, I'm very impressed with these disks.

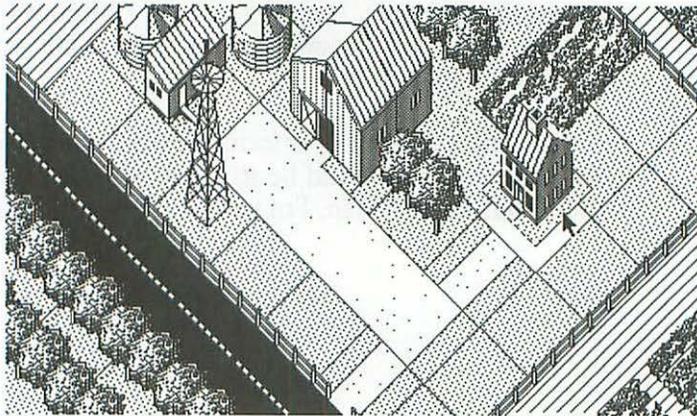


Conference/side/dining chairs



Wassily lounge chair

Barcelona chair

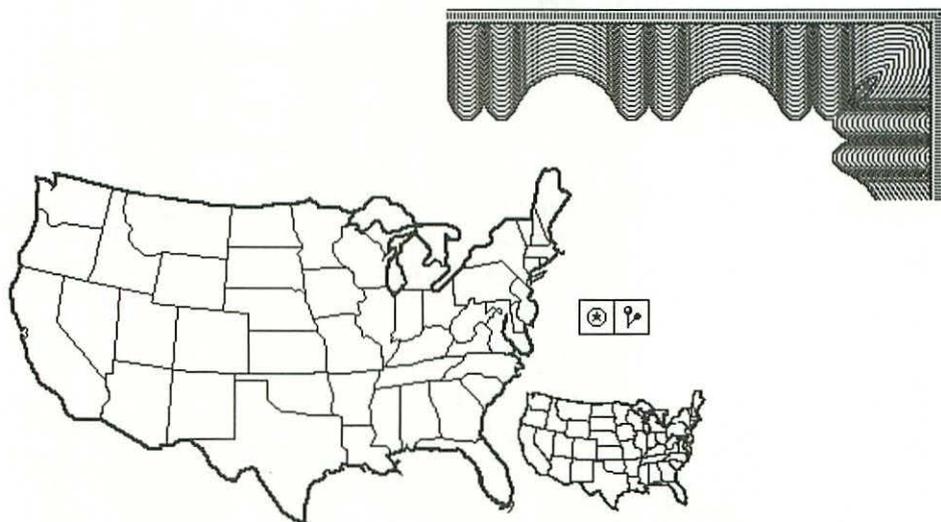


Da Vinci

MacGraphics 1 (by DNA, Inc.) didn't knock me out. Although I like the price (\$25 as of this writing), the images are pretty clunky and of limited usefulness. DNA also publishes some disks of fonts.

As you may remember from Chapter 10, I had some good things to say about Miles Computing's first fonts disk—Mac the Knife Volume II. Their first clip-art disk—Mac the Knife Volume I—is equally wonderful. It concentrates on useful images rather than beautiful ones, and gives you 500 of them.

You're going to have to take my word about the useful images, because Mac the Knife includes some pretty and whimsical ones, and I'd rather show you those here:



NO BOZOS



NO PREPPIES



NO SMOKING



NO NUKES

>>>> DANGER <<<<
GROUCHO CROSSING

BEAGLE BROS DISK CARE

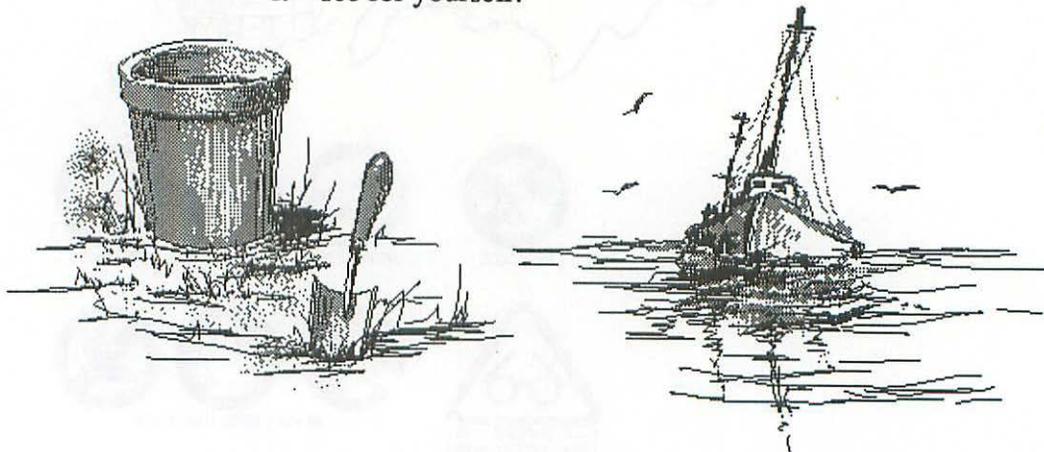
McPic (from Magnum) supplies its images in Scrapbook folders, instead of as MacPaint documents, and this alone was enough to discourage me from using it. But from looking through the manual, I would say they're not great, but not bad either. There's a fair amount of useful stuff, and one or two images that are quite pretty.

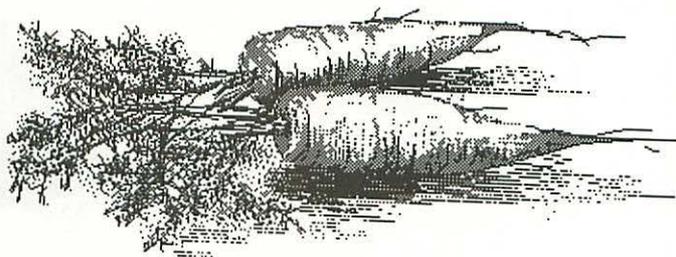
I'd like to end this section by pointing out that you may be able to make some money creating your own clip art. All these disk publishers are always on the lookout for good stuff, and although they usually don't pay much for it, selling to them can be a foot in the door. Or, if you don't want to make a business of it, you can always put your images into the public domain.

Great Examples of Mac Art

My three favorite Mac artists are Mei-Ying Dell'Aquila, Jerry Clement and Esther Travis. Mei-Ying drew the cat and the picture of Einstein on the ClickArt Personal Graphics disk (shown just a couple of pages ago), and the gorilla I sign my personal letters with (shown in the last chapter). And I gave you a spectacular example of Jerry's work when I talked about his MacGrid program in Chapter 4.

I don't know what to say about Esther Travis' work other than that I find it simply stunning. But don't take my word for it—see for yourself:





The subjects of Debi Bittinger's drawings give some indication that she's a teenager, but you'd never guess it from the level of technical skill and artistic taste they display.





The names, addresses and phone numbers of all the Mac artists discussed in this book are listed in Appendix C. Since they're out on their own and have low overhead, they deliver an incredible value for the money they charge. That's why Uncle Arthur says: "If you need an illustrator, give one of them a call—today! You won't be sorry."

CHAPTER

16

Keeping Records and Processing Information

For the first six to nine months of the Mac's existence, there wasn't enough business software for it. That certainly isn't a problem any more, as this chapter will amply demonstrate.

In fact, in some areas, the Mac is actually oversupplied with business software. Nowhere is that more true than with programs that organize and handle data.

Database Managers and Filing Programs

Discussing filing programs on the Mac would take a book in itself, and it would be a fat one. There are already dozens of filers (or database managers—I'm using the two terms interchangeably). They all have different strengths and weaknesses, and many will have been updated or improved by the time you read this.

Since there's no way I can even outline what's available, I'll simply mention a few database programs I've seen and say a little about what the current versions of them are like.

There are two basic types of filers: the conventional kind that divide the data into records and fields, and the unconventional kind that use a different format—or no format—to structure their data. I'll cover the more common record/field type first; to do that, I'll need to define some terms:

A **record** is a relatively small collection of related pieces of information, organized in a standard way. For example, in a mailing list, every name/address/city/state/zip/phone/combination is a record. A **field** is each one of those portions of the record—the address, the state, the zip, or whatever. A **file** is a related collection of records—in this case, the whole mailing list. A **report** is a printout containing information from one or more files.

Some database programs are **relational**; that means they can produce reports containing information from two files, just as long as the files share one common field. So, for example, if you had a mailing list of your customers and an accounts receivable file of their accounts, both of which contained a name field, you could create a report that sorted the customers' records in order of how much they owed, and also provided their addresses so you could send them reminder notices.

1st Base is a relational database program for the Mac that a lot of people like. It lets you have up to 100 fields per record and will create a file as large as the disk. It allows formulas (as well as words and numbers) to be placed in a field, so that you can, for example, have a field called 'Total' that automatically adds up the figures in certain other fields. You can do much more sophisticated things than that simple-minded example—especially since the formulas can be logical ("if...then") as well as arithmetical.

OverVUE is a very popular database manager among the people at Apple, at least partly because it does such a nice job of using the Mac interface. For example, it lets you create the format for a report just by dragging the fields around the screen until you get them where you want them to appear in the printout.

VERY GOOD
FEATURE

OverVue combines many of the functions of a spreadsheet (spreadsheet programs are discussed later in this chapter); it can do totals, counts, running totals, averages, maximums, minimums and much more. Even just as a filer, it's no slouch—it can sort a thousand records in less than two seconds. OverVUE is fast, easy-to-use, and even has a built-in chart generator.



BARGAIN

Even though the Creator is a very inexpensive filer, it might do everything you need. It lets you have about 30 fields per record, and up to 256 characters per field; the total record can be 32K long. The Creator costs about \$15 and comes with a 30-day money-back guarantee—if you buy it direct from the publisher, TNT Software (the address is listed in Appendix C).

VERY GOOD
FEATURE

If you need to work with very long data files, DB Master may be the program to choose. It lets you continue a single file onto *44 separate disks* (think that will hold you?) or up to 20 megabytes on a hard disk. And it can retrieve any record from that 44-disk file in less than one second! (not counting the time it takes you to swap disks, if you need to do that). Another nice thing about DB Master is that a field can be up to 3000 characters long (although you can't use RETURN in it).

Main Street Filer was the first database I saw that worked on the Mac, and I was impressed with how excellent an adaption it was. The program makes very good use of the Mac interface, and allows you to have up to 65,000 records in a file, 36 fields in each record.

There have been complaints about some of Main Street Filer's shortcomings, but by the time you read this, a new improved version, called Main Street Manager, should be out. I've seen a very early pre-release version of it, and it seems to be quite powerful.

Mail List (from rds labs) is a specialized filer, a set of ten programs that let you create, maintain, search and sort mailing lists, and print labels from them. It requires Microsoft BASIC to run.



Microsoft File—a late entry—has a lot going for it. It will hold more than 65,000 records, each of which can contain more than 1000 fields. Each field, in turn, can hold over 32,000 characters. Fields will accommodate more than just text and numbers; you can also put pictures in them, or formulas up to 255 characters long. You can create a form that's 38' long by 38' wide.

File Edit Form Organize

Good Restaurants

20	<i>name</i> <input type="text" value="The Tree Box"/> <i>city</i> <input type="text" value="New York"/> <i>cuisine</i> <input type="text" value="French"/> <i>rating</i> <input type="text" value="4"/> <i>price range</i> <input type="text" value="Inexpensive"/>	The place holds only about 20 people, so be prepared to share a table if you're eating alone or in a small group. The intimacy is great.
21	<i>name</i> <input type="text" value="Capri Mia"/> <i>city</i> <input type="text" value="S. Hackensack"/> <i>cuisine</i> <input type="text" value="Italian"/> <i>rating</i> <input type="text" value="3"/> <i>price range</i> <input type="text" value="Inexpensive"/>	Great lunch spot. Seat yourself and be specific about how many Cokes you want (they bring extras). Good baked calzones.

21/21

Microsoft File

OK—that's enough about record/field filers. Now I'll describe a couple of the less conventional kind.

Filevision is a database that lets you create a picture (map, diagram, or whatever), attach information to elements of the picture, and then select them just as if they were records in a normal database. For example, if the picture were of your garden, and the elements were the different kinds of plants in it, you could have Filevision highlight all the flowers that grow in acid soil, require lots of water, have red blossoms, and bloom in April. You could also select a particular plant and ask to see all the information attached to it.

Everyone seems to be ga-ga over Filevision, but in all the rave reviews, there've been few ideas about what you're actually supposed to *do* with it—or at least few that make any sense. Filevision's own ad suggests you use it to catalog the wines in your cellar, and that's really bright—can you imagine running upstairs, turning on the Mac, loading Filevision and updating the file every time you move a bottle?

One of the few reasonable uses I've heard for Filevision—and by that I mean one that isn't more trouble to set up and maintain than it's worth—is for creating a family tree. This would let you click on any person in the tree and find out all about them, without cluttering up the basic diagram with that information. You could also ask Filevision to highlight everyone in the family who—say—died in the insane asylum.

This is a good use for the program, but unless you're really into genealogy, it isn't reason enough to spend \$200 for it. *Club Mac News* called Filevision a solution in search of a problem. To my mind, it's more like a gimmick in search of a justification.

Factfinder is an unstructured database manager that lets you create "stacks" of "factsheets." A factsheet can be just about anything—notes of a meeting, a recipe, a memo, a letter, someone's name and phone number—in just about any form. When you create it, you mark "key" words or phrases in it; then at any point later on, you can search through the stack and pull out all the factsheets that contain a given key word.

As you can see, Factfinder is primarily useful for organizing large numbers of notes. Unfortunately, the version I looked at wouldn't let you transfer those notes into a word processing program, which means you'd have to retype all the information in them.

Another important question is how large a stack can be (the manual, which is only mediocre, doesn't say). The program obviously isn't going to do you much good if you can only put a few dozen factsheets in each stack.

Scheduling and Name/Address/Phone Software

This category of software is designed to replace two basic pieces of personal stationery—the date book and the address book. What I've never understood is why someone would *want* to replace the date book and the address book. I mean, what's wrong with them? Why would you want to take information out of them and put it in an object that:

- weighs 25-50 times as much
- won't fit in your pocket, briefcase or backpack
- can break down and need to be repaired
- can crash and lose all your data
- can't operate without electricity
- is often being used for other tasks?

I suspect—and I want to be cautious with a charge as serious as this—that these programs break one of my basic rules about what to look for and avoid in software for the Mac: "Don't use a hammer to kill a fly."

In any case, one of the first programs of any kind that ran on the Mac was a scheduling and phone-book program called Habadex. It maintains a telephone directory which also includes names, addresses, and other information; dials calls to people in this directory automatically; prints lists of information drawn from this directory; creates an appointment calendar; and so on.

Unfortunately, Habadex doesn't seem to do these things all that well. Some of the problems with it were corrected in the Version 1.1 upgrade, and others will undoubtedly be fixed in future upgrades, but before I'd buy it, I'd give it a good long trial in a store and make sure it does what you want it to.

MacPhone is a hardware/software combination that does some of the same things as Habadex—it stores 200 names and phone numbers, which it can autodial; maintains an appointment book; keeps a log of your calls so you can check your phone bill and also bill your clients for time spent on the phone; and so on.



Unfortunately, the phone that comes with MacPhone (which is designed to stick on the side of your Mac) is one of the most poorly designed and poorly built I've ever seen. It has the dialling pad on the *back*, so if you try to hold the phone between your shoulder and your ear, you disconnect yourself! By the time I'd finally gotten myself out of that habit—at least most of the time—the cord came loose where it attached to the phone. Now I could disconnect myself a second way—by stretching the phone cord.

At that point I gave up, without even having tried the software (I was just using the phone as a regular phone, until I found time to test the program). The software may be great, but if they give that little attention to the quality of the hardware, I doubt it.

Spreadsheets

Electronic spreadsheets create a large worksheet on which you can do financial projections, budgeting and planning. Perhaps their greatest strength is in allowing you to pose various "what if" questions and see what the results might be six months or a year down the line.

Multiplan, a spreadsheet from Microsoft, was available on the Mac very soon after the machine was introduced, and this heavyweight apparently scared off the competition—because now, more than a year later, it's still the only spreadsheet available. That's not really a problem, because Multiplan is perfectly adequate, and quite powerful in many ways.

(Not that it doesn't have a few annoying idiosyncracies. For example, it always makes you wait while it recalculates the whole spreadsheet, even if you've only changed a label and not a number. And, of course, it uses Microsoft's wretched copy-protection scheme.)

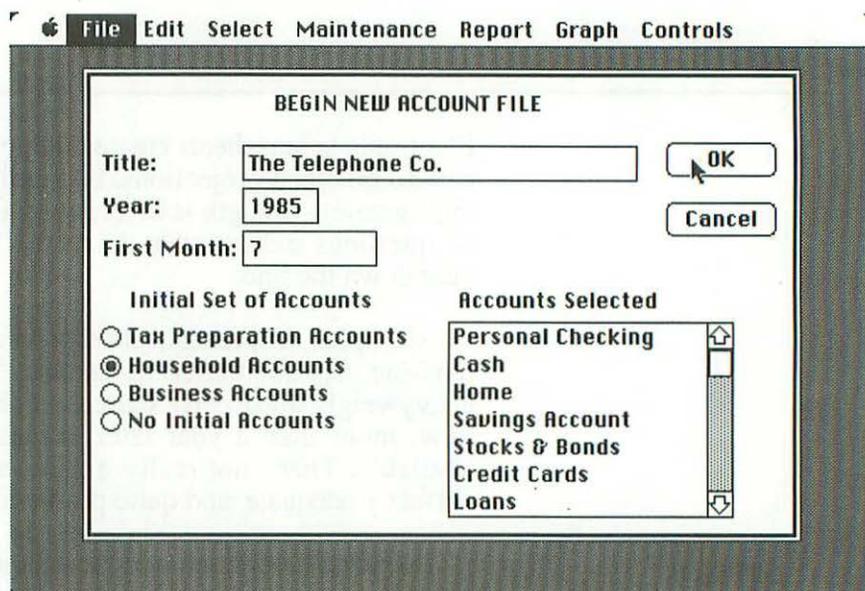


I do my cash flow projections on Multiplan and find it quite easy to work with. And a number of useful templates are available for it (I'll discuss them in a minute).

Accounting Software

One of the most valuable things a computer can do is to take care of tedious, repetitive, joyless tasks. If you made a list of those, keeping your personal financial records—balancing your checkbook, managing your budget, paying your bills, and so on—would probably be at the top. So accounting software for the Mac is more than welcome.

Dollars and Sense is an accounting program that has run on Apple IIs and PCs for years, and has been adapted to the Mac. It does profit and loss reports, inventorying, income statements, balance sheets, cash flow analyses and a slew of other tasks.



Dollars and Sense

Some accounting software hitches a ride on the computational power of a spreadsheet, rather than developing a whole stand-alone program of its own. This is done by creating a **template** (which is pronounced TEM-plit, by the way, not TEM-PLATE). Templates organize the whole spreadsheet for you and put the right formulas and labels in the right places, so all you have to do is enter your own data in the appropriate boxes.

Apropos Software puts out two packages of five Multiplan templates each. One is called the Financial Planning Series and contains templates that help you:

- plan your budget, your taxes and your life insurance
- figure out how much you need to invest to send your kid(s) to college
- decide whether to buy a car or lease it

The other package is called the Investment Planning Series and includes templates that help you:

- plan investments in stocks and real estate
- come up with a balanced, total investment package
- decide between a taxable CD and an IRA (which earns tax-free interest, but at a lower rate)
- figure out how much the payments on a loan should be

There's a similar set of templates called Soft Start, and more specific ones are also available. For example, Tax Prep generates 22 different federal income tax schedules, all in IRS-approved format; the program does all the calculations for you, and only requires you to enter each piece of information once.

Another Multiplan template is Construction Estimator. It calculates things like cost differences between suppliers, completion percentages, savings realized by item, and cost overages.

