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# MACINTOSH<sup>TM</sup>

## A CONCISE GUIDE TO APPLICATIONS SOFTWARE



**Dirk van Nouhuys**

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## A Concise Guide to Applications Software

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Dirk van Nouhuys

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## Whom This Book Is For

- If you own a Macintosh and one or more of the programs discussed and want practical instructions on doing particular tasks.
- If you own a Macintosh but do not own the programs discussed and want to get a feel for what you can do with them.
- If you are considering buying a Macintosh and want to learn what you can do with it and what working with it is like.

This book explains only programs that you can buy and use without any knowledge of programming or electronics. It does not discuss programming and it does not explain how the Macintosh works electronically except for a few very simple matters helpful in using the applications.



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## Equipment

The Macintosh used in all the examples is the most common and least expensive version with 128K memory and one, internal disk drive. All the programs discussed in this book will run exactly as described on larger versions of the Mac. In some cases they will run a little faster, but the steps are exactly the same.

Moving work from one diskette to another is simpler with two disk drives. Although the detailed instructions are always for one drive, different instructions for two drives are briefly discussed.

Use of a hard disk drive varies from one brand to another, so you will have to follow the instructions that come with your hard disk. These instructions will affect only moving work from diskette to hard disk and vice versa and searching for files.

Examples that involve printing assume you have an Apple Imagewriter printer, the standard printer that comes with the Mac. Other printers are discussed briefly.

A chapter on communications assumes you have a modem, a device that allows you to connect your Mac to other computers through telephone lines.

All the programs discussed (except PFS:file) run on the Lisa exactly as described when you use MacWorks, a program provided by Apple to make a Lisa work like a Mac.

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## What's Covered

The first chapter shows you to how to run the Mac. If you are a new Mac owner, you should read it in addition to the Mac manual because it is more concise and because it discusses various programs that run on the Mac.

The subsequent chapters offer precise instructions for several tasks and application programs. They cover every major area of Mac applications except games. I picked each task so that when you're finished you will have learned enough to start working in that application.

- With MacWrite, you will prepare an illustrated resume and a letter to go to several recipients with different addresses; each letter will have a partly different content.

- With MacDraw, you will make a label for a cassette box and draw up plans for a kitchen.
- With Microsoft Multiplan, you will prepare a simple profit forecast and set up the IRS's 1040 tax form on your Mac.
- With Microsoft Chart you will prepare a variety of charts based on the Multiplan profit forecast.
- With Microsoft Word, you will outline and design a college paper with running heads and footnotes; you will also prepare an illustrated business brochure with a table from Multiplan.
- With MacTerminal you will learn how to transmit files to and from an Apple II, how to browse and get information from The Source, and how to buy and sell stock with Trade\*Plus.
- With PC to Mac, you will learn how to transfer files to and from an IBM PC or similar machine.
- With Augterm, you will see how to log into a large office automation system and send electronic mail.
- With PFS:file and PFS:report, you will set up a simple file on a firm's suppliers, and extract lists that show the relation of the company to suppliers.
- With Filevision, you will organize the same information about suppliers on a US map and print mailing labels from the list.
- With Factfinder, you will set up and search card-file-like notes on the universe.

With Macintosh, each program's format is similar and you can usually transfer material from one program to another ("software integration"). *Macintosh: A Concise Guide to Applications Software* explains Mac software integration and it also discusses three other programs you can use to support the programs discussed in depth: MacPaint can provide illustrations, including illustrations from commercial sources such as ClipArt, and it can be used as a tool to edit graphics from other applications. MegaMerge is used with MacWrite to make form letters, and ThinkTank 128 is used as a brain-storming and outlining tool with Microsoft Word.

### **Difference from Manuals**

Most of the products discussed have excellent manuals (though some do not). This book differs from these manuals because it offers more practical uses for the software and because it is brief. Manuals are obliged to be complete and to provide information organized like a reference book, which this book does not. If you want to use any of the programs beyond the applications described here, you will need the manuals or other books dealing with the programs.

### **Diminishing Detail**

The instructions at the beginning of each chapter are very detailed but the detail diminishes as you read along. Instructions in chapter 1 and in the chapter on MacWrite, a program that comes from Apple with the Macintosh, are very detailed. The other chapters assume you have used a Mac or have read these two chapters.

### **A Minimum of Jargon**

*Macintosh: A Concise Guide to Applications Software* uses the language you think with. The computer must come to your mind, not the other way around. You will not find the word interface in this book. I do, however, introduce a few technical terms where explaining around them would be unusually complex.

Historically, the Mac has a clear line of evolution, beginning with the development of mouse-pointing by the Augment group at SRI International, discussed in chapter 6, and continuing with the combination of the mouse with screen icons and pull-down menus by Xerox in the 70's, and sold in its powerful and expensive Star Computers. Apple continued the development with the more powerful and expensive Lisa computer. Mice and pull-down menus are now proliferating.

**1**

excellent on-screen tutorial that follows a cassette that also comes with the Mac. Besides being briefer than the Mac manual, this chapter also strives to be comprehensible to someone who does not have a Mac at hand to play with.

---

## The Power of Pointing

On the Macintosh you point to make things happen. You point at the things you want to change, and the menus to change them. You point by rolling something called a mouse. A mouse is a palm-sized, rounded rectangular box with a button on top, all attached to the Mac by a cord. In the belly of the mouse is a ball, which turns as you roll it. The turning of the ball is reported electrically to the computer where a little mark on the screen, called the cursor, follows the motion of the mouse. You can roll the mouse on any surface that is not highly polished, such as glass.

The headings of the menus are in a row across the top of the screen called the menu bar. To see the menus, roll the cursor to the heading and press the mouse button; the menus then appear.

To use the menus, hold the mouse button down and roll the mouse until the cursor is in the menu item you want. Release the button and the item you have pointed to begins to execute (printing in the case of figure 1.1). Holding down the mouse button while moving the cursor is called *dragging*.

In working with information on the screen, you will roll the mouse until the cursor reaches a certain point and press and release the mouse button, as in figure 1.2. In the case of text, a vertical line will appear that shows where text will appear when you type. As you type the text seems to come out of that line, called the *insertion point*. In the case of a dialog box, the item turns black to show that the next operation will happen there.



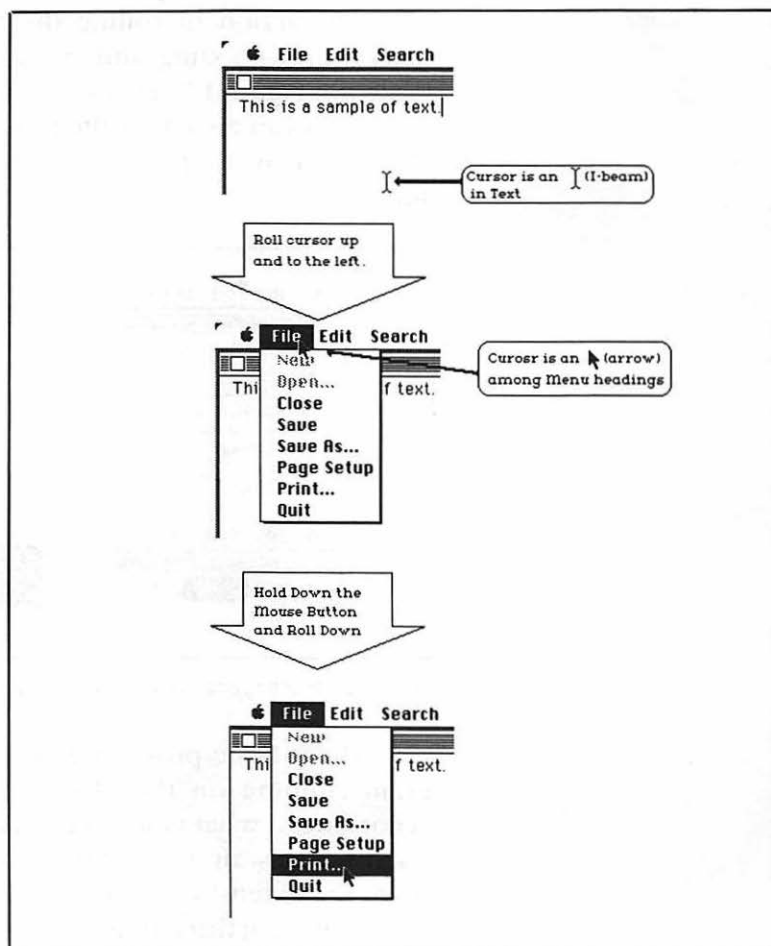


Figure 1.1 Mouse and cursor action

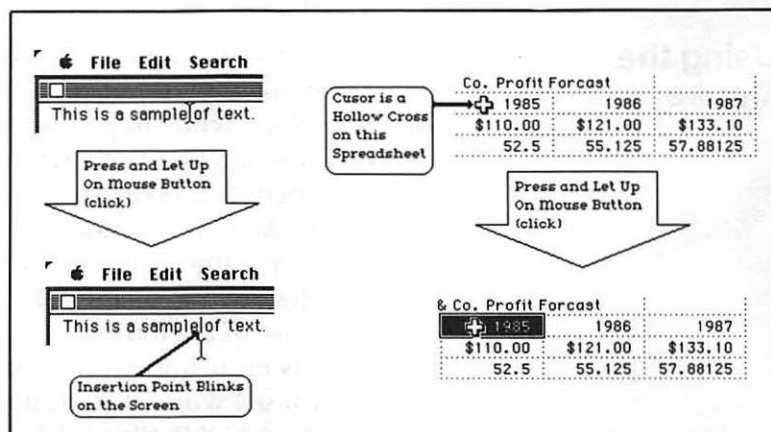


Figure 1.2 Pointing and clicking with the mouse

The action of rolling the mouse to a place on the screen and pressing and releasing the button is called *clicking*. Figure 1.7 shows the effect of clicking in a dialog box. You can also hold the mouse button down and drag the cursor over a portion of text to select several characters.

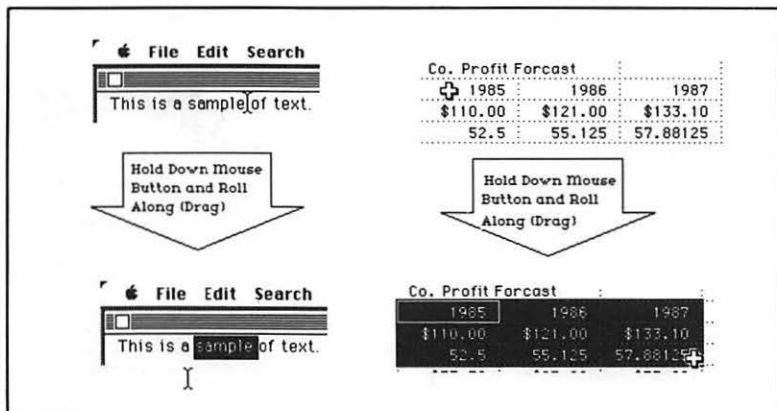


Figure 1.3 Pointing and dragging with the Mouse

These basic procedures vary depending on the program running on the Mac. The cursor changes shape according to what you can do at any given moment. When you have to wait, the cursor changes to a wristwatch. And there are extensions, like pointing in the margin to move left or clicking three times to select a paragraph.

## Using the Mouse

Using the mouse is a physical activity like walking or swimming (but not as hard to learn). You have to try it to feel it, and do it for a while to get used to it. The excellent Apple tutorial program does a good job at introducing the mouse. For most people it takes about an hour to get the hang of it and a few days to feel good about using it. Some people learn slower, some faster; my friend who drew the portrait of Mary McCarthy in chapter 2 began to draw after less than an hour's use of the mouse.

I've been using mice in one form or another for 15 years because I worked on its development in the Augment group mentioned in Chapter 6. I have one piece of advice I have never seen in print. Put your wrist firmly on the desk or

table and move the mouse with your fingers. Most experienced users hold the mouse this way without thinking about it. Some people seem to hold their whole arm in the air with just the mouse in their hand touching the desk. They thus end up trying to control the mouse with their shoulder, a powerful but unfine set of muscles. Putting your wrist on the table as a base lets you move the mouse with your wrist and finger muscles which are the most dexterous muscles.

## The Desktop

All Macintosh programs use the screen as the top of a desk. Below the menu bar on the desktop are “objects” that give you control over files and programs, and provide other information. Figure 1.4 shows a messy desktop.

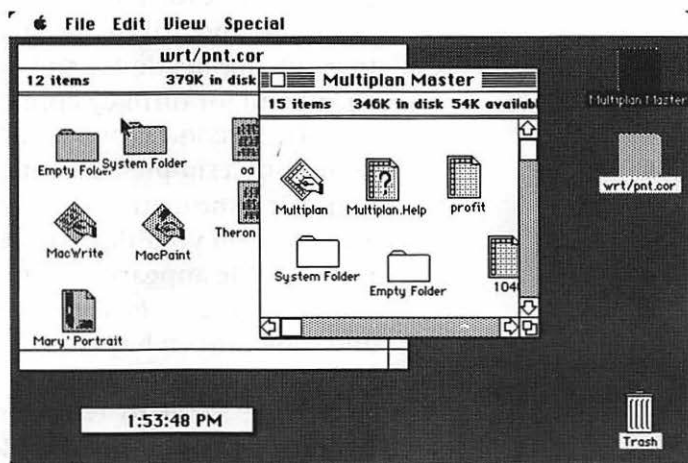


Figure 1.4 A messy desktop

There are four kinds of objects on this desktop: *windows*, *icons*, *folders*, and *boxes*. Windows are the large square areas. The ones in this example hold icons and catalog the contents of diskettes. They can also hold text, art, numbers, or whatever else you are working with, and show the contents of documents.

The borders of the Multiplan Master window in figure 1.4 are shaded to show that it is the active window. This shading indicates that the window and its contents can be worked on.

The long rectangle in the lower left in this particular case is an alarm clock that shows the time.

All the other objects on the desktop are icons. Icons are visible handles that allow you to start and stop, move and remove, the documents and applications programs you work with. You can move icons by putting the cursor on them, pressing down the mouse button and dragging them.

In the preface I said that I would define jargon as the need arose. It has arisen. Two sets of words are used confusingly in the Mac literature to refer to what you see on the desktop. The first three are *program*, *application*, and *turnkey application*.

A *program* is the procedure a computer uses to do something. Programs include utilities most users never see, like the programs in the System Folder that keep things going. An *application* is a program that does something visibly useful. A *turnkey application* is a program that users can just turn on and use; it requires no knowledge of programming. All the programs discussed in this book are turnkey applications, and I use the word application as shorthand for turnkey application.

The second group of jargon is *file* and *document*. File seems like a simple idea but it is hard to pin down. In terms of use, it is the material you have worked on that is stored in one place on your diskette. A somewhat more refined definition of file appears in chapter 8.

Sometimes *document* is used as a synonym for file, and sometimes it has a more specific meaning. With 90% of the computers on earth, you start an application and then find a file for it to work on. The Mac works the other, handier way: you open a file and the Mac finds the right application. Sometimes document means this specific sort of file: a smart file that knows its own proper program.

In figure 1.4, MacWrite, MacPaint, and Multiplan are icons for applications. If you click them twice, they will open out to a window; you can then use the program you have chosen.

Mary's Portrait is a MacPaint document, as shown by the brush. Theron (partly concealed) and oa are MacWrite files, as shown by the image of text. The Multiplan files profit and 1040 (partly concealed) are shown by the image of a grid. Clicking twice on the icons of these files make the program open out to a window so you can use it.

Trash is a special icon. Dragging an icon into the trash removes it from the desktop. The Mac recycles the space on the diskette for future use.

Folders are convenient places to put icons. When they are closed the icons are hidden within; when they are opened they turn into windows that let you see the icons they hold. The System Folder contains the icons of programs that run the system. Click twice on the folder to open it and see them. The Empty Folder is an endless supply of empty folders that can be used to store icons.

Multiplan Master and wrt/pnt.cor on the upper right of the screen are the shadows of icons that remain when these windows, which catalog the contents of diskettes, are open.

## Windows

At the margins of the windows are various pointing places that let you close it, move it around, and change its size (figure 1.5).

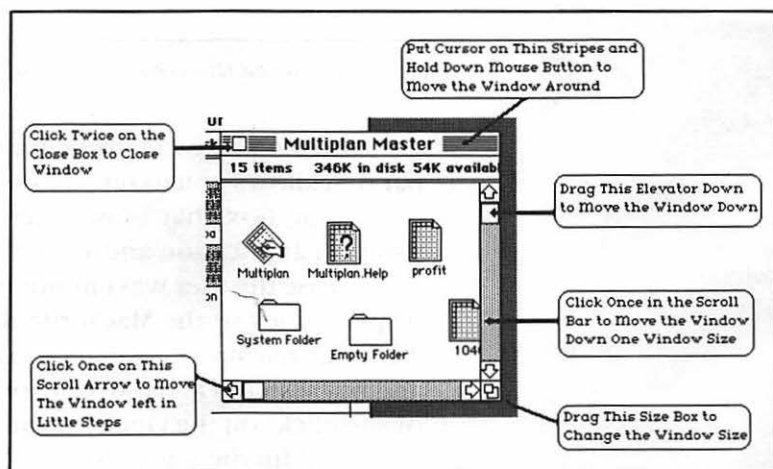


Figure 1.5 The anatomy of a window

Windows are the workplace of almost all applications. Some applications, such as MacWrite, allow you to make a small window and leave other windows open on the desktop. Other applications, such as Microsoft Chart or Factfinder, display several windows that you use all at once. Applications such as MacPaint or ThinkTank use the whole screen and do not allow other windows to appear.



## Dialog Boxes

When you command a Macintosh application to do something (by pulling down a menu and selecting one of the items), the program may need more precise information. In that case a dialog box will appear. Dialog boxes contain instructions, small squares or circles to check (by rolling the cursor inside and clicking the mouse button), and places for you to fill in text. For example, after you select **Print** (see figure 1.6), a printing dialog box will appear.

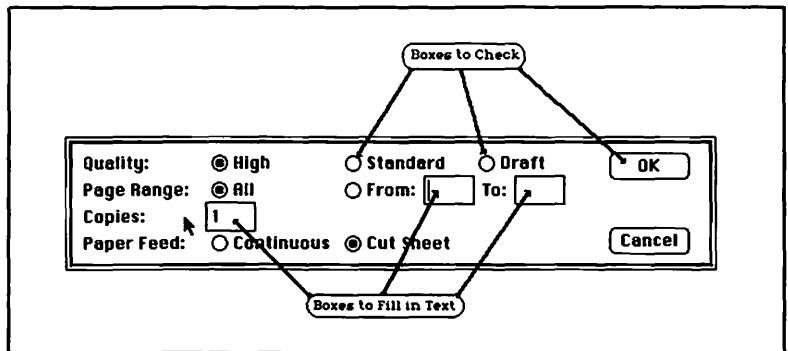


Figure 1.6 A typical Mac printing dialog box

A dialog box can also contain a window with a scroll bar that allows you to scroll through a long list. Figure 1.7 is the dialog box that most often comes up when you are using an application and want to open another document. In this case the user was employing MacWrite. The window displays a list of the MacWrite documents on the desktop. The user has moved the elevator to the middle of the list and has selected Mary McCarthy by clicking on it. When he or she clicks on the Open button, the Mary McCarthy document will fill the window.

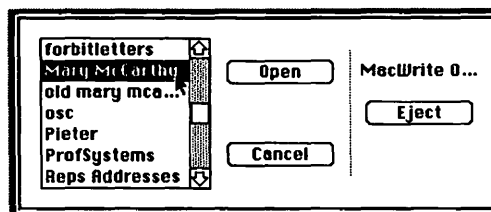


Figure 1.7 A dialog box with scroll bar



Figure 1.8 The Standard Menu

## The Standard Menus

Three menus appear on the menu bar of all Macintosh applications: the Apple menu (shown by a silhouette of an apple), **File**, and **Edit** (figure 1.8).

When you pull down a menu you see a list of commands. Selecting a command causes that command to be executed. The commands appear in black or gray, and they may have ellipsis points (dots) after them (figure 1.9).

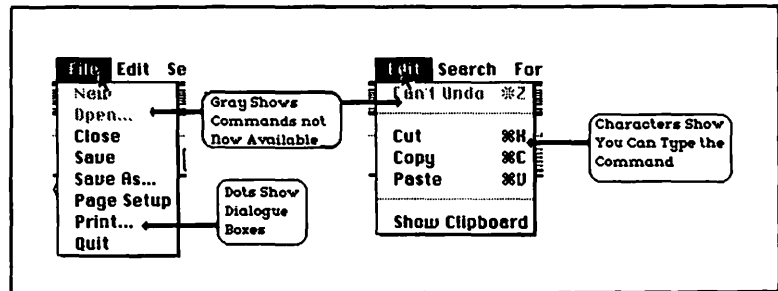


Figure 1.9 What you see on menus

If a command is gray you can't select it. Gray commands appear to remind you that you may be able to use them in some other situation in that application. In figure 1.9, for example, the user had no text to edit, and the **Can't Undo** command is therefore gray.

Commands may change in other ways than going gray. For example, **Undo** will alternate with **Can't Undo**.

Ellipsis points after a command show that the name of the command does not completely describe what it does; a dialog box will appear after you select it.

Some commands that lead through dialog boxes lack ellipsis points, for example **Page Setup**, which does not show ellipsis points because there is no room for them.

To the right of some commands you will see the symbol of the command key, which is to the left of the space bar, and another character. The characters mean you can use that command by holding down the command key and pressing the key for the character next to it. (If you have used another computer you will recognize the similarity between the command key and the CONTROL key on most computers.)

How experienced users employ commands from the keyboard depends on what they are used to and whether they are good typists. I will not discuss them in more detail



Figure 1.10 The Apple menu

in this book, because you always learn more by pulling down the menu. As an experienced user you will find your own style of using commands from the keyboard.

**The Apple Menu** The Apple menu (see figure 1.10) varies little from application to application. It lets you use some conveniences provided by Apple in the System Folder you saw on the screen in figure 1.4.

**About the...** When you select this item, information about the current application will appear on the screen.

**The Scrapbook.** You can copy drawings or text into the scrapbook. You cannot edit material in the scrapbook, but you can copy it into other documents. The Scrapbook is part of the System Folder, so if you change the diskette in your internal disk drive, you change to another Scrapbook. To keep the same Scrapbook, you have to copy the file onto the new diskette.

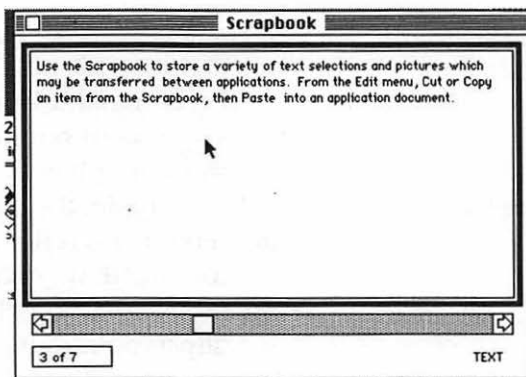


Figure 1.11 The Scrapbook

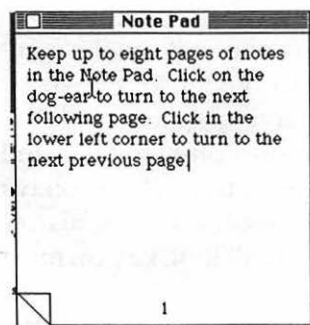


Figure 1.12 The Notepad

**The Notepad.** You can copy or write text in the Notepad. You can then copy it into other applications. The Macintosh editing tools Copy, Cut, and Paste are available. Like the Scrapbook, the Notepad is part of the System Folder; if you change the diskette in your internal disk drive, you change to another Notepad unless you copy the file to the new diskette.

**The Alarm Clock.** The Alarm Clock appears in figure 1.4. A battery keeps time when the Mac is turned off. Some applications let you leave the clock on the desktop to show the time, others do not. You can set the clock to beep or flash on the menu bar at a certain time.

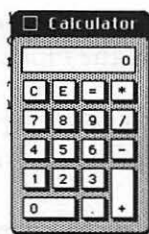


Figure 1.13 The Calculator

**The Calculator** works like a pocket calculator. Press the buttons by clicking on them with the cursor. You can copy the result and paste it into applications.

**The Control Panel** lets you control how some things work on the Macintosh. On the center panel, the pressing finger sets how long you hold down a key before it begins to repeat the character. The tortoise and the hare control how fast the character repeats once it has begun. 0 means no repeating.

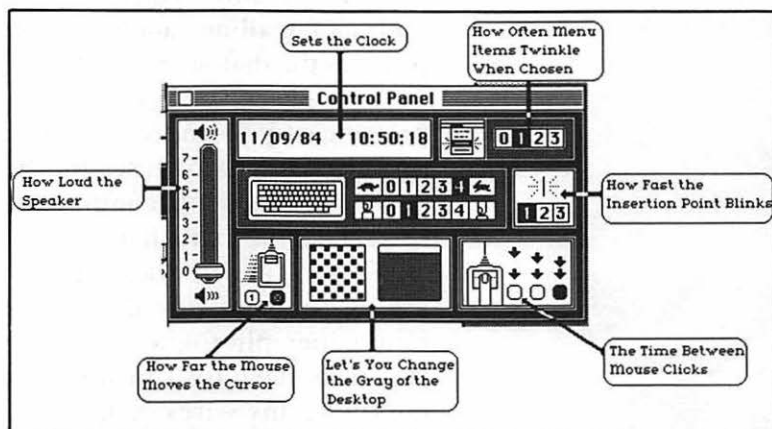


Figure 1.14 The Control Panel

**Keycaps.** You can type many characters that are not on the standard keyboard on the Macintosh (see figure 1.27). What characters you can type depends on the typeface you are using. When you select Keycaps, a keyboard appears on the screen. You see the special characters by holding down the Option key.

**The Puzzle** works just like the plastic versions you have probably seen. You move the elements by dragging them with the cursor. It's good practice using the mouse.



Figure 1.15 The Puzzle

**The File Menu** The **File** menu controls the opening, closing, saving and printing of files. In some applications other items also appear. Figure 1.9 shows the **File** menu as it appears when you are working in MacWrite.

**Save** stores the material now in the memory of the Mac onto the diskette.

**Save As...** stores the current document on the diskette in a file with a new name.

**Close** lets you stop working on a current file. If you have made any change in it the system will give you a

chance to save it through a dialog box. Selecting **Close** on the **File** menu is exactly the same as clicking the close box on a window.

**Quit** closes the file you are working on and the application program associated with it. **Quit** returns you to the desktop.

**Print** calls a dialog box. In most cases you can control the number of copies you want, what page you want printed, and the quality of printing (see figure 1.6). Some applications allow you to control other matters, such as the width of mailing labels. If you are using typewriterlike printers the dialog box will be slightly different.

People with no computer experience will find Mac printing easy to understand: by and large what the printer produces is what you see on the screen. People who have been working with computers are generally not used to that, so let me explain it.

Characters or drawings on the screen of the Macintosh are made up of tiny dots (pixels) like the tiny dots in a newspaper photograph. The printing mechanism of the standard Macintosh printer, the Apple Imagewriter, is a bundle of tiny wires. A hammer strikes single wires against both the ribbon and the paper one at a time. In Standard printing quality, one wire dot prints for every black pixel on the screen. In High quality a program interpolates extra dots to smooth the effect. High quality takes longer than Standard printers.

Draft quality prints only text. It uses characters that come in the printer's built-in memory. Draft quality is plain but clear and prints fast.

**Page Setup** calls a dialog box that lets you adjust the printer to the size and the shape of the paper you are using and whether you want the image to come out on the paper upright or sideways.

US Letter means 8 1/2 by 11 inches. A4 and International Fanfold are common sizes outside the United States. Tall means upright, the way you normally expect a letter to be printed. Wide means the screen image is printed side-

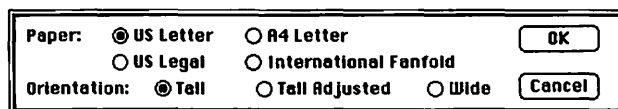


Figure 1.16 The Page Setup dialog box



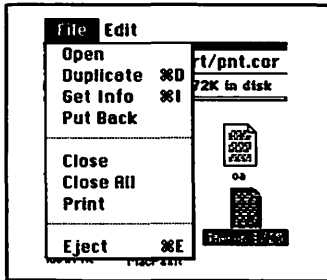


Figure 1.17 The File menu on the desktop

ways. Wide is very useful for wide spreadsheets and is used to print the brochure in chapter 7. Tall Adjusted is for printing graphics; it insures that vertical printing does not distort the shape of a picture.

Figure 1.17 shows the **File** menu when no application is open. The dark icon beside the menu shows that a MacWrite file has been selected.

**Duplicate** will duplicate a selected file.

**Put Back** will drag any icons belonging to the diskette back from the gray area of the desktop back to the window.

**Eject** will eject the diskette.

**Get Info** calls a dialog box that provides useful information about the file, gives you a chance to lock or unlock it, and gives you a place to note information about it.

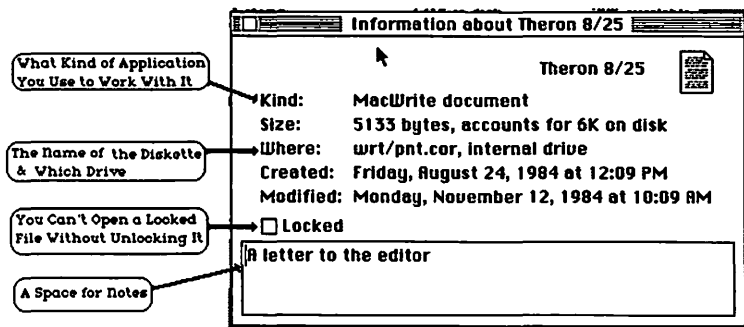


Figure 1.18 The file information dialog box

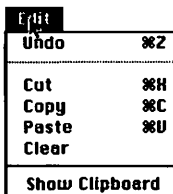
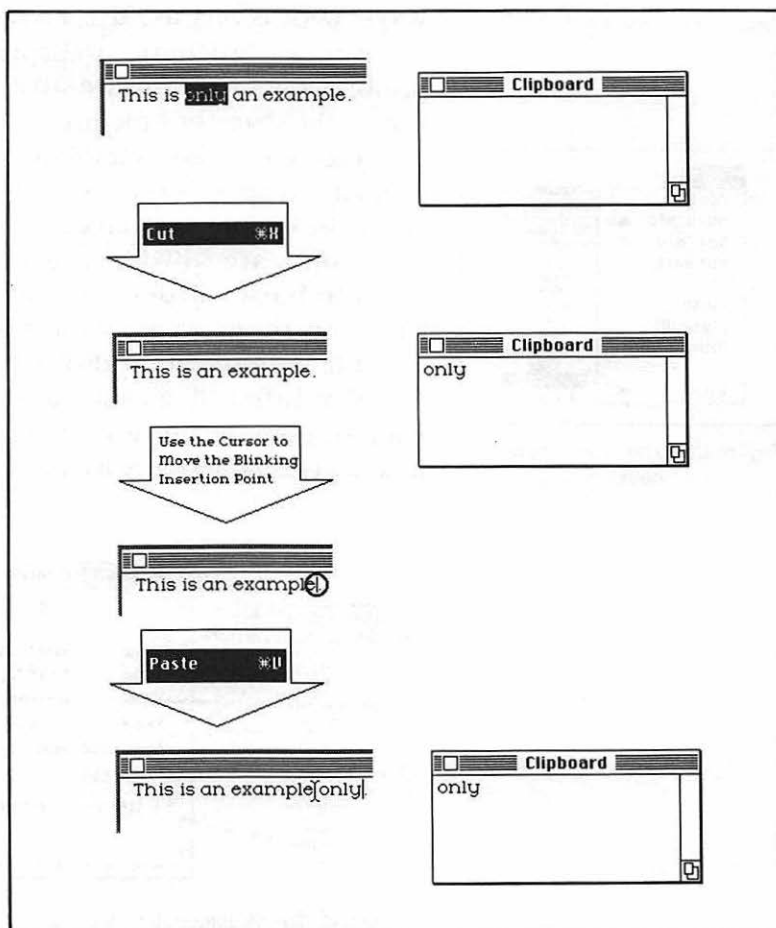


Figure 1.19 A typical Macintosh Edit menu

**The Edit Menu** Like the **File** menu, the **Edit** menu varies considerably from application to application, but certain features almost always appear.

The main function of the **Edit** menu is to let you remove, copy, and move things. When material is cut or copied, the system transfers it to a holding place called the Clipboard. The Clipboard keeps only the last item cut or copied. The **Show Clipboard** command will display the contents of the Clipboard.

Figure 1.20 shows how text is edited and shows the contents of the Clipboard at each step. You select the material you want to cut by dragging the cursor over it. Pull down the **Edit** menu and select the **Cut** command. The material disappears from the text and appears on the Clipboard. Select where the material is to appear. The **Paste**



**Figure 1.20** The Cut and Paste procedure with the contents of the Clipboard at each step

command in the **Edit** menu puts it in place. The material is still on the Clipboard and you can copy it to as many locations as you want.

The steps are the same when you use **Copy** instead of **Cut**; with **Copy**, though, the original text is not disturbed.

These operations are central to all work on the Macintosh. You do them a hundred times a day if you are a regular user, and they become second nature.

The **Clear** command removes what you have selected without putting it on the Clipboard. The text immediately disappears and cannot be retrieved.

**Show Clipboard** lets you see the clipboard and what is stored there.

---

## Managing Documents and Applications

### Starting the Mac

When you insert a diskette into a Macintosh and turn it on, you will see either a cartoon Macintosh with a happy face or one with a sad face. The sad face means the machine can't read the diskette for one of three reasons:

- The diskette has never been used before.
- The diskette is formatted for some other machine. The Apple Lisa, Hewlett-Packard personal computers, and some other computers use diskettes that look like Macintosh diskettes but the Mac can't read their format.
- The diskette is a Macintosh diskette but the data has been ruined—that is why you make backups!

After the happy face, a welcome message from Macintosh appears and then either the icon of the diskette on a gray background or a window containing the diskette's catalog of files appears. If only the icon appears, click twice on it and the window with the catalog will appear.

---

## Icons on the Desktop

Figure 1.21 shows the windows of two diskettes on the desktop, wrt/pnt.cor and Multiplan Master. When you open the window for a diskette, it leaves a shadow of its icon. The shadow is dark if the icon is selected and light if it is not. The window of a diskette present in a disk drive shows move bars and the icons are black lines on white; the window of a diskette absent from any drive lacks move bars and the icons are gray.

You will find three items in these windows: programs, documents (or files), and folders.

Program icons are generally diamond shaped, e.g., Multiplan in figure 1.21, whereas documents (files) are usually vertical rectangles, e.g., profit in figure 1.21. Software developers eager to give their product identity play loosely with these shapes.

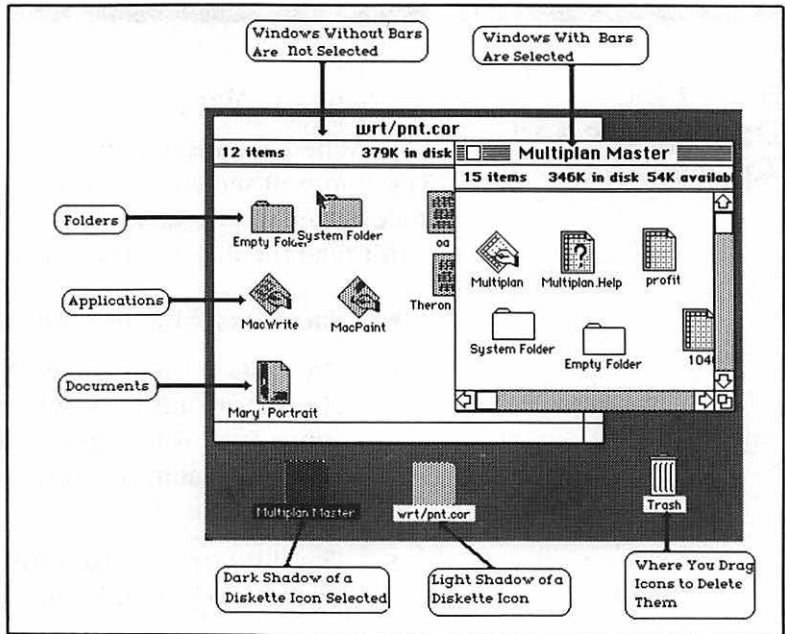


Figure 1.21 The desktop showing icon handling

Open a document by clicking on it twice (a double click). The appropriate application will be fetched and a window will open so you can start work. Clicking twice on an application icon causes a window to open containing an empty document.

Folders help keep order on a busy desktop. When you open a folder it forms a window. You can move documents or applications into the folder's window by dragging them with the cursor. When you close the folder, the documents or programs within will remain hidden until you open the folder again. Figure 1.22 shows a typical System Folder opened up.

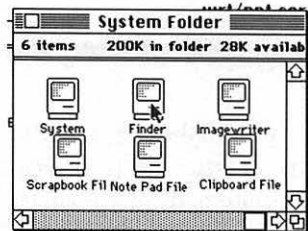


Figure 1.22 A typical System Folder that is open

## Some Other Views

Two other menus are present when the desktop is inhabited by windows that show the catalog of diskettes rather than applications: the **Special** menu and the **View** menu.

The **Special** menu will rearrange the icons more neatly (I wish I had such a command on my wooden desktop), delete the contents of the trash, and change whatever disk is in the disk drive into a blank diskette formatted for the Macintosh. Be careful about that one!

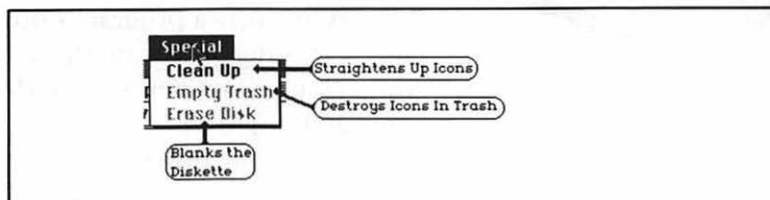


Figure 1.23 The Special menu

A word about the trash icon. The trash container is an icon like other icons. You can open it and see the contents. When you drag another icon into the trash it will remain there and you can open the trash window and drag it out if you change your mind. But an icon's life is hanging by a thread when it is in trash. Not only will the **Empty Trash** command destroy it, but several automatic processes will gobble it up as well when space is needed on the diskette.

The **View** menu changes the window that catalog a diskette into a list arranged alphabetically, by date, by size, or by kind of program or file. Figure 1.25 shows the list by date for the wrt/pnt.cor diskette.

When icons are arranged as a list you can open them by clicking on their line in the list, but you cannot move them.



Figure 1.24 The View menu

wrt/pnt.cor			
Size	Name	Kind	Last Modified
6K	Theron 8/25	MacWrite document	Mon, Nov 12, 1984
3K	For Bit Letter	MacWrite document	Wed, Oct 10, 1984
8K	Lisa	MacWrite document	Fri, Sep 14, 1984
8K	RLC	MacWrite document	Sun, Aug 26, 1984
6K	BarbReResume	MacWrite document	Wed, Aug 22, 1984
9K	ea	MacWrite document	Tue, Aug 14, 1984
8K	KPFA	MacWrite document	Fri, Jul 20, 1984
200K	System Folder	folder	Wed, Jul 11, 1984
0K	Empty Folder	folder	Wed, Jun 20, 1984
55K	MacWrite	application	Wed, May 2, 1984
61K	MacPaint	application	Wed, May 2, 1984

Figure 1.25 A view of the contents of a diskette by date

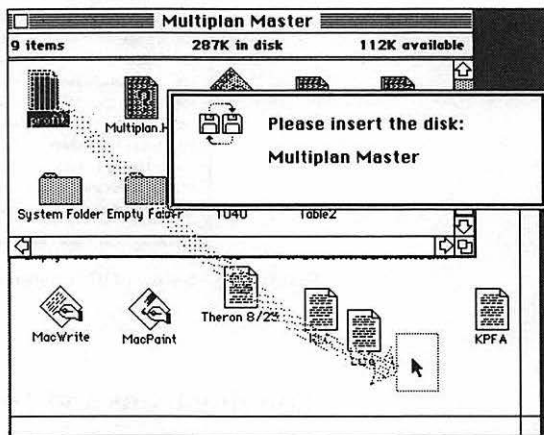
## Copying Icons and Their Content

You copy or move programs and files by copying the icons and then moving the copy to the new location. A Macintosh with one disk drive leaves you spending a lot of time pushing and pulling diskettes in and out of the disk drive in order to move documents or programs from one diskette to another.

Why copy a program onto another diskette? One reason is to reduce wear on the diskette it came on. Another is to back up documents since diskettes do fail. (In the end, they all fail.)

This is the procedure for copying:

- STEP 1** Insert the source diskette and turn on the Mac.
- STEP 2** If the window with the diskette catalog does not appear, double click on the icon.
- STEP 3** Click on the shadow image of the diskette icon to select the icon.
- STEP 4** Pull down the **File** menu and select **Eject**. The Macintosh will eject the diskette and the icons in the window will become gray to show that the system remembers them but that they are not present in the disk drive.
- STEP 5** Insert the destination for the copy. Adjust the windows until you can see the icon you want to copy.
- STEP 6** Select the icon to be copied and drag it toward an open space on the second window. A ghost image will go with the motion of the cursor.



**Figure 1.26** Copying the Multiplan document "Profit" from Multiplan Master to wrt/pnt.cor

- STEP 7** When you have the ghost image in place, release the mouse button. A dialog box will appear, instructing you to switch diskettes. At this point the Mac is copying all or part of the

file into its memory, changing diskettes, writing from memory onto the second diskette, asking for the first back, and so on. The copying process can take several diskette shuffles, depending on the size of the file and the size of your Mac's memory.

In the end your source diskette will be in the disk drive and the second diskette will be in your hand with the new file on it.

Note that this process copies the icon. If you want to remove it from the source diskette, you must trash it separately.

A program comes with the Mac system diskette that allows you to copy an entire diskette with only a few swaps. The copy program uses the special part of the machine's memory that is normally used for display. On the screen you see a pattern of black-and-white dots: that is what your bits look like as bits rather than as something a program recognizes and molds for you. The program is useful only for copying whole diskettes, however.

If you have two disk drives, the process is similar but requires no disk shuffling. Both windows will show light icons because they are both present in drives. You drag the icon you want to copy from one to the other.

---

## How to Manage Faces and Fonts

One of the most intriguing features of the Macintosh is how it lets you use different typefaces on the screen and see them in print if you use the Imagewriter printer. The variety of faces and fonts let you design an attractive page that distinguishes and emphasizes different parts of the text for clarity all in your own style.

Before we go further I need to define two more pieces of jargon, not computer jargon but typesetting jargon. Macintosh gives you the power to almost be your own typesetter, so I will offer you a chance to get acquainted with that language. A *typeface* is a set of characters, letters, numbers, punctuation marks, and other special characters, that share a common design. On the Macintosh, Toronto is the name of one typeface, Geneva another. All the sizes and styles (bold, underlined, italic, etc.) of Toronto are part of the Toronto typeface. A *font* is the shape and size of a face.

Character size is measured in points (see below), and 18-point Toronto is one type font and 9-point Toronto is another. Both belong to the Toronto face. Mac Menus and documentation are inconsistent in the use of these terms.

**Many new Mac users write letters like the following.**

April 1 1985

Dear Larry,

I'm writing you on my new Macintosh, which has a lot of fancy type effects. For example it has a lot of type faces named after cities:

**San Francisco (It has hills, you see.)**

**Los Angeles**

١٩٥٤ (Cairo)

## Chicago

Geneva

**New York (looks like typing but has proportional spacing)**

**Monaco (monospaced)**

## VeriGo

## London

### Athens (What would the designers of the Parthenon think?)

Greek, Hebrew, Russian, and Japanese alphabets are available and others are on the way.

Characters can all be **big** or small, <sup>superscript</sup> or <sub>subscript</sub>, **bold**, *Italic*, underlined, **outline**, or **shadow**, or combinations.

**You can put accents on all the vowels: á, é, í, ô, ù, à, ö, ü etc.**

Many unusual characters are available if you hold down the **Option** key. These are the ones in Toronto: € ¢ £ ¤ § ¨ ª « œ Œ ® º ´ ¥ ø Ø " " (Yes, real quotation marks for dialogue writers!) ' ' « » ð Å ß © ... æ Æ ç Ç ħ.

**Our best to everyone in the family,**

Dirk

**Figure 1.27** A letter showing Mac typefaces

The letter shows the faces currently available from Apple; a small industry has sprung up that designs fonts and sells them. They include other languages, such as Russian, Greek, Hebrew, and Japanese.



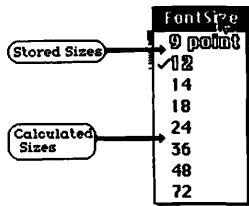
Most applications can use any face you may acquire. Others do not; they include spreadsheets that require monospaced faces to fit their grid structure, and applications that make your Mac look like another computer terminal.

If you are using a letter quality printer (where a character key similar to a typewriter key strikes the paper instead of little wires), you will not be able to print the different fonts you see, though you can get some of the effects such as boldface and underlining, depending on the printer. If you use a dot matrix printer other than the Imagewriter, what you get will depend on the program that comes with the printer.

You change fonts and sizes with menus, which vary from application to application.

The Macintosh goes along with the printing industry in measuring character size in points. A point is 1/72 of an inch. Thus, in a 9-point font the tallest characters are 9/72 or 1/8 inch high. 72-point characters, available in some contexts on the Mac, are one inch high.

The Macintosh stores only certain typeface sizes in memory and if you ask for an in-between size it calculates how to make it. As a result, the in-between sizes tend to look less finished than the stored sizes. To let you see how the calculated font will look, the stored sizes appear on menus in outline, whereas the calculated sizes are solid.



**Figure 1.28** A typical menu for selecting fonts

## Choosing Fonts

These attractive and expressive fonts come at a serious cost of space. Fonts reside in the System file in the System Folder. A font may take up to 6K of the roughly 400K of space on your diskette. If you carry four fonts for a given face, they will use nearly 10% of the space on your diskette. To allow you to make choices about what fonts you want to use and how much space you want to allocate to fonts, Apple has provided a program called Font Mover. Font Mover can remove fonts from your System Folder, or copy them into a special document which you can then copy to other diskettes. Font Mover comes on the Macintosh's system diskette! Here is the procedure for using Font Mover to construct a file with some fonts in it that can be copied to another diskette. On my own system, I keep a special diskette called Fonts, where I collect interesting typefaces.

- STEP 1** Start with a diskette that has a System Folder and Font Mover on it. If your diskette lacks either of these files, move them on to it from another diskette by the disk-copying method described earlier.
- STEP 2** Click twice on the Font Mover icon to start it. The Font Mover dialog box will appear. Click on a font of your choice. Some information and a sample of the font will appear in the dialog box.

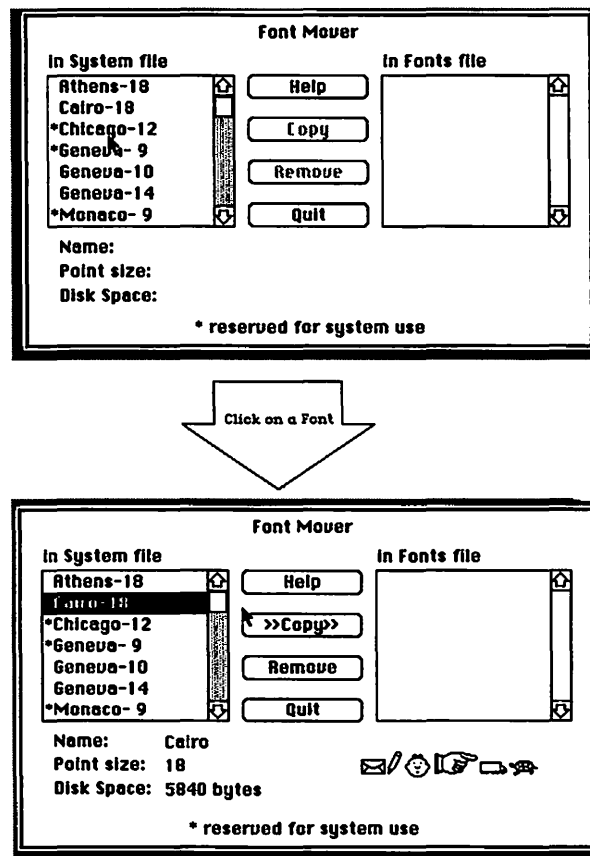


Figure 1.29 Selecting a font to move or remove in the Font Mover dialog box

**STEP 3**

Check copy and the font will appear on the Fonts file side. Continue selecting until you have the fonts you want. Remember, you can see the rest of the list by clicking in the scroll bar.

**STEP 4**

Check Quit. The system will take a while to actually move the fonts. When that task is done the application will close and a Fonts file will be visible on the desktop.



**Figure 1.30** The Font Mover application and a Fonts file

Remember that font means both the shape and the size of the letters. If you plan to use 14-point Toronto often, include that font; if you plan to use it rarely, include only 12-point and let the system calculate 14 from 12 when you need it.

