Fully Powered

Larry Stevens

Disk Inside!

PowerBook™

Fully
Powered
PowerBook

by Larry Stevens

Fully
Powered
PowerBook

by Larry Stevens

Dedication

To my wife, Nancie

Credits

About the Author

Larry Stevens has been writing about computers since the mid-1980s. He has authored or co-authored six previous books and has written for a wide range of computer and technology magazines, including *MacWeek*, *Byte*, and *MacWorld*. Larry also has written software documentation and gives training seminars in software applications, including Microsoft Excel and HyperCard. He lives with his wife and son in Massachusetts.

Contents

Introduction

Apple has more than once changed the shape of computing. The introduction of the PowerBooks in October 1991 was one such history-making event. For the first time, users could get Apple's well-known interface in a package that could be carried in a briefcase.

Of course, makers of IBM-compatible machines beat Apple in releasing notebook computers. However, there are a few reasons why those machines are not as well suited for portability as the PowerBook. For one thing, few can use DOS machines without at least a manual at their elbow and a telephone hook-up to a support staff. Microsoft Windows makes working with DOS easier. To work well, however, Windows needs a good deal of memory and disk space, two features not found in notebook computers. Also, to use the graphical interface to navigate around Windows, you need a mouse, and that requires a table top, not your lap. The PowerBook is the first notebook to incorporate a trackball.

Apple's first attempt at portability might be traced back to the first Macs released in 1984. The closed Mac, the "appliance computer" as it was called, was designed to take up less desk space than standard component-laden desktop machines. Quickly, people realized that the relatively compact box could be in a backpack across campus or across the country. The computer was too heavy and bulky for most business people already laden with briefcase and suitcase, but the concept of portability stuck. If someone wanted a computer they could travel with, the closed Mac was the only choice.

The Mac Portable, the first battery-powered Mac was a flop for three reasons. It was too expensive, too heavy, and underpowered. At a time

when PC clone makers were releasing lighter and faster laptops, the Portable seemed a poor choice.

While the PowerBook line began with a relatively low-powered PowerBook 100, models quickly increased in power as well as memory and hard drive capacity. As a result, virtually all business applications that can run on desktop Macs perform equally well on PowerBooks. Because of this, an increasing number of users opt to have a PowerBook as their only computer.

Whether you use your PowerBook as your only computer or as an adjunct to a desktop system, the more you understand your machine, the more effective it will be. You need to understand the difference between models to purchase the one that best suits your needs. You need to know what hardware add-ons are available to expand the capabilities of your PowerBook. And, you need to know which application and utility software packages work best with the PowerBook.

You probably can glean most of that information by reading a year's worth of a Mac magazine. The purpose of this book is to provide the needed information in one place organized in an easy-to-locate manner. Following is a chapter-by-chapter description of this book:

O Chapter 1 describes the different PowerBook models. This chapter includes not only those models currently being manufactured, but also an older one that can be purchased used. Even the PowerBook 100, which you can pick up used for about $1,000, may be a great buy for a college student or a business person who needs a computer for occasional business trips.

○ Chapter 2 is a quick course on computers. If you cannot tell RAM from ROM, you can find an easy-to-understand explanation here.

○ Chapter 3 helps you get started quickly. Many people cannot afford to spend a week learning about their PowerBooks. They have to put the machine to work immediately. Later, when they have a free weekend or a slow day, they can take the time to delve more deeply into the inner workings of their new machine. After you read Chapter 3, you will be up and running in a short time.

○ Chapter 4 explains how to increase your PowerBook's functionality by maximizing hard drive efficiency, adding external components, and using the hard drive as a disk attached to a desktop computer. It also discusses how to keep your PowerBook healthy.

○ Chapter 5 discusses Apple's System 7, the software that controls your PowerBook's basic functions. You learn how to customize System 7 to maximize the efficiency of your computer sessions.

○ Chapter 6 explains how to further customize your PowerBook to reflect the way you work. You learn such things as how to compress files, work with two computers (a PowerBook and a desktop computer), and share files with DOS machines.

○ Chapter 7 discusses software applications that can turn your PowerBook into a virtual office.

○ Chapter 8 helps you connect to other computers. As micro-computers become an integral part of a corporate structure, networking is an essential element of corporate efficiency. While your PowerBook may spend most of its time unconnected, when you return to your office or even your hotel room, you need a way to tie into the corporate network. This chapter explains how.

○ Chapter 9 shows how to use your PowerBook as a presentation device. Increasingly, corporate presentations are created on computers instead of slides or video tapes. The PowerBook, especially the newer ones with video-out ports, are perfect for this purpose. This chapter describes how to project a PowerBook image onto a large screen.

○ Chapter 10 provides some hints on keeping your PowerBook safe from prying eyes and thieves.

○ Chapter 11 describes the software utilities that are contained in the disk that comes with this book.

In this book, I have tried to provide all the information you need to make the most effective use of your PowerBook. The accompanying disk contains a fairly complete set of tools for the same purpose.

1
PowerBook Models

To date, nine different PowerBooks have been introduced—the 100, 140, 145, 160, 170, 180, Duo 210, Duo 230, and the color 165c. These models were released in three stages. The first to be released were the 100, 140, and 170 models, and all of these have now been discontinued. The second group includes the 145, 160, and 180; the color 165c was the last to be released. Knowing Apple and the heavy demand on PowerBooks, you can bet new ones will be coming in the future, so stay tuned.

The Original: A Collector's Item?

When the PowerBook 100 was first released, it received mixed reviews. Some complain that the Motorola 68000 processor is too slow (because this is the same CPU found in the original compact Macs, such as the Mac Plus, Mac SE, and Portable). There are other problems with the PowerBook 100 as well. It only can be expanded to 8M; it comes with no internal floppy drive (but has a port for an external one); and it uses a relatively slow passive matrix screen whose cursor disappears more easily than in later PowerBooks. Despite all this, there are still some uses for this machine, which remains the only Mac notebook you can find for around $1,000 used. It also is significant from an historical perspective. Figure 1.2 shows a PowerBook 100.
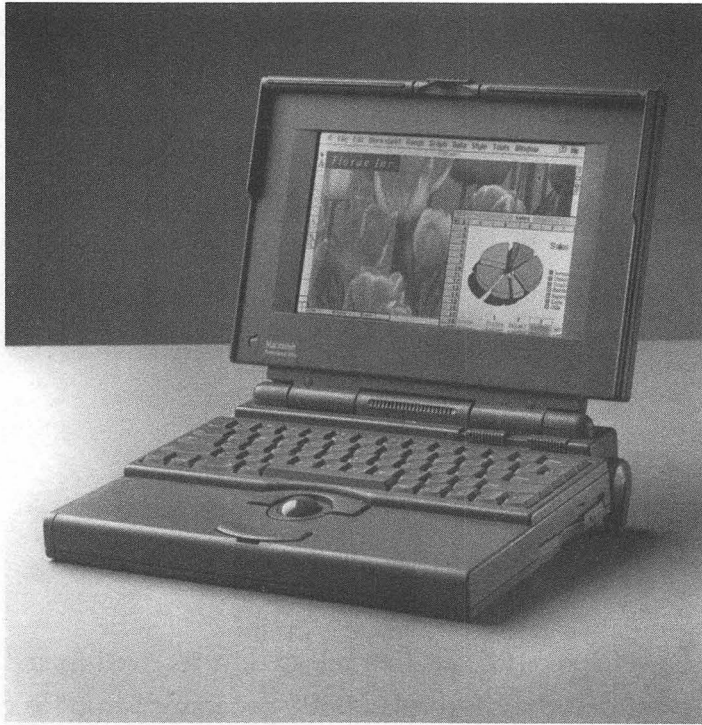
Figure 1.1.   The Macintosh PowerBook is both functional and beautiful. (Photo courtesy of Apple Computer, Inc.)

The PowerBook 100 comes with 2M of memory. PowerBook 100 is the only notebook that can run with System 6, which uses less RAM than its successor, System 7. In fact, under System 6, 2M probably enables you to squeeze on two applications, one major and one minor. For example, you probably can run Microsoft Word 5.1 and a personal information manager.

If you are accustomed to a faster processor, the 68000 may seem a trifle slow. You may not want to buy a PowerBook 100 if you are doing work that requires a lot of processing, such as a spreadsheet. However, if a good deal of your work responsibilities involve writing memos and letters, this machine may be what you need. For a relatively small

amount of money, this machine can help you get some work done while waiting in a client's lobby or taking the train home at night.
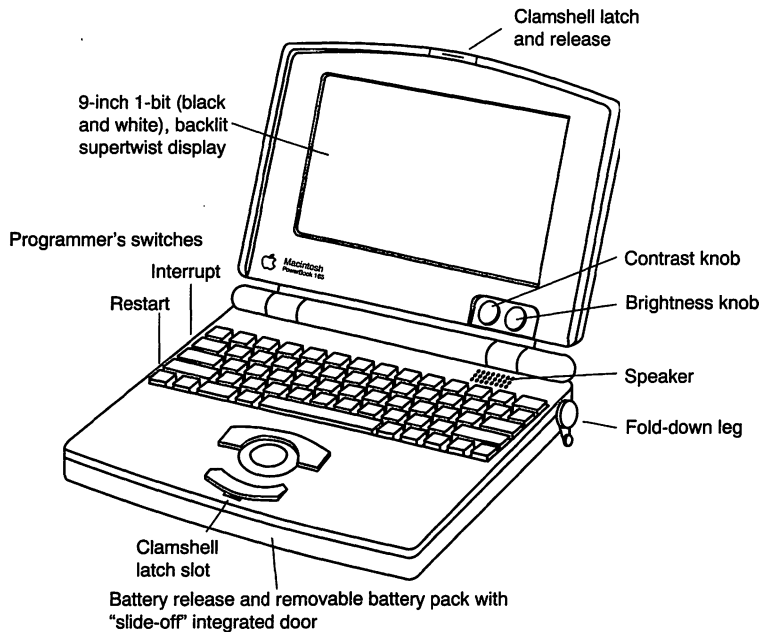
Figure 1.2. The PowerBook 100 is the only PowerBook that uses Motorola's 68000 chip. This is the perfect traveling machine if all you do on the road is write.

The Popular Midranges

PowerBook 140 is the first PowerBook to use a 68030 processor. However, its 16MHz clock speed is considered by many a bit too slow for some functions. Thus, Apple replaced the 140 with the 145, which has a 25MHz 68030 processor. Eventually, the 145 was replaced by the PowerBook 145B, which is the same machine except for its more economical manufacturing cost—which was passed along to the consumer. Figure 1.3 shows this PowerBook.

Clamshell latch
and release

10-inch 1-bit (black
and white), backlit
supertwist display

Speaker

Battery release and
removable battery
pack with "slide-off"
integrated door

Contrast slider

Brightness slider

Fold-down leg

High-density
floppy drive

Clamshell
latch slot
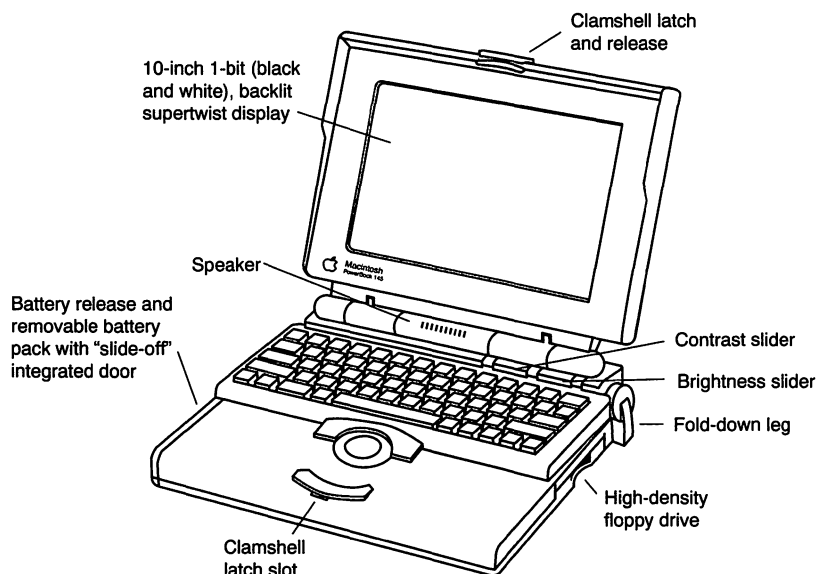
Figure 1.3.   The PowerBooks 140/145/145B give you everything that
a monochrome Mac can. With their Motorola 68030 chip, they are
suited perfectly for serious business applications.

The PowerBook 140/145/145B has an internal floppy drive and comes
with either a 40- or an 80M internal hard drive (the 140 also has an
optional 20M hard drive). The PowerBook 140/145/145B comes with
2M of RAM expandable to 8M. The built-in display is monochrome (1
bit) with no video-out port (although you can add one through third-
party vendors).

Many people consider the PowerBook 140/145/145B's monochrome
screen and its 8M limit somewhat constraining. In my opinion, many
users can live with monochrome. Virtually all business applications such
as spreadsheets, word processors, and personal information managers
work just as well with a monochrome screen as a grayscale or color one.
The RAM limitation is a stickier problem, however. Even if your

present applications fit comfortably within that limit, the future belongs to RAM-hungry programs.

Another limiting factor of the PowerBook 140/145/145B is that it has no socket for a floating-point unit (FPU). FPUs speed up the calculation of noninteger (decimal) math. The lack of a socket limits the type of work you can do in the future.

The Late Top-of-the-Line Model

The PowerBook 170 was, at its introduction, the fastest Mac note-book available. It comes standard with a 25MHz 68030 processor and a 25MHz 68882 FPU. Besides speed, its other major advantage over previous models is its more desirable active matrix LCD screen. As a result, the cursor remains visible, and animation and motion video displays do not create shadows or ghosts. Figure 1.4 shows a PowerBook 170.

The PowerBook 170 also comes equipped with more standard equipment than previous models. A PowerBook 170 with no extras includes 4M of RAM, a 40M internal hard disk, a Macintosh PowerBook fax/data modem, and AppleTalk Remote Access software.

The PowerBook 170 also is the first PowerBook to include a Battery desk accessory switch that lowers the clock speed on the 68030 to 16MHz, providing longer battery life. Its memory capacity of 8M of RAM, however, is deemed by many as insufficient for future growth. So, unless you get a really good deal on a secondhand PowerBook 170, think twice before buying one.
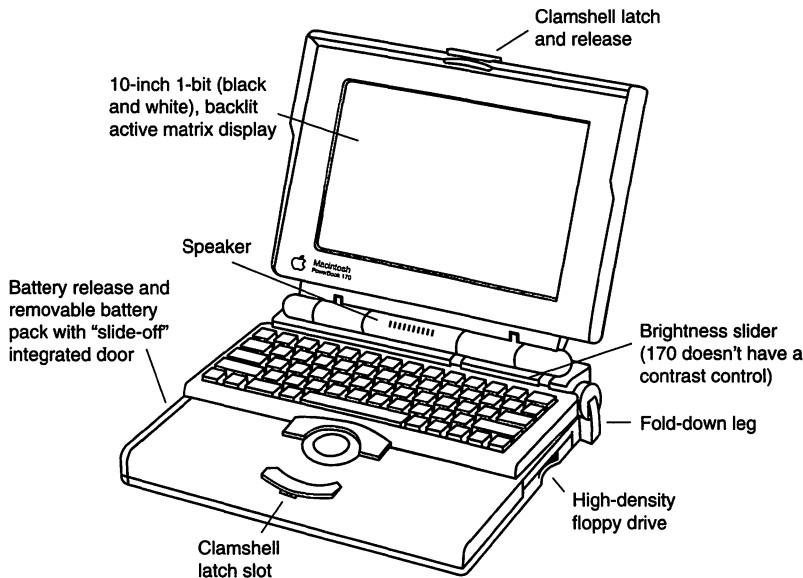
Figure 1.4. The PowerBook 170 comes with a fax/data modem and AppleTalk Remote Access software. Many users feel that this is the best PowerBook.

The Bestselling Models

For many PowerBook fans, the two most important features first provided in the PowerBooks 160 and 180 are the 4-bit (16 shades) grayscale screen and true video-out capabilities. Grayscale (at least) has become especially important with the advent of System 7 QuickTime. Color movies shown on monochrome screens seem very muddy. Shown on grayscale screens, they are more acceptable. Video-out capabilities in the PowerBooks 160 and 180 also enable users to connect to color monitors at their offices or to presentation panels at meeting rooms. As a result, these notebooks make it much easier to take advantage of the 32-bit Color QuickDraw in their ROM. Figure 1.5 shows these PowerBooks.

Clamshell latch
and release

10-inch,
16 grayscale
display

Speaker

Microphone

Battery release and
removable battery
pack with "slide-off"
integrated door

Contrast slider

Brightness slider

Fold-down leg

High-density
floppy drive

Clamshell
latch slot
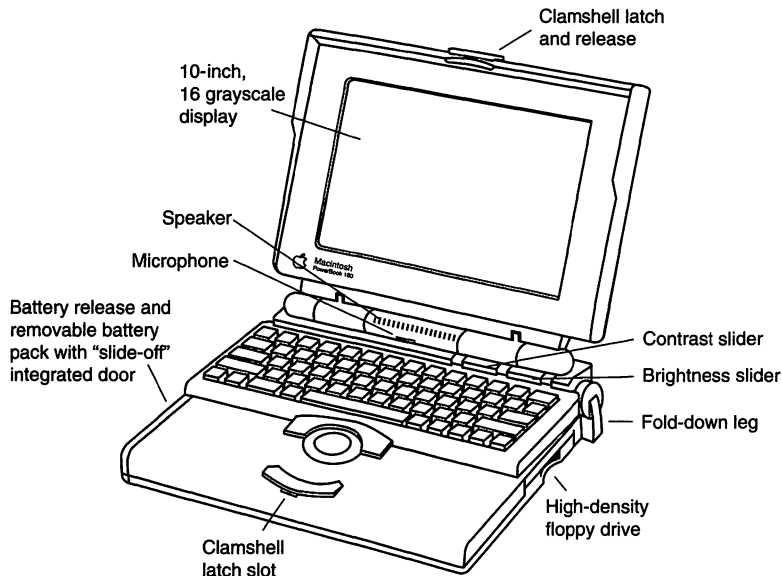
Figure 1.5. The PowerBooks 160 and 180 differ only in the type of screen that they use. The 160 uses a supertwist LCD display, while the 180 uses an active matrix display.

Both the PowerBook 160 and 180 have 512K of VRAM on board and can drive color monitors as large as 16 inches at 8 bits (256 colors). If you do use a second monitor, Apple's PowerBook Display control panel enables you to work with the screens in two different ways:

○ In Dual Display mode, the external monitor acts a second monitor. In this mode, you can opt to place the menu bar on either the PowerBook's display or the external monitor's. You can set up either side of the PowerBook as a virtual boundary between the two screens and you can drag items from one screen to the other. You also can set the output for each display individually so that, for example, the PowerBook runs in a 4-bit grayscale and the external monitor runs in 8-bit color.

○ In Video Mirroring mode, the external monitor's screen exactly replicates the image on the PowerBook's screen.

What is so special about the PowerBooks 160 and 180?

○ Support SCSI Disk mode. This enables the PowerBook's internal disk drive to act as an external drive on another Mac.

○ Memory capacity of 14M of RAM.

○ Built-in microphones

○ 120M hard drive option.

The PowerBook 160 uses a 25MHz 68030 with no FPU. It comes with 4M of RAM and is expandable to 14M. You can choose a 40-, 80-, or 120M Apple hard drive. The 160 has a brighter screen than previous PowerBook models. But, unlike the 180, it uses the same supertwist passive LCD technology as the 140 and 145.

The 180 is the fastest PowerBook. It has a 33MHz 68030 CPU and a 33MHz 68882 math coprocessor. The 180 comes with 4M of RAM and is expandable to 14M. Its hard drive choices are the same as the PowerBook 160. Like the PowerBook 170, the PowerBook 180 has an active matrix display; however, unlike the PowerBook 170, the PowerBook 180's display is a 4-bit model that displays 16 shades of gray. The PowerBook 180's display panel includes a shadow mask that increases the saturation of black pixels so that they look blacker. The screen also is generally brighter than previous PowerBook models.

The Dockable Duos

The PowerBook Duo system is meant to solve the problems of having two or more Macintosh personal computers—one for the home or office and the other for the road. By having a computer that docks, you can travel light, while still having access to color monitors, floppy drives, and other peripherals at your office or home. There are a number of advantages to this system. There first is convenience. While you could add large-screen color monitors and other peripherals to the PowerBook 160/180, plugging them in takes time. A second advantage is that, because all peripherals are at the docking station, the Duos are very light. However, in terms of performance, they are about equal to the nondocking PowerBook 160/180. Figure 1.6 shows the PowerBook Duo system.

Clamshell release

Clamshell latch (activates sleep)

9-inch, 16 grayscale, backlit supertwist display

Speaker

Microphone

Contrast buttons

Brightness buttons

Soft power switch

RAM SIMM slot located under removable keyboard

Battery release and removable battery pack with "slide-off" integrated door

Clamshell latch slot
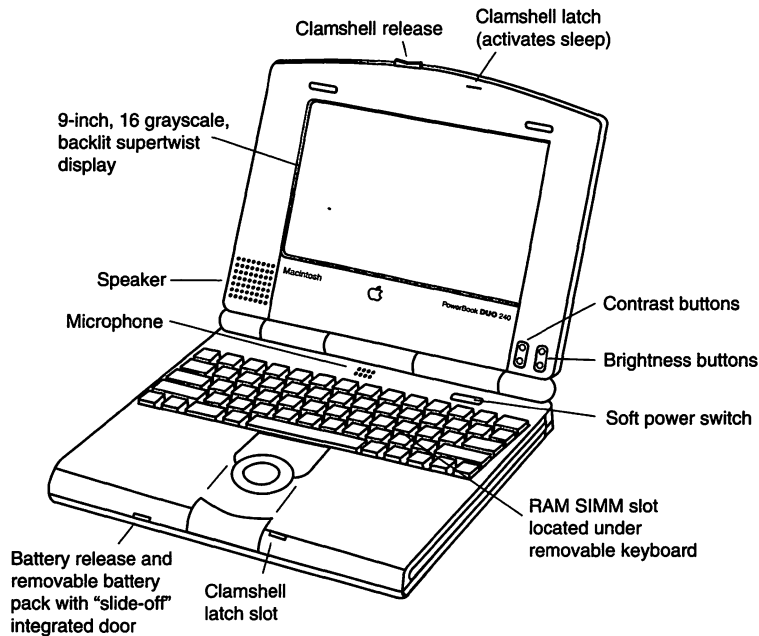
Figure 1.6. The Duos 210 and 230 are for those people who think that two computers are one too many.

The Duo 230 is similar to the PowerBook 180. It has a 33MHz 68030 processor. The Duo 210, like the PowerBook 160, uses a 25MHz 68030. Neither comes with a floating-point unit (FPU), and you cannot install one in the notebook itself. However, you can install an FPU on the docking station. The PowerBook Duos measure just 10.5 × 8.5 × 1.5 inches and weigh only 4.2 pounds. Each comes with 4M of RAM, and you can add a maximum of 24M.

The Duo 210 is available only with an 80M hard drive, whereas the 230 comes with either an 80- or a 120M hard drive. The display is a backlit, 4-bit grayscale LCD panel. Unlike the 180, however, the 230 does not use an active matrix display.

The trackball is smaller than the one found on other PowerBooks and is indented more into the body base to clear the docking port. Some users may not find it as comfortable as the trackball found in other stand-alone models.

The 210 and 230's quick recharge battery is smaller and lighter than even the PowerBook 100's lead-acid battery (the lightest until the Duo). The 210 and 230 have internal lithium backup batteries that enable you to change batteries without shutting down. The backup battery is supposed to be good for several minutes—enough time for you to insert a new battery pack.

The Duos also have no SCSI ports, no floppy drives, and no video-out ports. However, all of these features are available on the Duo MiniDock, which you can buy separately. The MiniDock has the same ports found on the PowerBook 160/180. It has an RJ-11 port for an internal modem, a microphone port, an audio-out port, an HDI-30 SCSI port, two serial ports, a video-out port, an ADB port, an HDI-20 floppy port, an AC-adapter port, and a security slot. The only absolutely

essential port on the MiniDock is the floppy port. So, if you are not going to buy a MiniDock, you have to buy the PowerBook Duo Floppy Adapter, which includes an HDI-20 floppy port as well as an ADB port and a security slot.

The Duo Dock offers all the Macintosh I/O ports found on standard desktop computers. It includes a floppy drive; an optional hard drive bay for a 3.5-inch, half-height hard disk drive; two NuBus slots; an available socket for an FPU; and an option for additional VRAM for as much as 16-bit (32,000 color) video on monitors as large as 16 inches.

On the underside of the lid, steel beams transfer the weight of any monitor sitting on it to the feet so that the case does not crack. A magnesium frame also surrounds the motherboard to stiffen the case.

When you insert your Duo into its docker, a motor draws the Duo in (similar to the way a standard VCR machine draws in a tape). This protects the Duo Dock from any damage it might receive from users constantly forcing their machines into it. It also protects users from mishaps. For example, you cannot eject the PowerBook while you have an application open. If you try to do so, the Duo Dock system first does an orderly shut down, asking if you want to save your work before quitting.

Besides the fact that the NuBus slots are a little more difficult to get at than in desktop machines, a Duo/Duo Dock combination leaves little to be desired as compared with, say, a Mac IIci.

The Duo 210/230 models are made for docking. If you do not dock them, they can prove inconvenient. They are ideal for traveling between home and office or between two branch offices; that is, where you are

unlikely to be far from your floppy drive (for backup if for no other reason). If you travel often, you have to buy and carry with you an external floppy disk drive and a Duo MiniDock. But, if you add the weight of those, you find that you are carrying more weight than a PowerBook 160 or 180. The Duos are not ideal for days in hotel rooms. If you want a lightweight means of bringing your work home at night, definitely consider the Duos. If you spend 50 percent of your time traveling, go for the PowerBook 160/180.

The Color Models

The 165c represents Apple's first foray into the world of color notebooks (see fig. 1.7). It uses a passive matrix screen. Other than the screen, almost everything else about this PowerBook resembles the high-end PowerBook 180. It has a 68030 33MHz CPU and a 68882 math coprocessor. It comes with 4M of RAM and is expandable up to 14M. You can choose between 80- and 160M hard drives.

While the PowerBook 165c certainly is attractive to users who are used to color, it might be best to think twice before buying this notebook. Color passive matrix panels are slower than monochrome or grayscale ones. As a result, ghosting and submarining (disappearance of a fast-moving cursor) are even more likely on the 165c's screen than on the 160's grayscale passive matrix screen. One other disadvantage is that the PowerBook 165c has two backlights, which drain the battery faster.
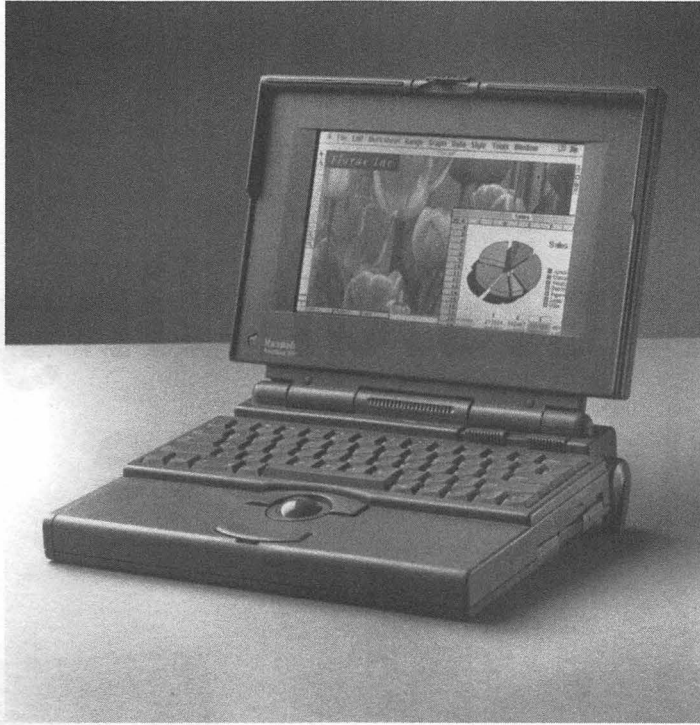
Figure 1.7. The PowerBook 165c and 185c look the same, except for their screens.

Deciding whether to opt for the PowerBook 165c involves a determination of how important color is to you. Certainly, if you plan to use your PowerBook to edit color images, you need a color screen, and the 165c is a reasonable choice. On the other hand, if you merely want to see negative numbers in red or you like the look of the color Apple icon, remember that you are sacrificing screen speed for color, and the trade-off may not be worthwhile.

Apple has released a new color PowerBook, the 185c. It is similar to the 165c except for its active matrix screen and higher price.

2
Understanding Computerese
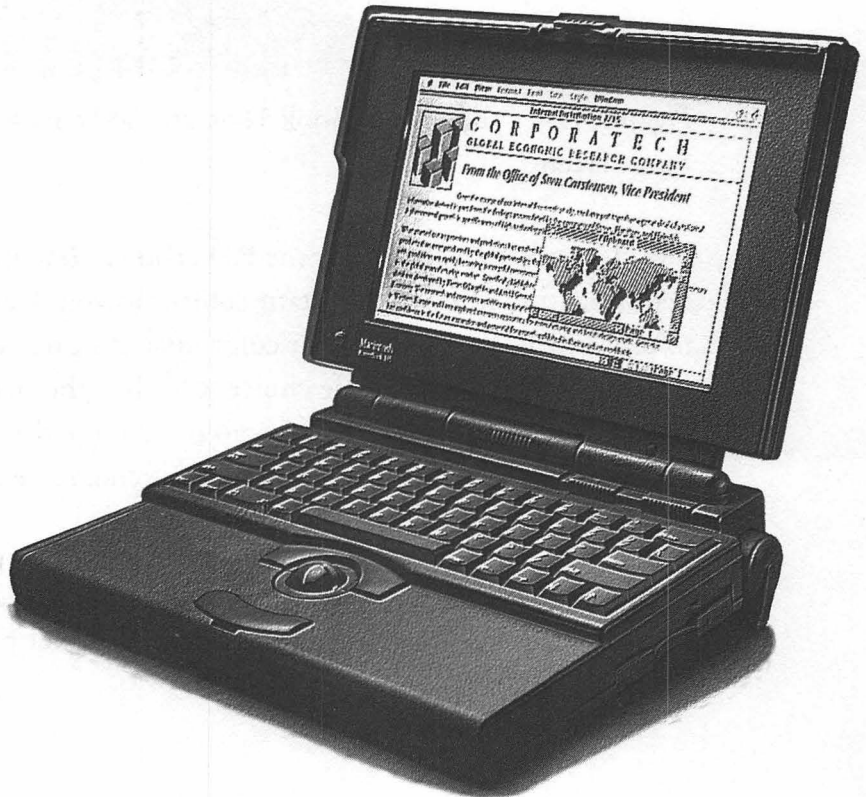
To understand the model specifications in the previous chapter as well as many of the issues yet to come, you need a basic understanding of computer terms that are relevant to the PowerBook. If you consider yourself fairly computer literate, you can skip this chapter. If not, at least spend some time scanning the subject heads so you know where the information is if you need it. Better yet, read the entire chapter—the explanations have been kept as simple as possible.

Random-Access Memory

Random-access memory (*RAM*) is the most efficient place for your PowerBook to store the data and instructions on which it is working. If you think of your PowerBook as a supermarket, RAM can be thought of as shelf space. The more shelf space, the more merchandise that can be displayed at the same time. If shelf space is limited, a supermarket has to store a lot of merchandise in the back room. The shelves empty more quickly, so employees have to work hard restocking shelves. Because of the restocking process, a supermarket with little shelf space cannot run efficiently. The screen in figure 2.1 shows how much RAM a Power-Book has.

If there is not enough RAM, some programs do not work at all, while others have to make frequent calls to the stock room, the hard drive. The only thing you need to know now is that using the hard drive to store data and instructions results in slower performance and more power usage and, thus, runs down the battery faster.

About This Macintosh

PowerBook 160

System Software 7.1
© Apple Computer, Inc. 1983-1992

Total Memory: 14,336K   Largest Unused Block: 12,324K

System Software   1,976K
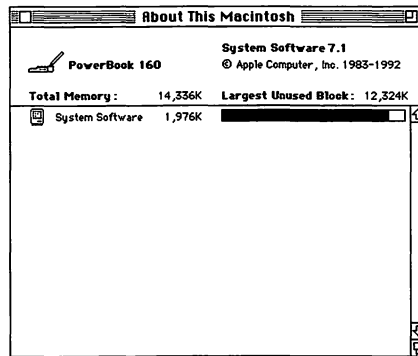
Figure 2.1. The amount of RAM that your PowerBook has is indicated here.

In early Macs, RAM was measured in *kilobytes* (*K*). A byte equals about one character; a kilobyte equals about 1,024 characters of either data or instructions. (This is just a way of visualizing a byte; you cannot actually measure how much RAM you need by adding up how many characters you typically type in one session.) The first Macs only had 128K of RAM.

Now RAM generally is measured in *megabytes* (*M*) or one million kilobytes. The minimum amount of RAM that comes with PowerBooks is now 4M. As with most technologies, RAM has become less expensive over the years. That is a good thing because Macs need much more RAM now than they used to. There are two reasons why Macs require more RAM now than in the past (and why you should buy as much RAM as you can afford).

One reason is that computer applications have become more powerful. They can do more things; they offer more features and options. As a result, they require more memory to run. Early versions of Microsoft Word could run with 512K of memory; to use all the features of the

newest version, Microsoft Word 5.0, you need to reserve 2M of RAM for it.

Multitasking

The second reason Macs need more RAM is *multitasking*, the capability to do more than one thing or work on more than one program at a time. Multitasking is actually a misnomer because the computer really does not work on more than one thing at a time. Instead, it switches between tasks so quickly that it appears to have that capability. System 7 enables you to have multiple programs running at the same time (see fig. 2.2). For example, you can have a word processing, a spreadsheet, and a communications window appear on your screen simultaneously. Clicking on any window enables you to use the functions of that program. You also can have the program windows sitting one behind the other.
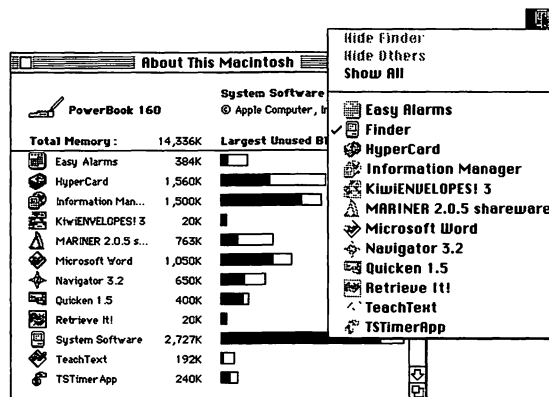
Figure 2.2. When you are multitasking under System 7, the open applications and the amount of memory that they use are indicated.

With multitasking, some programs can do things in the background while you work on another program. For example, your communications program can be accessing your electronic mail while you type memos in your word processor.

Another advantage of multitasking is that you can move from one program to another quickly. If you are using your word processor and have to refer to some figures, you want to be able to get to your spreadsheet quickly. If the spreadsheet is loaded into RAM, you can move to it in seconds. If it is not loaded in RAM, you have to load the program, a process that can take several minutes.