Number-Crunchers

Engineers, scientists and financial analysts who need high-powered number-crunching can get it from a program called TK!Solver. It has the same kind of functions as a spreadsheet, but is much more flexible and powerful. Called an "equation processor," it does backsolving, iterative solving, list solving, unit conversions, tables and plots. It's even used by NASA to train astronauts.

Graphing Programs



Grey masses of numbers can be pretty deadly; they're a lot more understandable and effective when they're presented visually. That's where Microsoft Chart comes in. Whether you put your input directly, or transfer it from Multiplan, Chart can turn it into any of 10 basic types of charts, in 40 standard formats, plus many customized variations. The charts can be overlaid, expanded, contracted, shaded and bordered, and text or graphics can be put anywhere on them.

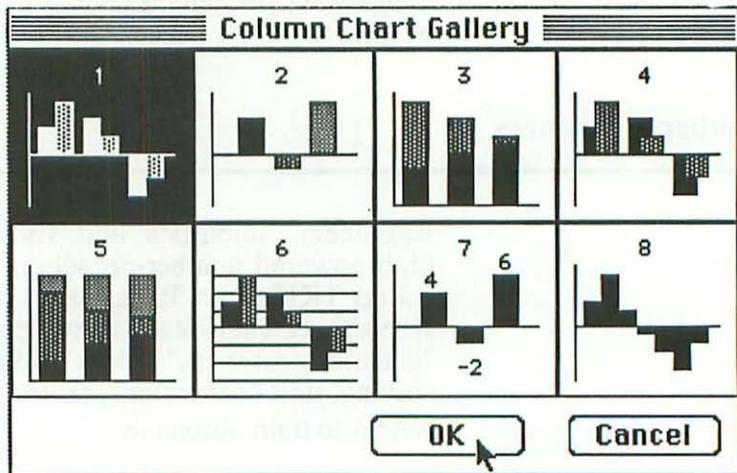
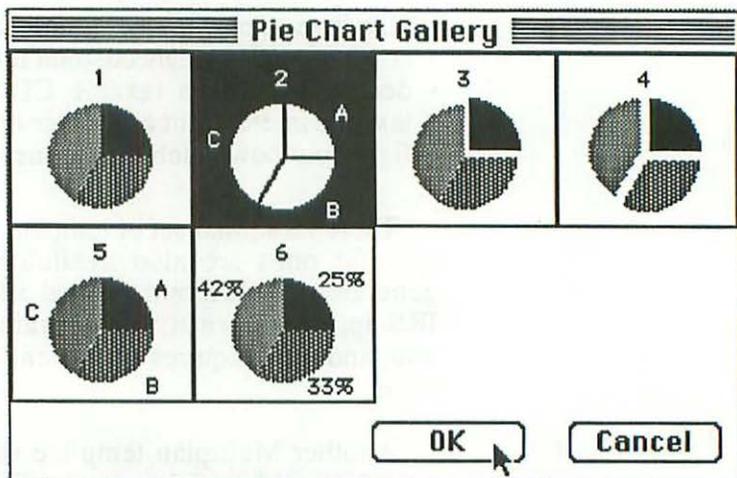
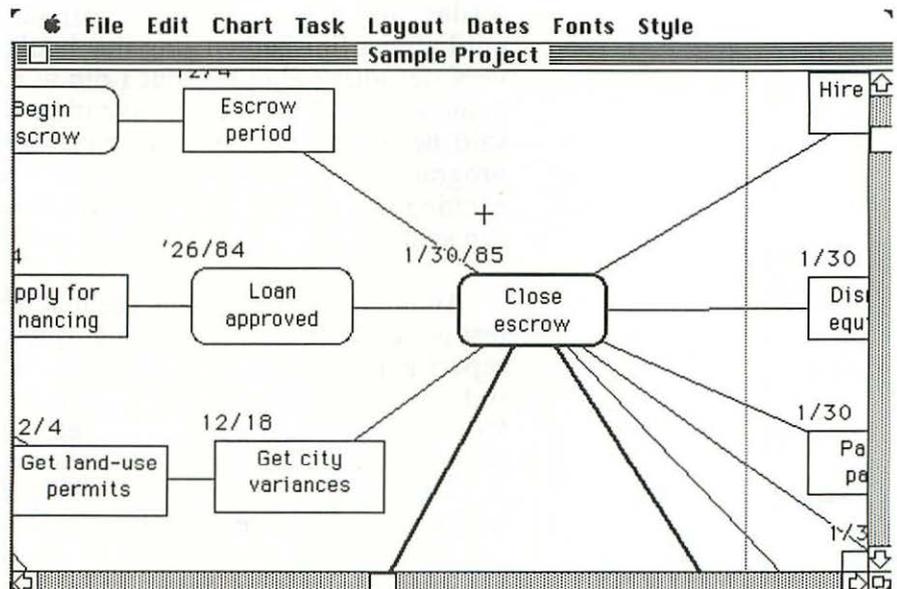


Chart is a powerful and flexible piece of software, and its manual, while a little stuffy, is reasonably well organized and clear. I know I should just leave it at that, but I can't resist quoting you one line from the manual: "A chart is a graphic representation of numeric data." Why do I think that's funny? Well, imagine someone knowing what a "graphic representation of numeric data" is, but not knowing what a "chart" is.

Project Management Software

Project management is another important category of business software, and MacProject is a highly praised example of it. In addition to helping you plan and keep track of any size or type of project, MacProject displays all "critical paths" (those tasks for which there is no "slack time"—i.e. if any of them are late, the whole project will be late).



MacProject

MacProject automatically shows you the status of a project in terms of tasks (when each needs to be completed), resource allocation (what is needed at every point in time, in order for the project not to bog down), or cash flow. When any change is made, the whole project is automatically updated and all relationships recalculated.

Integrated Software Packages

Most Mac software is integrated to some extent. For example, you can pump Multiplan or MacWrite data into Chart; MacProject data can be sent to Multiplan, MacDraw or MacWrite. But for really thorough and complete integration, you need a package of programs designed with that specifically in mind—like Jazz, from Lotus, the developers of 1-2-3.

Jazz is (in Lotus's words) "a five-piece combo"; it includes a word processing program, a spreadsheet, graphics software, a filer, and communications software. Jazz wasn't released until after I finished writing this book, so I can't say anything very definitive about it, but I did ask a colleague who saw a demo of it at a computer convention what he thought of it. He said he wasn't particularly impressed with each individual program by itself, but working all together, they made for an exciting package—especially given how easily and quickly you can switch between them.

Another integrated package that arrived too late for me to test is called Ensemble. It contains a word processor, a filer, a report generator, a graphing program and a spreadsheet, and judging from the brochure, they're all quite powerful. Documents, records, fields, etc. aren't limited by the program's own constraints, but can expand to fill the space available in memory or on disk. Formulas can be used anywhere ordinary text can be.

Search criteria are quite flexible; you can look for an exact equivalent, greater than, less than, not equal to, between two values, present, absent and/or by keywords. Many different kinds of calculations are supported, and you can print out reports, labels, letters, and forms you devise yourself. Data from MacWrite and MacPaint can be Pasted into Ensemble.

CHAPTER

17

Playing Games and Learning Things

Simulations



HOT TIP

It's an interesting fact—though not a particularly surprising one—that the things that can be done only on computers and no other way, or that utilize computers' capabilities to the greatest extent, are also the most fun. Foremost among these is the computer's ability to simulate real life.

Most computer simulations are marketed as games. (This doesn't mean they're trivial and useless, just that they're enjoyable.) There are computer games that simulate, in quite believable and involving detail:

- flying an airplane, including dog-fighting in WWI fighters (Flight Simulator)
- building robots, including designing and "burning" the computer chips that tell them what to do (Robot Odyssey)
- travelling through the bloodstream and fighting off various bugs, with the real, medical names of the bugs and the actual drugs that are used to treat them (Microbe)

- designing and building your own, working, on-screen pinball machines, with flippers, bumpers, slingshots, etc.—up to 128 parts per machine (Pinball Construction Set)

There's even a game that simulates the entire economic development of nations (Simpolicon).

Someday, maybe even by the time you read this, all these games (and hundreds of others) will be available on the Mac. But as of this writing, there are only a few dozen. So in this chapter, I'll simply describe the various categories of games, and give a few representative examples of each. I'll talk about action games first.

Action Games

All computer games require a combination of mental and physical abilities; for example, every action game requires some strategic thinking. But one type of skill usually predominates. In the case of action games, it's physical coordination and reflexes, under the pressure of time.

Mouse Stampede is a good example of an action game pure and simple; if you've ever played the popular arcade game Space Invaders, you have a good idea what it's like. You sit at the bottom of the screen, looking like a little icon of a (computer) mouse, and things come to attack you. If you don't destroy them, they destroy you.

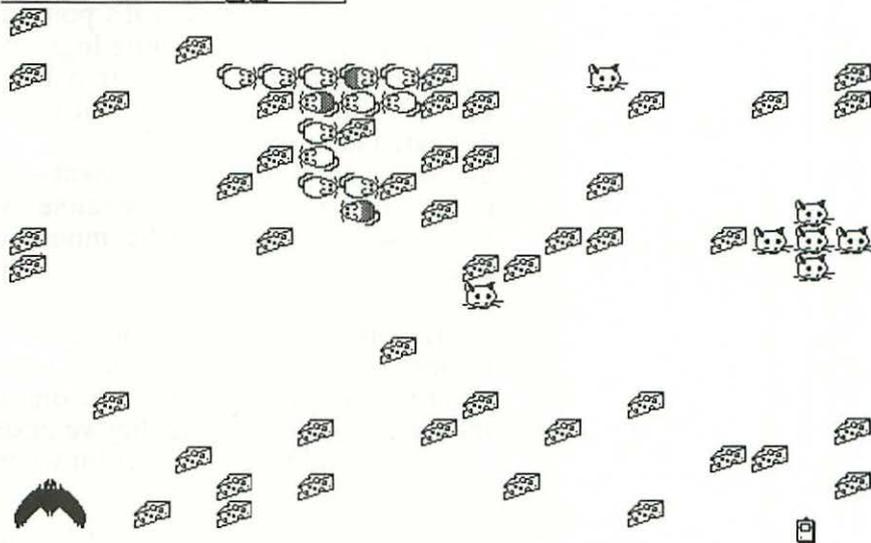
There are several different kinds of attackers. As you might expect from the game's name, mice (the animals, that is, not the computer peripherals) are the most common ones. They advance down the screen in a snake-like motion and when you zap them, they turn into little pieces of cheese. (The manual says that the mice are rabid, presumably by way of explaining their rather unmouselike behavior, but it doesn't explain why they turn into cheese when they die.)

Then there are the bats which swoop around; there are fewer of them, and zapping one earns you a lot of points. Other high-point attackers take the form of shopping carts, a tennis

sneaker, a paint brush, a chef's knife and a turtle (each of these icons moves in its own distinctive manner).

But the cats are my favorite. They don't go anywhere, because they're asleep. But when you zap them, they explode into lots of little cats that eat anything in their way. Cats are worth a lot of points, and they also provide triple the point value of what they eat.

SCORE: 002512 



Mouse Stampede is a lot of fun, great for when you want really mindless entertainment (but aren't ready for something as mindless as television).

Frogger is a popular action game that's been adapted for the Mac. The goal is to get your frog across the highway (which you see at the bottom of the screen) and the river (at the top of the screen) without getting squished by a truck, or eaten by a crocodile, or drowning in the river (how a frog can drown is a question we won't go into).

You get extra points for beating the clock, for gobbling an insect, for escorting a "lady frog" home (you probably didn't even know that frogs have an aristocracy), and for getting all five of the frogs you're provided with into the little niches on the other side.



This game could be a lot of fun, except for one major defect: You point the frog in the direction you want it to go by moving the mouse, and make it jump by pushing the mouse button. But (in the Macintosh version, at least) the frog doesn't point where it's aimed—it points in the *last* direction it moved. You have to look at that little arrow you see below to find out which direction the frog will go on its next jump.

Needless to say, it's just a little distracting to have to keep looking down at that arrow. Common sense tells you the frog will jump in the direction it's pointing in, and it's frustrating beyond belief to be watching logs go by in one direction and turtles in another, and looking out for lady frogs and insects, and worrying about when the turtles will decide to dive (they do that) and dump you in the water, and then—when you push the button at just the right moment—have the frog jump left, or right, or backwards, because you happen to have subconsciously moved the mouse a micron or so in that direction.

This may seem like a minor point (and I suppose it is, in the cosmic scheme of things), but it was enough to make me not want to play Frogger. So I'd recommend that before you buy the game, you make sure they've gotten rid of that little arrow and have taught the frog to point where it's going.

(There was one other minor bug in the version I reviewed, by the way. It always said that Player 2 won, even when we rigged the game and made sure all of Player 2's frogs got squished in the first lane.)

Strategy Games

The predominant skill here is logical, strategic thinking—figuring odds, visualizing things, taking notes, drawing maps, etc. Strategy games are the most common kind of computer game, and there are several subtypes. I'll cover them in alphabetical order.

Adventure Games

These were the first games to come out on computers, since they originally used only words, not graphics, and thus were fairly simple to program. In a typical adventure game, you're trying to rescue a damsel in distress, or find a buried treasure, or save the human race from destruction, all the while avoiding vampires, werewolves and the like. The "world" you're playing in is complex, and you usually need to make a map of it.

Transylvania was the first adventure game out on the Mac, and I think it's a good one. It has a whole bunch of very nicely drawn pictures, and they really make a difference. Rather than describe Transylvania, I'll just show you a couple of screens of it. But first let me explain how you talk to adventure games.

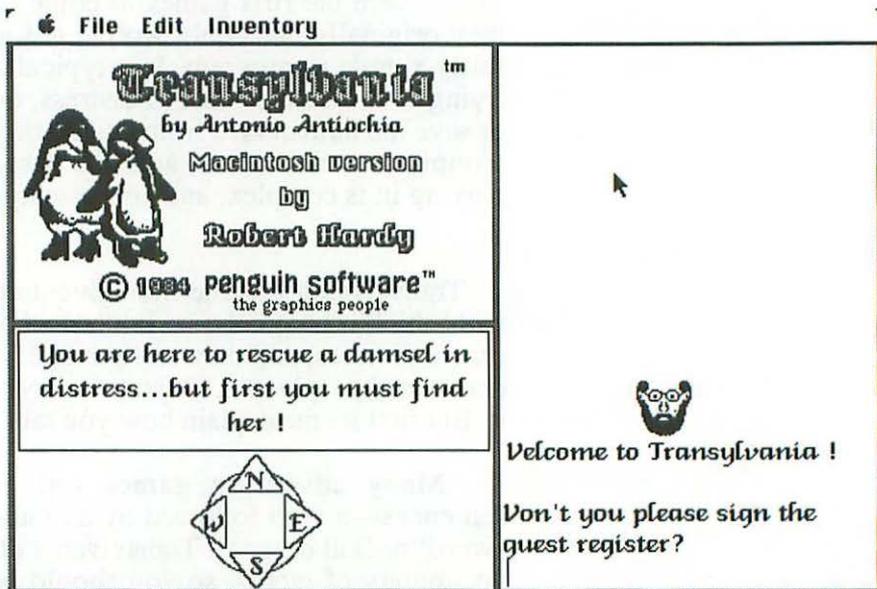
Many adventure games only recognize two word sentences—a verb followed by a noun—like 'go north', 'take sword' or 'kill dragon'. Transylvania claims that it "has a large vocabulary of words, so you should be able to communicate quite well." You have to take this with a grain of salt, since some of the words it doesn't recognize are "the," "a" and "look."



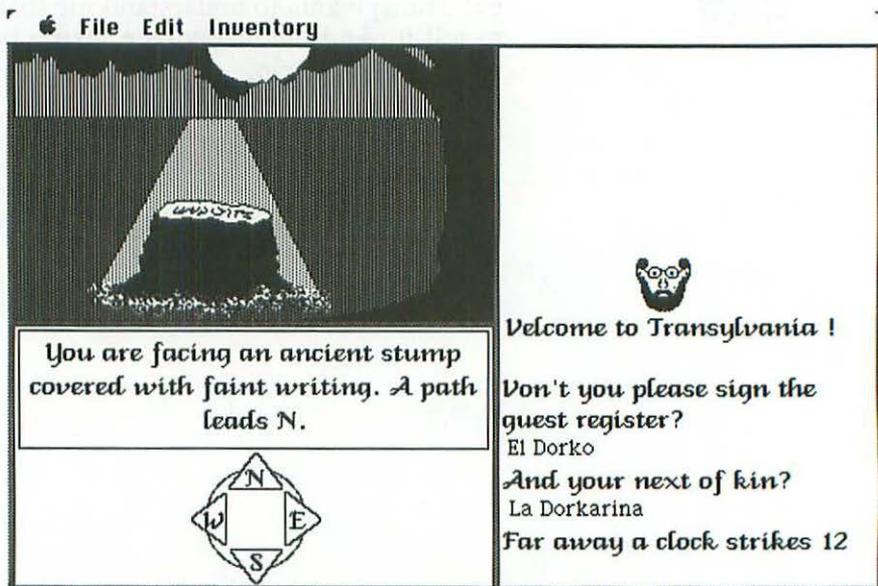
VERY BAD
FEATURE

As a result, I find I spend more time trying to figure how to get Transylvania to understand me than I do figuring out what to tell it. And the inadequate instructions that come with the program don't help.

When you enter Transylvania, you see a screen that looks like this:



You can just give your name where it's asked for, but it's a lot more fun to put something like "El Dorko" instead. When you've finished with these preliminaries, you find yourself here:

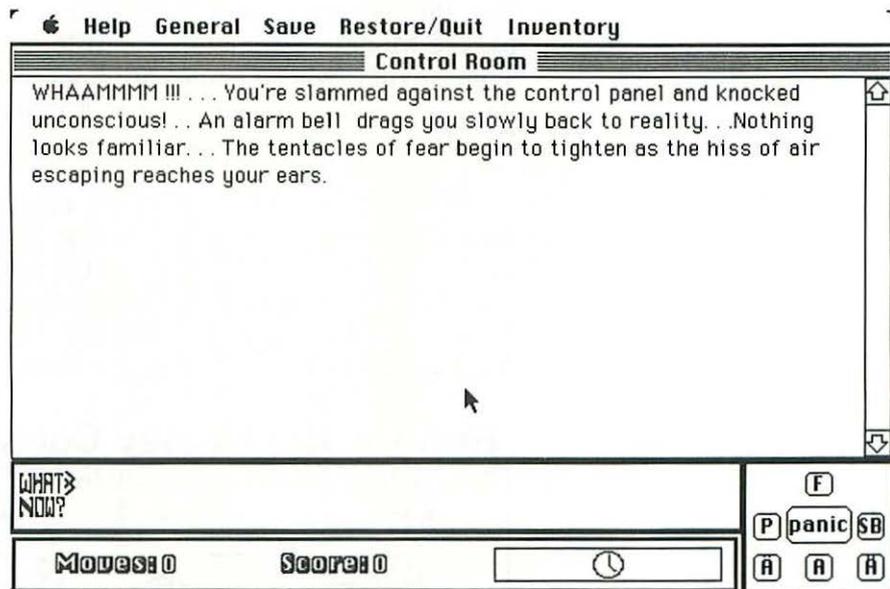




VERY GOOD
FEATURE

Isn't that pretty? A lot of Transylvania screens are really beautiful, but I find the game pretty frustrating to play.

Forbidden Quest is another adventure game on the Mac but, unlike Transylvania, it only gives you words, no pictures. (Five printed drawings come with the disk, but that ain't the same thing.) I found Forbidden Quest much less fun to play for that reason.



Business Simulations

Since the Mac is supposed to be for business professionals, a whole lot of business simulations have been published on it. MacManager is a typical one. You're the manager of a company that manufactures widgets ("widget," by the way, is a standard name—like "whosis" or "thingamagig"—for anything a hypothetical company might produce).