To move the fonts to a System Folder on another diskette, move the Fonts file and the Font Mover to the second diskette. Then start up the Font Mover application again and copy the fonts you want from the Fonts file to the System file. To remove fonts, click on them and check remove.

## Software Integration

It was only a few years ago when, if you wanted to stop using one application and use another, you had to turn off the computer. Information on one application could not be used on another. For example, if you had your budget forecast on a spreadsheet you could not put it into the text of a report or turn it into a chart. Moreover, commands were not the same. I worked with one program where holding down the control key and typing C meant put in text; the same sequence with another program meant stop the program. I made some bad mistakes.

The trend now is toward software integration. Integration means that you can use a command to move from one program to another, that commands tend to work in the same way, and that you can transfer information from one application to another. Programs have been integrated in various ways with varying success, e.g., Appleworks on the Apple II, and Symphony, Framework, and Topview on IBM type machines.

Apple has insured a substantial degree of software integration on the Macintosh by building some features into

the computer and by issuing standards for those writing applications.

The Mac insures that you never have to turn off the machine to reach another application. Usually you just close the window you are using and open another. Commands tend to work the same way, as you have learned in the sections on editing and file handling above. And, within limits, you can move things from one application to another through the Scrapbook and Clipboard. For example, you can move material from most spreadsheets into text, you can put graphics from graphic applications into most text applications, and you can sometimes generate pictures from numbers. Applications like spelling checkers, or the MegaMerge form letter generator discussed in chapter 2, don't really do anything by themselves; they only work when integrated with other applications. Some software developers like Lotus or Microsoft offer programs with a higher degree of integration than do other software developers.

Integration is a step in making applications less like specialized tools and more like a fully equipped workshop. In the subject's covered below I emphasize the Macintosh's flexibility in this regard.

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## **Fat Macs**

This book uses a Macintosh with 128K internal memory. The 128K Mac is the cheapest and most common form of the machine and most programs for the Macintosh run on it. Apple also makes a Mac with 512K of memory, known colloquially as the Fat Mac. If you own a regular Mac it is possible to pay your Dealer to add parts and change it to a Fat Mac. The difference is currently about one-third the price of the Mac but the upgrade will probably become less expensive in time.

For some of the programs discussed in this book the large Mac offers the advantage of running them faster. The programs run faster because more information is stored in the machine's memory, allowing the Mac to get at it faster than on the diskette. In some cases the difference is that the program itself is stored in memory. For example, a program like Microsoft Word is too large to fit in the memory of the regular Mac. The designers wrote it to move the most-used

parts of the program into the regular Mac's memory; additional information is then read off the diskette, which occasions a noticeable delay. In the Fat Mac more of the program is in memory and such delays are fewer. Likewise, programs that work on a large file, such as a data base program searching through thousands of records, may store more of the records in memory on a 512K Mac and reduce delays while reading the disk. For example, Factfinder, discussed in the chapter on data bases, runs two to three times faster if you have more than a few "factsheets" to search. Not all programs will take advantage of the larger memory however; it depends on the foresight of the programmers. Conversely, programs also exist that will run only on the larger machines. Two notable examples are ThinkTank 512 and Jazz.

ThinkTank is a text-handling system that gives you the power to control text by creating and easily rearranging an outline. The version for the 128K Mac discussed in this book allows you only to use an outline. ThinkTank 512 allows you to put paragraphs of text under the outline headings. It also gives you some basic word-processing tools to edit and print text, automatic section numbering, page formatting, and the like. It is an excellent tool if you are preparing a document, such as a report, that follows an outline format.

Jazz is a packaged group of applications. It includes a word processor, a spreadsheet, a data base, business graphics, and a terminal emulator. It requires both a 512K Mac and a second disk drive, which makes the cost of using Jazz, including the cost of the program, about \$2,000 more than the cost of using the programs described in detail in this book. None of the individual items in the Jazz package are particularly superior by themselves to the equivalent programs discussed in this book, but Jazz has the attractive advantage of carrying integration further than any software available for the 128K Mac. For example, you can run all the programs at once in separate windows. Moreover, you can change data in several files at once by only changing it in one file. Thus, if you have a spreadsheet open and change numbers that also appear in a report you're putting together on the word processor, the next time you open the word processor you will find the new numbers.

## **Future Developments**

The Macintosh is a highly successful product and we can expect to see it grow and change. Apple asserts its commitment to what is called "upward compatibility." That means that all the applications discussed in this book should run on all future versions of the Macintosh. The evolution of the Apple II family is evidence of Apple's good record on this promise.

Improved versions of the programs discussed will probably appear. Again, most of the companies, such as Microsoft, are also committed to upward compatibility, which means that the changes will be additional functions (or improvements in efficiency) that will not change what is in the following chapters. Other companies may not be so careful about compatibility.

What improvements might we expect?

- More powerful Macs. Eventually we will see Macs with larger memories and larger screens, e.g., screens the size of the present Lisa screens. This change will not affect the steps in the examples in this book, but it will make them happen faster. Moreover, in some cases the applications in this book will do things they could not do before, such as large spreadsheets.
- Smaller Macs. Physically smaller to fit in your lap, but running the same programs.
- More hard disk drives. Using hard disk drives will not affect the applications in this book except, again, to make them work faster and, in the case of programs such as data bases, allow them to do the same things to more data. Hard disks may require somewhat different start-up procedures and they will affect how you handle files, sometimes in rather unpredictable ways. Hard disks with 100 times the storage capacity of a Mac diskette will be available before the end of the useful life of this book. Hard disks built into the Mac are also a possibility.
- Double-sided disk drives. This is an inexpensive alternative to hard disks. The present Mac diskettes hold 400K of text using only one side of the diskette. Because the system and an application usually use

200–300K of that space, room is left for, say, only about 100 pages of text. The same machine with two disk drives using double-sided diskettes with 400K on each side has up to 1600K of space, enough for most personal computer purposes.

- **Musical Macs.** The Macintosh has excellent built-in musical abilities. It can sound in four-part harmony. No program that uses the Mac's musical abilities well was available at the time I wrote this book, but they are on the near horizon. By the time you read this you will probably be able to play the keyboard like a synthesizer, see the notes appear on the screen, and print the music. Look forward to the Music Composition System from Electronic Arts.
- **Talking Macs.** The Mac's sound control will allow the proper program make the Mac "speak." It is not clear to me how useful this is outside of games and some education applications, but we will be hearing from the Mac.
- **Color Macs.** When color Macs become available the big problem will be software. How to control the color? It will not affect text and spreadsheet programs very much; having different parts of a spreadsheet in different colors will improve clarity and emphasis, but it will not change the program fundamentally. Graphic programs, on the other hand, have a challenge in using color. If you look at the MacDraw screen in chapter 3, for example, where would you put the red, blue, and mix commands? With color Macs will come color printers.
- **Laser printers.** The standard Mac printer, the Imagewriter, allows you to print graphics and fonts as you see them on the screen. Letter quality printers for the Mac do not print full graphics or the fonts on the screen and are usually three to four times the price of the Imagewriter. They offer the more formal appearance of typed text, and they are more durable. Laser printers work like the Imagewriter by making tiny dots on the paper, but the dots are smaller and more numerous. As a result the characters are more sculptured and have sharper edges. Laser printers will draw lines as sharp as the illustrations in this

book, which were typeset directly from MacPaint files. Large, expensive laser printers have been around for some time, but desktop models near the price of a letter quality printers should appear soon.

- **Future programs.** In the future, programs will take more advantage of graphics, sound, and color. More programs will be written that require 512K more memory. What will they be like? Some predictions are possible. Many specialized programs will appear. The first programs to appear have been general purpose, like spreadsheets and word processors, but as time passes people will have occasion to write more for particular purposes. Architectural drawing and other design aids are an obvious direction for the Mac. We will see accounting systems both for business and the home, specialized data base and word processing systems for law and medical offices, games of all kinds, computer-aided instruction, and so on. A friend is currently writing a program for veterinarians that will display the electrocardiogram of dogs on the screen of the Mac.

We will see more programs using artificial intelligence. Roughly, artificial intelligence means programs that are able to make educated guesses. They will make possible smarter spelling checkers, limited punctuation and grammar checkers, more powerful data base systems, and expert systems where users can tap the insights of people knowledgeable in esoteric procedures.

But not all changes can be predicted. Ten years ago no one had thought of electronic spreadsheets. Five years ago no one had thought programs like Factfinder or ThinkTank would run on personal computers. It is what has not been predicted that is the most important.



C H A P T E R T W O

# MacWrite

When you purchase a Macintosh, Apple includes MacWrite, a good word processing system for small documents. Compared to other word processing systems for computers in this price range, it is easy to learn how to use, has a variety of type styles available, you can control the appearance of the characters and illustrations, and it can be integrated with other programs. MacWrite's disadvantages are limited page formatting, limited kinds of selections, and limited ways of dealing with text currently beyond the screen.

MacWrite makes full use of typefaces in a range of sizes to suit the way you want to present your ideas and to provide emphasis, clear organization, and an interesting appearance. You can copy illustrations from MacDraw, MacPaint, and some other Macintosh graphic programs to illustrate your text. The different fonts and illustrations you see on the screen are printed exactly as they appear on the Apple Imagewriter printer! You can also copy what appears on the screen from many other Mac programs, such as the spreadsheet results, and use it in MacWrite. It is possible to integrate MacWrite into several data base systems to correct their output, or produce in a single operation a series of form letters.

This chapter shows you how to use MacWrite to write a simple letter. You will then use another program, MegaMerge™ by Megahaus™, to generate a series of similar but

modified letters. This chapter also shows you how to set up a resume, using various type sizes and styles, and how to copy an illustration into the resume from MacDraw.

---

## A Letter to Your Representative

In this section you will learn how to put text in a MacWrite file, correct errors, make small changes, and print a document.

### Writing a Letter

#### STEP 1

If your Macintosh is on, eject the current diskette and turn it off. Insert any diskette that includes the System Folder and MacWrite, and turn the machine on.

You can change diskettes without turning off the machine, but turning off the Mac and starting over insures uniformity between these instructions and your Mac. These instructions also assume all formatting in MacWrite is still preset. You can find a discussion of reformatting in the MacWrite manual.

#### STEP 2

If only the diskette icon appears, roll the mouse until the pointer touches it, then press and release the button on the mouse twice (double click) to see the catalog.

#### STEP 3

Double click on the MacWrite icon.

A MacWrite window will appear (see figure 2.2). Across the top of a MacWrite window appears a ruler, which is used for formatting. Figure 2.3 gives the functions of the formats. Later, I will discuss what you can do with the ruler. We don't need the ruler for this letter because we are going to accept the format as Apple set it, so our next step will be to hide the ruler.

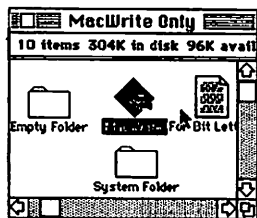


Figure 2.1 Selecting the MacWrite application

#### STEP 4

Pull down the **Format** menu and select **Hide Rulers** (see figure 2.4). The ruler will disappear. Note that when you roll the mouse to move the cursor from outside the window it is an arrow, but when you roll it inside the window it takes the form of an I-beam. The I-beam shows that you can

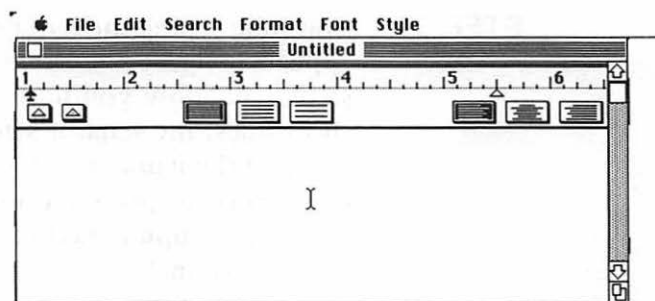


Figure 2.2 An untouched MacWrite window

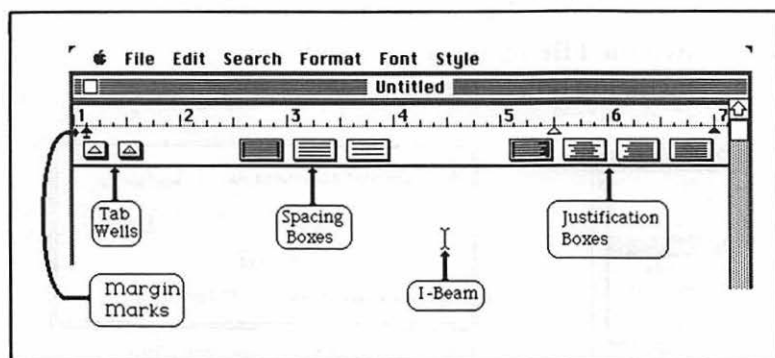


Figure 2.3 MacWrite tools

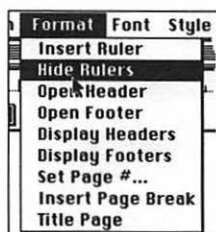


Figure 2.4 Hiding rulers

use the cursor to insert or change text; the arrow shows that you can use the cursor to control your work process with menus and dialog boxes.

## STEP 5

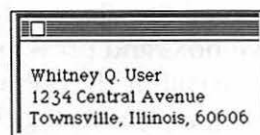


Figure 2.5 Typing in text

Press the Return key three times to make a wide top margin, and then type your address exactly as you would on a typewriter; press the Return key at the end of each line of the address.

You will notice a thin, blinking, vertical line where your typing goes in. This blinking line is called the insertion point. Whenever you type text, the next character will appear to the right of this blinking line. By moving the I-beam with the mouse you can put the insertion point anywhere in the text. You cannot put it beyond the text, in the margins, or beyond the end of the text.

If you don't like what you have just typed, you can erase everything back to the last time you pressed the mouse button by rolling the pointer up to the **Edit** menu, pulling the menu down, and selecting **Undo Typing**.

**STEP 6** Continue typing the letter so it looks just like the one that appears in figure 2.8. Don't worry about mistakes; our next steps will show you how to correct them. At the end of short lines, the senator's address, the salutation, the closing, and the name, you have to press the Return key. You don't need to press the Return key at the end of regular lines; the computer takes care of moving the insertion point to the next line.

At this point, the letter you have typed exists only in the volatile memory of the Macintosh. Now is a good time to save it in relatively permanent form on a diskette.

**STEP 7** Pull down the **File** menu and select **Save**.  
The dialog box in figure 2.7 will appear.

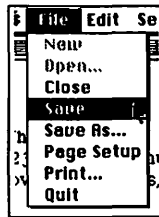


Figure 2.6 Saving a file

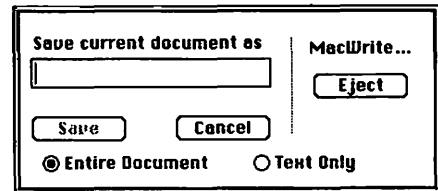


Figure 2.7 The file saving dialog box

**STEP 8** Type in a name for the file; For Bit Letter is a good one. Typing mistakes are corrected by backspacing when you are typing in dialog boxes.

Notice that when you gave the letter a name, the **Save** button turned from gray to black. When any word is in gray in a Mac menu or dialog box, it means you can't use that function right then. By giving the file a name, you make it possible to save it. When you have named the file, roll the mouse so the pointer is over the **Save** box, and press and release the mouse button. The process of rolling the pointer into a box in a dialog box, and pressing and releasing the mouse, is called checking.

Correcting errors and making changes is an important part of word processing. Figure 2.8 shows the body of the letter with some errors. In the next few steps I will show you the simplest ways to make changes and correct errors.

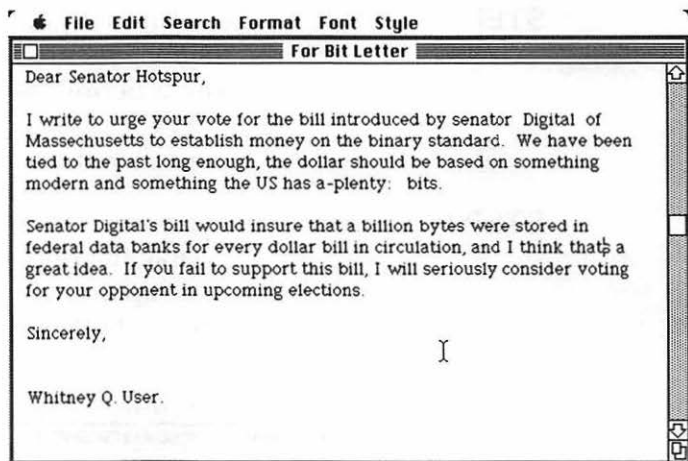


Figure 2.8 Text with errors

**STEP 9**

Use the scroll box or the scroll arrow to view the body of the letter. Note that the name of the Bay State is grossly misspelled.

**STEP 10**

Roll the mouse until the I-beam appears in the word you want to change.

Figure 2.9 The first step in selecting a word

**STEP 11**

Figure 2.10 A Word selected

Double click the mouse. Black and white will reverse around the word, as in figure 2.10. When text is white on black, it is *selected*.

**STEP 12**

Type the name of the state correctly.

Notice what happened. With the first character you typed, the white on black returned to normal, and the new character appeared next to the blinking insertion point. Whenever you type text into an area that is white on black in MacWrite (or in dialog boxes, and in many other situations), the first character you type replaces the reversed material (even if it is many pages), and the insertion point appears to let you continue typing new material.

**STEP 13**

Roll the mouse until the I-beam appears after the U in “US.” Click the mouse. The insertion point appears where you clicked. Type a period. Move the I-beam after the S and click again. Type another period. You can add the apostrophe to “thats” in the second paragraph the same way.

**STEP 14**

Roll the mouse until the I-beam stands before the I in “If you fail....” Drag the I-beam down into the next line. Text is now selected up through the point in the next line. Don’t release the mouse button.

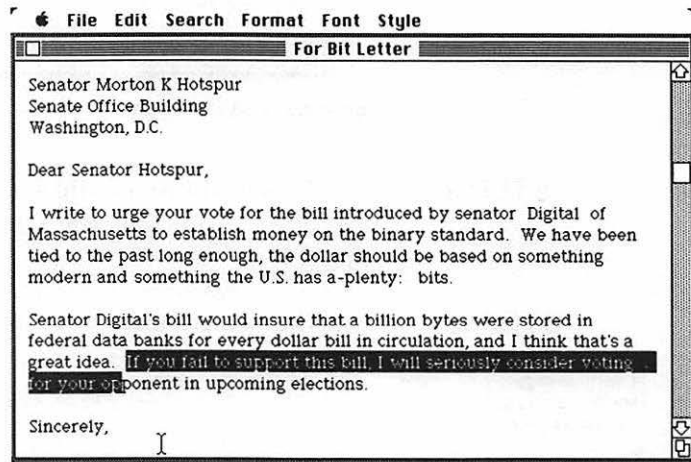


Figure 2.11 Text selected

**STEP 15**

While holding the mouse button down, roll the mouse to the right until the blackness embraces the end of the sentence (see figure 2.12). Now release the mouse button. At this point any typing you do will replace the selected sentence. The sentence is selected, vulnerable to change. But suppose you decide this sentence is OK after all? Move the mouse to any other point and click there. The black will turn to white once more and the next character you type will appear at the new insertion point. This process of canceling a selection by clicking somewhere else is very useful and is called *deselecting*.

To summarize: you can correct errors or change letters by:

1. Replacing a word by moving the I-beam into it, clicking twice, and then typing.

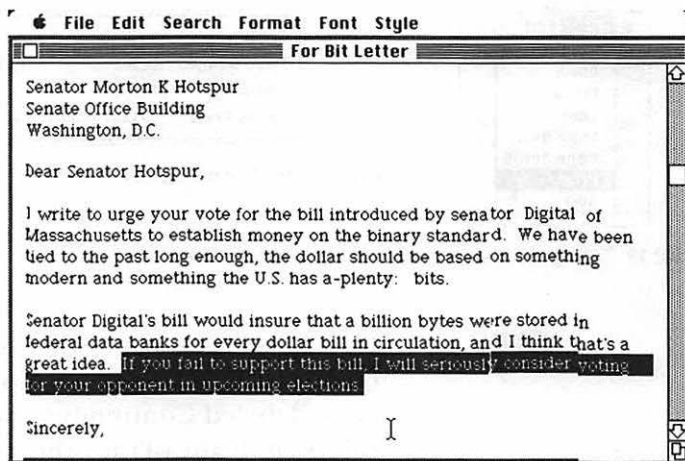


Figure 2.12 A sentence selected

2. Replacing any amount of text by dragging the I-beam over it and then typing.
3. Typing any character, space, or backspace where the insertion point is blinking.

MacWrite includes several other tools to correct and change text, including a way to move selections from one place to another or from another document, or from MacDraw to illustrate your document. Most of these tools are explained below.

### Printing a Letter

Most documents we write, like the letter to Senator Hotspur are not useful until they have been printed. The following printing instructions assume you are using an Apple Imagewriter.

Here's the procedure to print your letter:

#### STEP 1

Pull down the **File** menu and select **Print** (see figure 2.13). The printing dialog box (figure 2.14), will appear. If you have used the printer before, the preset values may differ from what appears in the figure.



Figure 2.13 Telling the Mac to print

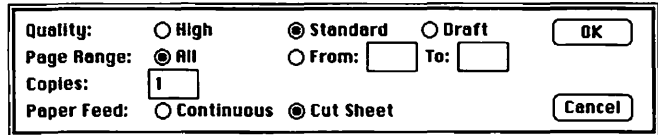


Figure 2.14 The dialog box for printing

## STEP 2

If you are using paper that feeds into the printer continuously (fanfold or a roll), move the mouse arrow into the circle labeled Continuous and press the mouse button and release it. If any of the other options differ from figure 2.14, then move the mouse arrow into the appropriate circle and press the button and release it. Then move the arrow into the OK box and check it.

A message will appear saying that the text is being recorded, then another message will appear that tells you that you can stop printing by holding down the Command key and typing a period.

If you are using single sheets, a dialog box will prompt you to insert a sheet of paper; after inserting the paper, click the OK button. This box will appear whether or not paper is in your printer. Your letter will now be printed.

You may want to go on now to set up a form letter to express your views to many representatives, or you may want to stop. If you want to go on, skip to the next section. If you want to stop, the following procedure will enable you to begin neatly later.

## How to Close Down

### STEP 1

Pull down the **File** menu and select **Quit**. A dialog box will appear and ask if you want to save your changes.

### STEP 2

Check Yes. After a few moments, the diskette icon will expand to show its contents.

### STEP 3

Pull down the **File** menu and select **Eject**. The diskette icon will collapse and the machine will eject the diskette. You can now work with other diskettes or turn off the machine.



## Letters to Your Representatives

This section shows you how to use a mail merge program to turn your letter to Senator Hotspur into letters to several representatives. The program is MegaMerge by Megahaus of San Diego. I chose it for this chapter because it is simple to use. A more powerful data base system could perform the same function but, because it would be more powerful, it would be more complicated to use.

To use MegaMerge, you make a MacWrite file with labels that are formatted in a special font. MegaMerge will replace these labels with items from a list, which you also create in MacWrite. If you have only one disk drive, you must transfer these two files to a MegaMerge diskette, because MegaMerge is protected from copying; you cannot move the MegaMerge program to another diskette at your convenience. With two disk drives, you can keep the MegaMerge icon on one disk and your MacWrite files on the other.

**STEP 1** Start by putting the diskette that has your letter to Senator Hotspur in the Mac. If the catalog does not appear, double click the icon of the diskette to create the catalog. Select the icon of the letter to Senator Hotspur.

**STEP 2** Pull down the **File** menu, and select **Duplicate**. A new icon named Copy of.... will appear.

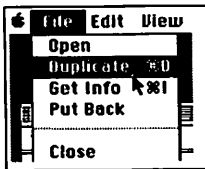


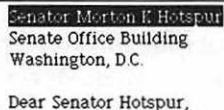
Figure 2.15 Duplicating a file

**STEP 3** Rename this file "To Reps" by typing those characters. Remember, white-on-black text is replaced by whatever you type in.

**STEP 4** Double click to display the contents of the new file, which will be the same as the file you made above.

**STEP 5**

Roll the mouse until the I-beam is at the left of the senator's name in the address; press the button and roll the mouse right to select the whole line.



Senator Morton K. Hotspur  
Senate Office Building  
Washington, D.C.  
Dear Senator Hotspur,

Figure 2.16 Selecting a line

**STEP 6**

Type Name.

**STEP 7**

Use steps 5 and 6 to replace Senate Office Building with Building and Senator Hotspur with Greeting.

As is often the case, part of the text of the letter will vary with the recipient. One letter will go to the secretary of the treasury, who is not elected, so we need to substitute an appropriate word for vote in some letters.

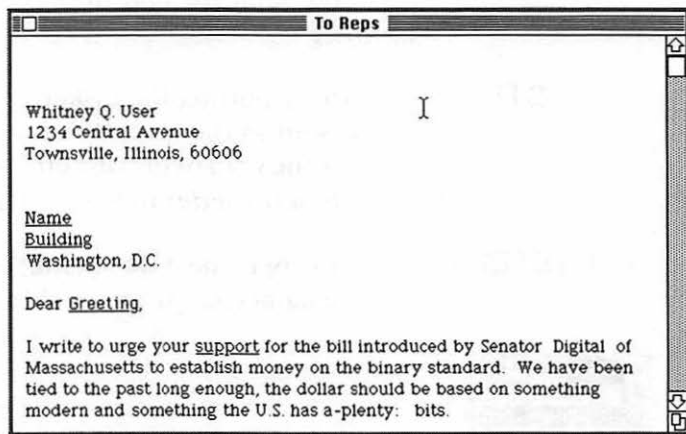


Figure 2.17 Putting general-purpose words in a form letter

**STEP 8**

Select the word vote in the first line and replace it with support. Now to put our labels in a special font.

**STEP 9**

Move the cursor to Name and select it and the following line, Building. Leave it selected.

**STEP 10**

Pull down the **Font** menu and select an out-of-the-way font that is still readable, **Venice** for example (figure 2.18). The font you were using will change to **Venice** before your eyes.

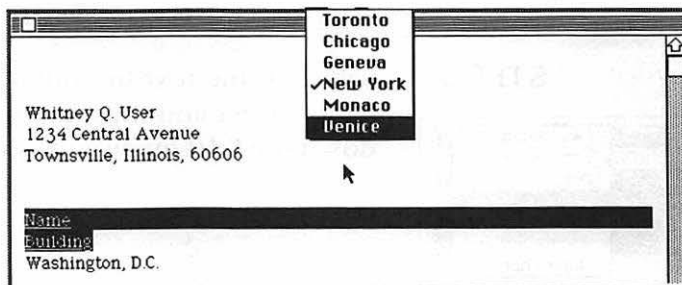


Figure 2.18 Changing the font

**STEP 11**

Similarly, select and change the font of Greeting and Support. The letter will look like figure 2.19.

Now to make the list of addresses.

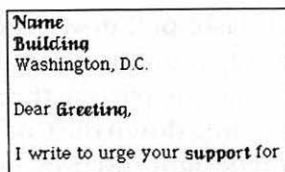


Figure 2.19 Standard letter with general words in a special font

**STEP 1**

Pull down the **File** menu and select **Close**. A dialog box will appear, asking if you want to save your changes. Check Yes. The screen will go blank except for the command line.

**STEP 2**

Pull down the **File** menu and select **New**. A file with a ruler at the top of the screen will appear (see figure 2.2). Again, you won't need the ruler, so pull down the **Format** menu and select **Hide Rulers**.

**STEP 3**

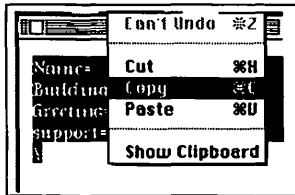
Pull down the **Font** menu and select **Venice** as in step 11 above.

**STEP 4**

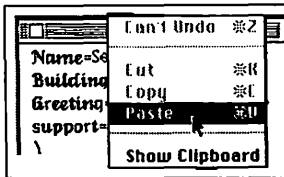
Type "Name=", "Building=", "Greeting=", and "Support=" with a Return after each equal sign. Then type a backslash (\) and then a Return. The screen should look like figure 2.20.



Figure 2.20 Setting up address list

**STEP 5**

**Figure 2.21** Copying a block of text in order to reproduce it

**STEP 6**

**Figure 2.22** Pasting a block of text

Now use Cut and Paste to save some typing.

Select all the text by rolling the I-beam to the upper left-hand corner and then down to include the backslash. Pull down the **Edit** menu and select **Copy**.

Set the insertion point after the backslash, pull down the **Edit** menu and select **Paste** (figure 2.22). A duplicate set of labels will appear below the first. Repeat the pasting three times. You can save “mousing” by holding down the Command key (the one with the quadrifoil design) and pressing the V key three times (see chapter 1 for a discussion of entering commands from the keyboard.).

The process of selecting a piece of text, copying it, moving the insertion point somewhere, and finally pasting the text there is the basic way of duplicating text in MacWrite. Cutting a piece of text, moving the insertion point somewhere, and pasting the text there is the basic way of moving text in MacWrite.

**STEP 7**

Now you can begin entering the names of your representatives. Use the scroll box to get back to the top of the file. Move the mouse after the equal sign following Name. Pull down the **Font** menu and select **New York**. Type the name of Senator Hotspur.

**STEP 8**

Move the insertion point down to the next equal sign, select **New York** from the **Font** menu again, and type Senate Office Building. Continue this process until you have typed in a list like figure 2.23. You have to reselect the **New York** font each time otherwise MacWrite assumes you want to continue a line with the same font that began the line. Remember, everything you type in the **New York** font will appear in the letter just as it is typed.

**STEP 9**

Pull down the **File** menu and select **Quit**. A dialog box will appear to ask if you want to save your changes; check Yes.

```
Name=Senator Harry Hotspur  
Building=Senate Office Building  
Greeting=Senator Hotspur  
support=vote  
\  
Name=Senator Katherine Glendower  
Building=Senate Office Building  
Greeting=Senator Glendower  
support=vote  
\  
Name=Representative Pete Pistol  
Building=House Office Building  
Greeting=Representative Pistol  
support=vote  
\  
Name=Secretary of the Treasury William Oldcastle  
Building=Department of the Treasury  
Greeting=Secretary Oldcastle  
support=support  
\  
Name=President Harry Tudor  
Building=The White House  
Greeting=Mr. President  
support=vote  
\  

```

Figure 2.23 Mail list file

**STEP 10**

Copy your two files, To Reps and Reps Addresses, onto the MegaMerge diskette. If you are using two disk drives, you don't need to copy the files, but merely need to have the MegaMerge diskette in one of your drives.

**STEP 11**

Turn off the Mac, insert the MegaMerge diskette, and turn it back on. Select the MegaMerge icon (see figure 2.24) and double click it. The MegaMerge command line will appear.

Figure 2.24 The MegaMerge icon

- STEP 12** Pull down the **Letter** menu and select **Open**. The familiar Macintosh file opening dialog box will appear and display all the MacWrite files on the MegaMerge diskette. Select **To Reps** and then check **Open** (figure 2.25). Your file will appear in a window on the left of the screen.

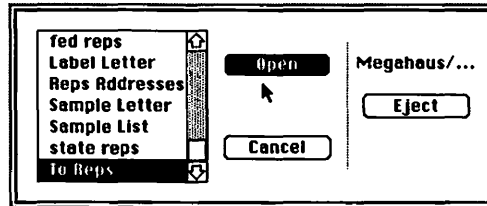


Figure 2.25 Opening the letter file in MegaMerge

- STEP 13** Pull down the **List** menu, select **Open**, and open the **Reps Addresses** file.
- STEP 14** Pull down the **Mergefont** menu and select **Venice**, the font that defines your labels.
- STEP 15** Pull down the **MegaMerge** menu and select **Print Pages**. The dialog box to set up printing will appear. The preset choice is continuous form paper, and this example follows that choice, although you can use sheet fed. Accept the preset values and check **OK**. Your five letters to your five representatives will begin to print.

---

## Preparing a Resume

This section shows you how to prepare a document using a somewhat more complicated format based on tabbing. It also shows how to set up a header and footer that will appear on every page, and how to copy an illustration from MacDraw into your MacWrite document and print it.

This exercise accepts the preset face and font, 12-point New York. The figures in this book may not be the same as your text if you use another font.

## Creating and Formatting the Resume

### STEP 1

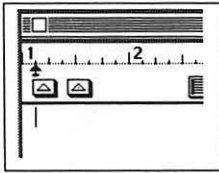


Figure 2.26 MacWrite tab wells

Double click on the MacWrite icon. This time we are going to use the ruler that appears across the top of the window. At the left end below the ruler are a pair of triangles in boxes that are called tab wells.

### STEP 2

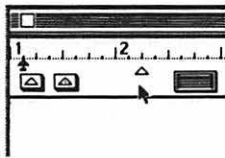


Figure 2.27 Setting tabs in MacWrite

Point to the triangle without the dot in the center. Hold down the mouse button and you will find that you can drag a new triangle away. This endless supply of little triangles allows you to set tabs. Drag the tab triangle till the point touches the bottom of the 2 1/4-inch line (figure 2.27). Your tabs are now set for the resume.

### STEP 4

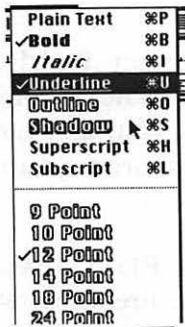


Figure 2.28 Selecting underlining

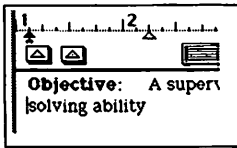
Pull down the **Style** menu and select **Bold**. Next pull down the **Style** menu and select **Underline**. This exercise accepts the preset size, 12 point. If you had wanted a smaller point size, you could select it now.

### STEP 5

Type "Objective". It appears bold and underlined.

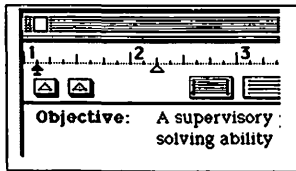
### STEP 6

Pull down the **Font** menu and select **Plain Text**. As mentioned before, the command characters that appear on the right of the fonts can also change the fonts. You have the option of controlling the style of font by typing, for example, Command-P from the keyboard.

**STEP 7**

**Figure 2.29** A tabbed line before pressing the tab key

Press the tab key and type; “A supervisory job using my proven leadership and problem-solving ability.” At this point the text will return to the left margin, but don’t worry, it is easy to fix.

**STEP 8**

**Figure 2.30** A Tabbed line after pressing the tab key

With the mouse, move the I-beam to the left of the second line, and click the mouse button so the blinking insertion point appears to the left of solving. Press the tab key and the second line of text will move to the right of the tab.

**STEP 9**

Use the mouse to move the I-beam to the end of the second line, and press the mouse button so the blinking insertion point appears after the period following ability. Press Return twice to double space.

**STEP 10**

Pull down the **Style** menu and select **Bold** and **Underlined**. Type in “Experience:”. The next words are bold only in our format. Unfortunately, you can’t turn off style features one at a time; you have to return to plain style and build them up again.

**STEP 11**

Pull down the **Style** menu and select **Plain Text**. Pull down the **Style** menu and select **Bold**. Press the tab key and then type “Hillview school, ” (a space should follow the comma).

**STEP 12**

Pull down the **Style** menu and select **Plain Text** again. Type “Townsville, IL”, and press Return.

**STEP 13**

Type “1976-Present”.

**STEP 14**

Press Tab and type; “Teacher and Administrator, Summer School Director.”

**STEP 15**

Press Return, press Tab, and type a “period” (.). Repeat ~ these steps to vertical space (or make up things about Mary McCarthy’s life).



Follow steps 11-13 to enter the text beginning 1971-1976 in figure 2.31.

Make up more years of Mary's employment if you want.

<b><u>Objective:</u></b>	A supervisory job using my proven leadership and problem solving ability
<b><u>Experience:</u></b>	<b>Hillview School, Townsville, IL</b>
1976-Present	Teacher and Administrator, Summer School Director
	Taught Science, math, and sixth and seventh grade
	Selected and trained summer school staff of 50
	.
	.
	.
	.
1971-1976	<b>Lincoln School, Springfield IL</b>
	Vice principal
	Designed and instructed a comprehensive science curriculum

Figure 2.31 The text of Mary McCarthy's resume

- STEP 16** Pull down the **Style** menu and select **Bold** and **Underline**. Type: "Community Activities:". Press Return, and pull down the **Style** menu and select **Plain Text**.
- STEP 17** Type "1976-1982", press Tab, and then type "Assistant Stage Manager, Eastern Illinois Light Opera." The text of the example resume is complete: you should now save the file before someone steps on the power cord.
- STEP 18** Pull down the **File** menu and select **Save**. When the dialog box appears give the file the title Mary McCarthy and then check **Save**. The screen will return to the text of the resume.

Resumes need the job-hunter's name in bold at the beginning; to do this we will need to make further font changes and also change the function of the ruler.

**The Ruler Icon** The ruler that you hid at the beginning of this section (figure 2.4) contains icons that let you control the format of your document. The pair of arrows just below

the 1-inch marker control the margins. The larger, upper arrow controls the right margin; the smaller, lower arrow controls the indenting of the first lines of paragraphs. The arrow below the 7-inch marker controls the right margin. The three boxes left of center control line spacing. The left box shows single spacing, the middle one shows one and a half spacing, and the right box shows double spacing. The box that is white on black is the one that has been selected.

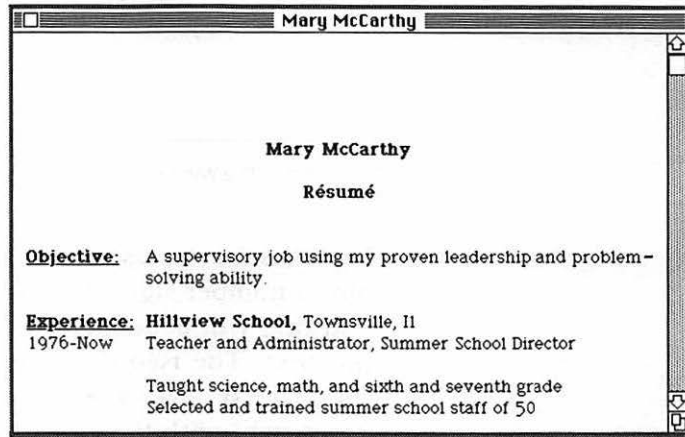
The four boxes on the right control justifications (how words are arranged on the line). The left box shows left justification, all lines (unless you have indented the first paragraph) aligned at the left margin. The next box shows centered justification; each line is centered between the margins. The box to the right shows right justification; all lines are flush against the right margin. The far-right box shows full justification; spaces are inserted irregularly between words to make them flush with both the right and left margins (except for the first line of the paragraph, which is indented).

A newly opened file has one ruler at the top. You can add more rulers to change the margins of a given paragraph. Each ruler controls what is below it, either down to the next ruler or to the end of the file.

- STEP 1** Use the scroll bar to move to the top of the file, and use the mouse to put the blinking insertion point at the very beginning, to the left of Objective.
- STEP 2** Press Return four times to create space. Pull down the **Format** menu and select **Insert Ruler**. The top ruler will appear along with a new ruler above the text. You can later remove an added ruler just like text by selecting the ruler and then selecting **Cut** on the **Edit** menu.
- STEP 3** Roll the arrow up to the very top ruler and click the third box from the right, the one that shows centered text.
- STEP 4** Pull down the **Style** and select **Bold**, then pull it down again and select **14 Point**.
- STEP 5** Type "Mary McCarthy" and hit Return twice to provide space. Mary McCarthy will appear 14-point, bold, and centered. The rest of the text is not centered because the domain of a ruler extends only down to the top of the next ruler.

**STEP 6**

Type “R”. Hold down the Option key and type “e”. Nothing seems to happen, but you have laid the groundwork to give the word Resume a European look. Now type “esum”. Again hold down the Option key and type “e”. Type “e” again. The result should look like figure 2.32.



**Figure 2.32** Resume heading

The Option key gives you the power to type a large number of foreign and other special characters. You can see them by pulling down the **Apple** menu, selecting key-caps, and holding down the Option key after the keyboard appears. Accents appear when you type the Option key and then type the vowel they modify (thus Option and e will accent a, e, i, o, and u).

### Headers and Footers for the Resume

MacWrite lets you define up to six lines of text that will appear at the top of every page (called a *header*), and up to six lines that will appear at the bottom of every page (called a *footer*). You define these lines by drawing down a special box from the **Format** menu where you write the text of each. The boxes include icons that will print the time, today's date, and the page number anywhere you want in the header or footer. You can omit the header and footer from the first page by selecting **Title Page** from the **Format** menu.

- STEP 1** Pull down the **Format** menu and select **Open Header**. The header box will appear.

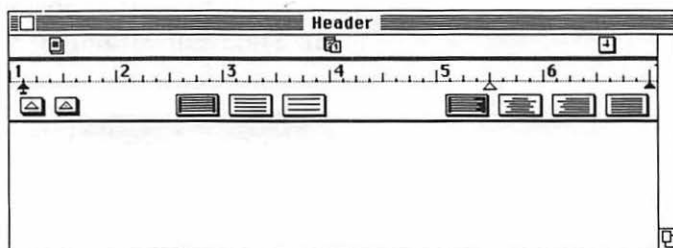


Figure 2.33 The Window for controlling header format

**The Header Icons** The header (and the footer) box contains a number sign (#) in the upper left; the # sign is an icon that will generate the page number when you put it into text. The two tiny numbers labeled 1 and 2 are the calendar icon, which will generate the date. The box on the upper right with the clock hands is the clock icon, which generates the time.

Typing in the header (and footer) box is just like typing normally in MacWrite. You can correct errors in the same way, copy text or illustrations to the headers in the same way and control formatting with the rulers in the same way.

Since this is a resume, we don't want to emphasize the header too much, so we will choose a modest typeface.

- STEP 2** Pull down the **Style** menu and select **9 Point**.
- STEP 3** Roll the pointer into the upper, left-hand corner of the free space in the header box (just below the left end of the ruler) and type "Page".
- STEP 4** Type enough spaces to move the insertion point below the 3 1/4-inch mark on the ruler. Type "Resume: Mary McCarthy". Use the method described in step 6 above to type the accents.
- STEP 5** Roll the pointer to the # icon in the upper, left-hand corner of the header window, and press the mouse button; holding the button down, drag the icon to a stop just after Page and release the mouse button. Drag the calendar icon from just under header to below 6 1/4 on the ruler. (You can put

icons farther to the right; if you do, their message will print, but it will not appear fully on the screen.) Your header box should look like figure 2.34.

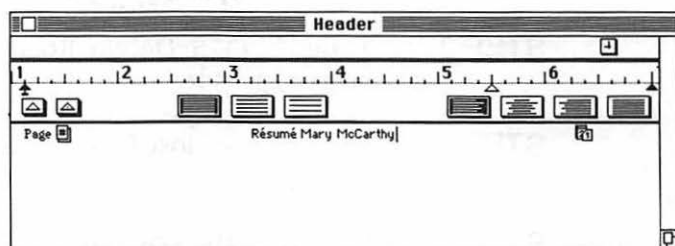


Figure 2.34 Page number and date as they appear in the header box

**STEP 6** Roll the pointer to the little box in the upper left of the striped top of the header box to close the box and click. The header box will disappear.

**STEP 7** Pull down the **Format** menu and select **Display Headers**. Your header should look like figure 2.35.

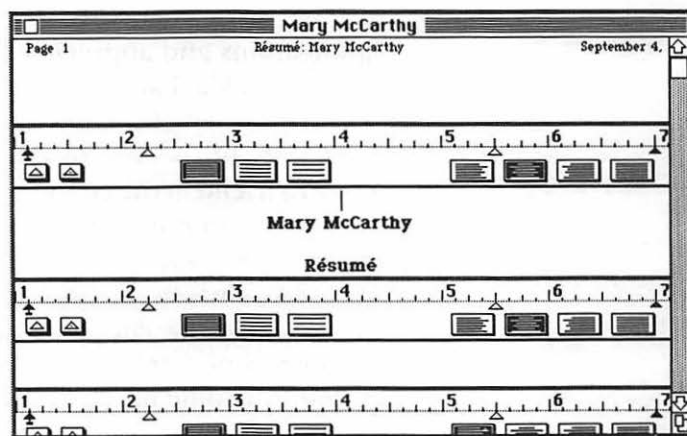


Figure 2.35 A header including page number and date in the MacWrite window

If you want to see your text without a header, select **Remove Header** from the **Format** menu.

Footers are created just like headers.

**STEP 1** Pull down the **Format** menu and select **Open Footer**. The footer box will appear; it is exactly like the header box

except it is called a footer. The insertion point will be in the upper left corner again.

- STEP 2** Pull down the **Style** menu and select **9 Point**.
- STEP 3** Type: “ 1375 Delvin Road, Townsville, Illinois, 60606, (312) 222-7596”.
- STEP 4** Click on the close box in the upper, left-hand corner of the footer box.
- STEP 5** Pull down the **Format** menu and select **Display Footers**.
- STEP 6** Use the scroll box to move down the resume to see your footer.

### **Illustrating a Document**

I don't necessarily advise illustrating a resume; it depends on who you are and what kind of job you are looking for. But let us assume Mary wants to illustrate hers; it gives us a chance to see the integration of two Mac applications and appreciate how easy it is to move something from MacPaint (or MacDraw) into MacWrite.

The story of the portrait in figure 2.39 illustrates the versatility of the Macintosh. I took my Mac with me on a visit to a friend in the country. I showed it to the friend, who has some computer experience and some talent and training in art, but who by occupation is a chemist. He had never seen a Macintosh or touched a mouse (the computer kind anyway). At the end of about half an hour's play and 15 minutes concentrated effort, the portrait was as you see it except for some modest modifications I made for publication.

In the majority of cases, you can move what you create in any other application into MacWrite. Of course, in MacWrite you don't have the tools you had in the original applications. You can't add to an illustration for example. Similarly, you can copy a table from a spreadsheet into MacWrite but you cannot then change a number and have the other numbers change by a formula as they would in their original application. Once the table is taken out of the spreadsheet, it is just a piece of the text; the supporting formula is gone.

In this operation we will open a MacPaint file, copy an illustration from it, open a MacWrite document, and paste the illustration into MacWrite.

This exercise assumes that you have both Mary's resume in a MacWrite file as created above and Mary's portrait in a MacPaint file on the same diskette. If you don't, see the MacPaint manual to see how to make a simple drawing. Refer to the Mac manual or chapter 1 on putting two files on the same diskette.

- STEP 1** Move the pointer to the icon for the MacPaint file and double click.
- STEP 2** Select the lasso in the upper right-hand corner. Use the end of the lasso to draw a line around the portrait. The moment the line is complete, the lines that mark the edges of the portrait will become dashed lines that jiggle.

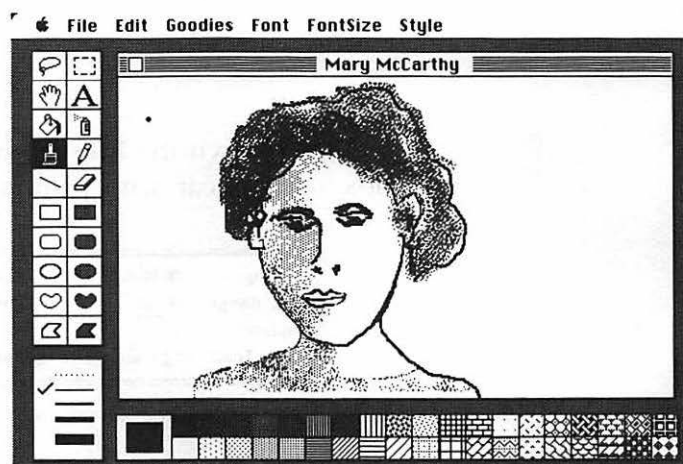


Figure 2.36 A MacPaint drawing selected for copying

- STEP 3** Pull down the **Edit** menu and select **Copy**. A copy of the portrait goes to the Clipboard.
- STEP 4** Pull down the **File** menu and select **Quit**. The diskette catalog should reappear.
- STEP 5** Double click on the MacWrite file "Mary McCarthy."

- STEP 6** Move the I-beam above the heading, and click the mouse button to put the blinking insertion point there. Pull down the **Edit** menu and select **Paste**. The portrait will appear.

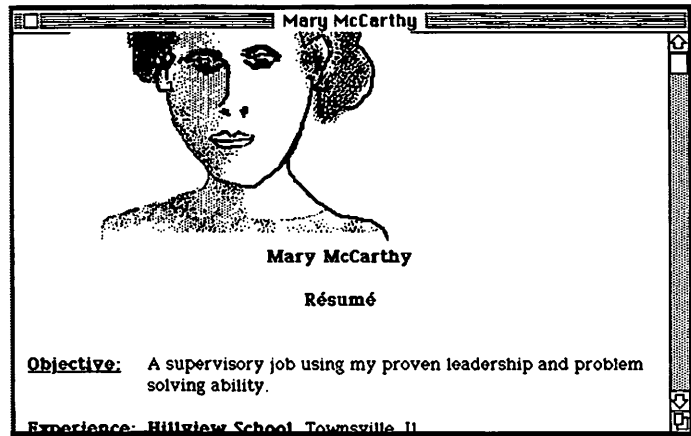


Figure 2.37 A MacPaint drawing as it appears in a MacWrite document

## Printing

Pull down the **File** menu and select **Print**. A dialog box will appear with printing choices (see figure 2.38).

