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U S I N G

# MacWrite™ and MacPaint™



Tim Field



USING MACWRITE™  
AND  
MACPAINT™

Tim Field

Osborne McGraw-Hill  
Berkeley, California

Published by  
**Osborne McGraw-Hill**  
2600 Tenth Street  
Berkeley, California 94710  
U.S.A.

For information on translations and book  
distributors outside of the U.S.A., please write to  
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### **USING MACWRITE™ AND MACPAINT™**

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234567890 DODO 8987654

ISBN 0-88134-137-1

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# TABLE OF CONTENTS

<b>Part I</b>	<b>Introducing the Macintosh</b>	<b>1</b>
<i>Chapter 1</i>	Introducing the Players	3
<i>Chapter 2</i>	Customizing Your Desktop	17
<b>Part II</b>	<b>Introducing MacWrite</b>	<b>31</b>
<i>Chapter 3</i>	Using MacWrite	33
<i>Chapter 4</i>	Report Writing With MacWrite	51
<b>Part III</b>	<b>Introducing MacPaint</b>	<b>65</b>
<i>Chapter 5</i>	Using MacPaint	67
<i>Chapter 6</i>	Patchwork Patterns	83
<b>Part IV</b>	<b>Integrating MacWrite and MacPaint</b>	<b>101</b>
<i>Chapter 7</i>	Using the Macintosh Clipboard and Scrapbook	103
<i>Chapter 8</i>	Creating a Letterhead	111
<b>Part V</b>	<b>Applications and Ideas</b>	<b>123</b>
<i>Chapter 9</i>	Working With Text in MacPaint	125
<i>Chapter 10</i>	Creating Scientific and Mathematical Formulas	133
<i>Chapter 11</i>	Text Highlighting and Emphasis	145
<i>Chapter 12</i>	MacPaint Short Takes	159
<i>Chapter 13</i>	Printing With the Macintosh	171
<i>Appendix A</i>	The Keyboard and Character Set	177
<i>Appendix B</i>	Font Sizes and Styles	193
<i>Index</i>		197

# DEDICATION

This book is dedicated to the memory of Bill Palmer, my father-in-law and my dear friend, who I miss very much. His influence over the years has left no part of my life untouched. I look forward with anticipation to that day “when the roll is called up yonder” and we will meet once again.

# ACKNOWLEDGMENTS

I am indebted and very grateful to those people who worked with me in the preparation of this book. Of particular importance, I would like to acknowledge the role of the folks at Osborne/McGraw-Hill, many of whom I had no direct contact with, yet who made important contributions to the task of shaping my manuscript into the finished book. Specifically, I wish to thank my primary contacts, Judy Ziajka, who first suggested the project to me and then proceeded to make it work, and Dave Ushijima, who worked diligently on the technical editing of my manuscript.

The timeliness of this book is due in part to the people at Apple Computer, especially Guy Kawasaki (one of Apple's Software Evangelists), who gave much appreciated assistance in the form of the latest hardware and software releases.

For providing a somewhat different level of support, I would like to express my deep gratitude and love to my wife, Barb, who has stood by me and encouraged my work, on this book and other projects, even when it meant significant sacrifices on her part.

TF

# INTRODUCTION

This is an “ideas” book. Rather than focusing on the commands that you use with the Macintosh, the emphasis is on using the Macintosh to accomplish a specific goal. You will see how to use some subtle techniques and how to combine commands in order to achieve a desired result.

In this book, you will discover ideas for using two applications programs, MacPaint and MacWrite. You will see methods of combining the diverse capabilities of each, resulting in solutions far superior to what might be possible separately.

While this book emphasizes solutions, it is not expected that you, the reader, are an expert Macintosh user. In fact, the features and commands of MacWrite, MacPaint, and the Macintosh itself are clearly explained in the context of particular applications. By seeing *how* a command can be used as well as *what* it does, you should get a more intuitive feel for using the Macintosh.

This book is divided into five parts. Parts I through IV introduce the main topics of the book: the Macintosh system, the MacWrite word processor, the MacPaint graphics processor, and combining MacWrite and MacPaint.

These first four parts each contain two chapters. The first chapter of the section discusses the capabilities and features of the topic item. The second chapter of the section presents an application that demonstrates the use of the topic item.

Part V is entirely devoted to applications using MacWrite and MacPaint. Altogether there are a total of nine applications-oriented chapters in the book:

Chapter 2, *Customizing Your Desktop*, examines the Macintosh desk accessories. This chapter reviews the different accessories and demonstrates how some of them can be used to customize your Macintosh.

Chapter 4, *Report Writing With MacWrite*, discusses techniques and tips for writing reports using MacWrite. These techniques are applicable for school and business reports as well as other forms of writing, such as memos, business letters, manuals, or even books.

Chapter 6, *Patchwork Patterns*, demonstrates the power of MacPaint to create geometric patterns in just a few minutes.

Chapter 8, *Creating a Letterhead*, demonstrates the capability of the Macintosh to integrate programs like MacWrite and MacPaint. You see how MacPaint can be used to create custom letterheads for later use with MacWrite.

Chapter 9, *Working With Text in MacPaint*, explores the text manipulation capabilities of MacPaint. The differences between handling text in MacPaint versus text in MacWrite are examined.

Chapter 10, *Scientific and Mathematical Formulas*, discusses methods for creating formulas with both MacWrite and MacPaint. You see how MacWrite can be used to design formulas and then look at the “picture-perfect” formulas that can be created using MacPaint.

Chapter 11, *Text Highlighting and Emphasis*, examines different methods you can use to create visually exciting reports. This chapter looks at creating special chapter headings and then demonstrates some very effective ways of highlighting special parts of your reports.

Chapter 12, *Short Takes*, is an assortment of special techniques using different tools in MacPaint.

Chapter 13, *Printing With the Macintosh*, looks at the printing capabilities of the Macintosh.

If possible, read this book while sitting at the keyboard of a Macintosh. Do not feel that you have to read the book from front to back. Find an application that looks interesting to you. Then sit down and try it out.

If you find a command or operation you do not understand, use the index to locate the section where the command is discussed in greater detail. Then experiment. Play. If an alternate use of a given technique pops into mind, take a minute to explore.

Hopefully, the ideas and applications in this book will stimulate your imagination. As you see various techniques demonstrated, you may think of ways to apply them to your own applications.

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# P A R T   O N E

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# Introducing The Macintosh

*The Apple Macintosh represents the first major player in the third generation of personal computers. The first generation shattered the traditional concept of a computer as being very big, very expensive, and available only to medium- and large-sized companies with their own data processing departments. These early microcomputers, perhaps best exemplified by the Apple II system, were inexpensive but were also limited in both processing power and memory capacity. However, the average user of this machine was a pioneering type who would put up with these limitations.*

*The second generation of the personal computer was really just a small step up from the first. This generation centered around a single computer, the IBM Personal Computer, or PC. The PC provided more processing power and the ability to support much more memory than the typical first-generation personal computer. With increases in memory capacity, much more complex software was developed for the PC. But the biggest breakthrough was the acceptance of the PC by the business community. While the Apple II and its peers were considered by many to be not much more than toys or hobbyist computers, the idea that IBM was making a personal computer legitimized the whole microcomputer industry.*

*Despite their differences, both the first- and second-generation microcomputer systems had much in common. In order to set up a working system, you had to pick and choose from a vast array of hardware and software components that often did not work well together (or sometimes did not even work at all). Furthermore, much of the software was extremely difficult to learn, a problem compounded by a lack of consistency in the way different programs operated.*

*The Apple Macintosh represents an exciting departure from the first two generations of personal computers. The Macintosh is a complete system that can be put to use very quickly. It provides a consistent way for you to work with applications programs.*

*The following two chapters introduce you to the Macintosh, the general Macintosh system, and many of the basic concepts involved in using it. As you proceed through those chapters, you will discover how to accomplish a number of useful tasks and operations.*