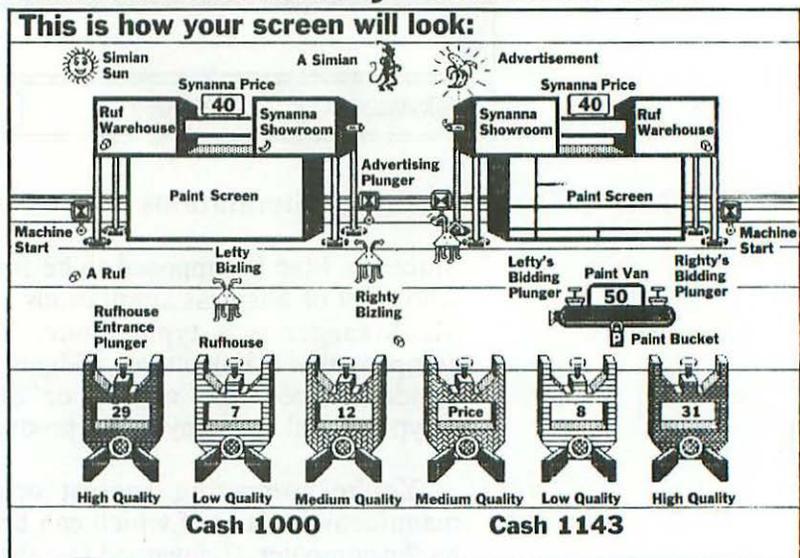
You're competing against one to eight other widget manufacturers, any of which can be run either by a person or by the computer. (Be warned that the computer is humiliatingly good at this game.)

MacManager is a very detailed and complex business simulation that will teach you a fair amount about how businesses are actually run. But the tone of voice it uses can be irritating, and it takes too long to do certain things (like give you screens of information, or redraw windows when you move them).

MacManager is representative of what standard, straight-ahead business simulations on the Mac are like; Run for the Money is something a little jazzier. It was written by Tom Snyder, whose games are famous for combining strategy with action and putting it all in a fantasy setting. Here's how Run for the Money works:

You are a Bizling, traveling through space in search of business. Your ship and a fellow Bizling's are caught in a zinger storm, which removes all the paint from your protective shields and forces you both to crash-land on a strange planet. In order to blast off again, you have to repaint the shields. Your goal is to do that before the other Bizling does.

Run for the Money Command Card



The illustration above, from Run for the Money's reference card, shows you how the screen looks (except for the labels, of course). The paint van (at right center) comes by regularly

selling paint, and you bid against the other Bizling to set the price. Both of you have a certain amount of cash when you land, but even at the most advantageous paint prices, neither of you has enough to repaint your whole shield.

In the illustration, the Bizling on the right has already started to repaint its shield, while the one on the left hasn't.

Fortunately, you can earn more money by manufacturing synthetic bananas—called synnanas—and selling them to the inhabitants of the planet. They're called Simians and, as you can see from the one at the top of the screen, the name suits them.

You make synnanas out of a raw material called rufs that you buy in the buildings at the bottom of the screen (which are called rufhouses—what else?). When you buy rufs, the rufhouse rather rudely spits them out all over the ground, so you have to run around and pick them up before you can use them.

Rufs come in three levels of quality, and therefore in three price ranges. Simians naturally prefer to buy synnanas made from higher-quality rufs, but will eat any kind if that's all that's available. Naturally, the more you pay for rufs, the less money you make selling synnanas—unless, of course, you raise your price and/or advertise.

What with deciding which quality rufs to buy, running around to rufhouses, waiting till the price is right, buying the rufs, picking them up, turning them into synnanas, bidding for paint, painting the shields, deciding what price to charge for the synnanas, deciding whether or not to advertise, being zapped by zinger storms, and rushing to get your business done before the two-minute "week" is done, Run for the Money really keeps you hopping.

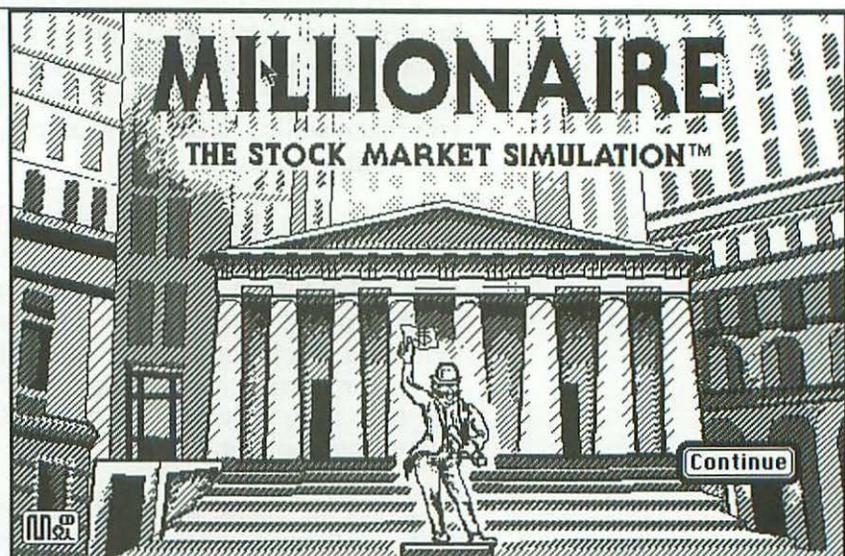
I find the hectic pace distracting—annoying, in fact—but that's probably just because I've begun to ossify in my old age. But I know some adults that love it.



There is, however, a problem with the game that's more objective. The manual is so skimpy as to be almost worthless. It's useful and interesting when it concentrates on business strategies—the "burger strategy," "fast lane strategy," "copy cat strategy," and so on—but it doesn't tell you enough about how to actually play the game. I'm not stupid, but I can't figure out how to read the profit graphs you're shown at the end of each "week," and that's just one example.

On the positive side, *Run for the Money* gives you some basic idea of how a manufacturing business works. And I love the music Tom Snyder wrote for it.

Unlike the two manufacturing simulations I've just discussed, *Millionaire* isn't about actually producing anything. Instead, it teaches you how to play the stock market, and does a serious, detailed job of that. It gives fifteen stocks you can choose from, in five industries—computers, oil and gas, retail sales, automotive, and heavy industry—and provides a wealth of information on each one.



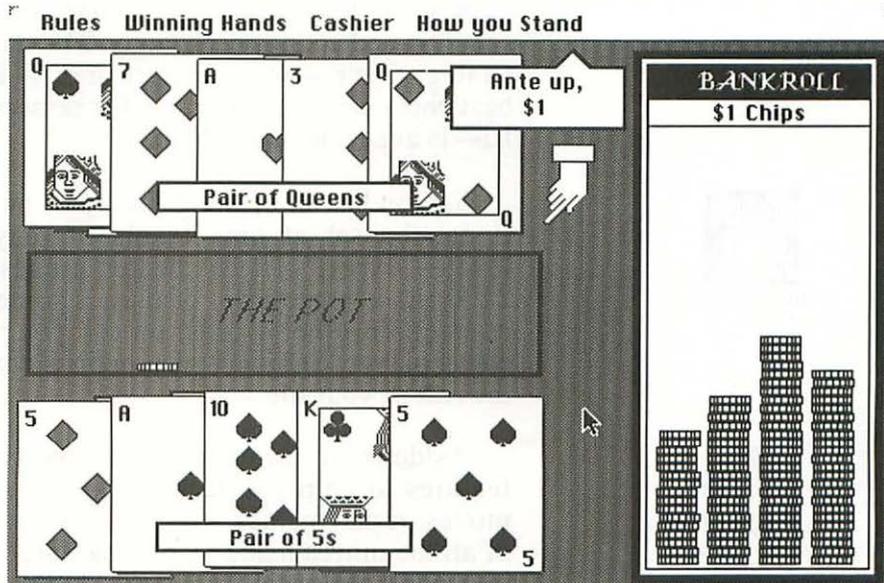
Millionaire is quite a detailed simulation, but it does have some failings. For one thing, it seems to be designed for one player; it's hard for two players to compete against one another, and the game doesn't even tell you who's playing at any given time.

Millionaire features art work by Mei-Ying Dell'Aquila, and whenever the program is discussed in print, the accompanying illustration is always of one of her drawings. As you can see from the screen above, I'm no exception to this rule, but I should point out that there are only three of Mei-Ying's drawings in the whole game. So don't buy Millionaire because you want to look at pretty pictures; buy it because you want to learn how to trade stocks.

Gambling Simulations

For some reason, there are a lot of these on the Mac. Two of them are Mac-Poker and Mac-Jack (published by DataPak Software) and both are a lot of fun.

With Mac-Poker, the game is five-card draw, and it's astounding how much you feel like you're playing a real human opponent. The program bluffs, plays crazy and bets inconsistently. It even tries to rattle you with comments like: "I play hardball," "Tough decision," "As I get richer," and "I win! You lose!" (this last one flashes on and off).



I kept thinking, "This is just a stupid computer; there has to be some simple pattern to its betting and bluffing." Well, if there is, I'm too simple to figure it out; Mac-Poker took me for \$475.

Although Mac-Jack has all the bells and whistles of casino blackjack (everything from doubling down and insurance to buying you "drinks" when you're winning), it isn't as sophisticated a program as Mac-Poker. It deals the cards way too slowly, and is pretty easy to beat (not that I'm complaining about that). It's sort of enjoyable in a low-keyed, nondemanding way, but after a while, you get tired of waiting for the cards.

Mac-Slots offers two casino games—keno and slot machines. Although this clearly makes it a gambling simulation, it doesn't really belong here under strategy games, since neither keno nor slots requires any strategy—both are games of pure dumb luck.

Mac-Slots cost \$77.77, which is cute, but way too much for what you get. Mac-Poker and Mac-Jack both cost \$40, and that's about the most I'd pay for a gambling simulation.

Visualization Games

In these strategy games, the primary skill is visualizing a future situation and acting accordingly. The most famous visualization strategy game—on computers or off—is chess, and one of the best chess-playing programs for personal computers—Sargon III—is available on the Mac.

Sargon has an opening library of more than 68,000 moves. It can be set at nine levels of play, and at the highest level—"expert"—it has beaten a chess master rated at over 2200 (its average level of play is somewhat less than that, of course). In other words, unless you're a really exceptional chess player, Sargon will remain a challenging opponent for the rest of your life.

Aside from raw chess-playing power, Sargon III has many features to help you learn. You can switch sides, take back moves, replay games, save a game in progress, print out a list of all the moves made so far, ask Sargon to suggest a move for you, and even watch it while it considers which move to make. There are 107 classic games on the disk for you to review and analyze, and 45 chess problems to tackle.



VERY GOOD
FEATURE



VERY GOOD
FEATURE

File Edit Level Options Features Screen Special

Sargon III

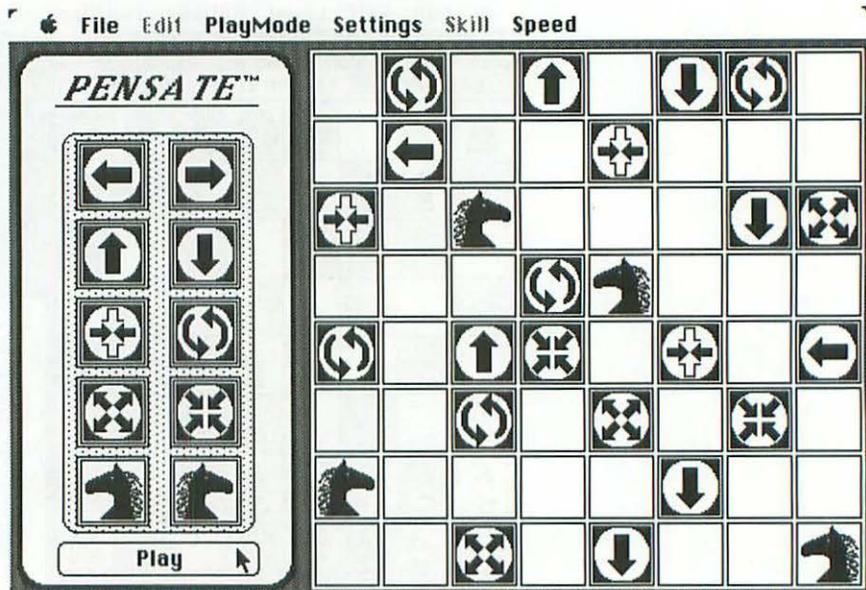
PLAYER SARGON	
1. g2-g4	d7-d5
2. g1-f3	c8-g4
3. f1-g2	b8-c6
4. d2-d3	e7-e5
5. e1-d2	e5-e4
6. d3-e4	d5-e4
7.	CHECK

Window on the Search	
Current	Previous
Depth: 2/2	Depth: 2/2
Score: 354	Score: 354

d5-e4	d5-e4
d2-e3	d2-e3
e4-f3	e4-f3
g2-f3	g2-f3

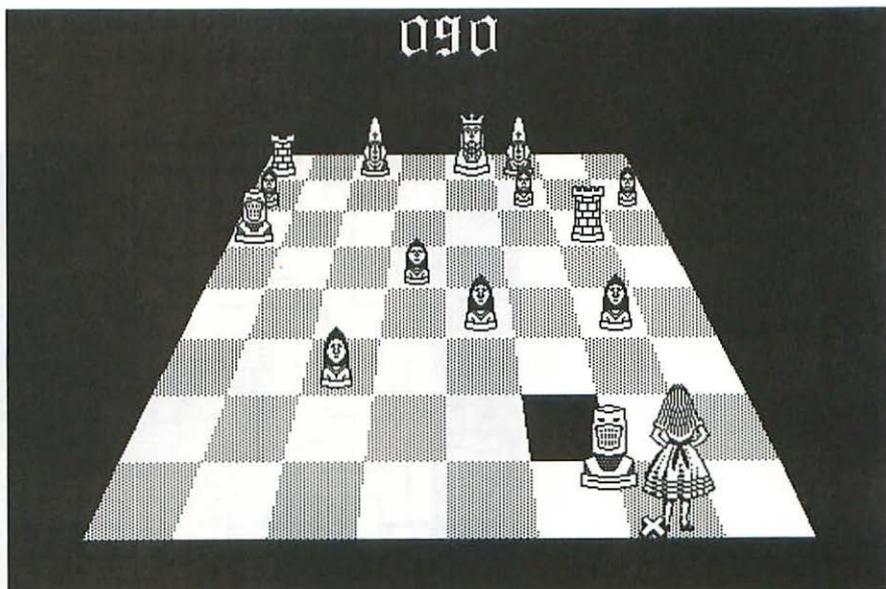
Sargon III is well adapted to the Mac, and makes extensive use of menus and the mouse. All in all, this is a great piece of software.

Pensate is played on a chessboard, with ten different kinds of pieces. Six move in relatively simple ways, and four move in very complex patterns that vary depending on what you do during your move. For example, one kind of Pensate piece moves one square to the left and one square down when you move up; one square to the right and one square up when you move down; one square to the left and one square up when you move right; and one square to the right and one square down when you move left.



Since the object of the game is to submit your moves up to four moves ahead, predicting where all the computer's pieces will be so that you can avoid being captured by them, you can see how challenging Pensate can be. (It was even more challenging before I figured out that they had mixed up the descriptions in the manual of how the pieces move. Can you imagine how confusing *that* was?)

Yet another chess-like game is *Through the Looking Glass*, written by Mac programming genius Steve Capps. Here the emphasis is on action, as pieces zoom around the board attacking your piece (which looks like Alice in Wonderland). You have to know chess and move fast, not only to capture the other pieces but to avoid the trap doors that open at random times and places on the board.

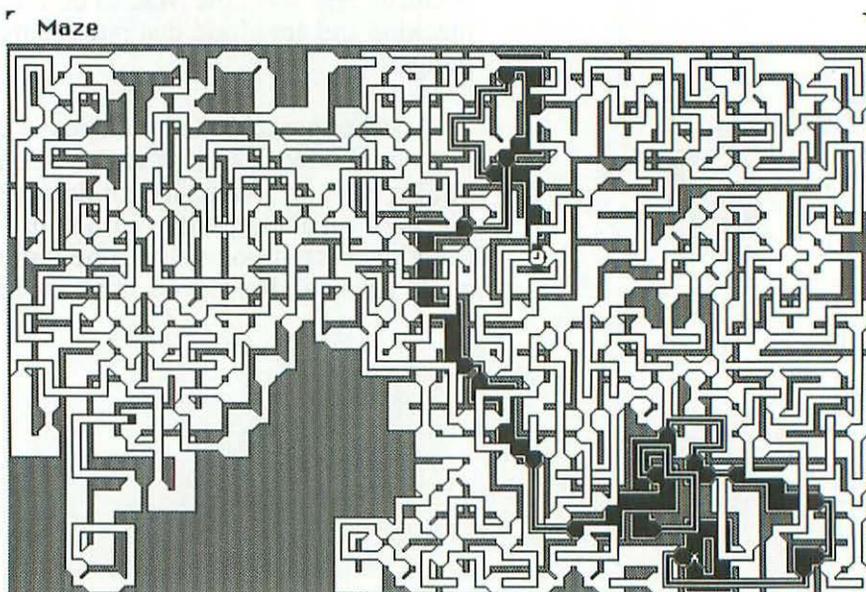
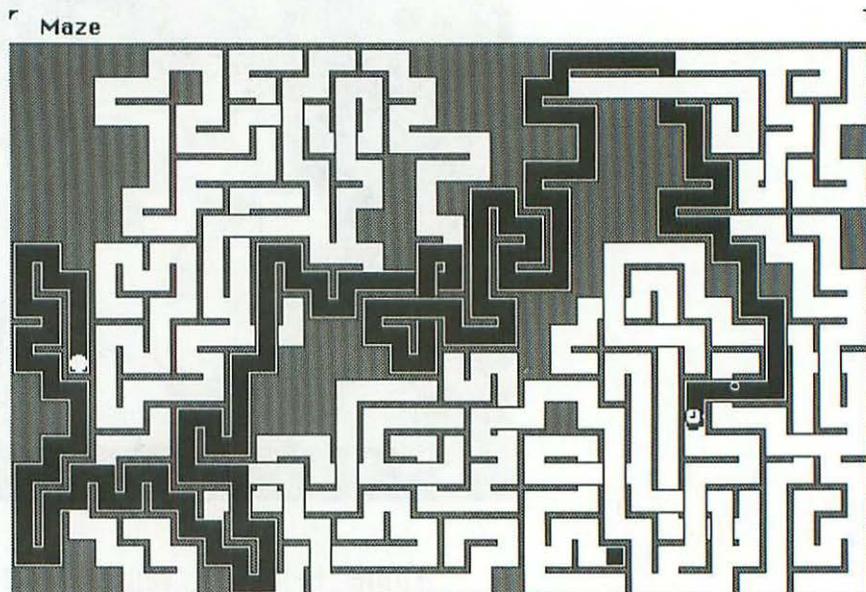


Apple held off releasing *Through the Looking Glass*—which was originally called *Alice*—for a long time, because they want the Mac to be taken seriously as a business machine and are afraid that publishing a game for it will hurt its image.



Another great game by Capps is called *Amazing*. It comes on your Guided Tour disk and is also available separately in the public domain. *Amazing* randomly generates mazes at four levels of difficulty, with more than four million variations on each level (so if you solved one a minute, 24 hours a day, you could finish all four levels in about 25,000 years).

Here are a couple of Amazing mazes—one from the easiest level and one from the hardest:



The trouble with chess and Pensate and mazes is that they're "games of perfect information." This means that you and your opponent (if any) both have the same knowledge of what's going on (unlike poker, say, where you know what cards you hold but your opponent doesn't), and that there's no element of chance involved.

Games of perfect information are 100% skill, so if you lose, there's no one to blame but yourself. I prefer a game like backgammon, where an absolute beginner can win a game from the world champion, if the champ's dice are bad enough.