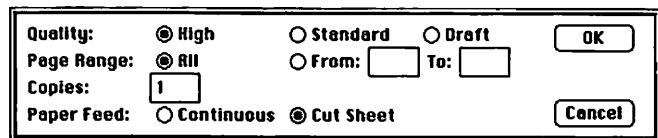


Figure 2.38 The dialog box for printing

Check High and Continuous or Cut Sheet depending on the paper you are using. Leave the other preset values. Check OK. If you are using cut sheet, another dialog box will ask you to check whether there is a sheet of paper in the printer. The printed resume will look like figure 2.39.





# MacDraw

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MacDraw is a program from Apple that lets you draw and arrange objects in a defined format. It offers tools similar to those that architecture and engineering design programs offer on much more expensive computers. You can use a variety of fonts, as in MacWrite, and it offers essentially the same sizes and styles. You can set a visible or invisible grid in the drawing area that functions like a drafting machine; that is, it will keep your lines straight. The grid may be in inches, metric, or fractions of those measures. MacDraw allows you to fill drawn objects with a variety of patterns; patterns can also be used to form the texture of lines in a variety of thicknesses. Once you have drawn an object, you can attach it to other objects and move, expand, compress, or rotate them as one object. You can also put one object in front of another.

MacDraw allows several files to be open on the desk at once, so work can be easily shifted from one file to another.

Although the window in MacDraw exposes only about 4 to 7 inches, the drawing itself can be as large as 40 by 120 inches. Scrolling tools allow you to move the window over large drawings. Large drawings are set to print on adjoining sheets of 8 1/2-by-11 inch sheets of paper, but you may adjust the program to use other sizes.

It is worth comparing MacDraw to MacPaint, another graphics program from Apple. Where MacDraw is architectural, MacPaint is like hand-drawing or etching. Where

MacDraw enables you to draw straight lines or orderly curves, MacPaint lets your line wander as freely, or as chaotically, as your hand does.

In general, MacPaint resembles a fine arts medium. That is why I have not provided instructions for using it beyond the specific tasks discussed in chapter 7. Telling someone how to use MacPaint is like telling someone how to draw. As you will see, I draw badly, and I certainly don't know how to teach it. Thus, I find MacDraw more useful.

To understand why MacDraw and MacPaint work so differently, it is useful to know how the information in MacDraw is held in the computer program. MacDraw's program works like someone drawing a graph on numbered graph paper. The computer stores some numbers, which determine how a line will be drawn. When you call for the drawing it generates the lines from the numbers. MacPaint constantly remembers every tiny dot on the screen, and gives you tools for drawing by turning those pixels black or white. You may have noticed that if you look closely at a newspaper picture or a television screen, it is made up of tiny dots. MacPaint lets you manipulate the screen version of those dots.

One consequence of this is that MacPaint files take much more memory than MacDraw files or most graphic programs. MacPaint may use 14,000 bytes to store the image of one screen, which is 4% of the space on a 400K diskette, whereas MacDraw might use a quarter that much for the same image.

You can move files from MacDraw to MacPaint—the software knows how to turn numbers into dots—but you cannot move files from MacPaint to MacDraw; the software does not know how to turn dots into numbers.

The following section gives specific instructions on making a label to list the contents of an audio cassette, and instructions on designing a simple kitchen.

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## **Making a Cassette Label**

If you're like me, you copy records or broadcasts onto cassettes, or record friend's live performances and then scrawl unreadable notes on the blank label that comes with the cassette. I have learned to use MacDraw to create nicely

printed, and occasionally illustrated, labels for my cassettes. (The customs, morals, and possibilities of cassette copying are, by the way, very much like the issues of software and video cassette copying.)

The Imagewriter prints by tapping the ribbon with tiny wires. The paper that best shows the results is thus not quite the same as that used with a typewriter. Paper that is too hard splatters the ink and makes a fuzzy impression, whereas paper that is too soft lets the ink smear. A bright white paper with a moderate matte has worked best for me. I used Neenah Avon Brilliant White for the figures in this book that show printing. The figures from the screen are sent directly to the typesetter.

### Making a Cassette Label Template

#### STEP 1

Put a diskette containing MacDraw in the Mac and turn it on. When the disk catalog appears, double click it. The MacDraw window will appear.

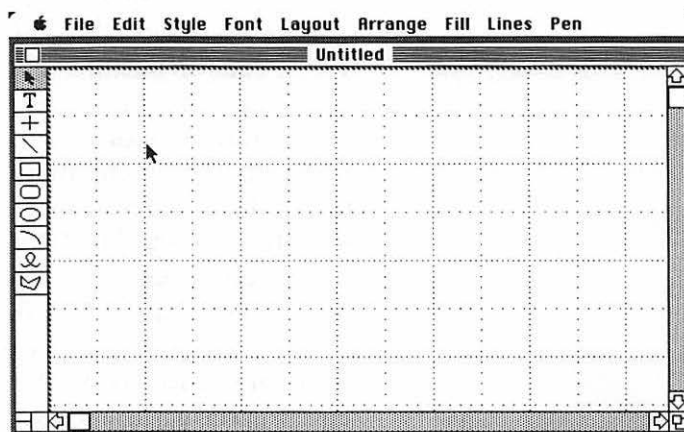


Figure 3.1 MacDraw window showing menus and tools

The **Apple**, **File**, and **Font** menus contain commands that work almost exactly as in MacWrite. There are some extra **Edit** commands for reshaping drawings.

The **Layout** menu controls how the drawing paper looks on the screen, its size and whether there is an automatic grid.

The **Arrange** menu allows you to rotate drawings, move one in front of another, and make other changes in layout.

The **Fill** menu allows you to fill figures with different textures, and the **Line** menu allows you to draw with the same textures.

The **Pen** menu determines line width.

The symbols along the left are the tools used to draw the shapes the symbols represent.

Cassette boxes vary in size, but for the most part they are metric.

## STEP 2

Pull down the **Layout** menu and select **Custom Rulers**.

The **Scale of Ruler** dialog box will appear. Check **Centimeter**, **Unlocked**, and then check **OK**.

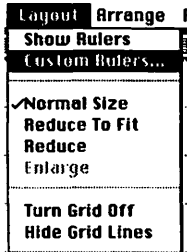


Figure 3.2 The MacDraw layout menu

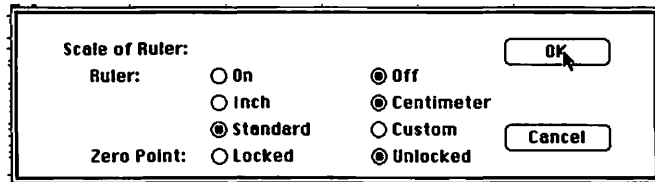


Figure 3.3 The Scale of Ruler dialog box

Pull down the **Layout** menu and select **Show Rulers**. If the rulers are already present you don't need to do this (**Hide Rulers** will show instead). The metric ruler will appear, with major lines every centimeter and minor divisions every 2 millimeters.

While it is convenient to have the numbers of the ruler the same as the numbers we are using to measure our cassette label, it is not convenient to have the edge of the label at the edge of the paper. We unlocked the ruler for that reason and will now move the zero point.

## STEP 3

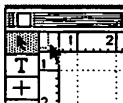


Figure 3.4 Cursor-tracking lines

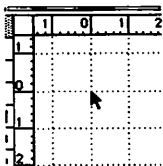


Figure 3.5 Changing the zero point of the rulers

Roll the mouse so the cursor enters the empty box in the upper left corner where the rulers meet. Dotted lines will appear in the little box. These are the hairlines that will track the cursor when the rulers are visible.

Hold down the mouse button and pull the flashing dotted lines diagonally to the right until the zero point is a centimeter and a half inside the window.

The symbols to the left of the work area help you draw clean figures of their respective types any time one of the symbols has a tweedy gray background. This background indicates that you can do the type of work represented by that symbol.

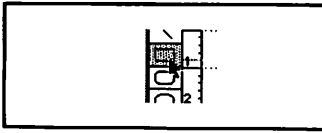
**STEP 4**

Figure 3.6 Selecting a shape to draw

A cassette label is a rectangle 9.6 by 10 cm. To make the rectangle, roll the cursor into the area of the rectangle symbol and click. The rectangle will turn gray. The cursor becomes a tiny cross when it is in the work area. Roll it around a little. Two hairlines follow it in the vertical and horizontal rulers. These hairlines locate its position on the grid in centimeters. The grid will not let the cross rest between centimeters.

**STEP 5**

Move the cross to the 0 point. Press down the mouse button and drag the cross diagonally down and to the right. Lines in flashing outline will appear. Drag diagonally until the right side of the rectangle is at 9.6 cm, as measured by the hairline in the ruler, and until the bottom line is along the bottom of the window (7 cm). Release the mouse button. The rectangle in figure 3.7 should appear.

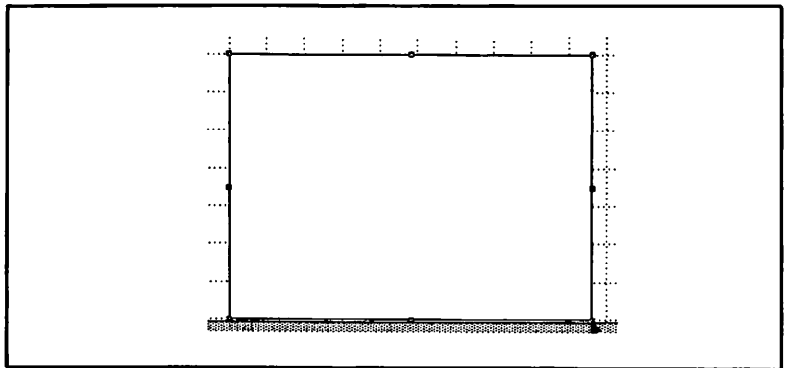


Figure 3.7 A rectangle, drawn and selected

Note that the rectangle is filled with a pattern (white) and that it has little squares at the corners and edges. These little squares are called *handles*; they show that the rectangle is selected and vulnerable to change. The handles serve the same purpose that white on black does for a piece of text. The selection tool is the arrow at the top of the stack of symbols on the left margin.

**Correcting Mistakes** In MacDraw, if you see you have made a mistake in drawing, it is best to clear it and start over. If the black selection squares are visible, you can pull down the **Edit** menu and select **Clear**. Clear is preferable to **Cut** since **Clear** instantly throws away the mistake. If the

selection squares are not visible, select the object by pointing near an edge and clicking; you can then clear it away.

This cassette label is 10 cm long, so you want to change the rectangle by making it longer, but not by clearing it away.

### STEP 6

Note that when you release the mouse button, the cursor turns back into an arrow. Click on the scroll arrows to move down the screen until you can see the 10-cm mark on the vertical ruler. Move the arrow to the black square in the middle of the bottom edge of the rectangle and press the mouse button. Drag the bottom of the rectangle downward until it reaches the 10-cm line on the grid paper.

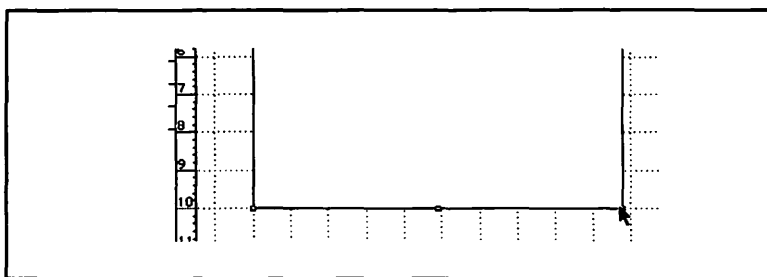


Figure 3.8 Lengthening a rectangle

The part of the cassette label that faces the spine when it is folded into the box and shows the title is 1.3 cm wide and 1.6 cm from the bottom of the label. When you fold the label into place, it is handy to have dotted lines to mark the fold.

### STEP 7

Click on a random spot in the work area outside the rectangle to deselect the rectangle. The black squares vanish.

### STEP 8

Pull down the **Lines** menu and select the dashed line.

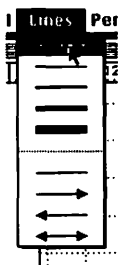


Figure 3.9 Selecting Lines

**STEP 9**

Click the mouse in the rectangle symbol in the left margin. Roll the cross to the point on the left side of the rectangle that is opposite the 8.4-cm mark on the ruler. Press down on the mouse button and drag the cross diagonally up to the 7-cm point on the right side of the rectangle. A rectangle with dotted lines will appear.

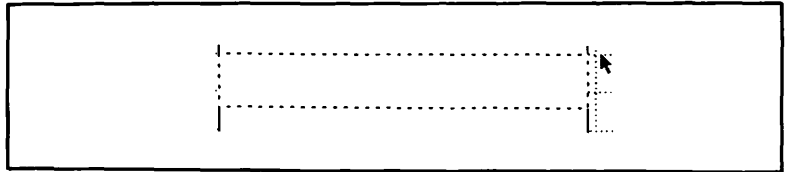


Figure 3.10 A second rectangle with dotted lines

It's always a good idea to save your work from time to time. You should do so now because you have created a template that you can set aside for future cassette labels, saving you from making the same shape again.

**STEP 10**

Pull down the **File** menu and select **Save As**. A dialog box will appear.

**STEP 11**

Type "Schock" and check **Save As . . .**

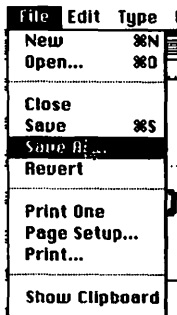


Figure 3.11 Selecting Save As

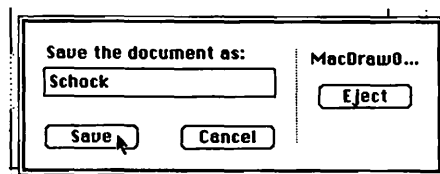


Figure 3.12 The Save As dialog box

**Filling in a Cassette Label**

Let's put the title and the names of the selections on the label. I've chosen to make a label for my local New Wave group, Shock. The large letter T in the symbols on the left of the work area is for Text.

**STEP 1**

Move the cursor up to the T symbol and click the mouse. The background will turn tweedy gray.

Let's start with the spine, where we will want a font size and style you can read.





Figure 3.13 Selecting 24 point from the Font menu

## STEP 2

Pull down the **Font** menu. Note as the cursor passes over the work area it turns to the familiar I-beam that shows you can insert text. Note that the hairlines on the ruler continue to follow the I-beam. The preset font is **Chicago**, a good font for New Wave music. Select **24 point**.

## STEP 3

Pull down the **Style** menu and select **Bold**. Pull it down again and select **Title**. Title will capitalize the first letter of each word. Pull it down again and select **Shadow**.

## STEP 4

Move the cursor until the hairlines show it is 7.9 cm down and .2 cm horizontally. It will be at the left end of the dotted rectangle that defines the spine. Click once to set the insertion point and type "Shock."

The logo of Shock is a lightning stroke. The funny-hat-shaped symbol at the bottom of the stack of symbols on the left lets you draw irregular polygons.

## STEP 5

Select the symbol for drawing polygons. To draw polygons, press down the mouse button to draw a line; you turn a corner by releasing the mouse button and pressing down again to do the next line. You can continue turning corners and drawing lines in any direction you want until you return to the first point. When your line touches the first point, MacDraw considers the polygon finished and selection handles appear.

## STEP 6

Move your cursor to a point inside the spine (the dotted rectangle) and draw a lightning bolt. You can probably do better than I did, but this is New Wave and refined packaging is not required.

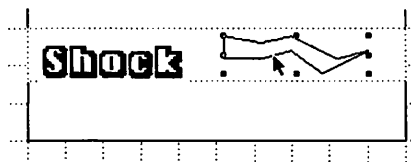


Figure 3.14 The label spine and the beginnings of a lightning stroke

MacDraw has some tools that can make the lightning bolt more graphic. We can thicken the line and turn it into a jagged pattern, and we can fill the inside of the figure with a lightning-like pattern.

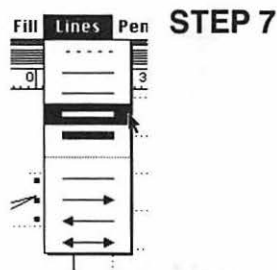


Figure 3.15 Changing line thickness

### STEP 8

Pull down the **Pen** menu. Select a jagged pattern, say the fifth pattern down in the outside column.

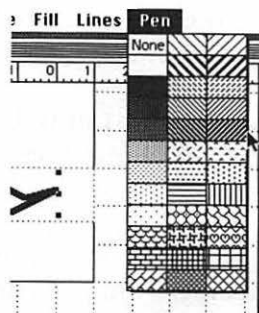


Figure 3.16 Selecting a Pen pattern

### STEP 9

Pull down the **Fill** menu, which will fill any figure with a pattern, and select the opposite diagonal bars (the fifth pattern down in the right-hand column).

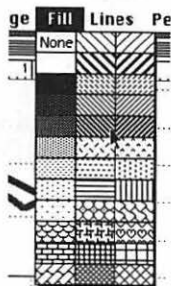


Figure 3.17 Selecting a Fill pattern

### STEP 10

I like to put the artists on the smaller part of the label. Click on the T symbol to indicate that you want to write text. Pull

down the **Font** menu and select **12 Point**. Pull down the **Style** menu and select **Title**. Move the cursor, which is now an I-beam until the hairlines on the ruler are at 8.8 cm and .2 cm. Type "Artists:."

- STEP 11** Click on the T to deselect what you have just typed. Pull down the **Style** menu and select **Plain Text**. Pull down the **Font** menu and select **9 point**. Move the cursor until the hairlines are on 8.6 and 2.8 cm. Type the names of the artists (Roger Carsner, Nat Ingalls, Tim Luntzel & Boreas van Nouhuys). You will need to type a Return between "Luntzel," and "&".
- STEP 12** The names of the cuts go on the more spacious side of the label. Click the mouse on the scroll arrow until the whole upper part of the label is in view.
- STEP 13** Pull down the **Font** menu and select **12 point**. Pull down the **Style** menu and select **Bold**.
- STEP 14** Click on the T symbol. Move the cursor until the hairlines are on 1.2 and .2 cm. Type "Side 1." Move the cursor until the hairlines are on 4 and .2 cm and type "Side 2."
- STEP 15** Click on the T symbol again (to deselect "Side 1"). Pull down the **Style** menu and select **Plain Text**. Pull down the **Font** menu and select **10 point**.
- STEP 16** To list the tunes exactly as they are in figure 3.20, move the cursor until the hairlines are at 1 and 2 cm exactly. Type the names of the tunes. The length in minutes and seconds follows the name of each tune. Type a Return at the end of the length in seconds to begin a newline.
- STEP 17** Move the cursor until the hairlines are at 3.6 and 1 cm. Type the names of the tunes on the second side and hit Return after the number of seconds.

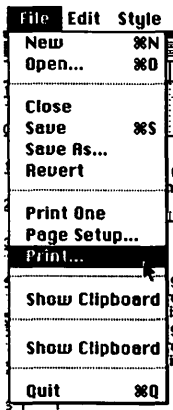
**STEP 18**

Figure 3.18 Selecting Print from the File menus

Put a moderately stiff paper in your printer (23 pounds is fine), and pull down the **File** menu and select **Print** (see figure 3.18). The **Print** dialog box will appear (see figure 3.19). I assume you will use cut sheet paper to print the label. The values should correspond to figure 3.19; check OK.

The label should look like the one in figure 3.20.

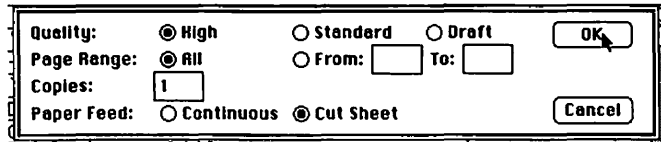


Figure 3.19 The printing dialog box

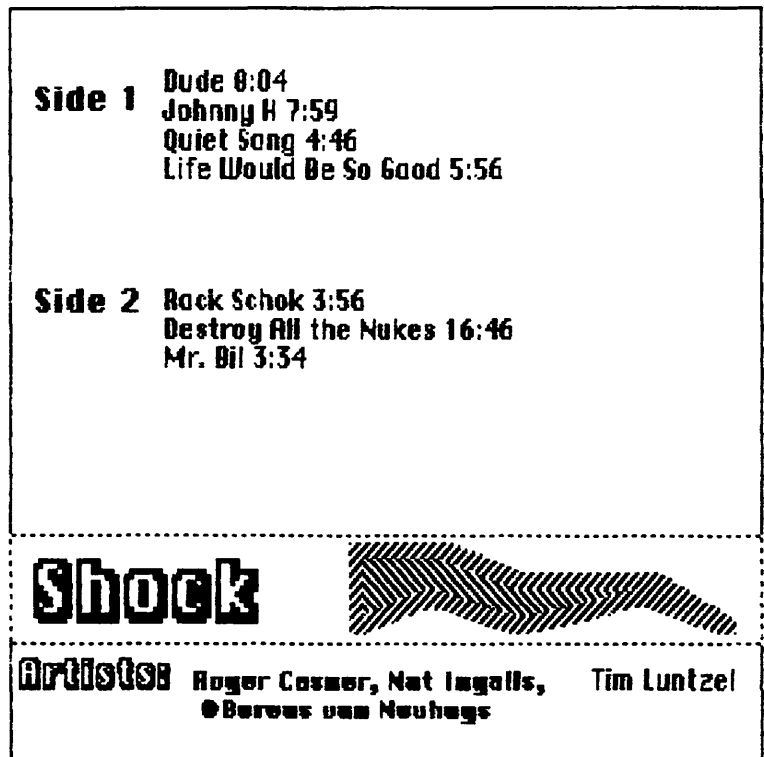


Figure 3.20 The printed label

**STEP 19**

Cut out the label along the solid lines. Fold it on the dotted lines. You will find it fits quite nicely into most plastic cassette containers.

Once you have printed the label, you may not want to save the file unless you want to make a duplicate label. If you do, save the file as "Shock" as in step 8.

## A Plan for a Kitchen

This section tells you how to draw a plan for a simple kitchen. It illustrates some of the features that make MacDraw handy for extensive design work, such as grouping and ungrouping objects, putting objects in front of or behind one another, and the use of a second file of often-used stored objects.

**STEP 1** Open a new MacDraw file.

**STEP 2** Kitchens in the U.S. are not yet metric, so it is convenient for this drawing to use the scale of 1/2 inch = 1 foot. Pull down the **Layout** menu as in step 2 above and select **Custom Rulers**. The **Scale of Ruler** dialog box will appear. Click **Custom**. The dialog box will immediately expand. Click on **Major Division Spacing 1/2**, **Number of Minor Divisions 6**, then click on **OK**.

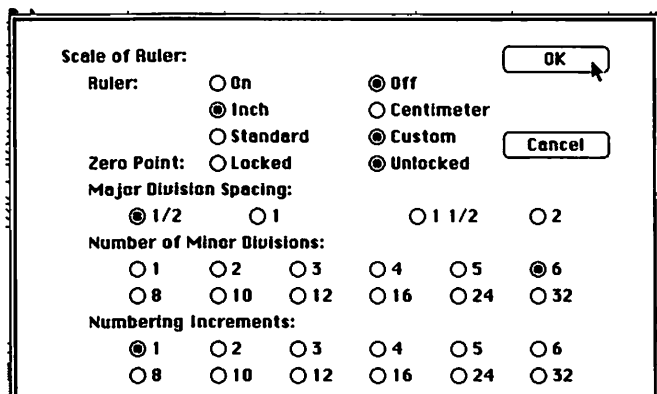


Figure 3.21 Scale of Ruler dialog box

## STEP 3

Pull down the **Layout** menu, select **Show Rulers**, and drag the zero point in from the margin as in step 2 above.

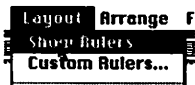


Figure 3.22 Selecting Show Rulers

The L-shaped section of wall in figure 3.23 is the first thing you draw. I have put in the dimensions of a kitchen (shown completed in figure 3.43) so you can follow my

instructions more easily. The kitchen you draw will not have them. The wall is 4 feet long on one side, 5 feet on the other and, like all walls in this kitchen, 6 inches thick. It is a polygon, drawn with the funny-hat-shaped symbol at the bottom of the tools in the left margin. In drawing plans most things that are not rectangles are polygons. Although they are a little tricky at first, it is important to know how to draw them.

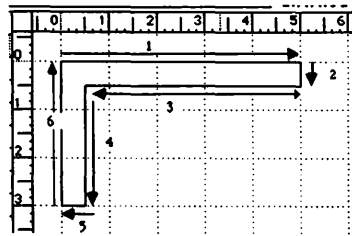


Figure 3.23 Drawing an L-shaped wall

When drawing a dimensioned polygon, you click on a starting point and then line up the cursor at the next corner with the hairlines and click again. Moving the cursor more will start a second straight line from the end point, which you anchor by clicking once more. You continue this process until you return to the starting point, for a closed polygon, or click twice, for an open polygon.

**STEP 4** Start at the zero point and draw the polygon as in figure 3.23, drawing the sides in the numbered order and clicking once at each right angle. In figure 3.23 and in succeeding figures concerned with polygons, the arrows and numbers are to guide your strokes; they will not appear on your drawing.

**STEP 5** A 2-foot counter extends along this wall of the kitchen. Since this counter is rectangular, click on the rectangle symbol. Move the cursor, which turns into a tiny cross in the work area, until the hairlines are at 0 and 1.5. Press the mouse and move the cursor until the hairlines read 2.5 and 10 (see figure 3.24). You will see the rectangle growing as you move the cursor. Release the mouse button. Don't worry that you have covered part of the wall—we'll get that back in a moment.

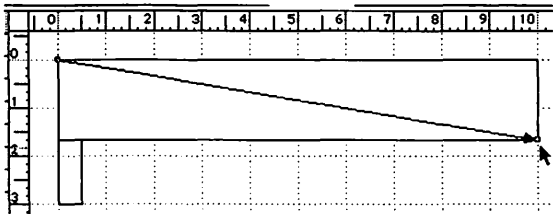


Figure 3.24 Drawing a rectangular counter

**STEP 6** While the new rectangle is still selected, pull down the **Fill** menu and select the even gray color, the fifth pattern down on the left-hand column of patterns. Release the mouse button.

**STEP 7** With the arrow selected at the top of the tool symbols, move the cursor (now an arrow) next to a visible line of the wall. Click the mouse. The wall will be selected.

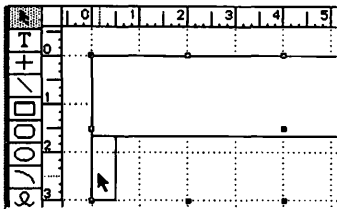
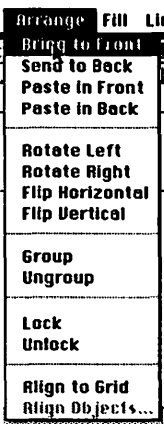


Figure 3.25 Selecting a partially hidden wall



**STEP 8** Pull down the **Arrange** menu and select **Bring to Front**. The outlines of the wall will appear but the lines of the counter still obscure the wall. With the wall still selected, pull down the **Fill** menu and select white.

Figure 3.26 Selecting Bring to Front from the Arrange menu

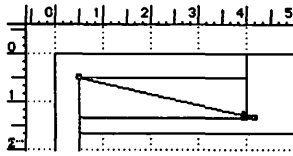
**STEP 9**

Figure 3.27 Drawing rectangular shelves

This corner of the kitchen has shelves 10 inches deep. Horizontal lines will mark the shelves. Click on the rectangle. Move the cursor to the inside corner of the L-shaped wall you have already drawn. Move the cursor diagonally down and to the right until the hairline reaches 1 foot 4 inches by 5 feet. Release the mouse button.

**STEP 10**

While the new rectangle is still selected, pull down the **Fill** menu and select horizontal dashed lines, the seventh pattern in the middle column.

**STEP 11**

Following the procedure for drawing polygons in step 9, draw another L-shaped piece of wall 6 inches thick at the right-hand corner of the counter. Following step 8 fill it with white to show it is a wall.

**STEP 12**

Following the procedure in steps 9 and 10, put a rectangular piece of shelving inside the elbow of this new wall and fill it with the horizontal stripes pattern.

The gap in the wall of this kitchen is a passage to the dining room on the other side, and it must be labeled as such. The preset font for MacDraw is Chicago, which is not very suitable for even simple architectural drawings, so we need to change it.

**STEP 13**

Pull down the **Font** menu and select **Geneva**. Move the cursor into the tool column and select T (for Text). Move the cursor, which will now turn to an I-beam in the work area to show you can write text, and click somewhere above the passage. Type "Passage".

**STEP 14**

Pull down the **Lines** menu and select the line with the arrow pointing to the right. This will tip your lines with an arrowhead at the ending point.

Figure 3.28 Selecting an arrowhead



**STEP 15**

Select the cross among the tool symbols; this makes any line you draw vertical or horizontal. Roll the cursor to a point above the passage, press down the mouse, and move the cursor downward; a line with an arrowhead pointing down will appear.

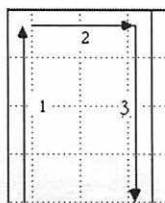
**STEP 16**

Figure 3.29 Drawing an open polygon

**STEP 17**

Fill this open polygon with the same counter pattern as in step 6.

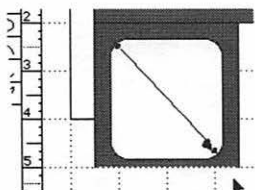
**STEP 18**

Figure 3.30 Drawing a rectangle with rounded corners

The dishwasher is under the counter. Select the tool symbol that shows a square with rounded corners. Move the cursor to a point just inside the upper left-hand corner of the new polygon, press down the mouse, and you will find yourself generating a rectangle with rounded corners.

MacDraw gives you the power to draw rectangles with rounded corners because Steve Jobs believes this shape is in the spirit of the '80's.

**STEP 19**

We can fill in the dishwasher with the counter pattern and label it to show that it is under the counter. With the dishwasher still selected, pull down the **Fill** menu and select the pattern we used for the counter, the fifth pattern down in the left-hand column of patterns (see step 6). Select the T (text symbol) and click the mouse in the open space to the right of the dishwasher. Type "Dishwasher". As in step 15, select the cross and draw an arrow from right to left pointing at the dishwasher.

**STEP 20**

Move the view down by scrolling until only the bottom end of the first wall is visible.

Scrolling is what allows you to make MacDraw illustrations many times the size of a sheet of paper.

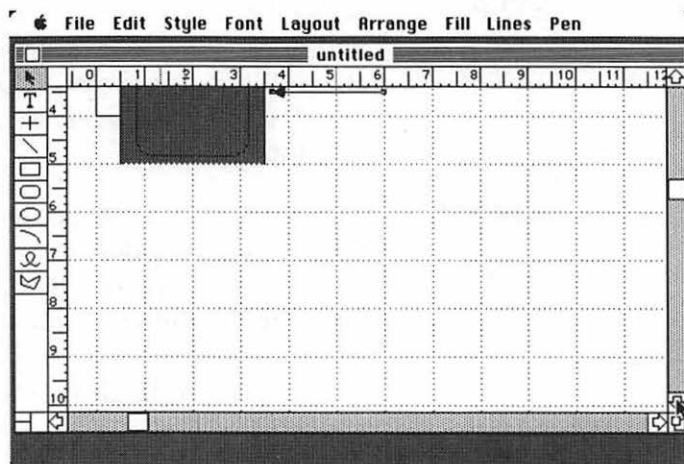


Figure 3.31 Moving the view to draw the middle part of the kitchen

### STEP 21

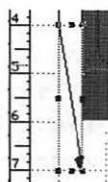


Figure 3.32 Drawing a window with dotted lines

There is a 3-foot window above the sink. Draw a rectangle as in step 9 to represent the window (see figure 3.32). Pull down the **Pen** menu and select the sixth pattern down on the left side (scattered dots); the dots show this as a window.

### STEP 22

Now let's finish the kitchen. Scroll until the end of the counter is barely visible and the 13'' mark on the rulers is showing.

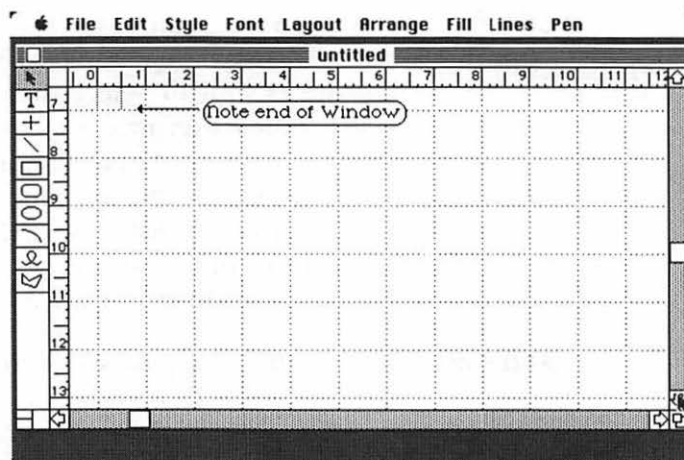


Figure 3.33 Lowering the view to start the bottom half of the kitchen

**STEP 23** Use the polygon to draw the U-shaped lower wall of the kitchen; the wall extends to 13 feet on the bottom of the screen, to 10 feet on the right and back up to 11 feet. It is 6 inches thick.

**STEP 24** With an open polygon as in step 16, complete the counter with the strokes in figure 3.34. Pull down the **Fill** menu and select the counter pattern, the fifth pattern down on the left-hand column.

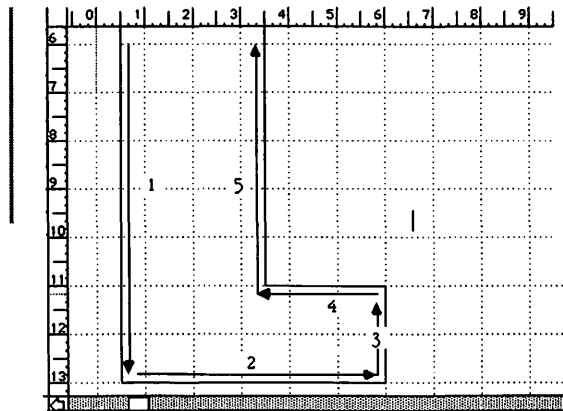


Figure 3.34 Drawing the other half of the counter

**STEP 25** Select the rounded rectangle and move the cursor so the hairlines are at 6 feet, 2 inches and 8 inches; press the button and draw the rounded rectangle diagonally down until 7 feet, 10 inches by 3 feet, 4 inches. The sink will appear. Select T, move the cursor a little to the left of center of the sink, and type "Sink".

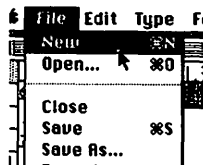
If you are doing work that resembles drafting, you will want to use a second file that contains parts you use often that you have already drawn, or that have been bought on a commercial disk with prepared images. This kitchen is not a big enough deal to justify such a file, but I will show you how to set it up here in order to illustrate the power of the Macintosh windows.

**STEP 26** Pull down the **File** menu and select **Save As**. The **Save** dialog box will appear. Type "Kitchen", and then check **Save**.

**STEP 27**

Pull down the **File** menu and select **New**.

A new file will appear.



**Figure 3.35** Making a New file from the file menu

**STEP 28**

Select the circle from the tool-drawing symbols. To make a true circle, not an oval, hold down the Shift key and draw a circle 1/3 inch in diameter. Pull down the **Fill** menu and select a fire-like pattern, the third from the bottom in the center column. This is a gas burner.

**STEP 29**

With the arrow, move the cursor above and to the right of the burner. Press the mouse button. The cursor turns to a pointing hand. Move it down to the right as if you were drawing a rectangle. A flashing rectangle appears, which defines the area you will later cut. This is one way to select an object.

**STEP 30**

Pull down the **Edit** menu and select **Copy**. The image of the burner is now in the memory of the program; you can still extract it to paste it somewhere else.

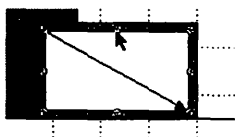
You may have noticed that when you made the new file, so far untitled, that the upper edge of the file left the top edge of the Kitchen file visible, like papers stacked slightly ajar on a desktop.

**STEP 31**

Move the point of the cursor arrow into the little bit of kitchen showing at the top of the screen and click the mouse. The kitchen file will appear. Note at the bottom of the screen the edge of the other file.

**STEP 32**

Select the square, and move the cursor until the hairline is at 10 feet, 2 inches, and 2 feet, 2 inches. Press the mouse and move the cursor diagonally to draw a rectangle in the space at the end of the counter.



**Figure 3.36** Drawing a rectangular stove top

**STEP 33**

Select the pointer and move it into the rectangle you have drawn from the stove. Click the mouse button. You will not see anything happen. Although you did not see anything happen, you have located the point where you will paste the burner; this is one of the few occasions in Macintosh software where you get no real feedback on what you have done.

**STEP 34**

Pull down the **Edit** menu and select **Paste**. The burner will appear on the stove. Little black squares around it will show that it is selected. It will probably not be just where you want it.

**STEP 35**

Figure 3.37 The burner in place

Move the cursor into the center of the burner. Press the mouse button and move the cursor. A ghost image will appear. Roll the mouse to move the ghost image into one corner of the stove. Release the mouse. The burner has followed the ghost.

Since the grid is in force, the burner is stopped from ending up in a messy place.

**STEP 36**

Repeat the above steps three more times to install the other three burners.

**STEP 37**

Draw a rectangle about 3 feet by 2 feet inside the L of the wall next to the stove. Select the T, click the mouse inside the new rectangle, and type "Refrig.".

**STEP 38**

Begin the right wall of the kitchen by drawing an open polygon as in figure 3.38.

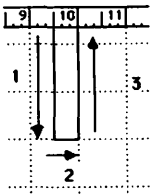
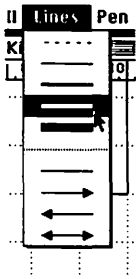


Figure 3.38 Another open polygon

**STEP 39**

The kitchen has to have doors. Pull down the **Lines** menu and select the second thickest line.

Figure 3.39 Selecting a thick line

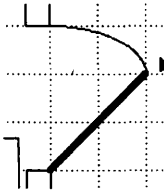
**STEP 40**

Figure 3.40 A door

Select the diagonal line symbol and draw a thick line from the corner of the door, hairlines at 11 and 10, to place where a door might be half open, with the hairlines at 9 and 12. Select the arc symbol. Pull down the **Lines** menu and select the thin line, second from the top. Draw a thin-lined arc from the free edge of the door, hairline at 9 and 12, to the edge of the wall, hairline at 8 and 10.

The kitchen has another door, as we will see shortly. In a small plan like this it would be useless just to copy the door you have made into the other opening. But if you intended to draw more plans, it would be best to copy the door onto your spare parts file. To show how MacDraw works, we will do that.

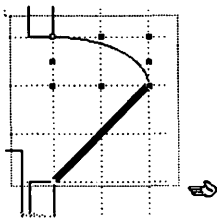
**STEP 41**

Figure 3.41 Selecting a group of objects

With the arrow symbol selected, move the cursor to a spot a little to the left and above the doorway. Press the mouse button. The cursor becomes a pointing hand, which shows you that you can select one or more objects. Move the cursor diagonally down and to the right. A flashing rectangle will appear around the door and its arc of closing (see figure 3.41). When the rectangle encloses them, release the mouse button. Now they are selected.

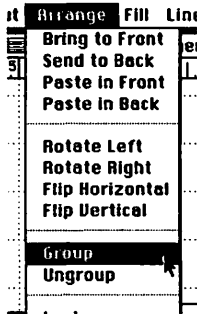
**STEP 42**

Figure 3.42 Selecting group

With the door and its arc still selected, pull down the **Arrange** menu and select **Group** (figure 3.42). Note that the black selection squares shift to bracket both the door and the arc. Now you can treat them as a single object.

**STEP 43**

The lower edge of the untitled file of spare parts should still be visible just below the edge of the “kitchen window.” Click the mouse there and the file with the burner on it will rise to the front of the desktop.

**STEP 44**

Click the mouse somewhere else on this file and then pull down the **Edit** menu and select **Paste**. The door will appear.

**STEP 45**

Return to the kitchen window by clicking on the little bit that appears above the edge of the parts file.

**STEP 46**

Scroll to bring the top of the kitchen back to view. Draw a small open polygon, as in step 16, to close the wall on the lower right and leave a three-foot opening opposite the dishwasher.

The second kitchen door opens in, so we have to reverse it. Probably you would want to keep both a right- and a left-handed door in your parts file.

**STEP 47**

Return to the parts file as in step 43. Click somewhere else, pull down the **Edit** menu, and select **Paste**. Since the door still occupies the memory space set aside for cutting and pasting, a second door will appear. It will be selected.

**STEP 48**

Pull down the **Arrange** menu and select **Rotate Right**. The door will rotate 90 degrees right. Pull down the **Arrange** menu and select **Rotate Right** again. Your door will be a mirror image of its former self. Of course you could have done the same thing by rotating left twice. Pull down the **Edit** menu and select **Copy**.

**STEP 49**

Return to the kitchen by selecting its visible edge above the parts file. Move the cursor into the open doorway. Click the mouse. You will see the cursor turn, for a moment, into the hand; this is the visual feedback that lets you know you have selected a spot for pasting. Pull down the **Edit** menu and select **Paste**. The door will appear, but probably not in the right spot.

**STEP 50**

Move the cursor to the middle of the door, press the mouse, and drag the ghost image to the correct spot.

The kitchen is done. If you plan to build it you might want to add more shelves, but I will leave that to you.

To print the plan, pull down the **File** menu and select **Print**. Use the procedure outlined earlier for the print dialog box. The kitchen should look like figure 3.43.

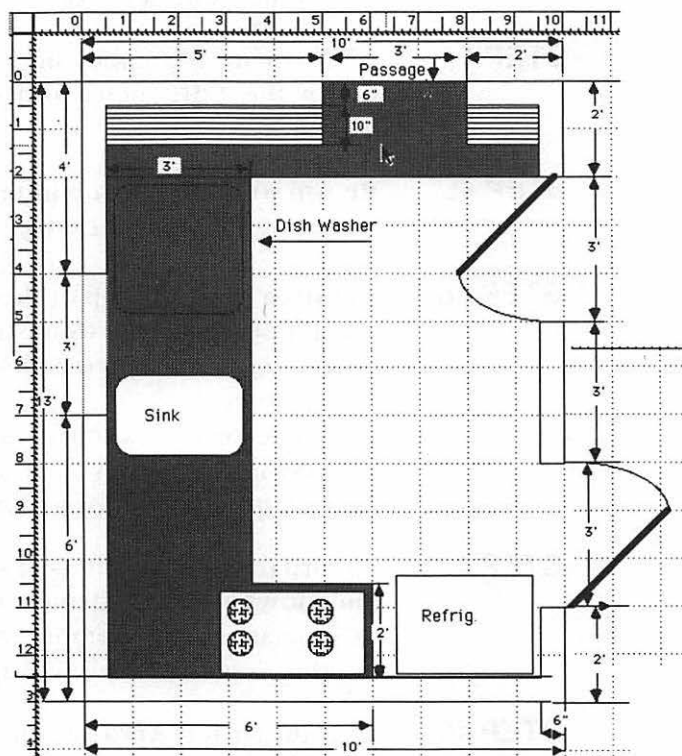


Figure 3.43 The completed kitchen



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## C H A P T E R F O U R

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# Multiplan

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This chapter starts with a simple task: building a small table that predicts profit and loss with Microsoft Multiplan. It then continues with what appears to be a complicated task: creating an on-line version of the well-known IRS form 1040, which will prove less difficult with Multiplan than you might expect.

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### Spreadsheets in General

Electronic spreadsheets are the most widely used form of personal computer programs. The spreadsheet idea is beautifully simple. The computer draws an array of lines on the screen that looks like the lines of an accountant's record book (see figure 4.2). You can write numbers in the cells just the way an accountant does and you can add headings. But electronic spreadsheets give you power over the numbers. You can have a cell ten places down column B show the sum of the cells above it, or a certain percent of that sum, or the square root, *etc.* In fact, there are untold possibilities for this simple device. Spreadsheets have been created to solve some very complex business, engineering, and scientific problems, but they are most widely used for simple accounting and simple-to-complex cost projections. A spreadsheet makes it easy to change one number and see how it affects the other numbers, or to change a formula

and see how the numbers affect each other under new rules. As a result, they are often used where someone is trying to see the effect of some change, *e.g.*, what if we raised the price of our product? But they are almost as widely used just to save arithmetic.

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## The Character of Multiplan

Multiplan on the Macintosh has two outstanding virtues that make it shine when compared to most other spreadsheets running on other personal computers.

Most important, the visual, hand-eye quality of working with a Macintosh makes working with a spreadsheet much more like doing something by hand and less like mathematics. The commands of a typical spreadsheet consist of esoteric strings of letters and numbers. For example to erase a certain column you might type: “/ZA10:A20”, on the Mac you would erase it with a single rolling motion of the mouse.

Second, Multiplan gives you the power to link spreadsheets. Each Multiplan spreadsheet is a single file. For example, the 1040 tax form file can be linked to another spreadsheet, Schedule A, for example, so that a certain cell in the 1040 will show whatever occupies the linked cell in schedule A. As you fill out the various forms that are subsidiary to the 1040, the values will automatically enter the master form.

When you buy Multiplan, you get a single, copy-protected diskette. A card comes with the product that entitles you to send away for a second disk at a modest fee, currently \$10. If you buy Multiplan you should certainly take advantage of the offer.

These exercises assume you work on a Multiplan master diskette as supplied by Microsoft. Although you can't move your Multiplan application off the diskette it came on, you can move your files to other Mac diskettes.

## A Simple Model: Thorn & Co. Profit and Loss

The management of Thorn & Company has created a simple template of the company's profit for the next few years. They base it on the profit for this year, and expected change in sales and the cost of goods. The template enables the company to enter only last year's numbers, see what their expectations led to, and change their expectations.

You will create a Multiplan template that projects the profit and loss of Thorn & Co. for the next five years. It will look like figure 4.12. At first I will describe the steps very carefully, naming each keystroke and mouse motion so there will be no ambiguity; later, when you begin to repeat parts of the process (for example, setting up a row of cells by the same steps as you set up the preceding row), the description will grow less detailed.

Here is the step-by-step process:

### STEP 1

Insert the Multiplan diskette and turn on the Mac. The catalog of the Multiplan Master diskette will look similar to figure 4.1. Profit is an example file used in the Multiplan manual.

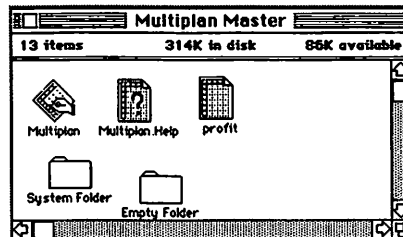


Figure 4.1 The contents of the Multiplan Master diskette

### STEP 2

Roll the mouse until the arrow is in the icon labeled Multiplan and press the mouse button twice (double click). An untitled Multiplan spreadsheet will appear.

The names of the menus are at the top of the sheet. The numbers across the top and down the side name the cells. Thus, the cell that is black is called row 1, column 1 or R1C1. The black cell is selected, and if you type something it will appear there. R1C1 in the upper left-hand corner indicates the row and column address of the cell you have just selected. The blinking insertion point is in the rectangle on

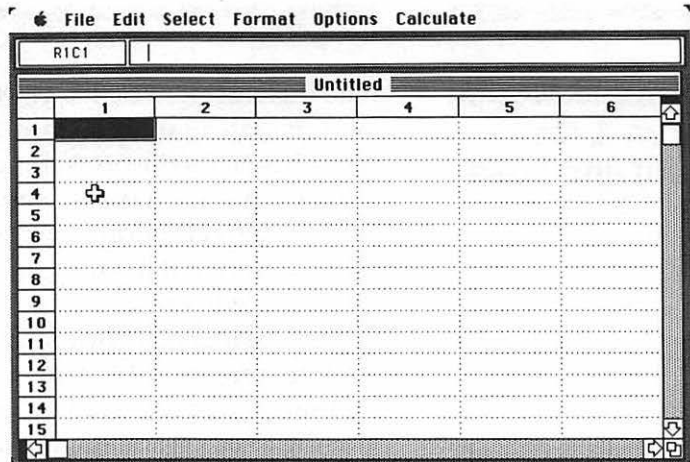


Figure 4.2. A Multiplan spreadsheet menus.

the upper edge; anything you type appears here as well as in the cell you have selected. The hollow cross is the form of the cursor when it is on the spreadsheet.

### STEP 3

Roll the mouse until the hollow cross is in the first cell under column 3 heading in the top row. Click it. The identification of the current selected cell in the upper-left corner changes to R1C3.

### STEP 4

Roll the mouse until the cursor, now an arrow, touches the word **Format** and then press the mouse button. The **Format** menu will appear. (This process is called *pulling down* the **Format** menu.) Holding down the mouse button, roll the pointer down the menu to **Align Center**, which will reverse black and white as you touch it (figure 4.3). Release the mouse button. (This process is called *selecting Align Center*.)