Hard Disks

Hard disks use the same byte measurements as RAM. A 20M hard disk can hold about 20 million characters. Your hard drive always weighs in with more megabytes than your RAM.

Hard drives are the back room or stock room of your PowerBook. They hold all the documents and programs that you do not need at the moment but which you want to be able to access when necessary.

Like RAM, hard disks have grown in size over the years. When most Macs had 128 or 512K of RAM, most hard disks weighed in at 5 to 10M. Now no PowerBook comes with a hard drive smaller than 40M.

Internal drive
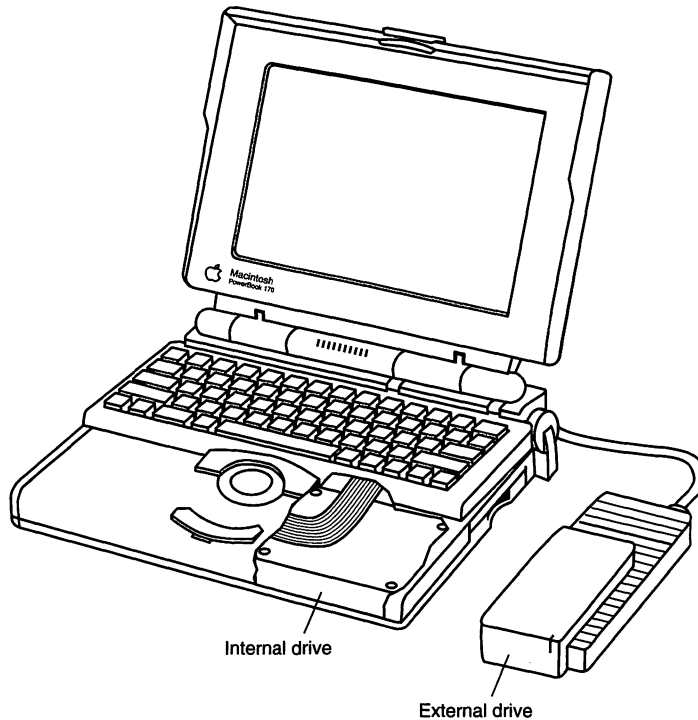
External drive

Figure 2.3. The internal PowerBook hard disk can be supplemented by an external hard drive.

Bits

A *bit* is the smallest element of computer code. All computer programs, regardless of the language in which they are written, find some way to translate the typed instructions into machine code, which is made up of tiny circuits that either can be open or closed.

The number of bits used to define a *pixel* (*picture element* or *screen dot*) determines the number of colors or gray shades that can appear on the

screen. Because all display vendors specify the number of colors or grays their product displays, most PowerBook owners do not need to understand bits. But, because you see it on specification sheets, here is a very brief explanation.

A 1-bit screen means the display is monochrome. A 4-bit screen can display 16 shades of gray or 16 colors. An 8-bit screen can display 256 shades of gray or 256 colors. With a 16-bit screen, thousands of colors can be displayed; with a 24-bit screen, millions of colors can be displayed (such screens often are called *true color* because their image looks like a photograph).

Central Processing Unit

The *central processing unit* (*CPU* or just *processor*) is often referred to as the brains of the computer (see fig. 2.4). This is, in fact, where the PowerBook does all its computing. Early Macs and the PowerBook 100 use the original Motorola 68000 processor. Currently, all PowerBooks use a 68030 (also called an '030) processor. The fastest Macs (the Quadra line) use an even more powerful CPU, the 68040. As you progress from the 68000 to the '030 and '040, the CPU can pack more transistors onto the board. The more transistors, the quicker the processor can perform its duties. CPUs also are rated by *clock speed*. An '030 running at 25MHz is slower than an '030 running at 33MHz.

Besides the main coprocessor, some PowerBooks offer as standard or optional a *math coprocessor* called the Motorola 68882 (see fig. 2.4). This also is called a *floating-point unit* (*FPU*). The purpose of this chip is to speed up noninteger mathematical functions. If your application

does not use decimals, you find very little or no increase in performance when a math coprocessor is used. However, remember that noninteger math often is used in applications that do not appear mathematical such as three-dimensional rendering packages.

Math   CPU
Coprocessor
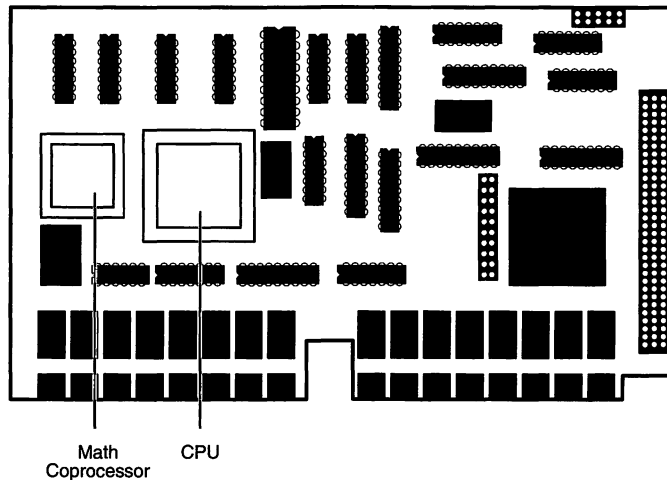
Figure 2.4. The CPU of a computer usually is located on the motherboard. Sometimes it is accompanied by a math coprocessor.

How do you select a processor. Is, for example, a 33MHz '040 faster than a 50MHz '030? And, is it worthwhile adding a coprocessor? As PowerBooks offer more choices in CPUs and FPUs, users have to learn how to answer these questions. There is, unfortunately, no formula by which you can calculate how much better your applications will run with a different processor.

The best to way to determine the best processor is to try out a few using your most frequently accessed programs. Create a test such as rotating a three-dimensional image 180 degrees or recalculating a spreadsheet with a large number of interdependent cells. Visit a well-stocked computer

store and, with stop watch in hand, try your test on a number of different machines.

System Software

The *system software* controls the basic functioning of the computer. One advantage of system software is that it enables certain functions, such as printing, saving, and deleting, to be similar regardless of the application you are running.

In the IBM-compatible world, the operating systems is called *MS-DOS*. There is no name for the Macintosh operating system, but it often is referred to as *Macintosh OS*.

Apple constantly upgrades its operating system to provide more features, fix problems, and accommodate different and more powerful hardware. Whenever Apple creates an operating system that has a large number of new features, it increases the leftmost digit of the version number. So, for example, Apple's new operating system begins with a *7*. The previous one began with a *6*, as in System 6.0.5 (see fig. 2.5).

When Apple makes some minor, but still important, changes to its operating system—such as adding a few new functions—it raises the second number. Thus, System 7.1 is an improvement over System 7.0.1. Finally, when Apple merely fixes some minor problems or bugs, it increases the third number, for example, the digit *1* in System 7.0.1.

In general, it is best to have the most recent operating system. It has the most features and is less likely to cause problems with any application software you decide to use. However, a large number of users did not

install System 7 immediately (and many are still running System 6) because it requires more memory than its predecessor. Figures 2.5 and 2.6 show the About the Finder dialog boxes running under System 7 and 6, respectively.
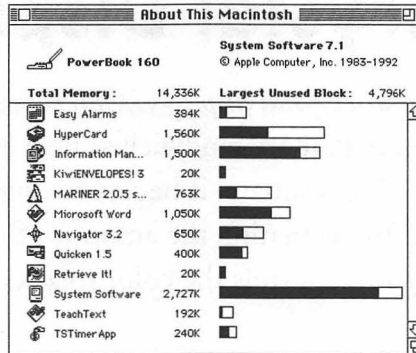
Figure 2.5. Most PowerBooks run under System 7. This is what you see when you select About the Finder from the Apple menu.
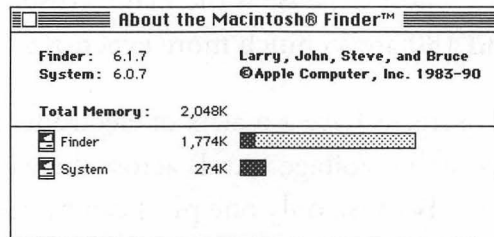
Figure 2.6. About the Finder under System 6.

Application Software

Application software is what most people think of when they talk about software. Application software is another name for the word processor,

spreadsheet, communication, etc., program that enables the computer to help you perform your daily duties.

Liquid Crystal Display

All PowerBooks use *liquid crystal display (LCD)* screens. LCD screens have tiny, twisted squares that are sandwiched between layers of glass. When voltage is applied to a square, it begins to untwist, blocking light from passing through. By regulating the amount of current applied to each square, the computer controls the color (black, grayscale, or color) of each pixel.

All PowerBooks, other than the PowerBook 170 and 180, use *passive matrix* LCD technology. The PowerBooks 170 and 180 use *active matrix*, a technology whose expense is the major reason that the PowerBook 170 and 180 are so much more expensive.

Passive matrix LCD screens have a matrix of electrodes running vertically and horizontally. Voltage travels across the wires moving from electrode to electrode. Because only one pixel can be activated at a time, fast-moving screen images, such as mouse pointers, sometimes become invisible (called *submarining*) or create *shadows* or *ghosts*.

With active matrix LCD displays, each pixel is controlled by its own *thin film transistor (TFT)*. Each pixel can be activated and kept alive as long as necessary. As a result, active matrix systems can keep up with fast-moving mouse pointers and animations.

3
Quick Start

I f your PowerBook came fully equipped with your choice of software, getting started is just a matter of turning it on and banging on the keyboard. Most PowerBooks, however, come with just the basic System and tutorial that shows you how to use it. The tutorial is nice, but seriously, what are you going to do with it? So, before you load up your PowerBook, consider what software is appropriate for your PowerBook.

What's appropriate? Because your tasks may vary, you should consider having *integrated software* on your PowerBook. It is the best way to go if you plan to do a little bit of everything on your PowerBook. With most integrated software, you can word process, use a database, telecommunicate, work on your spreadsheet, and create a chart. With some, you also can draw. True, each individual module of an integrated software package is not as powerful as a stand-alone product. But, unless you are a heavy-duty computer user, chances are integrated software is more than sufficient. There are several integrated software packages in the market. They all are surprisingly good, unless you push them to their limits. In that case, you probably should use a stand-alone program.

Suppose that you are on the road to your next appointment. Nothing is more annoying than not knowing whether your meeting is scheduled for 9:30 or 10:30 a.m. and what is after that. *Personal information manager (PIM)* software is a must if you are going to travel with your PowerBook. Most integrated software has some form of PIM built in. These built-in PIMs generally are less featured than those currently on the market.

While you are considering what else to load on your PowerBook initially, it also is not a bad idea to equip your PowerBook with a modem and load telecommunication and online service software. With them, you can communicate with your home base as well as get in touch with the rest of the world.

Integrated Software

Integrated software was invented way before notebook or even portable computers were invented. This software was developed to enable users of desktop machines with little memory and hard drive space to run a number of programs concurrently. Now, desktop owners typically have all the memory and storage space they need, and integrated programs are not as necessary for desktop machines. (However, because they are much less expensive than buying the complete set of programs, they are popular.)

PowerBook users, however, are still plagued with less memory and storage than their desktop computer colleagues. As new PowerBooks that support larger amounts of memory and disk drives are released, this has become less of a problem. However, all-in-one programs often are the application of choice for PowerBook users.

Most integrated software packages include word processing, spreadsheet, database, telecommunications, graphics, and graphing (charting) modules. Besides being less expensive and requiring much less memory and storage than their full-blown cousins, they also are easier to learn. This is because there usually is a consistent user interface across the modules. It also is very easy to transfer data from module to module.

The disadvantage of integrated packages is that the individual modules do not have as many powerful functions as their stand-alone cousins. For example, if you have to handle a very large list, you probably need a program like FileMaker rather than opting for the database section of Claris Works or Microsoft Works.

Microsoft Works was the first, and for many years the only, integrated package available for the Mac. Now, a number of packages have joined

the fray, including MacVONK's HandiWorks, Symantec's GreatWorks, Claris' ClarisWorks 1.0, and WordPerfect Works from WordPerfect Corporation.

Microsoft Works

Microsoft Works is still one of the most popular integrated packages (although recent top-ten lists often place ClarisWorks a bit above it).

Microsoft Works includes spreadsheet, word processing, communications, and drawing modules. The word processor is one of its strongest modules; it includes character styles, footnotes, headers and footers, and a thesaurus. The spreadsheet module enables separate formatting for individual cells, and the database module has multiple-line fields and as many as 16 forms per document.

HandiWorks

HandiWorks is unique in that it has no separate modules. Instead, the data is entered in frames and then placed on a single document type.

You can choose between text, spreadsheet, and picture frames. Because of the lack of sophisticated drawing tools (those that are present are meant primarily to create lines and frame borders), the picture frame is designed to capture imported graphics. While HandiWorks has no database function per se, it does provide a separate address book called Address Manager. HandiWorks' word processing and spreadsheet functions are fine for general work; however, if you are used to full-function versions, you might miss the lack of features like headers and

footers. HandiWorks excels in page layout functions. For example, it enables you to run text around the borders of an adjacent frame. (In most other integrated packages, a frame overlaps and obscures existing text.)

GreatWorks

GreatWorks has the largest number of integrated modules. It has word processing, outliner, spreadsheet, charting, database, drawing, painting, and communications modules. Each of the modules also has many powerful features. For example, the spreadsheet module enables formatting of individual cells; the word processor has character style settings; the drawing tools include gradient fills and Bezier curves; and the painting module works in color (8 bit, 256 colors). There is even a function for printing envelopes. GreatWorks relies on System 7's Publish and Subscribe feature for much of its data integration. However, Publish and Subscribe requires a number of steps to move data from one module to another. As a result, if integration is your main reason for buying integrated software, GreatWorks may not be your best choice.

ClarisWorks

ClarisWorks enables you to choose how you want to work with the different modules: independently or in an integrated fashion. This program includes word processing, spreadsheet, database, communications, and drawing modules. If you opt to use the modules independently, you work with them just as if you were using a

stand-alone package. If you opt for the frames approach, you can use the functions of any of the modules in combination to create a single document. To work with frames, ClarisWorks includes text and spreadsheet frame tools in addition to the standard drawing tools in its palette. Using the spreadsheet frame tool, you can insert a spreadsheet frame into your word processing document. After you do that, the spreadsheet commands are available within the word processing module when you click within the spreadsheet frame. Using the text frame tool, you can add text to any of the modules. Within the text frame, you have access to virtually all of the word processing functions.

WordPerfect Works

WordPerfect Works (formerly BeagleWorks) is one of the newer members of the "works" family. It includes spreadsheet, word processing, database, drawing, painting, and communications modules. It has a number of features that make it stand out from its competitors. For one thing, its word processor has a lot of features, including some formerly found only in stand-alone packages. For example, it has style sheets, multiple headers and footers, and multiple columns. Its spreadsheet function also is strong, but the connected charts module has some problems. For example, the chart does not update automatically when the data changes. WordPerfect Works links the modules using Publish and Subscribe. However, it uses an enhanced version of Publish and Subscribe that, for example, enables you to edit subscribing frames without returning to the publishing document.

Lean Stand-alone Word Processors

In addition to integrated software, a number of makers of stand-alone packages have introduced lean versions of standard applications specifically for PowerBooks. WriteNow 3.0 from WordStar International, Nisus Compact from Nisus Software Inc., and LetterPerfect 2.1 for Macintosh from WordPerfect Corp. are three examples. For many users, even those who spend hours each day working in a word processor, these programs are completely adequate. For example, WriteNow still comes with its very large dictionary/ thesaurus combination. Nisus Compact has a few features that appear only on the PowerBook, including a Sleep command, a clock, a battery- conservation feature, and an option to use thicker cursors and insertion points.

WriteNow and Nisus Compact incorporate Apple's XTND which enables users to read and write files in a variety of formats, including Microsoft Word. Using this feature, you can continue working on your full-featured word processor when you get back to the office.

LetterPerfect works much like its full-featured cousin, WordPerfect. However, the PowerBook version does not have such things as drawing tools, macros, user-defined style sheets, and QuickTime support. It does, however, still have its mail merge feature and dictionary/thesaurus. LetterPerfect files are interchangeable with WordPerfect files.

Finally, Microsoft Word 5.1 includes a PowerBook option in the Word Installer. You can use the installer to pick and choose the options and features you want in your PowerBook version. That version also has

some features to optimize battery life. For example, it incorporates *swap-tuning*, an operation method that minimizes drive access time and omits operations that require a lot of disk activity such as automatic repagination.

Personal Information Managers

Personal information managers (*PIMs*) or *scheduling software* is meant to take the place of or complement appointment diaries or calendars (see fig. 3.1). Until the arrival of PowerBooks, all products in this category shared one major drawback. If you did not spend your entire day at your desk, and at your desktop computer, you needed two means of scheduling: one software and the other paper. The software version only could work while your computer was on and you were near enough to check for appointments. When you traveled away from your desk, the paper diary had to suffice. As a result, users of PIMs on desktops had to key in data from their paper diary and print out or hand write events off their screen.

The PowerBook, while not as portable as a paper diary, can be as ubiquitous as one. For that reason it is not surprising that PIMs are a very popular application on PowerBooks. Most PIMs display calendars that enable you to input appointments and to-do items, set off alarms when an appointment is imminent, and provide a means for searching events.
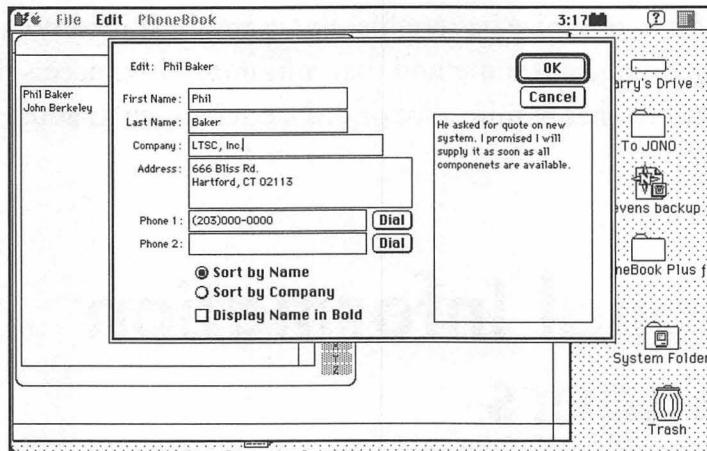
Figure 3.1.   A typical personal information manager.

Alarming Events

Alarming Events, from CE Software, provides a wide range of options when an alarm box appears on your screen (regardless of the application you may be running at the time). You can select snooze, delete, archive the reminder in a special document, or launch Alarming Events. The program displays events in either daily or five-day views.

First Things First

First Things First, by Visionary Software, places a clock face (you can choose one of 20 different clock faces) on your menu bar. Clicking on the clock launches the program. First Things First does not have a calendar display. All the events are displayed in a single list, grouped by days. Each item also can be assigned a category and/or a priority. You

then can opt to see only items within a certain category, items that have a certain priority, or items that belong to a particular day or week.

Easy Alarms

This Essential Software's PIM provides a monthly calendar view. The actual events are not listed on the calendar, only symbols. However, clicking the trackball pointer on any date displays the events for that day. The alarm window provides plenty of room for entering related information such as instructions on how to get to a meeting. For each alarm, you can select the sound (beep or any other System sound), the amount of time in advance a notice is displayed, and the late limit (the time after which the alarm stops). It also has extensive options for recurring events. For example, you can have events reoccur the third Friday of each month, seventh day from the end of every month, etc.

AgentDA

This program, from Team Building Technologies, enables you to display from 1 to 35 days on the screen at any time. You can opt for either a traditional calendar display or a scrolling appointment book display.

Now Up-To-Date

This PIM, from Now Software, includes yellow "post-it" notes. It also enables you to view events in yearly, monthly, weekly, daily, or multi-day views.

DayMaker

DayMaker, from Pastel Development, has a large number of different calendar displays. You can filter the list to see events by time, priority, or category. It also has separate event and to-do lists.

Telecommunications

A survey recently completed by *MacWeek* magazine showed that a very large percentage of PowerBook owners used their computer for tele-communications. The reason should be obvious: PowerBooks rarely are used solely in the office. When users are not able to send files on diskettes through interoffice mail or to tie into the network, they need an alternative means of communicating with colleagues. Telecomputing is easy, inexpensive, and available from virtually every hotel room, office, or street corner in the world.

The Mac world has a large number of full-featured telecommunications software. In general, these packages provide for connections to a wide range of networks and computers. If you tend to telephone only a few devices or networks, you may find most of the features of these packages unnecessary. But, they are nice to have in case you want to telecompute to a device that requires a different protocol in the future.

White Knight

Red Ryder was the first Mac telecommunications program. The software began as shareware and, a few years back, became commercial.

To distinguish the new commercial version from the original shareware one, the company renamed it White Knight. It now is published by Freesoft Company.

White Knight is a very powerful telecommunications package, but one to which new users have to devote some learning time. The most difficult part of the program also is its most powerful feature: its scripting capability.

A *script* is a series of actions that automate certain telecommunications actions. You can script a complete log-on procedure. You even can script a procedure that logs you on to a network, accesses your e-mail, downloads the priority items, and then disconnects.

White Knight's scripting language is not as difficult as other high-level programming languages, but it takes some time to learn.

Still, the program does assist you by providing a Write for Me option. In this function, White Knight keeps track of your actions and then creates a script that automates those actions in the future. If the actions are simple, Write for Me normally works fine. Often, however, you need to make some changes to the automatically generated code before the script works the way you want.

White Knight does provide an easier way to automate simple, one-step procedures. It provides 30 macro keys. For each key, you can enter things like your password, your account number, or the e-mail address of your colleague. When called on to type the data, you can click on the macro key instead.

Smartcom II

In a way, Smartcom II (from Hayes Microcomputer Products) can be viewed as the opposite of White Knight. Smartcom II probably is the easiest Mac telecommunications package to set up and use. It makes extensive use of easy-to-recognize icons, and its menu names are descriptive and self-explanatory. If you have any telecommunications experience, you should be up and running with this package minutes after you take it out of the box.

However, Smartcom II lacks some of the more advanced features found in White Knight. Most of the features Smartcom II is lacking are trivial, although when taken together they might seem annoying to power users. To cite just one example, you cannot have more than one telephone number per session file.

Smartcom II does help you create scripts—that feature is called Autopilot. It also has a learning mode that enables it to follow your actions and record them in code.

MicroPhone II

In terms of ease of use and power, MicroPhone II (from Software Ventures) falls somewhere between the two programs discussed previously. It provides a good deal of versatility in terms of the number of protocols it supports and in scripting, but it also has a relatively easy-to-understand, button-laden interface.

Actually, there are three versions of this product: MicroPhone II, the original package; MicroPhone Pro, which includes a tool for accessing

Internet and FAXstf for sending faxes; and MicroPhone Personal, a stripped-down version of the package that only has a few file transfer options and reduced scripting power.

As in the previous two packages, MicroPhone II has a scripting option that includes a Watch Me function. If you want to try scripting, the program's Script Manager can help you get up to speed relatively quickly. Script Manager includes a list of all the commands along with the options and syntax for their use.

Online Services

As you tote your PowerBook around from hotel to hotel, office to home, country to country, the most important factor is your ability to communicate with the rest of the world. This may require linking your PowerBook with a network back at your office or connecting to your desktop machine at home. But for true global connectivity, you need to connect to one or more online service. Many of these combine both research services, which can eliminate your need to travel to the library, with e-mail services, which enables your friends, family, and colleagues to get in touch with you wherever you are.

CompuServe Information Service

CompuServe Information Service, or CIS, has over one million users and is the largest online service in terms of population as well as number of different services. The information services include databases that

provide full text as well as abstracts of many publications. Besides information sources, CompuServe provides e-mail and forums. A *forum* is a bulletin board service in which people of similar interests can meet, share ideas, and exchange programs, graphics, and text documents. CompuServe forums cover many different topics including rock music, gardening, sexual support, and technical support for all types of computers and applications. CompuServe has a large number of Macintosh forums. Each forum is divided into sections, and the Macintosh Hardware forum has a section for Portable/PowerBook users.

If you have a problem or simply want to voice an opinion, type a forum message to "All." Nine times out of ten, someone in the forum has the answer to your questions. Often your question sparks a lively debate, with forum members sending message after message. Some such *threads* continue for 30 or 40 messages.

Each forum also has a library section, where members contribute more permanent articles, programs, or graphics. You can browse the library of your forums and download whatever you need. If you download a shareware program, you can try it for a specific period of time and, if you like it, send a check to the author. If you do not like it, just trash it.

Each forum also has regular live conferences where you can meet with other users and sometimes authors, developers, or others to whom you normally would not have access. CompuServe's e-mail section enables subscribers to send and receive personal notes.

CompuServe offers special software for Macintosh users, called Computer Information Manager for the Mac (CIM), that provides a graphical interface to the service. You can access forums or CompuServe services using familiar point-and-click procedures. Although you see a

graphical image on your screen, CompuServe sends and receives only text commands, which travel faster than graphics. The result is a smooth-running program. Figure 3.2 shows a CIM screen.
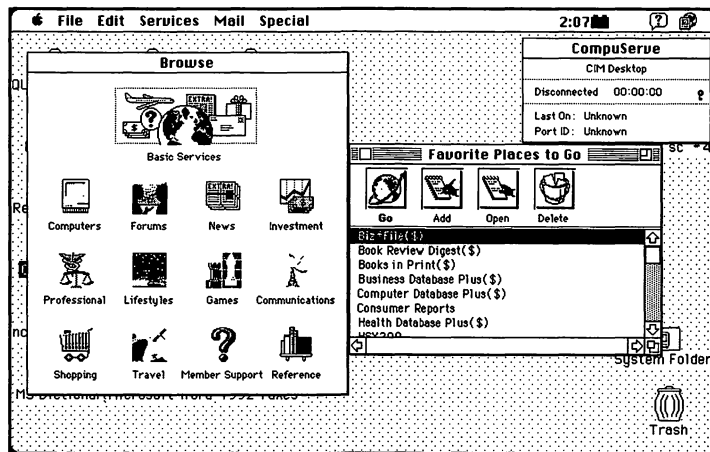

Figure 3.2. A CompuServe Information Manager screen.

CIM costs around $25 but, because CompuServe gives you two hours of free online time for buying the software, the ultimate price is negligible.

Although CIM makes it easy to visit forums, another CompuServe product, CompuServe Navigator, automatically and quickly downloads the list of messages in any forum you choose. The advantage is that you can do most of your forum work offline.

CompuServe's hourly rate is based on how fast your modem accesses the service. The lowest rate is for 300 bps; the highest is for 9,600 bps. In general, if you are searching a database or visiting a forum, 2,400 bps is a good speed to use. The problem with using 9,600 bps for those activities is that you are paying for the faster rate even when you are thinking or typing. If, however, you are using CompuServe Navigator,

you might want to use 9,600 bps because that product eliminates the typing and thinking time. Finally, if you are attending a live conference, where there is plenty of typing, thinking, and waiting for your turn to speak, 300 bps may be the most economical way to access the service.

Prodigy

The main advantage of Prodigy is that you pay one low monthly fee regardless of how often you connect to it. (There is, however, a maximum of 30 free messages after which you pay a per-message fee.) Because Prodigy has fewer subscribers and fewer forums than CompuServe, you may not find your online crowd as varied and interesting. Plus, there are two other disadvantages to Prodigy.

The first is that its graphical interface is transmitted from the service. As noted, CompuServe sends and receives text commands, which are translated to a graphical interface with software installed in your PowerBook. The disadvantage of Prodigy's method is that it is very slow. If you get impatient watching the Mac's watch or beach ball icon, you will tear your hair out waiting for Prodigy to catch up with your command. The second disadvantage is that Prodigy includes online commercials. That is how the service keeps the cost to customers so low (so I cannot fault them for the ads). However, they can be annoying. Prodigy is excellent for kids. It can get them used to communicating in forums and it provides a nice basic research service. For business people, for whom time is money, Prodigy may be too slow and cumbersome.

America Online

America Online (AOL) is a nice compromise between the more expensive but very comprehensive CompuServe and the inexpensive but stripped-down Prodigy. For about half the hourly rate of CIS, you can use America Online to access news services and communicate with other Mac users. There is a very active PowerBook section. While AOL does not have the range of forums that CompuServe has, it may very well meet some specific needs. However, the fact that AOL has fewer subscribers than CompuServe means that anyone you do business with is less likely to have a mailbox on AOL.

MCI Mail

If your primary concern is to be able to send and receive e-mail messages to the largest number of different users, MCI Mail is your best choice. It has become the de facto standard for e-mail messaging, and many business cards and letter heads include an MCI Mail number. Unfortunately, Mac software for MCI mail, Desktop Express, has not been updated for years and it does not work reliably with System 7. The company plans to release new software by the end of 1993, so stay tuned.

4

Hardware
Basics

Y ou may be surprised at how small the PowerBook actually is. The term *notebook* is no mere marketing ploy. The PowerBook is about the size of a thick notebook.

Physical Setup

The computer opens from a latch in the front. The back portion of the opened unit is a screen. You can set the screen to any angle you find comfortable. There also are elevator legs that enable you to angle the screen to meet your viewing needs. The screen may appear small if you are used to a full-sized monitor, but not if you are used to the compact Macs. At 10 inches, 9 inches for Duo 210/230, the PowerBook's screen is about the same size as a Mac Classic series or Performa 200 screen. The keyboard is a bit cramped, but not uncomfortably so. The keys are full size. The fact that they are a bit closer together probably will not bother you much.

Trackball

Instead of using a mouse, PowerBooks have a *trackball* located at the bottom of the keyboard (see fig. 4.1). The trackball works much like a mouse. You manipulate the on-screen mouse pointer by revolving the trackball. There are two buttons on the trackball. Each of the buttons performs the same functions as the mouse button.
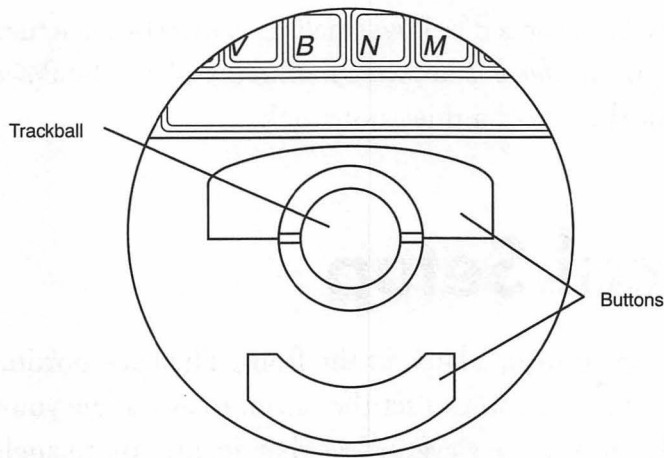
Figure 4.1. Unlike other notebook computers, PowerBook trackballs are an integral part of the machine. The trackball for the Duo model is set deeper into the body of the computer so that it can be accessed by the docker.

Some people prefer the trackball to the mouse; others do not. The main advantage of the trackball is that you can manipulate it with your thumbs without having to move your fingers off the keyboard. The mouse, which is typically placed a few inches to the right or left of the keyboard, requires your hand to move from the keyboard to the mouse and back to the keyboard.

Some people, however, say that the trackball does not provide the control that a mouse does. This may be true especially when doing work that requires careful hand–eye coordination such as drawing. In any case, it is easy to attach a mouse to your PowerBook. Before buying one, however, try to get used to the trackball for a few weeks. The trackball area has been designed ergonomically to provide you with a nice palm rest, something that is missing from other keyboards.

Connecting to External Devices

A port is the primary way a computer communicates with external
devices. The various PowerBook models differ regarding which ports are
available and the placement of the ports (see figs. 4.2 through 4.6). The
Duos are the most unique because they only have one serial port and
one RJ-11 port. The remainder of the Duo ports are on the docking
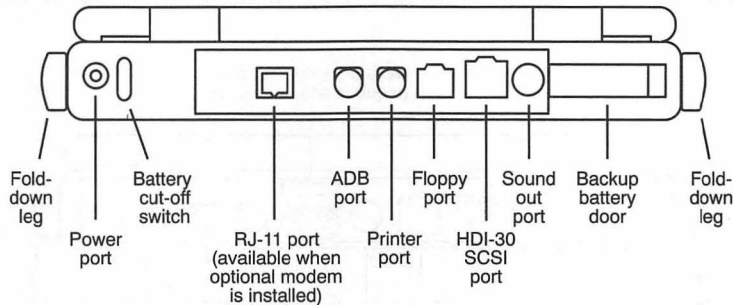stations.

Figure 4.2.   A rear view showing the ports of a PowerBook 100.

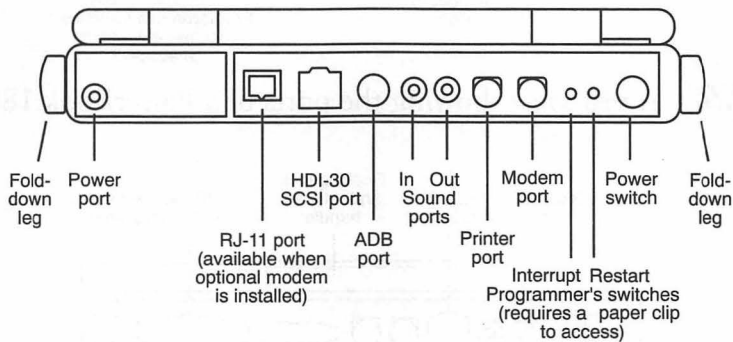**Figure 4.3.**   A rear view showing the ports of a PowerBook 140/145.
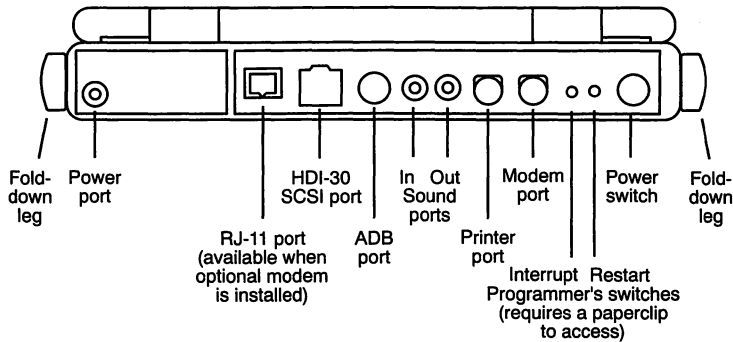
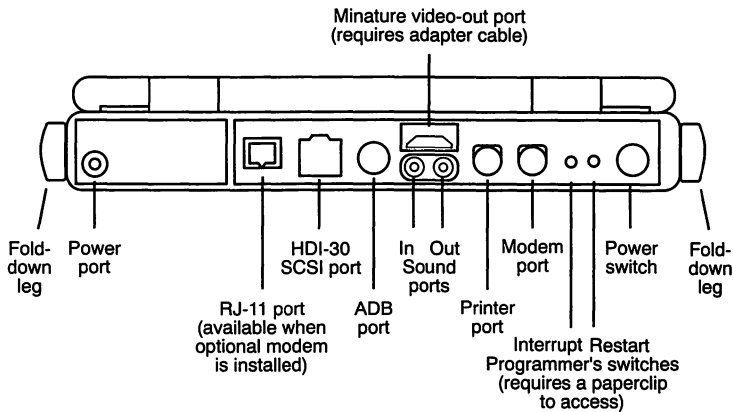**Figure 4.4.** A rear view showing the ports of a PowerBook 170.