There are a couple of backgammon-playing programs for the Mac, and one of them—MacGammon, from Videx—isn't too bad; I can always trounce it in a series of games, but it plays well enough for me not to be embarrassed about wasting my time with it (I'm a fairly decent player). I suppose it would be nice if MacGammon played backgammon as well as Sargon plays chess, but then I wouldn't beat it all the time.

MacGammon shows good judgment in when to offer the doubling cube and when to refuse a double, it keeps a running score of each "tournament" (series of games), and it will count pips for you if you want. But once you've moved a piece, you can't move it back, even if you haven't finished your roll (this

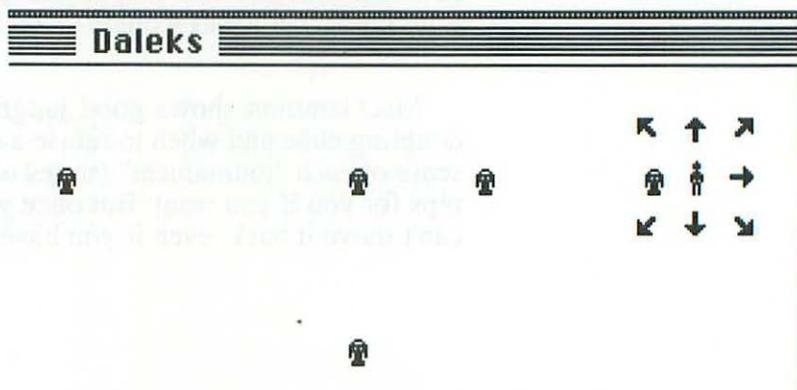
is *very* annoying). And if you roll six-four (say), you can't move a piece ten points—you have to move each die separately. A game of cribbage also comes on the MacGammon disk.

Triple Play is a disk with three games on it—Backgammon, an ancient game called Mancala, and a game of deductive logic called Deduce. I haven't tried the other two games, but I was disappointed with Backgammon. Although it has some great features (you can undo one whole roll, ask for suggested moves, see all possible moves, have the last move marked, and save a game), I don't really call something "backgammon" unless it uses the doubling cube.

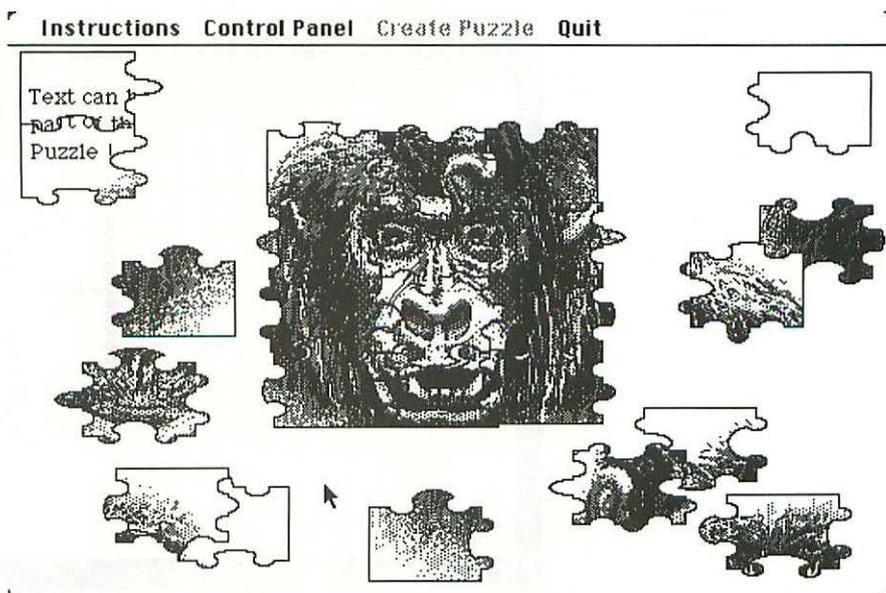


VERY GOOD
FEATURE

Daleks is a public-domain game where you try to avoid being crowded out by a bunch of little robots. It kept my attention for quite a while, and the price is certainly right.



MasterPieces lets you create a jigsaw puzzle from any image on the screen. Once the picture has been cut up, you reassemble it by dragging the pieces around with the mouse.

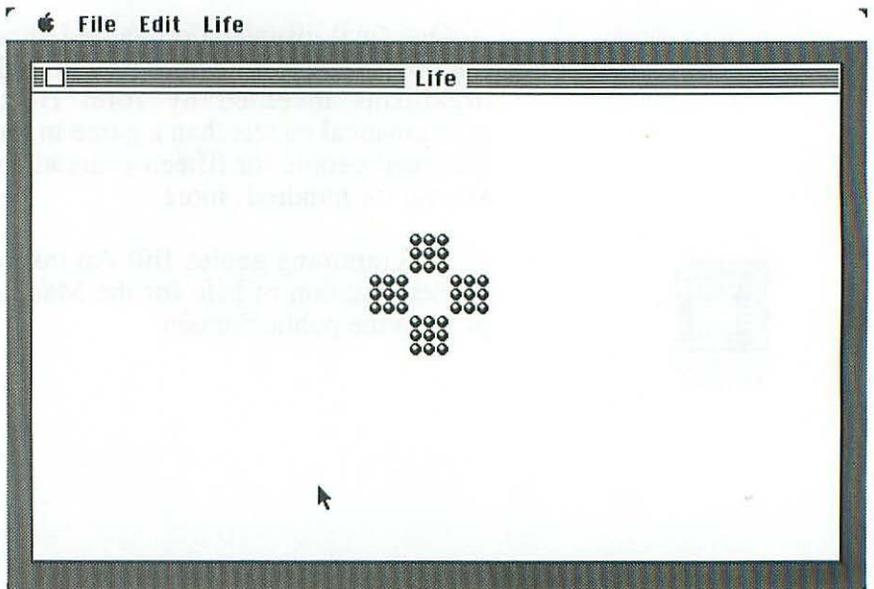
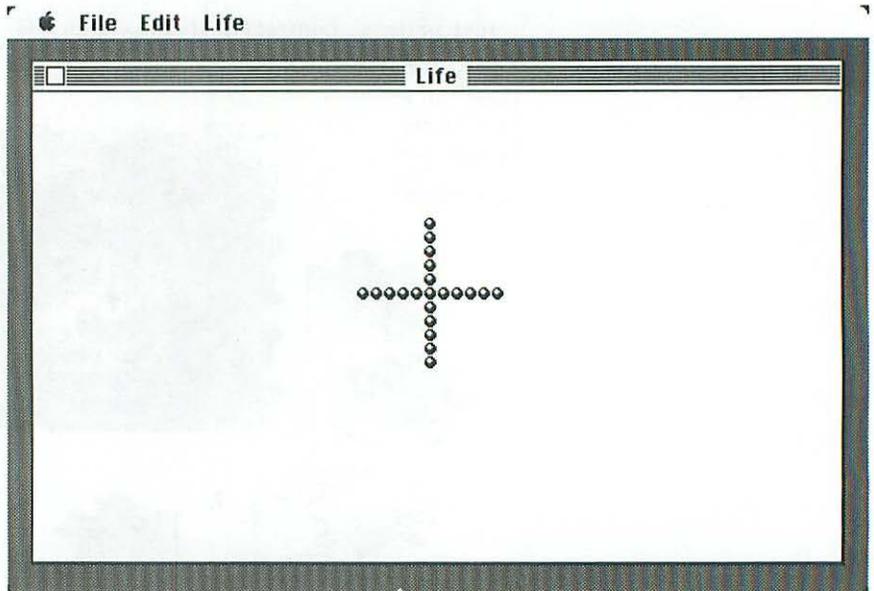


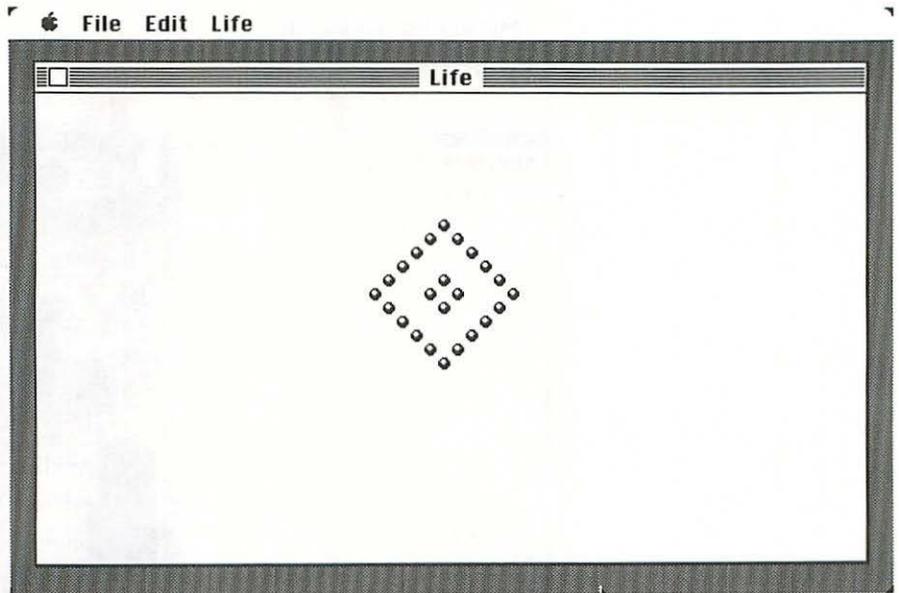
One final visualization game I should mention is *Life*, the famous simulation of the growth and death of single-celled organisms invented by John Horton Conway. More a mathematical puzzle than a game in the normal sense, *Life* has intrigued people for fifteen years already, and is certain to be around for hundreds more.

Programming genius Bill Atkinson has written a beautiful implementation of *Life* for the Mac, and was kind enough to put it in the public domain.



*Three progressive
Life screens*

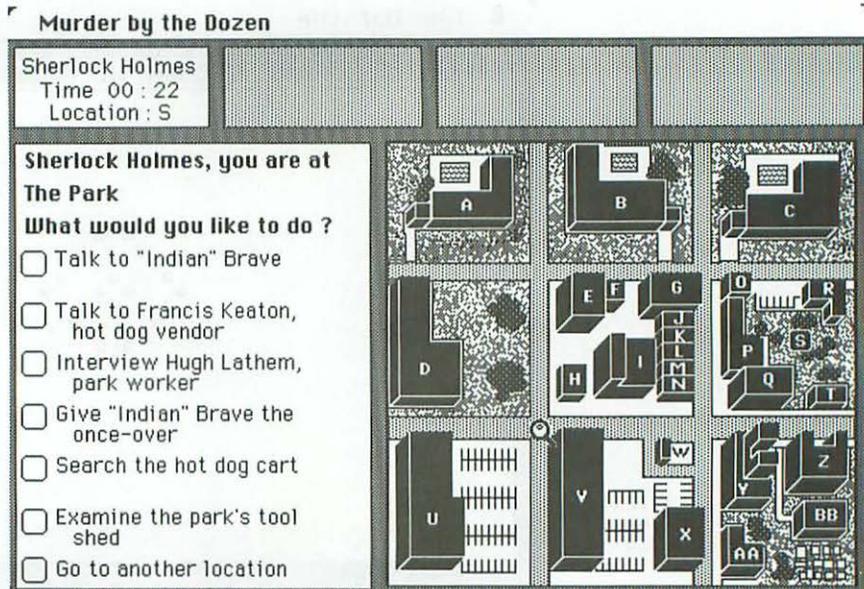




Miscellaneous Strategy Games

In *Murder by the Dozen*, you solve murder mysteries by discovering clues, accumulating evidence and interviewing suspects. I have three problems with it:

- There are only twelve mysteries; when you've run through those, you've had it (although I suppose they'll publish more as time goes by).
- The on-screen messages are full of misspellings. I don't mind a few, but it's as if no one even bothered to proofread this stuff.
- The friend I played with solved the mystery before I'd even found a clue, which obviously proves that this is a game of pure luck, with no skill to it at all.



Knowledge Games

In these games, the primary skill required is the retention of information. There are two main types: programs which teach and test academic subjects, and nonacademic quiz programs.

Academic Learning Programs

There will no doubt be a lot of these for the Mac, but at the moment, I only know of one—MacEdge from Think Educational Software, which teaches basic math and reading skills.

Trivia Quiz Programs

I had high hopes for Mirage Concepts' Trivia program, but was very disappointed by it. I found it *extremely* hard to learn to play, and its on-line instructions are so obscure, poorly organized and poorly written that they're almost funny. A very unMac-like program.



Packages of Assorted Games

Think Educational Software sells a disk called Mind Over Mac, which contains five games: three-dimensional tic-tac-toe on a 4 x 4 x 4 grid; a decoding game; a trivia quiz game; and simulations of two popular pen-and-pencil games, Battleship and Concentration.

Rds labs has a disk of BASIC games (you need MS BASIC to run them), but I found them to be fairly primitive and agonizingly slow.

For disks that contain games among a number of other kinds of programs, see the "Miscellany Disks" section of Chapter 19.

CHAPTER

18

Programming

When I discussed data base programs on the Mac (in Chapter 16), I said that they could be the subject of a whole book, and a fat one at that. Well, programming on the Mac could be—and is—the subject of whole libraries of fat books. So all it makes sense for me to do in a nontechnical book like this is to give you an inkling of what's available, so you can decide what you might want to find out more about.

(By the way, programming languages are technically "systems software," not "application programs," but I figured I'd try to slip them into this section anyway. If we both keep quiet about it, maybe I can get away with it.)

Before I describe specific languages you can buy for the Mac, I should say a word about some of the programming routines that are built right into the Mac's 64K ROM and can be accessed and included in your own program. Collectively, they're called the **Toolbox**.

The Toolbox is basically divided into thirds. One third contains **QuickDraw**, Bill Atkinson's software for producing complicated graphics with blinding speed. QuickDraw is what's behind virtually everything you see drawn on the Mac's screen, and it's amazing that all of its power can be squeezed into only about 20K.



A second third of the Toolbox contains what the people who programmed the ROM call the Mac Operating System. It contains many of the nuts-and-bolts kind of operations found in more traditional systems. For example, it manages input and output, how memory gets allocated, how files are handled, and so on.

The final third of the Toolbox is occupied by user interface software. For example, there's the Font Manager, which helps QuickDraw draw text; Window Manager, which creates and manipulates windows on the screen; Resource Manager, which accesses the information in resource files that control the appearance of dialog boxes, menus, and so on; Desk Manager, which controls the use of the standard desk accessories and lets you create your own; and much more.

The Apple manual that describes the Toolbox is called *Inside Macintosh*. Steve Chernikoff is also doing a pair of books on the same subject, and you should compare them with *Inside Macintosh* to see which presents the information in the most useful manner.

Forth

One of the first programming languages available for the Mac was MacForth from Creative Solutions. Forth is an unusual language. It produces very compact code and programs written in it can actually be shorter than some versions of the same program written in assembly language. As a result Forth is very fast. In some ways, it most resembles LISP or Logo, because programs in it are composed of objects that are themselves made up of smaller objects.

There are some things about Forth that make it difficult. For example, it uses RPN ("reverse Polish notation"), in which '2 + 2' is written '2, 2 +'. It's slow at displaying text (about the only thing it's slow at). And because it gives you unlimited access to the Mac's memory, it's easy to crash the system while you're learning to use it. In an excellent article in *Macworld*, Richard Sprague compared Forth to a power saw: "It can do amazing things when it's in the right hands, but for the uninitiated it can make a mess."



Forth has many devout fans, and MacForth is a very good implementation of it—or, rather, three very good implementations of it. Level 1 is adequate for most programming tasks; it gives you access to the most common routines in the Toolbox and uses the same editing commands as MacWrite.

Level 2 is for the advanced programmer who really wants to get down. It accesses virtually every QuickDraw routine, has some hot graphics routines of its own, and gives you full control of the Mac's speaker and two serial ports.

Level 3 is for people developing commercial programs. As of this writing, it costs \$2500 (compared with \$150 for Level 1 and \$250 for Level 2). The price includes support from Creative Solutions and the right to create 250 licenses for the program you write. Level 3 has a routine that allows your program to include all the MacForth it needs in order to run, so your customers can use it without their own copy of the language.

BASIC

Outdated, clumsy, inelegant, BASIC lumbers on, thanks to all the people who know how to use it and all the programs already written in it. And yet, as Alan Kay put it, "You can spend six months learning BASIC and still not approach anything like the content of what a programmer does...[Educational authorities are] vandalizing an entire generation of kids by acting as though things like BASIC have value."

But if you're going to use BASIC, the Mac is the place to do it, because MacBASIC is just about the hottest version of that language going. In fact, it's so radically different from most other BASICs, it's almost unfair to call it BASIC at all.



MacBASIC:

- can run more than one program at once
- doesn't need line numbers
- accesses the Toolbox
- includes some of the best features of structured languages like Pascal
- looks and feels very Mac-like, with full-screen editing commands very similar to MacWrite's, an Undo command, and powerful find and replace capabilities.

As of this writing, fourteen months after the Mac was introduced, MacBASIC still hasn't been released. The projected release date is summer, 1985, but there are some people who believe it won't even be available then.

I've always made it a point not to learn to program, so I can maintain, as much as possible, the viewpoint of a typical user (also because I've had so many other things to do that I was more interested in). But a simple MacBASIC program that Scot Kamins wrote and showed to me got me thinking that programming might be fun after all. It's called Raindrops.

Raindrops starts off simply enough, superimposing ovals on top of one another on the screen. But as the overlaps get more and more extensive, each new one looks like a raindrop splattering into all the other droplets of water on a window. Can you visualize it? No? Well, here's the code, so you can run it yourself.

```

Extreme.Col=240
Extreme.Row=240
RANDOMIZE

DO
  Box.Size=RND(50)
  Low.Col=RND(Extreme.Col)
  Low.Row=RND(Extreme.Row)
  INVERT OVAL Low.Col-Box.Size,Low.Row-Box.Size;Low.Col,Low.Row
LOOP
  
```

Scot has been involved with MacBASIC from the start, and wrote a wonderful series of books on MacBASIC (not to mention the *MacBASIC Programmer's Reference Manual*).

The first BASIC for the Mac was MS BASIC (from Microsoft), and in its early versions (1.0, 1.1, etc.), it was just another ordinary, vanilla version of the language (but handy to have, none the less, because of all the programs that run under it). Then Microsoft came out with Version 2.0, which incorporates many of the same features as MacBASIC. In some ways MS BASIC 2.0 is slower and less powerful than MacBASIC, but it does have one clear advantage: it's actually available.

MS BASIC 2.0 allows for advanced subroutines that you can make invisible to the rest of the program, and lets you access a fair number of QuickDraw and other Toolbox routines. Like MacBASIC, it doesn't require line numbers, and lets you label lines with names that you can then reference elsewhere in the program.

The language also has good sound processing capabilities. Most of its slowness is the result of the size of its code, and is thus much more noticeable on a 128K machine than on a 512K Mac with RAM-disk software.

Paint Mover is a utility, written in MS BASIC, that allows a programmer to easily transfer a MacPaint drawing into a BASIC program. Once transferred, the design can be animated, enlarged or shrunk using BASIC commands. Paint Mover is thus a good way to liven up what might otherwise be a mundane program.

Other Languages

There are several versions of the C language available for the Mac; the only one I've looked at is published by Hippopotamus Software and is called Hippo-C.

(C gets its name from the fact that it's an enhancement of an earlier language called B, which was in turn an enhancement of an earlier language called A. I don't know where Hippopotamus Software's name came from, but I like it better than high-tech neologisms like DigiInfoSoftCorp—or, in the case of companies developing Macintosh software, MacDigiInfoSoftCorp.)

Hippo-C comes with an editor, compiler, linker, symbolic debugger, C library, on-line C tutorial, and a shell command processor. It will access over 380 Toolbox and QuickDraw routines.