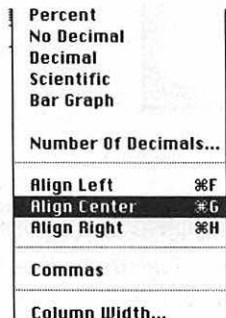


Figure 4.3 Selecting, Align Center from the Format menu

### STEP 5

Type "Thorn & Co. Profit Forecast". Note that the cell displays only what there is room to show, while the feedback line near the top shows all you have typed.

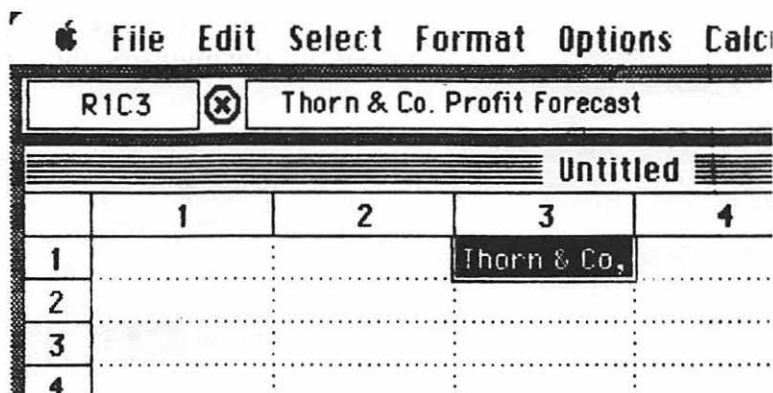


Figure 4.4 Typing text in a Multiplan cell

**STEP 6**

Select cell R1C1 again. The typing disappears from the feedback window and appears centered around cell R1C3.

When text spills out of a cell, it will appear in adjacent cells *if they are empty*.

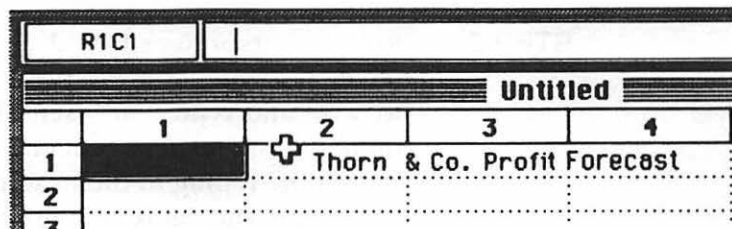


Figure 4.5 Centered text appearing in adjacent cells

**STEP 7**

Cell R1C1 is selected. Press Return. Pressing Return selects the next cell down the column. Press Return again to leave a blank, then type "Sales". After another Return type: "Cost of Goods".

If you make a mistake, roll the cursor up to the feedback line in the window. It will turn into the I-beam there, indicating that you can edit text in the usual manner.

Press Return again and type dashes (or minus signs or hyphens—they are the same character) to fill up 5 cells. If you hold down the key the character will repeat. If you go too far, move the cursor up to the feedback line, insert the blinking insertion point at the end of the dashes, and back-space.

Return to R1C6 and type the following: "Profit", press Return; "% Profit", press Return; a line of dashes,

press Return; "Average", press Return; and "Profit". Except for the numbers, the screen should look like figure 4.6.

Untitled				
	1	2	3	4
1		Thorn & Co. Profit Forecast		
2		1984		
3	Sales	100		
4	Cost of Goods	50		
5				
6	Profit			
7	%Profit			
8				
9	Average			
10	Profit			
11				

Figure 4.6 Numbers in general format

### STEP 8

Roll the cursor to cell R1C2, and press the mouse button to select it. Type "1984", press Return; type "100", press Return; and type "50" (see figure 4.6). These are all the numbers you need to generate this table! (Often you spend more time typing in the headings for spreadsheets than in entering in the figures themselves.)

### STEP 9

Most of the figures on this table should appear as dollars and cents. Roll the cursor to R3C2 (where it reads "100"), press the mouse button and, holding the button down, roll the cursor to R10C5, the lower left-hand corner of our table. Release the mouse button. This diagonal roll selects the entire rectangular area.

### STEP 10

Pull down the **Format** menu and select **Dollar**.

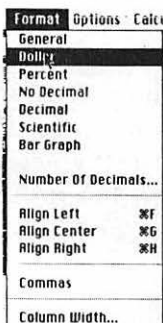
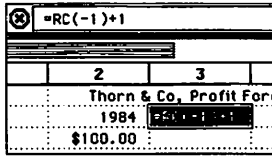


Figure 4.7 Selecting the dollar format

**STEP 11**

**Figure 4.8** Inserting a formula into a cell

Select cell R2C3 (the cell to the right of “1984”). Type “=”.

Typing an equal sign (=) as the first character of a cell tells Multiplan that the rest of what you type is a formula; the formula will govern the contents of that cell. The bold **x** in a circle appears next to the feedback line to remind you that you are typing a formula.

**STEP 12**

Roll the cursor to cell R2C2 (where “1984” appears) and select it.

You will notice the mysterious text “RC[-1]” appears in the cell and in the feedback line (see figure 4.8). This is the name of the cell that contains “1984” *relative to the cell that contains the formula*. It means that it is in the same row and one column to the left (minus one column since Multiplan counts left to right). The cells locate one another *relatively* because when you copy a formula from one cell to another, as we shall shortly do, it is the location relative to the new cell that counts. Fortunately, on the Macintosh you don’t have to worry about these relative locations very often, because you just point at the cells you want with the mouse. (On computers with more limited pointing these notations can drive you crazy.)

Note that you *can’t* conclude the process of entering a formula by selecting another cell: if you do, the system will think you want to add that other cell to the formula. You must use Return or Tab, which selects the cell to the right.

**STEP 13**

Type “+1” and press Return. You will notice that “1985” (1984 + 1) replaces the formula in the cell once it is unselected. Select it again if you want to see the formula.

Thorn & Co. has simple and optimistic forecasts. They believe their sales will rise each year by 10% and their cost of goods, which includes all their costs, will rise by 5%.

**STEP 14**

The formula for future sales is: sales times 110%. With cell R3C3 selected, type “=”, select the cell with “100” in it (R3C2), type “\*1.10”, and press Return. The “\*” is the symbol for multiplication in many computer programs because it prevents confusion with the character (x).

**STEP 15**

The formula for future cost of goods is: CoG times 105%. Similarly, with cell R4C3 selected, type “=”, select the cell with “50” in it, type “\*1.05”, and press Return.

**STEP 16**

The formula for profit is: sales minus CoG. Select the cell to the right of "Profit" (R6C2). Type "=", select the cell that contains "\$100", type "-", then select the cell that contains "\$50" and press Return. Presto, the profit appears.

**STEP 17**

	2
3	\$100.00
4	\$50.00
5	
6	\$50.00
7	\$0.50

Figure 4.9 Profit in dollar format

The formula for % profit is Profit Total Sales. Select the cell to the right of "% Profit" (R6C2). Type "=", select the "Profit" cell that contains "\$50", type "/", then select the cell that contains "\$100" and press Return. ("/" is the usual symbol for division because most computers can't read or write the normal division sign.) The % profit appears, but it is in dollar format.

**STEP 18**

Roll the cursor into the column box with the number 7 in it. Select that box. This selection governs the whole row. (You can select a whole column the same way by selecting the row box number).

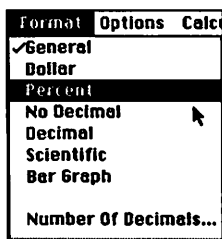
**STEP 19**

Figure 4.10 Changing a row from dollar to percent format

Pull down the **Format** menu and select **Percent** (figure 4.10). We will leave "Average Profit" until we have something to average.

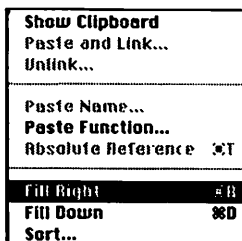
**STEP 20**

Figure 4.11 Selecting and filling an area with a formula

Roll the cursor to the cell with "1985" in it (R2C3), select it and with the mouse button still down, roll to the cell in column 5 above the dotted line (R4C5) to select the whole area. Pull down the **Edit** menu and select **Fill Right**. Multiplan will fill all the values and the formulas to the right. The formulas will be adjusted to their new locations and your table will be complete.

**STEP 21**

Select the rectangular area beginning with the cell that contains the profit figure (R6C2) to the cell that will hold the percent profit for 1987 (R7C5); pull down the **Edit**



menu and select **Fill Right**. Your profit and percent profit for each year will appear.

Now that you have some figures to work with, you can establish average profit for these years. Spreadsheets have built-in functions that can be entered in equations. Multiplan has about 40 such equations. You can find them in the manual, or by pulling the **Edit** menu and selecting **Paste Functions**, which will show you a list. One of these functions is average.

**STEP 22** Select the cell to the right of the cell that has "Profit" in it (R10C2) and type "= Average(" [only one parenthesis is correct]. Then select the cell that says 50.00% (R7C2) and all the other cells that contain percent profit. Their addresses appear in the feedback line as they are selected. Then complete the parenthesis by typing ")", and press Return.

**STEP 23** You may have noticed that the s in "Cost of Goods" disappeared when you entered a number in an adjacent box. The columns' width is adjustable. Move the cursor to the row of numbers that heads the columns. The cursor changes to a bar with arrows coming out of each side. Place it over the line that separates column 1 from 2 and roll it a little to the right. A second line appears to show the motion. Release the mouse button and column 1 will widen to accommodate the title. The other columns will adjust automatically to the left.

**STEP 24** To save the file, pull down the **File** menu and select **Save As** (this is the first time you have saved the file and you need to give it a name). The file-save dialog box that appears is the standard box in Mac applications except for the **SYLK** option, which is important only when you are moving files from other computers (see the chapter on communications below). Type "Thorn & Co.", check Save, and your file is on the disk. Thorn & Co.'s profit and loss forecast is now complete.

You may want to print the forecast. Multiplan offers some choices about how you can print it. Figure 4.12 shows an uncluttered version you can make as follows.

Thorn & Co. Profit Forecast				
	1984	1985	1986	1987
Sales	\$100.00	\$110.00	\$121.00	\$133.10
Cost of Goods	\$50.00	52.5	55.125	57.88125
Profit	\$50.00	\$57.50	\$65.88	\$75.22
% Profit	50.00%	52.27%	54.44%	56.51%
-----				
Average				
Profit	53.31%			

Figure 4.12 Printed profit forecast

**STEP 1** Pull down the **File** and select **Page Setup**.

**STEP 2** Click on the squares beside **Print Row** and **Column Numbers** and **Print Gridlines** to omit those functions, then click on the OK box.

The dialog box contains the following options and fields:

- Paper:** ☒ US Letter, ☐ R4 Letter, ☐ US Legal, ☐ International Fanfold
- Orientation:** ☒ Tall, ☐ Tall Adjusted, ☐ Wide
- ☐ Print Row and Column Numbers
- ☐ Print Gridlines
- Page Header:** [Empty text box]
- Page Footer:** [Empty text box]
- Left Margin:** [0.75]
- Right Margin:** [0.75]
- Top Margin:** [1]
- Bottom Margin:** [1]

Buttons: OK, Cancel

Figure 4.13 Multiplan page setup dialog box

**STEP 3** Select the whole table by selecting the upper left-hand corner box (R1C1) and rolling the cursor diagonally to the lower right (R10C5).

**STEP 4** Pull down the **File** menu and select **Print**. Check boxes or circle to match figure 4.15, unless you are using continuous paper (roll or fanfold). If you are using continuous paper, check the Continuous circle.

The dialog box contains the following options and fields:

- Column Width**
- New Column Width:** [8]
- ☐ Set All Columns to Standard Width

Buttons: OK, Cancel

Figure 4.14 Multiplan column width dialog box

Check OK. If you are using cut sheets, a dialog box will ask you to insert paper, whether or not a sheet is in the printer. Insert a sheet if necessary and then check OK. The spreadsheet will begin printing.

The image shows a 'Print' dialog box with the following settings:

- Quality:** ☒ High, ☐ Standard, ☐ Draft
- Page Range:** ☒ All, ☐ From:  To:
- Copies:**
- Paper Feed:** ☐ Continuous, ☒ Cut Sheet
- ☒ Print Selection Only
- Buttons:** OK, Cancel

**Figure 4.15** Print dialog box

The great value of electronic spreadsheets is that you can play around with them. For example, if you change the 1984 cost of goods from \$50 to \$80 (by selecting that cell, typing "80", and pressing Return), you will find the 1987 profit instantly falls to \$92 and the average profit to 25%.

## The 1040 Form

By following the steps below you can create an online version of the IRS 1040 form. The form used here was distributed in 1984 for the 1983 tax year. Future forms will differ, but the changes from year to year are small, and if you have gone through the process of creating the form once you will have the skill to update it.

I designed this on-line version to look like the IRS form. Of course, it does not look exactly like it, but it's easy to copy from the on-line version onto IRS paper. That means a little extra work in setting up the electronic version; for example, most IRS lines are numbered twice, once on the left and once on the right in the paper version of the form, so I have done it here also. The extra work is time well spent to make the user more comfortable. When you type in those extra line numbers, think of yourself as a programmer who is doing a little extra to make "a user-friendly interface."

A copy of an original 1040 would help you to follow the exercise.

Numbers in the 1040 come from three sources: your head, other forms, and computation on other boxes in the 1040. This form can't read your mind, of course, so numbers that come from your head—like the number of dependents or how much of an overpayment you want to allocate to next year's taxes—must be supplied.

You can set up any IRS form as a Multiplan spreadsheet. Space does not permit me to give instructions

beyond the 1040, but once you have gone through the process of creating an on-line version of the 1040, you should be able to develop other forms. With one exception, the 1040 illustrates all the issues to be found in the important IRS forms. The exception is the taxable income tables where you look up your tax after you have computed your taxable income. These tables certainly can be on-line and have been, but as a practical matter it is a difficult, tedious, and error-prone process for a person to build them alone.

With Multiplan you can link spreadsheets; thus, you can arrange for the total on another spreadsheet to appear in the appropriate box on the 1040.

The on-line version below does all the computing for you inside the form, and provides some automatic error checking and warnings as well. If you have prepared and linked to supporting forms, filling out the 1040 involves supplying about 25 numbers (depending on the number of your dependents, etc.), while the on-line form supplies the remaining 40 or so. It does not make arithmetic errors. Of course you could make errors in building formulas that would create errors in your tax return, but Multiplan's error checking should warn you in the case of many missteps.

In order to use this form for your next year's taxes, you would have to create it on-line, make the changes necessary between this year and next, and create the necessary supporting forms. You would then have to fill in the 25 or so numbers that have to be entered by hand in this form, and more in the other forms.

The on-line form lets you play around with different numbers. What if we put some more money in an IRA and gave more to the charity of our choice? Couples can explore whether to do a joint or single return, or whether to itemize deductions. Type in the different numbers in the 1040 and supporting forms and their effect on the bottom line appears promptly and unambiguously.

When you are satisfied with your presentation to the IRS, copy the numbers from the on-line version onto the IRS paper form.

If you are interested in doing this exercise in order to understand what the computer or program can do, but don't really want to create a 1040, then do only the steps in "Setting up the Format" to "Tax computation" and then

skip to "Printing your form." You will still use all the basic functions discussed in this chapter.

### Setting up the Format

- STEP 1** Insert the Multiplan diskette and turn on the Mac. The catalog of the Multiplan Master diskette should look like figure 4.1.
- STEP 2** Roll the mouse until the arrow is in the icon labeled Multiplan and press the mouse button twice (double click). An untitled Multiplan spreadsheet will appear (see figure 4.2).
- STEP 3** Multiplan allows you to print on the width of the paper, which is necessary to accommodate the 1040. Pull down the **File** menu and select **Page Setup** (figure 4.13). Check Wide and OK.
- STEP 4** For Thorn & Co. you set column widths by eye, but the 1040 requires more careful spacing. Roll the cursor into the heading box for column 1 and click it to select the whole column. Pull down the **Format** menu and select **Column Width**. The column width dialog box will appear (figure 4.14). The area to enter the column width is black, so you can replace the old number by typing "8". Then check OK.
- STEP 5** You will want to center text in some columns. Select column 2, pull down the **Format** menu, and select **Align Center**.
- STEP 6** You will want to have dollar and cents figures with appropriate commas in some columns. Select column 5, pull down the **Format** menu and select **Dollar**. Pull down the **Format** menu again and select **Commas**.
- STEP 7** In similar fashion set the width, alignment, and number formats of the columns according to the following table.

Column	Width	Alignment	Number Format
1	8	Left	
2	5	Center	
3	35	Left	
4	5	Center	
5	12	Right	Dollar, Commas
6	5	Center	
7	12	Right	Dollar, Commas

I have omitted the boxes for contributions to presidential campaigns.

**Filing Status**

Because it does not use the columns the way the rest of the 1040 does:

**STEP 1**

	1	2
1		
2	Filing	
3	Status	
4		
5	Check	
6	only one	
7	box.	

Figure 4.16 Entering the Filing Status heading

Select cell R2C1 and type “Filing”; press Return and type “Status”; press Return twice and type “Check”; press Return and type “only one”; press Return and type “box.”. The screen should look like figure 4.16.

**STEP 2**

Select the box in column 3 opposite “Status” (R3C3) and type “Single”. Also enter the other line of information in column 3. Selecting the cell below with the mouse confirms the entry above. Remember that if you make a mistake in typing you can correct it in the feedback line.

**STEP 3**

Select the cell below “box.” (R8C1). Hold down the dash (-) key long enough to generate dashes across column 7. You can check on column 7 by clicking twice on the arrow pointing right in the bottom right corner of the window. If you have too many dashes or too few you can click in the feedback line and insert more or backspace to remove them. The form is 81 spaces wide, so you need only 81 dashes. However, if you add too many you can scroll to column 8, select the cell with extra dashes, and type a space

R4C3		Married joint Return	
		1040	
	1	2	3
1			
2	Filing		
3	Status	Single	
4		Married joint Return	
5	Check	Married Separate Return	
6	only one	Head of household	
7	box.	Qualifying widow(er)	
8			

Figure 4.17 Shows how this section should look when completed.

to make them disappear. Figure 4.17 shows how this section should look when completed.

### Saving and Naming

By this time you have invested some time in this file, so it is a good time to save and name it.

#### STEP 1

Pull down the **File** menu and select **Save As**. Type in the name "1040." Check the Save box. You will notice that the name on the screen has changed to 1040. Many computer systems, by the way, will not let you name a file with a number.

### Exemptions

Putting the exemptions section of the form into the on-line version gives us a chance to demonstrate simple error checking and the use of the IF construction.

#### STEP 1

Select the 10th box in the first column (R10C1) and type "Exemp-"; press Return and type "tions".

#### STEP 2

Select the top cell of column 2 (R9C2) and type "6a". Press Return three times. Type "6b". Press return four times. Type "6c", "6d", and "6e" in the next three rows.

#### STEP 3

Select the top cell in column 3 (R9C3) and type "Yourself". Press Return and type "65 or over"; press Return and type "Blind". Roll the mouse to select the cells that contain

"65" and "Blind"; pull down the **Format** menu and select **Align Right**.

**STEP 4** As before, define the cells for 65 and blind for your spouse, beginning with the cell to the right of 6b (R12C3). In the cell below "Blind" type "6a + 6b".

**STEP 5** Select the cell in column 4 opposite 6c, type "6c", press Return; type 6d, press Return; and type "6e" and press Return.

**STEP 6** Enter "Number of dependent children", "Number of other dependents", and "Total number of exemptions" in the cells in column 3 (starting at R16C3), but do not align them right.

At this point we can enter our first formula. One of the most important functions in the 1040 is SUM, which adds together a group of cells. In functions, "SUM" is as good as "sum", so you do not have to worry whether it is upper or lowercase.

**STEP 7** Select the cell in column 4 next to "6a + 6b" (R15C4). Type "=sum(". Then select the five cells above it (R10C4 through R14C4). When you make a selection while building a formula, a fine line will appear around the selection (figure 4.18). Type ")" to close the parenthesis that defines what you want to sum up, and press Return.

The numeral zero will appear in the box, since there are no entries in 6a + 6b. If you type numbers in any of the selected boxes, their sum will replace the zero.

6R x 1C  =SUM(R[-6]C:R[-1]C)				
1040				
	1	2	3	4
7	box.	Qualifying widow(er)		
8				
9		6a	Yourself	
10	Exemp-			65 or over
11	tions			Blind
12		6b	Spouse	
13				65 or over
14				Blind
15			6a + 6b	=SUM
16		6c	Number of dependent children	6c

Figure 4.18 Selecting cells to enter a formula



You can enter cells into a formula by selecting them one by one. When you select cells one by one, Multiplan assumes you want to add them and supplies a “+” in the formula.

### STEP 8

Select the cell in column 5 adjacent to 6e (R18C5) and type “=(”. Then select one by one the cells in column 5 adjacent to 6d (R17C5) and 6c (R16C5) and the cell in column 4 adjacent to 6a + 6b (R15C4). Type “)” and press Return.

### STEP 9

Note that \$0.00 appears in the box. The column was set to dollar format earlier, but it should be in a simple number format. Select the box with \$0.00 and then pull down the **Format** menu and select **General**.

Multiplan gives you the power to name cells. You can then use the name in a formula. Considering the arcane way spreadsheets refer to cells relative to one another, names are very useful when you have a large spreadsheet (like the 1040) and want to cite a number from a cell off screen.

### STEP 10

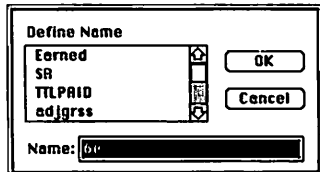


Figure 4.19 The dialog box for Define Name

Select the cell in column 5 next to 6e (R18C5). Pull down the **Select** menu and select **Define Name**. The name definition dialog box will appear (figure 4.19). Multiplan suggests 6e as a name because it always suggests the contents of a nearby cell. Ignore the guess and type “Ttlexemp”, then check OK.

### STEP 11

Draw a line of dashes across row 19 as you did for row 8. The exemptions section should look like figure 4.20. It's a good time to save your file if you haven't yet.

9		6a	Yourself		
10	Exemp-			65 or over	
11	tions			Blind	
12		6b	Spouse		
13				65 or over	
14				Blind	
15				6a + 6b	0
16		6c	Number of dependent children		6c
17		6d	Number of other dependents		6d
18		6e	Total number of exemptions		6e

Figure 4.20 The exemptions section

## Income

Now we come to the part of the form that is simple in structure and where our formulas begin to pay off.

So far selecting boxes has led you down the rows, but now we are going to take a larger jump.

**STEP 1** Move the cursor to the scroll bar beneath the scroll box. The cursor turns into a pointing hand, which is Multiplan's form of the cursor when it is used for scrolling. Click once. One click should bring row 20 to the top of the screen.

**STEP 2** Select cell 21 in column (R21C1) and type "Income". The dashed line between rows 28 and 29 indicates a page break in the final printed version. For clarity select the first cell in row 30 (R30C1) and type "Income" again, press Return, and type "(cont.)".

**STEP 3** Select the top cell in column 2 (R20C2) and type "7". Press Return and insert the IRS line numbers in boxes in column 2 as they appear in figure 4.21.

	1	2	3	4	5	6	7
20		7	Wages, salaries, tips, etc.			7	
21	Income	8	Interest income			8	
22		9a	Dividends	9a			
23		9b	Dividend exclusions	9b			
24		9c	9a-9b			9c	\$0.00
25		10	Refunds of state and local taxes			10	
26		11	Alimony received			11	
27		12	Business income			12	\$50.00
28		13	Capital Gains or loss (-)			13	

	1	2	3	4	5	6	7
29		14	40% capital gain distribution			14	
30	Income	15	Supplemental gains or loss (-), Form 4797			15	
31	(cont.)	16	Fully taxable pensions			16	
32		17a	Other pensions and annuities	17a			
33		17b	Taxable amount from page 10			17b	
34		18	Rents, royalties, etc. from Schedule E			18	
35		19	Farm income from Schedule F			19	
36		20a	Total unemployment	20a			
37		20b	Taxable amount from page 11			20b	
38		21	Other income			21	
39		22	Total income			22	\$50

Figure 4.21 Income on-line

**STEP 4** Scroll to bring row 20 to the top of the screen again, and select the cell in R20C6 and again enter the column of numbers in the boxes. Multiplan lacks the horizontal stripes used by the IRS to mark out certain cells, but vertical bars (the right-most key on the second row of the keyboard) are a decent substitute. Twelve vertical bars fill a cell in column 6. Note that if you hold down the Shift key and hit Return you move back a cell.

**STEP 5** Scroll line 20 to the top again and select the cell in column (R20C3). Type "Wages, salaries, tips, etc." and press Return. In the same way enter "Interest income", press Return, and type "Dividends", but instead of pressing Return after dividends, select the adjacent cell in column 4 (R22C4) and type "9a". Then roll the mouse to select the cell beneath "Dividends" (R23C3) and type "Dividend Exclusions". Fill in columns 3 and 4 as in figure 4.21.

Remember, you can backspace when you are typing in a cell and correct the text in the feedback window. When you see a cell that is fouled up, you can empty it by selecting it and then pulling down the **Edit** menu and selecting **Clear**. Then you can start over in that cell. The normal Macintosh command **Cut** appears on the **Edit** menu, but don't use **Cut** for the purpose of correcting what you've written in the cell; it lifts the cell itself out of the spreadsheet and other cells shift their position to fill the gap.

Note that lines such as 13, Capitol gains, or 15, Supplemental gains, on the real 1040 instruct you to enter losses in parentheses. In using the Multiplan version on-line you enter them with a minus sign.

Note that many of the items on this form come from other tax forms, e.g., Form 4797 or Schedule E, or the worksheet on page 10. Space does not permit me to present all the tax forms, but in a full on-line tax system would put these other files on your Mac diskette and the 1040 files would automatically pick up the results of those forms. To illustrate the point let's *pretend* that the profit of Thorn & Co. is the profit listed for you on Schedule C, Business Income. This is how to link that other Multiplan file to the 1040, if the Thorn & Co. file is on the same diskette.

**STEP 6** Pull down the **File** menu and select **Open**. If you have not recently saved the file a dialog box will ask you to save changes. Then the Macintosh document selection dialog

box will appear (figure 4.22). The list of files will differ according to the history of your diskette. Select **Thorn & Co.** and check **Open**. The **Thorn & Co.** spreadsheet will appear.

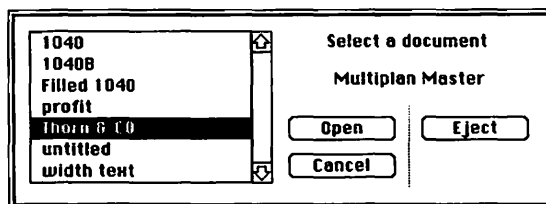


Figure 4.22 Selecting the **Thorn & Co.** file to establish a link

**STEP 7** Select the first profit cell (R6C2), pull down the **Edit** menu, and select **Copy**. The copy of the cell is now on the Clipboard.

**STEP 8** Pull down the **File** menu and select **Open**. From the document selection dialog box select **1040**, and check **Open**. The **1040** will appear.

**STEP 9** Select the cell where business profit goes (R27C7). Pull down the **Edit** menu and select **Paste and Link**. The **Paste and Link** dialog box will appear (figure 4.23). This command will *insert* a cell, so it is necessary for you to check **Shift Cells Down** (that's why we made the link at this step, when no significant cell structure exists below it). Check **OK**.

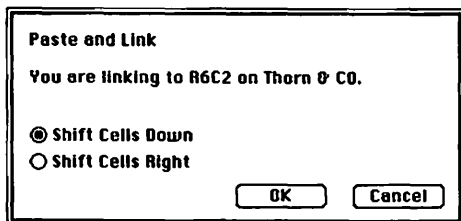


Figure 4.23 **Paste and Link** dialog box

9c		\$0.00
10		
11		
12		\$50.00
13		
14		

Figure 4.24 A value from **Thorn & Co.** appearing in the **1040**

The figure \$50.00 will appear in the cell (figure 4-24). Now, any change in this cell in the **Thorn & Co.** spreadsheet will also change the figure in the **1040**.

Note on the **Edit** menu the **Unlink** command, which allows you to break links between spreadsheets.

- STEP 10** Select the cell in column 7 opposite IRS form line 9c (R24C7). This cell uses a formula to get its total by subtracting IRS line 9b from IRS line 9a. Type “=”. Select the cell beside 9a (R22C5). Type a “-” (minus sign) to make the subtraction. Select the cell below (R24C5), type “)” to complete the formula and then press Return.
- STEP 11** Select the cell for Total income (R39C7). Type “=sum(”. Use the scroll bar to see the top of the column and select the cells in column 7 on IRS lines 7 and 8 (R20C7 and R21C7). Their location relative to the total cell will appear in the feedback line and, as above, a thin line will appear around the selected boxes. Release the mouse button. The IRS format interrupts the column of cells to be added, so two sums are necessary in the formula. Type “)+sum(”. Begin a new selection 7 on IRS line 9c (R24C7) and drag it down to the cell in column 7 immediately above the total income cell (R38C7). When you move the cursor below the spreadsheet into the scroll bar area, the spreadsheet will scroll up to let you select cells that were out of sight. Release the mouse button and press Return.
- STEP 12** This is another cell you will use later so it is useful to name it. With the Total income cell (R39C7) selected, pull down the **Select** menu and select **Define Name**. The name selection dialog box will appear with some suggestions for names. Type “ttlin” and check OK.
- STEP 13** Fill row 40 with dashes.

This completes the income section. It should look like figure 4-21.

### **Adjustments to Income**

You may now feel comfortable enough with Multiplan to enter the captions after looking at figure 4.25, and you may be interested only in the formulas in this section. In that case skip to step 8. If you want to follow carefully the procedures of setting up the headings, begin with step 1.

- STEP 1** Select the second cell in column 1 below the new dashed line (R42C1) and type “Adjust-”, “ments”, “to”, “Income” with returns after each.

	1	2	3	4	5	6	7
41		23	Moving expenses	23			
42	Adjust-	24	Employee expenses	24			
43	ments	25a	IRA deductions	25a			
44	to	25b	IRA payments	25b			
45	Income	26	Payments to a Keogh	26			
46		27	Penalty for withdrawal	27			
47		28	Alimony paid	28			
48		29	When both work	29			
49		30	Disability income	30			
50		31	Total adjustments			31	\$0.00

Figure 4.25 Adjustments to income as it appears on-line

**STEP 2** Select the cell in column 2 below the new dotted line (R41C2). Type in the line numbers as they appear in figure 4.25, with returns after each number.

**STEP 3** Select the cell in column 3 below the new dotted line (R41C2). Type in the text as it appears in figure 4.25, with returns after each block of text.

**STEP 4** Select the cell in column 4 below the new dotted line (R41C4). Type in the line numbers 23–30 as they appear in figure 4.25, with returns after each number.

**STEP 5** Select the top cell in column 6 under the new dashed line (R41C6) and fill it with vertical bars as above. Select R41C6 again and drag the cursor down to select all the columns to IRS line 30 (R49C6). Leaving the cells selected, pull down the **Edit** menu and select **Fill Down** and release the mouse button.

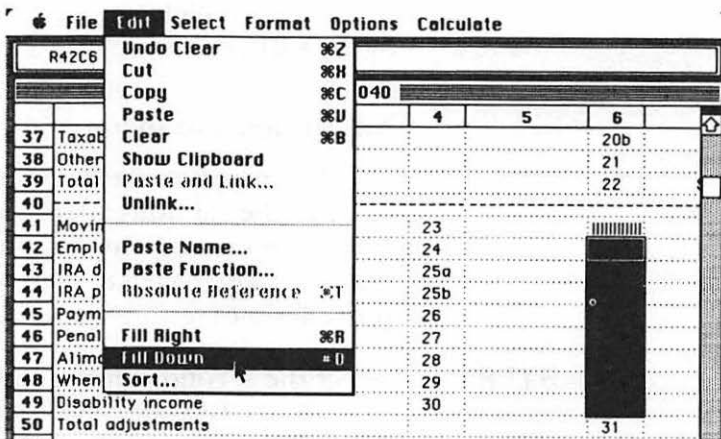


Figure 4.26 Filling a column with vertical bars

- STEP 6** Select the cell below these vertical bars (R50C6), type "31" and press Return.
- STEP 7** Fill row 51 with dashes.
- STEP 8** Scroll back to column 7 and select the cell in column 7 just above the dashed line and next to IRS line 30 (R50C7). Type "=sum(" and select the top three cells in this section in column 5 (R41C5 through R43C5). Type ")+sum(". Skip the cell next to 25b and then select the next five cells down (R45C5 through R49C5). Then type ")" and press Return. The figure \$0.00 will appear in the cell that gives the total for Total adjustments.
- STEP 9** This cell will be cited later so we will name it. Select the cell next to 30 (R50C7). Pull down the **Select** menu and select **Define Name**. Type "ttladj" and check OK.

### Adjusted Gross

- STEP 1** Enter the heading in figure 4.27 and draw a dashed line in row 54.

	1	2	3	4	5	6	7
52	Adjusted	32	Adjusted gross income			32	\$50.00
53	Gross In.						

Figure 4.27 Adjusted gross income as it appears on-line

Now we will begin to use the names we have created. This line is income (which we have named ttlin) minus adjustments (which we have named ttladj).

- STEP 2** Select the cell in column 7 on IRS line 32 (R52C7). Type "=ttlin - ttladj" and press Return. "50.00" will appear. This is, of course, the \$50.00 profit carried forward from Thorn & Co.
- STEP 3** Pull down the **Select** menu and select **Define Name**. Type "adjgrss" for the name and check OK. We will use that name in the next step.

With regard to Adjusted gross income the IRS suggests "If this line is less than \$10,000, see 'Earned Income Credit' (line 59), on page 16 of instructions." You can build

that suggestion into the on-line form by using an IF construction.

To use the IF function in Multiplan you set up a formula that looks like this: "IF (true-or-false, what-happens-if-its-true, does happen-if-it's-false). In this case we want to ask if the value of Adjusted gross income is over \$10,000, and if so we want to print the suggestions; if it is not, we will do nothing.

In Multiplan, a function will print something in a cell if it is in quotation marks. Note that < means "less than" in Multiplan math, and that we must leave the comma out of "10000" because it would confuse the IF function. Also note that the pair of quotation marks next to each other at the end of the formula tell Multiplan to print nothing.

**STEP 4** Select the cell below Adjusted gross income (R53C3) and type: = "IF(adjgrss<10000. "See Earned Income Credit (line 59) on page 16 of instructions.", "")". Press Return.

Since the only income we are showing is the \$50 from Thorn & Co., the suggestion does appear. Try changing < to >, or changing 10000 to 10 and see what happens.

	1	2	3	4	5	6	7
52	Adjusted	32	Adjusted gross income			32	\$10050.00
53	Gross In.		See 'Earned Income Credit' (line 59) on page 16 of Instructions				

Figure 4.28 Adjusted gross income after the introduction of an IF formula

### Tax Computation

If we had all the appropriate other files on line, you would not have to enter a single number by hand into this section. Tax computation would use several links if we had made the other files.

Instead:

**STEP 1** Rows 56 and 57 make a page boundary in printing, so skip down to row 58 and put in the headings as they appear in figure 4.29.

**STEP 2** Select the cell in IRS line 33, column 7 (R57C7). Type "=adjgrss" and press Return. Naming "adjgrss" above will make life simpler.



	1	2	3	4	5	6	7
57		35	Amount from line 32			33	\$50.00
58	Tax	34a	Itemized charity from schedule A			34a	
59	Compu-	34b	Charity from worksheet on page 14			34b	
60	tation	35	Most favorable charity			35	\$50.00
61		36	Total dependent exemptions			36	\$0.00
62		37	Taxable income			37	\$50.00
63		38	Tax from schedule or rate,			38	
64		39	Additional taxes from page 14			39	
65		40	Total tax			40	\$0.00

Figure 4.29 Tax computation as it appears on-line

With respect to line 35, the IRS instructs "Subtract line 34a or 34b, whichever applies, from line 33." In a complete tax setup, both these numbers would come by link from other spreadsheets. Since this subtraction reduces your tax payment, I assume that you will want to subtract the larger number. This assumption allows us to write another IF formula that would look like this (if we used IRA line numbers): IF (34a > 34b, then 33-34a, otherwise 33-34b)

**STEP 3**

Select the cell to the right of line number 35 (R60C7). Type "=IF(". Select the cell next to line number 34a (R58C7). Type ">". Select the cell next to 34b (R56C7). Type ",". Select the cell next to 33 (R59C7). Type "-". Select the cell next to 34a (R58C7). Type ",". Select the cell next to 33 (R57C7) again. Type "-". Select the cell next to 34b (R59C7). Type ")" and press Return.

The \$50 figure should appear in the box; it is the same \$50 carried forward from the link to Thorn & Co., with nothing subtracted from it since you have not entered any deductions in IRS lines 34a or 34b. Try putting numbers in those boxes and see what happens.

Line 36 shows the total number of exemptions, which we named "ttlexemp", multiplied by \$1000.

If you have forgotten the names we used, you can see them at any time by pulling down the **Select** menu and selecting **Delete Name**. A dialog box will appear with a list of the names. You can cancel the dialog box without deleting the names.

**STEP 4**

Select the cell of column 7 in IRS line 36 (R61C7) and type "= ttlexemps \* 1000" and press Return. Of course, the result is \$0.00 because you did not list any exemptions.

**STEP 5** The Return in the previous step will have selected the cell below, IRS line 37 (R62C7). Type “=”. Select the cell in IRS line 35 (R60C7). Type “-”. Select the cell at R61C7 and press Return. The \$50 from the Thorn & Co. will appear.

In a fully realized version of this tax system, lines 37 and 38 would be linked to other Multiplan spreadsheets. Line 40 is the sum of lines 37 and 38.

**STEP 6** Select the cell in IRS line 40 column 7 (R65C7). Type “=”. Select cells R64C7 and R63C7, and press Return. If you just select cells, Multiplan assumes you want to add and supplies the plus sign.

**STEP 7** It will be useful to give this cell a name. Select it (R65C7) and pull down the **Select** menu and select **Define Name**. Type “taxcomp” and check OK.

### **Credits, Other Taxes, and Payments**

In each of these sections all the lines except the totals at the bottom of each section would come from a link to another Multiplan spreadsheet in a fully developed on-line system.

**STEP 1** Enter the numbers and headings of these three sections as in figure 4.30.

Since a page break falls neatly between IRS rows 57 and 58, a dashed line is unnecessary.

**STEP 2** Line 48 sums the credits. Select the cell in column 7 in IRS line 48 (R74C7). Type “=”. Select the cell in column 5 in IRS line 41 (R67C5). Select in turn the cells below it down to IRS line 47 (cells R67C5 through R73C5). Press Return.

**STEP 3** Line 49 subtracts the total credits from the tax computation above. Remember we named the result of the tax computation “taxcomp”. Select the cell in column 7 on IRS line 49 and type “= taxcomp-”. Then select the cell above it (R74C7) and press Return.

**STEP 4** Other taxes sums only the taxes in that section. Select the cell in column 7 and IRS line 56 (R83C7) and type “=”. Then select the cell in column 7 and IRS line 50 (R77C7) and each cell below it down to IRS line 55 (cells R77C7 through R82C7). Press Return.

	1	2	3	4	5	6	7
67		41	Credit for elderly	41			
68	Credits	42	Foreign tax credit	42			
69		43	Investment credit	43			
70		44	Partial political credit	44			
71		45	Credit for child care	45			
72		46	Jobs credit	46			
73		47	Residential energy credit	47			
74		48	Total credits			48	\$0.00
75		49	Balance			49	\$0.00
76							
77		50	Self-employment Tax			50	
78	Other	51	Alternative minimum tax			51	
79	Taxes	52	Tax from recapture of investment credit			52	
80		53	Social security on reported tips			53	
81		54	Uncollected social security			54	
82		55	Tax on an IRA			55	
83		56	Total tax			56	\$0.00
84							
	1	2	3	4	5	6	7
85		57	Federal income tax withheld	57			
86	Payments	58	1983 estimated payments & from 1982	58			
87		59	Earned income credit	59			see page 16
88		60	Amount from Form 4868	60			
89		61	Excess social security tax	61			
90		62	Credit for special fuels and oils	62			
91		63	Regulated Investment Company credit	63			
92		64	Total payments			64	\$0.00

Figure 4.30 Credits, other taxes, and payments as they appear on-line

**STEP 5** IRS line 64 sums lines 57 through 63 just as line 49 in credits sums lines 41 through 47. Select the cell in column 7 in IRS line 64 (R92C7). Type “=”. Select the cell in column 5 in IRS line 57 (R85C5). Select the cells below it down to IRS line 63 (Cells R85C5 through R91C5).

**STEP 6** It is also useful to name your total payments. Select the cell in IRS line 64 and column 7 (R92C7). Pull down the **Select** menu and select **Define Name**. Type “ttlpaid” and check OK.

The IRS instructs us in their line 59: “If line 33 is under \$10,000, see page 16.” Line 33 is the same as line 32, which we named “ttladj.” This suggestion can become an IF formula: If what is in 33 is less than \$10,000, see page 16, if not, continue.

The empty cell in IRS line 59 column 7 is a convenient place for this formula.

- STEP 7** Select the cell in IRS line 59 and column 7 (R87C7). Type: “=IF(ttladj<10000, “see page 16”, “”)”. Since “ttladj” is less than \$10,000, the suggestions will appear.

### Refund or Amount You Owe

- STEP 1** Set up the format and headings of this section as in figure 4.31.

	1	2	3	4	5	6	7
94		65	Amount OVERPAID			65	
95	Refund or	66	Amount to be REFUNDED			66	
96	Amount	67	Amount of overpayment for next year	67		67	
97	You owe	68	AMOUNT YOU OWE			68	

Figure 4.31 Refund or amount you owe

IRS line 65 contains a number only if you paid more than your share of taxes; otherwise it contains nothing. Overpayment is the difference between payments and total tax; this can easily be expressed in a Multiplan IF function because of the work we have already done. The essence of the formula is: If total paid is more than total tax, then subtract tax from payments and show the result, otherwise show nothing.

- STEP 2** Select the cell in IRS line 65 and column 7 (R94C7). Type: “=If(ttlpaid>ttltx,ttlpaid-ttltx, “”)” and press Return. Since the numbers currently in the form do not show overpayment, nothing will appear.

Lines 66 and 67 are where you dispose of overpayments at your discretion. Since computers have no discretion, I have nothing to say about these lines.

Line 68 is the reverse formula from line 66, that is, when you owe more than you paid.

- STEP 3** Select the bottom left cell of the form (R97C7). Type the same formula as in step 2 above with ttlpaid and ttltx reversed: =If(ttltx>ttlpaid,ttltx-ttlpaid, “”). Nothing will appear since there are no numbers in these cells.

### Printing your form

Multiplan offers you the choice of printing your form with or without row and column numbering and with or without grid lines. With grid lines and without column numbering seem most appropriate for the IRS form. You can also add a header or a footer that will appear on every page. Finally, Multiplan allows you to select only part of the form to be printed. Figure 4.32 shows a form printed, with some hypothetical numbers in place.

#### 1040 U. S. Individual Tax Return 1983

Filing Status	Single				
	Married joint return				
Check only one box.	Married separate return				
	Head of Household				
	Qualifying Widow(er)				
Exemptions	6a Yourself	65 or over Blind			
	6b Spouse	65 or over Blind			
		6a + 6b	0		
	6c Number of dependent children	6c	3		
	6d Number of other dependents	6d	1		
	6e Total number of exemptions	6e	4		
Income	7 Wages, salaries, tips, etc.		7	\$38,000.00	
	8 Interest income		8	\$1,234.00	
	9a Dividends	9a	\$66.00		
	9b Dividend exclusions	9b			
	9c 9a-9b		9c	\$0.00	
	10 Refunds of state and local taxes		\$55.00	10	
	11 Alimony received		\$88.00	11	
	12 Business income			12	\$50.00
	13 Capital Gains or loss (-)			13	\$667.00
	14 40% capital gain distribution			14	

(continued)

Income	15	Supplemental gains or loss (-), Form 4797		15	
(cont.)	16	Fully taxable pensions		16	\$88.00
	17a	Other pensions and annuities	17a		
	17b	Taxable amount from page 10		17b	
	18	Rents, royalties, etc., from Schedule E		18	
	19	Farm income from Schedule F		19	
	20a	Total unemployment	20a	\$67.00	
	20b	Taxable amount from page 11		20b	
	21	Other income		21	\$3.95
	22	Total income		22	\$40,042.95
<hr/>					
	23	Moving expenses	23	\$1,029.00	
Adjust-	24	Employee expenses	24		
ments	25a	IRA deductions	25a	\$456.00	
to	25b	IRA payments	25b	\$3,980.00	
Income	26	Payments to a Keogh	26		
	27	Penalty for withdrawal	27		
	28	Alimony paid	28		
	29	When both work	29	\$500.00	
	30	Disability income	30		
	31	Total adjustments		31	\$1,985.00
<hr/>					
Adjusted	32	Adjusted gross income		32	\$38,057.95
Gross In.		See 'Earned Income Credit' (line 59) on page 16 of instructions			
<hr/>					
	35	Amount from line 32		33	\$38,057.95
Tax	34a	Itemized charity from schedule A		34a	
Compu-	34b	Charity from worksheet on page 14		34b	\$456.00
tation	35	Most favorable charity		35	\$37,601.95
	36	Total dependent exemptions		36	\$4,000.00
	37	Taxable income		37	\$33,601.95
	38	Tax from schedule or rate,		38	\$8,234.00
	39	Additional taxes from page 14		39	
	40	Total tax		40	\$8,234.00
<hr/>					
	41	Credit for elderly	41		
Credits	42	Foreign tax credit	42	\$22.80	
	43	Investment credit	43	\$456.00	
	44	Partial political credit	44	\$34.98	
	45	Credit for child care	45	\$345.00	
	46	Jobs credit	46		
	47	Residential energy credit	47	\$567.00	
	48	Total credits		48	\$1,425.78
	49	Balance		49	\$6,808.22

	50	Self-employment Tax			50	
Other	51	Alternative minimum tax			51	
Taxes	52	Tax from recapture of investment credit			52	
	53	Social security on reported tips			53	
	54	Uncollected social security			54	
	55	Tax on an IRA			55	\$234.00
	56	Total tax			56	\$7,042.22
	57	Federal income tax withheld	57	\$6,658.97		
Payments	58	1983 estimated payments & from 1982	58			
	59	Earned income credit	59			see page 16
	60	Amount from Form 4868	60			
	61	Excess social security tax	61			
	62	Credit for special fuels and oils	62			
	63	Regulated Investment Company credit	63			
	64	Total payments			e	\$6,658.97
	65	Amount OVERPAID			--	
Refund or	66	Amount to be REFUNDED			66	
Amount	67	Amount of overpayment for next year	67			
You owe	68	AMOUNT YOU OWE			68	\$383.25

Figure 4.32

Here is how you would print such a view.

**STEP 1** Pull down the **File** menu and select **Page Setup** (see figure 4.33). Check **Unde** and then check the **Print Row and Column Numbers**, which will keep them from being printed. Type "1040 U.S. Individual Tax Return 1983" and check **OK**.

Paper: <input checked="" type="radio"/> US Letter <input type="radio"/> A4 Letter		<input type="button" value="OK"/>	
<input type="radio"/> US Legal <input type="radio"/> International Fanfold			
Orientation: <input type="radio"/> Tall <input type="radio"/> Tall Adjusted <input checked="" type="radio"/> Wide		<input type="button" value="Cancel"/>	
<input type="checkbox"/> Print Row and Column Numbers			
<input checked="" type="checkbox"/> Print Gridlines			
Page Header: 1040 U. S. Individual Tax Return 1983			
Page Footer:			
Left Margin:	0.75	Right Margin:	0.75
Top Margin:	1	Bottom Margin:	1

Figure 4.33 Page Setup dialog box for the 1040

**STEP 2** Pull down the **File** menu and select **Print**.

# Microsoft Chart

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Microsoft Chart displays numbers from Multiplan or new numbers added to Chart. You can choose from a rich array of charts to suit different data. Chart offers tools to emphasize and ornament the charts with borders and backgrounds; there are also many font styles in different sizes. You can superimpose one chart on another, manipulate the axes, and find some basic statistics such as standard deviation. The examples below barely hint at the variety of possibilities.

If you are not satisfied with what you can do artistically with Chart, you can copy a completed chart into MacPaint. MacPaint allows you to touch it up with your own illustrations or those from commercial diskettes with ready-made art. You cannot, however, copy a chart back into Chart once it has been in MacPaint.

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## **How Microsoft Chart Works**

### **Beginning Chart**

When you click on the Chart icon or on a file you have worked with before, two windows appear. One contains the chart and is normally full-screen size; the other contains the numbers and is smaller (see figure 5.2). The small window called New Series always appears (there is a way to



hide it) and is similar to a pad of forms from which you can tear off new forms to type in the information you want as charts. Each new form is identified by the date when it was created, and you can rename it yourself later.

Once you have created a basic chart, you select the chart or parts of it, pull down menus, and select dialog boxes that change how the chart looks.