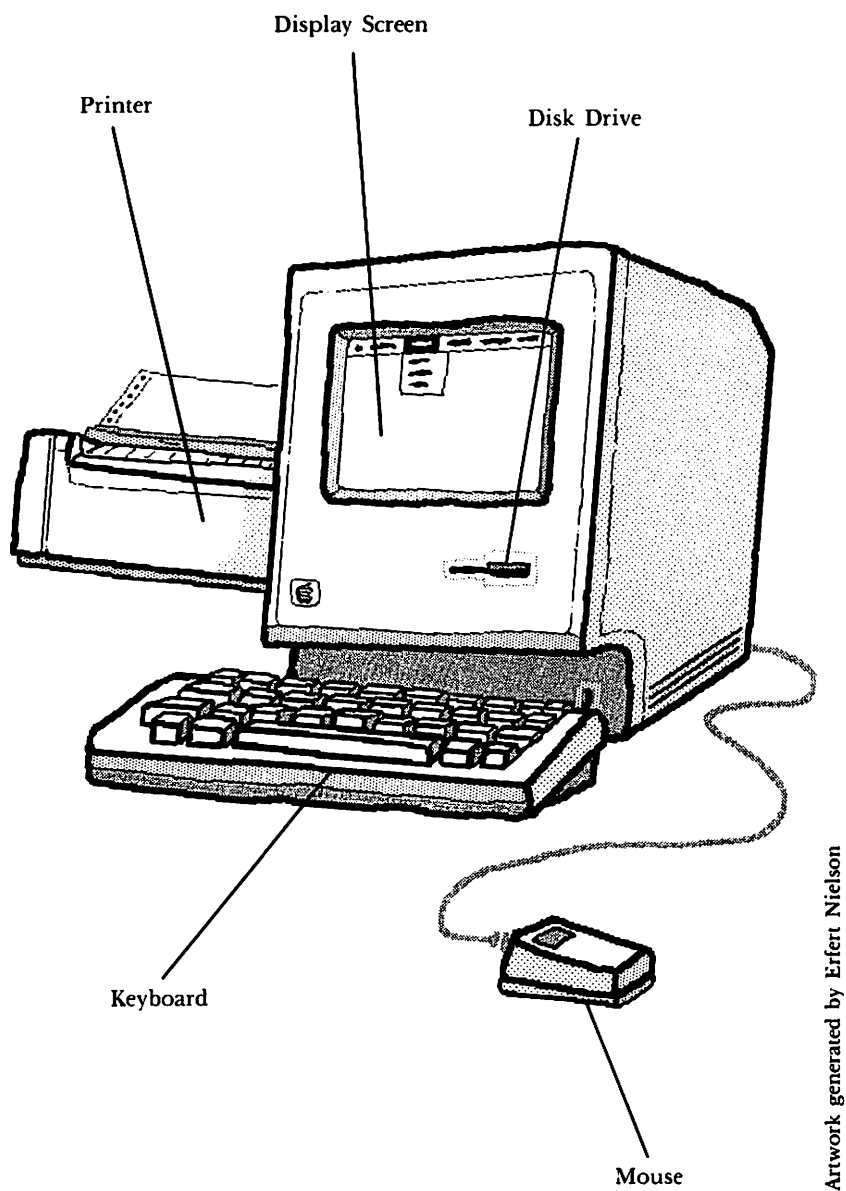
## INTRODUCING THE PLAYERS

This chapter discusses the basic Macintosh system. You will take a look at the desktop, the Finder program, and the commands in the Finder's pull-down menus.

### THE MACINTOSH SYSTEM

The basic Macintosh system consists of the five parts shown in Figure 1-1: the *display screen*, which shows you what the Macintosh or an applications program is currently doing; the *printer*, which provides a printed copy of the Macintosh display or the results of an applications program; the *disk drive*, which stores applications programs and other types of files; the *key-board*, with which you type in text or numbers; and the *mouse*, with which you enter commands.

Perhaps the best news about the Macintosh is that you really do not need to know much about the hardware. Unlike the user of a first- or second-generation personal computer, you will not need to be aware of the internal makeup of your Macintosh in order to use it. Just as you do not have to be a mechanic to drive a car, you do not have to be a hardware expert to operate the Macintosh.



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**Figure 1-1.** A basic Macintosh system

## THE DESKTOP

The manner in which you interact with the Macintosh (often called the “user interface” in computer parlance) is analogous to working at an office desk. On the Macintosh desktop you move documents around, set up files containing groups of documents, and perform a host of other functions like those performed in a traditional office. It is this familiar environment that makes learning to use the Macintosh so easy.

The Macintosh desktop is depicted on the display screen. As a user, you are linked to this desktop by the Macintosh mouse. The mouse is represented by a *cursor*, or *pointer*, on the screen. As you move the mouse around on your desk, the cursor parallels its movement on the screen. The shape of the cursor will change to reflect the type of selection or command that you can request at the current position on the screen.

The mouse has a button on it. There are three basic ways to use the mouse:

- *clicking*—pressing the button and immediately releasing it.
- *dragging*—pointing to an object, holding down the button, and moving the mouse.
- *double-clicking*—quickly clicking the button twice.

How the Macintosh responds depends on the applications program currently being used and where the cursor is on the screen. You will see examples of how the mouse is used later in this chapter.

Regardless of the applications program, commands and operations are presented by *icons* and *pull-down menus*. An icon is simply a picture that represents a specific Macintosh object. For example, a picture of a document represents an actual document you created. The use of icons for entering commands helps remind you of what the commands actually do.

A pull-down menu contains a list of commands organized in groups according to the type of functions they perform (just as a restaurant menu is divided into different categories, such as dinners, appetizers, and drinks). An applications program may have several command menus.

The name of each menu is listed along the top of the screen. You can “pull down” a menu simply by pointing the cursor to the menu name and holding down the mouse button. To execute a particular command within a menu, pull down the menu list, drag the cursor down to point to the appropriate command, and then release the mouse button to execute the command.

## THE FINDER

When you first power up the Macintosh, or when you are not running an applications program, you can use the *Finder*. The Finder is a built-in program that simulates an office desktop. On the display of the Macintosh the Finder depicts an empty desktop, as shown in Figure 1-2.

The Finder gives you the ability to:

- Start up applications programs like MacWrite and MacPaint.
- Examine and manipulate the files on a disk. You can throw away unneeded files, make copies of needed files, and organize your disks by moving files into *folders*.

A Macintosh folder is like a file folder except that it is stored on a disk. You store all kinds of memos, reports, or any other documents in file folders, organizing your work by grouping together the records of a certain client or contract. Within a Macintosh folder you can place applications programs, data files, and even other folders. By logically grouping them together in this way, you can avoid being overwhelmed by a large number of files on a disk.

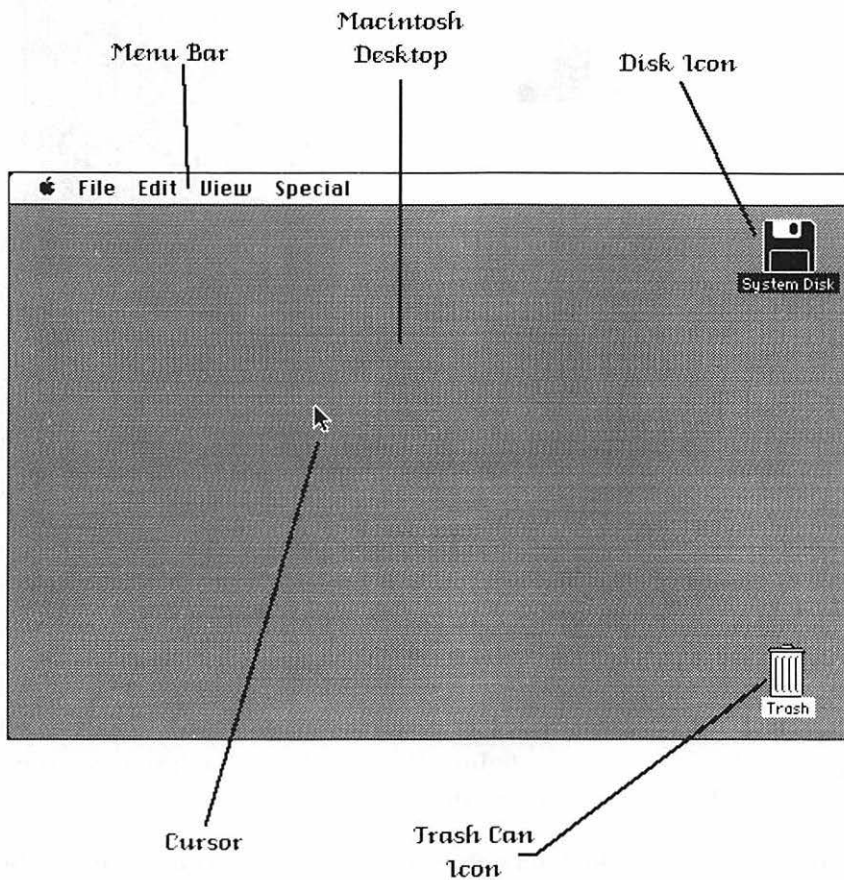
You can give each folder a name that reminds you of what is stored inside. You “open” a folder to look at its contents and “close” the folder when you are through.

- Initialize and erase disks, that is, prepare completely blank disks for storing Macintosh files, applications, and folders.
- Copy files, folders, and applications from one disk to another.
- Eject a disk.
- Print documents or graphics created by applications programs.