Pascal is the language that a lot of Mac systems programming was done in, and is widely considered by programmers to be one of the most elegant and efficient languages around. There are several Pascals available for the Mac: Borland International's TurboPascal, UCSD Pascal from Softech Microsystems and Apple's own MacPascal.



MacPascal has many powerful features; for example; it can access every QuickDraw routine. But ease of use is where it really shines. Unlike most implementations of the language, MacPascal has great error-reporting capabilities. It reports errors at the end of each line of code you type in, by displaying the part it's confused by in outline type. It also lets you single-step through the program, or any part of it. And there are separate windows for entering text and drawings. All this creates a very friendly environment for beginning users to write their programs in.

By the time you read this, you can assume that just about any language you're interested in will be available on the Mac. In addition to the ones discussed above, LISP, Logo, Modula 2, Neon, COBOL and FORTRAN (as well as 68000 assembly language, of course) are all already out or scheduled to be released.

Support for Mac Programmers

As I mentioned in Chapter 1, Apple has set up a **Certified Developers Program** to encourage independent companies and individuals to write software for the Mac. As I also mentioned there, the response has been overwhelming and Apple, with the hoards beating down their doors, has had to ration the support they provide.

Not too surprisingly, they favored big companies that can do them a lot of good, and gave short shrift to the smaller operations. In other words, "all certified developers are equal, but big certified developers are more equal than others."

Maddening as this is for the small developer, you can't really blame Apple for this. I just mention it so you won't have any false expectations if you decide to become a Certified Developer.

In response to Apple's semi-abandonment of the little guy, small developers have banded together into mutual support organizations. One such is the Programmers' Network, set up by John Draper, the illustrious Captain Crunch of telephone blue-box fame (address and phone in Appendix C).

CHAPTER

19

Other Things You Can Do on the Mac

In this chapter, I cover all the miscellaneous things that don't fit in any of the other chapters. The first one I'll discuss is communicating with other computers, a topic which—had I but world enough, and time—would be a chapter of its own.

Communicating with Other Computers

First, a few basic terms:

Personal computers usually talk to each other over telephone lines. The device that connects a computer to a phone line is called a **modem** (MOE-dum). The speed at which modems transmit information is measured in **baud** (bawd); for all practical purposes, the baud rate equals bits per second.

Transferring data from a distant computer to a nearby one (usually—but not necessarily—your own) is called **downloading**; transferring data from a nearby computer to a distant one is called **uploading**. Large computers you can call up to get access to bulletin boards, electronic mail, discount shopping and the like are called **information utilities**; CompuServe and The Source are two well-known examples.

Some modems **auto-answer** (automatically answer the phone and route the call to the computer) or even **auto-dial** (automatically place calls connecting your computer to other computers).

Anchor Automation makes a whole line of modems, ranging from the very inexpensive 300-baud Volksmodem on up. Their reasonably priced Signalman Mark XII operates at 300 baud or 1200 baud and can detect dial tones and busy signals automatically.

MacModem is a powerful hardware/software combination specifically designed for the Mac. It operates at 110 baud, 300 baud or 1200 baud, and can be upgraded at any time to run at 2400 baud.



VERY GOOD
FEATURE

MacModem auto-answers and auto-dials, and you can program it to wait until phone rates (and information-utility usage fees) are at their lowest, then automatically call up the other computer, download whatever information you specify, store it on your Mac's disk and hang up, unattended the whole time (you can be asleep while it's happening).

MacModem's manual is well written, although it's hampered by a really wretched index. So what's the catch? The only other problem is its price, which is \$600 as of this writing. That may even be a bargain, considering what MacModem can do. But if you don't need all its capabilities, you can certainly get a less powerful modem for less money.

Some computers have modems built in, like the Radio Shack Model 100 portable. This machine, much loved by people who travel extensively, is completely compatible with the Mac; you don't even need to buy a cable (you use the Imagewriter cable, and plug it into the phone port on the Mac).



BARGAIN

Most modems come without software, so you have to supply your own. MacAck and MacTEP are two popular communications programs that are in the public domain, and Red Ryder is a very impressive piece of shareware that, as of this writing, only costs \$35 (you need MS BASIC to run it). Apple's communications program is called MacTerminal; it's very easy to use and works with a wide range of other computers.



VERY GOOD
FEATURE

A program called BLAST allows the Mac to communicate with more than 80 different kinds of computers—everything from micros to mainframes—at very high speed and without any errors, even over noisy phone lines. BLAST will accommodate any kind of modem running at any speed up to 4800 baud. If a call is disconnected, BLAST will wait two seconds, call back, and start transmission again at the precise byte where the interruption occurred. BLAST includes free introductory subscriptions to *Newsnet* and *Easylink*.

DataTaker/MAC from Winterhalter allows the Mac to emulate common IBM terminals (the 3270 series) so it can communicate with IBM mainframes. This hardware/software combination supports all the 3270 function keys and allows you to extensively customize the form in which you receive and send your data.

Another specialized communications tool is Mac488, which allows the Mac to control instruments and other devices that use the industry-standard IEEE 488 bus protocols. This opens up a whole world of research and industrial applications to the Mac.

Finally, I should mention Lexis/Nexis Communications. This software provides access to two of the world's largest full-text public data bases. (Many data bases primarily give citations—that is, they tell you where to look to find the information you want. A **full-text data base** contains the entire article, rather than just a citation.) Lexis provides legal information and Nexis general information and news.

Another important use of communications is to link together computers in one office, over something called a **local area network** or LAN. (A local area network—also called a LAN—connects computers together with its own wires, rather than over phone lines.) Apple uses its low-cost LAN, called AppleTalk, as the basis for the Macintosh Office.

The Macintosh Office

For its entire history, Apple has been positioned in the personal computer market as the manufacturer of fun machines for individuals. And for its entire history in the personal computer market, IBM has been positioned as the manufacturer of serious machines for business. With the introduction of the Macintosh Office in January, 1985, Apple announced its intention to invade IBM's sacred precincts.

The Macintosh Office is simply a collection of hardware and software designed specifically for use in a business, as opposed to a home, environment. The LaserWriter, described in Chapter 2, is a perfect example. Few individuals can afford a machine that—at introduction—listed for \$7000. But when you have it servicing twenty computers in an office, the price comes down to \$350 each.

Another type of peripheral it makes more sense to share is a **file server**. This is a large hard disk drive that a number of different computers store their files on. As of this writing, Apple is developing a file server, as are other companies. Apple has encouraged such product development by other companies by making public all information on how AppleTalk works.



BARGAIN

AppleTalk is what makes this sharing of expensive peripherals possible. It has several exceptional benefits. One is its extreme low cost—just \$50 per connection (at introduction). Another is its extreme ease of use—you just plug one cable into the computer or peripheral you want to connect, another cable into the AppleTalk network, and you're done.

AppleTalk will accommodate up to 32 computers or peripherals, in any configuration, over a range of about 1000 feet. And they don't have to be Apple products, either—IBM PCs can also be connected, thus giving these machines access to peripherals like the LaserWriter, and making it possible for AppleTalk to link together an office that already has IBM PCs in it.

Making Music

As I mentioned in Chapter 1, the Mac has great sound-generation capabilities. Fortunately, it also has the software to go with them. The first program out was MusicWorks, and it's terrific.

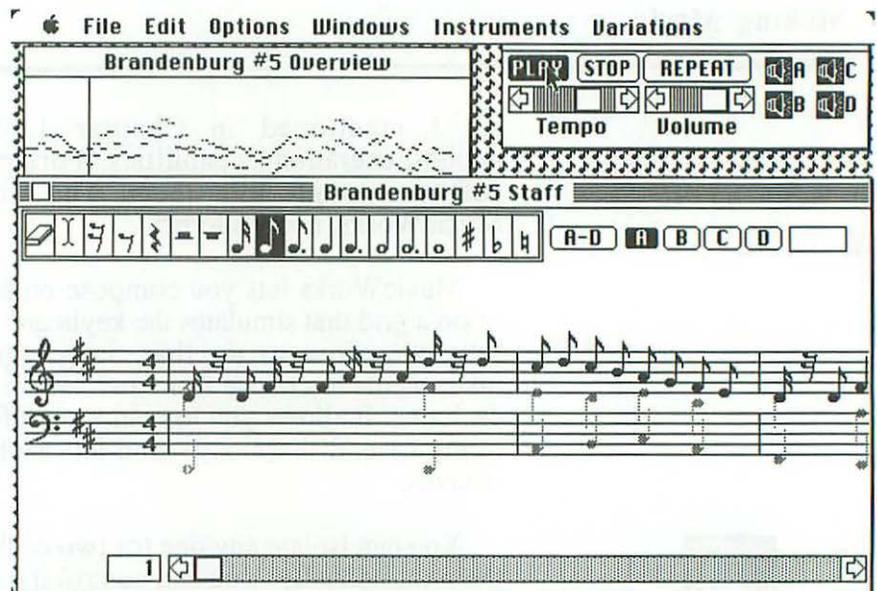
MusicWorks lets you compose on a standard musical staff or on a grid that simulates the keyboard (and the manual, which tells you how to do that, is great). It gives you eight instruments to choose from and twelve different ways to play each one. It allows you to compose in four-part harmony—or, in my case, disharmony—and lets each part range over eight octaves.



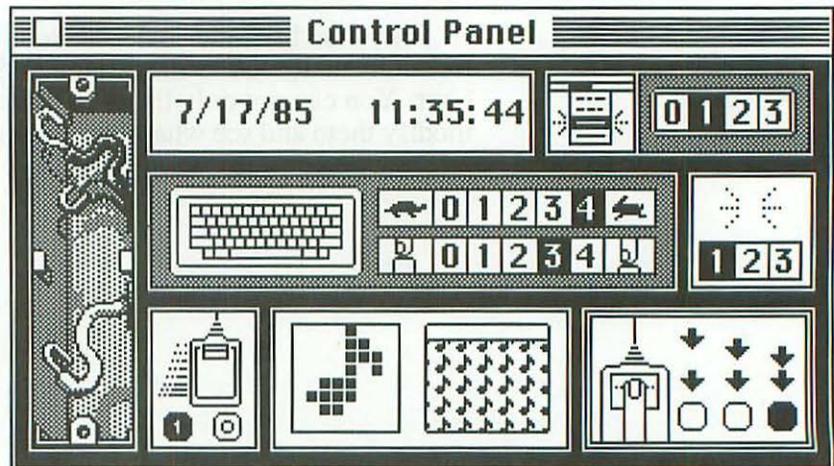
You can isolate any one (or two or three) parts and listen to them individually. You can control the volume and the tempo. You can hear what you're doing as you compose, and you can play the entire composition or any piece of it as often as you want.

When you have a composition you like, you can print it in standard musical notation—either part by part or all four parts together—so that somebody else can play it on a conventional musical instrument.

Forty-five brief musical selections are provided—everything from Greensleeves to Bach, jazz to Satie—a total of about an hour. You can not only listen to them and study them, but also modify them and see what differences it makes.

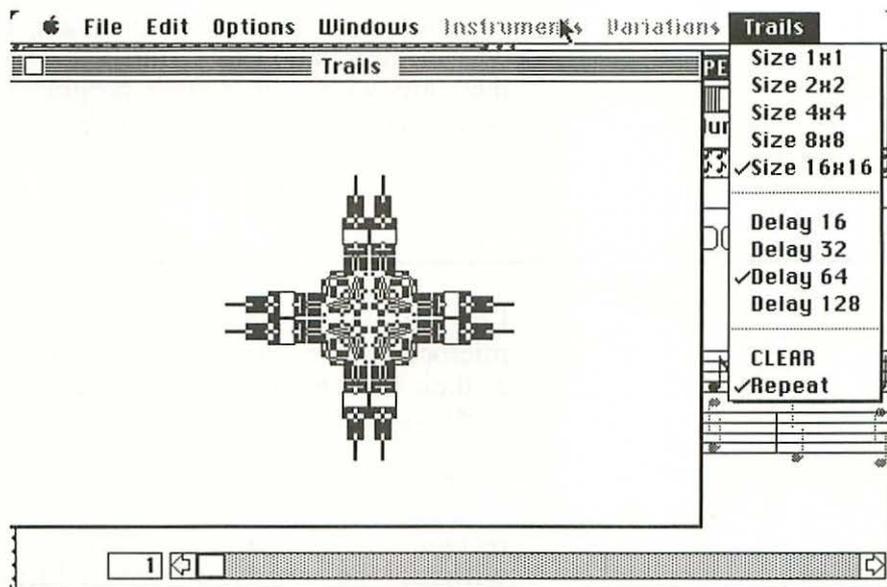


MusicWorks also makes excellent use of the Mac's visual interface. For example, the program has its own volume control that overrides the volume control on the Control Panel. So how do they let you know that the volume control on the Control Panel is incapacitated? Like this:





As if all this weren't enough, MusicWorks has the best desk accessory I've ever seen. Called Trails, it lets you create visual patterns that synchronize with the music—or seem to, at any rate. I spent hours, fascinated, learning how to vary the patterns, of which there are virtually an infinite number. Trails would make a terrific stand-alone program; with MusicWorks, it comes as lagniappe.



Sensational as MusicWorks is, it does have some drawbacks. It isn't really adequate for transcribing, or composing, complicated scores—even ones with the normal number of complications. Some of the things it has trouble with are meters (it doesn't even support 3/8 time), beams, default accidentals and triplets.

A music-making program some people like better than MusicWorks is called ConcertWare. It allows a greater variety of rhythms, gives you about two hours of recorded music, and allows each piece to be more than 32,000 notes long. ConcertWare's documentation is excellent.



One of the three parts of ConcertWare is called Instrument Maker and it gives you very sophisticated tools for designing your own sounds. Thirty-four pre-designed sounds come with the software—everything from standard instruments like violin and piano to bizarre ones like "bee" and "wild man." All in all, ConcertWare is a very impressive program, well worth looking into.

Another music-making program, Professional Composer, was in preparation as I finished writing this book. Finally, there are two public-domain programs that let you experiment with different sounds—Soundlab and Hendrix.

Speech Simulation

I'm not impressed with the speaking abilities of most microcomputers. I'm sure that in five years they'll be great, but at their present stage of development, they don't seem very useful (or amusing) to me.

In spite of that, Smoothtalker is an impressive program. You can type in any text you want and it will read it in a recognizable voice (although with a bizarre computer accent), without the need for any additional hardware. If it mispronounces a word, you can teach it the correct pronunciation, and it will remember it the next time it comes across the word. In the same way, it can be taught to pronounce abbreviations correctly (it already knows all the common ones like Mr., Ms., Mrs., Dr., etc., and common symbols like \$ and @).

Smoothtalker's developers, a company called First Byte, see the program's primary applications in the areas of educational and entertainment software, verbal electronic mail and self-running demonstrations and tutorials. But I see an even greater potential market in talking books, newspapers and magazines for the blind, which can now be produced without anyone having to sit down and read them into a microphone.

Miscellaneous Business Programs

The Mac Barcode program will generate barcode labels in any standard or customized format for use in inventory control and other applications in a wide variety of industries. Its companion hardware device, the Scanstar-Mac barcode reader, plugs into the keyboard socket on the front of the Mac. Scanstar automatically distinguishes six of the most commonly used barcodes, and external dip switches are provided so that can be taught to recognize less common formats as well.

MacCoach (from ATI) is a two-disk tutorial that teaches beginners about the Mac. Although ATI seems to have done a good job with this product (which is more than I can say for some tutorial disks I've seen), I can't imagine anyone needing it. Basic things on the Mac are so simple to learn you don't need to read about them, and for more advanced stuff, a good book is a lot more efficient—not to mention cheaper (of course I may be prejudiced).

This next item is neither hardware nor software, but I guess it belongs here more than anywhere else. If you send Aurora Productions a Mac disk or Imagewriter printout, they'll provide you with 35mm slides of the images you specify. Prices (at this writing) are inexpensive, ranging from \$2.50 for one slide of each image to \$7.50 for six slides of each image (or \$5 if you don't want them mounted).

Miscellany Disks

I had high hopes for a disk called 31 All-Time Favorite Programs for the Macintosh, because I loved the name so much (the disk was released when the Mac was less than six months old). Unfortunately, it turns out to be nothing more than a bunch of BASIC programs obviously written on other machines and hardly adapted at all to the Mac's unique user interface. Even the few that do use the mouse, menus, etc. do so in a fairly primitive manner.

Public-Domain and Miscellaneous Software



Menu Editor, written by Mac programming genius Andy Hertzfeld, lets you change the wording of menu commands, and also add ones of your own.

Another great program of Hertzfeld's is The Switcher; it lets you switch between applications in 1/10th of a second! Depending on which applications you use, you can switch among at least four on a FatMac. (The program works on a 128K Mac too, but you usually can't get more than one application into memory, so there's not too much point to it.)

Resource Editor is another useful piece of software. Designed primarily for programmers, it lets you change the way windows, dialog boxes and other messages appear on the screen. You can even use it as a font editor (it's a lot less buggy than the official Font Editor).

Another public-domain program—called Screenmaker—lets you change the screen with which the Mac greets you (it normally says "Welcome to the Macintosh" and displays the Mac logo).

There are *lots* of other terrific public-domain software available, some of which is mentioned at various locations throughout this book (see the "public domain" heading in the index). For more information on where to actually get public-domain software, see the sections on bulletin boards and user groups in the next chapter.

CHAPTER

20

Where to Get More Information on the Mac

Publications

Magazines are a great place to learn about computers, and one called *Macworld* is full of really useful information about the Mac. It's also well written (most of the time) and is one of the most beautiful magazines you'll ever lay eyes on. As if that weren't enough, you get the first couple of issues free when you register your Mac with Apple.

Unfortunately, it does have a few problems. One is the flabbiness it tends to display whenever Apple, or a company whose fate is intertwined with Apple's, needs to be criticized. (It does, however, open its letter columns to such criticisms.)

Another problem is the paper the magazine is printed on. Some chemical used on it, possibly a coating or a finish, has a very distinct, heavy, perfumed and—for me—quite nauseating smell. It's not so bad after the magazine has been aired out for a month or two, but to have to wait that long to read a magazine obviously defeats the whole purpose of subscribing to one.

One of the reasons *Macworld* looks so nice is that it uses a lot of "white space" (blank areas on the page). This means it can't contain as much technical, nuts-and-bolts information as a magazine like *St. Mac* (short for *Softtalk [for the] Mac*). Although *St. Mac* was one of the ugliest magazines ever published, it was crammed full of useful, detailed information (typically printed on a dark background, or superimposed on a photograph, in mouse type—which is appropriate, I suppose, but also made it virtually impossible to read).

There were many things I heard about first (or only) in *St. Mac*. So it was a sad day when, after only seven issues, it was driven out of publication by the bankruptcy of the company that owned it (despite the fact that the magazine itself was making money). *St. Mac* may rise again someday, but in the meantime, the gap it left has been filled quite nicely by *Club Mac News*.

Club Mac is a national user group based in Boulder, Colorado (I'll have more to say about user groups, both national and local, later on in the chapter) and *Club Mac News*, edited by Rick Barron, is its monthly magazine. *CMN* is full of interesting reviews and letters, and it isn't afraid to express strong opinions either. I see more trenchant, insightful criticism of products in *CMN* than anywhere else—not to mention a lot of interesting, behind-the-scenes gossip.

Apple has welcomed *Club Mac News* into the fold, and I only hope that the former's power to grant or withhold information won't dull the latter's edge.

CMN often looks at the Mac from a fresh and intriguing viewpoint. One example is an article by Paul Danish where he compares computers that take about a minute to start up and load their programs (which includes almost all present ones) with cars you had to crank to start. "The starter motor," he says, "made the automobile accessible to any normal adult, not merely enthusiasts, and set the stage for its universal use."

Danish argues that if computers are ever going to be as popular as cars, we need ones that are "ready to go to work within five seconds of throwing the switch, about the amount of time it takes to start a car." Why should that be so critical? Well, he asks, "how often...would you use a ball-point pen if it required a 60-second startup?"