Minature video-out port
(requires adapter cable)

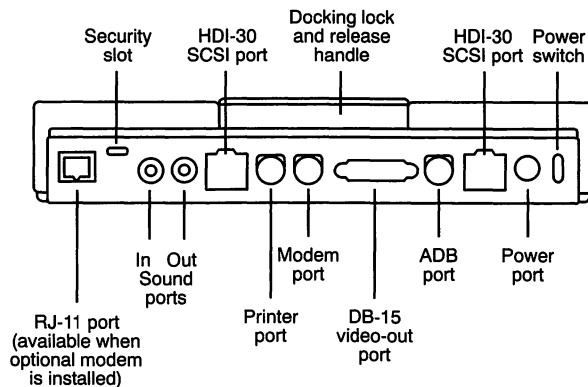**Figure 4.5.** A rear view showing the ports of a PowerBook 180/185.

Figure 4.6. The ports on the Duo MiniDock.

HDI-30 SCSI Port   The *small computer system interface* (*SCSI*, pronounced "scuzzy") is the standard connection to external devices such as hard drives or scanners. Using an adapter, the SCSI port can be the connection to an Ethernet network. PowerBooks that do not have video-out capabilities can be connected to special SCSI monitors.

Even though there is only one SCSI port, you can have more than one SCSI device. This is because you can daisy-chain up to five external SCSI devices. (The PowerBooks support six SCSI devices, but the internal hard drive is counted as one.)

Each SCSI device must be assigned a unique number from 1 to 6 before you install it. In other words, if you assign your scanner number 3, when you get your CD-ROM, you cannot call that device number 3. Most devices provide a way of assigning numbers by, for example, moving a dial. Some devices, however, come preassigned. When you buy a SCSI device, find out if the number can be changed by the user. If not, tell the seller the SCSI numbers already in use. Of course, if you buy a device that has a SCSI number that is difficult to change, you always can change the number of the other device on the chain.

ADB Port   The *Apple desktop bus* (*ADB*) port is used for connecting input devices to your PowerBook. The advantage of having an ADB port is that it provides a standard for all input devices to any Mac. As a result, if your desktop machine is anything other than a very early Mac, such as a Mac Plus, you can disconnect the input device and plug it into your PowerBook. You are not confined to one ADB device; you can daisy-chain them. Simply plug the output of one into the input of another. The two most often seen ADB devices connected to PowerBooks are mice and keypads. While the trackball is virtually the only input device you can use when you are balancing your PowerBook

on your lap, when sitting at a desk, many users prefer the familiar mouse. Keypads enable easier input of numeric data. When combined with macro software, which comes with many keypads, you also can customize your keypad keys.

After a mouse and keypad, probably the third most common ADB device found on PowerBooks are full-sized keyboards. Normally, PowerBook users are happy with their keyboard, especially if an external keypad is added. So, why use an external keyboard? Suppose that you are using an external monitor. You might use an external keyboard to get a better viewing angle. Other ADB devices include digitizing tables and other measuring devices.

HDI-20 Port
The HDI-20 port is used to connect an external floppy drive. It is found only on PowerBook 100s that do not have an internal drive and on the Duo Floppy Adapter and the MiniDock.

Serial Ports
PowerBooks have two serial ports though which you can connect an external modem, printer, or a network.

Modem Jack
The RJ-11 modem jack is used to connect an internal modem to the telephone lines. An RJ-11 jack is the same clip connector used on all modern telephone equipment.

Sound-In Port
This is where you can connect a microphone or other sound input device (such as the video-out line from a stereo).

Sound-Out Port
Use this port to connect head phones or external speakers to your PowerBook.

Video-Out Port
This port enables you to connect your PowerBook to an external monitor. This port is not available on some of the earlier PowerBook models.

Add-On Products

This section outlines some of the ways you can make your PowerBook more useful though the addition of third-party or Apple add-on products.

Memory

How Much   Most Mac publications emphasize the need to add lots of extra memory or RAM. However, the reason may have more to do with the author's prejudice than the needs of the readers. Most Mac authors are "power users" who love to load up on memory and storage. There's nothing wrong with that attitude. You certainly cannot have too much memory in your PowerBook. But the point is that budget-conscious purchasers may be able to get along with even the 4M of RAM that comes standard.

If your primary application is a word processing, spreadsheet, or personal information management program, 4M probably is fine. Even if you have one major application and one minor one open at the same time (say a word processor and a calendar program), 4M probably is enough. If, however, you want to have more than one major application open at the same time, you probably need at least 8M.

Another option for using multiple programs with low machine memory is an integrated program, such as Symantec's GreatWorks. Finally, if you are running high-end graphics programs, such as three-dimensional rendering, you probably need a minimum of 8M.

PowerBook Memory   The above power requirements apply to all Macs—desktop machines as well as PowerBooks. There are, however, two reasons why PowerBook users may need more memory than owners of desktop Macs:

○ More memory makes it easier to set up a disk cache, a portion of RAM that is used as a buffer between your hard disk and an application. Some applications frequently access data or instructions from the hard drive. When a disk cache is established, some of that data can be stored in the cache instead. Because retrieving data or instructions from RAM is much quicker than doing so from a hard drive, a disk cache may speed up many of the application's functions. Equally important to PowerBook users is the fact that a disk cache reduces disk spinning, saving power and extending battery life. You can allot up to 4M of RAM to a disk cache, but 2M usually is sufficient.

○ More RAM avoids the need to use Apple's virtual memory. Virtual memory is, in a sense, the opposite of a disk cache. Instead of making your CPU think that part of RAM is actually a hard drive, it makes the CPU think that part of your hard drive is RAM. As a result, you can work with applications that require more RAM than actually is installed on your machine. Because it takes much longer to access data on a hard disk than on RAM, virtual memory slows most processes down substantially. However, many Mac users are willing to pay the price of slow access in return for the capability to run applications that require a lot of memory or multiple applications at the same time. PowerBook owners who use their machines on battery power do not have that option in any real sense. The constant disk spinning that results from using virtual memory causes the battery to die in a short time.

Adding RAM The type and size of RAM chip that you add depends on which PowerBook you own. Here are some points to consider:

O All PowerBooks except the Duos use low-power, pseudostatic RAM chips. The Duos use low-power, dynamic RAM chips. You do not have to know this, but make sure that the chip you buy is made for your specific machine.

O Chips comes in 2-, 4-, and 6M sizes.

O Earlier PowerBooks have a 2M chip soldered onto the logic board and a 2M card in the memory slot. To expand memory to 8M, you have to remove the 2M card and add either a 4- or 6M card in the memory slot.

O In general, buy RAM by price. As long as you find the correct RAM for your machine, the brand does not matter.

O In all current PowerBooks, the 4M of RAM are on the logic board, which leaves the expansion slots open for more RAM. All models, except the Duos, can be expanded to 14M; the Duos can be expanded to 24M.

O Apple recommends that RAM be dealer installed in all PowerBooks other than Duos.

Hard Drives

Most PowerBook owners have no problem keeping all of the files and applications they need on a hard drive that fits in the PowerBook. Your

choices are 40-, 80-, or 120M drives. (Larger capacity drives from third-party sources are now available.)

If you are using your PowerBook as a temporary computer while away from home or the office, you easily can get along with a 40- or 80M drive. However, to live with a 40M drive, you have to do some regular house cleaning and take only select files and applications on the road with you.

If you want to be as careless in keeping old files and all your applications on your PowerBook as you are with your desktop machine, you probably need a 120M drive.
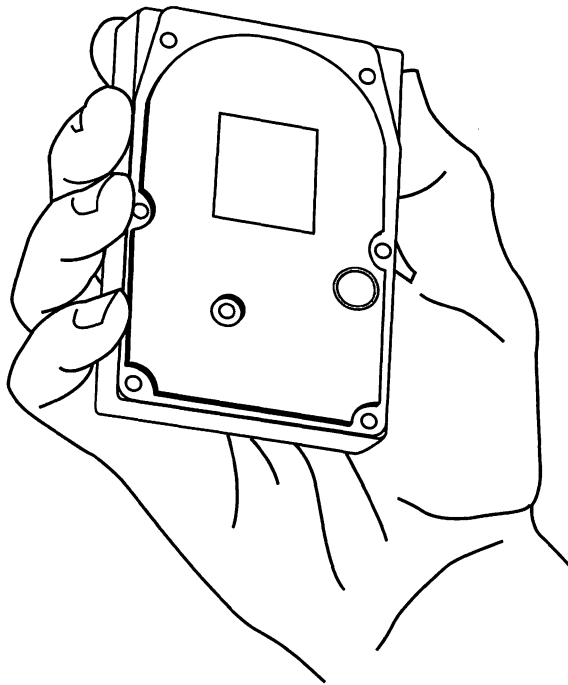
Figure 4.7. Do not be surprised by the size of the PowerBook's internal hard drive. Some of them can even pack more than 220M!

If you need much more storage, your best bet is to opt for an external hard drive. Some drives, such as those from Le Cie, Mass Microsystems, and Mirror Technologies offer drives that fit in your pocket or purse.

Pocket drives can, depending on the model, work off AC power, a separate battery pack, or the PowerBook's ADB port. However, check the manufacturer's specifications because some drives that can run off ADB ports on a desktop machine should not be run off a PowerBook's ADB port.

Having an external hard drive gives you the added advantage of backup capability. You save files related to your current projects on the external (as well as internal) drive. Then, if your PowerBook has to be in the shop for a day or two, you can connect your external drive to a borrowed Mac and continue working without interruption.

Monitors

As noted in an earlier chapter, the PowerBook's built-in screen is about the same size (and almost as sharp) as the screen that comes with desktop compact Macs. Most users have no problem using a PowerBook as their only computer. And most experience no problems working with the PowerBook screen, whether monochrome, grayscale, or color.

On the other hand, some users may want to connect their PowerBooks to full-color monitors or large monochrome or grayscale monitors. If you need to connect to an external monitor, you have a number of choices based on the PowerBook model you own. Figure 4.8 shows a PowerBook connected to an external monitor.
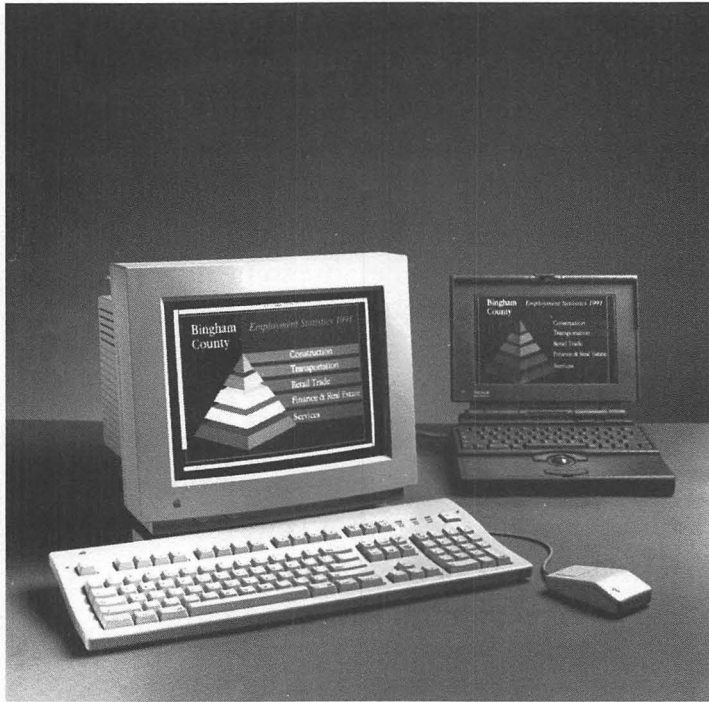
Figure 4.8. Connecting a PowerBook to an external monitor. (Photo courtesy of Apple Computer, Inc.)

Older PowerBooks If you have one of the older Power-Books, such as the models 100, 140, and 170, you do not have a video-out port to run an external monitor. You have three choices (all based on third-party equipment):

O SCSI monitors have a video board built-in, so they are more expensive than ordinary monitors. SCSI monitors plug into the Mac's SCSI port instead of the video-out port of standard desktop machines. The advantage of these monitors is that they do not require installation of boards or the placing of extra boxes on your desk. They do, however, have slower-than-usual refresh rates. Some

monitors attempt to compensate for this by enabling you to choose either smooth or normal display. The former provides a better display but a slower speed; the latter has a poorer display but is faster. Some examples of SCSI monitors are Outbound Systems, Inc.'s Outrigger, Sigma Designs, Inc.'s Power Portrait, and RasterOps Corp.'s ClearVue/SD21.

○ SCSI-based video adapter boxes—such as Radius, Inc.'s PowerView, Aura Systems' ScuzzyView, and Lapis Technologies, Inc.'s Powerbase I—take the video signal coming from the SCSI port and translate it into a standard video signal. Unlike SCSI monitors, SCSI-based video adapter boxes provide the flexibility of using several different monitors.

○ Internal adapters—such as those offered by Envisio, Inc., Computer care, LifeTime Memory, Inc., and Mirror Technol-ogies—provide your PowerBook with a video port. The Envisio card works with a driver, which you drag to the Extensions folder. If you hold the Option key while the Mac is starting up, the screen displays a panel in which you select the type of monitor you are using. The card and software also have an Auto-Detection function though which the card recognizes whether a monitor is connected. If no monitor is sensed, the software shuts down the card, conserving battery power.

The card uses the PowerBook's screen as the startup monitor by default; however, you can opt to have the external monitor as the startup screen.

Internal video adapters do not suffer from the performance problems associated with SCSI monitors or SCSI-based video adapter boxes. They also are more convenient because they enable

you to connect to most monitors and do not require you to carry around an extra box. However, one disadvantage is that they have to be installed by a dealer and, thus, cannot be moved easily from one PowerBook to another. Also, because they plug into the PowerBook's RAM expansion slot, you may lose your present investment in RAM.

Modem

For many who travel with their PowerBooks, a modem, essentially a fax modem, is an extremely important add-on product. It enables you to keep in contact with your colleagues and clients through electronic mail, send faxes without having to wait until you return to your office, and, in a pinch, provide you with hard copy even if you do not have a printer (by faxing a document to your hotel fax machine).

If you do not mind carrying around an extra piece of equipment, you can connect your PowerBook to the same modem you use on your desktop machine. However, because the main reason for investing in a PowerBook is so you can carry your virtual office under your arm, you may prefer to spring for an internal modem. PSI, Integration, and Global Village Communications, Inc. make internal fax modems.

Modems are rated by speed in terms called *bits per second* (*bps*, sometimes called *baud rate*). Not long ago, 300 bps was the standard for personal computer users. Now there are modems available for the PowerBook that range up to 14,400 bps.

Your choices are 2,400-bps data, 2,400-bps data/9,600-bps fax, 9,600-bps data/9,600-bps fax, 14,400-bps data/9,600-bps fax, and 14,400-bps data/14,400-bps fax modems. Most PowerBook owners want at least a

2,400-bps data/9,600-bps fax modem. However, for those who often connect to bulletin board services (such as CompuServe) that support 9,600-bps access, opting for a modem that transmits and sends at that rate may save you money. Additionally, if you are using your modem to connect to your office network using AppleTalk Remote Access software, you want at least a 9,600-bps modem or, preferably, a 14,400-bps model. Using 2,400-bps modem makes standard Mac functions, such as opening windows, seem painfully slow.

Printers

The idea behind the PowerBook is to bring your office with you in a package that is not much bigger than a three-ring binder. If you have to add a printer to that package, you almost double your cubic space requirements. Still, a number of ink jet printers—including those from Kodak, GCC Technologies, and Canon—weigh about 4 pounds and use laser jet technology to print on plain paper with quality almost as good as a laser printer. They do sacrifice speed, however. Figure 4.9 shows a battery-powered portable printer.

PowerBook As Answering Machine

Some modems enable you to use your PowerBook as a digital answering machine. For example, Applied Engineering's modem and software enables the PowerBook to act as a speakerphone as well as an answering machine. It can accept and record incoming messages as long as two minutes. It also enables you to record customized outgoing messages for

different callers (it uses the phone company's caller ID, where available, or special PIN numbers that you assign to people who you expect to dial your PowerBook). Applied Engineering's product, called CommPhone, does everything that standard analog or digital answering machines can do. It has a message counter, and you can rewind, listen to, fast-forward, and delete messages. You also can dial in to your PowerBook remotely and, using caller IDs or PIN numbers, listen only to messages from specific people. One advantage it has over other answering machines is that you can cut and paste messages into documents whose application supports sound.
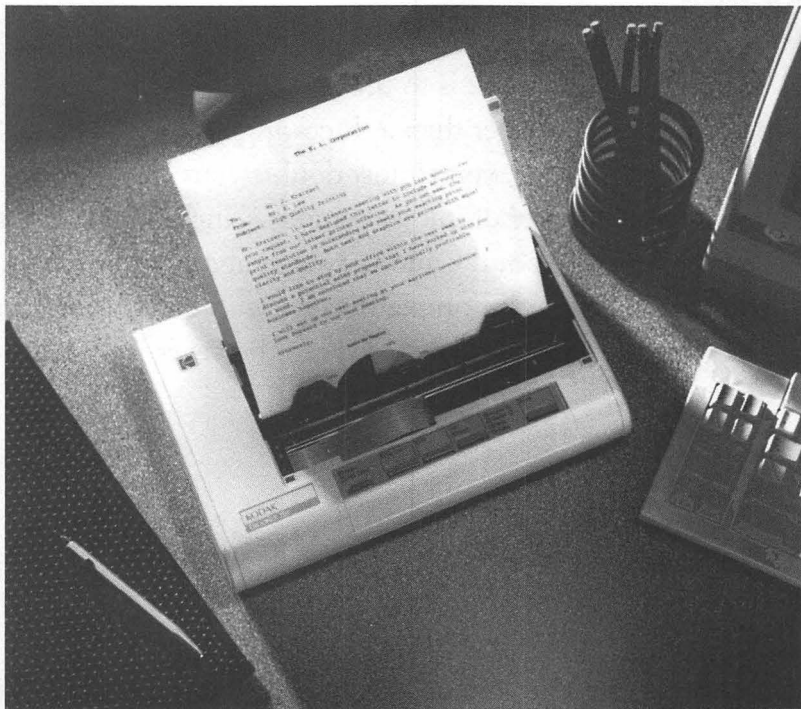
Figure 4.9.   Kodak's Diconix ink jet printer is a perfect on-the-road companion for the PowerBook. (Photo courtesy of Kodak.)

Third-Party Docks

A number of third-party vendors have released docking stations that work with the Duos. For example, E-Machines, Inc. has docks that provide color-presentation capabilities and Ethernet networking:

○ E-Machines' PowerLink Presenter enables a Duo to use a wide variety of display devices including most Mac or Super VGA monitors, LCD projection panels, and televisions. The dock supports resolutions from 640 × 480 pixels with 256 colors up to 1,024 × 768 pixels with 16 colors. PowerLink Presenter includes an Apple desktop bus (ADB) port for a mouse and extended keyboard, a floppy drive connector, and stereo output.

○ E-Machines' PowerLink DeskNet is almost the same as the Presenter but adds built-in twisted pair (10BASE T) and thin (10BASE 2) Ethernet cable.

The PowerBook and SCSI

The PowerBook's SCSI (small computer standard interface) port is how the computer connects to storage media, scanners, Ethernet connections, and, sometimes, external screens. Most Mac users are very familiar with SCSI devices, but there are some differences in how PowerBooks work with SCSI. In this section, you see how to use SCSI and also some of the most common SCSI devices.

Connecting to External SCSI Devices

Note the following about the PowerBook's SCSI connections:

○ PowerBooks use a high-density interface 30-pin square (HDI-30) port. By contrast, Apple's desktop machines use a 25-pin rectangular connector. Apple opted for the square design to save space in the back of the PowerBook.

○ Apple HDI-30 SCSI system cable has the square 30-pin connector (actually it only has 29 pins, but it is still called a 30-pin connector) on one end and a 50-pin connector on the other. Most external devices have 50-pin connectors. With this cable, the PowerBook can connect to all Apple and most third-party external SCSI devices.

○ You can daisy-chain up to six external SCSI devices together.

○ All SCSI chains have to be terminated at both ends (even if there is only one device in the chain). Terminators prevent data loss or data echoing back across a SCSI chain.

○ Unlike desktop Macs, PowerBooks, except Duos, have no internal termination. Therefore you need two terminators—one between your PowerBook and the first device on the chain and a second at the end of the chain. A terminator is a 50-pin female to 50-pin male connector. (Terminators come in two colors, gray and black. Either one works with the PowerBooks, but some people have reported problems when combining gray and black terminators on the same chain.) If you are using any PowerBook other than a Duo,

plug one terminator into the 50-pin connector of the first device in the SCSI chain. Plug the HDI-30 SCSI cable coming from the PowerBook into the terminator. Place the second terminator in the unused SCSI port at the end of the chain. (If you only have one SCSI device, both terminators go on it.)

○ The one exception to this setup is if your device is terminated internally. If you are using a Duo, which is terminated internally, just install one terminator on the last device of the SCSI chain.

○ The only other thing you need to know about SCSI chains is that each device has an address, a number from 0 to 7. The PowerBook itself has the address 7, and the internal disk drive has the address 0. Each of your devices has to be given an address from 1 to 6. The devices do not have to be numbered consecutively according to their position on the SCSI chain. However, no two devices can have the same address. You usually find each device's SCSI address in a window near the SCSI connector. Most modern devices enable you to change the address using some mechanical means such as a thumbscrew. Alternatively, you can use a freeware program called SCSI Probe.

SCSI Disk Mode

The PowerBooks 100, 160, 165c, 180, and Duos all enable you to connect your PowerBook to a desktop Mac (or other PowerBook) so that the desktop machine can read files from the PowerBook's internal drive. This is called *SCSI disk mode*. Note the following when performing in this mode:

○ You need an HSI-30 adapter cable. This 30-pin adapter really has 30 pins (unlike the HDI-30 SCSI system cable, which, as previously mentioned, only has 29). The extra pin in the adapter cable carries information necessary to use the PowerBook in SCSI disk mode.

○ If you are connecting to a desktop Mac, you need a 50-pin to 25-pin adapter. Plug the SI-30 adapter cable into the 50-pin connector and plug the 25-pin end of the cable into the desktop Mac.

○ If you are connecting to another PowerBook, connect the HSI-30 adapter cable of the slave PowerBook into the HSI-30 system cable of the master PowerBook.

○ The PowerBook has to be the last device on the SCSI chain.

○ If you are using either two Duos or a Duo and desktop, you do not need a terminator. If you are using a Duo and a PowerBook other than a duo, you need one terminator. If you are using two PowerBooks other than Duos, you need two terminators. Just remember that you do need terminators at both ends of the SCSI chain and that only desktops and Duos are terminated internally.

Storage Media

The most common SCSI devices attached to PowerBooks are external hard drives. Users who need massive amounts of storage cannot keep all their files on their PowerBook's internal drive. But, by connecting to a hard drive in the office, they can have access to the needed files and copy the essential ones over to their PowerBook.

Hard disks have the advantage of being fast and relatively inexpensive. However, there are other storage options to consider.

Tape

An alternative for backing up files is a tape backup system. Tapes can hold from 40 megabytes to over 2 gigabytes in a small and relatively inexpensive cartridge or cassette. The main advantage of tape backup is that you easily can place multiple tapes in a data safe or a safe deposit box or carry them off site.

When choosing a tape backup system, the most important consideration is time. While all software that comes with tape systems enables backups to multiple tapes, the slow speed of all tape systems requires tying up the PowerBook and babysitting the tape drive until it is ready to receive a second tape—impractical for most users.

Magneto-Optical Drives

For very large storage needs, magneto-optical disks provide around 300M of storage per side. Because of their slow access rate, these disks cannot be used easily in place of standard hard drives. Until recently, virtually all magneto-optical drives offered access rates of 90 milliseconds, while some hard drives are rated at 12 milliseconds. Recently, however, Pinnacle Micro, Inc. introduced its PMO-650, the first optical drive with access time equal to that of fast hard drives. By using a lighter optic head and a direct seek method, which eliminates one step in the seek process, Pinnacle says the drive has an access time of 19 milliseconds.

WORM Drives

WORM (for write once/read many) does what its acronym implies. After you have written data on the disk, you can read it as often as you want, but you cannot overwrite or erase it. WORM drives come in a variety of formats and sizes—some as large as 3 gigabytes. While some WORM drives come with software that makes you think files are being overwritten (older versions of files do not appear on the directory), after you fill up a WORM drive, you cannot add more data to it.

As a result, the only reason to get a WORM drive is to maintain a permanent record. Because you cannot destroy data on WORM drives, many states are accepting images and data stored on them as legal documents similar to microfilm.

CD-ROM

Next to external hard drives, CD-ROM drives may be the most common external SCSI device. The main advantage of CD-ROM drives is that they can store massive amounts of information.(CD-ROM disks are read-only. They cannot store your data.) For example, you can buy CD-ROM disks that contain telephone directories of the entire country, the complete works of Shakespeare, or a collection of clip art.

Partitioning Your Hard Drive

Unless by the time you read this Apple has solved the problem of unusable hard disk space, your first step after unpacking your PowerBook is to *partition* the drive. When the drive is partitioned, or formatted, by the manufacturers, it contains about four percent of unused space. Partitioning it enables you to reclaim that space for your data and applications.

Partitioning erases everything on the drive, other than some drivers, which are permanent. So, if you already have begun to fill up the drive, you have to back everything up. However, getting at that added four percent of disk drive space can be well worth the trouble. If you have not begun to use your hard disk, do not worry about backing up. You have all the files you need on the disks that came with your PowerBook. (The one exception to that is the Guided Tour, which, if you are a Mac neophyte, you should go through quickly before partitioning. You should not need the Guided Tour after you have used it, so do not worry about replacing it after you have finished the partitioning process.)

First, you cannot partition a disk that contains the startup volume. Shut down your Mac, insert the Disk Tools diskette into the internal or external drive, and restart your PowerBook. On the Disk Tools disk, find the HD SC Setup. Double-click on it to launch it. Select the Partition button and, in the dialog box that appears, select the Custom button. You see a box that contains a rectangular shape labeled

Partitions. The rectangle is divided into three parts. At the top is a small area called Mac Driver. To the left of that area there is a number that represents the amount of storage the driver takes up. The amount is minuscule, and there is nothing you can do with this area.

The majority of the rectangle is taken up with a large white area that is labeled with the name of your hard drive. The number to the left represents how much room you have available for your files. At the bottom of the rectangle is a gray area. That is the area you want to reclaim. Its size is specified in the area to the right.

Decide if reclaiming that much space is worth erasing and replacing your files (if you have started using the drive). If so, continue with these instructions.

If there is no gray area, either the problem has been solved or someone else, perhaps the dealer, already has partitioned the drive. In either case, you can close the box and skip the rest of this section.

To continue, click in the center area to select it. Then click the Remove button. You see a dialog box that reminds you that all data will be lost. Presumably, you are prepared for this.

After partitioning is complete, the entire area is gray. Place your mouse pointer at the top of the gray area, press the trackball button, and drag the area down to the bottom.

A dialog box appears. Select Macintosh Volume. The lost area at the bottom is now gone. The operation is complete.

The Hard Disk and Its Problems

The hard disk is the most important part of the PowerBook system. If the screen, power supply, modem, or keyboard breaks, it can be repaired relatively easily. A week after having them fixed, you forget you ever had the problem. But a hard disk that crashes with valuable data can have implications for months or years to come.

The first step in protecting your hard disk is to gain a basic understanding of what hard disks are. Hard disks are made of rigid plastic material that contains magnetic particles. Read/write heads inside the disk case float a hair's breath above the platters, changing the pattern of the magnetic particles or reading those patterns. If, because of a piece of dust, the disk actually touches the platter, a head crash occurs. With older drives, a head crash normally damages the magnetic coatings of the disk. Today, a head crash often only causes a small loss of data.

Your hard disk is the primary storage area in your PowerBook for data and applications. There are a number of reasons why you should pay a lot of attention to your hard disk:

○ Your hard disk contains all your personal data. Just as the files inside your office file cabinet are much more important than the cabinet itself, so the hard disk is much more important than the PowerBook. Warranties, repair polices, and theft insurance can take most of the sting out of loss or damage to the PowerBook. But files not backed up may be irreplaceable.

○ The hard disk is the most likely part of your PowerBook system to go bad. The fact that the hard disk often is spinning combined with the sensitive nature of its heads makes it a prime candidate for problems.

○ If your PowerBook slows down, the hard disk is the most likely culprit. Conversely, optimizing hard disk performance can make a marked improvement on the overall performance of your PowerBook.

○ Of all the parts of the PowerBook system, the hard disk is the one most easily fixed by the user.

Tuning Up Your Hard Disk

You may notice that, after using your PowerBook for a few months, things begin to slow down a bit. When you click on a document, it takes a bit longer for the application associated with that document to open. Saving and opening files also is not as fast as it used to be. The most likely problem is hard disk *fragmentation.*

When you first begin to save files, your hard disk places the files in contiguous areas. But, as you begin to erase files, the disk tries to make use of the empty spaces. Because it is unlikely that any new file fits exactly in the spot vacated by an erased file, the hard disk has to spread files over the empty space on your disk. You cannot see this fragmentation on your hard disk, but any disk with regular use suffers from it. Because it takes longer to find files that are fragmented than those that are located in contiguous areas, the more fragmentation, the slower the disk.

There are two ways to defragment a hard disk:

O Make a backup of the hard disk. Use a floppy disk to start up the Mac and erase the entire hard disk. Finally, copy the backed up files back onto the hard disk. This can be a long process, of course.

O A more automatic way is to use a disk optimizer (or disk defragmenter). They normally come in utility software packages, such as the Norton Utilities.

Normally, a disk optimizer first displays the amount of fragmentation on the disk. This might be displayed as the number of fragmented files or as a percentage of files that are fragmented.

Any fragmented hard disk can benefit from a defragmenting operation. But, if you find that over six or seven percent of your hard disk is fragmented, you certainly should consider defragmenting it.

The defragmenting process can take awhile, so it is best to start it when you have finished your work for the day. Also, because the process involves a lot of relocation of files, there is always the danger of losing data if the PowerBook stops abruptly during defragmentation. Try to make sure you will not lose power. For example, if you are using AC power, make sure you have a battery installed as a backup.

Problem Disks

If your PowerBook seems to be working fine, but your disk is having problems, there are a number of steps you can take to diagnose and fix the difficulty.

In general, if you see any display on your PowerBook screen, even only a blinking question mark, but you cannot access the Desktop or Finder, you have a hard disk problem. Sometimes, the Mac startup operation does not progress beyond the blinking question mark. Other times, it might begin to start up but then stop and display a "sad Mac." Or, you actually might get to the Finder, only to see a bomb dialog box or a dialog box indicating that the drive is not in Macintosh format or that it is damaged and asking whether you want to initialize it. Initializing the disk causes it to lose all its data, so unless you have an exact backup, try some less drastic steps first.

Whatever the problem, the first thing you want to do is try to look at the files in the hard disk. Because your PowerBook cannot start with the hard disk as the startup disk, you have to use a floppy disk instead. Any floppy disk that has System 7 on it will do. For example, you can use Apple's Disk Tools disk (which you may need to fix your hard disk anyway). By the way, if you are traveling far from home or office, make sure you carry along a floppy System disk.

If you got a bomb or bad disk dialog box, shut down your PowerBook. If you are getting a question mark or sad Mac, you do not have to shut the power off. Insert the floppy in the internal disk drive and start up the PowerBook.

What you want to see is the hard disk icon on your desktop. If you do, your problem is most likely software related and one that you probably can fix yourself.

Hardware Problem If you cannot see the hard disk icon, the problem is hardware related. If you feel comfortable opening your PowerBook, you can check to see whether there are any loose cables,

such as the one that connects the disk to the processor. (Special tools are needed to open the PowerBooks. The Duos are more difficult to open than the other PowerBooks.)

You also should disconnect all other SCSI devices to ensure that there is no SCSI conflict. (This is unlikely if you have been using the other SCSI devices for a while, but anything is possible.) Finally, try running a hard disk recovery utility such as the one available on the Norton Utilities from Symantec or the Now utilities from Now Software. If the hard disk appears as an option, try repairing it.

If the problem cannot be solved using any of the above methods, you have to bring the disk to an Apple dealer or a third-party service center. If the data on your disk is essential, and you have not backed it up recently, you might try finding a service center that specializes in recovering data. Normally, these centers charge much more for recovering data while repairing a disk than simply repairing it. Consider the cost of the repair against the cost of losing the data and make your decision.

Software Problem   If, after using a floppy to start up your PowerBook, you see the hard disk icon, the problem is software related. You probably can fix it and save most of your data. However, be prepared to spend some time working on it.

The first step is to see if Disk First Aid on the Disk Tools disk helps. Select Open, find your disk name, and click Start. If the program reports one or more problems and then fixes them, you might have a quick fix. Try restarting your PowerBook from the internal hard disk. If it works, you are in business.

If not, there are a number of steps you can take:

O Have you made a change to the hard disk, especially to the System Folder, recently? If so, undo that change if possible. Some applications make changes to System resources, and you may not be able to undo that. However, if the last thing before your hard disk went down was to install new software, try calling the publishers to see if other users have experienced similar problems. At least ask if the software has any affect on the System; if it does, you may have discovered the problem.

O Restart you PowerBook (using the hard disk as the startup volume) while holding down the Shift key. This excludes control panel devices and extensions from loading into the System. If holding down the Shift key helps, either one or more extensions or control panels devices are corrupted or there is a conflict between them.

O If you have recently added a control panel device or extension, remove it now and restart your computer (without holding down the Shift key). If the hard disk works, you have found the problem file. To see if it is corrupted, trash the suspected file and then, using the floppy that the file originally came on, reinstall it. If this does not solve the problem, either the floppy version also is corrupted or you have a conflict with another control panel device or extension. Call the publisher of the product.

O If you have no reason to suspect any specific control panel device or extension, you have to suspect all of them. Remove them all from the System Folder and reinstall them one at a time (preferably from their original floppy disk). This could take a few hours, so if you are pressed for time, work without the control panel devices and extensions installed until you have a free afternoon.

○ You also may have a corrupted System or Finder. To replace them, start up your PowerBook using the System software installer disk. Trash the System and Finder from your hard disk. Empty the trash and reinstall them using the System installer.

○ Finally, try rebuilding your Desktop. The easiest way to do this is to hold down the Apple and Option keys during startup.

PowerBook Maintenance

The PowerBook has very few maintenance requirements. It is made to be on the road for long periods of time, bumped around quite a bit, and not always in the cleanest of environments. You should not have to baby the PowerBook, but there are some simple tips for keeping it looking its best and working well.

The Case

The PowerBook's case is made of hard plastic. It should not break or chip easily. However, you certainly do not want to tempt fate by placing it on an unstable table or chair.

To clean the case, use a damp cloth, sponge, or paper towel. Do not use solvent because some are bad for plastic. Also do not use a sopping-wet cloth because you might get some liquid into the circuitry. (Just to be safe, it is best to switch off the PowerBook before cleaning. If you do get liquid in the circuitry, do not switch it on until you are sure it is completely dry.)

The Screen

Dust is a serious nuisance on the PowerBook's screen. Because it carries a static charge, it attracts dust and should be cleaned regularly. Do not use a dry cloth because you simply add to the static charge and attract even more dust. Use a glass cleaner sprayed on your cloth (to protect the circuitry, do not spray directly on the PowerBook's screen). Computer and office supply stores have glass cleaners that also reduce static charge. Using one of these (again on the cloth, not the screen) may increase the time before you have to dust again.