## WINDOWS

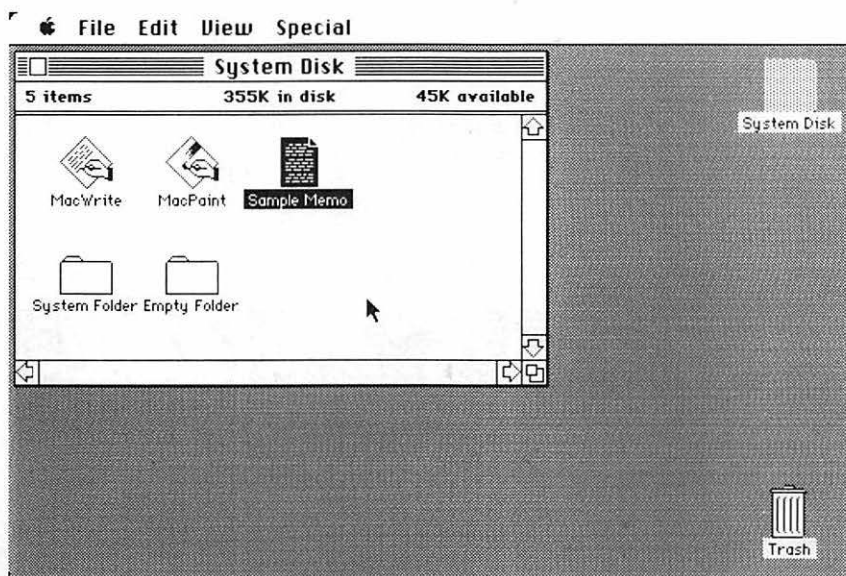
The Finder displays the contents of disks and folders in *directory windows*. A directory is a list of the files, applications programs, and folders stored on a given disk. The directory window displays this list for you.

To see what a directory window looks like, move the mouse so that the



**Figure 1-2.** *The Macintosh desktop*

cursor points to the icon representing the disk in the upper-right corner. Now press the mouse button twice (double-click). This should “open” the directory window for the disk. The screen may appear as shown.



This is typical of the windows you will see with many Macintosh programs. The parts of a directory window are shown in Figure 1-3.

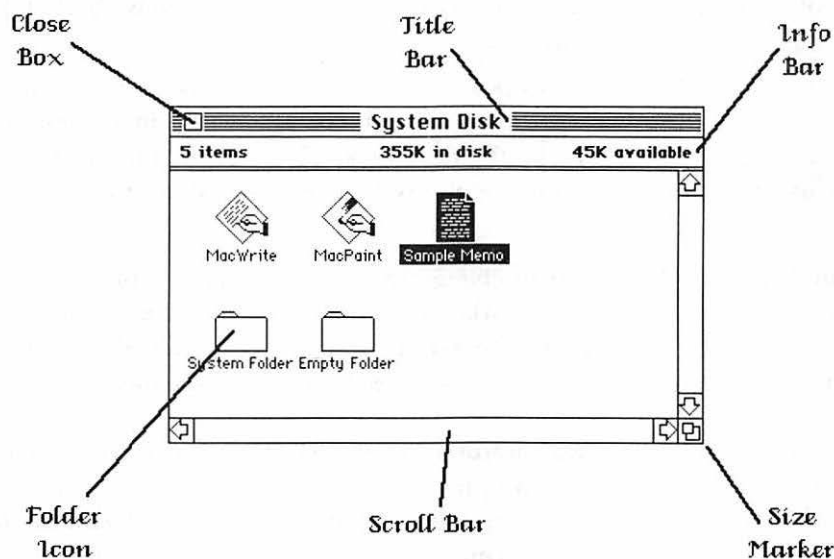
The functions of these parts are as follows:

**Close Box** “Closes” the window if you point the cursor at this small square and click the mouse button. This is identical to the Close command (see “File Menu,” later in the chapter).

**Title Bar** Displays the name given to the window. You can move the window about the screen by pointing the cursor at the title bar, pressing and holding down the mouse button, and then dragging the window about the screen.

**Info Bar** Tells you specific information about the items in the window. Includes a count of the number of items, the amount of disk space they take up, and the total amount of free space on the disk.

**Folder Icon** Represents a folder that may contain applications programs, system files, documents, or even other folders. You can make new empty folders by selecting the Empty Folder icon and duplicating it. (See the Duplicate command in “File Menu.”)



**Figure 1-3.** *The parts of a directory window*

**Scroll Bar** Used if the directory is larger than the window itself. In other words, if the window is not big enough to display an entire directory at once, you can use the scroll bar to scroll the directory in order to locate an item of interest.

Notice that there are two scroll bars, one for scrolling vertically, another for scrolling horizontally. A blank scroll bar indicates that all of the information in that direction is visible in the window.

If the scroll bar is shaded, you will notice a small square on the bar. The position of the square indicates the current relative position of the window with respect to the entire directory. If the square is at the top of the scroll bar, you are viewing the top part of the directory. If the square is at the bottom, you can see the bottommost portion of the directory.

To scroll the directory past the window in small increments, use the two arrows at each end of the scroll bar. Point the cursor at the appropriate arrow and click the mouse button to move in the selected direction. To scroll smoothly through the directory, hold down the mouse button as you point to the appropriate arrow.

You can quickly move to any position in the directory window by pointing the cursor at the square on the scroll bar, holding down the mouse button, and dragging the square to the desired position. When you release the mouse button, the window will display the selected portion of the directory.

**Size Marker** Allows you to change the size and shape of the window. Point the cursor at the size marker and hold down the mouse button. As you drag the cursor around the screen, you will see a dotted rectangle. Drag the rectangle to the size that you need and release the mouse button.

You will see windows with features like the scroll bar and size marker in MacWrite and other applications programs. Other elements, such as the title bar and the close box, will appear in most applications on the Macintosh. It is well worth the time to experiment and familiarize yourself with these features now.

Note that any number of windows can be open on the screen at a given time. Windows may partially overlap one another, or one window may completely cover another. However, only one window can be “active” at a time.

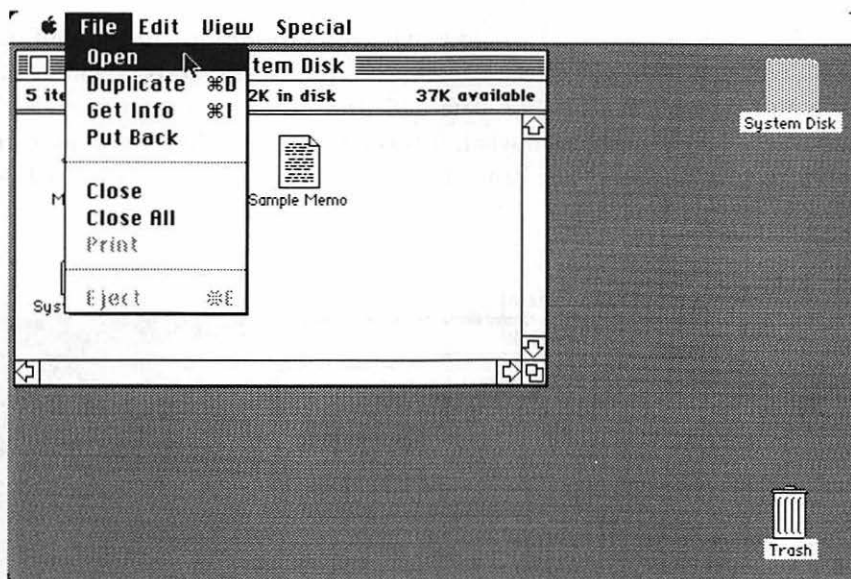
The active window will always be completely displayed on the screen. Only the active window will have a title bar containing the window title, line pattern, and close box. All inactive windows will have a blank title bar.

If you want to make a window active, simply point the cursor at the window you want and click the mouse button. If you cannot see the window that you want to activate but you know it is open (in other words, it is buried behind other windows), you will either have to close or move some of the windows that are covering it up.

## THE FINDER MENU BAR

The menu bar is at the top of the Finder screen. There are five menus in the menu bar shown in Figure 1-2. The image of the apple in the far left corner contains a menu for selecting the Macintosh desk accessories. Discussion of these accessories will be deferred until Chapter 2.

The remaining four menus contain commands that you can use with the Finder. You may recall that you pull down a menu to see what commands are available by pointing the cursor at the menu name and then holding down the mouse button to display the menu contents. A command within the menu is selected and executed by dragging the cursor down the menu list until it points to the desired command and releasing the mouse button. In the following example the File menu is pulled down and the Open command is selected:



Now let's take a look at each of the menus and see what commands they include.