Chart takes a long time to start up, but is quick to change. When you start by clicking on the application icon or on a file, you will have to wait as long as half a minute. When you start up, you may be able to see the history of how you have arranged a series of numbers as the small windows appear and disappear, overlapping one another.

### **Differences with Standard Mac Operations**

Chart has a somewhat different feel from MacWrite, MacDraw, and Multiplan. First, you will probably work with more than one window at once: one where you type in numbers, the other where you show the chart. Second, you do more through dialog boxes than in Apple applications. Although Chart takes great advantage of the Macintosh graphics in its displays, its commands have less of the freehand quality of other Apple programs. Finally, as in Multiplan, the cursor often changes shape to reflect its current function. For example, in a typical Apple program you move a window by putting the arrow cursor in the striped area at the top; in Chart, when the cursor enters that area it turns into several little arrows pointing up and down and left and right to indicate what you can do. The frequent changes in cursor shape are a little confusing at first, but they are coherent.

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## **Charting Thorn & Co. Profits the Hard Way**

You may recall the simpleminded profit-and-loss projection of Thorn & Co. discussed in the chapter on Multiplan. This section will show you how to put the information in figure 5.12 into Microsoft Chart by hand.

**STEP 1**

Insert the Microsoft diskette and turn on the Mac. If the Chart diskette catalog does not appear, click twice on the icon of the Microsoft Chart diskette. Select the Chart icon and click twice.



Figure 5.1 Staring up Microsoft Chart

The Chart window, untitled and uncharted, will appear; overlapping it on the desktop will be the New Series window. New Series, enables you to enter numbers and define what you want to chart them against.

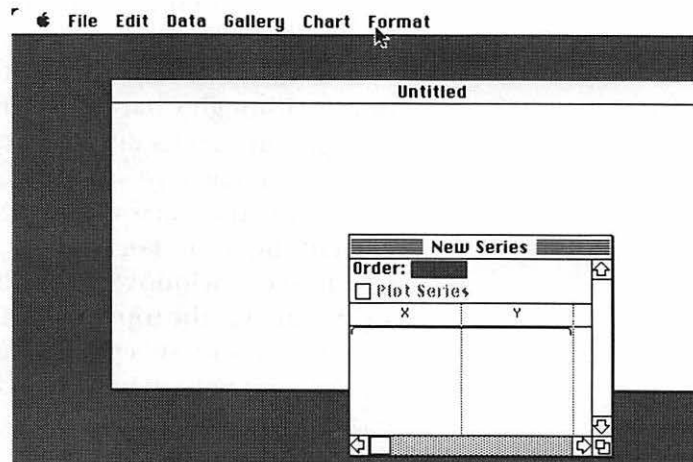


Figure 5.2 A blank Chart and New Series window

**STEP 2**

Type Thorn & Co's sales forecast, pressing Return between each number (100, 110, 121, 133.10; see figure 4.12).

The instant you begin to type, Chart makes a new window for this series of numbers. When you are finished it will look like figure 5.3. It has simply arranged the items by number: 1,2,3,4. The title is the time you began typing.

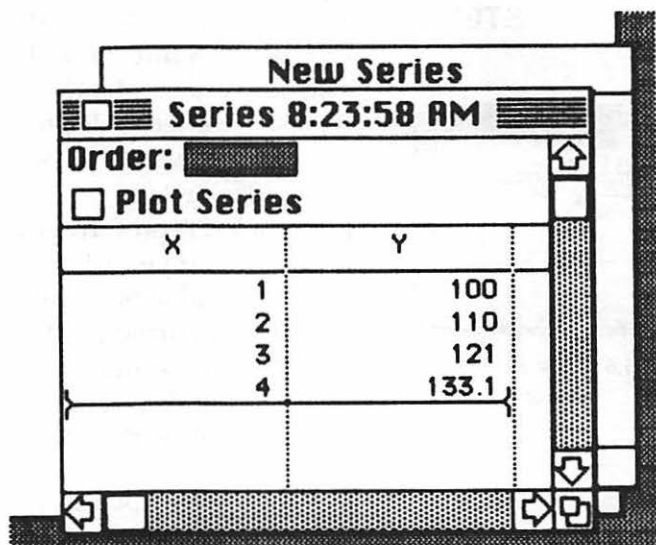


Figure 5.3 New Series window arranged by number

## STEP 3



Figure 5.4 Selecting Date on the Date menu

We need to name the series “Sales” and establish that these are yearly figures. You can mark both the series of numbers and the fact that they are yearly figures through the **Data** menu. Pull down the **Data** menu and select **Date**.

The **Date Series** dialog box will appear. The **Series Name** box is black when the dialog box first appears.

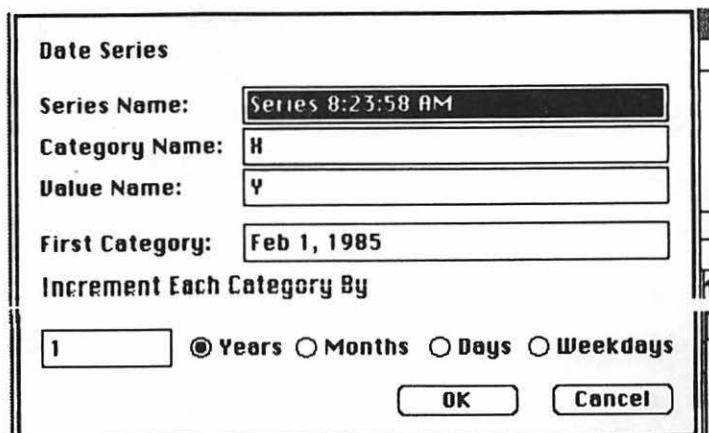


Figure 5.5 Date Series dialog box

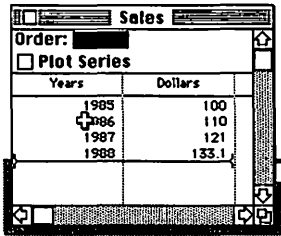
**STEP 4**

Figure 5.6 Sales series properly labeled

Type "Sales". Move the cursor into the box labeled **Category Name**. It will turn to an I-beam, showing that you can add or change text in the usual Macintosh style. Backspace once to delete the X present in the box, and type "Years". Move the cursor to the box labeled Value Name, backspace once to remove the Y, and type "Dollars". The box labeled **First Category** will show the current date. If it is not 1985, type "1/1/85". Check OK.

The dialog box will disappear and the series window will appear correctly labeled (see figure 5.6).

The horizontal line that curls at the end underlines your last number. It indicates that new typing will enter as a new row below the line.

**STEP 5**

The numbers typed in are still not in dollar format. Pull down the **Format** menu and select **Values** (the right-hand column is always values, the left-hand column is always categories), (see figure 5.7). A **Format** dialog box will appear. Click on **Dollar**, and click OK (see figure 5.8).

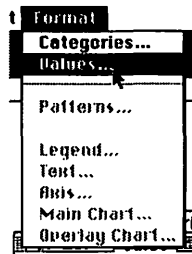


Figure 5.7 Selecting values to format

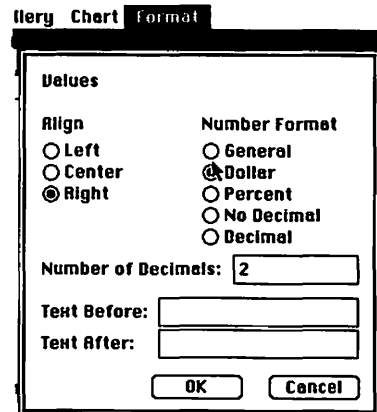


Figure 5.8 Selecting a dollar format for values

**STEP 6**

Now we are ready to ask Chart to make a chart. Check **Plot Series** on the Sales window. A chart will appear behind the series window.

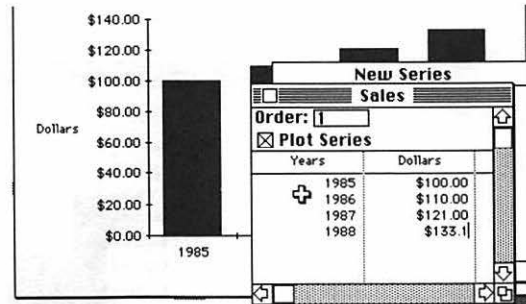


Figure 5.9 The Chart appears

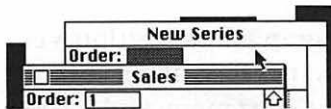
**STEP 7**

Figure 5.10 Clicking on the New Series window to bring it to the top of the desk

The cost of goods is not yet part of the chart. Click on the part of the New Series window visible (figure 5.10), and then type Thorn & Co.'s yearly cost of goods, pressing Return (or Enter) between each number (50, 52.50, 65.88, 75.22; see figure 4.12). As in step 2 above, Chart will generate a new window named after the time you began typing.

**STEP 8**

Repeat steps 3 through 6, but fill in the series name in the **Date** dialog box with "Cost of Goods". At the end of these steps, the cost of goods will appear on the chart behind the series window.

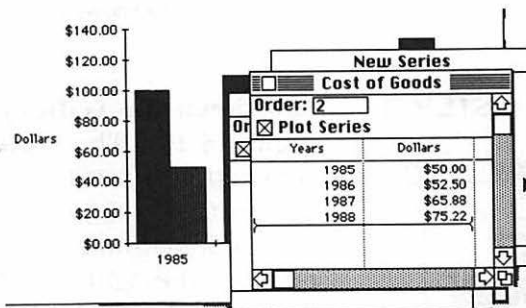


Figure 5.11 The Cost of Goods appearing

**STEP 9**

Repeat the steps above for Thorn & Co.'s profit (50, 57.50, 65.88, 75.22) with the exception of filling out the **Series Name** on the **Date** dialog box with "Profit". Click on the chart and it will come to the foreground.

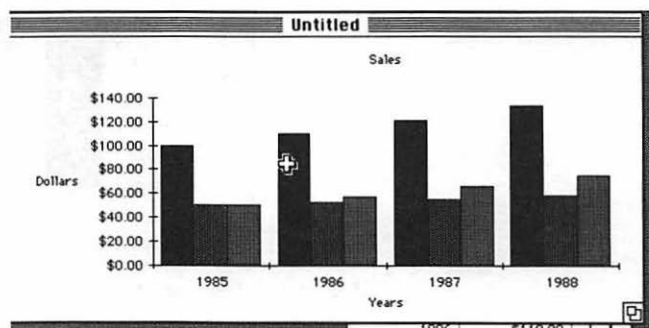


Figure 5.12 Thorn & Co. chart showing all series as columns

**STEP 10**

The chart is not a fully successful graphic exposition yet because it lacks correct legends, and because profit is buried as a short column. Pull down the **Chart** menu and select **Add Legend** (see figure 5.13). The legend in figure 5.14 will appear.

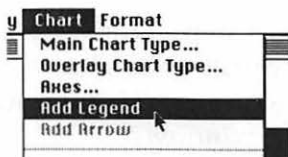


Figure 5.13 Selecting Add Legend

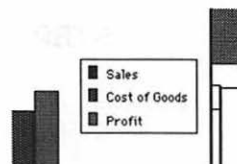


Figure 5.14 A Legend appears

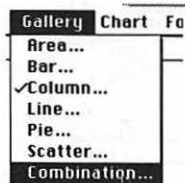
**STEP 11**

Figure 5.15 Selecting Combination from the Gallery menu

Pull down the **Gallery** menu and select **Combination** (figure 5.15). The **Gallery** of combination charts will appear (figure 5.16). Click on 2 and check **OK**. The Thorn & Co. profit picture will appear as in figure 5.17. Note that in this combination chart the dollars for profit are listed separately on the right, which allows the profit line to appear at the top of the chart.

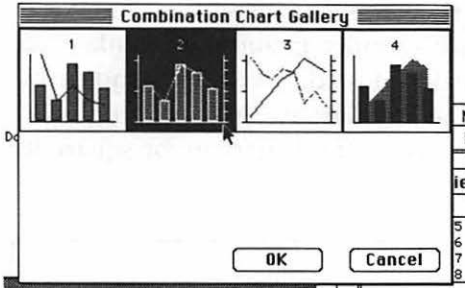


Figure 5.16 Selecting a chart from the gallery

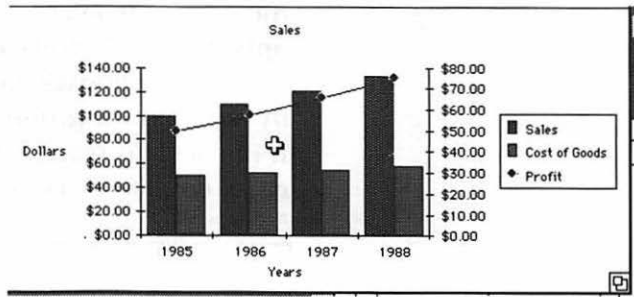


Figure 5.17 Plot of Thorn &amp; Co. sales, cost and profit

### Printing a chart

#### STEP 1

With the chart on the top of the desktop pile, pull down the **File** menu and select **Print Chart** (you can also print the series of numbers). The usual Macintosh **Print** dialog box will appear. Click on high or standard quality (draft won't work for pictures) and continuous or cuts sheet, depending on the paper you are using. Check **OK**.

#### STEP 2

To save this work, pull down the **File** menu and select **Save As**. The usual Macintosh **Save** dialog box will appear. Type "Thorn" and check **OK**.

## Charting Thorn & Co. Profits the Easy Way

Well, perhaps the easy way. The combination of Microsoft Multiplan and Chart allows you to copy tables from the Scrapbook onto the Clipboard, which will then draw charts just as if you had typed the numbers in. The tables can be from sources like a word processing system or from Multiplan. In the case of Multiplan, you can also establish a link (like the link between Multiplan files discussed in chapter 4), so that you change the Multiplan file, the Chart also automatically changes.

There are two complications, however. In the case of any table, Chart has a preset order of reading the columns and rows, which may not be the correct order for the chart you want. In the case of the link, diskette space is a problem. Microsoft Chart and Multiplan will not fit on the same diskette. If you have two disk drives, or one hard disk,

there is no problem, but if, as this book assumes, you have only one drive, you cannot support an automatic link.

Chart chooses the order of reading columns and rows by whether the group is tall and narrow, or long and wide. If it is wide it reads row by row; if it is narrow or square it reads column by column.

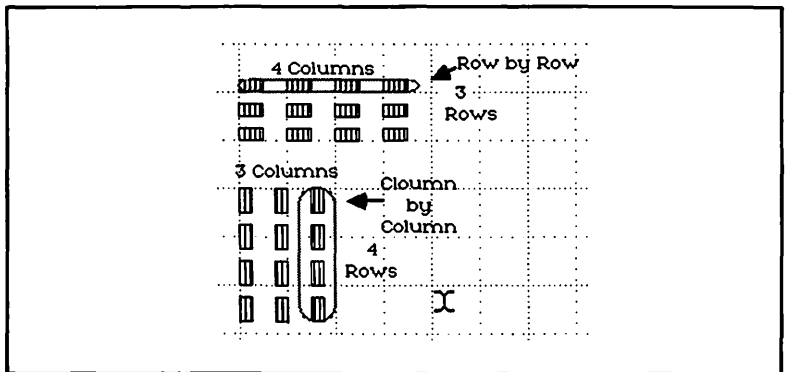


Figure 5.18 How Chart decides to read columns or rows

The following 10 steps assume you have studied chapter 4 on Multiplan.

**STEP 1** Insert the Multiplan diskette with Thorn & Co.'s profit forecast in the Mac. If the catalog does not appear, click twice on the Multiplan diskette icon to make it appear. Then click twice on the Thorn & Co. icon.

In order to make Chart read row by row, the table must be wider than it is high. To make it wider, we need to remove the line of dashes (these would appear as a zero entry on the chart anyway). We are not interested in average profit for chart purposes, but it can be calculated later within the Chart program if needed.

**STEP 2** Move the cursor (a hollow cross) into the left margin of the table and select all of row 5 (figure 5.19). Pull down the **Edit** menu and select **Cut**.

**STEP 3** Move the cursor into row 3 column 2 (100), and move it diagonally to row 5, column 5 (75.22). This selects all the numbers we want from this table (see figure 5.20). Pull down the **Edit** menu and select **Copy**. This stores a copy on the Clipboard.



Redo Clear	%Z			
Cut	%H			
Copy	%C	Thorn & Co.		
Paste	%U		4	5
Clear	%B	fit Forecast		
Show Clipboard		85	1986	1987
Paste and Link...		90	\$121.00	\$133.10
Unlink...		5	55.125	57.88125
Paste Name...		50	\$65.88	\$75.22
Paste Function...		27%	54.44%	56.51%
Absolute Reference	%T			
Fill Right	%R			
Fill Down	%D			

Figure 5.19 Cutting the dashed line out of the Thorn & Co. table

Undo Cut	%Z			
Cut	%H			
Copy	%C	Thorn & Co.		
Paste	%U		4	5
Clear	%B	fit Forecast		
Show Clipboard		85	1986	1987
Paste and Link...		90	\$121.00	\$133.10
Unlink...		5	55.125	57.88125
Paste Name...		50	\$65.88	\$75.22
Paste Function...		27%	54.44%	56.51%
Absolute Reference	%T			
Fill Right	%R			

Figure 5.20 Copying part of a Multiplan table onto the Clipboard

**STEP 4** Pull down the **File** menu and select **Quit**. A dialog box will appear that asks you if you want to save changes. You probably want to leave the Thorn & Co. file in its original form, so check **No** and click **OK**. The Thorn & Co. window will disappear and leave the Multiplan diskette catalog.

**STEP 5** Move the cursor into the **Close** box in the upper left-hand corner of the Multiplan diskette catalog and click twice to shrink the catalog into the icon. Note that the icon is then unselected. Click the mouse once on it to select it and then pull down the **File** menu and select **Eject**.

As discussed in chapters 1 and 7, the Clipboard belongs to the memory in the machine, not any diskette.

**STEP 6** Just for verification, Pull down the **Edit** menu and select **Show Clipboard**. It will show your numbers for Thorn & Co. as in figure 5.21.

Clipboard				
\$100.00	\$110.00	\$121.00	\$133.10	
\$50.00	52.5	55.125	57.88125	
\$50.00	\$57.50	\$65.88	\$75.22	

Figure 5.21 The Clipboard with no diskette in the slot

**STEP 7** Insert the Microsoft Chart diskette. Click twice on the Chart icon. An untitled Chart window and the New Series form will appear.

**STEP 8** Pull down the **Data** menu and select **Date**. The Date Series dialog box will appear. Change the date in First Category to 1/1/85 (or any other date in 1985), and then check OK.

A new series window will appear.

**STEP 9** Pull down the **Edit** menu and select **Paste**. (If you had a hard disk or another disk drive, you would use **Paste and Link** to link information between this chart and the Thorn & Co. Multiplan table.) A series of New Series windows will appear named after the time.

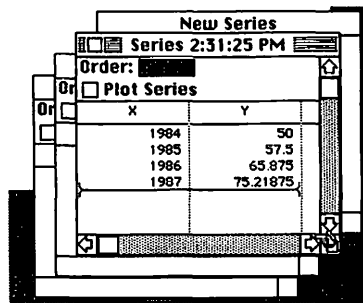


Figure 5.22 Generating a new series in a blank Chart file from the contents of the Clipboard

**STEP 10** Pull down the **Data** menu and select **List** (figure 5.23). The Series List dialog box will appear (figure 5.24). You can hide or show anything you want with this useful dialog box. If little boxes below **Show** have been checked, then they will appear on the screen. If the little boxes below **Plot** are checked, then they will be plotted.

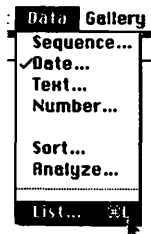


Figure 5.23 Selecting list from the Data menu

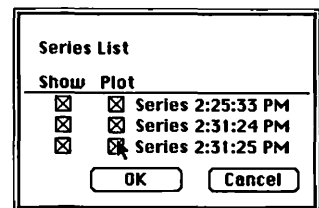


Figure 5.24 The Series List dialog box

The Thorn & Co. chart will appear. Except for the Profit legend, it will be exactly as in figure 5.17. You can modify it with steps 10 and 11.

Is this way really easier? In the case of Thorn & Co., with a small table, probably not. But if you have more data, or plan to change it frequently at the source and have two disk drives, it probably is an easier method.

## Playing with Thorn & Co.'s Image

The **Gallery** menu is a true candy shop of expository graphics. Merely pull down the **Gallery** menu, select the type of chart you are interested in, and a gallery of that type of chart appears. You pick one of the sample charts and in a few seconds, that version appears. Figures 5.25 through 5.34 show some of the possibilities. All are not suited to Thorn and Co.'s data, but each is fun to try.

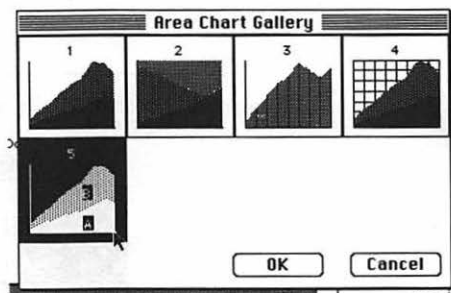


Figure 5.25 Selecting an area chart

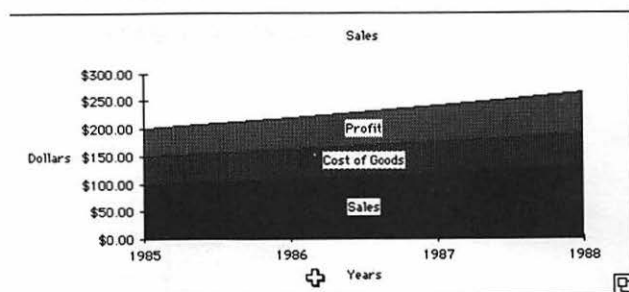


Figure 5.26 An area chart of Thorn & Co. profit projections

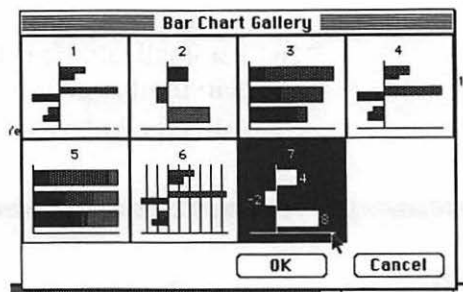


Figure 5.27 Selecting a bar chart

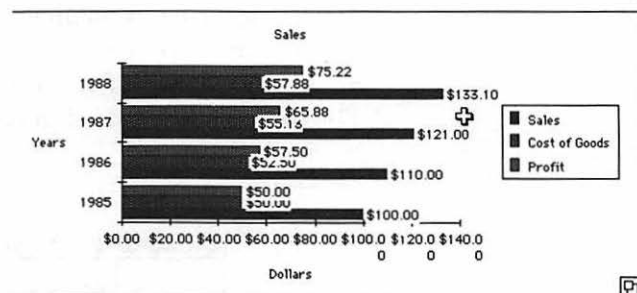


Figure 5.28 Bar chart for Thorn &amp; Co.

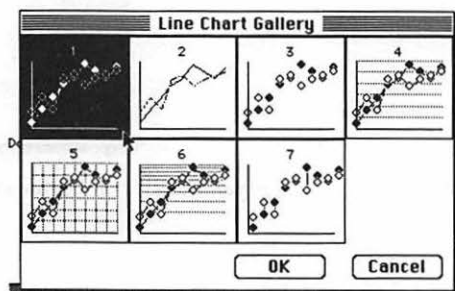


Figure 5.29 Selecting a line chart

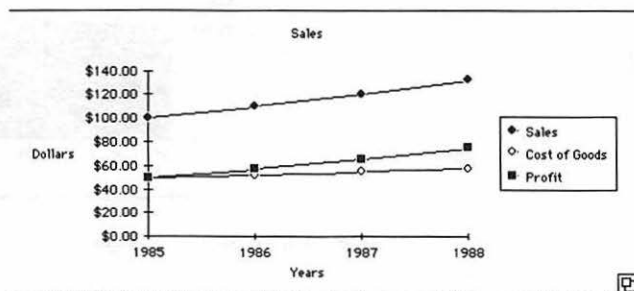


Figure 5.30 A line chart for Thorn &amp; Co.

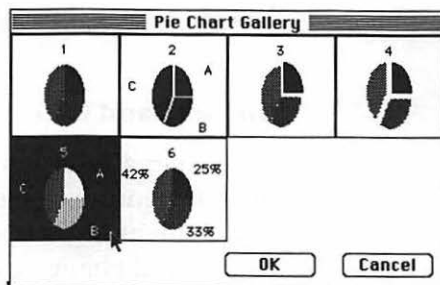


Figure 5.31 Selecting a pie chart

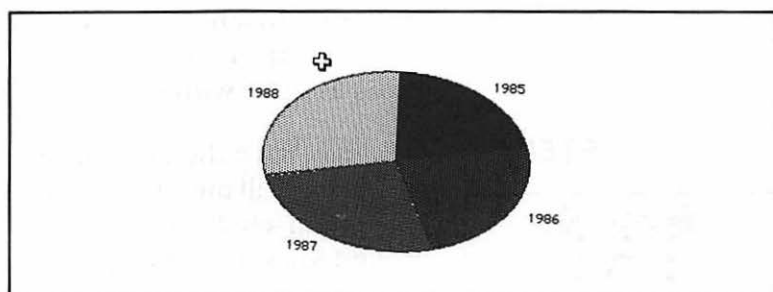


Figure 5.32 A pie chart for Thorn &amp; Co.

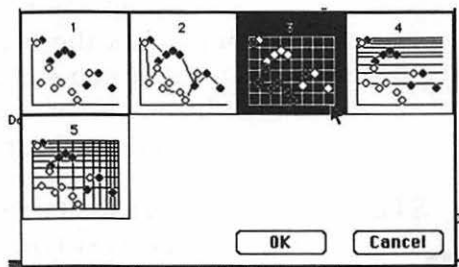


Figure 5.33 Selecting a scatter chart for Thorn &amp; Co. (The sample charts where the lines gather together are log and double log charts)

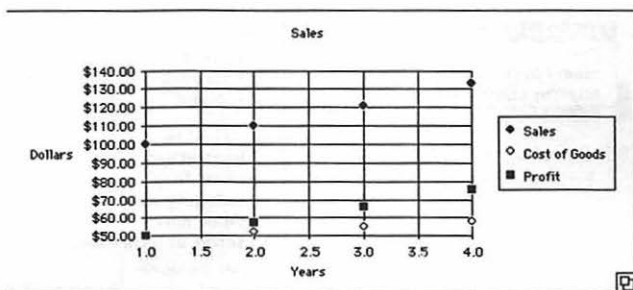


Figure 5.34 A scatter chart is not very appropriate for sales forecast

## Playing With The Chart Gallery

### Borders and Faces

Chart also offers many excellent tools for emphasizing or ornamenting elements of the chart. It is possible to select any element of the chart—the titles, legends, or the whole chart—and change elements like the typeface and the line quality.

#### STEP 1

Return to the first version of the Thorn & Co. chart by pulling down the **Gallery** menu and selecting **Combination**; then select number two, which shows Profit as a line with it's own scale on the right. Check OK.

#### STEP 2

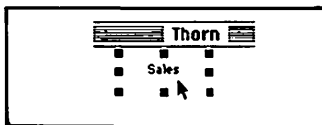


Figure 5.35 Selecting text on the chart

You may have thought that Sales was not a good title for this chart. Roll the cursor, which is an arrow, near the word Sales, and click the mouse. Black squares will appear around Sales. Like the squares in MacDraw, they show that it is selected.

Roll the mouse around the selection a little. You will see that the cursor changes into a double-headed arrow, which points horizontally, vertically, or diagonally, as it approaches the black squares. The changed cursor indicates that you can move these squares by touching them with the cursor, holding down the mouse button (dragging), and moving the cursor.

#### STEP 3

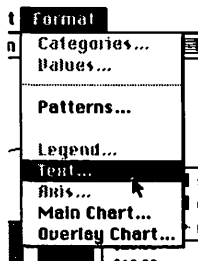


Figure 5.36 Selecting text on the Format menu

Pull down the **Format** menu and select **Text**.

The Text Format dialog box will appear. You can see that there are many possibilities.

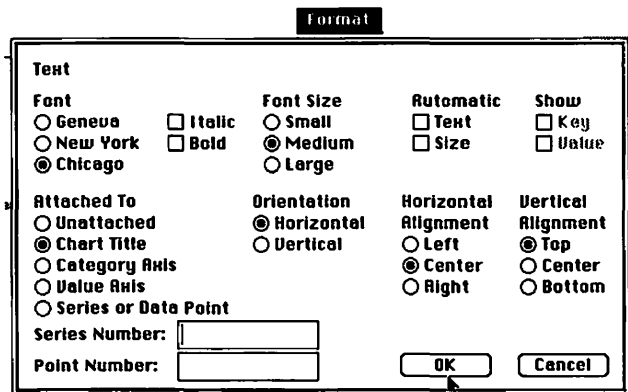


Figure 5.37 The Text Format dialog box

**STEP 4** Check the Chicago Font and Medium Font Size, and then check OK.

**STEP 5** When you move the cursor inside the selected area, defined by black squares, it turns into the I-beam. Move the I-beam to the right end of Sales and press the mouse button to put the blinking cursor there. Backspace until Sales disappears. Type "Thorn & Co. Forecast".

**STEP 6** Select the word "Dollars" on the right of the chart, pull down the **Format** menu and check Chicago, but make no other changes. Backspace to erase Dollars, and type "Sales & Cost of Goods". The system will supply carriage returns.

Note that you can add other fonts to the list as discussed in the first chapter.

**STEP 7** Move the cursor into the box with the legends. Click the mouse. The selection squares will appear and the cursor will turn to arrows pointing up and down and right to left. Press the mouse button and slide the box into the lower right-hand corner.

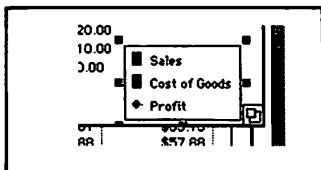


Figure 5.38 Moving the Legends

**STEP 8** Move the cursor just right of \$80.00 in the top right of the chart. Click the mouse. A hollow cross will appear. Type "Profit". As in the previous steps, pull down the **Format** menu, select **Text**, and check the Chicago font.

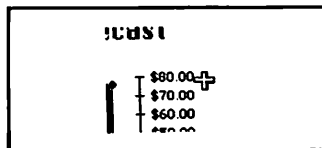


Figure 5.39 Hollow cross marking active area

If the text does not appear exactly where you want it, move the cursor near one of the black squares. The cursor will turn into arrows, indicating you can move the text.

**STEP 9** Pull down the **Chart** menu and select **Select Chart** (figure 5.40). Black boxes will appear to show that the whole chart is selected.

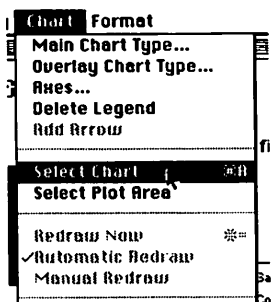


Figure 5.40 Selecting Chart from the Chart menu

- STEP 10** Pull down the **Format** menu and select **Pattern**. The Pattern dialog box will appear. Check the middle Border Weight and Shadow. Check OK.

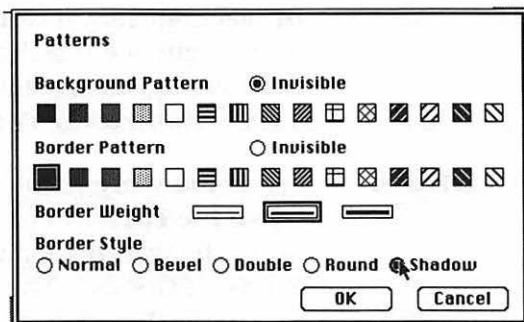


Figure 5.41 Pattern dialog box

Click anywhere else on the screen to remove the selection boxes, and the Thorn & Co. Chart will appear as in figure 5.42.

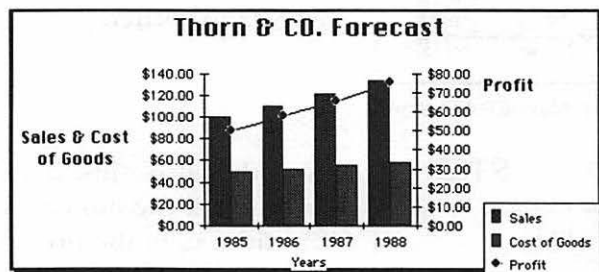


Figure 5.42 Thorn & Co. chart



# Communications through MacTerminal and Other Programs

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For some people, the most important thing about computers is that they can communicate with one another. The contrary idea that Steve Wozniac and others had, and that Steve Jobs and others have exploited, was to make a computer that you can use in the corner by yourself. Then what you can do depends on you and your machine alone. It's an important idea but the other idea remains: that communication is at the heart of information; that it is wonderful how many people can reach, add to, or change information that is in a single central computer.

The Source illustrates one side of this phenomenon. A world of information and services is at your fingertips with your Mac, a modem, and a telephone. Electronic mail, discussed below in connection with Augment, is another kind of world, a world much like CB or, better, like ham radio, where people who are far apart but share common interests can communicate and not interrupt their work. I have enjoyed such a world. For example, I worked closely for several years with a programmer on computer publications projects and was instrumental in getting him a job—all by computer. It was some years later before I saw him for the first time.

There are everyday, practical reasons to move files from one machine to another. What if you have an Apple II or an IBM personal computer and have just bought a Mac?

How do you move your work to the Mac? (I answer that question below.)

This chapter will show you how to use MacTerminal and the Apple program Access II to transfer files from a Mac to an Apple IIe or IIc and back; how to use the Dilithium PC To Mac and Back programs to transfer files from a Mac to and from an IBM personal computer, or a computer built to run like the IBM personal computer; how to use MacTerminal to reach the diverse on-line services of The Source; how to reach Trade\*Plus and buy and sell stock; and how to use Augterm to reach Augment, the world's most powerful office automation system.

The Source, Trade\*Plus, and Augment are services to which you must subscribe. They charge by the hour and according to the degree and use you make of their computer facilities. In the case of Trade\*Plus you can arrange, through a broker, to actually buy and sell stocks, and through the Source, to buy a range of consumer goods. In each case the service supplies you with phone numbers and passwords that you must know in order to use the service.

Computer hobbyists run many local on-line "bulletin boards." They allow the inexpensive, often free, exchange of information and electronic mail. Other people who own Macs are often the best source of information about problems and programs: computer bulletin boards are a good way to get in touch with such people.

The icon for MacTerminal is a telephone, which sells the program short since you can use it to communicate with other computers via a direct cable, and by a variety of other electronics, including the Apple cluster controller, which allows the Mac to work like one of many IBM terminals attached to a large IBM computer.

A word of warning. This chapter deals with very complicated steps. The complications result from the many standards that compete to organize communication. MacTerminal is adaptable and can accommodate many methods or "handshakes" as they are called in the business. At what speed, for example, are the characters going to be sent?

More concretely, the plug on the cable must fit the socket in the other machine. Mac offers you a dozen possibilities, but you have to make the match. It is all a little like those societies where you are allowed to speak to but not marry your first cousins, marry but not touch or speak to

your second cousins, and marry and speak to but not touch your third cousins. The different rules make introductions lengthy and uneasy. You will see below that many steps match compatibility before any real relating is done. But that is the way it is in an industry where no one controls standards and that is the way it is likely to stay.

Because the product of MacTerminal, PC to Mac and Back, and Augterm is communications rather than a file, using them differs from using programs like MacWrite or Multiplan, where what you get is a file. In most Macintosh applications a document is where you work on and store something you are working on. The document of a communications program is more like a window. When you click twice on the MacTerminal icon you create a window through which you can look into another computer. You may have to make some adjustments to that window before you can use it. You can in fact pass things through the window to the Scrapbook or files and then to other applications, or take "snapshots" of the window that you can pass on to other applications. While this is an important function, you do not work on information within MacTerminal itself, or within the other communications programs I discuss.

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## **Sending and Receiving Files from an Apple II**

### **Setting up the Apple II**

This section assumes you have an Apple IIe or IIc and the communications software called Access II from Apple. (The Access II program will not run on a II or II+. A very similar program, Access III, exists for the Apple III.) Like most personal computers, but unlike the Macintosh, the Apple II acquires certain functions by means of *cards*, which users must insert into slots in the interior of the computer. These cards have electronics on them that supplement the powers of the basic computer. Several cards exist for the Apple II to support communications with other computers. The card necessary for use with the Access II program is called a Super Serial Card, although it has nothing to do with a terrific soap opera. Super Serial Cards support either communications with other com-

puters or with a printer. It is the common means by which Apple II's send pages to printers. To communicate with other computers the card requires some modifications that are simple for someone experienced with computer hardware, but tricky for someone who is not.

**STEP 1** Make sure the Super Serial Card in the Apple II is in slot 2, and has the communications prom and dip switches set properly for communications functions. This is clearly specified in the excellent Access II manual. If you don't understand these terms, either study the manual carefully or get a knowledgeable person to help you.

**STEP 2** Connect the output socket on the Super Serial Card to the socket on the back of the Mac that shows the telephone icon. The cable that connects the Mac to the printer will fit fine, or any cable with the same set of plugs at each end.

**STEP 3** Insert the Access II diskette in the Apple II and turn on the machine. After various screens announcing the names of products, like the beginning of a movie, the Access II main menu will appear. (Access II is a menu-driven program.)

A second diskette, and hence a second disk drive, is not absolutely necessary to use Access II. But the Access II program leaves very little room on the diskette it comes on, and if you want to move a file more than a few words long to the Apple II, you had better have a second drive.

**STEP 4** From the main menu type "3" and press Return to evoke the setup menu.

**STEP 5** Type "2" and then press Return. The speed menu will appear. The speed in force will be highlighted. If 9600 is not highlighted, type "6" and then press Return to select it. Press the ESC (for escape) key on the upper-left of the keyboard to Return to the settings menu.

**STEP 6** Type "3" and press Return. The parity menu will appear. It does not matter which parity you give these two computers to communicate so long as it matches. Type "1", press Return, and press ESC once to get back to the setup menu.

If you plan to transfer files between these two machines often, the setup menu offers you the chance to save these settings on the diskette. With the save settings,

the next time you begin Access II you will not have to go through these steps to set up.

## STEP 7

Press ESC again to return to the main menu, type "2" and press Return to get to what is called terminal mode. In terminal mode the Apple II will respond to the Mac's keyboard rather than its own. The II is now waiting to hear from the Mac.

## Setting Up the Mac

### STEP 1

Insert a diskette with the MacTerminal program on it. If the disk catalog does not appear, click twice (double click) on the icon for the MacTerminal diskette to evoke it.

A MacTerminal window will appear. The menus are discussed in appropriate sections below. Note that the bars at the sides contain no tools for scrolling. You can squeeze or expand the window by the size box in the lower right-hand corner, but you can't scroll in the normal way. Note that the cursor is an I-beam.

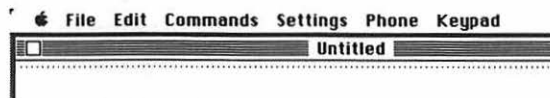


Figure 6.1 The MacTerminal window

### STEP 2

Pull down the **Settings** menu and select **Compatibility** (figure 6.2). (If you aren't familiar with the process of pulling down menus and selecting items, see chapter 1.)

The Compatibility dialog box will appear.

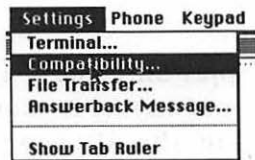


Figure 6.2 Selecting Compatibility from the Settings menu

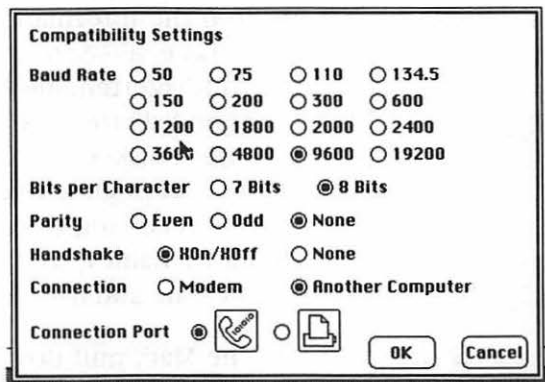


Figure 6.3 The Compatibility dialog box set up to communicate with an Apple II using Access II

**STEP 3**

In the Compatibility dialog box, check 9600 Baud and Another Computer; otherwise leave things as they are and check OK.

**STEP 4**

Pull down **Settings** menu and select **File Transfer**. The File Transfer dialog box will appear. Check Modem and Other and then check OK.

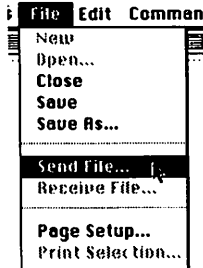


Figure 6.4 The file transfer settings dialogue box

It is important that all the settings on the Mac agree with the settings on the Apple II.

At this point, if you type a character on the Mac, the character will appear on the II and vice versa. Type a few characters to make sure it works. It is possible to transmit text from one to the other this way, but below I will show you a simpler method for long files.

As MacTerminal documents are used, they tend to get cluttered, for example, the typing you may have done on the Apple II to see it appear on the Mac. If you are going to communicate between these two machines frequently, it would be a good idea to save the present file with correct settings with some such name as "Ile." Then, whenever you want to start a session, you can duplicate the Ile file and reserve a pristine document with the right settings.

### Mac To Apple II

**STEP 1**

On the Apple II hold down the key with an outline apple and press ESC to Return to the main menu. Type "5" and press Return to receive a file.

**STEP 2**

A screen will appear, asking you to supply the name of a file to hold the information that will come across. Assuming you have a second disk drive on the II, type " / seconddiskettename/frommac" and press Return. The "seconddiskettename" means whatever name you have given that diskette. Access II will offer you a list of file types with TEXT highlighted. Press Return to confirm that you will be receiving text. Note that Access II will not allow duplicate names, so if you transfer more than one file you must create and name a new file each time.

**STEP 3**

On the Mac, pull down the **File** menu and select **Send a File**.

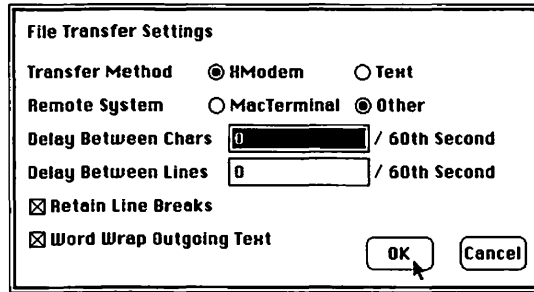


Figure 6.5 Selecting Send A File from the File menu

The File dialog box will appear (figure 6.6). You could select any text file, but the Notepad file is a simple example because it contains no formatting. See the section below on the PC to Mac for a discussion of the importance of formatting to file transfer.

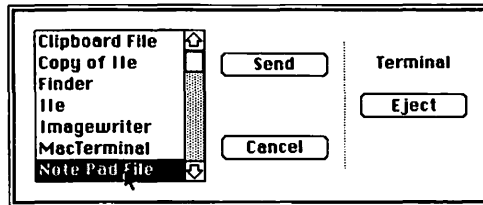


Figure 6.6 Selecting the Notepad file to transmit

#### STEP 4 Select the Notepad file and then check Send.

A scale will appear on the Mac screen with a moving point that shows what percentage of the file has been sent. At the same time you should see the actual text go by on the Apple II screen.

#### STEP 5 On the II press Return to confirm recording the transmission.

### Apple II to Mac

#### STEP 1 On the II, press ESC to get to the main menu. Type "4" and press Return to get to the file transmission screen.

A window will appear that requests the name of the file you want to send to the Mac. The file you just got from the Mac will do fine.

**STEP 2**

Type `"/seconddiskettename/frommac"`. The `"seconddiskettename"` is the name you gave the second diskette. Press N to decline the offer to use the Christiansen Protocol (don't worry about what that is). Press Return twice to ignore the issue of pausing between lines and characters, which is unnecessary between these two friendly computers, and type Y to send the file.

The text of the Notepad file will appear on the Mac screen. If you want to keep it in some other file, select it, copy it, and paste it into that file.

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## Mac to PC and Back

This section uses a program called PC to Mac and Back from Dilithium. (For those who don't recall their Star Trek trivia, Dilithium is the technomagical crystal that powers the *Enterprise*.) Dilithium advertising stresses using the program to transmit files between a Mac and an IBM personal computer, or one that works like an IBM personal computer. In fact, the program is more widely useful and its functions largely overlap MacTerminal's. For example, it is possible to use The Source, or Trade\*Plus, or typical local bulletin boards with PC to Mac and Back in pretty much the same way as described below.

Both the Dilithium program and the manual use a vocabulary somewhat richer in computer jargon than this book and both tend to give information of interest only to computer hobbyists such as the information on the screen in figure 6.16. The manual includes a good treatment of computer bulletin boards.

### Preparing Files for Transfer

When a computer program is designed to show something that is familiar to the user, more information has to be hidden behind the screen. The Multiplan screen shows numbers and dashes. Behind the numbers stand the formulas that make them work, data that show how wide the columns are, whether they are formatted with a decimal showing, whether they are linked to other files and so on. MacWrite shows us a screen that looks like a piece of paper. Behind the screen are data to determine what the various



fonts are, whether they are bold, what the margins are, etc. Transmitting simple text or simple numbers from one computer program to another is relatively straightforward. That is why when you type “y” for yes in using Trade\*Plus or Augment below, it is simple to type and transmit. Transmitting a sophisticated file like a MacWrite or a Multiplan file is more difficult because the program that receives the file can understand the characters or numbers, but cannot make sense of the information behind the screen.

In the example of sending a file to the Ile and back, I ducked the issue, for simplicity’s sake, by using a Notepad file. Notepad files have no special formatting. The process for making text-only files, described below, will work as well for transfer to the Ile as for transfer to IBM-type machines.

***Making a Multiplan SYLK File*** In the case of Multiplan, Microsoft has created the file format SYLK to allow transmission of Multiplan files from one machine to another. In order to transfer a file to Multiplan running on an IBM-type machine, it is necessary to save it to the SYLK format.

## STEP 1

Assuming you have the Thorn & Co. file before you from chapter 4, pull down the **File** menu and select **Save As**. The Save As dialog box will appear. Type “thorn & co” to name the file, with a small t to differentiate it from the regular file, check SYLK, and check Save.

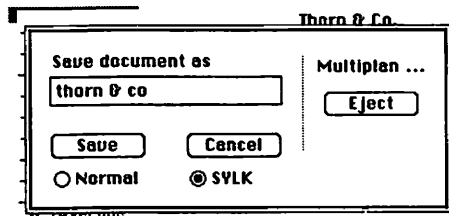


Figure 6.7 Saving a SYLK file

## STEP 2

Move the file to the PC to Mac disk by file transfer as described in chapter 1.

***Making a Text-Only File*** MacWrite (and Microsoft Word) address this problem by allowing you to create files that have only text, not formatting information. It is possi-

ble to transport such files to most other word processing systems. *But* you throw away the fonts, proportional spacing, and other goodies like running heads and footnotes. The file will appear in the new system in whatever font is standard there and with each character taking up the same amount of space on the page, like a typewritten page.

## STEP 1

Assuming you have the For Bit Letter on your screen from chapter 2, pull down the **File** menu and select **Save As**. The Save As dialog box will appear (figure 6.8). Type "for bit letter" to name the new file, using lower case to separate it from the regular file. Check Text Only and check Save.

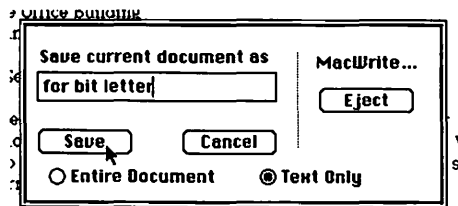


Figure 6.8 Saving a file in the Text Only format

## STEP 2

Move the file to the PC to Mac disk by file transfer.

## Setting Up the Mac

It is possible to set up a diskette so that an application immediately fills the screen without opening the catalog or clicking on the icon of the application. PC to Mac diskettes are set up this way.

Insert the PC to Mac diskette and turn on the Mac. The screen will appear in "terminal mode" as in figure 6.9. If the catalog or the diskette icon appear, click on them to evoke the application. (Oversimplified a little, terminal mode means that the Mac is acting like a dumb terminal, just sending characters to another computer, which responds to them.)

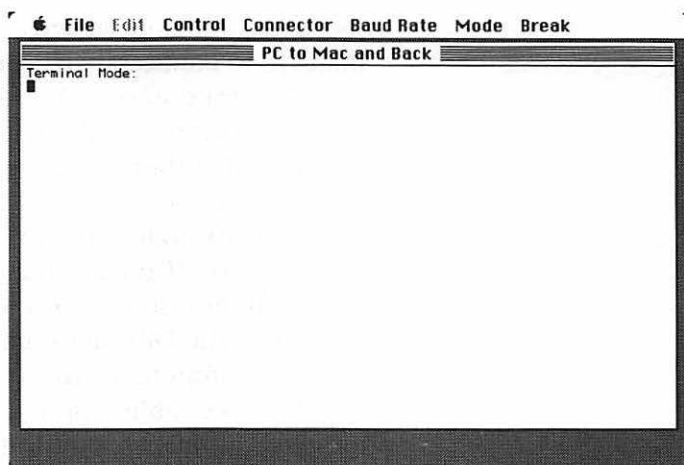


Figure 6.9 PC to Mac screen in terminal mode

### Setting Up the IBM-Type Personal Computer

Dilithium provides a diskette for the IBM-type computer as well. The first time you use it is rather complicated because of the different operating systems (roughly the equivalent of the Mac System Folder) that run on these machines. The diskette from Dilithium contains a program that will copy the operating system (called DOS for Disk Operating System with various version numbers) you are using from your diskette onto theirs. If you are using the PC to Mac program for the first time, follow the instructions in appendix A of the manual to set up your PC to Mac diskette correctly.