The Battery

If you are carrying around a spare battery, Apple wants you to know that, if you keep it loose in your briefcase, you might start a fire. Under certain circumstances, if a fully charged battery comes in contact with a piece of metal, such as a paper clip, the metal could heat up sufficiently to ignite some nearby papers. This is extremely rare (it only happened twice, I believe), but it is a real danger. As a result, Apple recommends that you keep the battery in the sleeve in which it comes. (The Duo batteries, which have an on/off switch, do not need the sleeve). The sleeve also keeps the contact points clean, increasing the life of the charge.

If you do not have one of the sleeves, you can wrap the battery in any piece of cloth or keep it in your pocket. Just keep it away from metal.

Other than that precaution, there is very little else you have to do with the battery. You do not have to clean the contact points, which are made to resist corrosion.

The Trackball

The trackball should be cleaned regularly. A lot of dust, grease, and airborne particles fall on the ball or are transferred from your hand to the ball. When you rotate the ball, dirt can be transferred to the rolling mechanism. By cleaning the ball regularly, you can avoid the need to clean the rollers.

To clean the ball, remove the retaining ring around the trackball by turning it counterclockwise. Next, either pry out the ball or turn the PowerBook upside down so that the trackball falls into your hand. Clean the ball with a damp, lint-free cloth. Next use a can of compressed air or a vacuum cleaner to clean the mechanism.

Generally, that is all you need to do. But, if you feel the trackball is sticking, try cleaning the metal rollers that it sits on with a cotton swab dipped in alcohol. Try not to touch the rubber rollers and, if you do move them, make sure you return them to the same position as when you removed the ball.

Spills

Many companies have regulations about not eating or drinking near computers. Obviously, regulations like those cannot be enforced with PowerBooks. Because the advantage of having a PowerBook is that you can work as easily at your kitchen table as in your office, it probably is fruitless to suggest that you not eat or drink around it. However, it is important to know the risks.

If you spill any liquids on the PowerBook, you might short out some of the circuitry. If you spill sticky liquid, you can damage the keyboard irreparably.

If you do have a spill, your first step is to shut down the PowerBook. Next, remove the battery. Finally, turn the PowerBook upside down so that the liquid drains out of it.

Wait until you are sure that the PowerBook is completely dry. You might want to use a hair-dryer on it. Cross your fingers and try starting it up. If it does not switch on, take it to your repair service company. If it does switch on, check all the keys to make sure they work and do not stick.

If you spill soda or coffee with sugar on the keyboard, you may have a problem with sticking keys. You can try bringing the keyboard to an electronics repair service that has special preparation for removing soda from keyboards (they actually dip it in a special bath). Alternatively, you may have to replace the keyboard.

Drop

If you drop your PowerBook, your first step is to inspect it manually. If nothing is broken, your second step is to remove and inspect the battery. If the battery seems cracked, place it in a protective wrapper such as a plastic bag and return it to an Apple dealer for recycling. If nothing appears broken, check to see if the PowerBook is working. If so, you are back in business.

Power Spikes

Everyone was happy with the power companies until computers came along. Ten years ago, "clean" power was not an issue for most individuals. However, microprocessors and other microelectronics are vulnerable to transient voltages. "Dirty" power, including voltage spikes, can be a problem for computer users. As a result, millions of dollars have been spent by consumers on products that protect against power surges.

It is true that power surges can destroy or degenerate your PowerBook's circuitry. It also is true that PowerBooks, because they are used in many different locations, are perhaps a bit more vulnerable to dirty power.

However, PowerBook users also have two advantages over some other computer users in this area:

○ The PowerBook was made to travel. Its power supply is strong and usually can take at least minor surges.

○ PowerBook owners never need to plug into any power source with which they are uncomfortable. You can use your PowerBook to recharge the batteries (or use a battery recharger) and avoid the danger of power spikes entirely.

If you are using your PowerBook at your office, you can buy a power surge protector to plug your PowerBook into.

Airport X-Ray Machines

Many notebook computer owners are afraid that security x-ray scanners in airports may erase their hard drives. This really is not possible. The few instances of erased hard drives come from the electromagnetic field surrounding the engine of the conveyor belt. While having a drive erased in this way is extremely rare, it does happen sometimes. Make sure you back up your drive before going through one of those machines. You also can protect your PowerBook by placing it in the center of the belt, as far from either edge as possible.

Alternatively, you may be able to have your PowerBook manually inspected. Most U.S airports provide this option; however, many foreign ones do not.

Opting for manual inspection may lengthen your time at the airport because you have to wait for someone to do the inspection. Usually the inspector will ask you to turn on the PowerBook and perhaps press a few keys. If it works, you are considered okay.

The Environment

The PowerBooks differ in the operating and storage environments in which they can survive. For example, Apple says that the PowerBooks 160 and 180 can operate in temperatures between 50 and 104°F and in humidity between 20 and 80 percent. These PowerBooks can be stored between -13 and 140°F. The Duos can tolerate higher humidity but cannot be stored in temperatures higher than 116°F. Check your manual for the environment your PowerBook requires.

As mentioned earlier, PowerBooks are very hardy computers and are built to handle the rigors of the road. It is important, however, to at least make an attempt to keep them within the tolerances Apple recommends. The inside of a car sitting in the sun on a hot day can sometimes get above the 140°F storage limit of the PowerBooks 160/180.

5
PowerBook Essentials

T his chapter covers the essentials of using and maintaining your PowerBook. It discusses the Mac interface, power supply, memory, and other useful information. There is also a section about customizing your PowerBook.

The Mac Interface

PowerBook owners rarely are casual computer users. The fact that someone spends extra money for a machine that can be carried under his or her arm usually means that the computer will be carried about frequently, and a traveling computer is well used. Because the Mac interface is such an integral part of using the PowerBook, new users need to become comfortable with it as quickly as possible.

The Trackball

The *trackball* is a pointing device that performs many functions without using the keyboard. The advantage of using the trackball instead of text commands, such as those used in MS-DOS, is that it saves time and reduces errors. You notice as you move the trackball that the pointer on the screen moves in a corresponding fashion.

The trackball has three primary functions:

○ Issuing commands. You can use the trackball and its pointer to select menu items, delete files (throw them in the trash), or make selections in dialog boxes. All of these are discussed below.

○ Indicating where you want to enter text data. If you are working in an application such as a word processor or spreadsheet, the trackball pointer indicates where your typed (or pasted) data will be placed.

○ Drawing. In drawing programs, the trackball pointer is used as the drawing device. Typically, you select a drawing tool such as a paint brush or pen and select the size of the tool (for example, how wide a stroke the brush makes), and the trackball pointer turns into that tool. However, because of the limitations of PowerBooks (small screen and lack of active matrix color screen), as well as the awkwardness of the trackball for drawing, the PowerBook rarely is used for graphics applications.

There are two bars flanking the trackball. These are used for clicking, which is the primary way you use the trackball to communicate with the PowerBook. There are several basic types of clicking:

○ Single-clicking (one click) usually indicates a location. For example, a single-click in a spreadsheet cell tells the program that this is the cell where you want your data entered. Clicking also may be used for selecting an item. The concept of selecting is important in the Mac interface because, after an item is selected, you can perform many functions with it. For example, if you click an icon in the Finder and choose Get Info, an information box opens that contains data about the file you selected; if you select an application and then choose Open from the Finder's File menu, the selected application is launched.

○ Double-clicking (two quick clicks) is used as a shortcut to performing a function and is used in different ways in different

applications. In the Finder, you can double-click on an application to launch it. This saves you from first single-clicking to select it and then selecting Open from the File menu. In some word processors, double-clicking to the right of a paragraph selects the entire paragraph.

O Clicking and holding (not releasing the button after clicking) usually is used to keep a menu open until you select the item you want.

O Clicking and dragging (clicking and holding an image and then moving it) usually is used to move graphical images, including icons, around the screen.

O Shift-clicking (clicking while holding down the Shift key) enables you to select a number of items or a large text area. This technique is discussed later.

The Trackball Pointer and Text Insertion

Whenever you have to enter text—in a dialog box, at the Finder, or in any application that accepts text, such as a word processor—the trackball pointer turns to an I-beam. To see how this works, select Find from the Finder's File menu. When you move the trackball pointer into the text-entry area, it changes from an arrow to an I-beam. When you move it elsewhere, it changes back to an arrow.

Watching the shape of the cursor is one way to determine if a box is ready to accept text. If you try to enter text in a box and the pointer

does not become an I-beam, you can assume that the box is not prepared to receive text. Perhaps the box is locked or text should be entered elsewhere in the box.

After you select any Mac function that accepts text, you see a blinking line called an *insertion point* or *cursor*, which is the location text appears when you begin typing. To change the insertion point, use the arrow keys or trackball to move your I-beam pointer to a different location and click.

When you move the insertion point with the pointer, the text is entered at the indicated point and any text to the right of that point moves to the right. If instead you want to eliminate or replace text, select the characters you want to eliminate or replace. To select a group of characters (they must be contiguous), place your I-beam at the beginning or end of the text you want to select. Hold the button down while dragging over the desired area. (If you want to select more than one screen of data, continue dragging until you reach the top or the bottom of the screen. The window scrolls in the appropriate direction.) The section is highlighted, and you release the button.

Any text you type at this juncture replaces the highlighted text. If you hit the Delete key, the highlighted text is deleted.

Some dialog boxes automatically highlight the entire text entry area. This eliminates the need to do so with your trackball. If you do not want to make an entry in the text entry box, do nothing. If you do, simply begin typing (you do not have to place your I-beam in the box first).

If you double-click on any word, the PowerBook selects the entire word.

If you double-click and then move your trackball pointer to the right or the left, the PowerBook selects text one word at a time in the direction that the pointer is moving.

To select a large block of text, click at one end of the block, hold down the Shift key, and click at the other end. The entire block is selected. This works even if you use the scroll bar to move to a different screen. Just be sure to continue holding down the Shift key.

The Desktop

The PowerBook screen image is made to look and act like a desktop where you can take out some work and then either put the work away or place it behind other work. The Desktop contains the Finder, which is the place to manipulate files and folders, as well as all open application windows.

Icons

Icons are small pictures on the Finder that represent file folders, disks, or the trash. To make it easier to use the Finder, each type of item has a different appearance. Folders, hard drives, floppy drives, the trash, and other device icons look like the item they represent. Most application icons have a diamond shape and include a symbol or logo representing

the application. Documents (files created by applications) usually are rectangular and are designed so you can recognize the application that created them.

Windows

Windows in the Finder are directories containing the names and (optionally) the icons representing your files. Windows in applications represent your work. Whether in the Finder or other applications, windows work in basically the same way.

Moving Windows
If you place your trackball pointer anywhere on the title bar of a window, you can click and drag the window to a different location.

Scrolling
Your PowerBook screen is too small to hold all the information in some of your windows. You can see only part of the data at a time, but you can scroll to other locations. The best way to think of scrolling is to picture old Roman scrolls or the Torah. You open a few inches of the material, read it, and then scroll down to view another few inches. If you want to review something, you scroll upward.

You can scroll in a number of ways. In all Finder windows and many application windows, you notice four arrows. Clicking and holding on any of these arrows causes the data to scroll continuously in the direction the arrow is pointing. You also see two boxes, called *scroll boxes* (sometimes called *elevator boxes*), one on a bar on the right side of the

window and the other on a bar at the bottom. They represent the position that you currently are viewing. For example, if the scroll box is in the middle of the bar, you have as much data below the current window view as above.

Clicking on the bar above or below the right-hand scroll box moves the screen up or down one page. You also can point and drag the scroll box to the window position you want to view. If you find an empty window that you think should contain data, check the bottom bar. It may have been moved to the right inadvertently into an empty area. Move it back to the left and see if your data returns.

Window Selection
You cannot do anything to a window until you select it. To select a window, simply single-click anywhere in it. You can tell if a window is selected by whether the title bar has lines going though it. Figure 5.1 shows a selected and an unselected window.
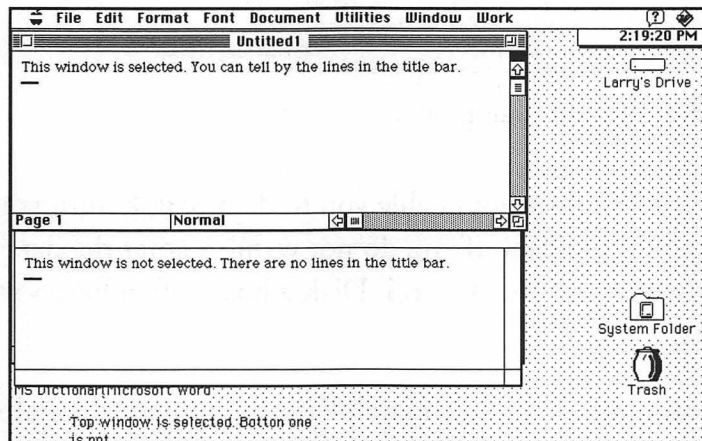
Figure 5.1. A selected window on the top and an unselected window on the bottom.

The most important thing to remember when working with windows is that the first click selects the window. You have to click a second time if you want to change the insertion point.

Dialog Boxes

Dialog boxes are used when a program, including the Finder, needs information. You normally see a dialog box after you select a menu command, such as Open, Delete, Find, or Print. The program needs to know what you want to open, delete, find, or print. Figure 5.2 shows an example of a dialog box.

```
┌─────────────────────────────────────────────────────┐
│ LaserWriter  "LaserWriter"              7.1.2  ┌─Print──┐│
│ Copies: 1        Pages: ○ All ⦿ From: 3   To: 1 │ Cancel ││
│ Cover Page:  ⦿ No ○ First Page ○ Last Page              │
│ Paper Source: ⦿ Paper Cassette ○ Manual Feed            │
│ Print:        ⦿ Black & White   ○ Color/Grayscale       │
│ Destination:  ⦿ Printer         ○ PostScript® File      │
│ Section Range: From: 1      To: 1      □                │
│ ⊠ Print Hidden Text  □           ⊠ Print Back To Front  │
└─────────────────────────────────────────────────────┘
```
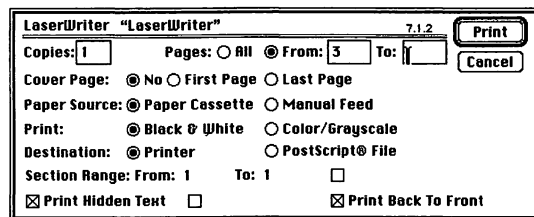
Figure 5.2. A print dialog box.

Often a dialog box does not enable you to do any task until you have finished entering the data. If you do not want to enter the data right away, you usually can click Cancel. Dialog boxes often have various ways to enter data.

○ *Text boxes* enable you to enter alphabetic, numerical, or alpha-numerical text. Usually the dialog box does not accept the wrong type of data.

○ *Check boxes* enable you to select or deselect an item. Clicking in a
   check box selects the item and places an X in the box. Clicking
   again deselects and removes the X.

○ *Buttons* normally are used for actions that occur immediately. *OK*
   means that you want the PowerBook to accept any changes you
   made to the dialog box and then close the box. *Cancel* usually
   means that you want any changes made to the box to be ignored.
   Apply normally means that you want the PowerBook to perform
   the activity indicated in the dialog box, but you do not want the
   box to be subsequently closed. *Help* normally summons a help
   screen.

○ *Radio buttons* are used to choose between two or more mutually
   exclusive options. They work like the buttons on car radio analog
   dials. You push in a button to move the dial to a new location, and
   when you push another button, the first button pops up—only one
   button can be depressed at a time. Similarly, if you click on a radio
   button it darkens, which means it is selected. At the same time,
   your previously selected button is deselected.

Menus

Unlike other computer systems, where most commands are entered
through the keyboard, the PowerBook works through the use of menus.
There are three types of menus. These are discussed below.

Drop-Down Menus
Whether you are using the Finder or an
application, you see a menu bar across the top of the screen. Place your
pointer on any of the menu words, click, and hold the trackball button.

A menu drops down. When you move your pointer across the menu bar, each menu drops down as you approach it and disappears as you move on. Figure 5.3 shows an example of a drop-down menu.
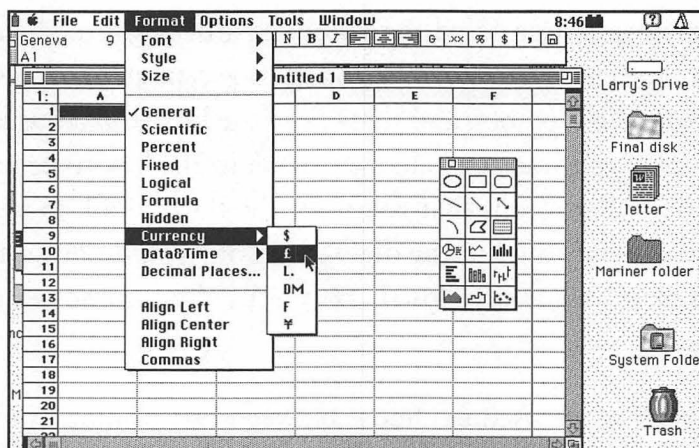
Figure 5.3.   A drop-down menu.

To select any command in the menu, move your trackball pointer down to the command and release the button. The command blinks a number of times to show that the PowerBook understands what you want it to do. You can set the number of times the menu item blinks using the General Controls control panel.

Any gray item in a drop-down menu is not available to you at this time. For example, if you have not cut or copied anything to the Clipboard, the Paste menu item is unavailable.

Most applications, including the Finder, have their own unique menu bar. However, virtually all applications have the Apple menu at the upper-left of the screen and the Help menu (question mark) at the right. Most applications also have a File and Edit menu. While these

two menus normally contain similar items regardless of which application you are running, they often contain some unique items too.

If a menu item has three dots after its name, the program needs more information after you select this item. Normally, selecting such a menu item displays a dialog box.

If the menu item has a key combination to the right of it, that is its keyboard shortcut. Holding down the indicated key and pressing the letter is the same as selecting the command from the menu.

Hierarchical Menu
If a command on the menu bar contains a right-pointing arrowhead (see fig. 5.3), that indicates a hierarchical menu. When you move your trackball pointer to that menu item, a submenu that contains additional choices appears to the right.

Tear-Off Menu
Some applications have tear-off menus. When such a menu drops down, you move the trackball pointer near the middle of it and then click and drag. The menu moves off the menu bar and remains open. Tear-off menus are often used in drawing programs to keep tool palette readily available. To close a tear-off menu, click on its close box in the upper-left corner.

Files and Folders

One of the best things about the Mac directory is that it enables you to organize your files in a virtually unlimited number of hierarchical folders. Say you are working on an annual report. You can have one folder labeled Project. In that folder could be two more labeled Accounting data and Text documents. In the Text documents folder,

you could have two more—one labeled Correspondence, and the other labeled Drafts. In the Correspondence folder, you could have three folders, each one labeled with the name of a different contact.

To create a folder, simply select New Folder from the Finder's File menu. A folder called Untitled Folder appears. If the folder's name is highlighted and there is a box around it, you can begin typing the folder's new name. Otherwise, select the title area using the pointer.

When you choose New Folder, the folder appears in the area of your Desktop that is selected. You can, however, move folders inside other folders to any desired depth. To do so, you have to open all the layers of folders that are on top of it (you can use the Find command to do this for you).

If you want to place a document using the Save command, or if you want to find a file using the Open command in an application, you also can move through folders. To open a folder in the Open or Save dialog boxes, either double-click on the folder's name or click once to select it and then click the Open button.

You can move single files and folders into each other through the click-and-drag method. There are two ways to do the same with multiple files or folders.

The first method works as follows. If your active window's view is by Icon or by Small Icon, you can draw a box around any number of files or folders to select them all. Place your trackball pointer at a corner of the box you want to draw. Hold the button down and drag diagonally to the opposite corner. You see an outline box appear around the selected items. The box disappears as soon as you release the button, but

all the items in the box are selected. Move the pointer to any of the selected items and click and drag them (they all move together) to the folder or area of the Desktop where you want them placed. To deselect them, click once anywhere. Of course, this method only works if the files are configured so that a box can be drawn around them.

The second method, slightly less convenient, is Shift-clicking. Click on one of the files or folders you want to select while holding down the Shift key. Next, without letting go of Shift, click on the second item. Repeat this process until you have selected all the files/folders you want. As long as you continue to hold the Shift key, when you select a new item, the previously selected item or items are not deselected. This method works with all views.

The System Folder

There are many things about the PowerBook that are different from other notebook computers. The first thing you notice after you turn on the power are actual folder icons on the opening screen. One of them is your System Folder.

Many first-time Mac owners have little idea what is in their System Folder. If you have plenty of disk space to spare, it might not matter if your System Folder carries a lot of extra baggage. But experienced backpackers always are trying to find ways to lighten their load. They use three-quarter-length sleeping pads, cocoon sleeping bags, and some even clip the borders off maps. PowerBook users concerned with fitting all their files on a relatively small hard drive should be similarly careful not to carry around any extra weight. Your ability to trash unneeded

files depends partly on how much of a pack rat you are. However, by realizing what the various files in the System Folder do, you can pick and choose which should remain and which can go.

Here is an alphabetical description of most of the items that Apple installs in your System Folder. Figure 5.4 shows the items in the System Folder.
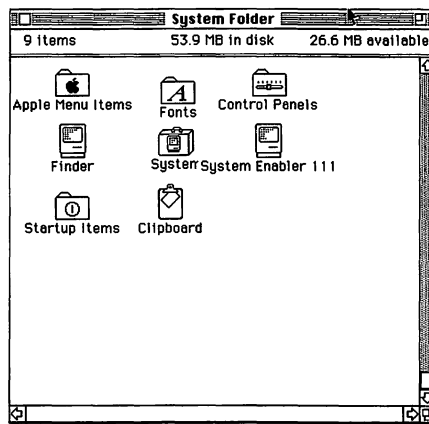
Figure 5.4. The System Folder.

Apple Menu Items

This folder (see fig. 5.5) holds all the applications and documents (or aliases) whose names you want to appear on the Apple menu in the top-left corner of the screen. When you are at the Desktop or using an application, you can access any of these items with a trackball stroke.
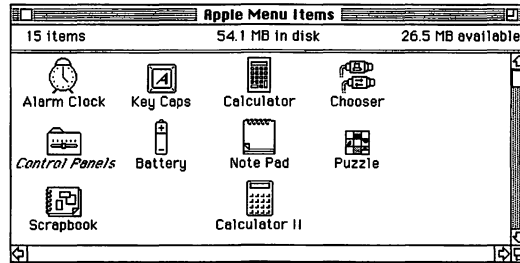
Figure 5.5.   The Apple Menu Items folder.

Placing an application in the folder does not increase your RAM requirements or take up more disk space than if you kept it outside the folder. However, your PowerBook comes with a number of utilities in the folder, some of which you might want to trash.

This is the basic set of the items in the Apple Menu Items folder along with the amount of storage each requires:

Alarm Clock   The Alarm Clock displays the time and enables
you to set an alarm. Unless you have a good alternative in your PowerBook or on your wrist, you might as well keep it.

Battery   Battery indicates how much power you have left in your
battery. You need some means of gauging your battery's power level, so until you find an alternative keep this.

Calculator   The Calculator supplies an on-screen representation
of a very basic calculator. It has so few functions (no percent key, for example) that it cannot be used for any serious math. If you carry around a regular calculator, you probably will continue to do so and can trash this.

Chooser   The Choose enables you to choose to which printer or other network service your PowerBook can talk. Unless you work with only one printer and are not connected to any other computer, you must keep the Chooser.

Control Panels   The Control Panels folder stores aliases of control panel devices. An *alias* is a pointer to files and folders stored elsewhere. This item appears on the Apple menu as Control Panels. Control panel items are described in the "Control Panels" section.

Key Caps   Key Caps helps you type special characters such as é or π. When you select Key Caps, you get a representation of the keyboard. Each key is labeled with the character it displays when typed. When you select a special font set, such as Dingbats, or press any control key, the on-screen keyboard indicates the new characters.

Note Pad   Note Pad creates an on-screen note pad. You can type information on it that you can access later from any application (or even if you are not working in one). Note Pad was more useful with early operating systems, in which you could not open more than one application at a time.

Puzzle   This desk accessory displays the Apple puzzle. A part of all Mac Systems, the Puzzle surprisingly has never been changed or replaced over the years. If you are new to the Mac you might find it entertaining for a short while, after which you probably will want to trash it.

Scrapbook   The Scrapbook stores frequently used text or graphics. For example, here you can keep a letterhead graphic to paste into a word processing document. Like Note Pad, Scrapbook was more

valuable before the advent of multitasking, but it is still a handy place for your graphics. Keep this, but you also might want to look into the many shareware or freeware alternatives.

Control Panels

You can manage many PowerBook functions through the Control Panels menu item, found on the Apple menu. Some control panels are essential for PowerBook owners; others are optional:

○ Color sets the colors of highlighted text and the borders of windows in the Finder. Obviously, if you do not have an external monitor or a color PowerBook, you do not need Color.

○ Date & Time formats how date and time are expressed when running applications using foreign languages. Because of its relatively large size and limited use, you might consider trashing this.

○ General Controls governs the time and date, the pattern of the Desktop, and the speed at which the insertion point blinks. You need to keep this.

○ Easy Access enables you to control your PowerBook using special keys instead of the trackball. Most PowerBook owners do not need this.

○ Keyboard changes the keyboard to reflect foreign language modules. If you work entirely in English, trash this.

○ Labels changes the color of files based on their importance. Unless you have a color screen or color PowerBook, you can trash this.

○ Map indicates the latitude, longitude, and time zones of cities around the world. Keep it awhile to see if you use it. You probably will end up trashing it.

○ Memory controls the setup of disk caches, virtual memory, 32-bit addressing, and RAM disks. These functions are discussed elsewhere in this book. You most likely will want to keep this.

○ Monitors sets the gray level, the number of colors, and, if you are using two monitors, the relationship between them. For example, you can create a virtual desktop, where files are spread across an external monitor and the PowerBook's screen. Keep this control panel.

○ Mouse controls how fast the cursor or trackball pointer moves when you roll the trackball. You can trash this after you have set it to a satisfactory speed.

○ Numbers enables the input of foreign currencies. This item is useful only if you are writing with a foreign-language module.

○ PowerBook Display sets the period of idle time after which the screen's backlighting turns off. This is a valuable energy saver. If you are using an external screen or other video device, it enables you to set up Video Mirroring, which enables the PowerBook screen to mirror that of the external display device exactly.

○ Sharing Setup turns file sharing on and off.

O Sound controls the PowerBook's alert sound (normally a simple
  beep). It also enables you to change the speaker volume and to
  record sounds. If you are happy with the current sound and do not
  see a need to change it, trash this. However, most users like to vary
  sound.

O Startup Disk indicates which hard disk is used as your startup disk.
  Even if you never plan to use two hard drives, you might need this
  if something goes wrong with your System file. It is worth 5K.

O Users & Groups specifies the users and groups with access to your
  files and the file privileges they enjoy. Unless you are sure you will
  not be connecting with another computer (including your own
  desktop machine), do not trash this.

O Views changes the font and arrangement of file information in the
  Finder. Mac users always seem to want to change the view, so keep
  this.

Extensions Folder

An *extension* is an addition to the Mac's System. When the PowerBook
is started up, the Mac looks in the Extensions folder to see if there are
any extensions to load into memory. Extensions, in general, work
regardless of the program you are using.

Trashing unneeded extension files saves your hard disk not only
memory but also RAM. A System loaded with extensions requires more
memory than one with fewer extensions. A list of extensions Apple
includes with your PowerBook follows.

Caps Lock   Caps Lock places an indicator on the right side of the menu bar when the Caps Lock key is on. If you have a Duo, there is an LED indicator on the keyboard, so you do not need this. Otherwise, you might want to keep it.

DAL   The DAL extension enables your Mac to communicate with a network using an SQL server. You know if you need DAL; if not, trash it.

Finder Help   Finder Help is for raw Mac beginners. If that is you, keep it awhile. No one needs this in the Extension folder for more than a month or so.

Printer Drivers   A *printer driver* tells your PowerBook how to print on one specific printer or class of printers. The Extensions folder contains a number of printer drivers for various Apple printers. If you buy a third-party printer, it comes with a driver; you need to drag it into the Extensions folder.

What you keep in this folder depends on how you work. If you are only going to use one or two printers, you can trash any drivers you do not need. (You always can reinstall them later if you have to.) However, keep all your drivers if you travel from place to place and connect to the nearest available printer. Of course, if you encounter a printer whose driver is not installed in your PowerBook, you easily can copy the driver off the local hard drive.

QuickTime   QuickTime enables your PowerBook to display and manipulate digitized video, sound, and animation. You probably will not use your PowerBook's internal drive for QuickTime often because even a one-minute segment uses about 4M of disk space. You might

want to move QuickTime off your hard drive and keep it handy if you ever need it.

Font Folder or System Suitcase

The Font folder (pre-System 7.1) and the System suitcase (System 7.1 and later) contain your PowerBook's screen and printer fonts. Most users find a lot here to trash, but the problem is deciding what you need.

There are at least two versions of each font in your System suitcase or Font folder: a bitmap version, identified with a single A on the icon, and a TrueType version, identified with a triple A in the icon.

Bitmap fonts are drawn pixel for pixel. If you use them in the exact font size in which they are drawn, they create excellent screen or printer images. Bitmap fonts also take up less disk space than their TrueType counterparts.

TrueType fonts are defined by a mathematical description (an *outline*) and can be scaled up or down to many different sizes. The resulting screen or printed image looks good. If you scale a bitmap font, the characters appear jagged. Thus, you need a different font for each size to get high-quality bitmap images, whereas TrueType fonts need only one font for all font sizes.

The situation is even more complicated if you use a PostScript printer. The printer can translate bitmap fonts into PostScript using its PostScript module. In that case, you might want to trash your TrueType

fonts. TrueType fonts, however, provide a screen image that more closely resembles the PostScript printed output than bitmap fonts do.

What is the bottom line? For now, keep all the fonts that come with your System. Later, when your hard drive begins to fill up and you seek candidates for the trash bin, reread this section, think about what kind of work you have been doing, and then decide which fonts you need.

The System suitcase also contains the sounds with which your Mac alerts you. Some people like many different sounds, while others are content with the standard beep. If you like to use different sounds and decide to add sounds as you find them in user groups and online services, be sure you trash those you are tired of.

Preference Folder

Many applications enable you to set preferences as a way of customizing the way the program works. Those preferences are saved in the Preferences folder located in the System Folder. If you remove any of the files in this folder, when you launch the respective application, you have to retype your preferences. The only time you need to look in this folder is when you experiment with applications that you eventually decide to trash; your Preferences folder might contain files for applications you no longer have. You should do some housecleaning here every few months.

Startup Items Folder

This folder enables your PowerBook to open your favorite applications or documents automatically upon startup. Simply drag into the folder an alias of the program or application you want to open when you start your PowerBook. The more applications and documents you have in here, the longer startup takes. However, placing an item here does not affect your System memory or disk space.

PowerBook and System 7

The introduction of System 7 was unique in the number of Mac owners who chose to ignore it. For the first time, the introduction of a new System did not result in an immediate mass migration. The reason is twofold. First, System 7 requires more memory than its predecessor. Many Mac users whose machines have only 1 or 2M of memory simply cannot run System 7. The second reason is that, more than any other upgrade, System 7 leaves many applications and utilities in the dust. Many users find that their favorite applications, INITs, and DAs cause the Macs to crash with System 7.

As a result, the first time many Mac owners decide to upgrade to System 7 is when they purchase a new machine with it already installed. PowerBook owners are no exception. Anyone whose desktop machine was purchased before 1991 may very likely still be running System 6, in which case the PowerBook represents not only a downsizing effort but an upgrading one as well.

So, if you are a System 7 newcomer, following are some of the new System features you get with your PowerBook.

Multitasking

Multitasking is the capability to run more than one application simultaneously. System 6 enabled multitasking through MultiFinder. System 7 eliminates MultiFinder and provides a smoother way to move between applications. For example, you can now elect to hide the Finder or any of your open applications.

Adding Fonts and Sounds

System 6 required you to use Font/DA Mover and SoundMover or similar programs to add fonts or sounds to your System. System 7 eliminates the need to use a separate program—all fonts and sounds are added simply by dragging them into a special folder.

File Sharing

System 7 makes file sharing part of the System. It enables you to specify which folders and files can be shared by colleagues whose Macs are connected to your PowerBook though a network or modem. File sharing can even be used to control connections from a PowerBook to your desktop machine.

Virtual Memory

Virtual memory designates part of your hard drive to act as RAM, enabling you to use programs requiring more RAM than you have installed. Virtual memory is available for System 6 users only through third-party products; Apple provides it for the first time with System 7. If you are using your PowerBook with a battery, however, you probably do not want to use Virtual memory because it causes constant disk spinning, using large amounts of energy.

Publish and Subscribe

With System 6, the primary way to transfer data between applications is via the Clipboard. Say you want to include some spreadsheet data in a word processing document. You copy the appropriate cells in the spreadsheet, move to the word processor, and paste the data into your report. That process works fine as long as the data does not change; if you change the data in your spreadsheet, you have to repeat the process to update your report. Some software packages—for example Microsoft Excel (a spreadsheet) and Microsoft Word (a word processor)—provide a way of linking data. But System 7's Publish and Subscribe feature enables you to automate the updating process with any two programs that support it.

To use Publish and Subscribe, select the data you want to paste into the second program. Then, instead of selecting Copy (as you would under System 6), you use the Create Publisher and Subscribe To options on the Edit menu. The information in the second document can be updated whenever the original data is changed.

TrueType Fonts

TrueType fonts make the screen fonts appear smoother and enhance the output of non-PostScript printers. The differences between TrueType and bitmapped fonts are outlined earlier in this chapter.

All About Power

Because PowerBooks often are required to be self-powering, controlling your PowerBook's power usage and supply is important. The next sections explain how to keep your PowerBook running.

The Control Panels

The control panels can help configure the PowerBook's use of power. If you have System 7.0.1, you have the Portable control panel. If you are using System 7.1, you have the PowerBook control panel.

The Portable control panel has two sliders that control the length of time before the PowerBook and hard disk go to sleep. The Portable control panel also has a check box that prevents the computer from going to sleep if it is plugged into an AC outlet, a check box that causes the PowerBook to automatically wake up if a call comes in through the modem line, and two radio buttons to set the default modem port.

The PowerBook control panel in System 7.1 has a single slider for controlling the timing of hard disk spindown, CPU sleep, and a few other power considerations. The slider can be dragged between two

points—labeled Maximum Performance and Maximum Conservation. As you move toward Maximum Performance, there is a longer wait before spindown and CPU sleep.

The PowerBook control panel enables you to set the SCSI ID of your PowerBook's internal hard drive. The main advantage of the PowerBook control panel over its predecessor is its second layer, accessed by clicking the Options button in the Battery Conservation area. These options provide a good deal of control over your energy usage and thus enable you to find the best method to increase battery life:

○ *Reduced speed*, found under Processor speed, causes the 25- or 33MHz CPU to run at 16MHz. You have to experiment and decide how much longer the battery lasts when using a slower processor. You also must decide whether trading longer battery life for poorer performance is worthwhile. However, the capability to work your PowerBook off a single battery for a lengthy conference might be well worth waiting a more few seconds for your spreadsheet to perform a recalculation.