And why should this development happen on the Mac, instead of on the IBM PC, say, of which there are many more in place? "Because the Macintosh is designed to allow people to work naturally, and working naturally includes the ability to start and stop tasks quickly."

Because *CMN's* ad rates are so much less than *Macworld's*, it carries ads for lots of products from small companies that you otherwise might not hear about. All in all, I like *Club Mac News*, even though their subscription rate, included with membership, is fairly steep, unless you take advantage of some of the club's other services, like the bulletin board.

Another useful newsletter that's free to Mac and Lisa owners is *Semaphore Signal*. Much less extensive than either *Macworld* or *Club Mac News*, it sometimes carries quite useful information not found in either of them.

You don't have to restrict yourself to magazines about the Mac, except for the fact that most general-purpose computer magazines tend to concentrate their energies on the dull, stodgy IBM PC, since there are so many PCs out there. *InfoWorld* often has interesting news about the Mac (and other things as well). The *Whole Earth Software Catalog* and *Whole Earth Review* both give a fair amount of attention to the Mac. They try to provide a systematic listing of recommended programs, and to keep their views as objective as possible, they don't accept advertising.

Another publication that doesn't accept advertising is *Consumer Reports*. They do a pretty intelligent job of covering personal computers—mostly the inexpensive, home computer end of the spectrum. They like the Mac, and what they say about it is pretty sensible. They've started surveying their readers about favorite software, hardware repair problems, and the like. They use this same technique to find out their readers' experience with car repairs, insurance claims and movies, and turn up some interesting information.

A+ magazine covers all Apple computers. I find that annoying, because I'm always reading about some product with interest, only to discover that it only runs on the Apple II. *A+* is also a little too techie for my taste. But *A+* is definitely full of interesting information.

Bulletin Boards

Electronic bulletin boards—or **BBS**, for "bulletin board system(s)"—are computers that post messages of general interest. People can call up with their computers, using a modem and regular telephone lines, and either read the messages that are there or post ones of their own. Usually bulletin boards also contain public-domain software that can be **downloaded** (transferred) to your own computer and used.

There are zillions of bulletin boards out there; what you're looking for, of course, is one with a lot of specific, useful information on—and programs for—the Mac. One great BBS is the Micronet Apple User Group (better known as the "MAUG") on CompuServe. Another is the Club Mac bulletin board. User groups often have BBS, or know of ones in your area.

User Groups

User groups—clubs made up of people who use, or are interested in, the same computer—are a great way to get really detailed and up-to-date information about the Mac. There are two kinds of user groups—local and national.

Local groups typically meet monthly (although some meet every week) and ask representatives of companies to give presentations describing their new products. But the best part of a user group meeting is usually the contact with other people who are using the same software and hardware. I've never gone to a user group meeting without coming away with at least one really valuable piece of information.

Some national user groups are outgrowths of local groups. They continue to hold meetings in the city they originated in, but they also offer a variety of services to the people who don't live there.

The Boston Computing Society is the oldest user group in the country; it has 12,000 members and a Macintosh section that meets every month. If you live outside the Boston area, you might be attracted by its monthly magazine or its bulletin board, which has low-cost access from almost every part of the country and an electronic mailbox for every member.

Unlike most user groups, Club Mac doesn't hold meetings. But they do publish *Club Mac News*, and provide both a telephone help line and a BBS with lots of public-domain software on it. It also distributes some public-domain programs on the disk it sends to new members.

Macworld published a list of local and national user groups in its January, 1985 issue, and will presumably do so again as the need arises. But the most up-to-date information on user groups is available from International Apple Core, 908 George Street, Santa Clara CA 95050, 408/ 727-7652. Your local Apple dealer should also be able to tell you if there's a user group near you.

Computer Stores

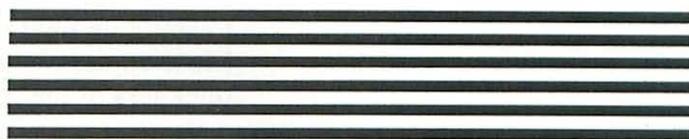
Computer stores can be a terrible place to learn more about the Mac, because the salespeople in them often know nothing whatever about it (or about any other computer). As I wrote in another book, "There may be a wild man somewhere in the forests of Tasmania, living on tree bark and grubs, who knows less about computers than the average computer store salesclerk, but I doubt it. Luckily, there's usually another clerk in the back who knows *everything* about computers; the trick is simply to find him (or—quite frequently—her)."

Recently, some of the more progressive computer stores have been moving the knowledgeable salespeople out into the front of the store—just on the off chance that a customer may want to know something. So I'd say the odds of your actually learning something in a computer store are better than they've ever been. If you get hype instead of facts in one store, just try another.

APPENDIX



A



Reference Cards

This appendix contains seven reference cards:

Card #1—Where to Find Things— lists some of the unusual places the Mac keeps information and controls. After you've used the Mac for a couple of weeks, you probably won't need this card anymore, but it can make your first few sessions a whole lot easier.

Cards #2 and #3 summarize the Mac's most important commands and shortcuts. Card #4—Important Warnings and Hot Tips— can keep you out of trouble, save you a lot of time and help you avoid lost work.

Card #5 shows all the standard special characters and the keys that produce them, organized into logical categories. Card #6 does the same for the hidden (`[Option]` tilde) characters, and Card #7 for the Cairo font.

We thought about printing these reference cards on cardboard, and perforating them so you could tear them out. But that would have raised the price of the book, and if a card you'd torn out got lost or damaged, it would be gone forever. So we printed the cards on regular, unperforated pages instead.

To make reference cards to stick up on the wall near your Mac, just photocopy the pages you want. If you want the cards to stand up next to your computer, simply use heavier paper. Most copiers will copy onto card stock, which is about the thickness of the cover of a paperback book.

You can make as many copies of these seven reference cards as you want for your own personal use, and you can give as many copies as you want away to friends (or to strangers, for that matter); we figure it's good advertising for the book.

But you can't:

- sell—or trade—copies of the reference cards (or any part of them)
- reproduce the reference cards (or any part of them) in a publication (or other product) that's sold for money
- reproduce any card (or any part of it) without including the following words, which are printed at the bottom of each card:

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This arrangement seems pretty fair to me. If someone simply wants to use free copies of the reference cards and never buy the book, that's fine. But I worked *very* hard to make MacBook as useful and comprehensive as possible, and Hayden spent a lot of money publishing it, so if anyone's going to make any money on it, let it be us (now and forever, let it be us).

Reference Card #1

Where to Find ThingsTo find:

**the precise size of
a document (exactly how
many bytes)**

**how many K a document
takes up on the disk**

**how much memory
you have left**

**the version of the
software you're using**

**what documents are
on a disk (without exiting
to the desktop)**

**the button for
switching drives**

Do this:

Select the icon, then Get Info (under the File menu) or  I. You have to be on the desktop to do this; you can't get that info while actually working on the document.

The procedure above will tell you that, but often it's faster to go to the View menu and ask to view the window any way but 'by Icon'. The four other choices show you the size of the documents in K.

You can do this while actually working on a document. Choose the top command in the  menu, ('About...').

The last procedure also tells you that.

Close the document you're working on. This puts you in a "nothing screen." Now choose 'Open...' on the File menu. This gives you the List Box, which shows you all the documents created by the application you're using. (To see all documents of every kind, you have to exit to the desktop.)

There's one in the List Box (the paragraph above describes how to get there), and also in the Save As... dialog box (choose 'Save As...' on the File menu). There's also a button for ejecting the disk in both places.

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Reference Card #2

Basic Commands and Shortcuts

(For details, see Chapters 6-8, 14.)

Commands that work only on the desktop are followed by (d); those that work only in applications like MacWrite and MacPaint by (a); those that work everywhere—on the desktop and in applications—by (e); and those that work only in MacWrite by (mw). See reference card #3—MacPaint Commands and Shortcuts—for commands that work only in MacPaint.

<u>Command</u>	<u>Menu it's on</u>	<u>Shortcut Command</u>
Bold type style, to and from (a)	Style	 B
Copy (e)	Edit	 C
Cut (e)	Edit	 X
Duplicate icon (d)	File	 D
Eject disk (d)	File	 E
Erase* (e)	—	Select, then <input type="text" value="Backspace"/>
* you can't recover what you erase this way, as you can with  X (Cut)		
Get info about icon (d)	File	 I
Italic type style, to & from (e)	Style	 I
Outline type style, to & from (a)	Style	 O
Paste (e)	Edit	 V
Plain type style (cxls all others) (a)	Style	 P
Print active window (e)	—	 <input type="text" value="Shift"/> 4

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Basic Commands and Shortcuts

(Continued)

Print screen (e)	—	Caps Lock ⌘ Shift 4
Save screen (to MacPaint doc.) (e)	—	⌘ Shift 3
Select all icons (d)	Edit	⌘ A
Shadow type style, to & from (a)	Style	⌘ S
Superscript, to & from (mw)	Style	⌘ H
Subscript, to & from (mw)	Style	⌘ L
Undo (e)	Edit	⌘ Z
Underline type style, to & from (a)	Style	⌘ U

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Reference Card #3

MacPaint Commands and Shortcuts

(For details, see Chapter 15. For basic commands that work inside MacPaint as well, see those marked (a) on Reference Card # 2.)

<u>Command</u>	<u>Menu (or box)</u>	<u>Shortcut command</u>
Align text left, middle, right	Style	⌘ L, ⌘ M, ⌘ R
Change brush shape	Goodies	Double-Click f box
Change to font below (above)	Font	⌘ Shift > (⌘ Shift <)
Change speed copies produced	—	Line width box
Clear whole window	Edit	Double-Click  box
Constrain to 90° (or 45°)	—	Shift while drawing shape
Copy object	Edit	Option & drag (or ⌘ C)
Edit pattern	Goodies	Double-Click pattern box
FatBits, to & from	Goodies	⌘ / & Click, or Double-Click  box
Freeze previous text	—	Enter
Go to Show Page	Goodies	Double-Click  box
Increase (decrease) font size	FontSize	⌘ > (⌘ <)
Make "slur"	—	Option ⌘ & drag
Move around in FatBits	Click  box	Option 

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MacPaint Commands and Shortcuts

(Continued)

Outline in current pattern	——	Option while drawing shape
Resize object but keep shape	——	⌘ , then ⌘ Shift & drag edge
Select entire window	——	Double-Click ⌘ box
Stretch object	——	⌘ , then ⌘ & drag edge
Trace edges	Edit	⌘ E
Translucent colors	——	⌘
Undo	Edit	Hit tilde key (or ⌘ Z)

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Reference Card #4

Important Warnings and Hot Tips

(The index tells you where in the book these things are covered in detail.)

ProblemSolution

A command doesn't work the way you meant it to.

Make sure you always select something before you try to do anything. Make sure you've selected what you think you have.

You can't figure out what to do next.

When in doubt, explore the menu bar.

You keep losing work.

Save every 15 - 30 minutes to alternate disks. Keep copies of every document on three separate disks.

You need more room on the screen.

Use folders. Naimanize.

You need more room on your disks.

Remove unnecessary fonts, desk accessories and System Folder icons. Remove the Finder.

When you start up the Mac, things aren't where you left them at the end of your last work session.

Always eject all disks before turning off the Mac (or before restarting it with the programmer's switch).

You accidentally rename an icon

Immediately backspace over the new (wrong) name, type 'Empty Folder' and hit RETURN. The Mac will give the icon its old name back.

A disk gets zapped.

The techniques for rescuing zapped disks are too complicated to describe here. See that section in Chapter 8.

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Important Warnings and Hot Tips

(Continued)

You have trouble when switching from Guided Tour to regular disks.

Some Guided Tour disks were manufactured with a different Finder. Just turn your Mac off (or restart with the programmer's switch) when switching.

External disk drive can be destroyed by static electricity.

Always put the plug (at the end of the drive's cable) into an anti-static bag whenever the drive is disconnected from the computer.

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Reference Card #5

The Standard Special Characters

(For details, see Chapter 11.)

Option + the key to the right of ← produces the character to the left of ←.**Foreign Accent Marks**

'← e `← ` `← i ˘← u ~← n

Foreign Letters, Letter Combinations and Abbreviations

å←a Å←A æ←' Æ←" º←9 ç←c Ç←C ø←o Ø←O œ←q
 Œ←Q °←0 ß←s

Foreign Punctuation Marks

¿←? ¡←1 «←\ »←|

Monetary Symbols

£←3 ¥←y ¢←4

Legal Symbols

§←6 ¶←7 ™←2 ®←r ©←g

Everyday Mathematical and Scientific Symbols

-←- ÷←/ Ø←O √←v °←* π←p ∞←5

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The Standard Special Characters

(Continued)

Less-Well-Known Mathematical and Scientific Symbols

\neq \approx \times \leq $<$ \geq $>$ \ll \backslash \gg $|$ \pm $+$ \AA \AA ∂ d Δ j
 μ m Ω z Π P Σ w f f \int b

Typographic, Graphic and Miscellaneous Symbols

$"$ $=$ $[$ $]$ $"$ $\{$ $\}$ $'$ $\{$ $\}$ $—$ $_$ \dots $;$ \bullet \otimes \sqrt v \diamond V \dagger t \neg l

\leftarrow **h, k, etc.** Option space \leftarrow spacebar

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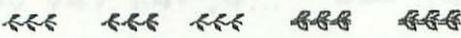
Reference Card #6

The Hidden (Option tilde) Characters

(For details, see Chapter 12.)

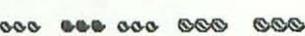
Apples 14-point Toronto— Bear tracks 18-point Athens (scales to other sizes)— Birds on a wire 14-point Geneva — 

Border (branch and two leaves) {each character is repeated three times to show the pattern}

12-point Toronto— 24-point Toronto— 

(scales to 48- & 72-point)

Border (single leaf) {each character is repeated three times to show the pattern}

14-point Venice (scales to all other sizes)— Candles 12-point Monaco (scales to 10-, 14- and 24-point) Cars 18-point San Francisco (scales to other sizes)— 

Cubes (connected) {each character is repeated three times to show the pattern}

18-point Toronto (scales to 36-point)— 

Diamonds (connected) {each character is repeated three times to show the pattern}

9-point Toronto— Flowers 18-point London (scales to all other sizes) 

Hearts 18-point New York (scales to 9 and 36 point) —

Macintoshes 10-point Geneva 

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The Hidden (Option tilde) Characters

(Continued)

Musical notes 14-point New York— 

Rabbits running 12-point Geneva— 

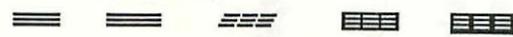
24-point Geneva (scales to 48 and 72 pt)— 

Robots 12-point New York— 

24-point New York (scales to 48- and 72-point)— 

Sheep 18-point Geneva (scales to 9- and 36-point)— 

Triple line {each character is repeated three times to show the pattern}

9-point Monaco (scales to 18-point)— 

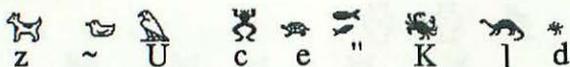
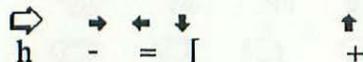
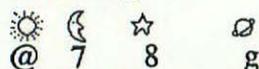
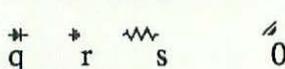
From **MacBook: the Indispensable Guide to Macintosh™ Software and Hardware**
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for your own use or to give—not sell—to your friends.

Reference Card #7


(Cairo)
 (For details, see Chapter 12.)

In the Cairo font, the key(s) that normally produce(s) the character to the left produce(s) the picture to the right instead.

Animals**Arrows****Art tools****Buildings****Celestial objects****Electrical symbols****Everyday objects—bigger than a breadbox****Everyday objects—smaller than a breadbox****Food and drink**

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APPENDIX



Font Catalog

There are already hundreds of fonts for the Macintosh. In this catalog, I list 180 font/size combinations—published by Apple and seven other companies—just to give you an idea of what's available. I only cover Imagewriter fonts (80 dpi), not 300-dpi LaserWriter fonts.

I list each font in all the size or sizes that come on the disk. (As I've said earlier, fonts tend to look terrible when they're scaled up or down. The one exception to this is scaling a font to exactly half its size, for the purpose of high-resolution printing on the Imagewriter.)

The fonts are organized into the following categories:

Text fonts (up to 14 point)

- general-purpose

 - serif

 - sans serif

- decorative

 - serif

 - sans serif

Display fonts (15 point and larger)

general-purpose

serif

sans serif

decorative

serif

sans serif

Non-Roman alphabets

Symbol fonts

Pictorial fonts

Within each final category, they're listed in alphabetical order.

After the name of the font and its size is a code which indicates the publisher. Here's what they stand for:

AC = Apple Computer

CA = ClickArt Letters disk

GP = Gary Palmer (University of Nevada in Las Vegas)

KM = Kensington Microware

LS = Linguists' Software

MK = Mac the Knife Volume II (Miles Computing)

MS = Microsoft Corporation

SE = Sea-Ess

The addresses and phone numbers of these publishers are listed in Appendix C.

If a font is implemented as clip art, rather than a true font (that is, if you have to lasso the letters in MacPaint, rather than simply generate them by hitting keys), I indicate that after the publisher's code.

TEXT FONTS**General Purpose***Sans Serif*

Babylon 18 point (actually 8 point). **(MK) 9 point also** (actually 4 point).

ABCDEFGHIJKLMNOPQRSTUVWXYZ.,/;[]\`- =

ABCDEFGHIJKLMNOPQRSTUVWXYZ

1234567890!@#%&*()<>?:;[]|_+■

Chicago 12 point. (AC)

abcdefghijklmnopqrstuvwxyz.,/;[]\`- =

ABCDEFGHIJKLMNPOQRSTUVWXYZ

1234567890~!@#\$%^&*()<>?:;"{}|_+åîçð'f@^Δ-μ~øπ

œ@β"√Σ≠¥Ω`i™£¢∞§¶•@-≠“«...æ∑÷ÀÇØΠ∆◊°-±”»ÆË

Epsilon 12 point. (KM)

abcdefghijklmnopqrstuvwxyz.,/;[]\`□- =

ABCDEFGHIJKLMNPOQRSTUVWXYZ

1234567890ñ!@#\$%□&*()◊?:`□|_+

Eta Medium 12 point. (KM)

abcdefghijklmnopqrstuvwxyz.,/;[]- =

ABCDEFGHIJKLMNPOQRSTUVWXYZ

1234567890□!@#\$%□&*()◊?:;"+

Geneva 12 point. (AC) 9,10,&14 point also.

abcdefghijklmnopqrstuvwxyz.,/;[]\`- =

ABCDEFGHIJKLMNPOQRSTUVWXYZ

1234567890~!@#\$%&*()<>?:;"{}|_+åîçð'f@□^Δ□-μ~øπœ@β"√

Σ≠¥Ω`i™£¢∞§¶•@-≠-z“«...æ∑÷ÀÇØΠ∆◊°-±”»ÆË

Sigma 12 point. (KM)

abcdefghijklmnopqrstuvwxyz,./;'[]\□-=
 ABCDEFGHIJKLMNOPQRSTUVWXYZ
 1234567890ñ!@#\$%□&*()<>?:"{}|_+

Decorative
Sans Serif

Copenhagen 12 point. (MK) 9 point also.

abcdefghijklmnopqrstuvwxyz,./;'[]\`-=
 ABCDEFGHIJKLMNOPQRSTUVWXYZ
 1234567890~!@#\$%^&*()<>?:"{}|_+â|çð'f@^Δ-μ~øπæ®β'√
 Σ=¥Ω`i™£¢∞§¶•@-≠"«...æ≤≥÷â|çⓈⓉⓊⓋⓌⓍⓎⓏ°_±"»|☒ffç

Cupertino 12 point. (MK)

abcdefghijklmnopqrstuvwxyz,./;'[]\`-=
 ABCDEFGHIJKLMNOPQRSTUVWXYZ
 1234567890~!@#\$%^&*()<>?:"{}|_+â|çð'f@^Δ-μ~π
 æ®β'√Σ=¥Ω`i™£¢∞§¶•@-≠"«...æ≤≥÷â|çⓈⓉⓊⓋⓌⓍⓎⓏ°
 ¼½⅓⅔¼⅕⅙⅗⅛⅜⅝⅞⅟±"»|☒œé

Hollywood 12 point. (MK)

abcdefghijklmnopqrstuvwxyz,./;'[]\`-=
 ABCDEFGHIJKLMNOPQRSTUVWXYZ
 1234567890~!@#\$%^&*()<>?:"{}|_+â|çð'f@^Δ
 ☒-μ~øπæ®β'√Σ=¥Ω`i™£¢∞§¶•@-≠"«...æ≤≥÷â|ç¥
 ⓈⓉⓊⓋⓌⓍⓎⓏ°_±"»|☒AEç

DISPLAY FONTS**General Purpose***Serif*

Athens 18 point. (AC)

abcdefghijklmnop12345@#\$%&.:*`áÀØœ@¥ç

Basel 48 point. (CA)

abcABC123@\$\$&?