Assuming your version of DOS is installed, put the PC to Mac diskette in the "A" drive and turn the machine on (many such computers have a way to restart the system without turning it off and on, which will work fine too).

As in the case of the Mac diskette, the IBM-type diskette comes with a startup program, which should present a billboardlike screen and then let you see the master screen of the PC to Mac program. If it does not, type "A:pctmac" and press Enter.

### Modem Cables, Eliminators, and other Connections

The cable that Dilithium supplies includes a modem eliminator. That means you should plug it into a second

modem eliminator (called a “null modem” in the Dilithium manual) to counteract the first.

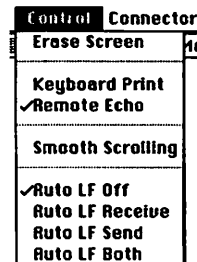
IBM-type personal computers require cards that are bought separately and inserted in the computer to communicate with other computers. This program uses an IBM ATS or similar card. If such a card is installed correctly and available through your version of DOS, the words “Com1 available” or “Com2 available” will appear in the billboard screen. If they do not, you will have to check the hardware section of the Dilithium manual, or the manual that came with the computer or the card.

Plug the cable supplied by Dilithium, which includes a modem eliminator, into the sockets that fit on the ATS or similar card in the IBM-type machine and into the socket with the phone icon on the MAC.

### Matching Communications

The menus offer a variety of choices about the speed at which the two computers will communicate and the “mode” of data handling they will use. Any matching set will work for some purposes, but the most generally useful, if the two machines are connected by a direct cable, is 9600 baud speed and PC to Mac mode, which are used in this example.

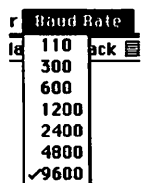
**STEP 1** On the Mac pull down the **Control**, **Connector**, **Baud Rate**, and **Mode** menus. If they do not match figures 6.10 through 6.13, select the correct values.



**Figure 6.10** Setting the Control menu for transferring files Between a Mac and an IBM-type personal computer



**Figure 6.11** Setting the cable socket for file transfer



**Figure 6.12** Setting the speed at which the files will move between computers



**Figure 6.13** Selecting the PC to Mac File transfer method

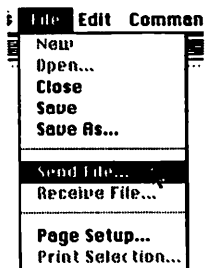
**STEP 2** On the IBM-type machine press function key 9. The Configure menu will appear. You can select the baud rate (9600), the transmission mode (PC to Mac), and some other parameters on that screen. If they do not match the values in step 1 above, change them. In each list of choices, the choice that is in control is highlighted by contrasting color. You can move the highlight from one to another by pressing the arrow keys on the right side of the keyboard.

## Mac to PC

**STEP 1** On the IBM-type machine, press function key 1. The file-receiving screen will appear. It includes information about the communications setup.

**STEP 2** On the Mac, pull down the **File** menu and select **Send File**.

A dialog box will appear that is very similar to the normal Mac file-opening dialog box. The scroll box will show all the files on the diskette that you can send with the method you have chosen. Since we are using the PC to Mac transfer method, which can send any sort of file, all the files on the diskette are available, even the “pctmac” program itself. Of course, there would be no sense in transferring it since the program at the other end could make no sense of it.



**Figure 6.14** Selecting Send from the File menu

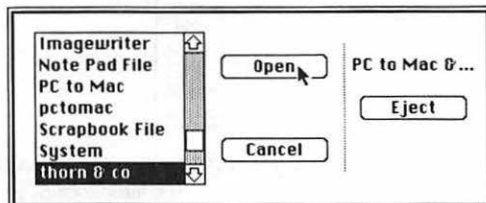
**STEP 3** Select “thorn & co” and check Open.

Figure 6.15 Selecting a file to send

Some information will appear on the top of the screen: the length of the file, PC to Mac’s estimate of how long it will take to send it at the speed you have selected, and how many seconds the Mac has been waiting for the IBM-type machine to answer (see figure 6.16). The Mac will wait for an answer for up to a minute, and if it gets no response, it stops trying. If you set up the IBM-type machine correctly, it will quickly get a response and send the file. When that happens, a message to the effect that the transmission is complete will appear on the Mac (figure 6.17), and on the IBM-type machine. Note that the IBM operating system does not allow spaces in the names of files so it compresses the name to “thorn&co.”

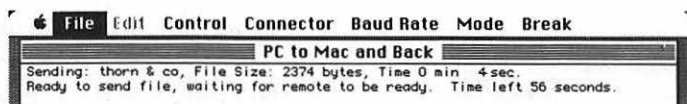


Figure 6.16 The Mac screen while you are sending a file

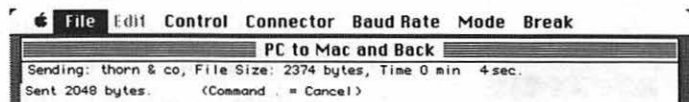


Figure 6.17 The Mac screen when you are done sending a file

You could now use this file with the Multiplan compatible with the version of DOS running on the IBM-type machine.

## PC to Mac

For this example I assume you have sent the For Bit Letter file by exactly the same procedure as carried the thorn & co file above.

### STEP 1

On the Mac, pull down the **File** menu and select **Receive File**. The Mac will announce its readiness on the screen. Again, if you do not send the other file right away it has a time-out mechanism, which appears on the screen as “waiting for remote to send, try #,” where # is a number up to ten. After about a minute, it gives up and reverts to terminal mode. These messages will be different if you are not using the PC to Mac method of file transmission.

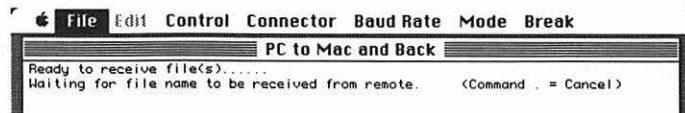


Figure 6.18 Mac waiting for a file

### STEP 2

On the IBM-type machine press function key 2.

The system goes into a sending display, which shows the method of sending files you are using (PC to Mac in this example), then asks you to type the name of the file you want to send. Type “forbitletter” and press Return.

```
SEND FILE — Transfer Mode is: PC to Mac
Enter Files Names(s) to Send (Esc=Cancel): forbitletter
```

Figure 6.19 Sending a file on the IBM-type machine

Some more information about the duration of transfer and the length of the file will appear on both screens and the Mac will return to terminal mode. If you then close the PC to Mac window on the Mac, you will see the new “forbitfile” in the catalog. Note that some of the other file transfer methods require you to type the file name at the Mac end or to close the file, but the PC to Mac method takes care of all that.

The returned file is text only (it contains no formatting such as boldface or footnotes) and will display the preset font that is current when you show it. Text-only files have a special icon that differentiates them from other word processing programs such as MacWrite or Microsoft Word.

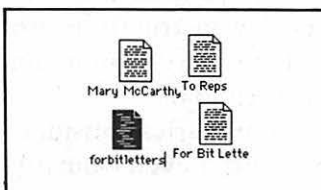


Figure 6.20 The text-only icon is selected

## **Modems, Modem Eliminators, and Noisy Phones**

Modems are boxes that attach to the telephone and to your computer. They convert electronic signals from your computer into a wavering, screaming whistle. The wavers in the whistle carry characters through the telephone line to a modem at the other end, which reconverts them into electric signals for the computer.

There are a variety of modems. Some modems embrace the telephone mouth piece with soft cups to catch the sound. More commonly, if your phone uses modular plugs like the plug the Mac keyboard uses, then you plug your modem into the wall socket of your telephone and plug your telephone into the modem. Modems commonly send and receive characters through the telephone at 30 characters per second (called, strangely 300 baud) or 120 characters a second (1200 baud). Some other speeds are available, including 180 characters per second and faster, but these involve special arrangements with the phone company.

MacTerminal includes menu options that serve only certain Apple hardware products: the Apple Modem, Appline, and the Cluster Controller. Appline and the Cluster Controller are used with the Macintosh to mimic certain IBM display terminals.

Modems come with a variety of differing functions. The fancier ones allow you to store numbers in the computer and use them without dialing, and allow the modem to answer the phone if another computer is calling. MacTerminal is set up to take advantage of such features on two brands of modem: the Apple and the Hayes. Other modems that offer these functions will not necessarily work with MacTerminal.

I have elected to discuss MacTerminal with a simpler modem on the grounds that some users will already own simpler modems, and others will not want to buy the expensive Apple or Hayes products. My instructions are good for the Apple and Hayes products if you omit the added features available through MacTerminal.

Unfortunately, how you use modems varies considerably, so operation of your modem may differ even from my simple modem. The modem I have chosen is the Ven-tel 212. One advantage of Ven-tel is excellent product support;



if you have a problem using your Ven-tel, the people at the other end of the customer support number have proven helpful and knowledgeable.

Some little cables called "modem eliminators" and their remedies cause further complications. One of the few standards in this area is that a computer should be able to recognize whether it is connected to a modem or to another computer. For recognition and other reasons the wires in a modem cross. The moment this standard was established people began to circumvent it. For one thing they invented a short stretch of cable with the wires crossed back called a modem eliminator that you can use if you want a computer to think a modem is there when none is.

If you prepared an Apple to talk to a Mac, and followed the instructions in the Super Serial Card manual, you would have pulled out a chip in the card and turned it upside down. This inversion simulates a modem eliminator. Several of the items to check in MacTerminal simulate or defeat a modem eliminator. It's a mess from the viewpoint of anyone but a specialist. All I can tell you is: follow the instructions of the modem manual, and if nothing seems to be happening, one of the first pieces of troubleshooting you do is to add or subtract a modem eliminator cable. In the examples below I state whether you need to use a modem eliminator in the specific setups I discuss. To confuse matters further, modem eliminators are sometimes called null modems.

Another problem in using computers over the phone is noisy phone lines. If, for example, someone picks up another extension on your line you will see a bunch of strange characters on your screen and the computer you are connected to may receive strange commands. Static on the line may appear as strange characters or a strange response from the computer you are trying to use. Fortunately, the character that most resembles noise is not part of the alphabet, but a control character that cancels commands, so you most often get to try again and seldom ask the distant computer to do something you don't want. As in conversations, some connections are better than others; if strange characters keep appearing, hang up and start over. If problems on your line persist, call the phone company and ask them to check your line.

## Using the Source

The Source is a service offered by the people who run the Readers Digest. By connecting to The Source you can get the latest sports and business news, and information about many other subjects; you can send and receive electronic mail from other Source users. You can shop, follow the stock market, buy and sell stock, post things for sale, scan airline schedules, make reservations, and do many other things, a list, which is growing daily. To use The Source you have to join a group, and you pay an hourly rate for using it. The address is in the back of the book; they will be happy to sign you up.

Compuserve, Dow Jones, and Delphi offer similar services.

### Reaching The Source

Using any public computer network involves several successive steps. You can get access to The Source through several networks in the U.S., but since the most common in the U.S. and the only one available in most countries outside it is Telenet, I have chosen Telenet for the example.

Reaching The Source through Telenet involves five successive identification steps. The first is dialing the Telenet phone number. When you have made the telephone connection, Telenet will ask you to identify the type of terminal you are using; since people use hundreds of kinds of terminals, the Telenet programs must adjust to them. Telenet is only a means of reaching some computer, and it next asks you to identify which of the hundreds of computers attached to Telenet you want to use. You supply the number of a Source computer, which The Source supplies to you with membership information. The Source computer then asks for an identification number. This number tells The Source who to bill, among other things. It then asks for your password. This is a secret name that prevents other people from running up a bill on your account or reaching private information. Only then do you see the phrase "Welcome to the source."

#### **STEP 1**

Connect your modem to the telephone. In the case of the Ven-tel 212 and many common modems, this means: unplug your (modular) phone from its wall connection and

plug a cable from the modem in its place. Plug your phone into a socket in a box that goes with the modem, which you just connected to the telephone company.

## STEP 2

Connect your Mac to the modem. In the case of the Ven-tel 212 and many similar modems this means: plug the Mac printer cable, or any similar cable, in the port on the Mac marked with a telephone icon, plug the printer cord of the Mac cable into either end of a modem eliminator (see above), and plug the modem eliminator into the socket on the modem labeled business machine. You can connect the cable that comes with the PC to Mac program directly from the Mac to the modem, because it includes a modem eliminator.

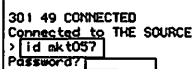
## STEP 3

Put a diskette with MacTerminal in the Mac and turn it on. If the catalog of the MacTerminal diskette does not appear, click twice on the diskette's icon to evoke it. Then click twice on the MacTerminal icon (a telephone).

The MacTerminal window will appear (see figure 6.1). You need not change any preset values in the **Settings** menu if you want to communicate at 120 characters per second. The 120 characters per second setting gives faster response and it's more fun to use. Its disadvantages compared to the other common speed, 30 characters per second, are that The Source is more expensive at 120 characters and that some modems won't run faster than 30 characters per second.

## STEP 4

On a common modem such as the Ven-tel 212, dial the local number of Telenet. When you hear a high-pitched scream from the telephone, flip the switch on the modem from V for voice to D for data. Then press Return on the Mac keyboard twice. If for some reason you do not connect, hang up the phone, flip back to V for voice and start over.



**Figure 6.21** Establishing contact with The Source

## STEP 5

Type "D1" and press Return. An at sign, "@", will appear.

## STEP 6

Type "c", press the space bar, and type your terminal identifier code, a number provided to you by The Source. Press Return. A message that says a terminal with your number is connected to The Source will appear.

**STEP 7** Type "ID", then press the space bar, and type your ID number (also supplied by The Source). Press Return (see figure 6.21). (Note that the terminal identifier and ID numbers in this figure are mine.)

The Source will ask for your password, a string of characters The Source will supply you (and which you can later change yourself). Press Return.

The Source welcome message will appear (figure 6.22). The main menu gives you a chance to see some of the things The Source offers.

```

HKT057 (user 44) logged in Friday, 21 Sep 84 20:17:24.
Welcome, you are connected to THE SOURCE.
Last login Friday, 21 Sep 84 19:56:44.

(C) COPYRIGHT SOURCE TELECOMPUTING CORPORATION 1984.

Now at 1200 baud, an extra value service.

This account has 254 minutes remaining.
~>

WELCOME TO THE SOURCE

1 USING THE SOURCE
2 TODAY
3 BUSINESS UPDATE
4 THE SOURCE MAIN MENU
5 WHAT'S NEW
6 COMMAND LEVEL

Enter item number or HELP _

```

Figure 6.22 The Source welcome message

## Getting Information from The Source

**STEP 1** Type "2" and press Return. The Today menu will appear.

```

Enter item number or HELP 2

*****
***** TODAY *****
*****

Friday
September 21, 1984

1 A DAY TO REMEMBER, BECAUSE...
2 YOUR HOROSCOPE FOR TODAY
3 TV HIGHLIGHTS
4 CRITIC'S CHOICE: A Soldier's Story - Great Tense Drama
5 OPINION FORUM: A Better Post For Reese
6 FEATURES: The Costs of Drug Abuse
7 PERSONALITIES: Rivers at Graceland; People (Ferraro Lookalikes Plentiful)

Remember: For the latest news of the day, type BULLETIN
For all the sports results, type SPORTS

Enter item number or Help _

```

Figure 6.23 The Source Today screen

You can find many things in The Source by going through the menus. If you have more specific desires, which you generally would if you were an experienced user, you can type the names of what you are interested in. For example, you may be interested in what is posted about Mac on the Apple bulletin board.

- STEP 2** Type “Quit” and press Return. An arrow (→) will appear. The arrow means The Source is waiting for commands.

```

Quitting...
→ post apple
APPLE

<R>ead, <P>ost, <P>urge, <S>can, or <H>elp:s

<C>ategory, <U>ser ID, <D>ate, <K>eyword:k

Keyword(s) or <H>elp: MAC

```

Figure 6.24 Searching for Apple Mac on the bulleting board

- STEP 3** Type “Post Apple” and press Return. A prompt menu will appear.

- STEP 4** Type “S” for scan and press Return.

A request for further definition of your search will appear.

- STEP 5** Type “k” for keyword and press Return. Then type “mac” and press Return. Upper and lowercase can be used.

A prompt will appear that includes Return to see all the listing.

- STEP 6** Press Return.

A list of the current items related to the Mac on the Apple bulletin board will appear.

```

1 21 SEP STP482 MACINTOSH START UP COMMAND(APPLE)
2 21 SEP CL3631 MAC_FILE_VISION(APPLE)
3 21 SEP STL769 MAC_FILEVISION(APPLE)
4 21 SEP STS403 MAC TO IBM?(APPLE)
5 20 SEP STX383 MACINTOSH SOFTWARE---MACGAS---(APPLE)
6 20 SEP STX383 MACINTOSH SOFTWARE---MACGAS---(APPLE)
7 20 SEP STI765 P.D. MAC AREA(APPLE)
8 19 SEP B8Y944 USE OF MACINTOSH/SPECIAL COMMAND(APPLE)
9 18 SEP STX416 HELP WITH MACINTOSH NEEDED(APPLE)
10 18 SEP BCY376 MACINTOSH RAM EXPANSION!!(APPLE)
11 18 SEP B8J606 MACTEP HELP!(APPLE)
12 18 SEP B8E532 DOW JONES ST.TALK FOR MAC(APPLE)
13 18 SEP STX416 ST MAC → COMPUSERVE(APPLE)
14 17 SEP TC1989 MCPICS (C) ON MACINTOSH(APPLE)
15 16 SEP TC0821 MACINTOSH UPGRADE(APPLE)
16 16 SEP CL1701 MACINTOSH HARDWARE FOR SALE(APPLE)
17 16 SEP BCD797 MAC ROM ROUTINES?(APPLE)
18 16 SEP TC0685 >>> LOWEST PRICES ON MAC S/M <<<(APPLE)
19 15 SEP STS468 MAC MACTERMINAL(APPLE)
20 15 SEP STS468 MAC MACTERMINAL(APPLE)
21 15 SEP STJ263 MACINTOSH GAMES(GAMES)
22 15 SEP STJ263 MACINTOSH SOFTWARE(APPLE)

Enter item(s), <H>elp, or Return for more :

```

Figure 6.25 Apple Mac items on The Source bulletin board

Note that you can copy any information you see from the screen in MacTerminal and put it in the Scrapbook or on a file.

**STEP 7**

To leave The Source, type "Quit" and press Return until the symbol of the top command level (→) appears. Then type "Off" and press Return. You can also leave The Source by hanging up the phone, but it will cost more, because the system will keep running for awhile at your expense.

---

## Trade\*Plus

### What is Trade\*Plus?

Trade\*Plus allows you to connect to a central computer where you can learn the state of the stock and bond markets, and the performance of individual stocks you follow. If you have established an account with a broker, you can buy and sell stocks, which will automatically appear in your on-line portfolio. At any instant you can see the automatically calculated value of your account, including various tax factors and the like. Furthermore, with a program like MacTerminal you can copy the information about a stock or the state of your account onto your own diskette for further manipulation with, for example, Microsoft Chart.

You can get information about how to join Trade\*Plus by phoning or writing the addresses in the back of this book. As with The Source, you pay an hourly rate.

Dow Jones offers a similar service through its Straight Talk Program.

### How Trade\*Plus Works

To use Trade\*Plus you use almost exactly the same steps as for The Source. When you have established contact a menu appears with numbered items. The items are arranged by number in layers. Whenever you want to see one of the items, you type the number and press Return. This process of typing in commands line by line and typing

a Return after each command is the way computers used to work in the bad old days. The Trade\*Plus system is simple enough that despite its archaic command style it is rather simple to use, and it is clearly explained in the manual. For example, all things to do with ordering are numbered in the 20's. You type 20, press Return, and you see the order menu. If you type 21 and press Return you see a menu about ordering stock. If you type 211 and press Return, you initiate the procedure for ordering a stock.

**STEP 1** Set up the Mac exactly as for The Source (see "Reaching The Source" in this chapter).

**STEP 2** On a common modem such as a Ven-tel 212, dial the local number of Telenet. When you hear a high-pitched scream from the telephone, flip the switch on the modem from V for voice to D for data. If you are using an Apple Macintosh modem follow the manual's instructions for dialing.

**STEP 3** Press Return on the Mac keyboard twice. "TERMINAL=" will appear.

**STEP 4** Type "D1" and press Return. An at sign, "@", will appear.

**STEP 5** Type "c", press the space bar, and type your terminal identifier code (figure 6.26). Press Return twice.

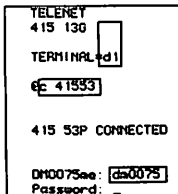


Figure 6.26 Connecting to Trade\*Plus

**STEP 6** Trade\*Plus will ask you for your user name, something Trade\*Plus will supply when you join. Type it and press Return.

**STEP 7** Trade\*Plus next asks for your password, which Trade\*Plus will also supply to you when you join. Type it and press Return. The Trade\*Plus welcome message will appear.

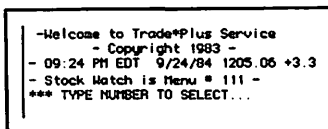


Figure 6.27 The Trade\*Plus welcome message

**STEP 8** Type 1 and press Return to see the main menu.

```

*** TYPE NUMBER TO SELECT... 1
- 1 MAIN MENU -

2 CHANGE PASSWORDS
7 UPDATE DISKS
8 NEWS
9 HELP
10 PRICE MENU
20 ORDER MENU
30 PORTFOLIO MENU
40 RECORD MENU
50 INFORMATION MENU
60 ANALYSIS MENU
0 SIGN OFF

```

Figure 6.28 Trade\*Plus main menu

**STEP 9** Type "111" to show the current values of your stocks.

```

*** TYPE NUMBER TO SELECT... 111
- 111 STOCK WATCH -
- Closing Prices -
- 09:29 PM EDT 9/24/84 1205.06 +3.3
# STOCK CURRENT CHANGE TRND LIMIT
1 AAPL 26 5/8 - 3/8 +
2 IBM 123 3/4 - 1/2 - U
3 DEC 99 5/8 + 3/4 + U
4 GM 77 1/8 + 1 + U
5 GE 55 7/8 + 5/8 + U
6 EFH 32 5/8 - 3/8 -
7 MER 31 1/2 - 1/4 +
8 MCI 20 3/8 - 1/8 -
9 ABC 72 1/4 ..... + U
10 CBS 62 1/8 - 1 5/8 + U
11 RCA 35 3/4 - 1/8 +
12 MCIC 7 1/4 + 1/8 +
13 CUGT 13 - 1/4 + L
14 SPX 165.28 - .39 - U
15 XHI 236.08 + .58 U
16 NYA 95.38 - .18
- Type CTRL/C to Escape -

```

Figure 6.29 Trade\*Plus Stock Watch

I do not actually own these stocks (this is a faked demonstration account provided by Trade\*Plus). But let's pretend you do own them. You may want more information about an individual stock.

**STEP 10** Type "113" and press Return. Trade\*Plus will quote you the closing price of the most recent day and then ask for a stock symbol. In this example, type "aapl", the symbol for Apple Computer, and press Return. The current price of the stock and other information of interest to people who play the stock market will appear (figure 6.30).

Trade\*Plus asks you at the bottom if you want to see the same information for any other stock listed on the major stock exchanges. But let's go on to see the status of the accounts we have that house the various stocks.



```

*** TYPE NUMBER TO SELECT... [113]
- 113 SINGLE STOCK PRICE -
- Closing Prices -
- 11:24 PM EDT 9/24/84 1205.06 +3.3
> Stock Symbol ..... [aapl]
APPLE COMPUTER INC
Exchange of Last Trade: NASDAQ/NMS
Price: 26 5/8
Bid: 26 1/2
Ask: 26 5/8
Trend: UP
Change: - 3/8
Dividend: 0.00
Yield: 0.0
Earnings: 0.95
P/E Ratio: 28.0
Prev. Close: 27
Open Today: 26 3/4
High Today: 27
Low Today: 26 3/8
Volume Today: 352,700
> Another Quote: (V,N).....

```

Figure 6.30 Information on a single stock

**STEP 11**

Type “n” to refuse information about more stocks and then press Return twice. The TYPE NUMBER TO SELECT prompt will appear. Type “211” to ask to buy a stock. The Trade\*Plus Order menu will appear.

```

- Account: DIARY NOUNS ***DEMO*** -
- Type CTRL/C to Escape -
- (N)ew Order, (C)ancel Former Order,
or (I)f Nothing Done Order
> Order Type: (N,C,I) ..... [n]
> (P)ersonal, (I)RA, (K)eogh ..... [p]
> Portfolio (P,I,K)..... [aapl]
> Stock Symbol ..... [aapl]
APPLE COMPUTER INC
Closing Price is: 26 5/8
Bid: 26 1/2
Ask: 26 5/8
> (B)uy or (S)ell ..... [b]
> (C)ash or (M)argin Account ..... [c]
> Account (C,M) ..... [100]
> Number of Shares ..... [27]
> Price: Your Limit or (M)kt ..... [d]
> (O)TC or (D)ay Order ..... [d]
> (C)heck, (S)ummit Fund,
  (F)unds in Acct ..... [f]
> Payment Method (C,S,F)..... [f]
> Deliver Certificate: (Y,N) ..... [n]
> Password ..... [1234]
You have ORDERED the following:

```

Figure 6.31 The Trade\*Plus order procedure

**STEP 12**

Respond to the stock order procedure by typing the boxed characters in figure 6.31. After typing each character press Return, including where you type “Y” for yes or “N” for no.

The Trade\*Plus order confirmation will appear.

**STEP 13**

Type “Y” to confirm the order and a binding message will go to your broker to buy the stock; your money is committed.

To quit Trade\*Plus at any time, type “0” and press Return. If you are using a Ven-tel or similar modem, turn the switch from D to V and hang up the phone.

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## **Augment**

Augment, currently offered as part of Tymshare’s network services, is the outgrowth of many years of research at SRI that was led by Doug Engelbart; more thought has been given to this system than to anything else you have read about in this book. Incidentally, the invention of the mouse was part of that research.

Engelbart and other researchers were the first to consider what might be done on computers with text in a practical way, and the years’ headstart allowed Augment to flower into the most powerful system available for office automation. Imagine that somewhere in the world there exists a system of paper and pencil, typewriters, libraries, postal service, publishers, book printers, card files, publishers; the Augment system offers a complete electronic version of it. It is also complex to learn fully (although some parts are easy to learn), and it tends to be expensive and slow.

You can subscribe to Augment by getting in touch with the provider, currently Tymshare, at 20705 Valley Green Drive, Cupertino, CA 95014.

### **How Augment Works**

The Augment organization provides its customers with a special Macintosh application, Augterm, that takes over the Mac and makes it resemble a standard Augment terminal. The advantage of this program is that it allows selection of text on a distant computer with a mouse just as on a mouse-based local system. It also allows certain other information handling refinements. The disadvantage is that it does not allow the copying of files or any information to or from the Macintosh. Users of Augment can also use MacTerminal; in that case you can send and receive files roughly as described in other parts of this chapter, but cannot use the mouse to do things on the distant computer,

and you lose some of the power of Augment. The examples in this chapter use Augterm.

To reach Augment you evoke the Augterm application and supply identification information to Tymnet similar to the way you supply identification information to Telenet for The Source and Trade\*Plus. This identification information includes identifying yourself to TENEX, the operating system that runs on the computers that support Augment. TENEX resembles what's in the System Folder on the Macintosh. Augment runs as an application based on TENEX.

When you have identified yourself as an Augment user, the screen shows one workspace where you can point to things and work on them, as in a Macintosh application, rather than typing lines and ending them with carriage returns as on The Source or Trade\*Plus. You can do a world of work with Augment, but we will go through only one small example: sending and receiving a simple electronic mail message.

### **Starting Up Augment**

**STEP 1** Put an Augterm diskette in the Mac. If the Augterm diskette catalog does not appear, click twice on the image of the Icon to evoke it. Click twice on the Augterm application. Augterm does not require a modem eliminator.

The Augterm application will take over the screen.

The three Macintosh menus allow you to copy the whole screen. The lozenge-shaped buttons across the top of the application window can be clicked to get certain Augment services.

**STEP 2** Dial the local Tymnet number, which Augment will supply. When you hear the high-pitched scream, if you are using a Ven-tel or similar modem, switch from V to D. X's, vertical lines, and sometimes other characters will appear to show you have made contact with Tymnet.

**STEP 3** Type "a" twice. The "a" let's Tymnet know what kind of terminal you are using, as does "D1" in the case of The Source. An inscrutable number (the number of the part of Tymnet you have reached) will appear followed by "Please log in." "Log in" is a piece of jargon that means to establish a connection.

**STEP 4**

Type your Tymnet identification, which Augment will supply, and press Return. The Tymnet identification in the example is "apple1"; yours will be different. The word "password" will appear. Type your password, which Augment will supply, and press Return. To safeguard its secrecy, the characters of your password will not appear.

The Augment welcome message will appear (see figure 6.32).

**STEP 5**

Type your user name and press Return.

The user name in the example is Horton, yours will be different. You can negotiate your user name with the Augment people when you buy the service; it is usually the personal name of a user or of a using organization.

The prompt "(password)" will appear.

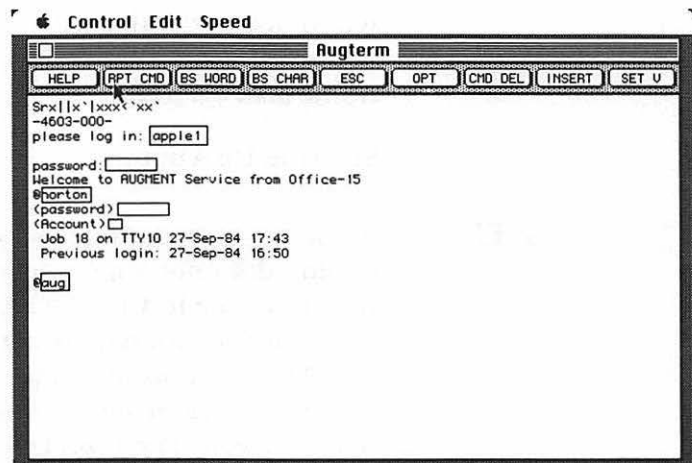


Figure 6.32 Connecting with Augment

**STEP 6**

Type your Augment password and press Return. Again the text will not appear on the terminal. "Account" will appear. Press Return to accept the account preset to your name.

Some information about the last time you used the system will appear followed by @.

**STEP 7**

Type "Aug" and press Return.

The Augment screen will appear. Augment uses the whole screen, like a Macintosh program, instead of scrolling line by line the way Trade\*Plus and The Source do.

Augment has several functions and the user gets to

decide which function he or she wants to see first. You could, for example, see an editing system or a Multiplan-like function. In this example the electronic mail function is preset to appear. Mail had been sent to Horton since the last time he logged in, so a message to that effect appears.

In Augment you can type a question mark (?) at any time to get a listing of what you can do.

## STEP 8

Type "?".

A list of commands in the mail system will appear.

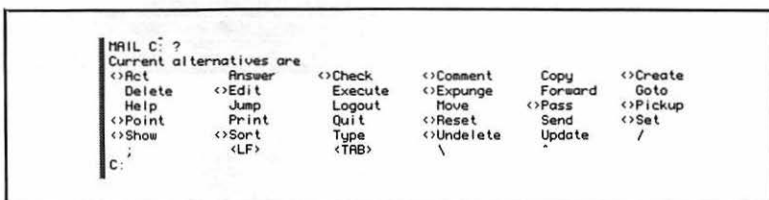


Figure 6.33 Commands in the Augment mail system

The Augment system has an on-line question-answering system similar to that of Microsoft Word, but much more extensive. Extensive on-line question-answering is a virtue of well-designed, large computer systems. In the case of Augment, you can call for help at any point in your work and the system will give a summary of what you are doing and a menu of related subjects.

## STEP 9

Roll the mouse up to the Help button at the top of the screen and click the mouse button. Help information will appear.

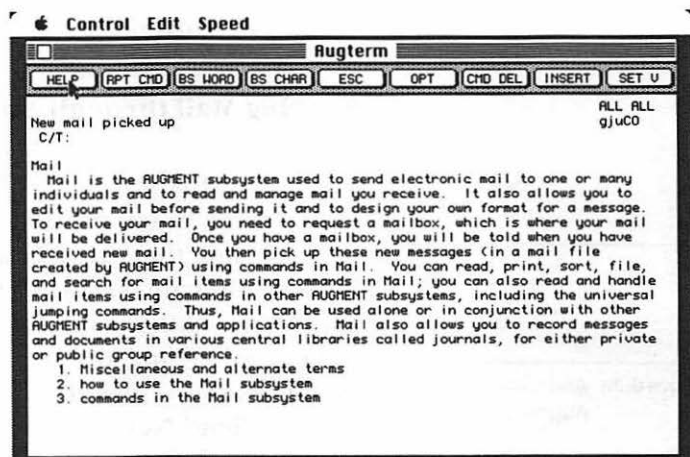


Figure 6.34 The Augment mail system description

**STEP 10**

Roll the cursor up to the "Cmd Del" (for Command Delete) button at the top of the screen and click the mouse button.

The Help information will disappear to reveal your current mail. Figure 6.35 shows a typical list of messages to a member of the Augment staff. This staff member helped users with problems. By the way, this particular user has since joined a monastery, where even electronic mail can't reach him.

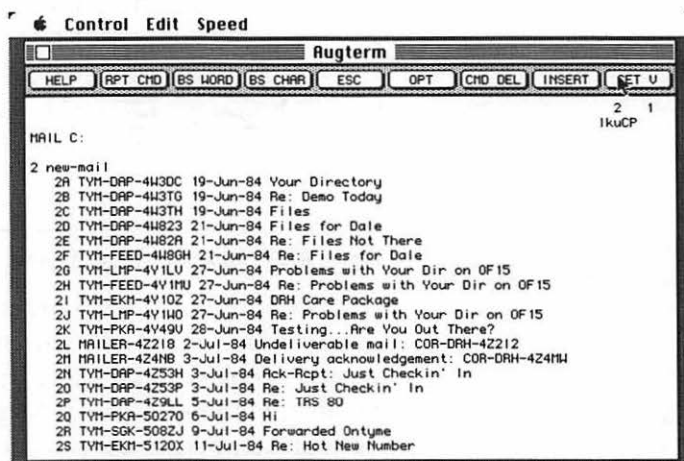


Figure 6.35 New mail for an Augment user

This and similar systems have many powerful and complicated options, such as sending messages to members of a group, with or without the members knowing whether the message has been received; however, it is easy still to send a plain message.

### Sending Mail through Augment

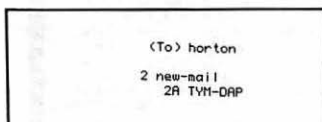
**STEP 1**

Figure 6.36 Addressing mail in Augment

Type "S" (for send), "N" (for new) and hold down the Command key and press key D.

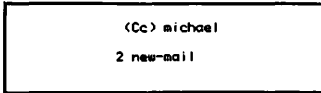
In using the Augment system, holding down the Macintosh Command key does what Return does on The Source and Trade\*Plus; it causes a command to execute. Upper or lowercase typing doesn't matter in any Augment command. The system will echo "Send New". Some characters follow "Send New" on the screen; they allow you to use more complex options that are irrelevant at the moment. The system asks "(To)".

**STEP 2**

Type in your own user name to send the sample message to yourself, then hold down the Command key and press D to send.

**STEP 3**

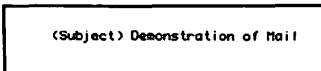
Augment will respond by asking if you want to send copies to anyone else. If you don't, hold down the Command key and key D and it will go on. If you do, type in the other user's name (Michael in the example) and hold down the Command key and key D.



**Figure 6.37** Addressing a copy in Augment

**STEP 4**

Augment will ask you for the subject (title) of the message. Type a title and then hold down the Command key and key D.

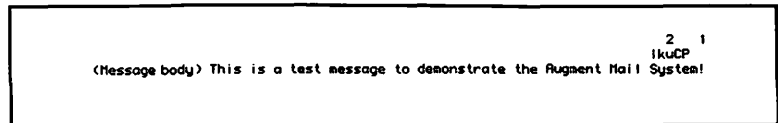


**Figure 6.38** Giving a message a title in Augment

The mysterious characters "M/I/[A]" appear. They are a prompt to let you know that you can type text, "T"; mark for selection with the mouse some text on the screen, "M"; or address some offscreen text, "[A]".

**STEP 5**

Augment will ask you for the message body. Type a message; you can edit by backspacing with the Mac Backspace key and retyping. Again, hold down the Command key and press D twice when you have finished the message.

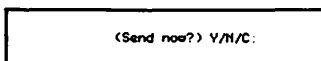


**Figure 6.39** Typing a message in Augment mail

If you have a longer message that you want to compose on your Mac without paying hourly charges to Augment, or to the mail system on The Source, you can transfer a file to either system with MacTerminal. The transfer is similar to the way you transferred the files between the Mac and the IIfx; send what you have transferred as the message to be sent.

**STEP 6**

Augment will ask you if you want the message sent now. Type "Y" for Yes. It will say "Sent."



**Figure 6.40** Saying "Yes, Send the Mail Now."

**STEP 7**

You can't leave Augment directly from the mail system (except by hanging up the phone, which cause the same problem that it does with The Source and Trade\*Plus: they will charge you for the time until the system discovers you're gone). Type "B" (for base, as in home base), hold down the Command key and press D. Then type "lj" (for Logout Job), and press the Command key and press D. The system will display some information about how long you used it and then the Tymnet message "please log in" will appear in case you want to use a different service on Tymnet. Now you can hang up.



# Advanced Word Processing

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The bulk of this chapter is devoted to Microsoft Word. It also stresses moving things from one system to another, and it shows the use of an outline-handling program, a graphics program, and a spreadsheet program as additions to writing.

Microsoft Word is a well-known word processing system that runs on several personal computers. Microsoft has adapted it to the Macintosh, making use of the ability to vary fonts and selection with the mouse. It is an easy-to-learn, powerful word processing system. It differs from standard Mac applications because sometimes what appears on the screen looks different from what is printed.

If you write a file longer than will fit in the memory of the Mac, Word stores part of it on the diskette; thus you can write a document so long as there's space on the diskette. About two hundred pages is possible, although the time it would take to search through the whole thing means that documents based on chapter length is more useful. Word provides all the text-editing functions of MacWrite, plus some additions, such as the ability to select lines and paragraphs. With Word you can print in several columns; you can have footnotes, that it will automatically number; and you can construct running heads or running footers.

Word has to read and write from the diskette more frequently than any other program discussed in this book. It will do this if you have a long file, and because it does not

keep its entire program in the Mac's memory. From time to time it has to look on the diskette to see how to do something you have commanded it to do. The result is slow response compared to MacWrite. Response time is somewhat better on a Mac with 512K memory. Slowness is the price you pay for the large range of features Word has. For someone like me who is writing book-length manuscripts, it is well worth it; for someone doing short letters, MacWrite is simpler to learn and probably more practical.

This chapter first discusses creating an outline in an outline-handling system, moving it to Word, and then setting up an academic paper with headings, running heads, and footnotes. Then it explains creating a 3-column brochure, with illustrations from MacPaint, Multiplan, and Microsoft Chart.

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## **Setting Up an Outline with ThinkTank 128**

Although the bulk of this chapter is devoted to Microsoft Word, I'd like to begin by showing you ThinkTank 128, the ingenious outline-handling program from Living Video Text. ThinkTank allows you to write down ideas in a fast, freehand style and then rearrange them into an appropriate outline. You can display or print parts of the outline, or only the top-level items, leaving out the details. For larger versions of the Mac (512K memory or larger), a ThinkTank version is available that lets you attach blocks of text to the headings, turning it into a pretty fair word processing system.

Although ThinkTank uses the graphics possibilities of the Mac very ingeniously, it does not use them just the way most applications do. Like MacPaint, it takes over the whole screen and does not allow other windows.

This example assumes you have been given the well-known college assignment, "Define The Universe." Since this is a book about small computers, you do not have to provide more than one example.

If you don't have ThinkTank but are using Microsoft Word, just type in the outline in figure 7.9 exactly as you would in MacWrite.

## Making an Outline

### *Putting in the Parts*

#### STEP 1

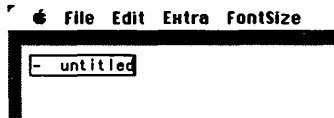


Figure 7.1 A Blank ThinkTank screen

Put a ThinkTank 128 diskette in the Mac. Select the ThinkTank icon.

Before you can start working, a totally useless sign about ThinkTank appears. You will shortly see the ThinkTank screen with an outline heading, “untitled,” at the top (see figure 7.1). A box surrounds untitled, showing that you can edit it. The vertical line cursor is at the right.

#### STEP 2

Backspace 8 times to erase the word Untitled. Type: “The Universe”.

#### STEP 3

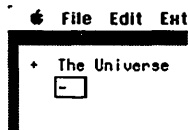


Figure 7.2 Beginning a ThinkTank outline

Press Return. An empty box will appear; the box is indented from the rest of the outline. (Pressing Return after naming an outline head causes the indentation). Note the (+) sign: it shows that there are subitems; the minus (–) shows there are no subitems under the heading.

Type in some of the things that make up the universe as you think of them, one idea after another.

#### STEP 4

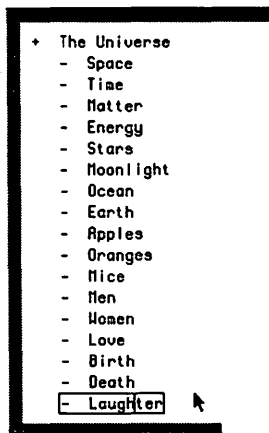


Figure 7.3 An unarranged list in ThinkTank

Type the list in figure 7.3, pressing Return after each item. If you make a mistake, backspace and retype as in step 2 above; you can move up or down the list by clicking in the top or bottom margin. You can erase the contents of the box by pulling down the **Edit** menu and selecting **Cut**.

**STEP 5**

Figure 7.4 Selecting the Sort command

ThinkTank will sort lists alphabetically. Pull down the **Extra** menu and select **Sort**.

When ThinkTank sorts, the screen does not go blank. Instead, you can see the items dance into place. It is an attractive quality of ThinkTank programming that you see things happening instead of having them occur mysteriously inside the machine. Figure 7.5 shows the results of an alphabetical sort.

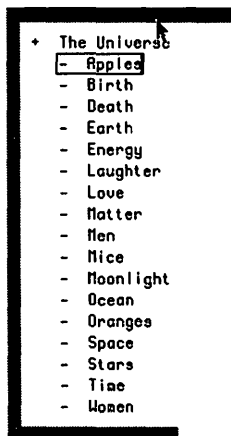


Figure 7.5 The Universe sorted alphabetically

**Organizing the Universe** The organization in figure 7.5 will not satisfy the needs of a college paper. You might think, for example, that moonlight is a kind of energy, so the two should be grouped together.

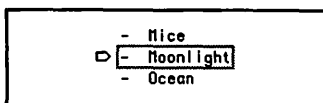
**STEP 6**

Figure 7.6 Selecting an outline item to move

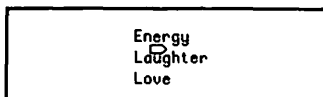


Figure 7.7 Selecting a new location for an outline item

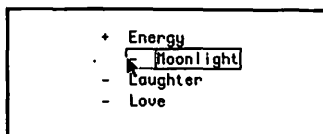


Figure 7.8 Moonlight under Energy

Move the cursor to Moonlight and click. The box that shows you can change it will appear. Put the point of the arrow inside the box and hold the mouse down for a moment. The box will turn gray and a pointer will appear to the left of the box (figure 7.6). Still holding down the mouse button, roll the mouse. You will discover the bullet-like pointer moves. Move it below and indented to the right from Energy (figure 7.7). Release the mouse button. Moonlight will jump to its new location (figure 7.8).

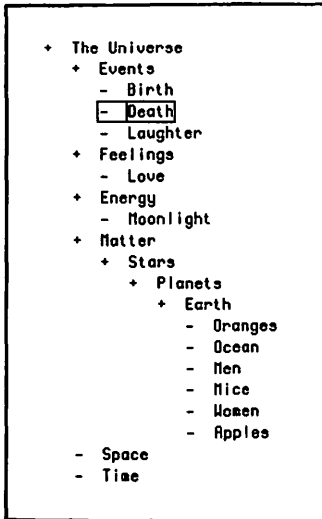
Looking over the list, I thought some categories had to be added. You can add items to the outline at any time by selecting an item, pressing Return, and then typing the new item.

**STEP 7**

Return to the top of the outline by clicking in the top margin. Select The Universe, press Return, and then type "Events". Press Return again and type "Feelings". Press Return and type "Planets".

**STEP 8**

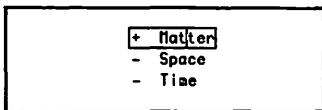
Rearrange the items into the outline shown in figure 7.9. The list is now longer than the screen, but remember you can scroll the list up or down by putting the cursor in the top or bottom gray margin. You may not agree with this organization, but play along with it for the sake of the example.



**Figure 7.9** Organizing some parts of the universe

**STEP 9**

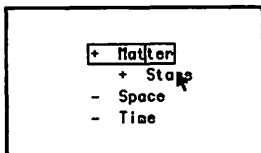
ThinkTank lets you hide or display subitems easily. Click twice on Matter. All the subitems of matter become hidden.



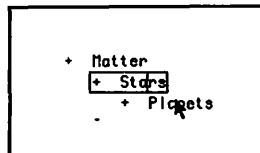
**Figure 7.10** Hiding the subitems under matter

**STEP 10**

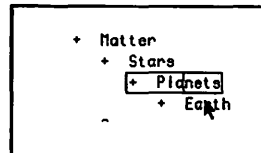
Click twice on Matter and Stars will appear; click twice on Stars and Planets will appear; click twice on Planets and Earth will appear; click twice on Earth and the other items will appear.



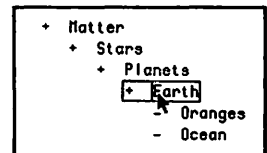
**Figure 7.11** Unfolding subitems: Stars



**Figure 7.12** Unfolding subitems: Planets



**Figure 7.13** Unfolding subitems: Earth



**Figure 7.14** Unfolding subitems: things on Earth

- STEP 11** To close the file, pull down the **File** menu and select **Quit**. The usual Macintosh file-saving dialog box will appear. Type "The Universe" and check OK.

### **Moving an Outline from ThinkTank to Microsoft Word**

Microsoft makes it impossible to copy a complete diskette. Like most Microsoft products, you can apparently copy the diskette, but when you start the actual application, the system requires the insertion of the original diskette you bought from Microsoft. The advantage to Microsoft is, of course, higher profit. There is an advantage to you in their system over systems that simply don't let you copy the diskette: if you use a copy for your work the copy may get damaged or wear out, but the master diskette remains less worn or endangered.

In the previous examples with Microsoft Multiplan and Chart, I ducked this issue to make procedures more simple. Why face this extra complication at this point? First, the Microsoft Word Master diskette is rather crowded and it is nearly impossible to do useful work with it on a Macintosh with only one drive. Several of the files are for demonstrations or other special purposes and can be left off the copy to make more space. The second reason is that working from a copy is just prudent.

- STEP 1** Make a copy of Microsoft Word and put your copy in your Mac. Pull the **File** menu and select **Eject**.

- STEP 2** When the Microsoft Word copy is out, put in the ThinkTank diskette with the file containing "The Universe" in it. If the ThinkTank catalog does not appear, click on the icon to evoke it. Click twice on the icon of Universe file.

When the file comes up, "The Universe" will be boxed, which is ThinkTank's way of showing it is selected.

- STEP 3** Pull down the **Edit** menu and select **Copy**. A copy of the outline is now on the Clipboard. When you select an item for copying in ThinkTank, all the subitems go with it (in this case the whole outline).

- STEP 4** Pull down the **Edit** menu and select **Show Clipboard**. The outline will appear unfolded on the Clipboard.