○ *Processor Cycling* enables the CPU to reduce operations when it determines that the functions being performed do not require its full attention. If the Allow Cycling radio button is clicked, the slider control determines how often the CPU naps. If you find performance has decreased beyond an acceptable limit, you either can move the slider to the left or deselect Processor Cycling.

○ *Video Mirroring* enables your PowerBook screen to replicate its image on an external screen. For PowerBooks with a video-out port, the control panel enables you to turn Video Mirroring mode on or off when your PowerBook is connected to an external monitor.

○ *AutoRemounter* is used for reconnecting to frequently used AppleShare and shared volumes. AutoRemounter remembers the names of remote shared volumes mounted on your Desktop when your PowerBook goes to sleep or is shut down. If it reawakens while connected to the network or is reconnected to the network, the PowerBook attempts to mount the volumes that were mounted previously.

PowerBook States

The PowerBook has four distinct states, each of which has its own power requirement. The four states are—in order of most to least power consumption—Run, Rest, Shut Down, and Sleep.

Run   *Run* occurs when the PowerBook's CPU is executing an instruction. It is the normal state of most desktop machines.

Rest   In the *Rest* state, the PowerBook is completely active, but is not doing much at the moment. Also called *Processor Cycling*, this state occurs whenever there is no call to the PowerBook's CPU for a few seconds. When an application requires some computation, or you move the trackball or hit a key, your PowerBook moves to the Run state almost instantly. You can turn off Processor Cycling and adjust how long the PowerBook waits before it rests with the PowerBook control panel in System 7.1 or the Portable control panel in System 7.0.1. With System 7.1, click the Options button and then choose the Do not allow cycling radio button. Moving the slider in the main control panel window towards Maximum Performance causes the PowerBook to wait longer before it rests. With System 7.0.1, click on the Minutes until automatic sleep button while holding down the Options key. You get a dialog box with a Don't rest radio button. Disabling Rest, of course,

reduces battery life. So unless you have a specific reason to do so, do not disable Rest. In some rare cases, disabling Rest improves the performance of applications that are running in the background. If you seem to be having a problem with performance, though, do not assume automatically that Rest is the culprit. Test it out; even if disabling Rest improves performance, you have to weigh faster processing against shorter battery life.

Shut Down   *Shut Down* turns everything off. Shut Down uses
no power, but it takes you a few minutes to start your PowerBook again.

Sleep   *Sleep* is so restful for the PowerBook that you may never
have to shut it down at all. In the Sleep state, most of the systems in the PowerBook that require power, such as the trackball, the screen, and the hard drive, are inactive. The small amount of power the computer needs to maintain a few things in memory may have no measurable effect on your battery life. You do, however, have to shut down your Duo before docking it. You can insert a sleeping Duo; but, when you try to turn it on, the Dock ejects it. When you wake up the Duo, you see a dialog box explaining that you have to shut down before docking.

System 7.1 has one Sleep mode, which includes System sleep and internal drive sleep. With System 7.0.1, you can control these two states separately. In either case, they are controlled with the PowerBook or Portable control panels.

When the hard drive sleeps, it spins down and parks its head, just as your desktop hard drive does when you shut down. The hard drive uses a good deal of power to go from a parked to an active state, so if you are using applications that access the hard drive often, do not set your PowerBook to Sleep after a very short period. (Some applications, such as Quicken and HyperCard, save automatically and thus are continually

spinning the hard drive.) PowerBooks do not automatically go to sleep under certain conditions, such as if they are connected to an external monitor or if they are plugged into an AC outlet and Do not sleep when plugged in is selected in the PowerBook control panel.

The best way to save power is to use the PowerBook's capability to sleep automatically after a period of idle time. You also can put your PowerBook to sleep immediately by selecting Sleep from the Special menu in the Finder or by clicking on the Sleep button under the mailbox flag in the Battery desk accessory. In all the Sleep states, power remains supplied to RAM so that nothing stored in memory is lost.

About Batteries

The best way to lengthen the time your PowerBook can go without a recharge is to buy a better battery. In fact, the history of the PowerBook line is one of increasingly improved Apple batteries. The Mac Portable and the PowerBook 100 used sealed lead-acid technology batteries. All PowerBooks up to the Duos use nickel-cadmium (NiCad) technology. However, the NiCad battery on the 145,160, 165c, and 180 is an improved version of the one used on the 140 and 170. As a result, the newer batteries may last about 10 to 15 percent longer than previous ones.

Beginning with the Duo 210, Apple offers Nickel-Hydryde (NiHy) batteries that are supposed to be 20 percent better than the previous NiCad batteries. NiHy batteries also recharge more quickly. They run two to four hours after charging for about an hour and a half.

Charging Your Battery   There are two ways to charge your PowerBook battery:

○ *Trickle charge* works while your PowerBook is plugged into an AC outlet. As you work on your PowerBook, the battery is being charged simultaneously. This method is slow; a full charge takes about ten hours.

○ *Fast charge* requires an external battery recharger, either from Apple or a third-party vendor. The recharger almost completely recharges a battery in about four to five hours.

Most battery rechargers, including Apple's, have sensors to prevent overcharging. Figure 5.6 shows examples of PowerBook battery rechargers.
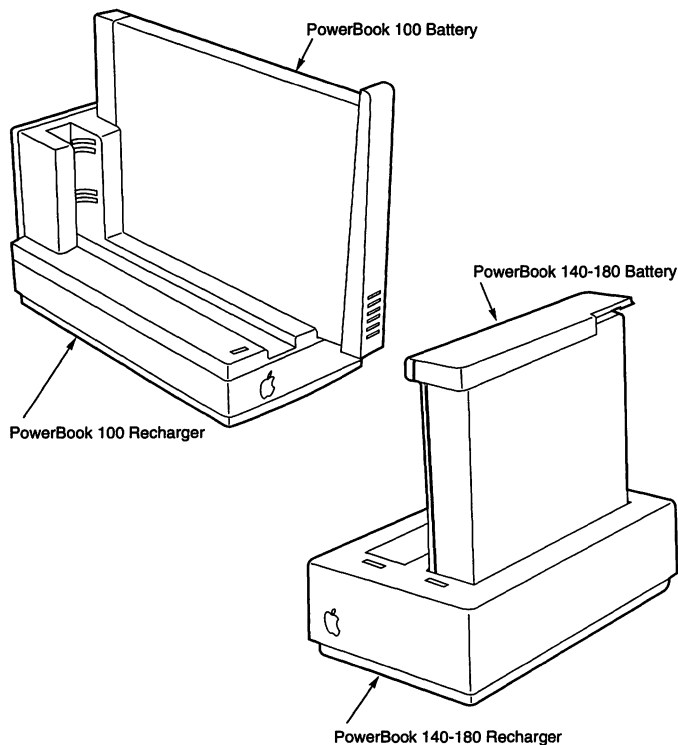
Figure 5.6. PowerBook battery rechargers.

Discharging Your Battery

Rechargeable batteries have a memory. If you recharge them often after only draining part of the charge, the battery believes it has to run down only partway before getting a fresh charge. As a result, continually recharging an incompletely discharged battery causes the battery to run down faster. This is called a *memory effect.* Memory effect can be prevented by completely discharging a battery before recharging it. A battery whose active life has been shortened because of memory effect often can be cured by a few complete discharges followed by recharges.

For many users, the simplest way to discharge a battery is through the PowerBook. Simply keep the PowerBook running overnight. However, a more efficient way is though an external battery recharger that includes a discharge option. The Lind Full-Cycle Charger-Conditioner, as well as the Madson System 90 Charger, both perform discharges. Plus, the discharges are more complete than when using PowerBook as a discharger because the PowerBook shuts itself down before the battery is discharged completely.

Battery life also can be extended though conditioning when first purchased. This usually entails two complete charges and discharges.

To change batteries without shutting down your Mac, PowerSwap from Utilitron plugs into the AC adapter jack on your PowerBook. It uses a nine-volt battery to keep the PowerBook going (albeit asleep) while you switch batteries.

Power-Saving Tips

Officially, Apple says battery life is two to three hours. However, you have to work to retain a charge that long. While part of the job of

managing power involves managing batteries, there are a number of other ways to keep those batteries running longer.

Backlighting

The PowerBook's backlit screen is the most energy-intensive part of the system. The PowerBook 165c screen, which has a double backlight, can be extremely energy hungry. In general, all PowerBook screens can be expected to eat up almost half of the battery's useful life, so concentrating on screen lighting might be the best way to lengthen a battery's charge.

Turning down the brightness control reduces screen energy usage, but because you probably want to base brightness on eye comfort, you may not save much energy here. The best way to save on battery life is to have the PowerBook automatically turn the screen down when it is not in use. This function, which can be controlled with the PowerBook Display control panel, acts as a screen saver. Set the period of time before the screen dims, and whenever the PowerBook is idle for that period of time, the screen goes dark. Because the screen brightens immediately whenever you begin to use the PowerBook, there is no reason to set that time control to any longer than two or three minutes.

You can opt to have the PowerBook's screen remain on when idle if the PowerBook is plugged in (choose the Don't dim when plugged in option in the PowerBook Display control panel). However, if you select this option and leave the PowerBook on for 24 hours, the screen might be damaged temporarily. There really is no reason to use this option.

One final suggestion: You might try creating a bright Desktop pattern, which enables you set the brightness control a bit darker.

RAM Disk

After screen backlighting, the most heavy energy user is the PowerBook's hard drive. Your goal should be to have it spin as

little as possible. One way might be to avoid applications that automatically save data each time they are entered (HyperCard is one example). But, for most users, that is not a realistic option.

A better way is to set up a RAM disk. This enables you to set aside part of RAM to act as if it were a hard disk. Programs or applications placed in the RAM disk can run without calls to the hard drive. A RAM disk not only saves power, but also improves performance. It is much faster to load information from RAM than from the hard drive. Of course, the disadvantage of using a RAM disk is that you use up RAM that you might need to load other applications or documents.

If you have at least 6M of RAM, you can set aside 2M for your System. If you can spare more memory, place your System Folder and an application that you often use in a RAM disk. That way, you use your hard drive only when you open or save a document.

Processor Speed   If you have a PowerBook with a 25- or 33MHz processor, presumably you shelled out the extra bucks for the better CPU for a reason. You wanted the increased speed and are willing to pay for it in money and possibly in energy usage. Apple does not have exact guidelines as to how much longer a slower processor lasts on a single recharge, but most experts say the period is not significant. If you want to experiment with how much longer battery life you get with a slower processor, your PowerBook provides a way to do so.

Open the PowerBook control panel (System 7.1) and select Options. Under the Processor Speed heading, select the Reduce speed radio button. Then restart your PowerBook.

Try running your most processor-intensive applications to see if the reduced speed affects performance noticeably while gauging your battery to see if the charge lasts longer.

Hard Disk Spinning   Controlling your hard disk spinning is yet another method of prolonging your battery life. Some utilities enable you to gain control of when your hard disk spins.

Caches and RAM Disks

Disk caches and RAM disks both store documents or applications in RAM that you normally access from the hard drive. Doing so saves the battery's charge and also improves performance. In fact, if you run your entire PowerBook off a RAM disk (you learn how to do this next), you probably can increase both performance and battery charge by about 50 percent.

While disk caches and RAM disks perform similar functions, they are very different. In either case, you determine the amount of RAM to be set aside. In a disk cache you do not have control over what data is placed in RAM, but with a RAM disk you do.

A disk cache places within it the most recently accessed applications and documents. This is a reasonable way to increase performance. At any given time, your computer is more likely to need that data than any other data on the hard drive.

With a RAM disk, on the other hand, you decide which files are placed in RAM. After the file is place in a RAM disk, it is accessed from RAM, not the hard drive.

The following lists the pros and cons of disk caches and RAM disks. They are not mutually exclusive, but in both cases you have only a limited amount of RAM to spare.

○ With both caches and RAM disks, you reserve RAM, thus limiting the number of applications you can launch. A disk cache is always in use, but a RAM disk is used only if you place a file in it. Therefore a RAM disk may be wasteful if you are not diligent about placing files in it.

○ A RAM disk gives you more control over what applications and documents benefit from RAM. If you tend to work with only a few applications and want to ensure that they benefit from RAM access, you can place them in the RAM disk.

○ However, if you tend to use many different applications and want the computer to judge what is accessed from RAM, opt for a disk cache.

○ Because disk caches store the most recently accessed data, if you jump around from project to project, rarely revisiting your data, the benefits of a cache are limited.

○ Overall, disk caches improve performance gradually, as you continue to work with your files. RAM disks improve performance immediately, but only on those files that are placed in it.

Trial and error is the best way to determine optimal disk cache size. In general, the larger the cache, the more performance improves. You can allocate up to 4M of RAM to your cache, but there is a point where performance boosts narrow with the increase in cache size. Start with about 1.5M and then lower the amount allocated gradually to see if doing so reduces performance. Most users find a cache size somewhere between 512K and 1.5M optimal. RAM disks should be large enough to accommodate the specific applications you want to boost.

Creating a RAM Disk

You create a RAM disk with the Memory control panel (shown in fig. 5.7). A RAM disk only can be the size of currently available memory, so you may have to quit some applications before starting the procedure.
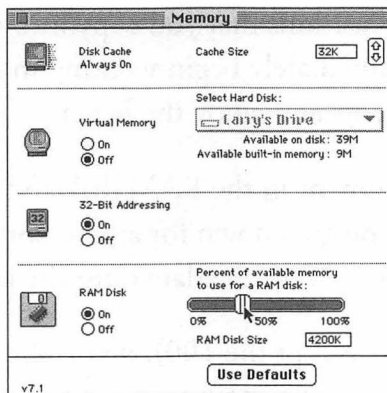
Figure 5.7. The Memory control panel.

Here is how to create your RAM disk:

O Click the RAM Disk radio button.

○ Use the slider to indicate the percentage of available memory to set aside as a RAM disk.

○ Restart your PowerBook.

You see an icon that looks like a floppy disk except that it has a drawing of a chip on it (see fig. 5.8).
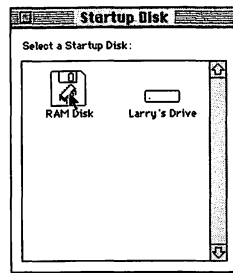
Figure 5.8. The RAM disk icon.

Any documents or applications that you copy into this icon are loaded into RAM. You can immediately begin working in RAM disk applications or documents and enjoy the benefits. Two caveats:

○ If you place a document in the RAM disk and you get a System error or the machine goes down for any reason, you lose your data. Therefore, you should save the data onto the hard drive regularly.

○ In all PowerBooks (except the 100), if you shut down, the contents of the RAM disk do not remain in the RAM disk icon. You have to reload the contents after restarting. Before shutting down, the Finder displays a warning message informing you that the contents of the RAM disk will be lost (see fig. 5.9). A few third-party programs, including Maxima from Connectrix, save a copy of the RAM disk and reload the contents the next time you start your PowerBook.

The contents of the RAM Disk volume
"RAM Disk" will be lost by shutting down.
Do you wish to continue?

Cancel   OK
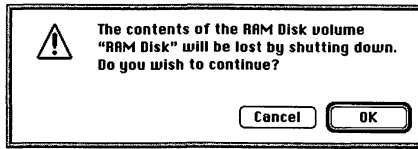
Figure 5.9. The RAM disk shut-down warning message.

Running the PowerBook without the Hard Drive

If you have enough memory, you can run your entire PowerBook off a RAM disk. Unless you have a lot of spare RAM, choose some leaner applications for this operation. You also can create a lean System Folder with a minimal number of fonts and sounds. You probably do not want to work this way all the time, but doing so can come in handy when you absolutely need to save power. Here is how to do it:

O Create a RAM disk as large as you can spare.

O Copy your lean System Folder, the Finder, your applications, and any documents you want to work on to the RAM disk.

O On the Startup Disk control panel, select the RAM disk.

O Restart your PowerBook. You are now running completely off RAM.

O Put your hard disk to sleep (on the Portable or PowerBook control panel).

O If you save a document to the hard drive, you wake the drive up. If you want to conserve the maximum amount of power, save everything to the RAM disk. However, remember that, if the PowerBook goes down, you lose your work.

O Before shutting down, copy any changed files in the RAM disk back to the hard drive.

O Remember that some applications save their preferences in the System Folder. So, if you made any changes to an application's preferences, find the file in the System Folder in the RAM disk and copy it back to the System Folder on the hard drive.

Improving the Desktop and Finder

The design of the Desktop and Finder is what makes the Mac so unique and so popular. Apple has been able to hold its own against DOS-based computer makers despite being somewhat behind in technological innovation and significantly higher in cost because of the Mac's famed interface. Still, there is always room for improvement. Here are some products that you may find a helpful adjunct to Apple's standard Finder and Desktop.

Easier Trashing

PowerBook users are not always able to give their work their full attention. Working with your PowerBook in a car after a meeting, in an

airport while listening for your departure to be announced, or on the couch while the kids are watching TV does not facilitate careful use of your machine. One of the most dangerous things you can do during a period of distraction is delete a file accidentally and then empty the trash. To prevent this catastrophe, which can result in the loss of a day's work or more, consider Guaranteed Undelete from Utilitron, Inc. Guaranteed Undelete protects your trash in a number of ways. First, it enables you to set filters to determine what gets emptied from your trash. For example, you can create a filter that only enables files older than two weeks to be emptied. Or you can set a filter for filename extension, so that if you append certain letters after a filename, that file is protected from being trashed.

If, despite using filters, you still trash a needed file, Guaranteed Undelete may be able to retrieve it. Guaranteed Undelete can save some files because, when you trash a file, your PowerBook does not actually remove it from your hard drive. Instead, it is removed from the directory (you cannot see it on your Desktop or in the Open box in your application). Your PowerBook also knows that the file was emptied from the trash and can be overwritten when its disk location is needed. However, it does not overwrite it right away. If you discover that you trashed a file before it is overwritten, Guaranteed Undelete can salvage it.

There is no sure way to know when a file will be overwritten (the more you use your drive, the quicker it happens), so you cannot depend on Guaranteed Undelete to save you. However, the program is a marked improvement over previous undelete programs in that it instructs the hard disk to overwrite older deleted files first.

Guaranteed Undelete also comes with an incinerator option, which overwrites trashed files for security purposes.

Working with Windows

The PowerBook screen is fine for viewing one or two windows, but if you have a few applications open and several windows open in each of those applications, your work easily can get lost. Finding the window you need can be an exercise in frustration. It can take many trackball clicks to go from the Finder to the needed application and then from window to window. Performing that operation with a good color monitor and fast mouse is hard enough; with the trackball, a small screen, and a disappearing cursor, it is even more tedious.

Kiwi Power Windows places a menu on the Finder that lists the open windows of all open applications. You can go directly from a document in one application to another without having to delve through layers of windows.

To help energy-conscious PowerBook owners, Kiwi Power Windows does not have to update its menu until you ask it to, thus limiting the amount of time the disk drive has to spin. Kiwi Power Windows also remembers the placement of windows as a work set. When you next chose that work set, the same windows open in the same positions and sizes. You also can have Kiwi Power Windows place windows in a number of preset arrangements or you can create your own arrangement which can be saved. Finally, Kiwi Power Windows can rotate windows so that, for example, the second window can assume the size and position of the first window, while the first window assumes the size and position of the last one, and so on.

Figure 5.10 shows a screen with Kiwi Power Windows installed. Note the KPW item in the menu bar.
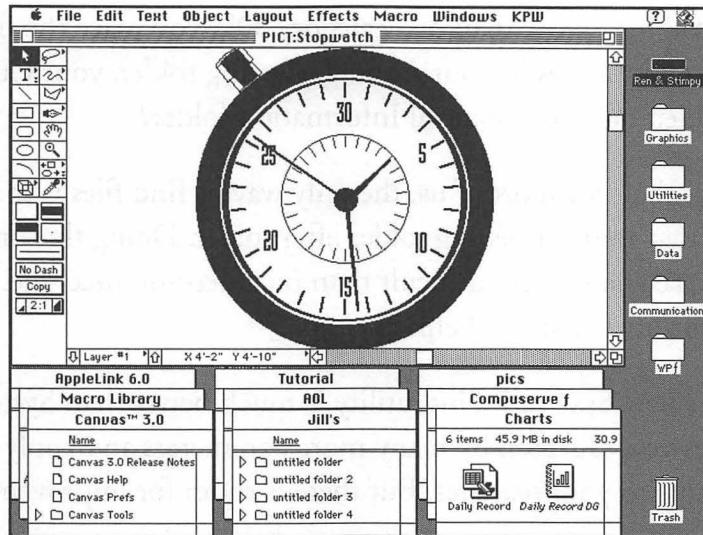
Figure 5.10. A screen with Kiwi Power Windows installed.

Finding Your Files

The best thing about computer storage is that you can keep a large amount of varied information in a very small space. The bad thing about it is that it sometimes is difficult to find the files you want. Apple went a long way towards helping users keep track of files through its hierarchical file system and folder interface. By placing files in folders and placing folders inside other folders, you should be able to organize your work so that, at least in theory, you always can find needed files quickly.

But, as anyone who has used a hard drive knows, that theory does not always work in practice. Even if you are a diligent organizer, sorting your work into folders and always placing files in the correct folders,

often files fall into more than one category. Did you place the files containing sales figures in your Annual Meeting folder, your Current Projects folder, or your Financial Information folder?

The truth is that, for most of us, the only way to find files is to hunt for them, and that means opening folder after folder. Doing this on a small-screen PowerBook is more difficult than on a desktop machine. There are several utilities that can help:

○ Apple's new System 7 Find utility is much better than System 6's. It enables you to search by many more parameters and apply more operators to your searches. But there is room for improvement.

○ Retrieve It, by Claris Corp., is an excellent utility for finding files. The best thing about Retrieve It is that it gives you a peek within a document, enabling you to see its text without having to open it. This enables you to quickly check if a found file is the correct one.

○ CanOpener, by Abbot Systems, is another text-retrieval system that enables you to search for bits of text within documents.

○ FetchIt from CRAZ Software enables you to enter a text string and receive a list of files in which the string appears. About two or three lines of text are displayed in a small window.

○ GOfer from Microlytics Inc. handles complex Boolean text searches and also finds files.

○ A word processor, Nisus (from Nisus Software Inc.), also can perform searches on the content of files.

○ Super Boomerang, a part of NOW utilities, enables you to add files and folders to a list of your most-used data. It also remembers your most recently used files and folders. You then can jump from folder to folder and file to file with only one trackball click. You also can assign keyboard shortcuts for accessing files and folders. Super Boomerang enables you to search for files in the Open and Save dialog boxes.

Figures 5.11 and 5.12 show examples of two file-finding utility programs.
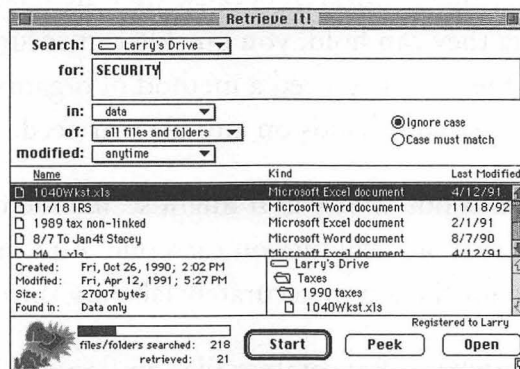
Figure 5.11. The Retrieve It utility.
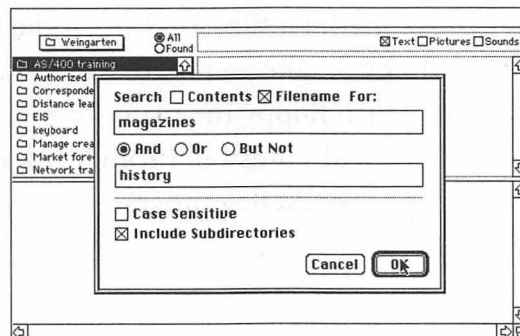
Figure 5.12. The CanOpener utility.

Working with Disks

The best way to handle the problem of a cramped hard drive is to take everything you do not immediately need off your drive and archive it on floppy disks. Is there a project you completed a year ago? Have you transferred last year's accounting data onto your corporate mainframe? Do you have 25 versions of a project file, each one only slightly different from the last? All these represent perfect candidates for archiving.

Floppies are the most common, as well as the most economical, media on which to archive files. However, because they are relatively limited in the amount of data they can hold, you quickly can accumulate a large library of them. Thus you may need a method of organizing that library so you can quickly get your hands on any file you need.

Organizing floppies is not as easy as it might seem. You can have dozens, even hundreds of small files on each one. And the floppy disk label is inadequate for the job of accurately labeling the contents.

The solution is a program that catalogs files on floppies. To use one, you simply insert your floppies in the hard drive one at a time. The program makes a copy of each floppy's directory and stores it on your hard drive. The next time you are looking for a file, you launch the program and, using a find utility, search for the file you need. After you have found it, the program tells you on which floppy the file is located. On Location (from ON Technology Inc.) and Findswell (from Working Software Inc.) are examples of floppy disk catalog programs.

Customizing Your PowerBook

Many PowerBook owners, certainly more than desktop Mac owners, become genuinely fond of their machines. Unlike desktop Macs, which stay at work or at home, the PowerBook becomes an important part of the user's life. Therefore, many PowerBook users want to customize their Desktop and other screens. The PowerBook, like all Macs, provides a number of easy ways to do so.

The Startup Screen

Many PowerBook users never completely shut down their machines and so never have to start them up. Others, however, always are starting up their machines. Apple's welcome message, while gracious, easily can become boring. If you want your startup screen to be more interesting, reflect your personality, or even portray your company's logo, there are a number of ways of dictating the first thing you see when you switch on your PowerBook.

The first step is to obtain a color or monochrome image. You can draw a picture in a paint program, scan a photograph, download a picture from an online service, or find one at your user group. It can be any image that you enjoy seeing each time you start your Mac—an affirmation, a nature scene, a logo, even beefcake or cheesecake. (Just remember that you might use your PowerBook in many places with many different people looking over your shoulder, so you might want to keep your photograph G-rated!)

The image should be saved in PICT or MacPaint format. Name it StartupScreen (that exact spelling—no space between the words) and place it in your System Folder's root directory (not in any folder within the System Folder). That is all you have to do. The next time you start up your PowerBook, this screen appears in place of Apple's welcome message.

You can do the same with QuickTime movies. Name the movie Startup Movie and place it in the System Folder as described above.

The Desktop

The Desktop pattern can be customized using the General Controls control panel. By clicking on the pattern box above Desktop Pattern, you can change the pattern to a number of designs as well as plain black or white. Figure 5.13 shows the Desktop pattern box.
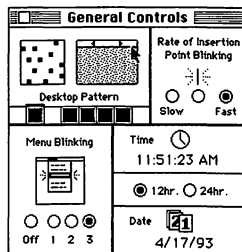
Figure 5.13.   Customize the Desktop pattern in this control panel.

In general, PowerBook users are better off using a lighter pattern. A darker pattern increases backlight brightness, and the brighter the backlight, the quicker the battery runs down.

Sound

You also can customize your PowerBook's alert sound. The Sound control panel enables you to replace the standard beep with any other sound that is in your System. Your PowerBook comes with a number of sounds. Also, you can record your own sounds or install sounds made by others.

The Sound control panel enables you to select the alert sound. SoundMaster, a very popular shareware product by Bruce Tomlin, enables you to assign different sounds to actions like emptying the trash, inserting disks, or hitting the Return key.

Deciding whether to install sound in a PowerBook takes some thought. If you are going to be working in conferences or libraries, you probably want your PowerBook to be silent or restricted to an unobtrusive beep. It is easy to turn off any installed sounds when you use your PowerBook in a public place, but having your PowerBook vocalize a loud "Hee-haw!" during a quiet period in a meeting can prove embarrassing.

Memory Management

While the PowerBook has many features found in a desktop machine, its RAM limitation is a major disadvantage. Current PowerBooks can be expanded to only 14 or 24M. Even if 14M can fit all your needed applications, few users actually buy so much memory. As a result, some judicious memory management can help provide the most bang for your RAM buck.

One way to look at RAM is as a measure of how much work your PowerBook can do. Each application requires a certain amount of memory. Perhaps your word processor needs 2M and your personal information manager needs 1M. If you want to run both programs at the same time, you need at least 3M of RAM plus whatever RAM your System needs to operate. Obviously, the more memory your PowerBook has, the more programs you can have open at the same time.

Eliminating unneeded INITs is one of the easiest ways to control memory use without affecting how you work or necessitating memory upgrades. INITs add some function to the System, such as controlling sound or altering how you can access files. Some INITs come with your PowerBook; others you might add later. When you start up your PowerBook, a bunch of icons appear across the bottom of the screen, each representing an INIT loaded into memory.

You may not need all the INITs that Apple supplies, and if you added an INIT you are not using now, do not keep it around. You can remove INITs by dragging their icons out of the Control Panels or Extensions folders. An example of a possibly unneeded set of INITs deals with file sharing in the Control Panels. If you do not plan to connect with other users, you can remove the Setup, Users & Groups, and File Sharing Monitor INITS, saving about 300K of RAM.

Application Memory

If you are stuck for space, you might try running an application with less than the recommended amount of RAM. If you select an application icon and then select Get Info in the Finder's File menu, you see a box containing the memory partition the application reserves for itself.

The number referred to in the Get Info box as Current size or Minimum size can be changed. There also is another number, Suggested size, which is the amount of memory recommended by the application's publisher. You cannot change that number.

What happens if you set the Current or Minimum size option below the manufacturer's Suggested size entry? In some cases, nothing. In other cases, the application does not boot up or it may boot up but bomb soon thereafter. You may be able to reduce the Current size below the Suggested size with no consequences because an application does not always need all the memory the publisher requests. The Suggested size accommodates a heavy workload, such as a large number of open windows or lengthy documents. If you do not make heavy demands on your application—say you only intend to use your word processor for a few short letters—you easily may get away with as little as half the Suggested size.

Some applications operate differently when you reduce memory allocation. For example, some word processors load the spelling dictionary into memory when you do a spell check. If the suggested memory is too low, the word processor removes the dictionary from memory when you complete the spell check, freeing up memory for other functions. When you want to do another spell check, you need to wait a few seconds while the word processor reloads the dictionary into memory. The Undo command is another example of how an application may work differently. For an application to use Undo, it must be able to keep a record of the document before the change was made. In some spreadsheets, if memory is too low and you cut a large number of cells, the Undo option does not work.

Sometimes applications that have too little memory unexpectedly quit. You lose any data since your last save operation.

Because an application performs best at its Suggested size, you should avoid reducing the memory below that number whenever possible. But, if you need to work under low memory conditions, you can try lowering applications (as little as possible) and then decide if the performance hits you take are tolerable.

Fragmented Memory

Sometimes you get a dialog box that informs you that you are out of memory when you try to open an application despite having sufficient memory available. This means that the available memory probably is fragmented.

One way to look at memory is to visualize building blocks laid out in a straight line. Say each block contains 100K; you have 40 blocks, representing your 4M of RAM. The first 15 blocks are used for your System, the next 5 for your communications program, the next 15 for your word processor, and the final 5 for your datebook. All 40 blocks are now being used. But you know you need 10 blocks (1M) to open a spreadsheet program. You figure that the datebook takes up 5 blocks and the communications software another 5. So you quit both, freeing up 10 blocks (1M). But, when you try to open your spreadsheet, you get an out of memory message.

Why? Your spreadsheet's blocks are fragmented—they are not in a straight line. To open an application, you need a single, unfragmented block of memory equal to the Current memory in the application's Get Info box.

To regain your memory, you need to quit your applications and then reopen them. In the above example, instead of just quitting your datebook and communications software, you also need to quit your word processor. You then can reopen your word processor, which takes up the second 15 blocks (remember the first 15 are taken up by the System). Your spreadsheet then has its unfragmented 1M of RAM.

Organizing Your Desktop   The PowerBook's small

screen limits some applications more than others. One of the applications it hurts most is the Finder. Mac desktop users may be accustomed to spreading out their files and icons all over their screen, but PowerBook users do not have room for a cluttered Desktop. Therefore, customizing the Desktop might be helpful.

The Finder stores applications and documents using a convenient hierarchy of files and folders. A folder can contain any number of files or other folders, which can in turn contain more files or folders.

Because you probably launch applications from the Desktop, it is best to have their icons visible at all times so you do not have to open folder after folder to find an application you need. If you have a lot of applications, you might want to store them by category. For example, you can create a folder for drawing programs or one for communications programs. If you have an application in a category that you use most often, you might want to have the appropriate icon outside of the folders (or you can use an alias, discussed below). Or you might have a folder called Favorite Applications where you store the programs you use daily.

Because you may work with hundreds or even thousands of documents, you cannot reasonably keep them all available on your Desktop.

However, there is one advantage to having easy access to some documents, especially those created by applications you do not own.

System 7's drag and drop feature enables you to open documents created with foreign applications. (Drag and drop has been part of all Apple Systems—for example, it enables you to place something in the Trash.) System 7 enables you to open an application with a document by dropping the document icon into the application icon. If the document was created by the application, there is no reason to do so— double-clicking on the document opens it. But, if the document was created by another application, drag and drop may be the only way to open the document. For example, if you receive a MacWrite document from a colleague and do not have MacWrite on your hard drive, after double-clicking on the document a dialog box appears, announcing the application is missing. However, dropping the MacWrite document onto Microsoft Word causes the document to open in Word.

Some people store documents of the same type (word processing, spreadsheet, and so on) in the same folder. However, if you find yourself working on projects requiring multiple applications, it might be better to store documents by project, such as an Annual Report folder containing the word processing, spreadsheet, and drawing documents used to create the report. This method makes finding the appropriate documents easier.

Aliases

Aliases, new in System 7, provide a convenient way for PowerBook users to set up their Desktop. An alias is a icon of a file, folder, or disk that

points to another item. If you make an alias of a folder and drag an item into it, that item appears in the folder; double-clicking an alias of a document or application, opens the original document or application.

Aliases are excellent for placing items on the Desktop when the original has to remain in the System Folder. For example, say you constantly are adding and removing items from your Apple Menu Items folder. You have to keep the actual folder in the System Folder. But, by placing an alias on your Desktop, you do not have to open the System Folder each time you want to place or remove a file from Apple Menu Items. Chooser items also must remain in the System Folder. Placing an alias of the folder (or just some of the Chooser items) on your Desktop makes a trip to the Control Panels menu item much easier.

Views Control Panel

The Views control panel controls the typeface and size of items on the Desktop and whether or not information such as label, date, version number, and size are displayed. Few users need any information but the name of the file to appear on their Desktop, but you might want to have the date visible when you are selecting different versions of files or the size when you are deciding what to remove from your hard drive. However, if you do not have a specific reason for displaying item attributes, uncheck the Show boxes option. If you need information about a single item, you always can get it from the Get Info menu item. Figure 5.14 shows the Views icon, and figure 5.15 shows the Views menu.
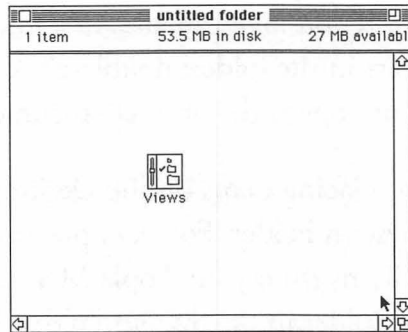
Figure 5.14. The Views control panel icon.
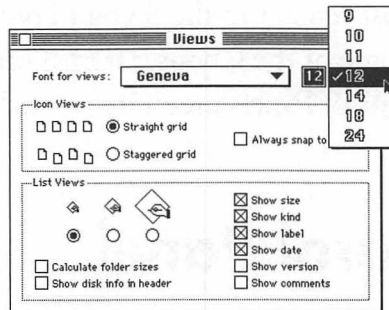
Figure 5.15. Customize your file and folder listing in the Views menu.