Beta Italic 18 point. (KM) 24, 36, & 48 point also.

abcdeABCDE12345@#\$%&?+

Boston 48 point. (CA) 72 point also.

abcABC123@\$\$&?

Calgary 36 point. (CA)

abcdeABCD123@\$\$&?

Cambridge 36 point. (CA) 72 point also.

abcdeABCDE1234@\$\$&?

Greenbay 18 point. (MK)

abodefgABCCDEF0123456@#\$%&+@œÀœ

Kappa Bold 18 point. (KM) 24, & 48 point also.

abcdefghijklmnop12345@#\$%&?={}:;*/

Manhattan 24 point. (MK)

abcdefghijklmnop ABCDEFG 12345@#\$\$%&?:/+



New York 18 point. (AC) 24, & 36 point also.

abcdefghijklmnop ABCDEFG 12345@ # \$ % & ? ♥ @ ¶ å Å Æ

Plymouth 36 point. (CA)

abcABC123@ \$ & ? *

Rho Semi Bold 18 point. (KM) 24, 36, & 48 point also.

abcdefghijklmnop ABCDEF 12345 @ \$ & ? ñ !

Rome 18 point. (MK)

abcdefghijklmnop ABCDEF 12345@#\$\$%&?()□¶

Toronto 18 point. (AC) 24 point also.

abcdefghijklmnop ABCDEFG 12345@ \$ % & ? ¢ Æ ¶ ◊

DISPLAY FONTS

General Purpose

Sans Serif

Epsilon 18 point. (KM) 24, 36, & 48 point also.

abcdefghijklmnop ABCDEFG 12345@ \$ % & ? ñ

Eta Medium 18 point. (KM) 24, 36, 48, & 72 point also.

abcdefghijklmnop ghijk ABCDEFG 12345 \$ % & ? * /

Geneva 18 point. (AC) 24 point also.

abcdefghijklmnop ABCDEFG 12345@ \$ % & ? ¶ Ø π Å ¥ Ω £ \$ ◊

New Haven 24 point. (CA) 36, & 72 point also.

abcdefgABCDEFGH12345@%&?"/

Montreal 18 point. (MK) 24 point also.

abcdefgABCDEFGH12345@%&?RGAH@

Omicron Bold 18 point. (KM) 24, & 48 point also.

abcdefgABCDEFGH1234567@%&?~/

Oxford 24 point. (CA) 36 point also.

abcdeABCDE12345@%&?*/

Quebec 48 point. (CA)

abcdefgABCDEFGH12345@%&?/

Seattle 20 point. (MS)

abcdefghijklmABCDEFGHIJ12345@%&

Sigma 24 point. (KM) 36 point also.

abcdeABCDE12345@%&?*

Sigma Bold 18 point. (KM) 24, & 36 point also.

abcdefgABCDEFGH12345@%&?

Stanford 72 point. (CA) (clip art)

A B C D E 1 2 3 \$?

Sydney 48 point. (CA)

abcABC1234@%&?

Upsilon 24 point. (KM) 36, & 48 point also.

abcdefghijklmnopABCDEF12345@%&?#*/

Vegas 48 point. (CR)

abcdeABCDE1234@%&?

DISPLAY FONTS

Decorative

Serif

Boise 18 point. (MK)

ABCDEFGH ABCDEF12345@%&?9 ☉

Cactus Deco 18 point. (SE) 36 point also.

abcdefghijklmnopABCDEFGHIJKLMNOPI234567@#%&*?/~^!|()☉

Cactus Deluxe 48 point. (SE)

ABCDEFGH1234567\$&?

Camelot 18 point. (MK)

abcdefghijklmnopABCDEF12345@%&?!♣♠

Carmel 24 point. (MK)

abcdefghijklmnopABCDEF12345@%&?! 🌳

Dallas 18 point. (MK) 24 point also.

abcdefghijklmnopABCDEFGHIJ12345@%&?Àç ☹️ [★] ♪ Π ¥

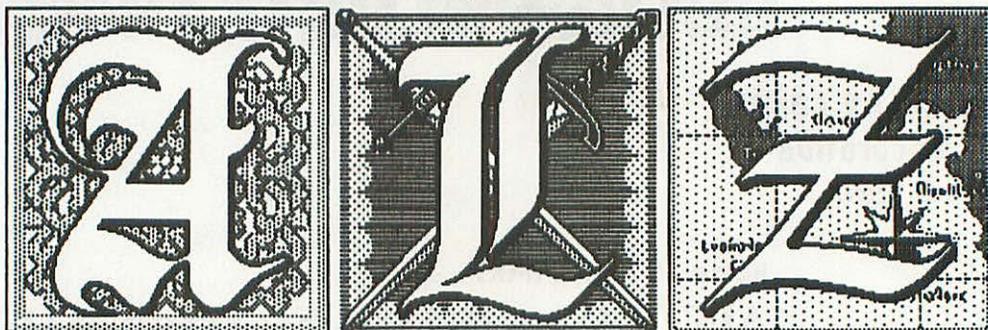
Fargo 48 point. (CR)

abcdefghijklmnopABCDEF123456@%&?/

Froence 24 point. (MK)

abcdefghijklmnop ABCDE 1234 @ & ?

Gothic Illuminated Letters 144 point. (SE) (clip art)



Lambda 18 point. (KM) 24, 36, & 48 point also.

*abcdefghijklmnop ABCDEFG I 234 \$ & ? * ! /*

London 18 point. (RC)

abcdefghijklmnop ABCDEFGHIJKL 12345 @ \$ & ? /

Liverpool 18 point. (MK)

abcdefghijklmnop ABCDEFGHIJKL 12345 @ \$ & ? \$ 9 Å / E V I

Omega 24 point. (KM) 48 point also.

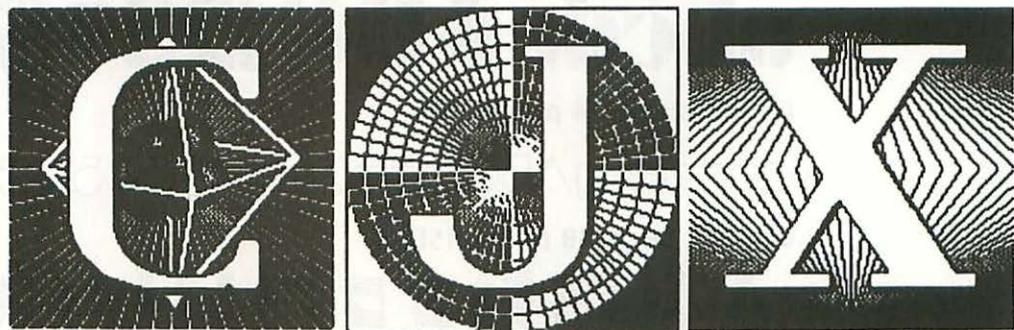
abcdefghijklmnop ABCD I 234 @ \$ & ?

Phi Display 18 point. (KM) 24, 36, & 48 point also.

abcdefghijklmnop ABCDEFGHIJKLMNOP 12345 \$ & ? ! /

Rio 72 point. (CA) (clip art)

äbc Ä ß Ü 123 \$?

Roman Illuminated Letters 144 point. (SE) (clip art)

Saigon 18 point. (MK) 24 point also.

abcdefghijklmnop ABCDEFGHIJKL12345\$&? /EÀØ

San Francisco 18 point. (AC)

abcdefghijklmnop|AB[DEFGHIJKL12]45@#%&?!@

Tampico 60 point. (CA) (clip art)

äbcdÄBCD123\$?

DISPLAY FONTS

Decorative

Sans Serif

Berkeley 72 point. (CA) (clip art)

ABCDEFGHI123\$?

Copenhagen 18 point. (MK) 24 point also.

abcdefghijklmnop12345@\$&?ÅØß® 

Cupertino 24 point. (MK)

abcdefghijklmnop12@&?¼πΩ 

Dallas 48 point. (CA)

abcdeABCDE123@!\$?!

Danish Deco 24 point. (SE)

abcdefghijklmnopqrstuvwxyzABCDEFGHIJKL12345@!\$&?/

Granite Deco 48 point. (SE)

ABCDEFGHIJKLMN

Hollywood 18 point. (MK) 24 point also.

abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMN12345@!\$&? *HOLLYWOOD*

Houston 36 point. (CA)

abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMN12345@!\$&?

Ingot Deco 48 point. (SE)

abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMN12345@!\$&?!

Las Vegas 24 point. (MK)

abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMN12345@!\$&? ÅTT¥  

Los Angeles 24 point. (AC)

abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMN12345@!\$&?*%!

Marquee Deco 48 point. (SE)

abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMN12345@!\$&?

Mos Eisley 24 point. (MK)

abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMN12345@!\$&   

Nu Black 18 point. (KM) 24, 36, & 48 point also.

abcdeABCDE 12345@\$%&?ñ/

Paris 18 point. (MK) 24 point also.

abcdeABCDE 12345@\$&?@AEN40 A 0000

San Diego 24 point. (MK)

abcdeABCDE 123-45\$&?ÅÆçî

Stuttgart 18 point. (MK) 24 point also.

abcdeABCDE 12345@\$&?βΣΩφ

Sunnyvale 24 point. (MK)

abcdeABCDE 1234@\$&?Å

Sydney 24 point. (MK)

abcdeABCDE 1234\$&?

Tabloid Deco 48 point. (SE)

abcdeABCDEFG 12345\$&?!

Tech Deluxe 36 point. (SE)

A B C D E F G H

Theta 24 point. (KM) 48 point also.

ABCDEFGHIJKLMN O P 123456\$&?

Zeta Bold 18 point. (KM) 24, 36, & 48 point also.

ABCDEFGHIJKLMN O P 123456\$&?

NON-ROMAN ALPHABETS

Coeur d'Alene 12 point. (GP) American Indian language.

abcdefghijklmnopqrstuvwxyzæɔ̃əčǫʔɪJKÍrńhǫpǫrǫʔšɛʌVwǫǰž 12
 34567890˘-=[\,;./η!w*#Ǿʒ*(&*)_+{}|:"<?ǫǰčθ'fɯ*Δ+μηθπαεRβ'
 "√ω≈#Ω'ι™£¢∞§¶●◐◑-≠'''«...æɔ̃ɔ̃÷Ǿčθπαε◊◊°-±'''»Æ¿

Linear B 24 point. (GP) Early Greek alphabet.

𐀀𐀁𐀂𐀃𐀄𐀅𐀆𐀇𐀈𐀉𐀊𐀋𐀌𐀍𐀎𐀏𐀐𐀑𐀒𐀓𐀔𐀕𐀖𐀗
 𐀘𐀙𐀚𐀛𐀜𐀝𐀞𐀟𐀠𐀡𐀢𐀣𐀤𐀥𐀦𐀧𐀨𐀩𐀪𐀫𐀬𐀭𐀮𐀯𐀰𐀱𐀲𐀳𐀴𐀵
 𐀶𐀷𐀸𐀹𐀺𐀻𐀼𐀽𐀾𐀿𐁀𐁁𐁂𐁃𐁄𐁅𐁆𐁇𐁈𐁉𐁊𐁋𐁌𐁍𐁎𐁏𐁐𐁑
 𐁒𐁓𐁔𐁕𐁖𐁗𐁘𐁙𐁚𐁛𐁜𐁝𐁞𐁟𐁠𐁡𐁢𐁣𐁤𐁥𐁦𐁧𐁨𐁩𐁪𐁫𐁬𐁭𐁮𐁯𐁰𐁱
 𐁲𐁳𐁴𐁵𐁶𐁷𐁸𐁹𐁺𐁻𐁼𐁽𐁾𐁿𐂀𐂁𐂂𐂃𐂄𐂅𐂆𐂇𐂈𐂉𐂊𐂋𐂌𐂍𐂎𐂏𐂐
 𐂑𐂒𐂓𐂔𐂕𐂖𐂗𐂘𐂙𐂚𐂛𐂜𐂝𐂞𐂟𐂠𐂡𐂢𐂣𐂤𐂥𐂦𐂧𐂨𐂩𐂪𐂫𐂬𐂭𐂮𐂯𐂰
 𐂱𐂲𐂳𐂴𐂵𐂶𐂷𐂸𐂹𐂺𐂻𐂼𐂽𐂾𐂿𐃀𐃁𐃂𐃃𐃄𐃅𐃆𐃇𐃈𐃉𐃊𐃋𐃌𐃍𐃎𐃏𐃐
 𐃑𐃒𐃓𐃔𐃕𐃖𐃗𐃘𐃙𐃚𐃛𐃜𐃝𐃞𐃟𐃠𐃡𐃢𐃣𐃤𐃥𐃦𐃧𐃨𐃩𐃪𐃫𐃬𐃭𐃮𐃯𐃰
 𐃱𐃲𐃳𐃴𐃵𐃶𐃷𐃸𐃹𐃺𐃻𐃼𐃽𐃾𐃿𐄀𐄁𐄂𐄃𐄄𐄅𐄆𐄇𐄈𐄉𐄊𐄋𐄌𐄍𐄎𐄏𐄐
 𐄑𐄒𐄓𐄔𐄕𐄖𐄗𐄘𐄙𐄚𐄛𐄜𐄝𐄞𐄟𐄠𐄡𐄢𐄣𐄤𐄥𐄦𐄧𐄨𐄩𐄪𐄫𐄬𐄭𐄮𐄯𐄰
 𐄱𐄲𐄳𐄴𐄵𐄶𐄷𐄸𐄹𐄺𐄻𐄼𐄽𐄾𐄿𐅀𐅁𐅂𐅃𐅄𐅅𐅆𐅇𐅈𐅉𐅊𐅋𐅌𐅍𐅎𐅏𐅐
 𐅑𐅒𐅓𐅔𐅕𐅖𐅗𐅘𐅙𐅚𐅛𐅜𐅝𐅞𐅟𐅠𐅡𐅢𐅣𐅤𐅥𐅦𐅧𐅨𐅩𐅪𐅫𐅬𐅭𐅮𐅯𐅰
 𐅱𐅲𐅳𐅴𐅵𐅶𐅷𐅸𐅹𐅺𐅻𐅼𐅽𐅾𐅿𐆀𐆁𐆂𐆃𐆄𐆅𐆆𐆇𐆈𐆉𐆊𐆋𐆌𐆍𐆎𐆏𐆐
 𐆑𐆒𐆓𐆔𐆕𐆖𐆗𐆘𐆙𐆚𐆛𐆜𐆝𐆞𐆟𐆠𐆡𐆢𐆣𐆤𐆥𐆦𐆧𐆨𐆩𐆪𐆫𐆬𐆭𐆮𐆯𐆰
 𐆱𐆲𐆳𐆴𐆵𐆶𐆷𐆸𐆹𐆺𐆻𐆼𐆽𐆾𐆿𐇀𐇁𐇂𐇃𐇄𐇅𐇆𐇇𐇈𐇉𐇊𐇋𐇌𐇍𐇎𐇏𐇐
 𐇑𐇒𐇓𐇔𐇕𐇖𐇗𐇘𐇙𐇚𐇛𐇜𐇝𐇞𐇟𐇠𐇡𐇢𐇣𐇤𐇥𐇦𐇧𐇨𐇩𐇪𐇫𐇬𐇭𐇮𐇯𐇰
 𐇱𐇲𐇳𐇴𐇵𐇶𐇷𐇸𐇹𐇺𐇻𐇼𐇽𐇾𐇿𐈀𐈁𐈂𐈃𐈄𐈅𐈆𐈇𐈈𐈉𐈊𐈋𐈌𐈍𐈎𐈏𐈐
 𐈑𐈒𐈓𐈔𐈕𐈖𐈗𐈘𐈙𐈚𐈛𐈜𐈝𐈞𐈟𐈠𐈡𐈢𐈣𐈤𐈥𐈦𐈧𐈨𐈩𐈪𐈫𐈬𐈭𐈮𐈯𐈰
 𐈱𐈲𐈳𐈴𐈵𐈶𐈷𐈸𐈹𐈺𐈻𐈼𐈽𐈾𐈿𐉀𐉁𐉂𐉃𐉄𐉅𐉆𐉇𐉈𐉉𐉊𐉋𐉌𐉍𐉎𐉏𐉐
 𐉑𐉒𐉓𐉔𐉕𐉖𐉗𐉘𐉙𐉚𐉛𐉜𐉝𐉞𐉟𐉠𐉡𐉢𐉣𐉤𐉥𐉦𐉧𐉨𐉩𐉪𐉫𐉬𐉭𐉮𐉯𐉰
 𐉱𐉲𐉳𐉴𐉵𐉶𐉷𐉸𐉹𐉺𐉻𐉼𐉽𐉾𐉿𐊀𐊁𐊂𐊃𐊄𐊅𐊆𐊇𐊈𐊉𐊊𐊋𐊌𐊍𐊎𐊏𐊐
 𐊑𐊒𐊓𐊔𐊕𐊖𐊗𐊘𐊙𐊚𐊛𐊜𐊝𐊞𐊟𐊠𐊡𐊢𐊣𐊤𐊥𐊦𐊧𐊨𐊩𐊪𐊫𐊬𐊭𐊮𐊯𐊰
 𐊱𐊲𐊳𐊴𐊵𐊶𐊷𐊸𐊹𐊺𐊻𐊼𐊽𐊾𐊿𐋀𐋁𐋂𐋃𐋄𐋅𐋆𐋇𐋈𐋉𐋊𐋋𐋌𐋍𐋎𐋏𐋐
 𐋑𐋒𐋓𐋔𐋕𐋖𐋗𐋘𐋙𐋚𐋛𐋜𐋝𐋞𐋟𐋠𐋡𐋢𐋣𐋤𐋥𐋦𐋧𐋨𐋩𐋪𐋫𐋬𐋭𐋮𐋯𐋰
 𐋱𐋲𐋳𐋴𐋵𐋶𐋷𐋸𐋹𐋺𐋻𐋼𐋽𐋾𐋿𐌀𐌁𐌂𐌃𐌄𐌅𐌆𐌇𐌈𐌉𐌊𐌋𐌌𐌍𐌎𐌏𐌐
 𐌑𐌒𐌓𐌔𐌕𐌖𐌗𐌘𐌙𐌚𐌛𐌜𐌝𐌞𐌟𐌠𐌡𐌢𐌣𐌤𐌥𐌦𐌧𐌨𐌩𐌪𐌫𐌬𐌭𐌮𐌯𐌰
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 𐪞𐪟𐪠𐪡𐪢𐪣𐪤𐪥𐪦𐪧𐪨𐪩𐪪
 𐪪𐪫𐪬𐪭𐪮𐪯𐪰𐪱𐪲𐪳𐪴𐪵𐪶
 𐪶𐪷𐪸𐪹𐪺𐪻𐪼𐪽𐪾𐪿𐫀𐫁𐫂
 𐫂𐫃𐫄𐫅𐫆𐫇𐫈𐫉𐫊𐫋𐫌𐫍𐫎
 𐫎𐫏𐫐𐫑𐫒𐫓𐫔𐫕𐫖𐫗𐫘𐫙𐫚𐫛
 𐫛𐫜𐫝𐫞𐫟𐫠𐫡𐫢𐫣𐫤𐫦𐫥
 𐫦𐫧𐫨𐫩𐫪𐫫𐫬𐫭𐫮𐫯𐫰𐫱
 𐫱𐫲𐫳𐫴𐫵𐫶𐫷𐫸𐫹𐫺𐫻𐫼
 𐫼𐫽𐫾

Kawasaki 14 point. (MK) Includes Katakana characters.

abcdefghijklmnopqrstuvwxyz ABCDEFGHIJKLMNOP
 PQRSTUVWXYZ 1234567890 `~>[]{};':"/!@#%&*()-+()|:
 " < ? & コ ァ カ オ ト ウ ^ ニ ツ オ ~ ソ ケ マ イ . ア ^ ナ
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 ノ セ イ ウ ヨ Å ツ ク ホ ラ ル レ ロ ワ ヲ ン " ° .
 ム ア モ ヌ ネ 回 ヨ ム タ

SYMBOL FONTS

Symbols 24 point. (KM) 36 point also.