## File Menu

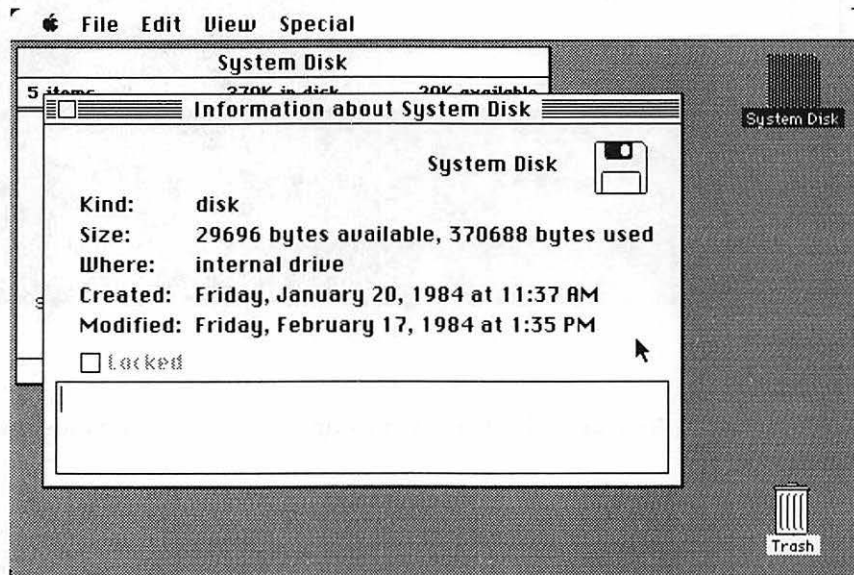
The commands within the File menu allow you to perform operations on entire files. Using these commands you can do things like open, close, duplicate, and print files. You can also obtain additional information about a file or eject a disk from a disk drive.

**Open** Opens a selected icon. To select an icon, point the cursor at it and press the mouse button. The icon will be highlighted to indicate that it was selected.

Different icons react differently when open. Disk and folder icons merely open to show what files they contain. Opening an application icon, though, tells the finder to execute that application. If the icon represents a document that you created with some application, the finder executes the appropriate application using the document you selected.

**Duplicate** Makes a copy of the selected icon. If you have selected a folder, the folder and all of its contents are duplicated.

**Get Info** Opens a special window that shows you information about the item represented by the selected icon. You can use Get Info to obtain the size and type of an item, the date and time when an item was created, where an item is stored, and when it was last modified. In certain cases, an optional description of the item's function may appear. Let's use Get Info on the System Disk:



**Put Back** Undoes any recent movements of files and folders. For example, if you move a file from one folder to another, you can use Put Back to return the selected file to its original location.

**Close** The opposite of the Open command; closes the active window.

**Close All** Closes all opened windows.

**Print** Prints the contents of one or more selected documents on the printer. The applications program used to create the document will be run to perform the actual printing.

**Eject** Ejects the selected disk from the proper disk drive.

## Edit Menu

The commands within this menu let you do a limited amount of text editing with the Finder. You can use these commands to give names to new folders, files, and disks (or to rename them). You can also use these commands with the desk accessories discussed in the next chapter.

You can replace the name of an icon simply by selecting that icon and typing in the new name. If you want to edit a portion of the name (to correct a typing error, for example), you can point the cursor to the position where you want to make the change and click the mouse button. This will set the *insertion point*, shown on the screen as a small vertical bar. You can now insert the new text or use the BACKSPACE key to delete characters.

Several of the commands in the Edit menu require you to select the text to be changed. One way to do this is to point the cursor at the start of the selected text and hold down the mouse button as you drag the mouse over the selected area. The affected text will be highlighted. This procedure will be covered in more detail in Chapter 3.

**Undo** Cancels the effects of the last text-editing operation.

**Cut** Removes the selected text and places it on the system *Clipboard*. The Clipboard is used to store portions of text and graphic images temporarily. The Cut, Copy, and Paste commands discussed here are used to move text and graphics on and off of the Clipboard. (For more information about the Clipboard, see “Desk Accessories” in Chapter 2.)

**Copy** Makes a copy of the selected text and places it on the Clipboard.

**Paste** Makes a copy of the current contents of the Clipboard and places it at the text insertion point.

**Clear** Deletes the selected text without doing anything to the system Clipboard.

**Select All** Selects every icon in the currently active window.

**Show Clipboard** Opens the system Clipboard window and shows the current contents.

## View Menu

Commands in the View menu change the way that the directory is displayed. The icon display uses a picture to represent each entry in the directory. The other types of displays use written methods to organize the names and functions of directory entries and other information.

**By Icon** Shows entries as pictures.

**By Name** Organizes the directory in alphabetical order by the names of the entries.

**By Date** Organizes a directory according to the dates that the entries were changed, from newest to oldest.

**By Size** Arranges a directory according to the size of the entries, from largest to smallest.

**By Kind** Arranges the directory according to the function of each entry.

## Special Menu

The commands in the Special menu help you manage or organize your disks. With these commands you can reorganize a directory window, free up space on your disk, or erase the entire contents of a disk.

**Clean Up** Reorganizes or straightens up the currently selected directory window. This works only when the directory is displayed by icon.

**Empty Trash** You can dispose of any item on a disk by pointing the cursor at its icon, pressing and holding down the mouse button, and dragging the icon to the trash can at the lower right of the screen. This does not actually free up the space occupied by that item, however; that is done with the Empty Trash command.

**Erase Disk** Lets you erase all the contents of a selected disk. Take care not to do this until you are sure you do not need any of the files on that disk.

**Set Startup** Allows you to select an application program that you want to automatically begin running whenever you start the Macintosh with the current disk. For example, if you have a system disk with MacWrite on it, you can select the MacWrite icon and then choose Set Startup. This will cause MacWrite to automatically begin when you turn on the Macintosh and insert this disk.

## SHORTCUTS

A select group of operations can be executed using shortcuts. These shortcuts are just quick ways of performing the same operations. The following shortcuts are available when you are using the Finder:

**Double-Click** If you point the cursor at an icon on the screen and quickly click the mouse button twice, you get the same result as if you selected that icon, pulled down the File menu, and selected the Open command. For example, double-clicking on a folder icon will open the folder and show you the files contained within. Double-clicking on an application icon starts up the application.

















If you double-click the mouse button while pointing to a word of text, the entire word will be selected.

**Shift-Click** If you hold down the SHIFT key while you click the mouse button, the icon being pointed at will be added to any other previous selections. For example, you can shift-click to select and then move more than one file at a time into a newly created folder.

**Close Box** Clicking the mouse button with the cursor pointing at the close box has the same effect as selecting a window and then selecting the Close command from the File menu.

**RETURN Key and ENTER Key** Used to select the highlighted response to a *dialog box* (a window displaying the Macintosh's messages).

**TAB Key** Used in dialog boxes having more than a single place for entering typed information. Pressing the TAB key within a dialog box moves the insertion point to the next place where information can be entered.

		FILE-DUPLICATE
		FILE-GET INFO
		FILE-EJECT
		EDIT-UNDO
		EDIT-CUT
		EDIT-COPY
		EDIT-PASTE
		EDIT-SELECT ALL

---

**Figure 1-4.** *COMMAND key shortcuts*

**BACKSPACE Key** If you have selected a block of text (more than one character), pressing the BACKSPACE key will delete the entire block. If you instead type something at the keyboard, the text you type will replace the selected block of text.

**COMMAND Key** There are a number of shortcuts that use the COMMAND key in conjunction with some other key to issue a command. The COMMAND key shortcuts shown in Figure 1-4 are valid in the Finder.

## CUSTOMIZING YOUR DESKTOP

With the Macintosh, all work is centered around the concept of the desktop. Using the Finder, you can straighten up the desktop, create file folders to organize your work, make copies of documents, and do other office-like tasks. The Macintosh carries this desktop analogy one step further by offering a number of *desk accessories* for your use.

This chapter describes the desk accessories and demonstrates their uses. As you will see, they form the backbone of all of the Macintosh applications programs.

### DESK ACCESSORIES

Move the mouse around so that the cursor points to the apple icon in the upper-left corner of your Macintosh screen. Press and hold down the mouse button. You should see a pull-down menu appear. This is the desk accessory menu. Within this menu is a list of the seven desk accessories; these are the Scrapbook, Alarm Clock, Note Pad, Calculator, Key Caps, Control Panel, and Puzzle.

The desk accessory menu works just like any other pull-down menu. Pull down the menu and drag the cursor down the list of accessories. When you

are pointing to the desk accessory of your choice, release the mouse button to “open” it for use. Each accessory displays a special window when it is opened. The windows allow you to use the accessories.

What is unique about the desk accessory menu is that it is automatically available regardless of the applications program you are using. This means that every accessory is always within immediate reach on the Macintosh.

## The Scrapbook

Perhaps the most powerful and useful of all of the accessories is the *Scrapbook*. Simply put, the Scrapbook provides a long-term storage facility for objects placed on the system Clipboard.