Finding Files

The System 7 Find function is one of the most useful for PowerBook users. Unlike the Find desk accessory in System 6, System 7's version moves the found file or folder to the forefront of the screen and selects it. Then the Find dialog box disappears, enabling you to open the item by double-clicking. This function is especially good news to PowerBook owners because the small screen and trackball do not lend themselves to

extensive navigation, and brief PowerBook sessions between planes or during a quick lunch are not conducive to the careful filing of documents.

Here is how to use System 7's Find command:

○ Start from the Finder. If you are running an application, select Finder from the application selection menu (at the upper-right portion of the screen).

○ Select Find from the Finder's File menu (you also can use Apple-F).

○ In the resulting Find dialog box (see fig. 5.16), type the name of the file for which you are looking and click the Find button.
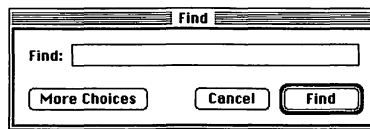
Figure 5.16.   The Find dialog box.

○ The System searches for the file, looking for all occurrences of the text string you typed whether appearing as a whole word or in the beginning, the middle, or end of a word. If it finds the file, it selects it. You then can open the file by double-clicking or selecting Open from the Finder's File menu.

○ If the found file was not the right one, select Find Again from the File menu. The System then looks for another occurrence of the file.

Narrowing Your Search

If you have too many occurrences of the same string, going through all
of them may be too time-consuming. To narrow the search, click More
Choices in the Find dialog box. You see a dialog box with more options.
(Thereafter, every time you select Find, you get this box. If you want to
use the simpler box instead, click Fewer Choices.)

Follow these steps to narrow your choices:

○ At the top of the Find dialog box, there are two drop-down menus
under the Find and select items whose heading. They enable you to
limit your search by file type. You have seven choices (which are
accessed through a pop-up menu): Name, Size, Kind, Label, Date
Created, Date Modified, and Version (see fig. 5.17). Each of these
choices provides a number of operators that automatically appear
in the second pop-up menu after you have selected an item in the
first menu. For example, if you select Name for the first box, the
second pop-up menu has these choices: contains, starts with, ends
with, is, is not, and does not contain. If you select Date Modified
in the first box, the second box contains these choices: is, is before,
is after, and is not (see fig. 5.17).
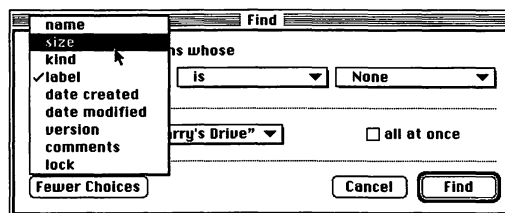
Figure 5.17.   The Find dialog box after the More Choices option has
been selected. Note the pop-up menu under the Find and select items
whose heading.
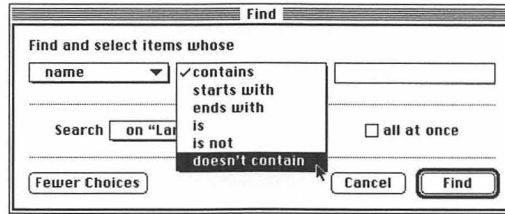
Figure 5.18. The second pop-up menu.

○ Enter your Find selection in the third box. In some cases, you may be able to type in the selection. In other cases, you have to use a menu or arrow keys to change the entry. Click in that area to discover how to enter data.

○ The Search box (see fig. 5.19) tells the System where to look for files. The pop-down menu next to Search contains a list of all the volumes (disks) available to the PowerBook as well as a selected window. If, before you accessed the Find utility you selected one or more items, you can choose All selected items from this menu as the searching ground.

○ The all at once check box (see fig. 19) asks the Find utility to select all occurrences of the search criteria.

○ You can combine search criteria by first performing a search of all occurrences using the Fewer Choices option and then immediately doing a second search using a set of criteria under the More Choices option.
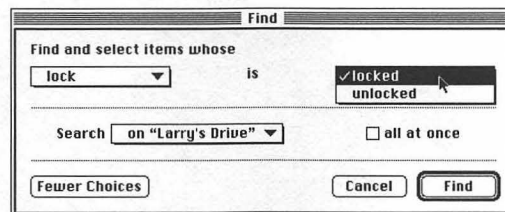
Figure 5.19. The Find dialog box showing the Search box and all at once check box.

6
In Action

For many users, there is no reason why the PowerBook cannot be used as the sole computer. Its memory capacity, hard drive, and even screen rival that of the early Macs. However, a large number of users either have two computers—one on their desktop, and the other in their briefcase—or at least use two hard drives. The biggest challenge in using two computers is making sure that the files of both are synchronized with each other.

Synchronizing Files

What if your appointment book is both on your desktop hard drive and in your PowerBook? You tote your PowerBook to a meeting, open your personal information manager, and type in a couple of appointments with people you met in the meeting. An hour later, you return to the office, take some calls, and forget to upgrade your desktop machine. The likelihood of you making the appointments noted in your Power-Book depends on which computer you are using when the screen alarm appears.

Of course, no software can ensure that you remember to update files on both machines, but a number of products help keep files synchronized. Many users have difficulty remembering which files on which machine have been updated and thus need to be copied to the other machine.

Here are some programs that can help you keep your files synchronized:

○ PowerMerge (from Leader Technologies) and Update! (from Qdea) enable you to synchronize a folder from one disk volume with a folder on another computer. Make sure that you keep all the files you want to synchronize in one or two folders. (You can have as

many subfolders as you want.) First the program copies any file
that exists only on one location to the other. Then it checks for
different versions of the file. When it finds different versions of the
same file, the program replaces the file that is older with the newer
version. The program enables you to override this standard
procedure by specifying which files should and should not be
copied.

O Magnet, from No Hands Software, enables you to create a number
of file-manipulation macros called *magnets*. Each of these macros
performs a file-manipulation task. For example, a magnet can
create an alias or copy or move certain files or folders. A magnet
can be set to run automatically at a specific time or at a regular
interval. So, if you keep your PowerBook connected to your
desktop machine (either by having the PowerBook act as a hard
drive or some other networking means), file synchronization can
occur without you having to think about it. The capability to
create magnets enables you to manage exactly which files or folders
get copied, and when. Magnets also give you more control over
how files are synchronized. Many other file-synchronization
programs assume that the newer version should overwrite the
older one.

Of course, you should consider the sychronization program that comes
with this book, MacUpdate 3.2. It is not only useful for synchronizing
your files, but you also can use it to do incremental backups.

Group File Synchronization

One of the advantages of using a PowerBook is that you can walk away from the office and still get work done. An obstacle is that, with so many employees working off-site, it is hard for staff to work together on joint projects.

The use of notebook computers has made it difficult for many workgroups to work together because, when workers contribute to shared projects, many have a problem synchronizing file versions. The solution can be found in *workgroup software* (also called *collaborative software* or *groupware*). Workgroup software performs the general function of providing an organized way for many users to access and work on the same document or sets of documents.

○ Aspects, from Group Technologies, Inc., enables users, linked by network or modem, to view and alter the same paint, draw, or word processor file. (The program comes with these three applications, but files also can be imported from other Mac software.) Any change to the document made by a group member immediately appears on the screens of the other participants.

○ VersionMaster (from AStar Technologies, Inc.), Instant Update (from On Technology, Inc.), and MarkUp (from Mainstay) are asynchronous programs in that users access the documents at separate times. The main purpose of these products is to control check-in and check-out of the shared project. Figure 6.1 shows a screen from VersionMaster.

Using either imported data or Instant Update's internal table-making application or word processor, workgroup members create a document. One copy of the document remains on the server, and all workgroup members receive duplicates called *local copies*. Each user works on his local document and clicks an update button anytime to send changes made on the local document to the server version. Then all members of the group are notified immediately that the server version has been changed and they can, with a mouse click, update their local document to reflect the changes. The altered paragraphs are identified with the name of the user who made the changes.

With MarkUp, the server version of the document is not changed. Instead, workgroup members use editing tools to create marks on "transparent overlays." Managers can read the overlays from workgroup members and choose which ones to incorporate into the master document. While this creates more work for managers, it provides them with a higher level of control. Figure 6.2 shows a marked up document.

VersionMaster automatically saves each revised document with a unique, sequential version number. This ensures that each version of the document retains its integrity and is easy to find.

Keyboard Shortcuts

Old-time Mac users who are used to the mouse may have trouble becoming accustomed to the PowerBook's trackball. Actually, the position of the pointing device, at the base of the keyboard, is very

convenient for fast manipulation. You may get so used to controlling the mouse pointer with your thumbs while your fingers remain on the keyboard that you may find this a preferred method.
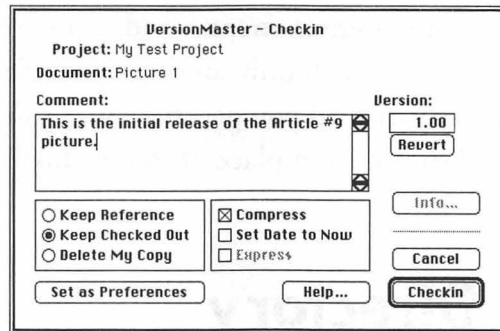
Figure 6.1. A VersionMaster screen.
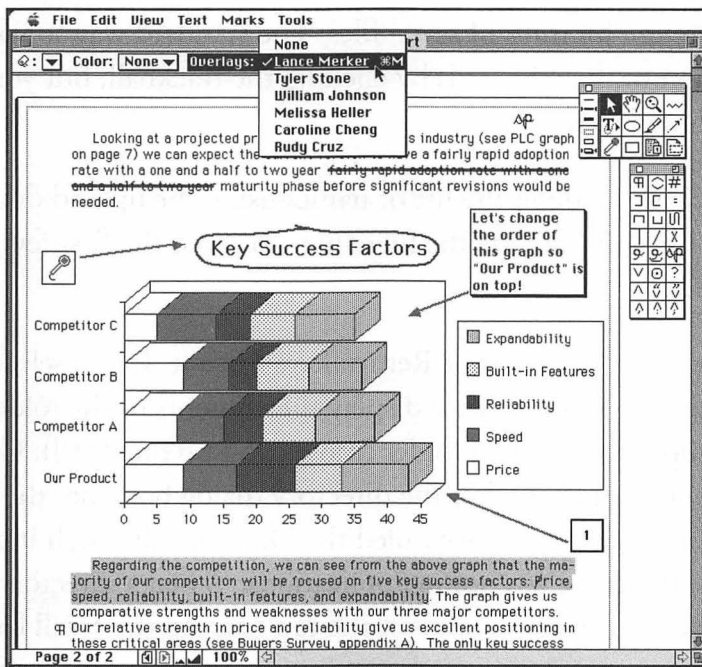
Figure 6.2. A marked up VersionMaster document.

If, however, you prefer to use the trackball as little as possible, System 7 provides a number of ways to rely on the keyboard for most functions. Of course, beginners have enough to remember without burdening themselves with keyboard commands. The beauty of the Mac interface is that through the mouse pointer, menus, and icons you can use applications and the System with only an occasional glance at a manual. However, the more sophisticated you get, the more you may want to use some of the keyboard shortcuts in place of the trackball.

The Mac Directory

For most users, the most frequently accessed Mac dialog boxes are the Open and Save boxes, where you select the files you want to work on and designate the location of saved files. The standard way to select a file or location in these boxes is by clicking the trackball, but you can use the keyboard as well.

You can navigate through the list of names using the up and down arrow keys. Or you can type the filename—or even the first few letters of the name.

If you select a file, the Enter or Return keys open it. If you select a folder, the Enter or Return keys display the contents of the folder. Command-up arrow closes a folder (moves you up one level). Clicking on the name that appears over the directory dialog box does the same. The Finder also has a directory called the Desktop, although it does not look like the directory you see in applications. When a directory in the Desktop is active (there are lines on the top bar and the scroll bar is visible), you can access any icon by typing the first few letters of the filename. To assist in remembering these Finder shortcuts and to learn more, select Finder Shortcuts from the Help menu (the balloon icon).

Using Macros

PowerBook users vary greatly in their opinions of the trackball. It is important to note that Apple, in its marketing wisdom, never opted to place a trackball next to a desktop Mac. In addition, third-party trackballs do not sell nearly as well as third-party mice. So it may be fair to say that for most PowerBook users the trackball is a compromise. It provides a more compact means of controlling your computer than a mouse, but it is more awkward. For this reason, it may be fair to say that PowerBook owners depend on keyboard shortcuts more than desktop Mac owners. But not all functions can be performed with keyboard shortcuts, and those that can often require memorizing complex key combinations.

The best solution is macro software, which enables you to accomplish Mac-like functions with simple key combinations. If you are willing to carry around a numeric keypad, you even can have the luxury of function keys. Keypads make memorizing key combinations easier.

One of the most popular and best macro products for the Mac is CE Software's QuicKeys. On a very basic level, you can use QuicKeys to change the keyboard commands to those that you may find easiest to remember. For example, Command-O is the keyboard shortcut for Open, and Command-W is the keyboard shortcut for Close. I prefer to have the commands for Open and Close more tightly related, so I use Shift-Command-O for Close.

However, the real power of a program like QuicKeys is found when it is used to create macros that perform very complex functions, such as connecting to a remote network—which may require dozens of steps.

Unfortunately, programming QuicKeys takes some skill and patience. The program, however, now includes Instant QuicKeys, an application that walks you through the process of creating the most popular macros.

If you forget your QuicKeys, pressing Command-Option-0 brings up a series of menus that displays your macros. Also, Command-Option-Space displays your defined and active QuicKeys. The QuicKeys control panel shows your macros and corresponding keys. In addition, you also can print a table of all your macros from the control panel. If you prefer to access your macros using the trackball, QK Icons, included in QuicKeys package, enables you to activate any macro by double-clicking on an icon.

If you are interested in learning more about QuickKeys, read *The Automatic Mac* (by Fred Terry, Brady, 1992). This book also comes with a disk that contains many useful macros.

File Compression

PowerBook users who have small hard drives may have difficulty getting all their files to fit on the drive. Careful housekeeping aside, after a year or two of loading documents and applications, you might decide it is time to purchase a larger drive. Unfortunately, PowerBook owners do not have the luxury of simply adding another drive to their SCSI chain (it can be done, of course, but it cannot be carried with you comfortably). And, because there is virtually no resale market in 40M internal PowerBook drives, you lose your initial investment.

There is an alternative—*file-compression software*. This software compresses files not in use and restores them when you want to work on them.

There are basically two types of file-compression software. The oldest kind can compress multiple files into one archive. StuffIt and Compact Pro are among them. Their main purpose is to compress files before they are transmitted over a modem or delivered on a floppy disk.

More important for users with undersized hard drives, however, are *compression utilities* that compress files on the hard drive. The files are decompressed automatically when you open them. In fact, they work so transparently you may not even know they are there. You may notice, however, that your hard drive suddenly has more room—from 30 to 40 percent more in an average drive. The down side is that opening documents takes a bit longer. However, unless your compressed files are very large, your PowerBook's performance should not degrade significantly.

More Disk Space (from Alysis Software) and AutoDoubler and DiskDoubler (from Fifth Generation) compress files in the background. Whenever your Mac is not being used, they look for files that may be compressed and compress them. When you begin working again, they stop. They also stop when they have freed up as much disk space as you specified. You can specify that certain files not be compressed (System files are never compressed) or you can opt to have only files that are older than a certain date be compressed.

AutoDoubler is a control panel device, the other two programs are dedicated programs. AutoDoubler does not enable you to select certain files or folders to compress or to create a self-expanding archive so that the file can be decompressed by someone who does not have the program. All these features are available on the two other programs.

On the disk accompanying this book, you can find StuffIt Lite, an excellent file-compression program from Alladin Software.

Transferring Your Files

Many times you might want to enable different applications to share files. For example, if you get a mailing list in a spreadsheet program, you might want to open the list in your word processor to perform a mail merge operation. Or you might want to start your work in one spreadsheet, such as Excel, but then complete your work in another, such as Wingz.

The PowerBook and all Macs keep track of the name of the application that created each document. (If you select a file and choose Get Info from the Finder's File menu, you see the name of the file's "creator.") When you try to open the file by double-clicking on it, the Mac first tries to open the creator program. If that program is not available, your Mac displays a dialog box that says it cannot open the file because the application that created the file is missing.

However, you may be able to open that file within a "foreign" application. In other words, you cannot open a text file created in Microsoft Word in Excel just by clicking on the document icon. But, if you first launch Excel and then choose Open from the File menu, you can open the text file.

In this chapter, you learn everything you need to know about transferring files from one application to another.

Native Files

Many major applications have a *native file format* that contains all the information, including formatting, about the document on which you

are working. For example, a Microsoft Word document contains not only the text but also information about font styles, paragraph indents, and the placement of footnotes. When you select Save in an application that has a native file format, the document is saved in that format.

Because native formats contain the most data about the document, they represent the best way to transfer files. If you have a program that can translate the native format of another one, you should use that option for file transfer.

Many programs can read the native files of other programs. These generally fall into three categories:

○ Programs that are intended to work together, such as word processing and desktop publishing programs or optical character recognition (OCR) software and word processors. Many users first create their text in a word processor and then use a desktop publishing program to create their publication. Consequently, to sell, desktop publishing programs must be able to read files created in the major word processing programs.

○ For competitive reasons. When a software publisher hopes to convert users of a competitive product, it has to provide a way for new users to read files created by the competitive product. No matter how great a new program is, few users are willing to accept it if it cannot read the documents they already have created in the other program. For this reason, many of the most popular programs, such as MacWrite, can be read by a large number of other programs in the same category.

○ Programs in different categories from the same company. Large software companies, such as Microsoft and Claris, that have many

different packages in different categories enable their products to read each other's native files. Microsoft Word, Microsoft Works, and (to a slightly lessor extent) Microsoft Excel, for example, can read each other's files.

Interchange Files

It would be difficult for software publishers to enable their programs to read the native files of all other programs that customers may use, so some publishers coordinated efforts and developed *interchange file formats*. Interchange files retain some, but not all, of the formatting of the native files. While some formatting is lost, interchange files give the advantage of being able to import and export files to and from a very large number of products. Obviously, interchange file format is a second-best choice. Only use it if your program cannot read the native file of the other program.

Some major file interchange formats include the following:

O DCA (for document content architecture) is used for text documents. It does not save font style and size, but it does save other font information, such as underline, strike through, superscript, and subscript.

O RTF (for rich text format) is a much more complete file interchange format than DCA. It saves font and even graphics information.

O SYLK (for symbolic link) is a relatively complete file interchange format meant for databases and spreadsheets. It saves many formulas and text formatting.

Text-Only Files

Text-only (ASCII) files are used by most spreadsheets, databases, word processors, outlivers, and other programs that work with text. Text-only files contain the text but virtually no formatting information. They do, however, keep carriage returns and tabs, so you can use them to keep the cell structure in a database or spreadsheet. You have to find out how the spreadsheet to which you are exporting the file organizes data. For example, Microsoft Excel separates cells horizontally using tabs and vertically using carriage returns. Text-only files obviously are not the best choice for file transfer. You should use them only as a last resort.

The Clipboard

For most people, the Clipboard is the primary way to transfer from program to program (and within the same program). Whenever you Cut or Copy (using the Edit menu that appears in virtually all programs), the data is placed in the Clipboard. Whenever you select Paste from the File menu, the contents of the Clipboard are pasted in the window you select. The contents of the Clipboard remain until your next cut or copy operation or until you shut down. When pasting, the contents of the Clipboard are not lost. You can paste the same data over and over. Quitting a program or putting the PowerBook to sleep does not affect the contents of the Clipboard. In general, when pasting data, it appears in the same form that it was copied in—even if it were pasted in a different application.

DOS Connections

When the Mac Portable and PowerBook 100 were released, there was little reason for someone in an office of DOS machines to ever consider buying a Mac notebook. Apple was far behind the DOS world in supplying its users with good devices for portable computing. When Mac owners were struggling with the expensive and overweight Portable, DOS owners got their first notebooks. When the first true Mac notebook appeared—with a monochrome screen—the DOS world was getting its first grayscale machines. When Mac owners finally got grayscale and video-out, DOS users were enjoying color screens.

With the release of the new PowerBooks, however, much has changed. PowerBook owners no longer have anything to be ashamed of when comparing their notebooks with DOS-based compatriots. The Mac's ease of use and its capability to run with less memory compared with Windows' applications has reversed the situation somewhat. Now a number of users who have DOS machines on their desktops are opting to pack a PowerBook under their arms.

Whether you are a PowerBook owner in a DOS world or vice versa, you are in luck. While transferring files between Macs and DOS machines is not simple, it is no longer too difficult.

Here are some hints on transferring files on disks:

O All PowerBooks now come with Apple File Exchange (AFE) installed in the System. (If it is not there, you can install it yourself.) AFE, or some third-party alternative, is essential for reading DOS disks. When you insert your DOS disk, AFE asks

which DOS files you want to copy onto your hard drive (or which files you want to copy onto the DOS disk). Alternatively, DOS Monitor (from Dayna Communications) and AccessPC from (Insignia Solutions) enable the DOS disk to appear on your desktop.

O If the DOS disk is 3.5 inches, and your PowerBook has an internal drive, you do not need extra hardware. If you are using an external drive, make sure that it is an Apple SuperDrive or a third-party equivalent from a company like Kennect, PLI, or Dayna Communications. All of these drives work with any DOS 3.5-inch floppy disk, whether it is 720K or 1.4M. If the DOS disk is 5.25 inches, you need a special drive, such as the DaynaFile II from Dayna Communications.

Because your PowerBook can place files on DOS disks, there is no need for your colleagues who use DOS to buy any extra software or hardware. You might, however, suggest that they purchase either Mac-In-DOS from Pacific Micro or Mac-To-DOS from PLI, which enable DOS 1.4M drives to read Mac 1.2M disks.

Of course, the capability to share disks is only the first step for many who work in offices with both DOS and Macintosh computers.

The second step is to be able to read the cross-platform files in your applications. If you work in plain ASCII format for text files or TIFF or EPS formats for graphics files, you may have no problem. Most Mac and DOS text-based programs such as word processors can read ASCII files, and most Mac and DOS graphics programs can read TIFF and EPS files.

Here are some tips for working with cross-platform files:

○ Some software companies have two versions of their programs—
   one for the Mac and the other for DOS computers. Often, these
   programs can read files created in the version made for the other
   platform. Alternatively, these programs may enable you to import
   or export files created in the program made for the other platform.
   Some examples of these programs include Microsoft Word,
   WordPerfect, PageMaker, and WingZ.

○ A number of programs translate files from one application to
   another. Some examples are MacLinkPlus (from DataViz) and
   Software Bridge (from Argosy Software).

○ If you are saving a Mac file on a network and want DOS users to
   have access to the file, do not exceed the DOS 11-character
   filename limitation.

○ Apple XTND may soon eliminate the need for any file conversion
   software. As long as XTND is in the System Folder, any program's
   files that are translated into XTND can be read by any other Mac
   program that supports XTND.

Printing on DOS-Based Printers

If you are traveling with your PowerBook but not with your printer, you
have to find ways to print your data. If you are in an office that has any

of Apple's printers, from an ImageWriter to a LaserWriter, you are in luck because your PowerBook comes with printer drivers for all Apple printers.

If you are in an office that has a non-Apple printer connected to a Mac (any model), you also are in luck. You may have to disturb a Mac user to copy the printer driver onto your hard disk, but after you have placed the printer driver into your System Folder, you are in business.

If, however, you are in an office that only has DOS-based printers, you may have two problems to solve before you can connect your PowerBook to a DOS printer.

First, the PowerBook sends signals to the printer in serial form. DOS machines send data in parallel form. You do not necessarily have to know the difference between serial and parallel data transmission, but you should know that the DOS printer cannot make heads or tails out of the data coming from your serial port.

Second, for a MAC or DOS computer to control a printer, it needs a driver that is supported by that printer. You cannot install a driver from a DOS machine into your Mac (your System ignores it), and no DOS-based printer manufacturer makes printer drivers for Macs.

Luckily, there are solutions to these two problems. If you find yourself at sites where DOS machines dominate, you may want to purchase one of these solutions and carry it with you at all times:

O Grappler II, by Orange Micro, Inc., is a cable that not only translates serial signals to parallel but that also translates ImageWriter commands into code that can be understood by dozens of DOS-based printers. As a result, the Mac can control the printer using Apple's ImageWriter driver.

○ GTC Software's PowerPrint has a hardware plus software approach. It provides a serial-to-parallel cable, plus a number of printer drivers (along with a HyperCard stack that details which drivers to use for which printer). According to GTC, the PowerPrint driver enables the Mac to print on over 1,000 different printers. Figure 6.3 shows the Chooser using PowerPrint.
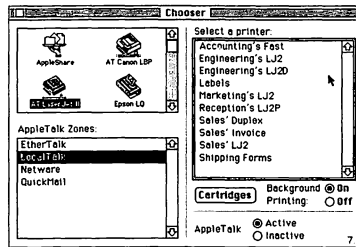
Figure 6.3. The Chooser using PowerPrint.

Because there are more DOS-based offices than there are Mac-based offices, you probably will face this problem sooner or later. If you have to print on a DOS printer, another thing to remember is to use TrueType fonts for your document rather than PostScript fonts—it is very likely that the printer you will be using is *not* a PostScript printer.

All About Fonts

As noted earlier in this book, System 7 has two broad types of fonts— bitmapped and outlined. *Bitmap fonts* describe the exact position of each pixel on the screen or each dot on the printed page. To picture how a bitmap font is created, imagine drawing a W using a series of dots. You may notice that each of the four legs of the W contains 10 dots. Remember that number so that the next time you want to write a W, you know to arrange the 40 dots in the same way you did the first time.

The system works fine as long as each W you write is exactly the same size. But what if you want to write a larger W? The 10 dots per leg no longer help you, so you have to get new information about the larger W. You may find that this new W has 15 dots per leg. If you want to write either the smaller or the larger W, you have to remember two different formulas. In fact, there is a different formula for each size W you create. If you keep each of those formulas on one file card, your file box might become cramped pretty quickly.

An *outline font*, on the other hand, uses a mathematical formula to describe the font. Using this method to learn how to write a W, you need to remember that the letter is made up of four lines joined at the bottom at a certain angle. And, to enlarge the W, you only have to lengthen the lines (and, depending on the font style, perhaps change the angle). After you have learned this formula, you can draw a W of any size. As a result, your file box only needs to contain 26 cards, one for each letter.

Some of the advantages and disadvantages of each type of font have been touched on in an earlier chapter. Here is a review of what has been discussed:

○ A bitmap font tends to take up less disk space than an outline font.

○ You need a different bitmap font for each size character. So, for example, you need a bitmap font for Helvetian 12 point, another for Helvetian 14 point, and so on. If you ask your PowerBook to draw a bitmap font in a point size you do not have in your System suitcase, the result may look choppy or jagged.

○ Most computer display and output devices (screens and printers) use dots to form images. Therefore, outlined fonts have to be

translated to dots, a process called *rasterizing*. This takes some time, especially if you are resizing a large document. All things being equal, it takes longer to print an outline font than a bitmap one. Most (but not all) printers, however, compensate for that by doing some of their own processing.

O PostScript printers have certain fonts built into their ROM. Other fonts are *downloadable*—they are stored on the hard drive but downloaded to the PostScript printer when needed.

O Outline fonts are device independent, which means that they look the same regardless of how many dots per inch the device displaying them has.

PostScript and TrueType

There are two primary outline fonts in the Mac world—PostScript and TrueType. PostScript fonts were developed first and are used on many laser printers (called PostScript printers), including most of Apple's laser printers. For years, users of PostScript fonts had a problem: The Mac did not know how to convert the fonts into screen images or how to print them on non-PostScript printers.

A few years ago, Adobe Systems, PostScript's developer, released Adobe TypeManager (ATM), which creates bitmap versions of PostScript Type 1 fonts for the screen or non-PostScript printers.

With System 7, Apple released TrueType fonts, which do what ATM fonts do. They create clear and attractive screen images and better output on non-PostScript printers.

Adobe also offers PostScript Type 3, which enables special font effects, and Multiple Master fonts, which provide users with more control over the style of the font. Both of these are primarily for graphic artists and desktop publishers and are beyond the scope of this book.

Most PowerBook users find that the TrueType fonts that come with their System suffice. The main reason for buying a PostScript font is to have access to the larger choice of fonts; another is that PostScript fonts print a bit faster on PostScript printers than do TrueType fonts.

Adding and Removing TrueType Fonts

The way to add and remove TrueType fonts varies depending on which System version you are using:

○ If you are running System 7.01, you first have to quit an application or desk accessory before adding or removing a font. To add a font drag it to the System Folder icon or to the System file open window. There you see a dialog box asking if you want to add the font to the System file.

   To remove a font select it in the System file and remove it. You can either put it in the trash or store it on disk for later reinstallation.

○ You do not have to quit applications or desk accessories to install fonts in System 7.1. The installed fonts, however, do not appear in any open applications until you quit and then reopen those applications.

All fonts in System 7.1 are stored in the Fonts folder. You can drag the font into the Fonts folder or you can drag it to the System Folder and a dialog box will ask if you want to install it in the Fonts folder.

Reverse the above instructions for removing fonts from System 7.1.

Installing PostScript Fonts

To install a PostScript font, you have to install a bitmap version in the System file and an outlined (printer) version in the Extensions folder (or in the top level of the System Folder). If, however, you are using ATM, you only need the bitmap version in the System file.

Viruses

A virus is a program or a part of a program that "invades" a disk (normally hard disk). Most often, the virus file is built so that it cannot be detected easily; it almost never shows up in the directory.

Occasionally, a virus does nothing more than copy itself to your disk. Other times it makes its presence known in an innocuous way by displaying a message on your screen when you boot up on a particular day. Some viruses, however, are more sinister and wreak havoc with your System and other files.

Many people remember the Michelangelo virus that infected DOS-machines and was supposed to delete files. Other viruses change the names and attributes of files and folders so that they are unrecognizable.

Mac users have been hit rather lightly by viruses. One reason may be that most people buy the machine that helps them get their work done faster or their company mandates the computer that they work on. In general, people who use their computers to get their work done faster are not the ones who have time to create viruses. (PowerBook users are usually in this category.) Viruses are created by people who like to play with their computers and often view their machine as an end in itself, not a means to higher productivity.

Additionally, the Mac is not primarily a hacker's machine; it is an end-users machine. Computer whizzes generally prefer the more open architecture of DOS.

However, it is important that Mac users not let down their guard against viruses. A Mac certainly can catch a virus. A floppy disk borrowed from a friend (do you know where the floppy disk has been?), a program downloaded from an online service, a file transferred over a network, and even commercial software (this last one is very rare, however) are all potential virus carriers.

Two equally good anti-virus programs for the Mac are Virex and Disinfectant. (Disinfectant is included on the accompanying disk.) One thing you must remember is that you always should try to get the latest version of any virus-protection program because the latest version most likely deals with the more recent viruses.

The PowerBook, because of its portability, may be more in danger of catching a virus than a desktop Mac. PowerBooks are more likely than desktop machines to be connected to many different networks, shared or borrowed, or used to communicate with a bulletin board or other online service.

Virus-Detection Software

Certainly the best way to protect your PowerBook against viruses is to install a virus-detection and protection utility. These extensions scan your System either automatically or at user-specified times. Products like SAM (from Symantec), Virex (from Microcom), and MacTools (from Central Point Software) display an alert box when they detect a virus and remove it if possible.

Because virus-detection software can only work against known viruses, it is important to upgrade the package you buy regularly. Most packages provide low-cost upgrades or annual subscriptions.

Protecting Your Applications

If a virus infects one of your applications, and anti-virus software cannot eradicate it, you may have to destroy the application. Because you always should have a backup (master) copy of each of your applications, the process should be little more than a nuisance—assuming your master copy also is not infected.

While rare, some viruses can infect any disk placed in the drive. If a virus were present before an application was installed, it might have latched onto the master disk. If that is true, call the software publisher, who probably will send you a new disk for free.

To protect your master disks against infection, simply write-protect them by pushing up the plastic tab in the upper-right corner so that the hole is covered. When you do so, nothing can be written onto the disk. (Even if you are not worried about viruses, it is best to write-protect a master disk before inserting it. Doing so prevents you from accidentally erasing the disk.)

You can protect applications on your hard disk by locking them using the Get Info menu item under the Finder's File menu. However, some applications do not work if they are locked, so you may have to experiment a bit.

Protecting the System

Viruses more often infect the System than applications because, when imbedded in the System, the virus normally can create more damage to all the files than when imbedded in an application. Because you cannot lock the System file as you may be able to do with an application file, it is much harder to protect the System than application files. Fortunately, System 7 was developed to be immune to two common viruses— WDEF and CDEF. To protect the System against other viruses, you need virus-protection software.

Online Services

Any files downloaded from a bulletin board service (BBS) or other online service must be suspect. However, you can decrease your chances of catching a virus if you work with larger services—such as CompuServe or America Online—that screen for viruses. The fear of viruses, however, should not stop you from using smaller BBSs, nor should the use of larger services make you complacent. If you download files regularly, test each file with a virus-detection program.

7
Applications To Consider
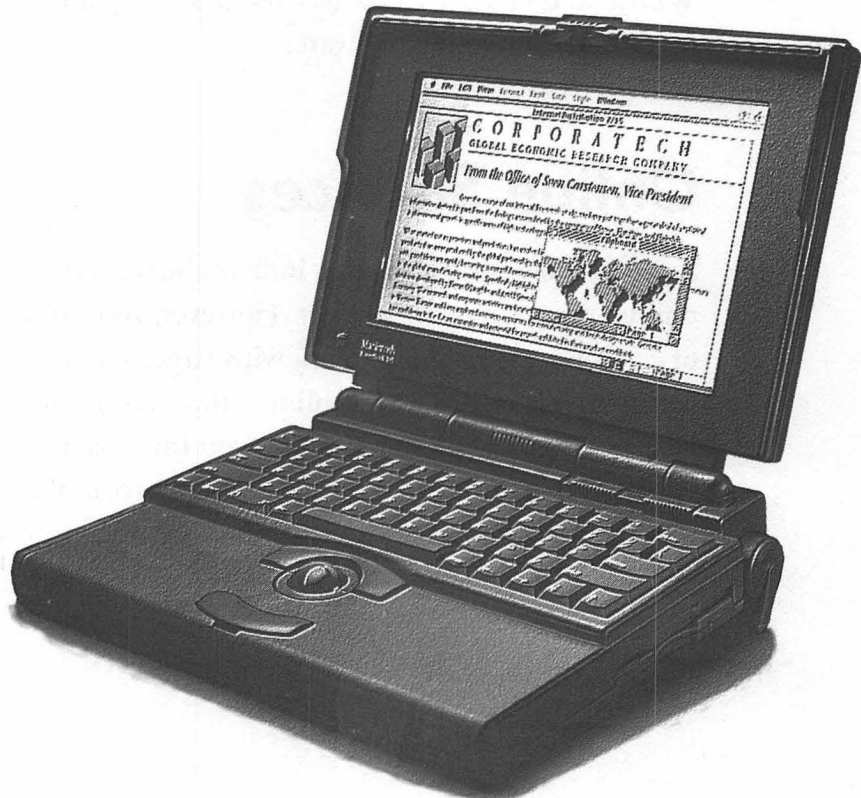
I f you are using your PowerBook on the road often, you should consider some of the following software. Although they are not the traditional productivity applications, they are indispensable.