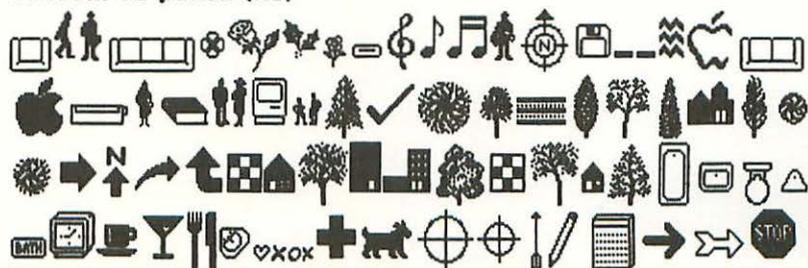


PICTORAL FONTS

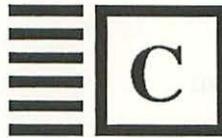
Cairo 18 point. (AC)



TallesIn 18 point. (AC)



APPENDIX



List of Products and Companies

This list is cross-referenced, so you can look up any product discussed in this book and be referred to the company that makes or publishes it. Under the company listings, I give addresses, phone numbers (if I have them), and the names of products.

A+ Magazine
Box 2965
Boulder CO 80322
212/503-5142, 415/598-2290

Amazing (see Apple)

Anchor Automation, Inc.
6913 Valjean Avenue
Van Nuys CA 91406
818/997-6493

Volkmodem
Signalman Mark X
Signalman Mark XII

Anchor Pad International
3224 Thatcher Avenue
Marina del Rey CA 90292
800/235-7972

Apple Computer, Inc.
20525 Mariani Avenue
Cupertino CA 95014
408/996-1010

Amazing
AppleTalk
AppleCare
Apple II
FatMac
Font Editor
Font Mover
Imagewriter
LaserWriter
MacBASIC
MacDraw
Macintosh
Macintosh carrying case
Macintosh numeric keypad
Macintosh Security Kit
MacPaint
MacPascal
MacProject
MacTerminal
MacWorks
MacWrite
QuickDraw

Resource Editor
Resource Mover
Through the Looking Glass
Toolbox, the

Applied Creative Technology
Building C-303
2156 West Northwest Highway
Dallas TX 75220
800/433-5373
Printer Optimizer

Apropos Software, Inc.
64 Hillview Avenue
Los Altos CA 94022
415/948-7227
Financial Planning Series
Investment Planning Series

Art Portfolio (see Axlon)

ATI (American Training International)
12638 Beatrice Street
Los Angeles CA 90066
213/823-1129
MacCoach

- Aurora Productions
Box 7108
Berkeley CA 94707
415/524-9933
35mm slides of Macintosh images
- Axlon, Inc.
1287 Lawrence Station Road
Sunnyvale CA 94089
408/747-1900
Art Portfolio
- Bittinger, Debi (Mac artist)
366 Laurel Woods Drive
Danville VA 24540
804/836-0120 or -6301
- BLAST (see Communications Research Group)
- Blue Chip Software
6744 Eton Avenue
Canoga Park CA 91303
Millionaire
- Boston Computing Society
Macintosh Users Group
1 Center Plaza
Boston MA 02108
617/367-8080, 354-7899
- Brownbag Software
8208 North University
Peoria IL 61615
309/692-7786
31 All-Time Favorite Programs for the Macintosh
- CBS Software
1 Fawcett Place
Greenwich CT 06836
203/622-2614
Murder by the Dozen
- CCAH fonts (see Palmer, Gary)
- CE Software
801 73rd Street
Des Moines IA 50312
515/224-1995
Desk Accessory Mover
- Chart (see Microsoft)
- CineMac (see Micrographic Images)
- Clement, Jerry (Mac artist)
4103 Hidden Valley Road
Lafayette CA 94549
415/283-1082
- ClickArt (see T/Maker)
- Clip 1 (see Frazier, Peper)
- Club Mac
735 Walnut
Boulder CO 80302
303/449-5533
Club Mac News
- Colby Computer
849 Independence Avenue
Mountain View CA 94043
415/968-1410
MacColby
- Communications Research Group
8939 Jefferson Highway
Baton Rouge LA 70809
504/923-0888
BLAST
- CompuServe
Box 20212
5000 Arlington Center Boulevard
Columbus OH 43220
800/848-8990
MAUG (Micronet Apple User Group)
- Computer Cover Company
Box 3080
Laguna Hills CA 92654
714/380-0085, -0086
- Computer Identities Corporation
5 Shawmut Road
Canton MA 02021
617/821-0830
Mac Barcode
- ConcertWare (see Great Wave)
- Construction Estimator (see Reston Publishing)
- Consumer Reports
Box 2480
Boulder CO 80322
- CP/M (see Digital Research)
- Creative Solutions
Suite 12
4701 Randolph Road
Rockville MD 20852
301/984-0262
MacForth
- Creator, The (see TNT Software)
- Cuesta Systems
3440 Roberto Court
San Luis Obispo CA 93401
805/541-4160
Datasaver
- DataPak Software, Inc.
#1-774
14755 Ventura Boulevard
Sherman Oaks CA 91403
818/905-6419
Mac-Jack
Mac-Poker
- Datasaver (see Cuesta Systems)
- DataTalker/MAC (see Winterhalter)
- Da Vinci clip-art series (see Hayden Software)
- DB Master (see Stoneware)
- DecoWriter fonts and letters (see Sea-Ess)
- Dell'Aquila, Mei-Ying (Mac artist)
2409 39th Avenue
San Francisco CA 94116
415/566-8460
- Desk Accessory Mover (see CE Software)
- Desktop Software Corporation
228 Alexander Street
Princeton NJ 08540
609/924-7111
1st Base
- Diabolo Valley Design
4103 Hidden Valley Road
Lafayette CA 94549
415/283-1082
MacGrid
- Digital Research
Box 579
Pacific Grove CA 93950
CP/M
- DNA, Inc.
9207 McAfee Drive
Houston TX 77031
713/778-9270
MacGraphics 1
- Dollars and Sense (see Monogram)
- Draper, John (see Programmers' Network)

- Effects (see T/Maker)
- Electronic Specialists Inc.
171 South Main Street
Natick MA 01760
617/655-1532
Kleen Line Conditioner
- Ensemble (see Hayden)
- Ergotron
5637 Woodlawn Boulevard
Minneapolis MN 55417
612/724-4952, -5982
MacTilt
- EZWare Corporation
17 Bryn Mawr Avenue
Bala Cynwyd PA 19004
215/667-4064
- Factfinder (see Forethought)
- FatMac (see Apple)
- File (see Microsoft)
- Filevision (see Telos)
- 1st Base (see Desktop Software)
- First Byte, Inc.
2845 Temple Avenue
Long Beach CA 90806
213/595-7006
Smoothtalker
- Font Editor, Font Mover (see Apple)
- Forbidden Quest (see Priority Software)
- Forethought, Inc.
1973 Landings Drive
Mountain View CA 94043
415/961-4720
Factfinder
- Frazier, Peper and Associates
Box 3019
Santa Cruz CA 95063
408/476-2358
Clip 1
- Frogger (see Sierra On-Line)
- Great Wave Software
Box 5847
Stanford CA 94305
415/852-2280
ConcertWare
- Haba Systems, Inc.
15154 Stagg Street
Van Nuys CA 91405
818/901-8828
Habadex
- Harvard Associates, Inc.
260 Beacon Street
Somerville MA 02143
617/492-0660
MacManager
- Hayden Software Company, Inc.
600 Suffolk Street
Lowell MA 01854
800/343-1218
Da Vinci Building Blocks
Da Vinci Buildings
Da Vinci Commercial Interiors
Da Vinci Interiors
Da Vinci Landscapes
Ensemble
MasterPieces
MusicWorks
Sargon III
- Hippo-C (see Hippopotamus Software)
- Hippopotamus Software
Suite 210
1250 Oakmead Parkway
Sunnyvale CA 94086
408/730-2601
Hippo-C
- Hoglund Tri-Ordinate Corporation
Box 185
Berkley Heights NJ 07922
201/464-0205
PaintMate
- IBM Corporation
Box 1328
Boca Raton FL 33432
800/447-4700
Personal Computer
- Imagewriter (see Apple)
- Infoworld
Box 1018
Southeastern PA 19398
800/544-3712
- Inland Corporation
32051 Howard Drive
Madison Heights MI 48071
800/521-8428
Macswivel/Mactilt
- Intermatrix
5547 Satsuma Avenue
North Hollywood CA 91601
818/509-5868
MacPhone
- IO tech, Inc.
Box 21204
Cleveland OH 44121
216/321-0609
Mac488
- Jazz (see Lotus)
- Kensington Microwave
251 Park Avenue South
New York NY 10010
212/475-5200
Maccessories Control Center
Maccessories Disk Case
Maccessories Fonts
- Kleen Line Conditioner (see Electronic Specialists)
- LaserWriter (see Apple)
- Lexis/Nexis Communications (see Mead Data Central)
- Linguists' Software
Box 28
Mount Hermon CA 95041
408/335-2577
foreign fonts (MacGreek,
MacHebrew, Mackana)
- Living Videotext, Inc.
1000 Elwell Court
Palo Alto CA 94303
415/964-6300
ThinkTank
- Lotus Development Corporation
161 First Street
Cambridge MA 02142
Jazz
- Mac Barcode (see Computer Identities)
- MacBASIC (see Apple)
- Maccessories (see Kensington Microwave)
- MacCoach (see ATI)
- MacColby (see Colby Computer Company)

- MacDraw (see Apple)
- MacEdge (see Think Educational Software)
- MacForth (see Creative Solutions)
- Mac488 (see IO tech)
- MacGammon (see Videx)
- MacGraphics 1 (see DNA)
- MacGrid (see Diablo Valley Design)
- Mach 1, Mach 2 (see Professional Data Systems)
- MacinSoft
Box 27583
San Diego CA 92128
619/745-6084
Paint Mover
- Macintosh (see Apple)
- Mac-Jack (see DataPak)
- MacManager (see Harvard Associates)
- MacModem (see Microcom)
- MacPaint (see Apple)
- MacPascal (see Apple)
- MacPhone (see Intermatrix)
- Mac-Poker (see DataPak)
- MacProject (see Apple)
- Mac-Slots (see Soft-Life)
- Macswivel/Mactilt (see Inland)
- MacTerminal (see Apple)
- Mac the Knife (see Miles Computing)
- MacTilt (see Ergotron)
- MacTote (see Optimum Computer Luggage)
- MacType (see Palantir)
- MacWorks (see Apple)
- Macworld
555 De Haro Street
San Francisco CA 94107
415/861-3861
- MacWrite (see Apple)
- Magnum Software
Suite 337
2115 Devonshire Street
Chatsworth CA 91311
818/700-0510
McPic
- Mail List (see rds labs)
- Main Street Software
1 Harbor Drive
Sausalito CA 94965
304/332-1274
Main Street Filer
Main Street Manager
- Mark of the Unicorn
222 Third Street
Cambridge MA 02142
617/864-2676
Mouse Stampede
Professional Composer
- MasterPieces (see Hayden Software)
- MAUG (see CompuServe)
- McPic (see Magnum)
- Mead Data Central
9333 Springboro Pike
Miamisburg OH 45342
800/227-4908
Lexis/Nexis Communications
- Megahaus
5703 Oberlin Drive
San Diego CA 92121
619/450-1230
MegaMerge
- Microbuffers (see Practical Peripherals)
- Microcom, Inc.
1400A Providence Highway
Norwood MA 02062
617/762-9310
MacModem
- Micrographic Images Corporation
19612 Kingsbury Street
Chatsworth CA 91311
818/368-3482
CineMac (video output port)
- Microsoft Corporation
Box 97200
Bellevue WA 98009
206/828-8080
Chart
File
MS BASIC
MS DOS (PC DOS)
Multiplan
Word
- Miles Computing, Inc.
Suite 300
7136 Haskell Avenue
Van Nuys CA 91406
818/994-7901
Mac the Knife Volume I (clip art)
Mac the Knife Volume II (fonts)
- Millionaire (see Blue Chip Software)
- Mind Over Mac (see Think Educational Software)
- Mirage Concepts, Inc.
#108
4055 West Shaw
Fresno CA 93711
209/227-8369
Trivia
- Monogram
8295 South La Cienega Boulevard
Inglewood CA 90301
213/215-0529
Dollars and Sense
- Mouse Stampede (see Mark of the Unicorn)
- MS BASIC (see Microsoft)
- MS DOS (see Microsoft)
- Multiplan (see Microsoft)
- Murder by the Dozen (see CBS Software)
- MusicWorks (see Hayden Software)
- Optimum Computer Luggage
9005 Complex Drive
San Diego CA 92123
800/447-0300
MacTote
- OverVUE (see ProVUE)

- Owl Software
Suite 1108
79 Milk Street
Boston MA 02109
800/343-0664
Soft Start (series of Multiplan templates)
- PaintMate (see Høglund Tri-Ordinate)
- Paint Mover (see MacinSoft)
- Palantir Software
Suite 100
12777 Jones Road
Houston TX 77070
800/368-3797
MacType
- Palmer, Gary
Center for Computer Applications in the Humanities (CCAH)
University of Nevada/Las Vegas (UNLV)
Las Vegas NV 89154
Coeur d'Alene font (American Indian language)
Linear B font (ancient Greek alphabet)
- Payne, Philip Barton (see Linguists' Software)
- PC DOS (see Microsoft)
- Penguin Software, Inc.
830 Fourth Avenue
Geneva IL 60134
Pensate
Transylvania
Xyphus (a role-playing, fantasy game that came out too late to be covered in this book)
- Pensate (see Penguin Software)
- Personal Computer (see IBM)
- Practical Peripherals
31245 La Baya Drive
Westlake Village CA 91362
213/991-8200
Microbuffers
- Printer Optimizer (see Applied Creative Technology)
- Professional Data Systems
20 Sunnyside Avenue
Mill Valley CA 94941
415/383-5537
Mach 1 (23" external monitor & interface)
Mach 2 (video projection system & interface)
- Programmers' Network
c/o John T. Draper
#126
182 Caldecott Lane
Oakland CA 94618
415/540-7058
- ProVUE Development Corporation
222 22nd Street
Huntington Beach CA 92648
714/969-2431
OverVUE
- QuickDraw (see Apple)
rds labs
Box 1218
Cookeville TN 38503
615/528-5352
BASIC Games
Mail List
- Resource Editor, Resource Mover (see Apple)
- Reston Publishing Company
11480 Sunset Hills Road
Reston VA 22090
703/437-8900
Construction Estimator
- Run for the Money (see Scarborough)
- Sargon III (see Hayden Software)
- Scarborough Systems, Inc.
25 North Broadway
Tarrytown NY 10591
914/332-4545
Run for the Money
- Sea-Ess Graphics
Box 451
Olathe KS 66212
913/782-8466
DecoWriter Fonts
DecoWriter Letters (and backgrounds)
- Semaphore Corporation
207 Granada Drive
Aptos CA 95003
408/688-9200
Semaphore Signal
- Sierra On-Line, Inc.
Coarsegold CA 93614
209/683-6858
Frogger
- Signalman Mark X and XII (see Anchor Automation)
- Smoothtalker (see First Byte)
- Soft-Life Corporation
Suite 103
2950 Feliz Boulevard
Los Angeles CA 90039
213/660-7940
Mac-Slots
- SoftStart (see Owl Software)
- Software Arts
27 Mica Lane
Wellesley MA 02181
617/237-4000
TK!Solver
- Star 8010 work station (see Xerox)
- Stel Enterprises
Box 6354
Lafayette IN 47903
317/742-5369
Triple Play
- Stoneware
50 Beveledere Street
San Raphael CA 94901
DB Master
- Tax-Prep '85 (see EZWare)
- Telos Software Products
3420 Ocean Park Boulevard
Santa Monica CA 90405
800/368-3813
- Think Educational Software
16 Market Street
Potsdam NY 13676
315/265-2666
MacEdge
Mind Over Mac
- ThinkTank (see Living Videotext)
- 31 All-Time Favorite Programs for the Macintosh (see Brownbag Software)
- Through the Looking Glass (see Apple)

Thunderware
19G Orinda Way
Orinda CA 94563
ThunderScan

TK!Solver (see Software Arts)

T/Maker
2115 Landings Drive
Mountain View CA 94043
415/962-0195
ClickArt Personal Graphics
ClickArt Publications
ClickArt Letters

TNT Software
34069 Hainesville Road
Round Lake IL 60073
312/223-8595
The Creator

Toolbox, the (see Apple)

Totem
#38
207 Gough Street
San Francisco CA 94102
415/864-4852
Totem pack

Transylvania (see Penguin Software)

Travis, Esther (Mac artist)
2728 Yale Street
Vancouver BC Canada VSK 1C3
604/255-4109

Triple Play (see Stel Enterprises)

Trivia (see Mirage Concepts)

UNLV (University of Nevada/Las Vegas)
fonts (see Palmer, Gary)

Videx, Inc.
1105 Northeast Circle Boulevard
Corvallis OR 97330
503/758-0521
MacGammon

Volksmodem (see Anchor Automation)

Whole Earth Software Catalog, Whole
Earth Review
150 Gate 5 Road
Sausalito CA 94965
415/332-4335

Winterhalter, Inc.
3853 Research Park Drive
Ann Arbor MI 48106
313/662-2002
DataTalker/MAC

Word (see Microsoft)

Xerox Corporation
Box 1600
Stamford CT 06904
800/334-6200, 672-8000
Star 8010 workstation

Xiphias
Suite 203
13470 Washington Boulevard
Marina del Rey CA 90292
213/821-0074
designers of the Kensington
Maccessories fonts

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Produced on the LaserWriter!

MacBook

The Indispensable Guide to Macintosh™ Hardware and Software

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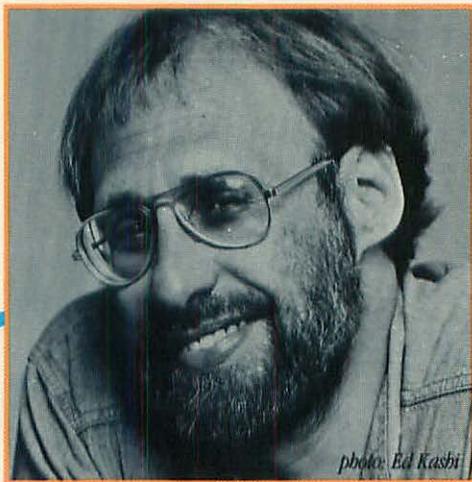


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