The *Clipboard* is a temporary storage area in which the Finder and other applications like MacWrite and MacPaint can save text or graphics objects (pictures you create with MacPaint). Using the Cut, Copy, and Paste commands (discussed in Chapter 1) with the Clipboard, you can move large sections of text around in a word processor, transport graphics images around in a graphics processor like MacPaint, or move other types of objects in different applications. The Clipboard can even be used to move objects from one application to another—for example, to move a graphics object from MacPaint into a document created by MacWrite.

The Scrapbook is a set of pages, each page containing one item from the Clipboard. As already mentioned, the Scrapbook can be used as a long-term storage area for objects stored on the Clipboard. You use the same Cut, Copy, and Paste commands from the Edit menu to move items between the Scrapbook and the Clipboard.

The Scrapbook window (shown in Figure 2-1) is a standard window with a scroll bar that lets you scroll through the pages of the Scrapbook. You cannot edit any part of a Scrapbook window. All you can do is move the contents of a page from the Scrapbook to the Clipboard and vice versa.

If you use the Cut command with the Scrapbook, the current page will be deleted from the Scrapbook after it is copied to the Clipboard. The Copy command simply places a copy of the Scrapbook page onto the Clipboard without affecting the Scrapbook in any way.

When you Paste something from the Clipboard into the Scrapbook, the Macintosh automatically creates a new Scrapbook page and places a copy of the Clipboard into this new page.

The Clipboard and the Scrapbook are so important to the structure of the Macintosh that Chapter 7 is devoted to discussing their use in depth.

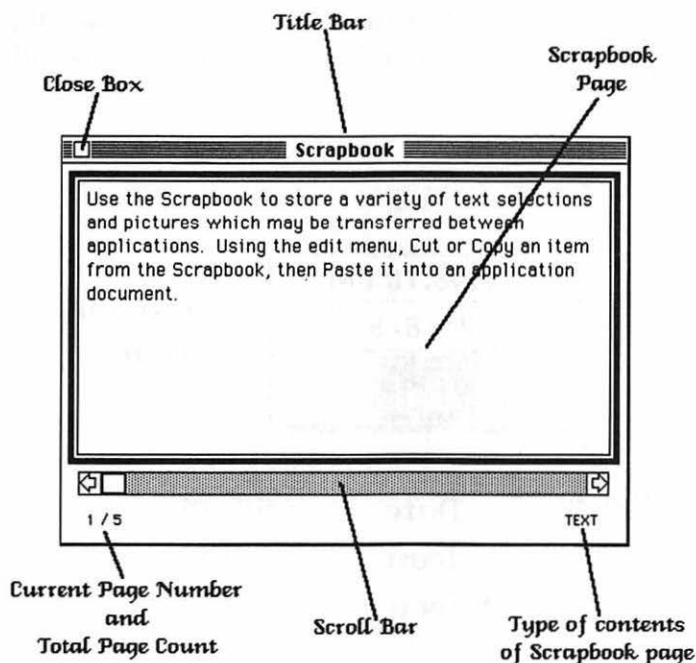
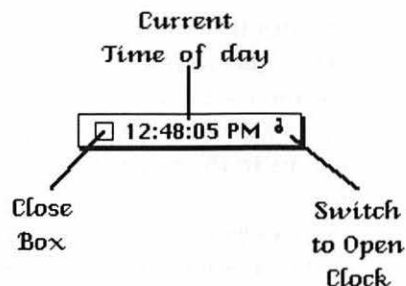


Figure 2-1. The Scrapbook window

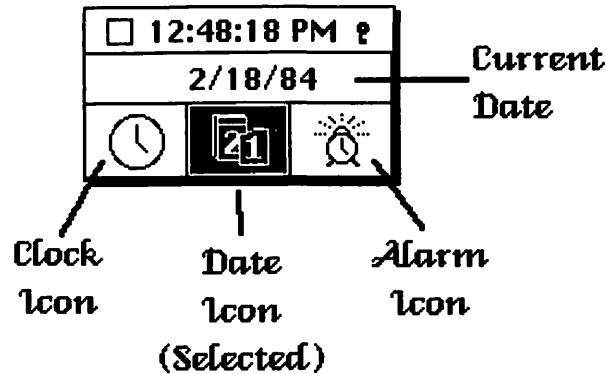
## The Alarm Clock

When you select the Alarm Clock accessory, a small window appears on the screen:



This window gives you the current time of day. The Macintosh contains a built-in clock so that it can keep track of the current date and time of day.

Notice the switch icon on the right side of the clock window. If you point the cursor there and click the mouse button, the clock window will open up to look like this:

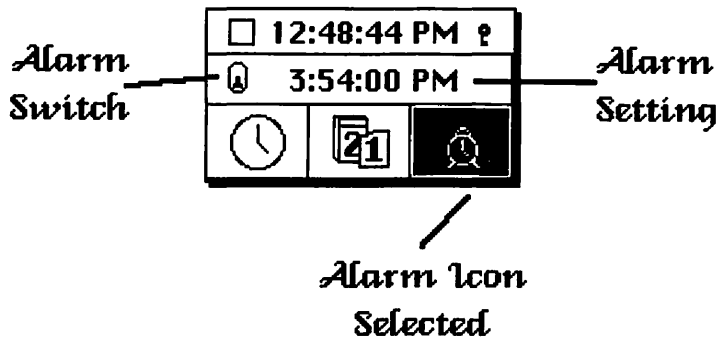


The middle section of the window displays the current date. If you point the cursor at either the month, day, or year and click the mouse button, you can change the corresponding part of the date by typing in a new value. This new date will be used as the current date.

The bottom part of the clock window contains the clock, date, and alarm icons. When you first open the clock window, the date icon is selected, and the middle part of the window displays the current date.

If you point the cursor to the clock icon and click the mouse button, you will see the current time in both the first and second lines of the clock window. Point the cursor to the hour, minute, second, or the A.M./P.M. part of the time on the second line and click the mouse button to select the part of the time to be changed. Up and down arrows will appear to the right of the table. Now, you can either type in the new value or click on the two arrows to set the current time of day.

Selecting the alarm icon gives you access to the alarm clock feature of the Macintosh. The Clock window is shown in the following illustration.



To set the alarm, select the hour, minute, second, A.M., or P.M. and type in the appropriate value or click on the up/down arrows. Turn on the alarm switch by pointing to the switch and pressing the mouse button (the switch is on when it is up). Once an alarm time is set and the switch is on, you can close the Alarm Clock window and go about your business. When it is time to sound the alarm, the Macintosh beeps once and starts blinking the apple icon to alert you.

One suggestion: If you set the Alarm Clock accessory for some specific purpose, use the Note Pad (discussed in the next section) to jot down the reason. This way you will not forget the purpose of the alarm.

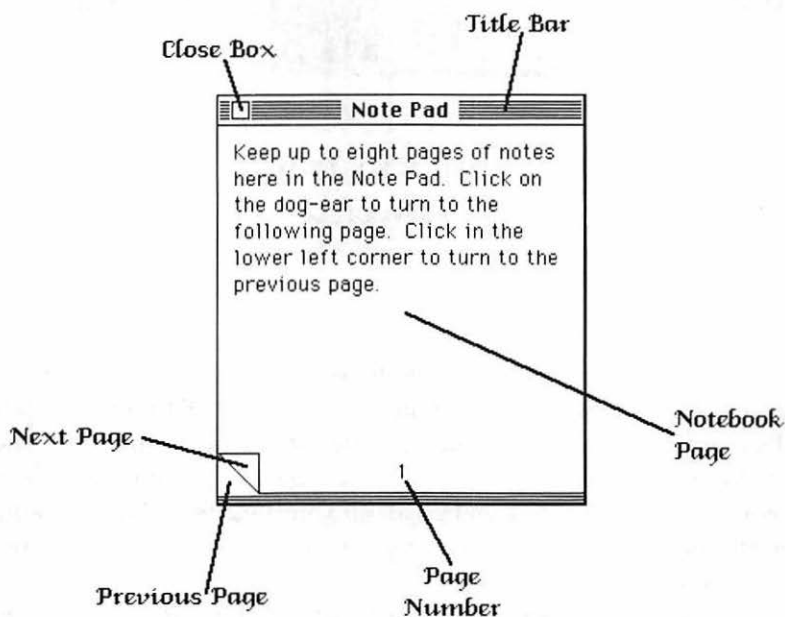
If the Macintosh is off when it comes time to sound the alarm, the next time you turn the power on, the alarm will sound as soon as the Finder program starts up.

You can use the Copy command (found in the Edit menu) to move the current time of day and date from the Alarm Clock window onto the system Clipboard. You can then move this information from the Clipboard into another application to date your work.