Contact Management Software

In the past, traveling salespeople were never too interested in computing—unlike customer representatives, who typically worked inside an office. Two good reasons for this are that, with most of their time spent behind a steering wheel or in an airplane, there was little room for a computer in their lives. The second is that software meant to assist sales was not created for salespeople as much as for customer support staff.

The difference between customer support people and salespeople is that support people need information about current customers, while salespeople need a way to organize contacts with dozens, or even hundreds, of prospects and clients.

Before salespeople could be wooed to computing, they needed a solution to both problems. The PowerBook enabled salespeople to overcome the first difficulty—computing while on the road. Contact management software provides the needed help by keeping track of sales calls, telephone inquiries, and other customer and prospective contacts.

Contact Ease and Control Classic

Contact Ease by Westware, written in Omnis 5 database, and Control Classic by Diamante Software, written in 4th Dimension, both have standard contact information entry files that contain names, addresses, telephone numbers, birthdays, and other important data to remember. You can search for clients using any of your entered data as parameters.

However, the strength of these programs comes from their capability to automate the sales process by signaling when an activity should occur.

To use the programs efficiently, you must be diligent about recording all your activities with each client and prospect. When an activity requires a follow-up action, such as a call back or a quote, designate that the activity was not completed. At any time, you can see a list of uncompleted items.

Each of these programs also enables you to set up a sales plan or strategy such as a detailed plan of correspondence, calls, and follow-ups. Each activity depends on the contact's response to the previous activity and is created using IF-THEN-ELSE operations. For example, you might start the sales process with a letter of introduction. If the client responds to the letter within one week, the second step might be a visit to his site. If there is no response within one week, the second step might be a follow-up call. Each of the steps can branch out almost indefinitely.

Each day when you start up the program, it looks at your sales plan, determines what activities are due with each client on that day, and creates a list of things to do. If the activity is to send a mail-merge letter, you can tell the program to print all of the different letters that are due that day.

Market Master

Market Master, from Breakthrough Productions, focuses more on the creation of the sales plan than on tracking activities. It also is geared more toward multi-person sales offices than toward sole proprietorships. Its multi-user version includes a Market Master manager that enables sales managers to check on how diligent salespeople have been in performing the activities outlined in the program. It also enables the manager to alter territories and generate a wide number of call reports.

TeleMagic

TeleMagic, by Remote Control, does not automate the sales process as the three packages described previously. Instead, TeleMagic enables you to store and organize a wide range of data about each client. Hence, TeleMagic is more for salespeople, whose activities do not fall into an if-then outline.

Each client is assigned a card that contains basic information. At any time, you can enter contact information about the client. For example, you might type, "Wants to see quote" or "Is considering us, along with three competitors." Each comment is stamped with the date and time. If any activity needs follow-up, you can enter the required date, and the event appears in the program's appointment section. You even can indicate when a follow-up is due using abbreviations, such as 8D for eight days and 1M for one month.

When searching for any information on the client's cards, you can use filters, such as an area or a zip code. So, if you are traveling to a certain neighborhood, you can have your PowerBook generate a list of all nearby prospects.

Client

Client, by Trendware, does not provide the sophisticated searching capability that you find in TeleMagic nor does it automate the sales process. But it has two advantages to offer the salesperson. The first is that, being a HyperCard stack rather than a database, it can be customized easily. Second, Client is the least expensive product mentioned in this chapter.

With Client, each customer or prospect has one Main card. You can then create any number of Financial, Interest, and Contact cards that relate to that Main card. All of the field titles in all of the cards can be customized by the user. You also can change the type of data (number, text, or dates) that can be entered in any of the fields.

Client also shares the advantages and disadvantages of most HyperCard stacks. On the positive side, the interface is very attractive and easy to use. The screen cards look like an address book, and you perform most functions by clicking on descriptive and attractive buttons. The negative side is that HyperCard is much slower than relational databases, which are the basis of the other products in this chapter. For that reason, if you are handling thousands of clients, you may not want to use a HyperCard program. If, however, you need the customizing capability, Client is a safe bet.

Billing Software

Most business people know that the faster the invoice gets to the client, the faster the check arrives in the mail. Unfortunately, many owners of one-person and small businesses forget to bill for all their services or they procrastinate invoicing.

There are two problems that many business people have with billing. The first is that they do not have the time to type up bills—successful business people spend much of their time on the road or at client locations earning money.

The second reason is that those who bill by the hour forget to bill for all billable time. This is especially true in situations where you work on one project for a half an hour and then get interrupted by a 10-minute phone call that should be billed to a second client.

The PowerBook can help with both problems. By creating invoices on the spot, either at the client site or after leaving, you can ensure that bill items get entered. Then, when you get back to the office, you only have to spend a few minutes printing out the bills.

If you always bill a flat fee, you easily can create a template for invoicing in your word processor or spreadsheet programs.

If you are using an integrated program, you can copy the client name from your database and paste it into your spreadsheet module, which also adds up all the individual billable items and provides totals and summaries. Setting up an integrated application for this purpose should not take more than an hour or so.

If you bill by the hour, the PowerBook can be a big help because it is always with you. It is a lot easier to remember to enter time spent on a project in your PowerBook—which is right beside you—than to scribble the information on a piece of paper, only to have to type it into your desktop machine later.

Timeslips III

One program that provides a solution is Timeslips III. It provides a timer that enables you to clock the beginning and end of each project.

Timeslips actually consists of two interrelated programs:

O TSTimer enables you to start and stop a timer that always runs in the background—even when the PowerBook is asleep or shut down (see fig. 7.1).

O With TSReports, you name the users, user activities (the various activities that each user can perform), clients, and client matter (the hourly or flat fee you charge this client).
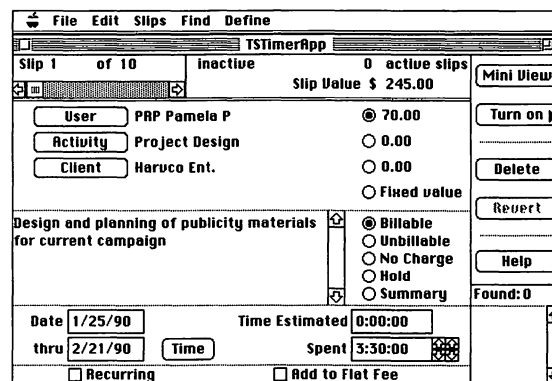
Figure 7.1. A TSTimer screen.

Note that the maker of Timeslips has a new product called LapTrack, which is made specifically for the PowerBook. It is a leaner program that provides the timer feature but fewer reporting functions and does not include TSReports.

You can use Timeslips for more basic billing, but doing so would be overkill. Timeslips is a powerful program that takes time to set up, requires some learning, and uses up a good deal of computer resources.

Job Cost/Time Billing

Another billing program, Satori Software's Job Cost/Time Billing, can work as a stand-alone billing package or can be integrated into Satori's other accounting packages.

This program is somewhat similar to Timeslips except that it lacks a timer. Therefore, it should be used for projects that use large blocks of time. For shifting from one project to another every few minutes, Timeslips may be a better option.

Job Cost/Time Billing has six types of entries: employees, phases, functions, actions, jobs, and clients. Each of these may have its own cost. For example, one action might be a telephone call that you bill at the rate of $100 an hour. The services of a particular employee may be worth $50 an hour. A function is a type of activity, such as bulldozing, that may have its own cost per hour.

You set up each job individually. And, as in Timeslips, you can set up a job for a fixed price or time and materials.

Job Cost/Time Billing has a very large number of reporting options. The reports, called journals, include time slips, time sheets, and cash journals.

Computing Your Taxes

Tax preparation software can relieve you of at least a few of your tax-time headaches. Completing federal and state tax returns is one of the most complex tasks the average person ever has to handle. This year, however, as you empty out your shoe box of receipts, your PowerBook can assist you. Figure 7.2 shows a sample on-screen Form 1040 from the MacInTax program.

Figure 7.2. The MacInTax on-screen Form 1040.

Tax preparation software can provide some important advantages over the pencil and calculator method. For one thing, you eliminate clutter. Instead of flipping through tax booklets and forms and trying to find your calculator and pencil under the rubble, the only thing you need is your notebook computer. And, if you were diligent enough to record all your transactions during the year, either in a check-writing or home accounting program, you do not even need your shoe box of receipts.

The main advantage of tax programs, however, is that they automate two bothersome and error-prone aspects of tax preparation: performing calculations and carrying over figures from line to line and from form to form.

One example of the software advantage is that tax preparation software automatically tallies your profit or loss from Schedule C, uses that information to complete Schedule SE, and enters Schedule SE's bottom line in the correct spot on Form 1040. The operation is done in seconds and, more importantly, is completely accurate.

Virtually all tax preparation software companies now offer optional state tax forms. The programs automatically transfer data from federal forms and, depending on the tax laws of the particular state, may be able to complete the state forms automatically.

Tax preparation software enables you to print IRS-approved forms. This year tax software offers a new form, the 1040PC, that automatically eliminates blank lines. The result is a simplified tax return that can be checked more quickly by the IRS.

Most major tax packages support electronic filing, which puts a refund in your mailbox within two weeks, rather than the normal six weeks. These programs include a communications section that enables you to send your completed returns via a modem to a service company that, for a fee of about $25, then forwards your tax data electronically to the IRS. If you do not have a modem, you can mail your disk to the service company. Because the IRS does not accept electronic filing from taxpayers who owe money and does not enable individuals to file electronically, you cannot avoid the service company's fee.

Tax preparation software also can assist in tax planning. Because of the complexity of tax forms, it is sometimes difficult to determine how a particular action, such as selling an asset or choosing a particular depreciation method, can affect your bottom line. Tax preparation software solves that problem by providing immediate feedback on how your tax liability changes whenever you alter data in any tax form. This feature enables you to do a what-if analysis to determine which action results in the most advantageous tax situation.

Tax preparation software also can notify you of possible audit-provoking entries. Figure 7.3 shows one such notification.

Figure 7.3   A MacInTax audit-provoking entry notification.

Unfortunately, because tax laws tend to change frequently, tax preparation software has to be updated every year. Updates usually are not available until November or December, providing little time for tax planning. So for planning, you can use the previous year's program. If you feel new or anticipated tax laws have changed your circumstances, making last year's tax programs obsolete, you can hire a tax accountant

or attorney. Still, in this case, tax preparation software can be used to create preliminary forms for your accountant, saving at least a few dollars on billable time.

While tax preparation software has general appeal—and during tax season typically becomes the largest selling type of software—it is not for everyone. If all your income is reported on a few W-2 forms, and you do not have many unusual deductions, you probably are better off using the calculator and pencil method. That is not to say that tax preparation software is only for the Donald Trumps of the world. If some of your income comes from investments, or you run a small business out of your home, or you need to depreciate income property, a tax package can help.

Another way to look at it is that, if your tax situation is simple enough for a professional preparer to complete your forms for roughly less then $75 (the cost of most tax software), you probably are better off hiring someone. Even if a professional preparer's fee is higher than the cost of the software, it might be worth paying the extra cost to avoid learning the ins and outs of tax law.

While all tax programs provide on-screen help for filling out the forms, if you are a novice with tax matters, it may take some time to learn. And nothing can replace a human preparer for recommending deductions of which you may be unaware. Consequently, many people compromise by using tax software to complete the forms but give them to a professional to review before mailing them to the IRS.

Presently, the Mac world is dominated by one tax package, MacinTax from ChipSoft. The program provides a complete set of forms, includes a means of easily viewing any uncompleted lines, and provides extensive online help that all but eliminates the need to refer to IRS instruction booklets.

Getting Control of Your Finances

Personal finance applications is one of the categories of programs that is best accessed on a mobile computer because few people do all their financial work in one room. They may buy items at auctions, write checks while on vacation, or catch up on budgeting information while relaxing on the couch.

Accordingly, the PowerBook is the perfect computer for handling your finances—not that you should use a check-writing program to print out a check at the supermarket counter. But, if you are on a shopping spree, there is no reason why you cannot carry around your PowerBook and enter checks as you write them, ensuring that you do not write an overdraft or go over budget.

There are basically two types of personal finance programs. One handles check-writing functions. The other keeps track of your entire financial picture—debt, income, expenses, purchases, investments, and net worth.

Check-Writing Programs

When you type data into a check-writing program, the program posts that information in your check register, as well as on your checks, which can be printed conveniently. This eliminates the error-prone duplicate entry required when handwriting checks.

If you have to write a check and your PowerBook is not near, you can do so and enter the data into the program later. You may have to do this occasionally (at the supermarket, for example), but doing so reduces the effectiveness of the program.

Check-writing programs also enable you to enter recurring transaction information that can be posted on a check with a single mouse click. The programs also can keep track of your checks by category, so tax time and budgeting sessions become less onerous.

Quicken, from Intuit, was one of the first check-writing programs and still is found on most Mac magazine's top-fifteen lists of most-popular business software. Its check-writing screen looks like a checkbook, and all other functions work much like a paper checkbook and register, making learning time negligible.

Quicken, however, does not provide standard accounting safeguards. For example, when your account does not balance, it automatically makes an adjustment in the register rather than forcing you to find the error. It also does not require (but enables) each transaction to be attributed to an account. As a result, many businesses cannot use it.

Quicken includes support for CheckFree. It exports data as ASCII (text), SYLK (Excel), or STD (MacInTax).

Checkwriter, from Aatrix Software, Inc., is somewhat similar to Quicken. It includes an over-budget warning, enables you to shift funds between accounts, and even provides drawing tools for designing logos for checks. If you started with Quicken, Checkwriter includes a utility that can convert Quicken files into its own format. Figure 7.4 shows a sample Checkwriter screen.
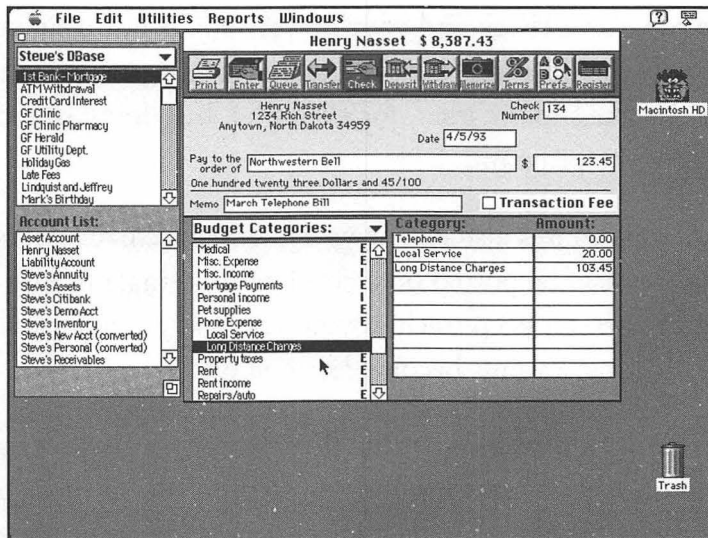
Figure 7.4 A Checkwriter screen.

CheckFree, from CheckFree Corp., enables you to pay your bills without writing checks. Enter the check information into CheckFree or import the information from Quicken. Next, send the data by modem to a service company. The company pays your bill by electronic transfer—to those companies that accept it—or by printed draft. As long as you have a modem, you do not have to worry about setting up the program because CheckFree includes a communications module that is fairly independent. Your monthly bank statements show all CheckFree electronic fund transfers.

Personal Finance Programs

These programs do not accept data on every financial transaction like check programs; instead, they take a broader view. They help you make financial decisions that maximize your investments and minimize your losses.

Wealth Builder, from Reality Technologies, was developed by *Money Magazine* for long-term financial planning. It is primarily for people who are serious about their financial planning and are sophisticated with investments.

Managing Your Money, from MECA Software, Inc., was created by (or at least uses the ideas of) financial expert Andrew Tobias. It provides short-term control (for example, it can keep detailed budgets), while also assisting in middle-term (tax planning) and long-term (retirement) planning. It also can import Quicken data.

Data Analysis

Many corporate Mac users lead a double lifestyle. At work, they are connected to an enterprise-wide network, with access to many gigabytes of data. But, when they leave the office or go on a business trip, they bring just the data they need, crammed into a PowerBook hard drive.

Business data analysis software aids in the manipulation and display of data to facilitate analysis. Of course, a lot of different software packages can be used for that purpose. Reports generated from database managers, tables and graphs created by spreadsheets, and transaction lists printed from accounting software are all tools for data analysis.

Over the last few years, however, packages whose sole or primary purpose is to analyze data have emerged. These programs, which often work with a number of database managers or spreadsheets, provide an easy and quick way to find data and configure it into clear, concise reports.

Brio Technology's DataPivot has a Source window for accepting tabular data. That data can be from many different sources. For example, you can have a number of spreadsheet reports from the members in your project group, along with data from the corporate mainframe. All that data is combined automatically into a single report in the Report window.

The main advantage of Data Pivot is that you do not have to know where the data is stored or create formulas that contain links to that data to generate analytic reports.

Muse, from Occam Research Corporation, also works with tabular data. After the data is in one place, you can use English-like queries to generate reports.

Mapping Your Information

A good percentage of reports generated by corporations relate to geography. Few sales or marketing organizations can survive without information on numbers and types of potential customers arranged by zip code, state, or region. While such tabular demographic reports are helpful, you normally have to work with data on your screen and a map on your desk to understand the information.

Mapping software, such as GeoQuery by GeoQuery Corp., displays its information using on-screen maps (see fig. 7.5).

GeoQuery (which can work with a large number of databases and spreadsheets) is particularly helpful for PowerBook owners who carry their computer in their car and drive to clients. You can view a map of

the area you are visiting. The map can contain symbols to represent the different kinds of clients. For example, you can have one symbol represent the amount of business a client does with you, and a second symbol represent the size of the client in annual sales volume. After you determine what symbols represent which data and as long as the data is in the associated database or spreadsheet, GeoQuery displays it automatically.
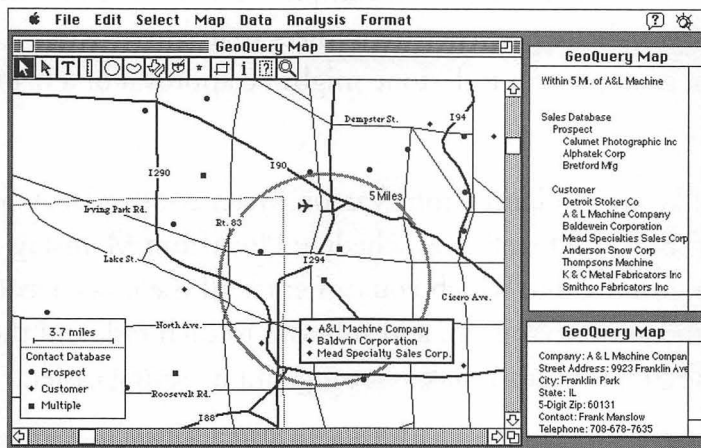
Figure 7.5 A GeoQuery screen.

Managing Projects

The Mac has been used for project management since its early days in the mid-1980s. But, until the arrival of the PowerBooks, using a Mac to keep projects on schedule meant scrambling back to your office to enter new data each time a project deadline was missed or a resource item was changed. The PowerBook enables field managers on construction sites as well as in board rooms to keep their projects on track.

Gantt Charts

Low-end project-management software provides basic Gantt charts. Although, this system of tracking projects was developed by Henry Gantt during World War I, it is still effective for many small to medium modern-day projects. Gantt charts are based on lines drawn along a calendar. The beginning of each line represents the tasks's start date, and the end of the line is the expected completion date. You also can have milestones, which are points in the project that do not require any activity. An example of a milestone might be approval of a plan by the client.

Programs like Great Gantt (from Varcon Systems), FastTrack Schedule (from AEC Software), and MacSchedule Plus (from Mainstay, Inc.), provide an outline, into which you can enter all the tasks needed to complete the project. You can add subtasks to each task and then collapse the subtask list to make viewing and planning easier.

Next, using special tools that are similar to drawing tools in graphics programs, you place the task names on the chart. Finally, you stretch a line between the start and finish dates of each task. You also can indicate that some tasks cannot start until a previous task has been completed. The resulting chart makes it relatively easy to see the relationship of the tasks needed to complete the job.

Because the success of most projects depends on having the resources (money, material, or people) available at the right time and on staying under budget, managers also need a way to track these items. MacSchedule Plus includes a spreadsheet, on which you can enter expected resource utilization and actual resource utilization. You then can view the data in chart form.

FastTrack Schedule's companion product, FastTrack Resource, provides a more sophisticated way to track resources. It enables you to place the needed resources for each task so that you can determine, for example, how many cement trucks you need on any given day. You then can change the schedule of tasks and find out how the resource utilization changes.

PERT Charts

The major problem with Gantt charts is that they do not indicate complex relationships between tasks. PERT charts, however, are more like flowcharts, which enable you to display how tasks are related to each other. For example, using a PERT chart, you can designate that one activity can start when either one of two other activities is completed or that activity B can begin if activities C and D are completed or when activity E has begun.

MacProject II, from Claris Corp., is an easy-to-use PERT chart generator. You simply draw task boxes and then connect them with lines that represent their interrelationship.

Although Microsoft Project (from Microsoft Corp.) and Micro Planner Manager (from Micro Planning International) are more difficult to use, they are more powerful. Both of these programs show your project either as PERT charts or as Gantt charts. Their biggest advantage, however, is the capability to calculate project time and resource utilization. For example, you can enter your available resources (five dump trucks, for instance) and how many resources each task needs (say, two dump trucks for each task). Next you can have the program calculate, given the number of dump trucks you own, the soonest date a

project can be completed. Alternatively, you can indicate the date that the project has to be completed and have the program calculate the resources you need to meet that deadline.

Both of these programs also enable you to enter any delay in either tasks or resources. They calculate and display the effect those delays may have on the project as a whole or on any parts of the project.

For example, if because of bad weather you are three weeks late in pouring the cellar of the house, you can have the entire project recalculated. Each task is assigned new start and finish dates automatically.

Fair Witness, from Chena Software, is not project-management software in the traditional sense, but it does provide you with a means of organizing and viewing your project. When you open the program, you are in outline view, which enables you to enter all of the project's tasks. Next, you can add subtasks or rearrange the sequence of events. Then, you can select the information view, where you can indicate start and finish dates for each task. The program then generates a simple Gantt chart (see fig. 7.6).

The most unique part of Fair Witness is its voting function. If you are planning a project with a group of people and there is some disagreement about any aspect of the project, you can ask for a vote. When the results of the vote are entered, Fair Witness can rank an idea by the number of votes it received and enable you to see the results in a number of ways. This does not help you keep the project on track like traditional project-management software, but it does provide an efficient and fair means of organizing the project.
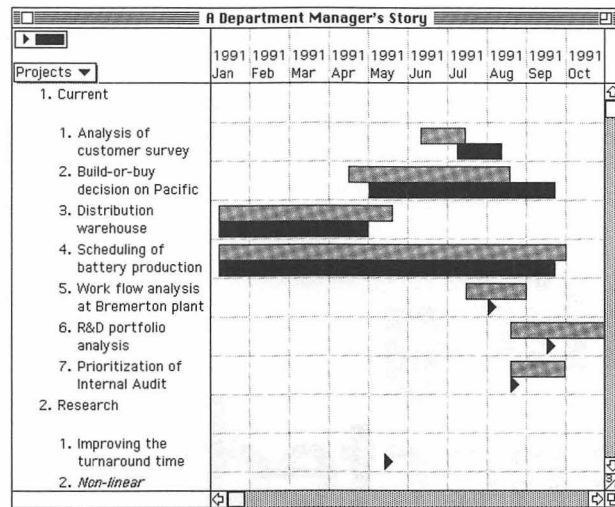
Figure 7.6 A Fair Witness on-screen Gantt chart.

8
Getting
Connected

More and more there is a need to get connected to a network. Whether on the road or at the office, it increasingly is becoming part of doing business. Even though your PowerBook is most often a stand-alone machine, there are times when you need to interface and communicate with other network members. Whether it simply is to check or send electronic mail, sooner or later you have to get connected. Fortunately, the PowerBook was designed with this capability in mind. It has a built-in AppleTalk connection. So, if you have access to an AppleTalk network, you are in luck. For connections through telephone lines, however, you do need one or more modems. And, if you are considering joining a network, you probably will need an Ethernet card.

All About Networking

If you work in a company of any size, chances are you will be linked to a *local area network* (*LAN*). LANs enable you to share resources such as printers with other users. They also enable you to communicate with other users by electronic mail or file sharing.

Apple provides networking in System 7 through file sharing, which PowerBook users must understand. File sharing enables users to share files that may be on separate Macs. The essential control panel devices for file sharing are Sharing Setup, Users & Groups, and File Sharing Monitor. They are found in the Control Panels menu item under the Apple icon.

Sharing Setup

Open the Sharing Setup control panel. Type in your name on the first line (see fig. 8.1). Next type in a password and the name of your PowerBook (normally just the model name such as Duo 210). Then move down to the File Sharing area and click Start. (The Start button then toggles to Stop; click it to turn off file sharing.) The Status area notifies you that file sharing is on. Next go to the Finder and select the icon representing the disk, folder, or files you want to share. Choose Sharing from the File menu. Your selected item(s) are now available to others connected to your PowerBook hard drive.
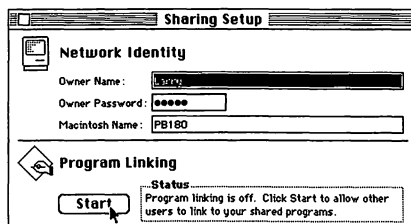
Figure 8.1. The Sharing Setup screen.

When a colleague wants to access your files, he simply opens the Chooser, selects AppleShare, completes the dialog box, and then selects the items to share. The folders or disks appear on your colleague's screen exactly as they appear on your PowerBook's screen. Your colleague can access, change, save, or discard any files. Therefore, this setup is only good if files are not confidential and if a limited number of users are connected to your PowerBook. If you need more control over who can access your files and what privileges each user or group has, you need to take some extra steps:

○ In the Users & Groups control panel, select New User from the Finder's File menu (see fig. 8.2).

○ Next, type in the name of the new user just as it appears in the
Sharing Setup window in the remote computer's control panel. If
you are using passwords, type in the same one that appears in the
remote user's Sharing Setup control panel.
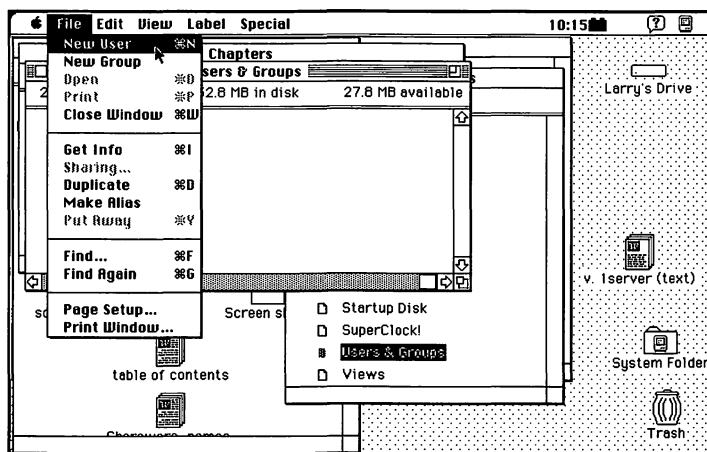
Figure 8.2. Selecting New User from the Finder's File menu.

You can repeat these steps with as many remote users as you like.

Sometimes it is convenient to lump users into groups. Doing so enables
you to give or rescind privileges to the entire group at one time rather
than having to do so for each user.

○ To set up a group, select New Group from the Finder's File menu.
Notice the group icon.

○ Rename that icon to reflect the group. For example, you might
want to call it Accounting Dept or Managers (see fig. 8.3).

○ Finally, drag as many user name icons into the group icon as you
like. Each user name dragged becomes part of the group.
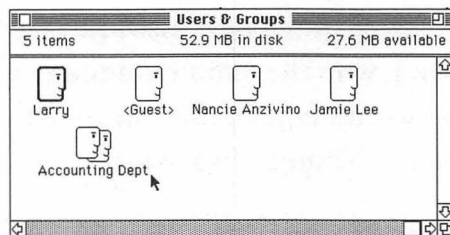
Figure 8.3. Name the group icon.

Privileges

You can specify privileges for each group or individual who has access to
your PowerBook's hard drive. The privileges are set after file sharing is
started by choosing Sharing from the Finder's File menu. The following
privilege options are available:

○ The See folders option enables groups or individuals to see the file
   icons.

○ The See files option enables them to open any files within the
   folders.

○ The Make changes option enables them to alter any files (including
   discarding them).

Any of these privileges can be assigned to the owner of the folder
(normally the owner of the PowerBook), to a specific group or groups,
or to everyone.

If you want to know who is sharing your files, select the File Sharing
Monitor control panel. A list of any connected users is displayed. To
disconnect a user, click the Disconnect button. A dialog box asks how
much time (in minutes) the connected user has before he is cut off. If

you want him disconnected immediately, type 0; otherwise, type in any number you want.

The easiest way to disconnect everyone at the same time is to shut off sharing in the Sharing Setup control panel. Again, a dialog box asks you to specify how long users have before they are cut off. Type in any number, including 0.

Connecting with Ethernet Networks

Most corporations choose Ethernet networks because of their high-speed data transfer among different CPUs and peripherals.

One of the enhancements Apple has made to Macs to make them more palatable to corporate users is *expansion slots*. These enable third-party vendors to supply easy-to-use, plug-in Ethernet cards. Unfortunately, none of the PowerBooks has an expansion slot. Users must install an external Ethernet box, which enables the SCSI port to be connected to the network.

If you need to carry around one of these boxes, you obviously should look for the smallest and lightest one available. Dayna Communications' SCSI/Link Ethernet adapter is only 3 ×4.4 × 1.5 inches. There are four models, one for each of the four types of Ethernet connectors.

A better solution for those who travel from network to network is Dayna's SCSI/Link Ethernet model, which contains all three connectors. On the SCSI side, the board has two slots that link it to the SCSI chain.

Another vendor of SCSI-to-Ethernet boxes is Technology Works, Inc. Their Ethernet SC (PB) comes in two models, and contains two types of Ethernet connectors. The box is bigger than Dayna's, however. It is 5.5 × 7.5 × 1.5 inches.

PowerBook Duo users who do not carry around a Duo Dock or SCSI adapter cannot find any ports to plug in a SCSI-to-Ethernet box. For them, Dayna offers DaynaPORT E/Z, which plugs into the LocalTalk port.

If you are working in a company that already has a Mac on an Ethernet network, you can enter the network through the Mac. Hook your PowerBook to the Mac that is on the network using the LocalTalk ports. Then use Farallon Computing, Inc.'s Powerpath, or a similar product, to access the Ethernet network.

If you do not have the needed hardware, you may be able to dial into the network using AppleTalk Remote Access software or Farallon's Liason. Just be aware that, even if you set your modem for 14,000 bits per second (bps), network access is slower than if you were connected directly to the Ethernet network.

Telephone Connections

When you are traveling with your PowerBook and need to use the modem, you have to find adequate connections. One of the first difficulties you may have (especially if you are in an office) is finding an analog system. Many companies use digital PBX systems, to which you cannot connect your modem. If no one knows where the nearest analog

line is, look for a fax machine. Fax machines, like modems, normally require analog phone systems. After you find the fax machine, unplug the phone line from its back and plug the line into your modem.

An alternative is to buy a handset adapter, which is placed between a digital phone's handset and its base. Plug your PowerBook modem into the handset adapter. If, however, you are in a building with an analog phone system, your problem is not converting to digital but finding a way to connect your modem to the line. Various options are discussed below.

Phone with Data Jacks

Many modern hotel rooms have phones with data jacks in the side. If yours does, simply plug PowerBook's RJ-11 clip into the data jack and begin telecommunications. The nice thing about phones with data jacks is that you do not have to remove PowerBook's clip to make a phone call.

Phone with RJ-11 Connectors

If the phone in your hotel room has an RJ-11 connector (the standard phone connector found in most residences), there are two choices. You can disconnect the RJ-11 clip from the phone and plug the clip into your PowerBook. Or, you can remove the phone's wire from the wall and plug your PowerBook into the wall. Obviously, the first choice is more convenient. If, however, the cord is hard-wired to the phone, you may have to opt for the second method.

In one hotel I was in, I could not find a lever in the RJ-11 clip. Apparently, the manager had it clipped off to discourage people from trying to remove the phone. The solution to this is to insert a screwdriver or another flat object into the slot. When you depress the remains of the lever, the jack should pop out.

For added convenience, buy a duplex adapter (a device that plugs into the wall and enables you to plug in two RJ-11 clips). Plug the hotel phone into one side and your PowerBook line into the other. The duplex adapter enables you to make either a voice or modem call without removing and reinserting wires.

Phone with a Wall Plate

If the phone cord is hard-wired to the phone and the other end goes into a wall plate, do not despair; the phone may still have an RJ-11 clip. Simply remove the wall plate and, if you see the clip, insert a screwdriver or another flat object into the slot. When you depress the remains of the lever, the jack should pop out.

Wall Connector

If your hotel has an old-fashioned wall connector (a box) you need an RJ-11 clip adapter. This has two wires with alligator clips connected to an RJ-11 clip. Unscrew (or pry off) the cover of the box. Connect the alligator clips to the terminal screws of the red and green wires. Because most RJ-11 clip adapters have very short wires, you may need a splice adapter, which enables you to plug the short RJ-11 clip adapter into one end and your PowerBook's RJ-11 clip into the other. When you leave, remember to take all of your adapters and clips.

Phone Connectors

If you cannot access the wall connector, do not know how to remove the cover of the wall module, and the cord is hard-wired to the phone, drastic measures are required. Turn the telephone upside down and locate the two screws that hold the cover in place. Loosen or remove the screws and then remove the telephone cover. Find the red and green terminal screws and connect the alligator clips of your RJ-11 clip adapter to them. Connect your splice adapter to the clip adapter and then plug your modem wire into that. The problem with this method is the inconvenience of replacing the cover on the phone each time you want to make a phone call. There are some solutions, though. You can leave the cover off because the phone still works. Or replace the cover as best you can with the RJ-11 adapter sticking out. This may be less conspicuous and more acceptable to hotel management than keeping the cover off. But, if you opt to leave the wires sticking out of the telephone, make sure the handset rests firmly in its cradle. Otherwise, the phone remains off the hook, and you cannot receive incoming calls. If you have a large enough rubber band, you can wrap it around the entire contraption to ensure that the handset stays in place.

Pay Phone

If you are at a pay phone that does not have a data port, forget about communicating by modem. Pay phones are built to resist tampering, so you cannot connect the PowerBook.

Cellular Technology

If you have a car phone, the most conventional and surest way of communicating with your PowerBook may be by cellular technology. If your hotel room phone does not have a data jack and you feel squeamish about tampering with the wall jack or removing the phone's cover, you can carry your PowerBook to your car or even bring your cellular phone into your room.

The main problem with cellular technology is that the quality is relatively poor compared with traditional phone lines. As a result, the modem has to be built to perform the necessary error checking. Also, special connections have to be included to enable you to connect with the cellular phone system:

O Apex Data Inc.'s Freedom line of internal modems for PowerBook has optional cellular add-on kits. These adapters, powered by a 9-volt transistor battery, sit between your PowerBook's modem and your cellular phone.