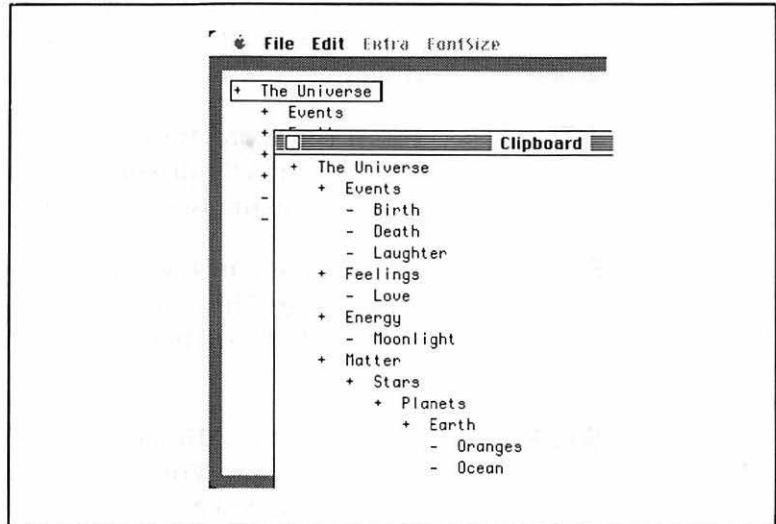


Figure 7.15 Transporting an outline out of ThinkTank via the Clipboard

- STEP 5** You have to close the Clipboard before you can quit. Pull down the **Edit** menu and select **Hide Clipboard** (this appears on the menu when the Clipboard is open).

- STEP 6** Pull down the **File** menu and select **Quit**. You are now done with ThinkTank.

- STEP 7** Pull down the **File** menu and select **Eject**.

- STEP 8** Take out the ThinkTank diskette and insert the copy of the Word diskette. When the Word diskette catalog appears, click twice on the Word icon.

The screen will go gray and a dialog box will appear with an image of two diskettes changing places and the request; Please insert the disk: Tank. (Tank is the name of the ThinkTank diskette as it comes from the company). The Macintosh system has some housekeeping to do on the Tank diskette before it can continue.

- STEP 9** Insert the Tank diskette. After some whirring, the Macintosh will eject the Tank diskette and with the same dialog box ask for the copy of the Microsoft Word diskette.

- STEP 10** Insert the Word copy. After some more whirring, the Macintosh will eject the copy of the Word diskette and the same dialog box will reappear with the message: Please insert the Word Master disk. Word will not give you access to an application until it has checked that you own a master diskette.
- STEP 11** Insert the Word Master diskette. After some further whirring the friendly diskette exchange dialog box will appear and ask you to insert the Word copy.
- STEP 12** Insert a copy of the Word diskette. A blank Word screen will appear. Through all this your outline has remained safe on the Clipboard because the clipboard is in the machine's memory.
- STEP 13** Pull down the **Edit** menu and select **Paste**. The outline will appear in New York, the preset Word font (figure 7.16). This would be a good time to save the file.

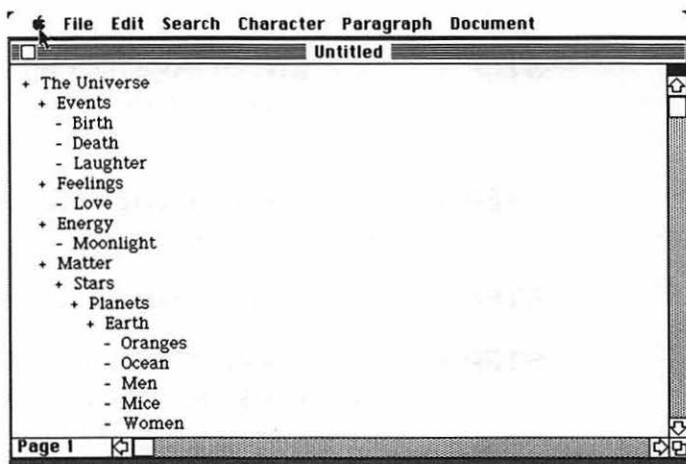


Figure 7.16 An outline moved from ThinkTank to Microsoft Word

- STEP 14** Pull down the **File** menu and select **Save**. The Word's Save dialog box will appear (figure 7.17). It differs from similar Mac dialog boxes only in that you can choose to make an extra identical copy to back up your copy.



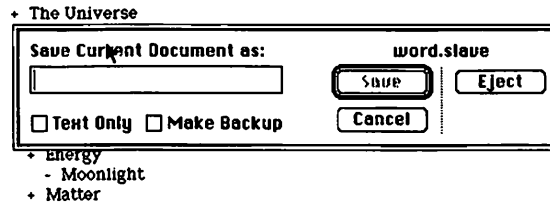


Figure 7.17 The Word's Save dialog box

## STEP 15

Type "Universe". The Save box will blacken to show you can use it. Check Save.

The process is somewhat simpler with two disk drives. The Word Master diskette is put in the internal drive and the ThinkTank diskette in the second drive. This saves you the trouble of pulling the ThinkTank diskette in and out as in steps 7 through 11 above. You would still have to put in the Word Master diskette, though.

## Setting Up Headings in Word

The paper we are creating will be clearer if it takes advantage of the changes in font size and style available for headings.

## STEP 1



Figure 7.18 Selecting a line in Word

Move the cursor next to the left margin of The Universe. As the cursor nears the margin, it changes from the I-beam, which indicates that you can type text, to an arrow, which indicates that you can make selections. Click the mouse button. The whole line will turn black (figure 7.18). In Word you select a line by moving the cursor to the margin beside it and clicking the mouse.

The title, The Universe, should be centered.

Recall that MacWrite and Word have a built-in definition of a word (a space or punctuation before and after it), so that you can click twice anywhere on a word and have just that word selected. Word also has built-in definition of a paragraph. A paragraph is anything with a line space (Return has to be pressed) in front of it and a line space after it. Thus, you can divide a paragraph by pressing Return in the middle of it. By this definition each of the headings that came from ThinkTank is a separate paragraph, as headings usually are. You can reformat the heading by using the **Paragraph** menu.

**STEP 2** Pull down the **Paragraph** menu and select **Centered**.

**STEP 3** Pull down the **Character** menu and select **Formats**.  
The Character Formats dialog box will appear.

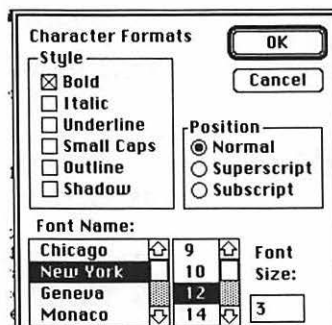


Figure 7.19 The Character Formats dialog box

**STEP 4** Check Bold.

Word lets you select fonts and sizes with a method resembling the way you select files following the usual Mac Open command (see chapter 1). The dialog box that lists fonts contains scroll bars like the box that appears when you open files.

**STEP 5**

Bring the 20-point font size into view by clicking on the arrow by Font Size and then select it. Check OK.

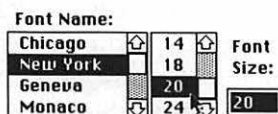


Figure 7.20 Selecting a Font Size in the Character Formats dialog box

The plus (+) and the spaces between it and “The” are still attached. On a computer screen spaces count; they occupy a position even though you cannot see them. You can insert and delete them just like characters. To show that the blinking insertion point and backspacing work the same way as in MacWrite, we will remove the plus and spaces before “The”; we will remove the rest more efficiently with search and replace in a moment.

**STEP 6**

Roll the cursor next to the T in “The.” Click the mouse. The blinking insertion point will appear. Press Backspace three times.

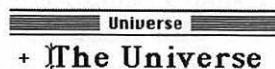


Figure 7.21 Setting the insertion point

**STEP 7**

As in steps 1 through 4, select each of the second-level headings (Events, Feelings, Energy, Matter, Space, and

Time), pull down the **Character** menu and select **Formats**, check bold, and select 14-point type.

## STEP 8



Figure 7.22 Selecting several lines

To make the third-level headings bold but not large, move the cursor to the margin next to “Birth.” Slide it down the margin two more lines (see figure 7.22). Pull down the **Character** menu and select **Bold**.

## STEP 9

Select the other third-level headings (Love, Moonlight, and Stars) and make them bold.

## STEP 10

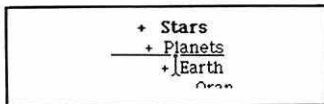


Figure 7.23 Spaces may be underlined

Select the only fourth-level heading, Planets, pull down the **Character** menu and select Underline. Note that the extra spaces on the line are underlined as well (see figure 7.23). Don’t worry, we will get rid of them in a moment.

## STEP 11

Select Earth and its subitems, pull down the **Character** menu and select Italic.

Now to get rid of the extra spaces, pluses, and dashes inherited from ThinkTank. Since we have no regular text yet, there is no reason to have any spaces in the file, so we can remove all spaces.

## STEP 12

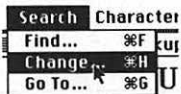


Figure 7.24 Selecting Change on the Search menu

First click before the T in The Universe to set the spot where the search will begin, and then pull down the **Search** menu and select **Change**.

The Change dialog box will appear (see figure 7.25). It has a close box and a move bar, so you can move it around like a window. The cursor will be preset to appear in Find What.

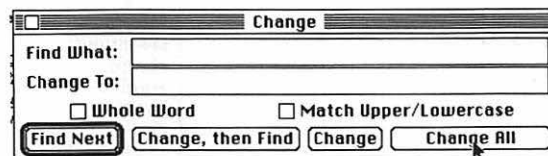


Figure 7.25 The Change dialog box

**STEP 13**

Press the space bar; this means you will be searching for spaces. Move the cursor into the box beside Change To:. Do not type anything; this means you will erase spaces. Click on the Change All button. Then click on the hide box in the Change dialog box. The headings will appear without spaces.

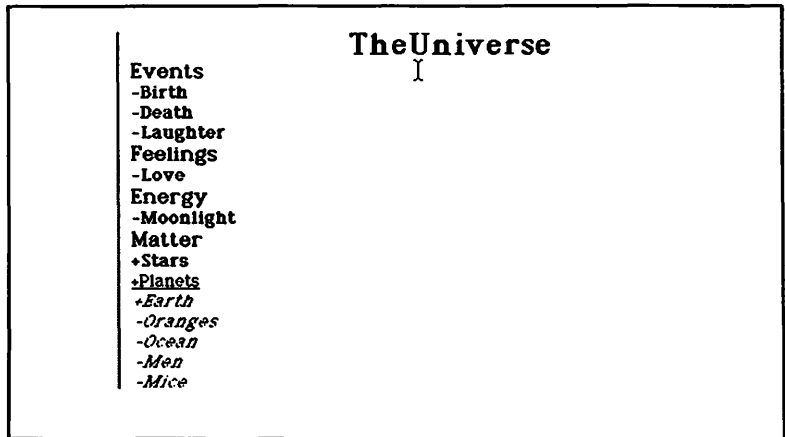


Figure 7.26 The Universe without spaces

Note that the space between The and Universe was inadvertently removed.

**STEP 14**

Move the cursor between e and U, click to set the blinking insertion point, and press the space bar.

**STEP 15**

Pull down the **Search** menu. Select **Change**, and replace the pluses and dashes with nothing, just as you erased the spaces. Now the screen will look like figure 7.27.

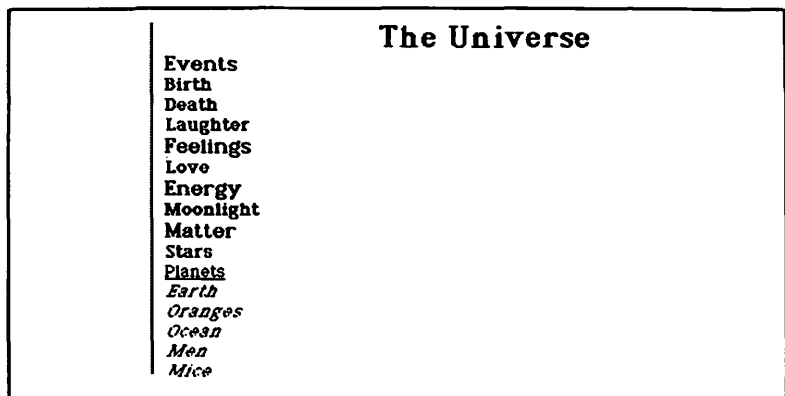


Figure 7.27 The outline ready for text

## Putting In Text

No actual text about the Universe will appear in this exercise. We will merely put in enough dummy text that we can use the running head and footnote features. But in doing so we will see the basics of handling text in Word.

### STEP 1

Set the blinking insertion point after the final h in Birth. Press Return twice. Putting a return in the text creates an empty paragraph (see above).

### STEP 2

Set the insertion point at the beginning of the new paragraph.



Figure 7.28 Setting the insertion point to begin a new paragraph

### STEP 3

Type "Text" (Set a space after the word by pressing the space bar after you type the second t).



Figure 7.29 Entering text

### STEP 4

Select the line by moving the cursor to the left margin. Pull down the **Edit** menu and select **Copy**.

### STEP 5

Move the blinking insertion point one space after Text as in figure 7.29. Pull down the **Edit** menu and select **Paste**. A second copy of the word will appear.

### STEP 6

Select the second capital T (figure 7.30) by holding down the mouse button while you drag the cursor across it. Type a lowercase t.

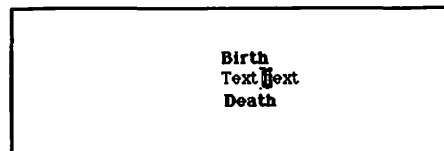


Figure 7.30 Selecting a character

**STEP 7** Click twice on text to select it. Pull down the **Edit** menu and select **Copy**. Pull down the **Edit** menu and select **Paste**.

**STEP 8** Continue this process until text extends partially onto a second line. (Hint: you can speed up the process by selecting several words at once, copying the group, and pasting it.) Type a period. Now you have a two-line sentence.

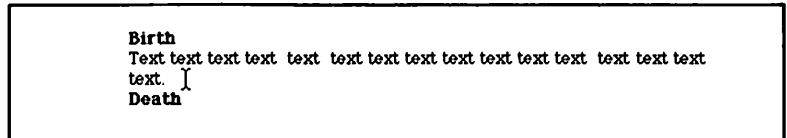


Figure 7.31 A sentence

**STEP 9** Word has a built-in definition of a sentence. Hold down the Command key and click anywhere in the sentence. You have selected the sentence (see figure 7.32). Pull down the **Edit** menu and select **Copy**.

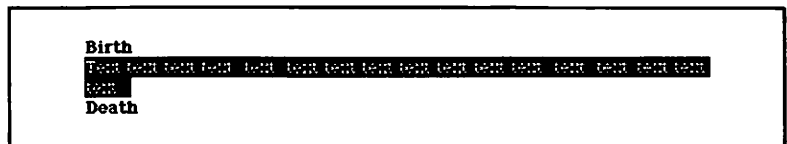


Figure 7.32 Selecting a sentence

**STEP 10** Set the insertion point at the end of the sentence and pull down the **Edit** menu and select **Paste**. Now the paragraph has two sentences.

**STEP 11** To select a paragraph, move the cursor next to the left margin, as in selecting a line, and click twice.

**STEP 12** Pull down the **Paragraph** menu and select **Formats**.

A ruler appears as in MacWrite. This ruler, however, does not rule everything below it, but only the paragraph currently selected. Each paragraph has its own ruler, which you can hide (most of the time) or show. Note that at the left end of the ruler is a tiny arrow with a white spot in it and the right margin an arrow with no spot.



Figure 7.33 The Microsoft Word ruler

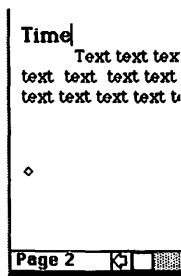


**STEP 16**

Select the paragraph. Pull down the **Edit** menu and select **Copy**. Set the insertion point after the heading **Death** and press Return to create space for a copied paragraph. Pull down the **Edit** menu and select **Paste**.

**STEP 17**

Repeat the process of copying the paragraph of text after the headings **Laughter**, **Love**, **Moonlight**, **Stars**, **Planets**, **Earth**, **Space**, and **Time**. This will lengthen the paper to two pages. Of course, in a real paper you would type out paragraphs discussing these topics. Note that the page count in the lower left-hand corner of the window turns to two.



**Figure 7.38** The page number box showing a second page count has risen to two

It is fairly easy to make a mistake and mix paragraphs so that, for example, the indenting of one of the headings takes over the indenting of the text. You can easily separate them by setting the insertion point at the proper boundary and pressing Return. Once they are separate, set the insertion point in the paragraph with the wrong margins, pull down the **Paragraph** menu and select **Format**. The dialog box will appear and you can set the margins and line spacing correctly.

This would be a good time to save the file again.

**Inserting Footnotes**

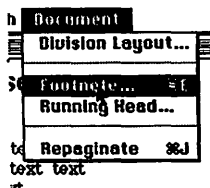
This section will show you how to attach the footnote “You’ve always got to keep your sense of humor.” to the end of the text under **Laughter**. The footnote will then appear at the bottom of the page. If the paragraph were moved to another page the footnote would go with it. You could also put the footnote at the end of the paper. Word will number the footnote automatically, but it is possible to number by hand with \*, †, *etc.*, or any other character.

**STEP 1**

Set the insertion point after the last character in the text about **Laughter**.

**STEP 2**

Pull down the **Document** menu and select **Footnote**. The Footnote dialog box will appear.



**Figure 7.39** Selecting Footnote on the Document menu





enables you to put a running head on every page, or one that appears on the odd (normally right-hand) pages and a different one on left (normally even-number) pages. You can also have running footers at the bottom of the page, but not both running heads and footers. This example shows one running head on the even (left) page—the name of the paper—and another on the odd (right) side—the name of the writer and the class assignment.

You can put the running head anywhere in the text, but it will only take effect on the page where it appears and those following. It seems most orderly for this short paper to put it at the very beginning. But the very beginning is the title, in 20-point, bold, centered letters which is a little heavy for a running head. You will need to create a new paragraph (by inserting a return) and give that paragraph an appropriate format for a running header.

- STEP 1** Set the insertion point at the very beginning of the paper. Press Return. Pull down the **Character** menu and select **Formats**. Alter the Formats dialog box by clicking on Bold to deselect it which leaves the text Plain; select Underline, and 12-point text.

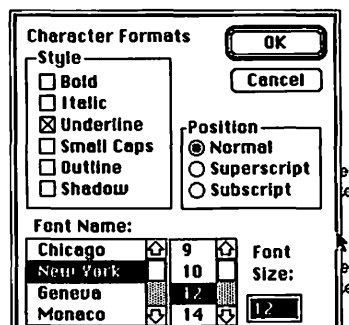


Figure 7.43 Setting up the format for a running head

- STEP 2** Pull down the **Paragraph** menu and select **Normal**.
- STEP 3** Type "The Universe" and then select the text.
- STEP 4** Pull down the **Document** menu and choose **Running Head**. The Running Head dialog box will appear.

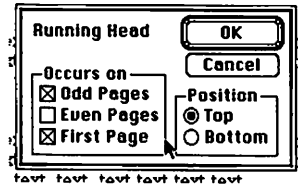


Figure 7.44 The running head dialog box

## STEP 5

Check: Odd Pages, First Page, and OK. Often the first page is a title page, where you wouldn't want the running head to appear, but since this example paper is only two pages long, the odd running head must appear on the first page if it is to appear at all.

The running head symbol, a low, small double bracket that looks like a quotation mark from French or Spanish, appears in the left margin to show that this paragraph will *not* print where you see it, but rather as a running head (see figure 7.45).

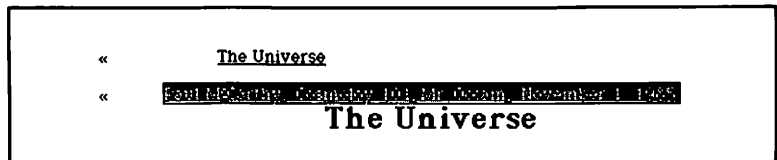


Figure 7.45 Running heads for odd and even pages with the right page head selected

## STEP 6

Set the insertion point at the end of the running head, press Return twice and type the name of the writer, his class, and date (Paul McCarthy, Cosmology 101, Mr. Occam, November 1, 1985). Select the text you have just typed. Pull down the **Document** menu and select **Running Head**. The boxes are preset to show the same header on both odd and even pages. Check Odd to reverse the preset; this lets the heading appear on Even only. Check OK. The mark of the running head will appear beside this text.

Note the raised small "c" in McCarthy. Those of Irish or Scottish descent can obtain this fine touch by selecting the character, then pulling down the **Character** menu and selecting **Superscript**.

### Page Numbers in Running Heads

Word will number your pages automatically in the upper right-hand corner if you do not have running heads. Running heads preempt the space where the page numbers normally go. The simplest way to provide page numbers when you have running heads is as follows.

#### STEP 1

Select the end of your running head. Type "Page". Hold down the Command key and press Backspace. Page will be replaced with (page). The (page) is a place holder. The real page number will appear when you print the page. Figure 7.46 shows this step halfway through. In the upper running head, (page) is in place; the lower running head is waiting for the Backspace key to be pressed while the Command key is down.

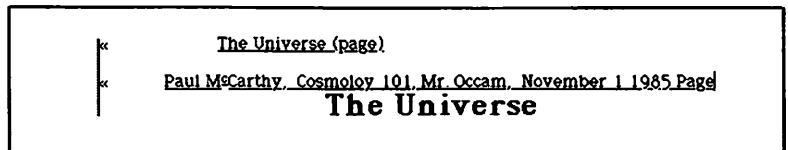


Figure 7.46 Making page numbers part of the running head

When you put page numbers in a running head you are making use of a feature that Word calls a *glossary*. With the glossary feature you can put some short string of characters in a file and have something else replace it when you print. For example, to save typing you could insert @ and have some lengthy phrase replace it when you print. Word offers two types of glossary, those you define yourself, and a set of standard glossary items, one of which is the page number. A file of standard glossary items comes with Word. If you are using only one disk drive, it is necessary to have the glossary file on the diskette you are using in order to make page numbers appear in running heads. If you are using a second disk drive, the glossary file can be on either diskette.

#### STEP 2

To make it clear in the printed version that the page numbers are page numbers, set the insertion point between the text and (page) and type spaces to separate the number from the rest of the heading.

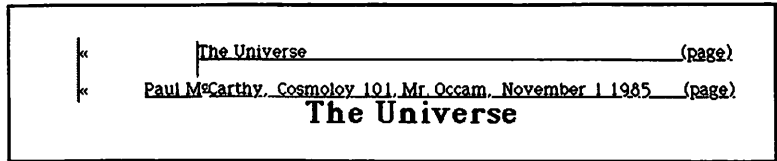


Figure 7.47 Running heads with spacing to set off page numbers from text

**STEP 3**

To print, pull down the **File** menu and select **Print**. The standard Mac printing dialog box will appear. Printed with the standard rather than the high-quality print style, the paper looks like figure 7.48.

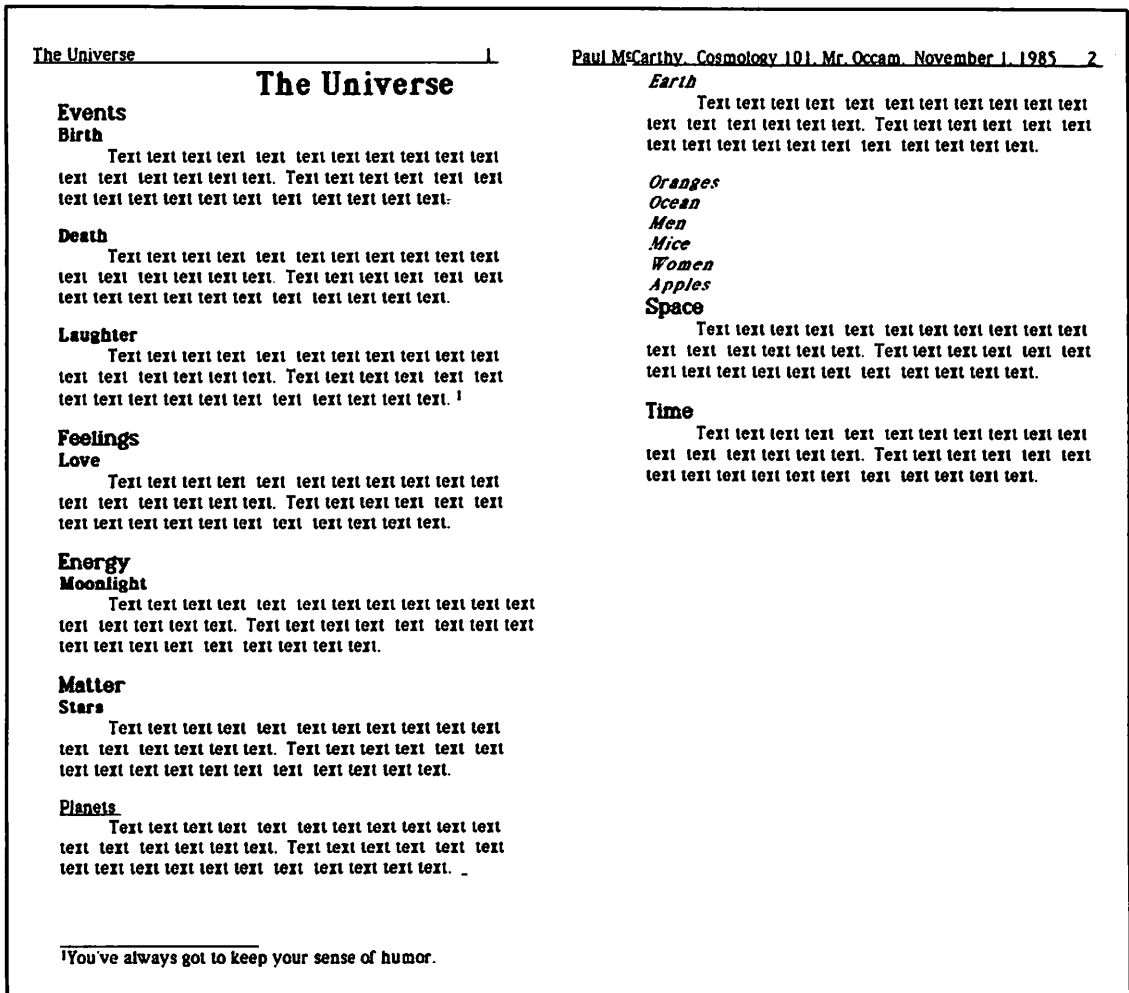


Figure 7.48 Printed with standard rather than high quality print style

## Making a Brochure for Thorn & Co.

In this section we will create a brief brochure for Thorn & Co. The format is an 8 1/2-by-11 inch sheet printed sideways in three columns and folded. This section demonstrates more than any other the possibilities and the number of steps and planning required to use material from several programs. It shows copying an illustration from a commercial clipsheet diskette (ClickArt); copying a table from Multiplan; copying a chart from Chart; and editing in MacPaint.

If you don't have ClickArt, you can use MacDraw to make an example. If you don't have Multiplan, you can type in a table in 12-point type in MacWrite.

### Setting up the Format

#### STEP 1

Put the Word diskette in the Mac and turn it on. If the catalog does not appear, click twice on the diskette icon to evoke it.

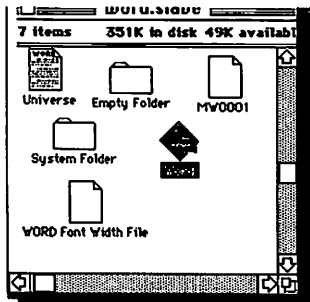


Figure 7.49 The catalog on a word diskette

#### STEP 2

Click twice on the Word icon to create a new Word file.

#### STEP 3

After some whirring the machine will eject the diskette and show a message to put in the Word Master diskette (figure 7.50). Microsoft's copy prevention system requires this step. Remove the copy diskette and insert the master. After a little more whirring the system will eject the master

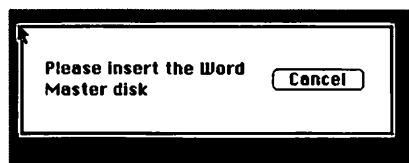


Figure 7.50 Prompt box that requests insertion of the Word Master diskette

diskette and ask by name for the copy. Remove the master and insert the copy. An untitled Word file will appear.

**STEP 4** Pull down the **File** menu and select **Page Setup**. Check Wide Orientation. With three columns we need all the space we can get, so change the margins to 1/2 inch on both the left and right (see figure 7.51). Check OK.

As usual in boxes with text within dialog boxes, you can edit it in the normal Macintosh way, see 1.3.

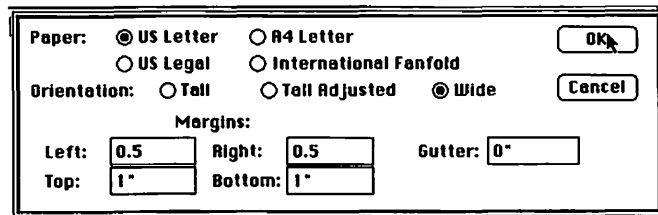


Figure 7.51 Page setup dialog box showing correct settings for horizontal, three-column printing

**STEP 5** Pull down the **Document** menu and select **Division Layout**. The Division Layout dialog box will appear. Check Column and change the number of columns from 1 to 3. Check OK.

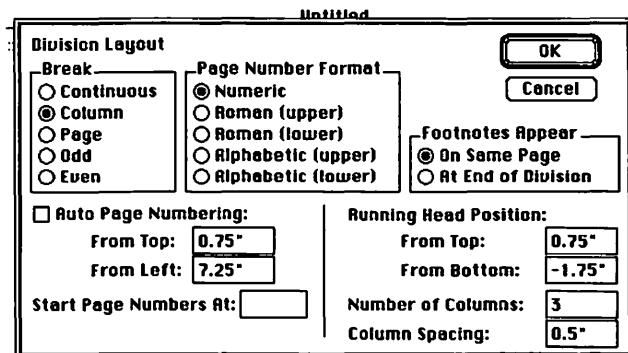


Figure 7.52 Division layout dialog box set for three-column printing

**STEP 6**

Pull down the **Character** menu and select **Formats**. For the title, set the format to 20-point New York, Bold, Shadow. Check OK.

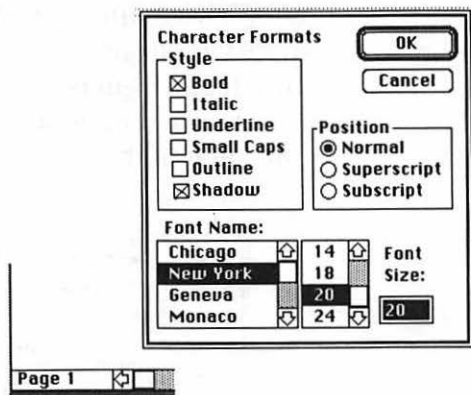


Figure 7.53 Character Format for 20-point, bold, shadow

**STEP 7**

The blinking insertion point will remain at the beginning of the file. Type "Thorn & Co." and press Return twice. The letters will appear at the top of the screen (figure 7.54).



Figure 7.54 Thorn & Co. brochure headings

**STEP 8**

Pull down the **Character** menu again and select **Formats**. Set the Character Format to 12-point, Chicago, Bold.

**STEP 9**

Type the brochure headings (Financial Status, Market Share, Anticipated Growth, Marketing, Management, Community Responsibility, Product Line). Press Return twice between each heading. When you finish the screen should look like figure 7.54.



## Dummy Text

We will use dummy text to fill out this brochure instead of actually writing out material under each heading.

### STEP 1

Set the insertion point between **Financial Status** and **Market Share**.



**Figure 7.55** Setting the blinking insertion point to enter text

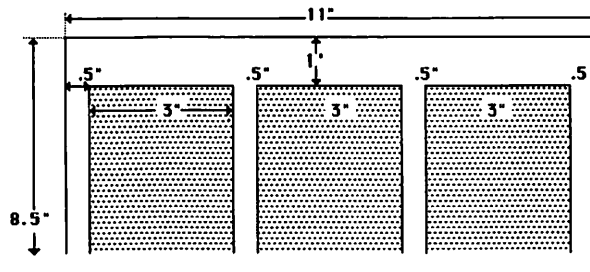
### STEP 2

Pull down the **Character** menu and select **Normal** (to turn off bold).

### STEP 3

Pull down the **Character** menu and select **Formats**. When the Character Formats dialog box appears, select 10-point Geneva.

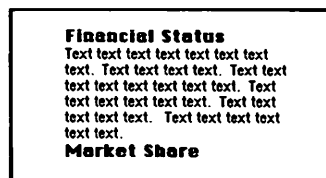
The steps in the previous section defined a three-column format drawn horizontally across an eleven-inch piece of paper. That means each column is three inches wide. When you print the brochure it will appear in three columns, but on the screen you only see one column at a time.



**Figure 7.56** Basic design of the Thorn and Co.

### STEP 4

Type "Text" repeatedly to create a paragraph of dummy text. Because it is part of a column three inches wide, it will only appear on the left-hand part of the screen.



**Figure 7.57** Dummy text for the brochure

- STEP 5** Copy the paragraphs of dummy text below Market Share, Management, Product Line, and Community Responsibility.

### Copying a Figure from a Commercial Clipsheet

T/Maker offers diskettes under the name of ClickArt that provide useful, predrawn images that can be used in MacPaint. To use them you copy the image onto the Clipboard and paste it into the text. In order to see the picture, you must have a copy of the MacPaint program available, a somewhat complicated process if you have only one disk drive.

Thorn & Co. has chosen an image that is tall, slender, and noncontroversial.

- STEP 1** Pull down the **File** menu and select **Quit**. The file-saving dialog box will come up. Type "Thorn Brochure" and check OK.
- STEP 2** Pull down the **File** menu and select **Eject**.
- STEP 3** Insert a diskette that has the System Folder and MacPaint on it. Then **Eject** it.
- STEP 4** Insert the ClickArt diskette. When the catalog appears, double click on a folder named Stuff. When the folder unfolds, double click on a MacPaint file named Americana (figure 7.58). The Mac will eject the ClickArt diskette and display a message to insert the diskette with MacPaint on it. Do so.

After several switches between the two diskettes, a collection of Americana will appear, including Washington, Lincoln, and the Liberty Bell. (If you have two drives, one can hold the ClickArt diskette and the other the diskette with MacPaint on it.)



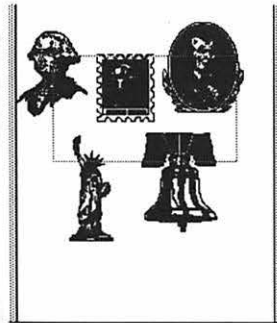
**Figure 7.58** Selecting Americana from the ClickArt Stuff Folder

**STEP 5**

**Figure 7.59** Selecting Show Page from the MacPaint Goodies menu

Pull down the MacPaint **Goodies** menu and select **Show Page**.

Figure 7.60 is the full view of the page. Naturally, details are lost. The dotted rectangle shows where the screen lies. Touching the end of the cursor arrow to the edge of the dotted rectangle and pressing the mouse button lets you drag the screen to a different location.



**Figure 7.60** The Show Page view of Americana

**STEP 6**

Drag the dotted rectangle until it includes the Statue of Liberty. Then click OK to return to a close view.

To the left of the art area in MacPaint are the symbols of tools (as in MacDraw). If your statue is not showing completely you can move it by selecting the hand tool; the cursor turns into a hand. Move the hand into the picture, press the mouse button, and you can move the picture "by hand." The rectangle at the top lets you copy things. It is called the marquee, because in action it produces a jiggling rectangular boarder like the lights around a marquee.

**STEP 7**

Roll the cursor into the marquee and select it (figure 7.61). When you move the cursor into the image area, it turns into a cross.

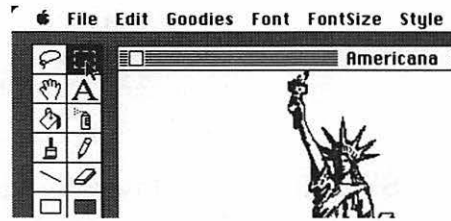


Figure 7.61 Selecting the Marquee tool in MacPaint

### STEP 8

Set the cursor above and to the right of the Statue of Liberty and drag it diagonally down and to the right to generate a rectangle around it.

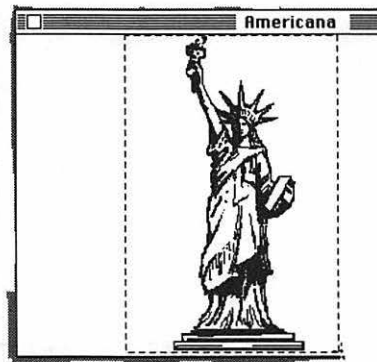


Figure 7.62 The Statue of Liberty selected in MacPaint

### STEP 9

Pull down the **Edit** menu and select **Copy**.  
The Statue of Liberty is now on the Clipboard.

### STEP 10

Pull down the **File** menu and select **Quit**. Pull down the **File** menu and select **Eject**.

### STEP 11

When the Mac has ejected the diskette with MacPaint on it, insert the Word diskette with the Thorn Brochure file. When the catalog appears, open up the Thorn Brochure file.

### STEP 12

Set the insertion point in the blank space between Financial Status and the top of the page. Pull down the **Edit** menu and select **Paste**. The Statue of Liberty will appear. You will just be able to see the top of Financial Status at the bottom of the screen.

Quit and save the changes.

## Copying a Chart From Chart

### STEP 1

Eject the Word diskette and insert the Chart diskette that contains the Thorn & Co. chart. Select the Thorn chart.

The chart has to fit in a three inch width, so we want to make it as narrow as possible. This can be done partly with Chart and partly through editing in MacPaint.

### STEP 2

Pull down the **Chart** menu and select **Delete Legend** to let the chart fill up the space.

### STEP 3

Pull down the **Chart** menu and select **Select Plot Area**. Black squares will appear to show that the plot is selected.

### STEP 4

Pull down the **Edit** menu and select **Copy Chart**.

The Copy Chart to Clipboard dialog box will appear. The preset choice is As Shown on Screen.

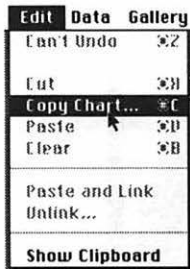


Figure 7.63 Copying a selected chart

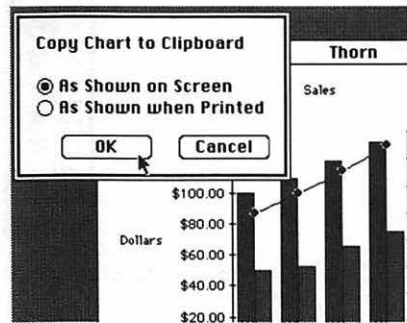


Figure 7.64 The Copy Chart to Clipboard dialog box

### STEP 5

Check OK to accept the preset choice. The Chart is now on the Clipboard.

### STEP 6

Pull down the **File** menu and select **Quit**. The dialog box will appear that asks if you want to save changes. Check No, leaving the chart the way it was before you hid the legends. Pull down the **File** menu again and select **Eject**.

### STEP 7

Insert a diskette with MacPaint on it. Select the MacPaint icon to create an empty MacPaint file.

### STEP 8

Pull down the **Edit** menu and select **Paste**. The chart will appear with the marquee flashing around it. Move the cur-

sor anywhere outside the marquee area and click the mouse to stop the flashing.

The dollar values on each side of the chart take up space, and could be replaced with text. The tools in MacPaint include an eraser; it is the fifth symbol down in the column of tools next to the screen.

### STEP 9

Click in the eraser tool to select it.



Figure 7.65 Selecting the MacPaint eraser

When you have chosen the eraser, the cursor will turn into a white square when it is in the image area. Pressing the mouse button lets you use the white square to erase anything it touches.

### STEP 10

Erase the numbers on the sides of the chart.

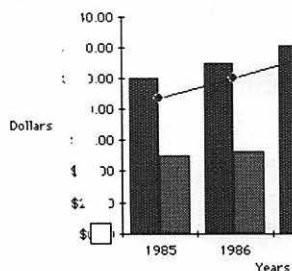
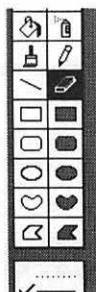


Figure 7.66 Erasing in MacPaint

### STEP 11

When you have erased the dollars at each side, select the chart with the marquee tool as above. Pull down the **Edit** menu and select **Copy**. The edited chart is now on the Clipboard.

### STEP 12

Pull down the **File** menu and select **Quit**.

### STEP 13

The dialog box that asks if you want to keep changes will appear. Check **Yes**, and your edited chart will be stored on the diskette in case the power fails during subsequent steps. A dialog box will appear that asks you to name the file; type "Edited Chart" and check **Save**.

### STEP 14

Pull down the **File** menu and select **Eject**. Insert the Word diskette with the Thorn Brochure on it. Click on the Thorn Brochure icon.

**STEP 15**

Set the insertion point on the blank line between Anticipated Growth and Marketing. Pull down the **Edit** menu and select **Paste**. The Chart will appear.

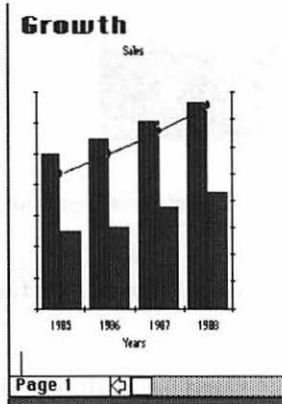


Figure 7.67 The Chart in place under Anticipated Growth

### Copying a Table from Multiplan

**STEP 1**

Eject the Word diskette and put in the Multiplan diskette that carries the Thorn & Co. table.

As in the case of the chart, we need to do some editing to make the table fit into the three-inch column. All the editing is possible inside Multiplan. The first step is to remove the odd cents from all the columns.

**STEP 2**

Select the profit figures.

Thorn & Co.					
	1	2	3	4	5
1	Thorn & Co. Profit Forecast				
2		1984	1985	1986	1987
3	Sales	\$100.00	\$110.00	\$121.00	\$133.10
4	Cost of Goods	\$50.00	\$52.5	\$55.125	\$57.88125
5	Profit	\$50.00	\$57.50	\$65.88	\$75.22
6	% Profit	50.00%	52.25%	54.44%	56.51%
7					
8	Average				
9	Profit	53.31%			

Figure 7.68 Selecting the profit figures of Thorn & Co. for editing

**STEP 3**

Pull down the **Format** menu and select **No Decimal**.

**STEP 4**

Select the cell that contains Cost of Goods and type "C of G"; press Return.

**STEP 5** Select the part of the table to be copied.

Thorn & Co. Profit Forecast				
	1984	1985	1986	1987
Sales	100	110	121	133
C of G	50	53	55	58
Profit	50	58	66	75
% Profit	50.00%	52.27%	54.44%	56.51%

Figure 7.69 Part of the profit forecast selected to be copied to the Clipboard

**STEP 6** Pull down the **Edit** menu and select **Copy**. The edited table is now on the Clipboard.

**STEP 7** Pull down the **File** menu and select **Quit**. The dialog box will appear to ask if you want to save changes. Check No to leave the table the way you found it.

**STEP 8** Eject the Multiplan diskette, put in the Word diskette, and open the Thorn Brochure file.

**STEP 9** Fix the blinking insertion point below the chart, pull down the **Edit** menu and select **Paste**.

The table will appear distorted because not all the text will fit on the line.

	1984	1985	1986	1
987				
Sales	100	110	121	1
33				
C of G	50	53	55	5
8				
Profit	50	58	66	7
5				

Figure 7.70 The Thorn & Co. profit table before reduction

**STEP 10** Select the whole table. Pull down the **Character** menu and select **Formats**. On **Formats**, select 9-point type.

The table will appear in the smaller type. The brochure is now ready to print; the final version should look like figure 7.71.



# Thorn & Co.



## Finacial Status

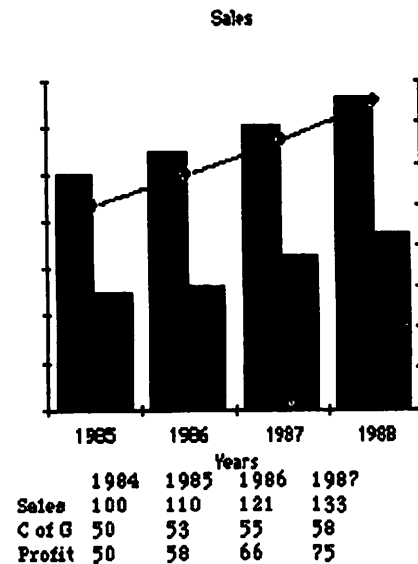
Text text text text text text text  
text text text text text text text  
text text text. Text text text text  
text text text text text text text  
text text text text text text.

## Market Share

Text text text text text text text  
text text text text text text text  
text text text. Text text text text

text text text text text text text  
text text text text text text.

## Anticipated Growth



## Marketing

Text text text text text text text  
text text text text text text text

text text text. Text text text text  
text text text text text text text  
text text text text text text.

## Management

Text text text text text text text  
text text text text text text text  
text text text. Text text text text  
text text text text text text text  
text text text text text text.

## Community Responsibility

Text text text text text text text  
text text text text text text text  
text text text. Text text text text  
text text text text text text text  
text text text text text text.

## Product Line

Text text text text text text text  
text text text text text text text  
text text text. Text text text text  
text text text text text text text  
text text text text text text.

Figure 7.71 The Thorn & Co. brochure

# Three Different Data Base Programs

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Databases do not come from as clear a model in the noncomputer world as word processors and spreadsheets. Word processors, at least in the beginning, had the mode of a magic typewriter, and spreadsheets had the model of a magic accountant's ledger. If data bases have a mode it is based on a file drawer filled with identical forms.

Computers are good at storing and fetching such information, and data bases have been with us on large, impersonal computers for many years. When we make an airplane reservation, the person behind the counter sees on her or his screen the image of a form retrieved from a data base, and when the ticket is printed, it is part of that data base in a different format. When we buy a ticket from Ticketron, the image of the theater is a data base and the printed ticket is an image from that data base. When a police officer stops one of us in traffic and radios in our license number, someone at headquarters searches a data base.

The computer searches quickly and efficiently because it is able to see information arranged in several orders simultaneously, allowing it to search as fast for one thing as for another.

PFS:file, the second program described below, allows you to create an old-fashioned computer data base for yourself. It allows you to design a form, fill in information on as many copies as you like, and then print or display the

forms. You can also print lists of single items from the forms, say all the people named Smith in a personnel file.

Filevision, the first program discussed, takes a new approach. The information is organized on a diagram. You essentially pin the forms to places on the diagram. Will a graphic approach help you? It depends partly on your data: do they suit a diagram? Are they, for example, based on the locations of things (e.g., a map is a powerful organizing image). It also depends on how your mind works; if you tend to think in pictures, Filevision might suit you.

Factfinder, the third data base program discussed, follows a somewhat different model. The model for Factfinder is notes, such as those a student takes on 3-by-5 cards before writing a big paper. This model has also been around on big computers. There are several services (Dialog is one and Orbit is another) that essentially offer the index card-file of a library and allow you to search through the file with specific words or phrases, called keywords. One virtue of Factfinder is that you can write unconstrained by a rigid format like a form, which most data bases require.

It will be useful in understanding how these three programs work—though not necessary to using them—if you understand three terms from computer jargon: *field*, *record*, and *file*. You hear these terms quite a bit in conversations about programs and see them in computer textbooks, but there are not generally accepted definitions. So the somewhat rough and ready definitions below are as good as any.

A *field* is the computer equivalent of one box on a form, say last name, zip code, or serial number.

A *record* is the computer equivalent of the whole form.

A *file* is the computer equivalent of the drawerful of files; it is all the forms you can search in one pass.

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## Filevision: Facts Behind Pictures

The designers of Filevision had the novel idea of using diagrams as a way of organizing information. In setting up a Filevision data base, you first draw, or borrow, a diagram and then attach nonvisual information, such as forms, to

parts of the diagram. This idea, which suits the Macintosh so well, came to the Filevision programmers before they knew about the Macintosh. Imagine their delight when just the machine to support it appeared on the market.

### **Starting From Someone Else's Pictures**

As with most data base systems, in Filevision you spend a lot of time setting things up; you reap the rewards only over the following weeks, months, and years. In particular, in Filevision you have to make a diagram before you do anything else. Drawing in Filevision is 80% the same as drawing in MacDraw. To save going over the ground in chapter 3, this exercise will adapt a map of the United States, which comes as an example on the Filevision diskette. At the end of the exercise you will add a state to the United States, which will illustrate the basics of drawing in Filevision.

Filevision uses the same sort of copy prevention scheme that Microsofts Word and Multiplan use. You can copy the diskette you buy from them, but when you use it, you must put the master diskette in briefly at the beginning of the session.

### ***Filevision Basics***

**STEP 1** Copy the Filevision master diskette onto a blank diskette, including the System Folder, the applications icon, and the file called Map. (Space is pretty tight on a Filevision diskette. If you are not working with two drives, you will probably want to remove some of the more stylized fonts such as Venice or London from the System Folder on your copy diskette.)

**STEP 2** Insert the copied diskette into the Mac and turn it on. When the catalog appears, click on the Filevision document Map. As Map is appearing, the Mac will prompt you to insert the Filevision master diskette for a moment.

A map of the US, a set of menus, and a stack of tools, in the left margin, will appear. The tools are much like those in MacDraw or MacPaint.