## The Note Pad

The Note Pad accessory gives you a place to store eight pages of ideas, thoughts, or any other kinds of notes you want to keep. The parts of the Note Pad are shown in Figure 2-2.

Figure 2-2 also explains how to use the Note Pad. You can type in text from the keyboard onto the current Note Pad page, or you can use the Clipboard (with the Cut, Copy, and Paste commands) to move text in and out of



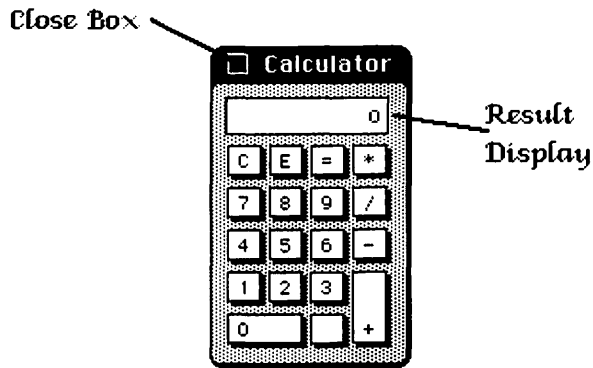
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**Figure 2-2.** *The Note Pad*

the Note Pad. However, you cannot move graphics objects from the Clipboard onto the Note Pad. The contents of the Note Pad are saved on the system disk when you turn off the Macintosh.

### **The Calculator**

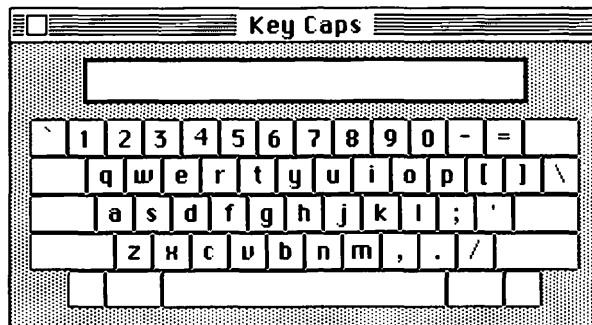
The Calculator accessory is a simple four-function calculator. When you select the Calculator from the desk accessory menu, you will see a familiar image.



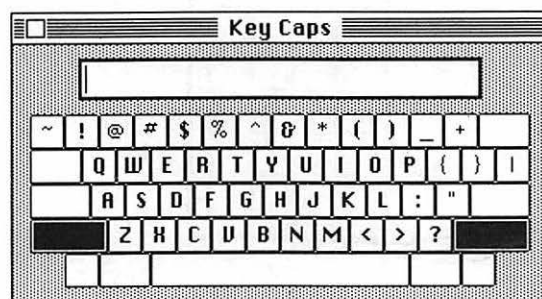
Use the Calculator as you would a normal calculator. You can either use the mouse to click the appropriate calculator key or type the entry on the keyboard. You will see the results on the display at the top of the calculator. Use the Copy command in the Edit menu to move the results of a series of calculations onto the Clipboard. Then, using the Paste command, you can transfer the results to another application.

## The Key Caps

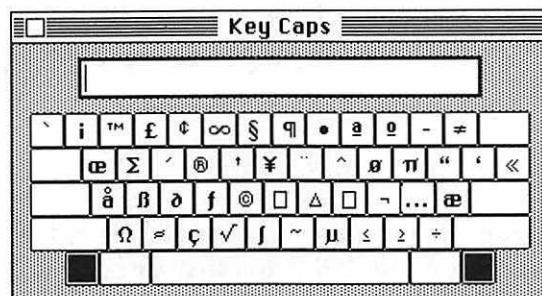
Key Caps is a handy, instant reference of the characters that can be entered from the Macintosh keyboard. When you first open the Key Caps window, you will see this display:



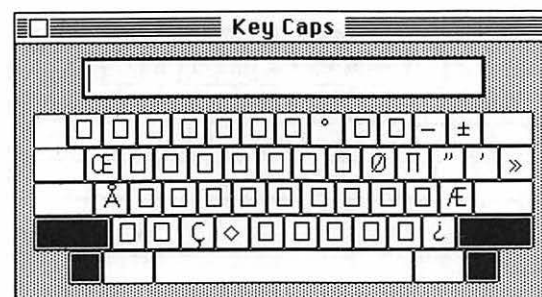
If you press the SHIFT key, you will see the characters that can be typed with the SHIFT key pressed:



If you press the OPTION key, you will see the set of characters that can be entered with the OPTION key pressed:



Finally, the SHIFT and OPTION keys can be used together to provide one more set of characters:

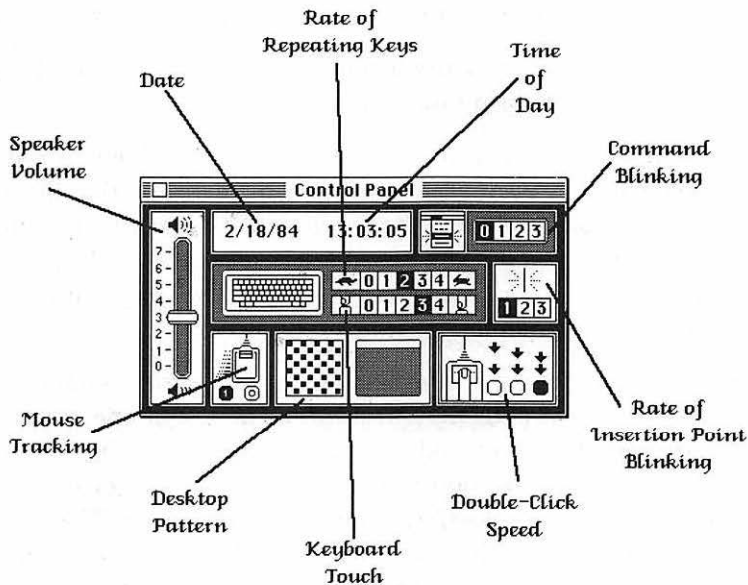


**NOTE:** The characters generated with the SHIFT-OPTION keys are not available with every character font. See Appendix A for a list of fonts (character styles) and the characters available with each.

You can type text onto the display at the top part of the Key Caps window by typing on the keyboard. You can then use the Copy command in the Edit menu to place that text onto the system Clipboard. When you return to your application or to the Finder, you can use the Paste command to add Clipboard contents wherever you want.

## The Control Panel

The Apple Macintosh has only two external controls, the On/Off switch and the brightness control knob for the display. However, through the Control Panel you can control a variety of different hardware settings. The Control Panel is shown in Figure 2-3.



*Figure 2-3. The Control Panel*

If you change the settings for any of the controls on the panel, the Macintosh will “remember” the changes even when you turn the power off. The functions of the panel’s controls are as follows:

**Speaker Volume** Sets speaker volume. Slide the “volume control” to 7 for the loudest setting and 0 to turn the speaker off. To slide the knob, point to it with the cursor, press and hold the mouse button, and drag the cursor up or down.

**Date** Sets the date for the internal clock. You should only have to change the date after replacing the battery, since the clock automatically accounts for leap years.

To set the clock, click on the month, day, or year and then use the up and down arrows that appear to the right of the date to increment or decrement the selected unit. Notice that selecting either the date or time elements stops the internal clock while you make the changes.

**Rate of Repeating Keys** If you hold down a key on the keyboard, after a short delay the keyboard will act as if you are pressing the key repeatedly. Called *auto-repeat*, this control allows you to set the rate at which the character is repeated. A setting of 0 turns off auto-repeat. The maximum setting of 4 causes a repetition rate of about 10 characters per second.

**Time** Used to change the current time of day on the Macintosh’s internal clock. Set the time using the Date method.

**Command Blinking** When you pull down a Macintosh menu and select a command, you may want visual feedback to assure you that the desired command was actually selected. You can use the Command Blinking control to cause the Macintosh to blink the selected menu entry up to three times before it actually performs the command. Set the control to 0 to disable the command blinking feature.

**Mouse Tracking** Lets you set up the Macintosh cursor to track (that is, to mimic on the screen) the movement of the mouse in one of two ways. You can set the control to 0 and the cursor will always move in lockstep with the movement of the mouse. This is called *constant* or *linear tracking*. If you set the control to 1, tracking will be nonlinear. That is, if you move the mouse quickly, the cursor will move farther than it will if you move the mouse slowly. As you become adept with the mouse, nonlinear tracking can enable you to use the mouse in less desk space than you could with constant tracking.

**Desktop Pattern** Sets up your own custom background or desktop design for use with the Finder. To do this, point the cursor into the desktop pattern box at the bottom of the panel and click individual dots on or off. For example, if you point at a dot in the box and click the mouse button, the dot will turn off. Clicking the mouse button on a blank part of the box turns the dot for that area on.

As you change the dots in the pattern box, the box to its right will show you the effect on the background. Once you have completed your background design, point the cursor at the box on the right and click the mouse button to “install” the new pattern.