O Applied Engineering also offers a cellular add-on. It comes either as an internal device for PowerBooks that replaces the floppy drive or as an external one that also can connect to NuBus Macs.

Remote Access

The biggest problem for PowerBook users may be that the files you need on the road are not in your PowerBook drive. With AppleTalk Remote Access (ARA; free with every PowerBook), this no longer needs to be so.

Using this software, you can make your PowerBook phone your desktop computer and have its hard drive appear as an icon on the PowerBook's screen. You then can open and work on any file just as if it were in your PowerBook's drive.

Using ARA to connect one computer to another is relatively simple. You need two modems—one in your PowerBook and a second in your desktop Mac. Modems come in 2,400, 9,600, and 14,400 bps. If you plan on using ARA, you need at least 9,600-bps modems and preferably 14,400-bps models. Opening an icon on the desktop through ARA using a 2,400-bps modem can take about 15 or 20 seconds. Even four times that speed—as with a 9,600-bps modem—might seem a bit slow, but it certainly will do.

One small problem for most users is that their modem has to be supported by 1 of the 15 modem scripts supplied with ARA. Virtually all major and minor modems are supported; but, if you made your modem in electronics class in high school, you may need to find a script to support your creation.

System 7, File Sharing, and ARA must be installed on your home or office desktop machine. Select the Sharing Setup control panel and enter your name and, if you are worried about others dialing into your Mac, a password. (Using a password can be dangerous because, if you forget it, you cannot dial your desktop Mac. Not using one, however, may be more harmful because anyone who knows your name may be able to access your files.)

In the Users & Groups control panel, select your name and then use the check boxes to select the privileges you want to give yourself.

For security purposes, do not give yourself more privileges than you actually need. Be sure to check the Allow user to dial in check box.

If you know where you will be when you dial your Mac and need added security, select the call back at # option and enter the number where you can be reached. If you select this option, when you dial your desktop computer and it accepts your name and password, it calls you back at the selected number. If you use this option, a communications test may be in order. Have your computer dial the remote number at a time when someone is there to ensure that the call reaches the right phone. A slip on the keyboard can destroy your best plans. Do not forget to add the digit 1 if necessary. (In some areas of the country, the telephone company is eliminating the initial 1 for calls within the local area code.)

You can give access privileges to others by first selecting New User from the File menu. Next click on your hard disk icon, select Sharing from the File menu, and then select the level of sharing you want for each file folder or volume. Finally, open the Remote Access control panel, select the type of modem you are using, and select the Answer calls option. Your desktop Mac is now ready to receive a call from your PowerBook.

There may be, however, some hardware considerations. If your desktop Mac is constantly switched on and is connected to a dedicated modem line, you will not have a problem getting through. If it is not, find a way to ensure that, when your PowerBook calls your office or home-based Mac, it is not stymied by your answering machine. Also, if you do not want to keep your desktop Mac switched on at all times, find a way to switch it on or off remotely.

There are a number of solutions to both problems. A number of companies sell voice/modem/fax line switchers. You can find one in most computer stores, department stores that sell computers, or

electronics outlets. The voice/modem/fax switcher plugs into your phone jack and your modem, telephone, and fax machine plugs into the switcher. When a call comes in, the switcher first analyzes it to determine if it is voice, computer, or a fax and routes it to the correct device.

A number of companies make devices that start up your Mac when its modem receives a call. Powerkey Remote, from Sophisticated Circuits, Inc., is installed between your modem and desktop. It switches on your Mac when you get a call and shuts it down after you hang up.

Setting Up Your PowerBook

On your PowerBook, open the Remote Access control panel and specify the type of modem installed in or connected to your PowerBook. Open the Remote Access program. Type in your name, your password, and the telephone number of your home computer (do not forget to include any preceding digits such as those needed to get an outside line). Click Connect.

When the connection is complete, the name of your desktop Mac appears in the window. If your desktop computer has a number of startup procedures, you may have to wait awhile before you can begin working.

From the Chooser, select AppleShare. Double-click on the name of your desktop Mac. Enter your name and password. A list of files, folders, or volumes that you can access appears. The selected items then appear as icons on your desktop.

9
Presentations
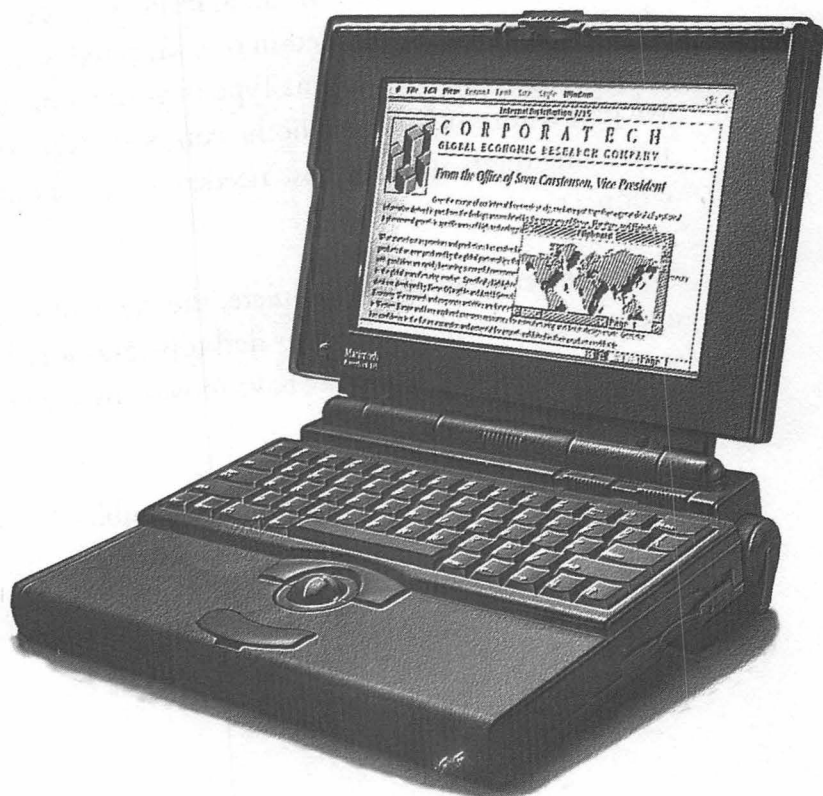
Many businesses find that success or failure in certain endeavors is based almost as much on the elegance and clarity of their presentations as on the quality of their product or service. Whether using a flip chart to sell group health insurance, transparencies to get upper management budgeting for a pet project, or a slide show to introduce a new product, aesthetically pleasing, clear, and well-organized presentations can be the sizzle that sells the steak.

Nowadays, presentations need not be limited to boring, static pictures. If animation is called for, with Macintosh System 7 and QuickTime, movies may be the way to go.

Business Presentations

Desktop presentation software can help in the creation of any presentation media: slides, flip charts, or transparencies. However, many companies have found advantages in using the Mac as the presentation medium as well as its creator. The Mac acts like a slide projector flipping through screens, just as in a slide show. Using the Mac to display as well as to create presentation frames enables users to easily add, subtract, substitute, or rearrange slides to fit the situation. By contrast, after you print a slide, it is printed for good, and even changing the sequence of slides can be tough. Additionally, using the Mac as the presentation device enables presenters to include animation and movies in their presentations.

The main disadvantage of using a Mac for presentations is that carrying around a desktop system can be cumbersome. For that reason, Apple dubbed its PowerBooks, especially those with video-out ports, as tools

for presenters. The PowerBook's lightweight and compact design enables users to carry their presentation equipment from their cars to the site in one trip.

Of course, the PowerBook is no place to display a presentation; it cannot be viewed from a distance or from a wide angle. So, you must connect it to a large screen or presentation panel. But even the addition of a panel does not overburden presenters.

LCD Panels

The presentation mediums that are lightest in weight, lowest in cost, and easiest to use are the LCD projection panels. They are connected to the PowerBook's video-out port and placed on an overhead projector. The image then is displayed on the wall or a screen. Low-end LCD panels display either monochrome or simulated color and a number of shades of a particular color such as 16 shades of magenta. They also are passive matrix panels, which respond slowly to changes in the image. As a result, if you try to display animations on them, shadows or ghosts appear. Even if you only intend to use still presentations, do not try using your trackball pointer because it is likely to disappear as you move it across the screen.

Still, for occasional presentations products like In Focus Systems Inc.'s 1600GS and nView Corp.'s nSight (both monochrome) are adequate for budget-conscious presenters. One step up from those two products are nView's ViewFrame II+2, which displays in eight shades of gray, and Proxima Corp.'s MultiMode II, which displays in 16 shades of magenta.

Active matrix true color panels have come down in price and, although they are still more expensive than monochrome passive matrix screens,

they are becoming more standard in presentations. They also are fast enough to keep up with animations. A large number of companies—including Chisholm, Inc., Dukane Corp., In Focus Systems Inc., nView Corp., Proxima Corp., Sayett Technology, Inc., and Sharp Electronics Corp.—have active matrix color panels.

The one caveat about color active matrix LCD is that it needs a very high-end light source to function well. Manufacturers recommend optimal overhead projectors with 3,000 lumens. An overhead projector with that capability can cost over $1,000. That price, in addition to the cost of the panel, could strain your budget. But a more serious problem is the strain on your back if you have to carry an overhead projector around if the presentation site does not have an adequate one.

One solution, although it adds weight to what you have to carry and costs more, is an LCD projector that combines the LCD panels with a light source in one compact unit. A number of companies—including In Focus, nView, Sharp, and Sayett—include LCD video projectors in their line. These projectors weigh from 20 to 40 pounds (opposed to less than 10 pounds for most projection panels).

There are two other solutions to the weight problem for your presentation panels. The Dukane MagnaView 860 includes an LCD panel and an overhead projector in one compact unit. This model can fold up more compactly than most overhead projectors (but is not as compact as most LCD projectors) and also can be used as a standard overhead for projecting transparencies.

Sharp's QA-BL1 backlit unit converts a number of Sharp's LCD panels into direct view panels. While this eliminates the light problem, the solution only works in small groups of about 10 or less.

If you are using a PowerBook, chances are your primary concern is portability. But, if image quality is more important and you have the money, there are some high-end technologies that project near-photographic images. Barco, Inc.'s BarcoData 5000 Light Cannon (LC) is one of the first light-valve LCD products (see fig. 9.1). It has an overall resolution of more than 1.3 million pixels and provides light output of over 5,000 lumens. Another option is a CRT systems. Their images are very clear and bright, but they are expensive, heavy, and the three beams have to be converged.
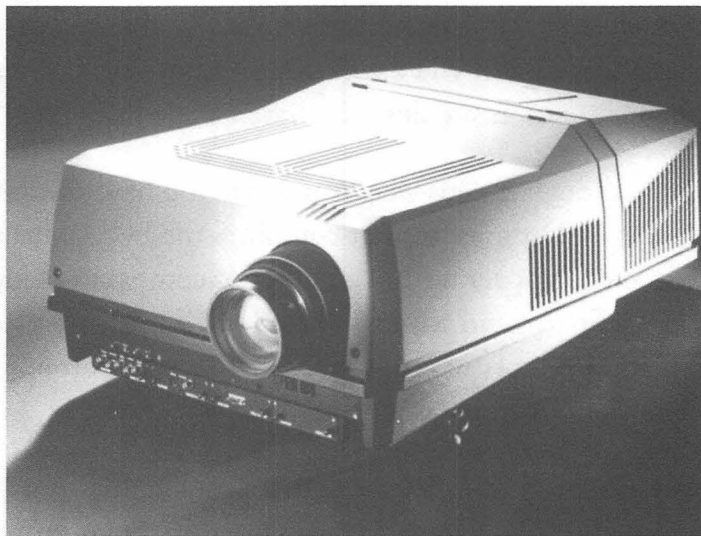
Figure 9.1. The BarcoData 5000LC projector. (Photo courtesy of BARCO, Inc.)

New digital convergence systems, however, have made converging beams easier. For example, the ECP 3101, from Electrohome, Inc., incorporates ACON, a convergence technology that automatically aligns red, blue, and green color images with three keystrokes on the unit's keyboard.

A number of companies also offer special products for making presentations:

○ Proxima Corp.'s Cyclops acts like a cordless mouse. You can use Cyclops to pull down menus, select menu items, and perform other mouse operations from the projected image.

○ Focus Systems, Inc.'s LiteShow II displays captured computer screen images without being attached to a computer. Approximately 50 frames can be saved on a Mac floppy along with special effects such as dissolves, wipes, and simple animations. At the presentation site, you insert the floppy disk into LiteShow II and project the presentation.

○ Chisholm, Inc.'s ColorWriter acts as an electronic chalkboard that enables you to write and draw on the presentation frame using an electronic pen. You can draw in up to eight colors in four line widths.

Presentation Software

Presentation software can be divided into two groups: still and animated presentations. These two types are discussed below.

Still Presentations   Here are some programs that create still presentations:

○ CA-Cricket Presents, from Computer Associates International, Inc., and PowerPoint, from Microsoft Corp., have been among the most popular desktop presentation software for years. They provide an easy-to-use interface, a large number of templates, into which you can dump presentation text, and excellent color schemes.

O MORE, by Symantec Corp., is primarily an outline creator, but its outlines can be transformed into presentations in seconds. It includes dozens of templates for presentation frames.

O Persuasion, by Aldus Corp., includes a large number of templates and an outliner. It can import and display QuickTime movies as well as EPS or PICT graphics. Using System 7's Publish and Subscribe feature, Persuasion's images can be updated automatically when changes are made in other applications. There also is a Windows version of the program, and you can transfer programs between the Windows and Mac versions.

Animation Programs   Following are three programs that create animated presentations:

O Cinemation, by Vividus Corp., excels in ease of use when compared with most animation tools. Its main purpose is to build simple animations to liven up presentations. It includes design templates and AutoMotion, which combine templates with your customized animations. It also includes controls for sound and music.

O Macromind Director, by Macromedia, Inc., is one of the most popular animation programs partly because of its capability to create interactive animated playback of color graphics and sound. The program also enables you to control peripheral devices such as CD-ROM drives, VCRs, and videodisk players. While you do not have to be a professional programmer to use Macromind Director, you do need a good deal of training before becoming comfortable with it.

○ Magic, by Macromedia, Inc., provides professional-quality animations, but requires a good deal of training. Magic is not for the novice or casual animator. It integrates graphics, text, sound, and QuickTime movies.

QuickTime and the PowerBook

QuickTime is an extension to Apple System 7. It enables Macs to display as well as cut, copy, or paste digitized video, sound, or animations.

Before using QuickTime on your PowerBook, there are some things you need to know:

○ QuickTime does not work on a 68000 processor, which is the brains of the PowerBook 100.

○ QuickTime looks terrible on monochrome screens. So, if you are using a PowerBook 140, 145, or 170 with the internal screen, you probably do not want to use QuickTime.

○ QuickTime is barely acceptable on a grayscale screen.

○ QuickTime works well on an external color screen, even with the 256 colors available to PowerBooks.

○ QuickTime works best on an external screen connected to a Duo in a Duo Dock with 1M of VRAM installed.

○ QuickTime depends on fast refresh rates to work properly. The *refresh rate* is the speed at which the screen renews its image. Active matrix LCD panels have much faster refresh rates than passive matrix ones. As a result, if you display QuickTime movies on any PowerBook screen other than the 180 (the only active matrix LCD PowerBook at present), you may lose the image occasionally.

○ QuickTime requires a good deal of disk storage space. A 30-second movie can take up over 2M.

○ QuickTime loads the images frame by frame from the hard drive into memory, so it keeps your hard drive spinning. Because a spinning hard disk can wear down a battery charge quickly, it is impractical to use QuickTime unless your PowerBook is plugged into AC power supply.

○ PowerBooks can display QuickTime movies at 15 frames per second or less, depending on the PowerBook model. Normal movies, such as those in the cinema, run at 30 frames per second. QuickTime movies in a PowerBook may seem jerky when compared with normal movies.

○ You can solve the speed and energy problems by running QuickTime off a RAM disk.

Screen Captures

It is sometimes helpful to snap a picture of the contents of your PowerBook screen. For example, suppose that you have just created an Excel template that you want to share with the accounting department.

You want to create some handouts to describe how to use the template. You can print out the Excel worksheets and hand write the annotations or you can take a picture of the worksheet screen, open the worksheet in MacDraw or Microsoft Word, and add your arrows, text, and other enhancements.

Before Apple offered the capability of taking snapshots of the screen, people who needed to document programs actually had to use a camera to take a photograph.

Apple has made it much simpler. All you have to do is hold down the Option and Shift keys and type a 3. You then hear a reasonably good impression of a camera shutter, and your picture is waiting for you on your drive's directory.

If you have experience taking screen shots using System 6, there are some major differences with System 7:

○ Screen shots on System 6 were called Screen 1, Screen 2, etc. On System 7, they are called Picture 1, Picture 2, etc.

○ System 6 created screen shots in MacPaint format. System 7 creates them in PICT format. This enables them to be opened and modified in a wide variety of drawing, desktop publishing, and word processing programs.

If you try to view your picture by double-clicking on its icon, the PowerBook tries to open it in TeachText. If you get a dialog box that states that TeachText cannot read it, you probably have an older version of the program. If you have transferred some folders and applications from your desktop machine, chances are you have a number of different TeachText programs among the transferred files. This is because many

programs include TeachText as a way of providing some on-screen instruction. When you try to view your picture, your PowerBook may try to open it in one of the older TeachText versions. So make sure you Trash all older versions of TeachText before using this function.

After you open the image in TeachText, you can select part of it, copy, and then paste it in any other application. To select a section of a TeachText image, place your trackball pointer at one corner of the area you want to copy. Hold down the button while dragging diagonally across the image. A dotted line in the form of a rectangle appears. The area within the rectangle is selected.

If you find that TeachText does not enable you to copy part of a picture, you may not have allocated enough memory to the program. At the Finder, select the TeachText icon and then use Get Info in the File menu to increase the memory allocation.

10
Security

M ore than any other Mac owner, PowerBook users have to worry about keeping their machines safe. A notebook computer, which may have an entire customer database on its hard drive, can be extremely tempting to corporate spies and extremely easy to steal. Even when a PowerBook is sitting on your desk at the office, it is an easy target for nimble-fingered thieves.

Securing Your PowerBook

There are a number of hardware and software products that make securing a portable relatively easy:

O A.M.E. (Access Managed Environment), from Casady & Greene, Inc., is a high-end package meant to be used by companies that need to protect a number of Macs, including PowerBooks. If you are buying a security product for your own use, this may be too much for your needs. System administrators can view an activities log, which displays any activities performed on a protected Mac, thus enabling a company to keep track of who is checking out computers and when. It enables you to assign access levels or privileges to users.

O DiskLock, from Fifth Generation Systems, Inc., is a very simple and relatively inexpensive program made to keep the contents of your hard drive hidden from unauthorized users. It prevents viewing or altering of files in locked files or folders.

O Empower II, from Magna, Inc., is a control panel device that provides administrators an easy way to specify access privileges for groups of users. It also provides an activity log and enables you to disable floppy drives at startup or later.

O FileGuard, from ASD Software, Inc., can protect folders, applica-
tions, and data files. The user list as well as different levels of access
can be updated easily.

O FolderBolt, from Kent Marsh, Ltd., is best for people who are
sharing PowerBooks because it protects the contents of individual
folders instead of an entire hard drive. It also enables password-
protected, read-only, and drop-only (enables users to add to a
folder's contents but not remove anything from the folder) types
of access.

O Ft. Knox, from Transfinite Systems, Inc., provides very high-level
security including two forms of encryption. While it works fine for
a single user, the level of security is meant for those whose nemeses
have strong decryption capabilities.

O MacSafe, from Kent Marsh, Ltd., enables you to drag multiple files
into a "safe," where they only can be seen by users who have a
password.

O NightWatch, from Kent Marsh Ltd., provides high-level security
by requiring two means of entry: a floppy disk as a key and a
password.

Protecting and Insuring
Your PowerBook

The PowerBook can be an extremely tempting target for thieves. A
PowerBook 180 fully equipped can have a retail price of $5,000 or

more. At that level, it may be one of the most valuable electronic gadgets—pound for pound and cubic inch for cubic inch.

There are some common sense ways to protect your PowerBook. For example, after you have used your PowerBook in public and then placed it in your briefcase, keep a watchful eye on your case.

Ultimately, of course, whenever you take your PowerBook away from your office or home, you are increasing the risk that something may happen to it. Check your coverage with your insurance agent before you venture out with your PowerBook. Here are some things to ask your agent or broker:

O Does your current homeowner's or renter's policy cover business losses and, if so, to what extent? Some polices do not cover business-related losses; others may cover only, for example, the first $1,000.

O What is the deductible? Decide if you can live with that level of loss and, if not, find out if a lower deductible is available.

O Does the policy pay replacement cost or depreciated value? A policy that pays depreciated cost may reduce the value of your PowerBook by as much as 15 to 20 percent each year. In theory, the depreciated value is supposed to be sufficient for you to purchase a machine similar to the one you lost (in other words a used Power-Book). However, the availability of used machines varies depending on market conditions. Replacement value policies, which provide enough money for you to buy a new PowerBook similar to the one you lost, often cost about 30 percent more than depreciated value policies. However, many people may find them well worth the extra cost.

○ Finally (and this is an area where many people get in trouble), does the policy cover losses from an unattended vehicle? Most people do not know that many policies do not cover losses when they occur in cars parked on public streets or even in public garages. (The rules on cars parked and delivered by valets vary.)

Safeware (800)848-3469 is an insurance broker that specializes in covering computers. It has the best policy for PowerBook owners. The policy includes coverage for computers left in unattended vehicles and it pays replacement, not depreciated, value. The policy is relatively inexpensive—about $200 for up to $10,000 of coverage.

11
About the Disk

T his book includes a disk filled with programs to make your PowerBook more powerful. The programs on the disk are *shareware*. Shareware are computer programs that you can try out for free, but must pay for if you decide to keep them. Unless a program is *freeware* (you can use it for free), the author of the product requires something from you in exchange for keeping the product. Please read the documentation that comes with each of the programs contained on this disk to find out how to license the product.

The products contained on the disk are described in the following sections.

AppleWindows 2.0

Type: Freeware

Author: Hiro Yamamoto

E-mail: CompuServe: 76407,3251; ALink: D5611; AOL: Hiro Y; GEnie: H.YAMAMOTO2

AppleWindows is a control panel that helps you navigate easily through many open windows. Other useful features include the following:

○ Automatically hide applications/desk accessories that are not the frontmost

○ Show the application menu anywhere you click

○ Switch applications/windows using arrow keys

○ The window list in the submenu can be arranged alphabetically or from front to back

The calculator also enables the user to correct trailing digits of values entered on the display of the calculator through the use of a backspace key.

CatFinder

Type: Shareware

Price: $25.00

Author: Keith Turner

Address: P.O. Box 27, New Hill, NC 27562

E-mail: CompuServe: 71224,3206; AOL: ShdTree

It is difficult for PowerBook owners to be pack rats. With hard disks that usually are smaller in capacity than those of desktop computers, PowerBooks have to be purged of excess files systematically and regularly. Because no one wants to completely trash a file that might be needed later, most users archive files on floppy disks or other removable media.

CatFinder helps you keep track of all those archived files. After Cat-Finder makes a directory of any removable media, you can view that directory even when the disk is offline. You also can search any single disk or your entire library (see fig. 11.1).
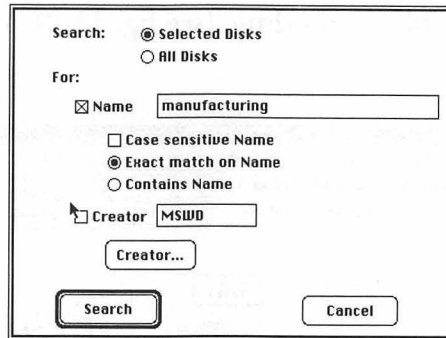
Figure 11.1. The CatFinder search function.

When your registration is received, you are sent a printed manual with the latest version of CatFinder on disk.

ComIT

Type: Shareware

Price: $20.00

Author: Michael L. Weasner

Address: 2567 Plaza Del Amo #209, Torrance, CA 90503-7329

E-mail: CompuServe: 70307,243; Delphi: MWEASNER; GEnie: MWEASNER; ALink: MWEASNER; AOL: MWEASNER

ComIT can help you budget your online time by monitoring connect time and voice phone calls. You can use ComIT to dial your voice calls and to monitor the duration and cost of the call. It comes preconfigured

for CompuServe, Delphi, and GEnie (see fig. 11.2). You can configure it for other services.

Figure 11.2. The ComIT screen.

Disinfectant

Type: Freeware

Author: Jan Norstad

Address: Academic Computing and Network Services,
          Northwestern University, 2129 North Campus D.,
          Evanston, IL 60208

E-mail: Internet: j-norstad@nwu.edu

Disinfectant is a virus-prevention, scanning, and repair program that is used widely in the Macintosh community. Read the excellent built-in documentation and remember to install the new protection INIT.
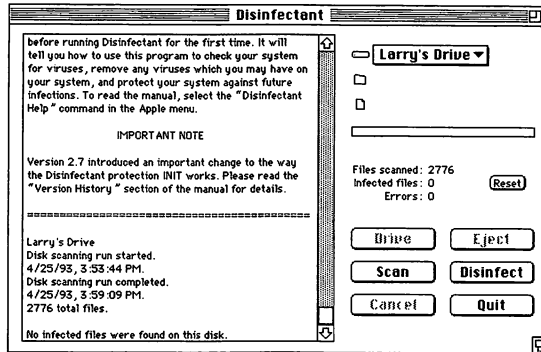
Figure 11.3. The Disinfectant screen.

Gunshy for PowerBook

Type: Freeware

Author: E.C. Horvath

Address: c/o UniMac, Inc., Box 237, Holmdel, NJ 07733

E-mail: GEnie: E.Horvath; UseNet: ech@poseidon.ATT.COM

This game is similar to Shanghai (see fig. 11.4). It has been optimized
for the PowerBook.
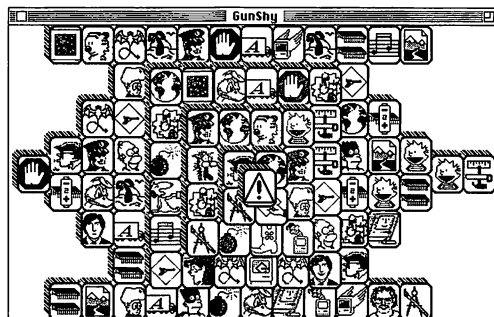
Figure 11.4. The Gunshy screen.

MacUpdate 3.2

Type: Shareware

Author: Richard E. Fiegle

Address: 1233 S. Washington St., Kokomo, IN 46902

E-Mail: CompuServe: 76350,761; AOL: RFigleaf; GEnie: R.
         Fiegle

MacUpdate is a file-synchronization and folder-reconciliation program.
It is useful for doing incremental backups as well as for keeping two or
more directories on two or more volumes up to date with each other.
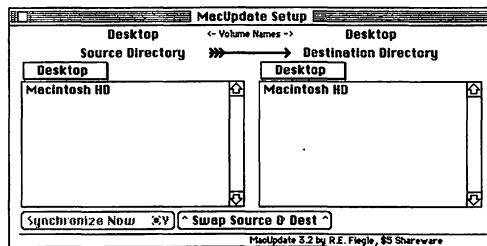
Figure 11.5.   The MacUpdate screen.

Mariner

Type: Shareware

Price: $40.00

Author: William Paar

Address: Mariner Software, 1903 Fox Trail Dr., LaGrange, KY
         40031

Mariner is a fully functional spreadsheet that surprisingly possesses many excellent features, including the following:

○ Split window interface

○ Graphics and charts displayed on the worksheet

○ Tear off tool and pattern menus

○ Multiple undo

○ Values calculated using extended (10 byte) precision

○ Three-dimensional worksheets, 128 layers per file

○ File-to-file linking

The screen in figure 11.6 shows Mariner in action.
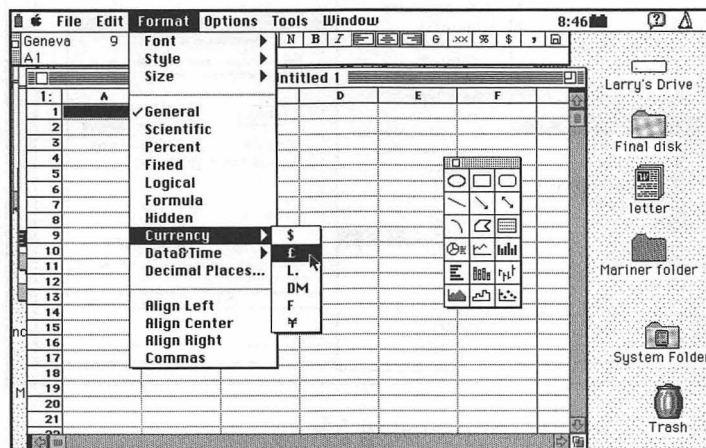
Figure 11.6. Mariner running on-screen.

MenuChoice

Type: Freeware

Author: Kerry Clendinning

Address: P.O. Box 26061, Austin, TX 78755

E-Mail: CompuServe: 764245,2214; ALink: KeryC

MenuChoice reduces the need to return to the Finder and dig through folders to launch applications and open documents. Place this control panel device in your System Folder and restart your PowerBook. Every folder stored in your Apple Menu Items folder shows up as a submenu under the Apple menu (see fig. 11.7).
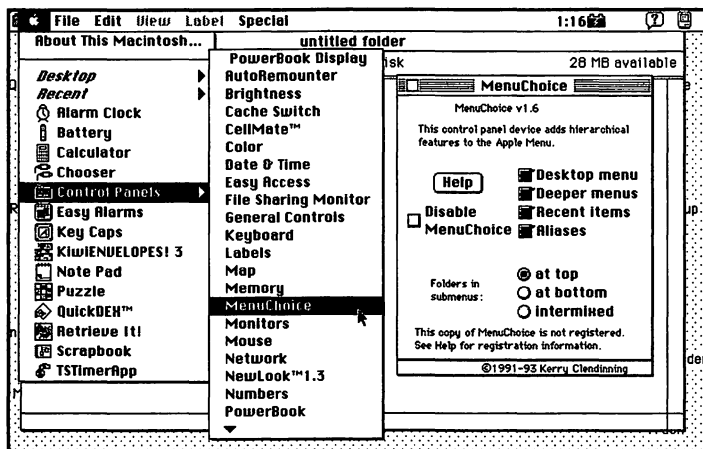
Figure 11.7. A PowerBook using MenuChoice.

Also, when you select an item from a submenu, it is added to a list of the ten most recent items used. This list is always available at the top of the Apple menu, as a submenu called Recent.

If you put an alias of your hard disk in the Apple Menu, you can use
that menu to access any item on your disk.

You can choose to make folders appear at the top or the bottom of each
menu. The optional Desktop feature displays a menu item called
Desktop that can bring up a submenu containing all the items on the
Desktop.

My Battery

Type: Shareware

Author: Jeremy Kezer

Address: 143 Songbird Ln., Farmington, CT 06032

My Battery is a stand-alone application designed to run all the time. It
is designed to show how much power is left on your PowerBook. When
loaded, My Battery gives you an on-screen "gas" gauge display.
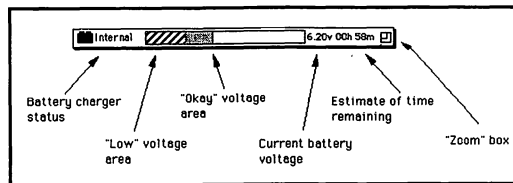
Figure 11.8. The My Battery power supply display.

PhoneBook Plus 2.6.4

Type: Shareware

Price: $25.00

Author: Tim Herzog

Address: 33 South Avon #4, Saint Paul, MN 55105

E-mail: AOL: Hertim

PhoneBook Plus is a multifeatured phonebook program comparable in functionality to expensive commercial programs. It includes phone dialing features, an envelope-printing facility, and a robust call timer. You can print out reports from a PhoneBook file or a PhoneBook log file of phone call records. For phonebooks, you can print all the fields, with or without the notes field, or just the names and phone numbers. Figure 11.9 shows the PhoneBook entry screen.

Figure 11.9.   The PhoneBook entry screen.

PowerAlias

Type: Shareware

Price: $5.00

Author: Andrew Anker

Address: A2Z Software, Inc., 222 Sutter St., 8th Fl., San Francisco, CA 94108

E-mail: AOL: AndA; ALink: A2Z; CompuServe: 70662,3415; Internet: SPAYOT!ANKER@ATTMAIL.COM

Being short of real estate, the PowerBook's screen is no place for clutter. PowerAlias is designed to minimize Desktop clutter. It enables you to consolidate up to five application aliases into one utility. You launch PowerAlias either by double-clicking on its icon or by dragging and dropping a document onto the PowerAlias icon. You specify which of the five applications PowerAlias launches by simultaneously holding down a key on the keyboard.

SmartFolder 1.1

Type: Freeware

Author: Scott Fenton

Address: P.O. Box 711, Williston, VT 05495

E-mail: AOL: ScottF2

SmartFolder helps you work with the Desktop more efficiently by drawing a number on top of the folder icons in the Finder that represents the number of files/folders within that folder.

StuffIt Lite

Type:	Shareware
Price:	$25.00
Author:	Raymond Lau
Address:	Aladdin Systems, Inc., 165 Westridge Dr., Watsonville, CA 95076
Phone:	(408) 761-6200
FAX:	(408) 761-6206
E-mail:	AOL, ALink: ALADIN; Internet: aladdin@well.sf.ca.us

StuffIt has been a standard Macintosh archiver since it was first released in 1987. StuffIt Lite is the newest member of this illustrious family. It includes many more translators for converting foreign archive formats, including Zip, Arc, and many UNIX formats. StuffIt Lite works on any Macintosh with at least 2M of memory and requires System 6.0.4 or later.
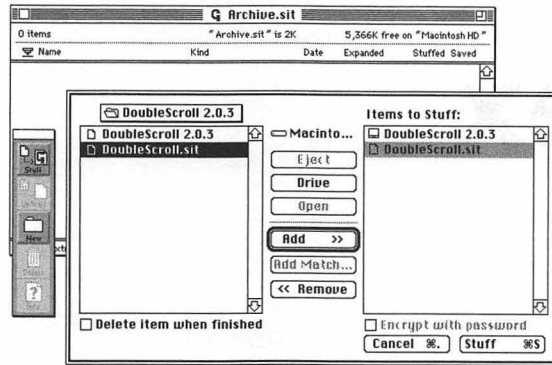
Figure 11.10. A StuffIt Lite screen.

ToggleAT

Type: Freeware

Author: Jon Pugh

Address: 20525 Mariani Ave., MS 37-AS, Cupertino, CA 95014

Phone: (408) 862-7094

E-mail: Internet: jpugh@apple.com; ALink: JONPUGH

ToggleAT enables you to turn off AppleTalk without going to the Chooser every time you take your PowerBook on the road. (Turning AppleTalk off when not needed makes your battery charge last a bit longer.) However, turning AppleTalk off requires a menu item selection, a button click, a dialog query, an OK click, and a close box. Turning it back on requires a menu item, a button click, an OK click, and a close box.

Index

Important! Read Before Opening Sealed Diskette
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High-density utility disk. See Chapter 11 for program
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About the Author

Larry Stevens has been writing about computer technology for more than ten years. He has written several best-selling books and is a frequent contributor to *MacWeek, MacWorld,* and *MacUser* magazines

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