The Map file holds information about each state and a hypothetical chain of offices. The offices won't interest us,

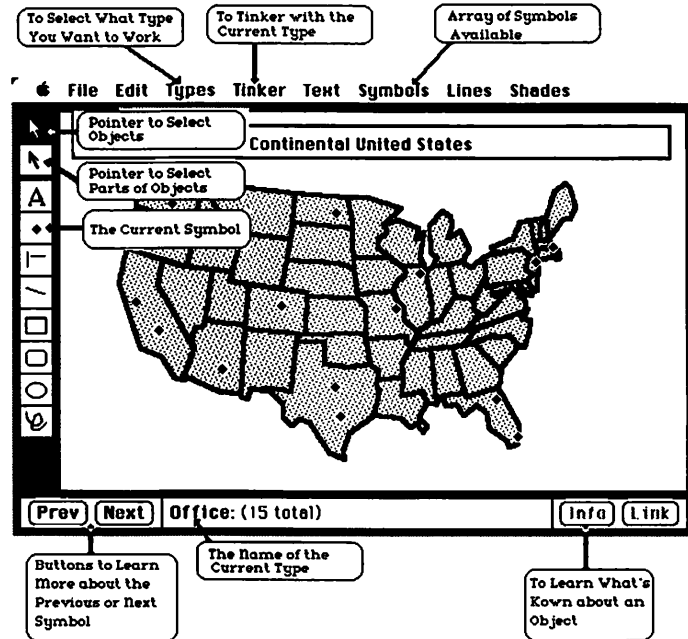


Figure 8.1 The Filevision Map

but we will use the states. To get a sense of how the programs work, let's look at the information attached to one state.

### STEP 3

Pull down the **Types** menu and select **State**.

Note that **State** appears on the menu of this file, but not on Filevision menus in general. The person who drew the map defined **State** as a type and so it got a place on the menu. You will learn how to do that below.



Figure 8.2 Selecting **State** on the **Types** menu

- STEP 4** Roll the cursor into Texas and click twice. The information screen for Texas will appear.

Information for this State:

Name	Texas	Link	
84 POP.	14,707 mil	84 INCOME	\$35,340
AREA RANK	2	COMPUTER STORES	313
Year admitted	1845	83 HEATING BILL	\$135.96
Visited?	u		

Cancel Prev Next Done

Figure 8.3 The information screen for Texas

- STEP 5** Pull down the **Tinker** menu and select **Highlight Some**.

The conditional highlighting screen will appear (figure 8.4). In this graphic data base system the screen where you decide what stands out on the diagram is also the screen where you decide what information you want.

Highlight "State"s meeting these conditions:

☒ Name  
☐ Link  
☐ 84 POP.  
☐ 84 INCOME  
☐ COMPUTER STORES

is is not  
= > < --

Clear

Choose other fields

Cancel Done

<input checked="" type="checkbox"/>	Name is equal to	AND
<input type="checkbox"/>		AND
<input type="checkbox"/>		AND
<input type="checkbox"/>		

Figure 8.4 The conditional highlighting screen

- STEP 6** Check the box beside **COMPUTER STORES**. The heading on the right will change to **COMPUTER STORES**.

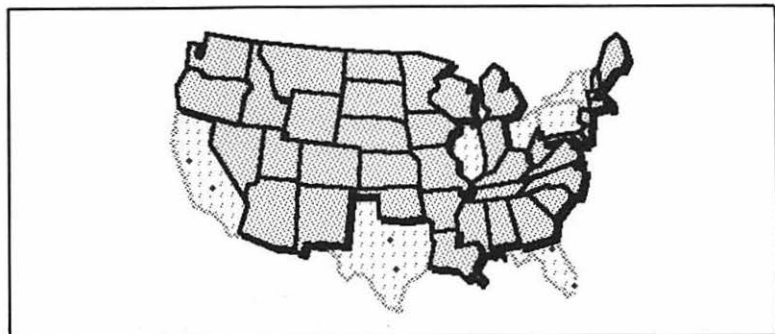
**STEP 7** Check the box with  $\leq$  (equal to or less than). Type "100".  
When you type on the left, the text also appears on the right.

**STEP 8** Check the box under the first **And**. You will see the lines that show which part of the form you are changing shift to the box under the second **And**. This shift is an excellent use of the visual, interactive quality of the Mac to show you what you can do.

**STEP 9** Check **COMPUTER STORES** and  $\geq$  (greater than or equal to) and type "6". The screen will now look like figure 8.5.

**Figure 8.5** Setting up to show states with 100 or less and 6 or more computer stores

**STEP 10** Check Done. The map will appear with the proper states highlighted.



**Figure 8.6** States with 100 or less and 6 or more computer stores

According to Filevision, in 1984 only one state had less than 6 computer stores. Try your hand at finding which.

**Deleting Unwanted Types** To find out about an office click on one of the diamonds, which are symbols of offices. In any case, these germane to our task.

**STEP 1** Pull down the **Types** Menu and select **Office**.

**STEP 2** Pull down the **Tinker** menu which now rules the type Office because you just selected it. Select **Highlight all**.  
The states will fade and the offices will be highlighted.

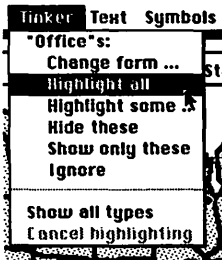


Figure 8.7 Selecting Highlight all from the Tinker menu

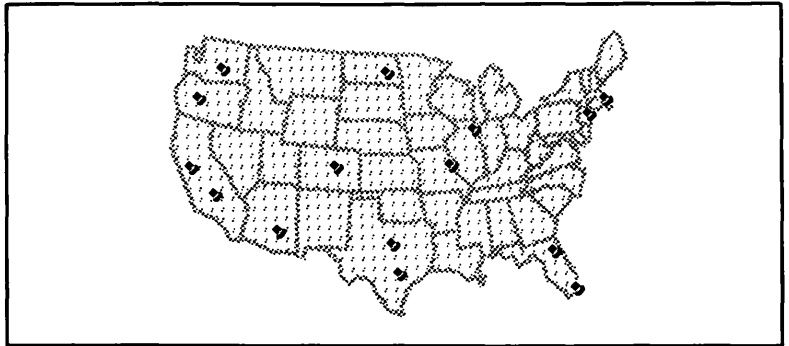


Figure 8.8 Offices highlighted

**STEP 3** Pull down the **Edit** menu and select **Clear**.

A dialog box will appear that points out that if you clear all highlighted objects you cannot undo the action.

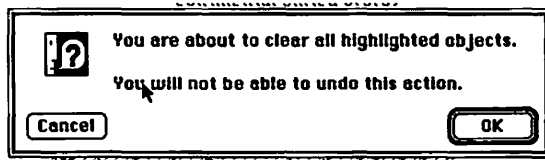


Figure 8.9 This dialog box warns you that clearing highlighted objects is irrevocable

**STEP 4** Check OK.

The map will appear without the symbols for Offices. Although there are no more offices, the *type* office still exists and you can create a new office at any time.



**STEP 5**

Pull down the **Types** menu and select **Delete**. Since the Office type is still the selected type, the system will delete it.

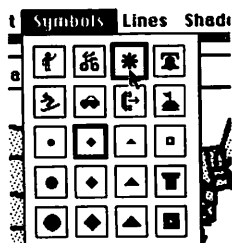
A dialog box will ask if you really want to delete the type Office and all objects of that type. Check OK.

**Adding Symbols**

**Headquarters.** The headquarters of Thorn & Co. is Atlanta.

**STEP 1**

Pull down the **Symbols** menu and select the asterisk.



**Figure 8.10** Selecting the asterisk from the Symbols menu

The asterisk will appear on the left in the stack of tools. It is now a tool you can use to add to your data base.

Filevision provides a small graphics editor, oddly located on the **File** menu, where you can design your own symbols so long as they are small enough to fit in the boxes in the **Symbol** menu.

**STEP 2**

Roll the cursor into the new asterisk tool you have selected and click the button. The tool is selected. When you move the cursor away from it, you will see that the cursor becomes an asterisk.



**Figure 8.11** The cursor turns into the symbol you have selected

**STEP 3**

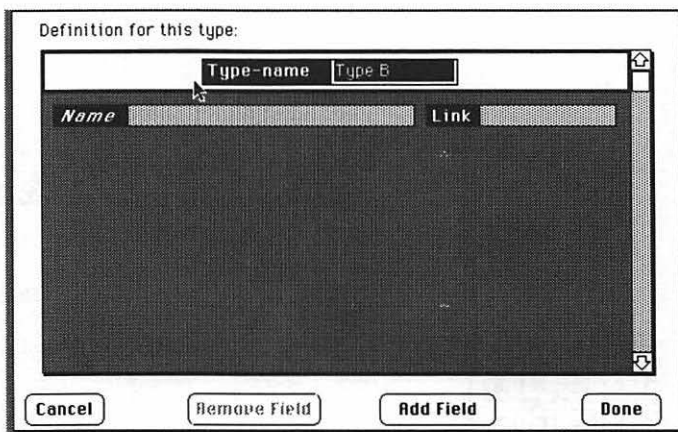
Roll the mouse so the tool is in Georgia. Click the mouse button. The asterisk will stick where you clicked with a box around it to show highlighting and the cursor will turn back into an arrow.



**Figure 8.12** Setting the symbol on the map

### *Adding Suppliers As a Type*

- STEP 1** Pull down the **Types** menu and select **Add Another**. The Type Definition dialog box appears.



**Figure 8.13** The Type Definition dialog box

Now we will define a new type of data: suppliers. We will set up some fields that define what sort of information Thorn & Co. needs to keep about suppliers. We will create these fields by defining boxes for this information and labeling the boxes with the type of information to be filled in.

- STEP 2** Move the cursor into the box next to Type-name; the cursor will turn into an I-beam to show you can insert text. Type "Suppliers".

Name and Link appear in all Filevision data items. Name will be the name of each supplier. Link allows you to link information from other Filevision files.

- STEP 3** Move the cursor to **Add Field** and click the mouse button. The click will confirm that you have named this type of item "Suppliers"; no Return is necessary.

- STEP 4** The Add Field button changed to Where? Move the cursor into the gray area; note that when it enters the gray area it becomes a pointing finger; this indicates that it can be used to fix the location of the next field.

- STEP 5** Type "Address". By touching the stretching handle with the point of the cursor and holding down the mouse, pull the Address box until it has enough space for an address.

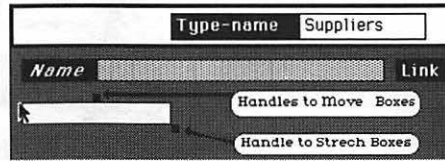


Figure 8.14 The data file ready to be named

- STEP 6** The Add Field button has turned to Copy Field. Click twice in the gray area and by similar steps create a City field.

- STEP 7** Add fields until the type definition box looks like figure 8.15. Check the Done box.

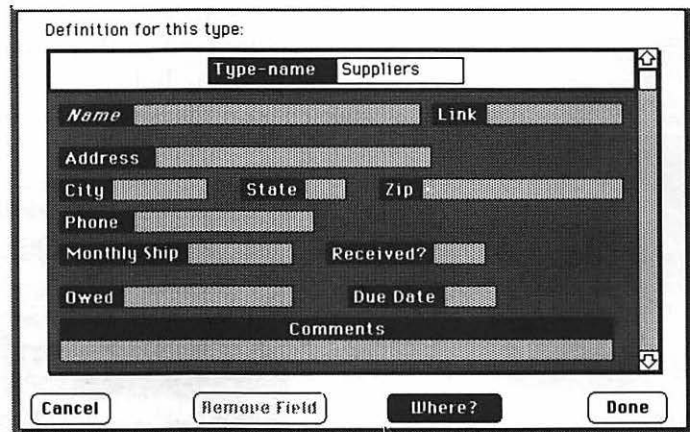


Figure 8.15 The type definition for suppliers

- STEP 8** Pull down the **Symbols** menu and select the large diamond. It will appear on the tool stack at the left margin.

- STEP 9** Select the diamond from the tool stack. When the cursor slides into the work area it becomes a diamond. Move the diamond into Massachusetts and click to fix it there.

- STEP 10** Click Info.

The blank you have designed will appear. When you

Figure 8.16 Blank suppliers form

move the cursor into any of the boxes, it will turn to an I-beam and you can type and edit in the boxes.

**STEP 11**

Fill out the information so the form looks like figure 8.17. Then check Done.

Create two or three other suppliers to give substance to the printing below. Sample information on three hypothetical suppliers of Thorn & Co. appears on page 208.

Figure 8.17 Information about a particular supplier

**Creating An Object****STEP 1**

Pull down the **Types** menu and select **State**.

**STEP 2**

Pull down the **Lines** menu and select the second fattest line. Select the freehand drawing tool at the bottom of the

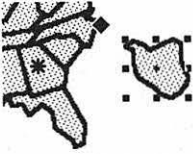


Figure 8.18 The state of Atlantis

tool stack. Draw a large island off the southeast coast as in figure 8.18.

When you enclose the island, the pattern that is currently selected (here the stipple that fills the states) will find the island. Be sure to join your line to the starting point smartly so the pattern will fill.

The island is now an object and you can attach information to it just as you attached information to the symbols of the suppliers.

### STEP 3

Click on Info. A blank state information form will appear. Fill it out as in figure 8.19.

Now Atlantis will appear in all the operations you do on states. For example, if you select Arkansas and click the Next button, Atlantis will brighten because it is next in alphabetical order.

Information for this State:	
Name	Atlantis
Link	
84 POP.	4,556,789
84 INCOME	38,095
AREA RANK	6
COMPUTER STORES	37
Year admitted	1985
83 HEATING BILL	98
Visited?	n

Buttons: Cancel, Prev, Next, Done

Figure 8.19 Information about Atlantis

## Printing

### STEP 1

Pull down the **File menu**.

**Print display** prints exactly what you see on the screen. If highlighting is on, the objects are highlighted on the printed page.

**Print info** prints the info displays for any number of items of the current type. It also allows some page formatting, page numbers, a running head, and running footer.

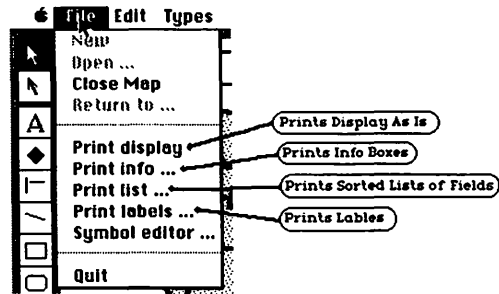


Figure 8.20 Printing in Filevision

**Print list** allows you to print a list of selected information about the items of the type currently selected. You could, for example, print a list of the population of every state.

**Print labels** allows you to design and print small labels such as mailing labels.

## STEP 2

Let's print labels. Select **Print labels** for this example. The Print label dialog box will appear.

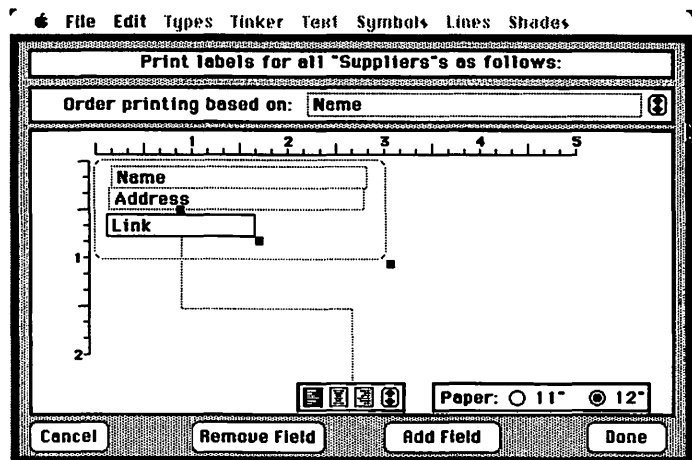


Figure 8.21 The Print label dialog box

The preset label size is fine for this exercise but you could change the size of the dotted box by dragging the little black square handle on the lower right. The preset order of printing is alphabetical by name, but the Post Office requires that bulk mail be sorted by zip code so we will change it.

**STEP 3** Click on the little double arrow at the right end of the Order printing based on box. The names of other fields you have created will pass as you click. Stop on zip.

The preset label includes Link, which is not part of a mailing label. In the preset layout Link stands selected, which is shown by the handles and the line that leads to it from the format control box.

**STEP 4** Click on Remove Field. This step merely removes link from the label, but not from the system.

**STEP 5** You need the city, state, and zip on the mail label. Click on the Add Field button, it will turn to Where? As before, moving the cursor to the work area turns it into a pointing hand. Move the hand below the Address field and click. A field will appear there, but it will not be the City field. Click the little doubleheaded arrow in the format box, bottom center, and you will see the fields you have created pass before you. Stop on City. Adjust the field's location with the black, top-handle and its length with the black handle on the lower-left corner.

**STEP 6** Add the State field and Zip field so the label on looks like Figure 8.22.

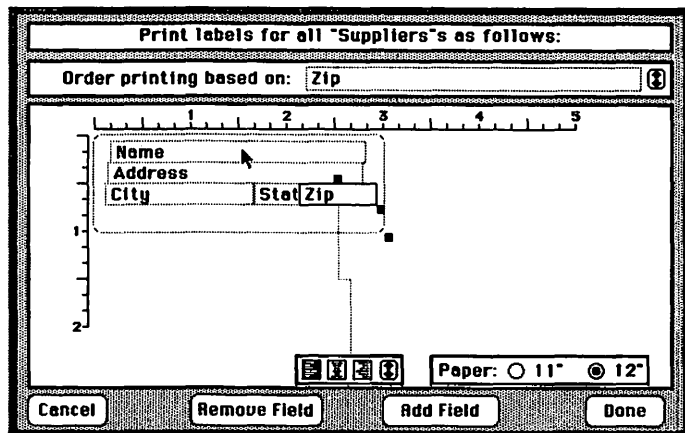


Figure 8.22 Filevision Print Labels dialog box ready to print

**STEP 7** Check Done. The regular Mac printing dialog box will appear.

If you want gummed labels you have to load your

printer with them. They are available in most office supply stores on narrow waxed rolls. Insert them on the left of the platen, lined up with the small red line on the bail. Be sure to open the lever on your printer that allows for extra thick paper; if you don't, gummed labels can jam in the works of the printer, which is a hell of a mess to fix—believe me, I've done it.

**STEP 8** Check Continuous if you have a roll or a fanfolded labels, and low or high quality. Most mailing labels I see use a lower-quality printing than is available on a Macintosh.

While you are printing, a box will appear that counts the number of labels you have printed. The labels will look like this:

**Ahab Whalebone  
431 Marble Road  
Cummerquid MA  
02637**

**Hatera Hatties  
816 baleen Ave  
Ceatonville NC  
27588**

**Mendocino Whites  
565 Front Street  
Mendocino CA  
94460**

**Big Fleet  
412 State Street  
Bellingham WA  
98225**



## **PFS:file and PFS:report**

PFS:file runs on the Macintosh very much like it runs on any personal computer. The only difference is you locate things with the mouse instead of cursor buttons and you pull down menus instead of seeing them flash on the screen.

PFS:file is one of the most widely used applications in personal computing. There are others that are more powerful and more flexible, but they are harder to use for the nonprogrammer. PFS:file is easy for the noncomputer person to get hold of and is quite satisfactory for many applications, such as the personnel records of a small firm, parts lists, and other inventories. It has more sophisticated ways to search and filter than does Filevision. The amount of information you can deal with varies with the size of the individual forms and some other factors, but it is surprisingly extensive on a Mac. You can store and search nearly 3,000 of the simple forms used in the examples below.

The style of PFS:file and PFS:report are rooted in the old system of rows of clerks in open office environments typing data onto on-screen forms while programmers extracted from that data lists that other people read. These programs allow you to do those functions yourself. You can print a single form directly from PFS:report, but to extract lists or other different views from your data you need the second program, PFS:report, which comes on the same diskette. With PFS:report you can create various formats and do some mathematics to extract new information from the source data. For example, in a parts list PFS:report can multiply the number of parts in stock by the price and give the value of inventory of each part; and it can total the whole column to give the total value of the inventory.

The examples use the same information about the suppliers or Thorn & Co. as did the examples of Filevision.

### **How PFS:file and PFS:report Work**

In PFS:file you design a report by fixing headings on the screen for your information. You make as many copies as you want of this blank form and fill in the information for particular subjects. You search for forms by calling up the blank form and entering the text you are searching for. You can print, copy and remove forms in the same way: by

identifying the form with a piece of text that appears in it.

In PFS:report you number the fields you have defined and then all the items in that field will print in a column with that number. Or you may filter out forms and print only the items from the filtered forms in the numbered columns. You can add tags to the design of your printed report that will total, subtotal, and average the columns, and generate new columns by, for example, multiplying two of the old columns.

### Creating a Form

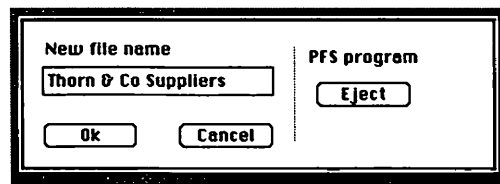
**STEP 1** Put the PFS diskette in the Mac and start up; click on the PFS:file icon if necessary.

A dialog box will appear that asks you if you want to start a new file, see an old file, or quit (No, I don't know why you should want to quit at this point).

**STEP 2** Click on New.

A dialog box appears (figure 8.23), which asks for a file name and offers you the chance to eject the diskette. If you eject the diskette you can insert an empty diskette and create your file there. A second diskette will give you more space and save wear on the master diskette, which you can't copy. You will have to reinsert the system diskette from time to time to let the program read itself. This simple example will fit on the PFS master diskette.

**STEP 3** Type: "Thorn & Co. Suppliers" and check OK.



**Figure 8.23** The New file dialog box

Now you design your own form by putting in headings where you want your information to go. When you begin the screen is a blank sheet. You can click with the mouse anywhere on the screen and begin typing. Response to the click may be a little slow while the program locates the right point. Type headings. End each heading with a colon.

Data will go on the individual forms after the colon. When you have designed the form you can edit it with the usual Macintosh tools.

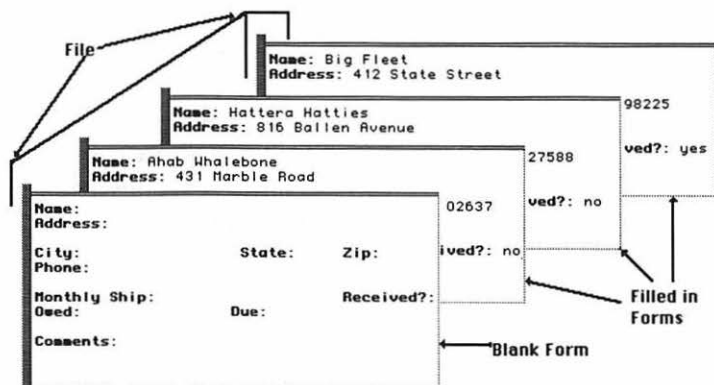


Figure 8.24 First design a form

#### STEP 4 Layout the design as in figure 8.25.

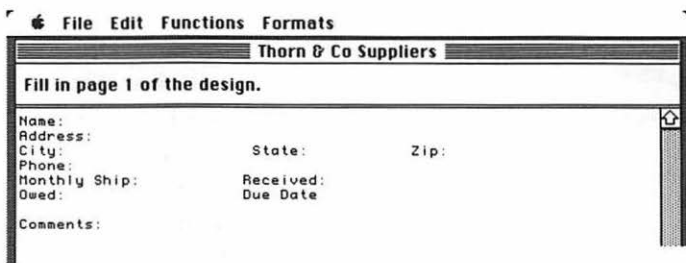


Figure 8.25 Thorn & Co. suppliers form in PFS-file

### Putting in Information

- STEP 1** Pull down the **Functions** menu and select **Add forms**. All the headings you created in the design will turn bold to show that this is the master form.
- STEP 2** Type "Ahab Whalebone". Press Tab to move to the next item. Type in the information found in figure 8.26.

Name: Ahab Whalebone		
Address: 431 Marble Road		
City: Cusacoquid	State: MA	Zip: 02637
Phone: 617-363-7070		
Monthly Ship: 2000	Received: no	I
Owed: \$1379	Due Date: 10/21	
Comments:		

Figure 8.26 The Thorn & Co. suppliers form filled out for Ahab Whalebone

**STEP 3** Enter information on three more suppliers so we can see how PFS:file searches and filters data. When you finish the Ahab Whalebone form, check the Continue Adding button to get a new, blank form. The information on three suppliers follows:

**Name:** Hatera Hatties  
**Address:** 816 Baleen Ave  
**City:** Ceatonville      **State:** NC      **Zip:** 27588  
**Phone:** 919-556-2940  
**Monthly Ship:** 3300      **Received:** no  
**Owed:** 0      **Due Date:** 0

**Name:** Mendocino Whites  
**Address:** 565 Front Street  
**City:** Mendocino      **State:** CA      **Zip:** 94460  
**Phone:** 707-897-3831  
**Monthly Ship:** 2100      **Received:** yes  
**Owed:** 1987      **Due Date:**  
10/31

**Name:** Big Fleet  
**Address:** 412 State Street  
**City:** Bellingham      **State:** WA      **Zip:** 98225  
**Phone:** 206-743-9178  
**Monthly Ship:** 2043      **Received:** yes  
**Owed:** 2345      **Due Date:**  
11/11

### Searching for Forms

When you finish filling out the forms for the suppliers, the form for Big Fleet should occupy the screen.

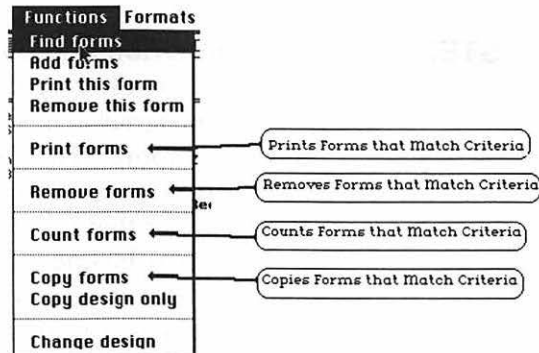
**STEP 1** Pull down the **Functions** menu and select **Find forms**.

Figure 8.27 The PFS:file Functions menu

The screen will return to the blank form you first designed. PFS:file creates a second command and feedback area beneath the menu headings. The Find forms button will appear to the right of this area.

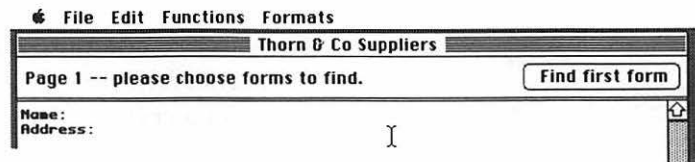


Figure 8.28 The Find first form button and command feedback area

If you click on the Find first form button, the last form you created will appear and the button will change to Find next form. By clicking on it, you can leaf through the forms one by one, a useful approach if you have 4 forms, but not if you have 100 or 1,000.

**STEP 2** If you have leafed through your forms, pull down the **Functions** menu and select **Find forms** again. The blinking insertion point will appear after the first item, Name:. Type "Ahab Whalebone" and click on the Find first form button.

The whole form for that company will appear. When you type the complete text of any item in the blank and use the Find first form command, the system will find any form that matches that text.

If more than one form matches, PFS:file will show the

first one first and you can then leaf through the other matching forms with the Find next button.

**STEP 3** Set the insertion point after Received?:. Type “yes” and click on the Find first form button.

The program will search for suppliers that have delivered that month. The first to appear will be Mendocino Whites. If you click on Find next form, the form for the other supplier that has delivered, Big Fleet, will appear.

In a real business file with hundreds of forms, you might not know exactly how an item was written; in that case you can use periods to represent uncertain characters.

**STEP 4** Select Find forms on the functions menu to see a blank master form. Set the insertion point after State:. Type “..C..” and click the Find first form button.

Two suppliers are in states that have a C in their abbreviation, Mendocino Whites in California and Hattera Hatties in North Carolina. Mendocino Whites will appear, and clicking the Find next button will show Hattera Hatties.

You can also compare numbers. For example, you can use the mathematical sign > (greater than) to search out numbers over a certain size.

**STEP 5** Select **Find** forms on the **Function** menu, set the insertion point after Owed: and type “>1000”. Then check the Find first form button.

The form for Mendocino Whites will appear, the supplier to which Thorn & Co. owes the most money. Clicking on the Find next button will show in descending order the other firms that Thorn & Co. owes more than \$1,000 to.

Before you begin the next steps devoted to printing, pull down the **File** menu and select **Quit PFS:file**.

## **Printing**

Within PFS:file you can print sections of the forms as they appear on the screen. PFS:report allows you to print the information rearranged into columns of similar items, and to do some calculation on those columns to create new columns, totals, averages, and the like.

- STEP 1** Click twice on the PFS:report icon. A dialog box will appear that asks you if you want to open a PFS data file or Quit.
- STEP 2** Click on Open.
- STEP 3** Select "Thorn & Co. Su..." (the system abbreviates the long name) and then check OK.  
A blank screen labeled with the file title will appear with the message "Please make a menu selection."
- STEP 4** Pull down the **Formats** menu and select **Create a report format**.  
A dialog box will appear where you can write the name of the report format.
- STEP 5** Type "Owed" and check OK.  
Items are marked for printing by typing after the colon the number of the column you want them to appear in, counting from left to right.
- STEP 6** Set the insertion point after Name: and type "1". Then set the insertion point after Owed: and type "2".  
You can total, subtotal, and average the columns you have defined using the symbols T, S, and A, respectively, after the column numbers.
- STEP 7** Add A and T to match figure 8.29.

Thorn & Co. Suppliers

Edit page 1 of the report format "Owed".

Name: 1  
Address:  
City: State: Zip:  
Phone: Received?:  
Monthly Ship: Due Date:  
Owed: 2RT  
Comments:

**Figure 8.29** Report format screen set up to show the names of suppliers, the amount owed, the average, and the total

- STEP 8** Pull down the **Functions** menu and select **Print a report**. A blank version of the report you designed will appear with the message "Please choose forms for the report."  
At this point you could select certain forms with the same tools you used to select certain forms for display in PFS:file. In the case of this small example, let's select items from all the forms.

**STEP 9** Check the Print report button.

The report printing dialog box will appear. We will print to the screen, but you could print the same report to paper, or store it on the diskette for future printing.

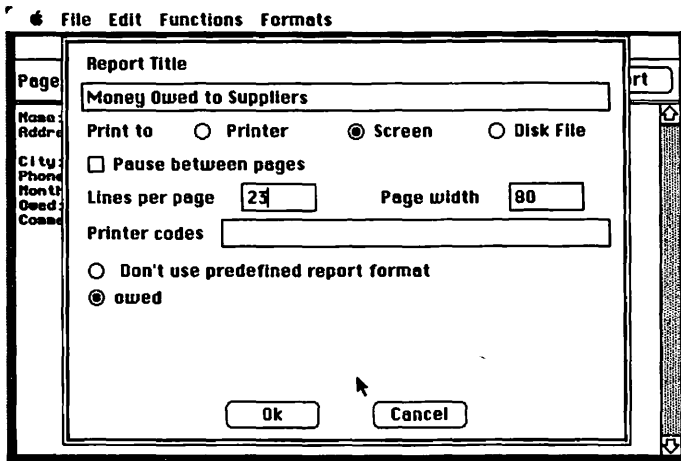
**STEP 10** Fill out the report printing dialog box to match figure 8.30. The report will look like figure 8.31.

Figure 8.30 Report printing dialog box set to print to the screen

Money Owed to Suppliers	
Name	Owed
Rhab Whalebone	1,379
Big Fleet	2,345
Mattera Hatties	0
Mendicino Whites	1,987
Average:	1,428
Total:	5,711

Figure 8.31 Thorn & Co.'s debts to suppliers

You can also set up columns in PFS:report based on calculations from other columns, for example, the number of parts and the price might be in the original report and the value of the inventory could be a separate column on the printed version.

## Factfinder

Unlike Filevision and PFS:file, Factfinder is built to give you power over your notes. Although you can do some things with numbers, it is basically a way of storing text information, much like an electronic 3-by-5-inch card; moreover, you search and print the notes that contain certain words.

Because Factfinder works best on regular text, the following exercise (p214) does not regroup the Thorn & Co. suppliers but show arranging and retrieving a few references for the college paper on The Universe discussed in



chapter 7. If you have not looked at chapter 7, it would probably help you to at least glance at the outline of "The Universe" presented there.

Factfinder does not let you copy the program to another diskette. You can get one free backup diskette from the manufacturer by sending in the warranty card. You can copy the program to a hard disk. It does give you the very limited ability to copy the program to other diskettes, but the copy will only allow you to have 16 items in a list. Such copies are useful only as advertisements for Factfinder. This copy prevention leaves the user that has only one drive with an awkward choice: You can keep your files on the master diskette and have up to 50 one-page factsheets, but you will be wearing out your irreplaceable master diskette. Or you can put the data files on a second diskette, where you can have hundreds of one-page factsheets, but you shuffle diskettes in and out often.

Factfinder has, unfortunately, invented its own little terminology. I said that it is like keeping a file of 3-by-5 cards on your diskette. The cards are called "factsheets" (variable-length records in data processing terms) and the whole bunch together is called a stack (a file in data processing terms). There are some other odd terms on this program which make learning it a little slower, and writing about it a little more difficult, but they do not get in the way of using the program once you get the swing of it.

### **How Factfinder Works**

When you evoke the application the first time, you see a group of windows. On the left is a window called the factsheet, where you can type about 6 pages of text. You can expand this window to fill the whole screen if need be. A group of such factsheets that are filed and searched together are called a stack. You can select words or phrases in the factsheet by normal Macintosh selecting and they will appear in a window on the left, which keeps track of them. In another window you can type or copy these words and the system will show or print all the factsheets that contain them. Factfinder generates an index where you can find all the keywords for a file in case you want to review them.

## Making a Factsheet

### STEP 1

Insert the Factfinder disk and click on its application to open it.

A billboard screen appears that contains information about how much memory is available in the machine and how much space is on the disk.

### STEP 2

Pull down the **File** menu and select **Create Stack**.

A dialog box will ask you to name the stack, and offers you the opportunity to eject the diskette.



Figure 8.32 Selecting Create Stack on the Factfinder menu

### STEP 3

Type “The Universe” and check OK. A set of blank Factfinder material will appear on the screen.

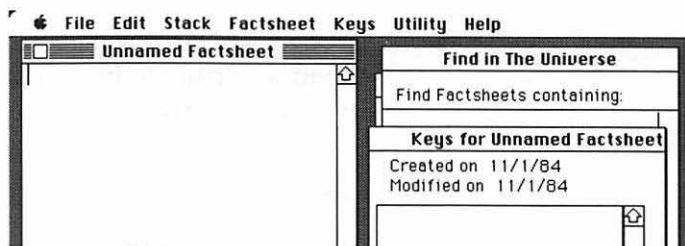


Figure 8.33 What you see when you start Factfinder

Now we can turn to putting text in the factsheets.

### STEP 4

Move the cursor into the factsheet window and click it to make the window active. The blinking insertion point will appear at the upper left.

### STEP 5

Type the following definition of the universe: “All created things viewed as constituting one system or whole; the creation; the cosmos.” You can correct errors by backspacing, and the normal Mac editing commands (Cut, Paste, and Copy) are available.

**STEP 6**

Figure 8.34 Selecting Change Name from the Factsheet menu

Pull down the **Factsheet** menu and select **Change Name** (figure 8.34). A dialog box will appear to accept the name. Type "Dictionary" and check OK.

You should select some keywords that Factfinder will later use to search for the dictionary definition. This is your handle on this information, so don't be shy about selecting keywords.

**STEP 7**

Select the words cosmos, creation, system, and the phrase "All created things" one at a time by dragging the cursor across them.

You can also select a word in Factfinder by clicking twice, but the selection will include punctuation that is not separated from the word by spaces. In other words, what you get by double clicking is all the consecutive printing characters. Since you want future searches to find "cosmos" without having the comma as part of the keyword, it is better to select a word that has adjacent punctuation by dragging the cursor.

**STEP 8**

Pull down the **Keys** menu and select **Mark**.

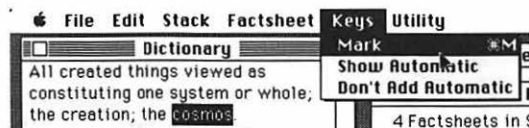


Figure 8.35 Marking a word as a keyword

When a keyword is marked, it appears alphabetically in the nearby Keys for Dictionary window.

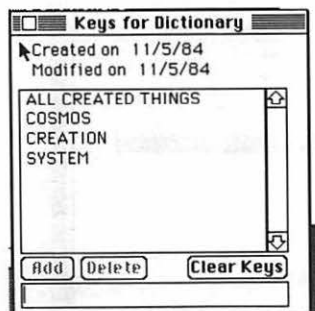


Figure 8.36 The Keys for Dictionary window

**STEP 9** Pull down the **Factsheet** menu and select **New**. When you ask to create a new factsheet, the program asks you if you want to preserve the changes you've made in the last factsheet you worked with. Check OK. A new factsheet will then appear. Name it "Big Bang."

**STEP 10** Type in text and select keywords to match figure 8.37.

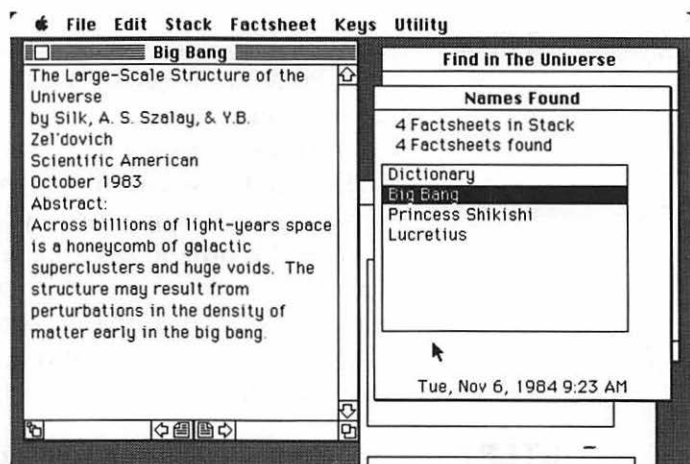


Figure 8.37 The Big Bang factsheet

**STEP 11** Create a new factsheet and then type in the poem by the 12th century Japanese Princess Shikishi.

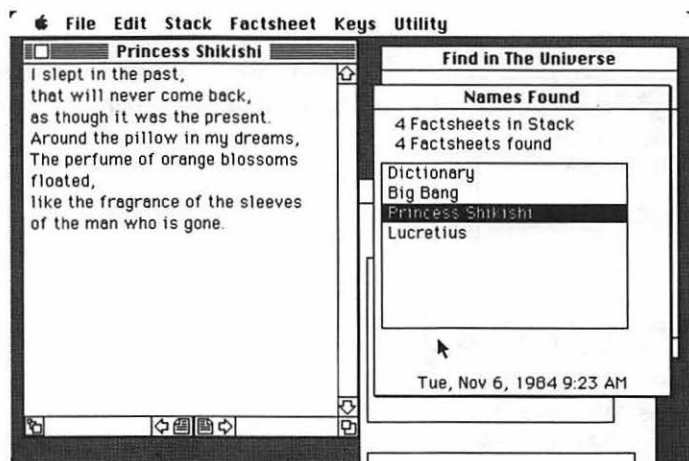


Figure 8.38 Quotation from Princess Shikishi and keywords

Some ideas are present in the poem that are not stated explicitly—something that happens in poetry, especially Japanese poetry. The speaker seems to be in love and it seems as if the man she loved has died. Note also that orange blossoms are relevant to “oranges,” one of the items in the outline in chapter 7, but it is not the same word. Here is how to supply these keywords that are not exactly present in the text but should be indexed.

### STEP 12

Click on the Keys for Dictionary window and type “love”. You will see it appear in the box at the bottom. Check the Add button (or press Return). In the same way add “death” and “oranges.” Then select the other words to match figure 8.38 as you did above.

### STEP 13

Create a new factsheet, change its name to “Lucretius,” and mark some words for cataloging as in figure 8.39.

Lucretius wrote “On the Nature of Things” about 75 B.C. If his ideas seem to resemble the abstract from *Scientific American*, it shows that the more things change, the more they stay the same.

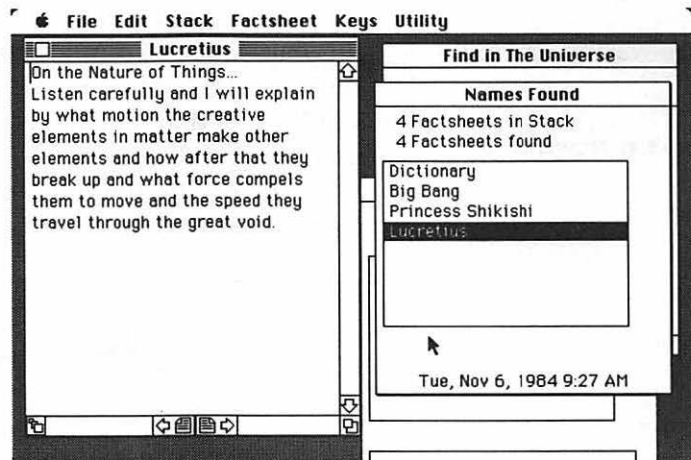


Figure 8.39 Quotation from Lucretius

### Finding Factsheets

Normally three windows besides the factsheet are visible on the Factfinder desktop (see figure 8.40).

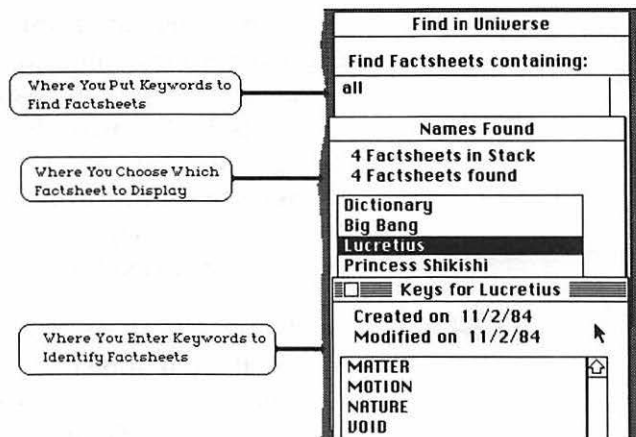


Figure 8.40 The Search window

**STEP 1**

Click on the Find in The Universe window.

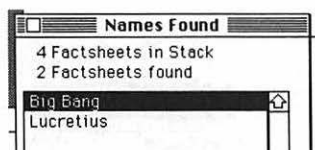
**STEP 2**

Figure 8.41 Names found

Type "void" in the window. If the word "all" is in the window it searches for all factsheets. Double click on "all" and type "void" to replace it. Pull down the **Factsheet** menu and select **Find factsheets**.

The Names Found window will come to the front (figure 8.41). It shows that two factsheets are keyed to "void" and that Big Bang is selected. You could select Lucretius and display it.

Click on the Big Bang factsheet. It shows buttons for controlling the view at the bottom.

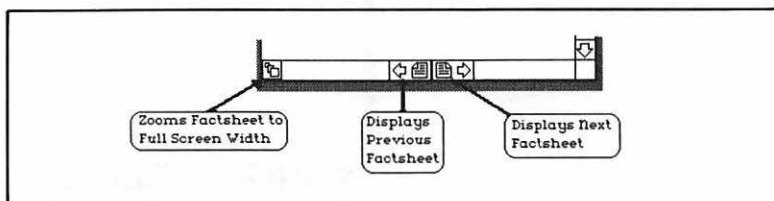


Figure 8.42 The Zoom, Previous, and Next Buttons on a factsheet

Factfinder also maintains an index of the names, creation dates, and keywords of all your factsheets. You can look for items in the index and then use them to search. The index includes buttons to combine terms.

**STEP 3** Pull down the **Stack** menu and select **Show Index**. The index will appear.

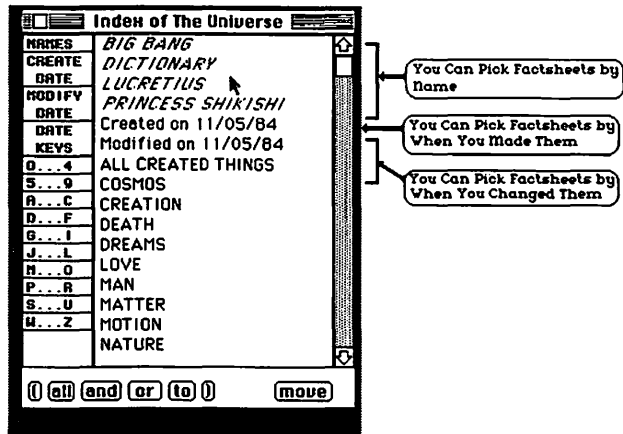


Figure 8.43 The Factfinder Index window

#### STEP 4

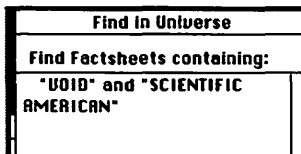


Figure 8.44 Search for a factsheet with "Void" and "Scientific American"

Click on S...V. The end of the index will appear. Select VOID and then click the move button. VOID will appear in the Find in The Universe window. Click on the and button; "and" will appear in the Find in The Universe window. Select "SCIENTIFIC AMERICAN" and click on the move button. The quotation marks separate real keywords from words that indicate their relation. You can insert words to show the relation between keywords either by writing them or by selecting them from the index window.

#### STEP 5

Pull down the **Stack** menu and select **Find factsheets**. The Big Bang factsheet will be found.

### Printing Factsheets

You can print a variety of information from the factsheet through the **Page Setup** and **Print** items on the **File** menu; these not only do what their names imply, but also allow you to select what you print.

#### STEP 1

Pull down the **File** menu and select **Page Setup** (see figure 8.45).

**STEP 2**

Check items in the Page Setup dialog box to match figure 8.45. The preset value is to print the factsheet only. There is no need to adjust Paper Length or Bottom Margin if you are using 8 1/2-by-11 paper. Compressed Printing lets you put a lot of text in a narrow space, especially helpful if you are printing on 3-by-5 cards.

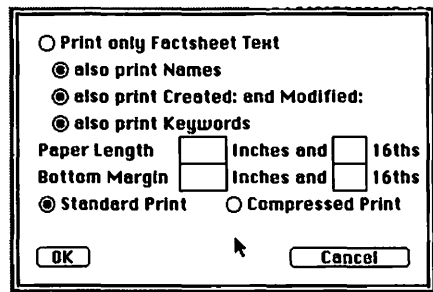


Figure 8.45 The Page Setup dialog box

**STEP 3**

Pull down the **File** menu and select **Print**.

The Factfinder Print dialog box will appear. Print Factsheet Names give you a list of all your factsheets by name. Print Keywords gives you a list of your keywords, which is useful if you are working with a large amount of Material.

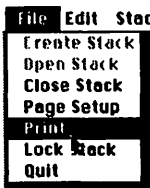


Figure 8.46 Selecting Print on the Factfinder File menu

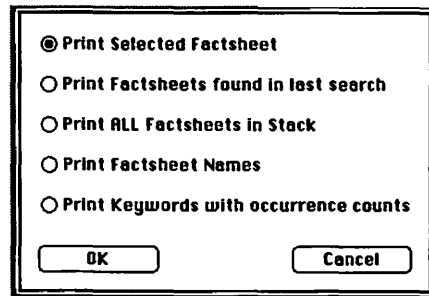


Figure 8.47 The Factfinder Print dialog box

**STEP 4**

Accept the preset values and check OK. The usual Mac Printing dialog box follows. Set it to fit your type of paper and check OK.

If you have followed the steps of this example exactly, the dictionary factsheet will come off your printer like this:

All created things viewed as constituting one system or whole; the creation; the cosmos.



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# Appendix

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Access II  
Apple Computer  
20525 Mariani Avenue  
Cupertino, CA 95014

Augterm  
Tymshare  
20705 Valley Green Drive  
Cupertino, CA 95014

Factfinder  
Forethought  
1973 Landings Drive  
Mountain View, CA 94043

Filevision  
Telos Software Products  
3420 Ocean Park Boulevard  
Santa Monica, CA 90405

MacDraw  
Apple Computer  
20525 Mariani Avenue  
Cupertino, CA 95014

MacPaint  
Apple Computer  
20525 Mariani Avenue  
Cupertino, CA 95014

MacWrite  
Apple Computer  
20525 Mariani Avenue  
Cupertino, CA 95014

MegMerge  
5703 Oberline Drive  
San Diego, CA 92121

Microsoft Chart  
Microsoft  
10700 Northrup Way  
Bellevue, WA 98004

Microsoft Multiplan  
Microsoft  
10700 Northrup Way  
Bellevue, WA 98004

Microsoft Word  
Microsoft  
10700 Northrup Way  
Bellevue, WA 98004

PFS:file & PFS:report  
Software Publishing Co.  
1901 Landings Drive  
Mountainview, CA 94043

PC to Mac  
dilithium Press Software  
8285 S.W. Nimbus  
Beaverton, OR 97005

The Source  
1616 Anderson Road  
McLean, VA 22102

ThinkTank 128  
Living Videotext  
1000 Elwell Court  
Palo Alto, CA 94303

Trade\*Plus  
POB 60970  
Palo Alto, CA 94025

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DIRK VAN NOUHUYS has been Program Manager for systems, language, and data communication manuals in the Lisa division of Apple Computer. He has also written numerous articles and product reviews for computer publications such as *Interface Age* and *Apple Magazine*.

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