The pattern box consists of an  $8 \times 8$  grid of dots. Using it you can design many different types of backgrounds. Believe it or not, in this simple grid you can set up any one of more than 18 billion-billion different desktop patterns. That is 18,000,000,000,000,000 choices.

For example, you can use the first initial of your last name as the desktop background design. Using the three initials JTF and combining them into a single initial results in the pattern shown in Figure 2-4. The desktop pattern is saved on the system disk. This means that you can set up different desktop patterns on different disks.

**Keyboard Touch** Lets you select the amount of time you will hold down a key before it starts auto-repeating. The higher the number, the more sensitive the keys, so the auto-repeat will start sooner. A 0 turns off auto-repeat.

**Double-Click Speed** Many Macintosh applications (including the Finder) let you take shortcuts to certain commands by double-clicking the mouse button. The double-click speed control lets you set the speed at which you need to click the mouse button in order for the Macintosh to recognize a double-click. The rightmost setting of this control requires the fastest speed; the leftmost setting is the slowest.

**Rate Of Insertion Point Blinking** Lets you set the rate at which the *insertion point* will blink. (See Chapter 3 for more information on the insertion point.) Selecting a 1 turns off the function. A 3 causes the insertion point to blink at its fastest rate.

Since each person has his or her own preferences about how things should work, the Control Panel accessory is very handy—you can set up the Macintosh’s hardware to react the way you want it to.

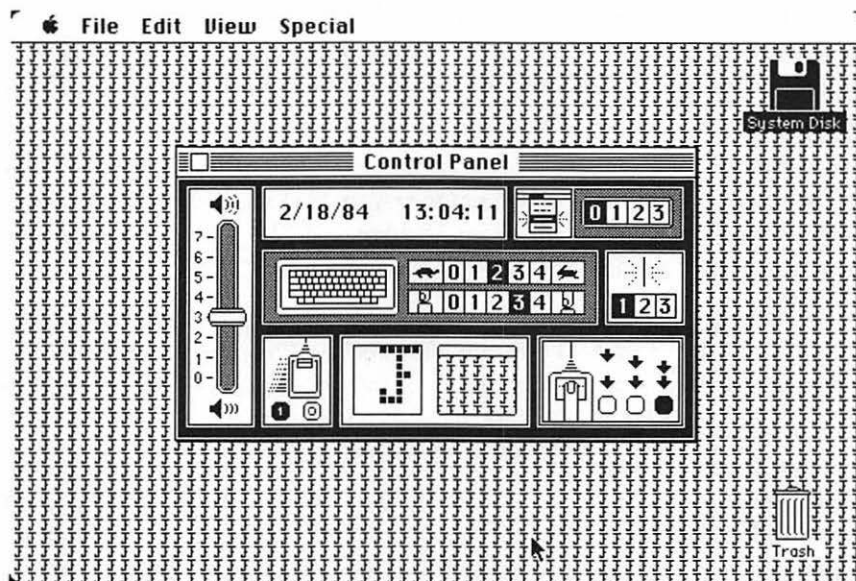
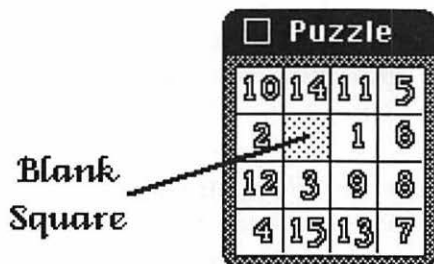


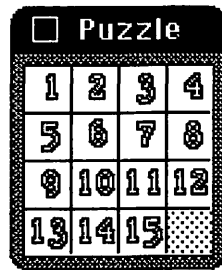
Figure 2-4. Changing the desktop pattern

## The Puzzle

The Puzzle, a game familiar to many of us from childhood, provides a small diversion from the serious work that you do on the Macintosh. Like the original game, it consists of movable tiles placed at random. For example:



The object of the puzzle is to rearrange the tiles in ascending order from left to right with the 1 in the upper-left corner. You can only move a tile that is adjacent to the single blank square. Move the tile of your choice by pointing at it with the cursor and clicking the mouse button. This is what the completed game should look like:



The game starts with a different random pattern each time you open it up from the desk accessory menu. So if you are almost finishing a game when your boss knocks on your door, you can choose between losing your efforts by clicking the puzzle's close box or getting caught playing the game.

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P A R T   T W O

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# Introducing MacWrite

*In Part II you will look at MacWrite, a word processor package for the Apple Macintosh. You will see how MacWrite carefully blends the traditional features found in most modern word processors with the special Macintosh environment. The result is a breakthrough in ease of use and functionality.*

*With a few exceptions, MacWrite offers the features found in most word processors, such as the ability to search through documents for occurrences of text, replace text, and automatically align margins.*

*Operations requiring complex commands on other systems are accomplished very easily with MacWrite.*

*For example, scrolling (moving a document so that a different portion appears on the computer display) can require a number of key-strokes with most word processors. In MacWrite, the same thing is done with a simple movement of the mouse. Selecting a block of text can likewise require a good deal of activity at the keyboard. Again, by simply moving the mouse, you can accomplish the same thing with MacWrite.*

*The mouse is used for everything but text entry in MacWrite. Icons (pictures) are used to represent objects like disks, and pull-down menus contain standardized commands that should be familiar to anyone who has used any other Macintosh applications package.*

## USING MACWRITE

MacWrite takes a completely new approach to microcomputer-based word processing. By presenting many powerful features in an extremely friendly environment, MacWrite allows you to begin producing sophisticated documents almost immediately. This chapter discusses the features and options available with MacWrite.

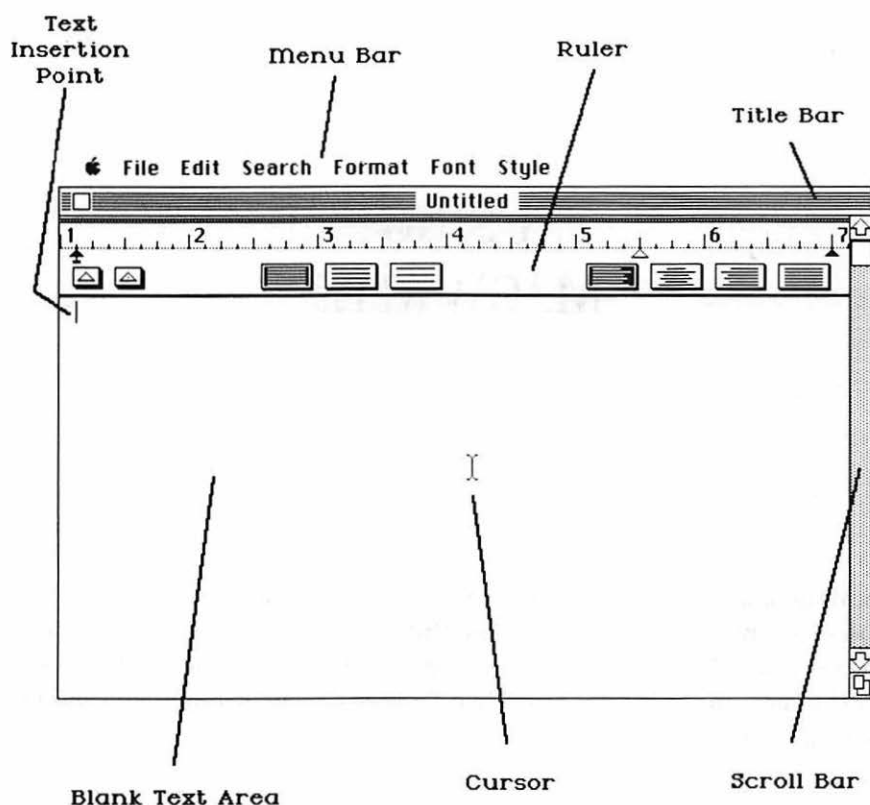
### STARTING UP MACWRITE

When you first start up MacWrite, you are greeted by the display shown in Figure 3-1.

The *insertion point* is indicated by a vertical bar. When you type at the keyboard, the text is inserted (added) into your document at the insertion point.

The *menu bar* contains seven pull-down menus listing different MacWrite commands. These menus and commands are discussed later in this chapter.

The MacWrite *ruler* contains special information about the format of your document. Documents may contain one ruler that applies to the entire contents or may contain many rulers that apply to specific portions of the document. You will learn how to use rulers later in this chapter.



**Figure 3-1.** *The parts of a MacWrite screen*

The *title bar* contains the name of the current document. This is the same type of title bar as that discussed in Chapter 1. You can drag the entire MacWrite page around the screen by pointing the cursor at the title bar and then clicking and holding down the mouse button. You can close the current document by pointing the cursor into the close box at the left end of the title bar and clicking the mouse.

As you type the text, the size of the document will quickly exceed the size of the MacWrite display screen. The *blank text area* is a window through which you can see a portion of the document, about one-quarter of a printed page. You can view and edit different parts of your document by scrolling through it with the scroll bar.

As in other Macintosh applications, the *cursor* is connected to the mouse. That is, as you move the mouse around, the cursor moves in the same pattern on the screen. In MacWrite you use the cursor in conjunction with the mouse button to reposition the insertion point in a document as well as to select portions of the text for various editing functions (see “Inserting and Selecting Text”).

The *scroll bar* is used to view different parts of a document. This is the standard Macintosh scroll bar as discussed in Chapter 1. The small square in the scroll bar indicates the relative position of the current window with respect to the entire document. For example, if you want to see a portion of text and you know that it is somewhere in the middle of a document, point the cursor at the small square, hold down the mouse button to select it, and drag it halfway down the scroll bar. This will position the window halfway through the document.

If you point the cursor at the scroll bar but not at the small square and click the mouse, the document will scroll up or down, one windowful at a time. The direction of the scroll depends on whether you point above or below the small square on the scroll bar.

The arrows at the top and bottom of the scroll bar let you browse through the document. When you click one of these with the mouse button, the document scrolls a line of text at a time. If you hold down the mouse button while pointing at one of these arrows, the document will continuously scroll to let you scan for a particular portion of text.

## INSERTING AND SELECTING TEXT

To type text into a blank document, you can just start typing. The insertion point is automatically positioned at the beginning of the document. There is no need to press the RETURN key at the end of a line, as you do on a typewriter. MacWrite ends a line with a complete word and then proceeds to the next line automatically.

If you make a typing mistake as you enter text, use the BACKSPACE key to delete it and type in the correct text. The BACKSPACE key deletes the character immediately preceding the insertion point.

Once you have entered text into a document, you may want to edit it, repositioning the insertion point so you can add text or “selecting” portions of text to be changed or deleted.

To move the insertion point to a particular part of a document, scroll the document until you can see the place where you want to insert text. Then point the cursor to the character position where you want to make the insertion and click the mouse button. Now you can type to your heart's content. Everything you type will be inserted after the insertion point. The rest of the document is shifted down to make room for the new text.

You can *select* any or all of the text in a document for editing purposes. To select a word of text, move the cursor to point to a character in that word and double-click the mouse button. This will cause the word to be displayed in “reverse video,” that is, as white characters on a black background, rather than as the normal black characters on a white background.

Any part of the text can be selected with the following procedure: (1) Move the cursor to the start of the text to be selected and click the mouse button. This will position the insertion point. (2) Now move the cursor down to point to the end of the text to be selected, scrolling the document if necessary. (3) Hold down the SHIFT key and click the mouse button. This will select the entire portion of text from the insertion point to the current cursor position.

You can select the entire document by placing the insertion point at the start of the document, scrolling to the bottom, and holding down the SHIFT key while clicking the mouse button.

Once a portion of text is selected, you can edit it in many ways. You can entirely delete the selected text by pressing the BACKSPACE key. You can also copy the selected text onto the system Clipboard or change the fonts, styles, and sizes of the characters. The editing commands that do this are discussed later in this chapter.

## PARAGRAPHS

MacWrite treats the paragraph as the basic unit in formatting documents. For example, paragraphs are automatically formatted to fit within the margins you set. Because of its special status, you need to know exactly what a paragraph is in MacWrite.

The smallest unit of text in MacWrite is the individual character. A MacWrite document is built up from characters that are grouped together in words. A word is a group of characters separated from another group by a

blank space or a special punctuation mark like a period, comma, hyphen, or a Return. (A Return character is a special character that MacWrite inserts when you press the RETURN key.)

Words in MacWrite are grouped together in paragraphs, and paragraphs are combined to produce documents. A paragraph generally ends when you press the RETURN key. However, there are several other ways of specifying the end of a paragraph of text. These include

- Insertion of a page break from the Format menu.
- Insertion of a new ruler from the Format menu.
- Insertion of a picture or graphics object from MacPaint or some other applications program (through either the system Clipboard or Scrapbook). See Chapter 7 for more on this.
- The beginning or end of a document.

## THE RULER

The ruler contains all of the elements needed to set up the *format* of your document. Format includes features like left and right margins, tab stops, line spacing, and text alignment.

The use of the ruler is really quite intuitive and easy to understand. The components making up the ruler are shown in Figure 3-2.

Notice the *ruler marker* along the top of the ruler. This gives the ruler its name. Its primary purpose is to guide you in setting and changing the left and right margins, the indentation of the left margin, and any tab stops that you need.

The *left margin* and *indent tab* markers set the position of the left side of each paragraph. The indent tab tells MacWrite where to start the first line of each paragraph, while the left margin marker specifies where the left margin should be set for the remaining lines of the paragraph. For example, if you want to indent the first line of each paragraph by half an inch, leave the left margin marker where it is but drag the indent tab to the right by half an inch.

You can also drag the left margin marker to the right of the indent tab. This is handy for things like bulleted lists or numbered steps. For example, you can precede the first line of each paragraph with the hyphen character by using the margin settings shown in Figure 3-3.

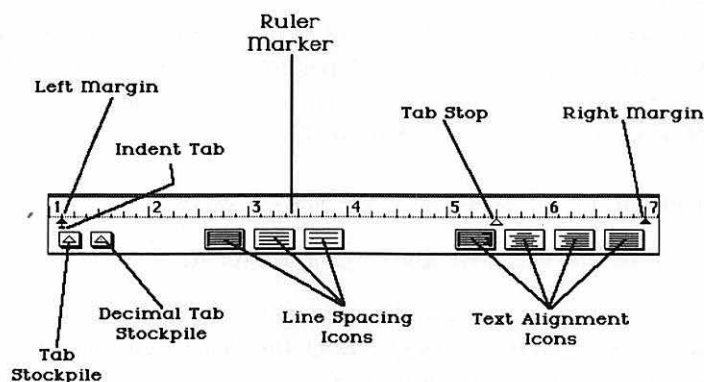


Figure 3-2. The parts of the ruler

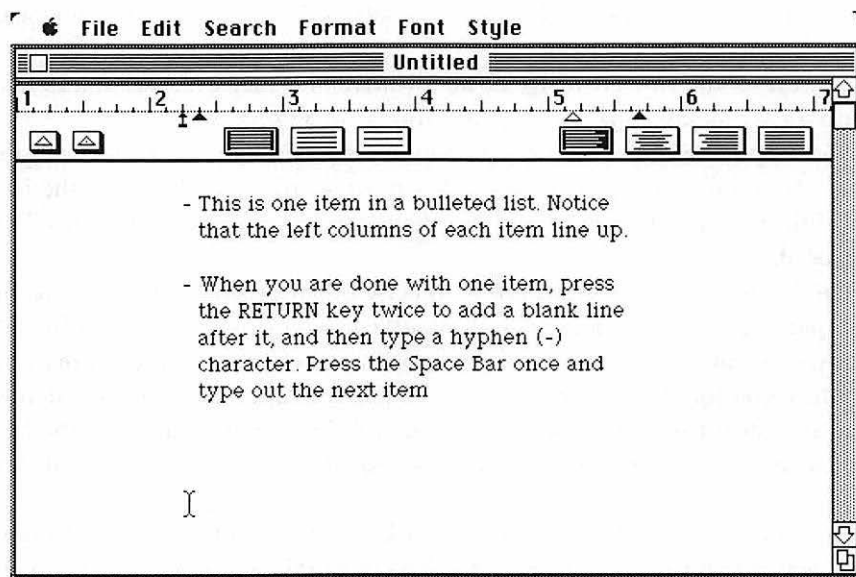


Figure 3-3. Margin settings for a bulleted list

The *right margin* marker sets the rightmost position of any text typed beneath the ruler.

The *tab stop* indicates how far across the screen the insertion point will jump when you press the TAB key on the keyboard. You can set as many tab stops on the ruler marker as you need. The example in Figure 3-4 shows three tab stops. Press the TAB key once to move to the first position, twice to move to the second position, and three times to move to the third.

To set tab stops, point the cursor to the *tab stockpile* and hold down the mouse button. This gets a new tab stop from the stockpile. You can then drag the tab stop anywhere on the ruler marker and release the mouse button. To remove a tab stop, simply drag it off of the ruler marker and place it back into the tab stockpile.

The *decimal tab stockpile* contains a reservoir of decimal tabs. A decimal tab is used to align the decimal points in a column of numbers. You can also use a decimal tab with alphabetical characters in order to align the rightmost characters in each line. As shown in the example in Figure 3-5a, you set up a decimal tab just as you would a normal tab.

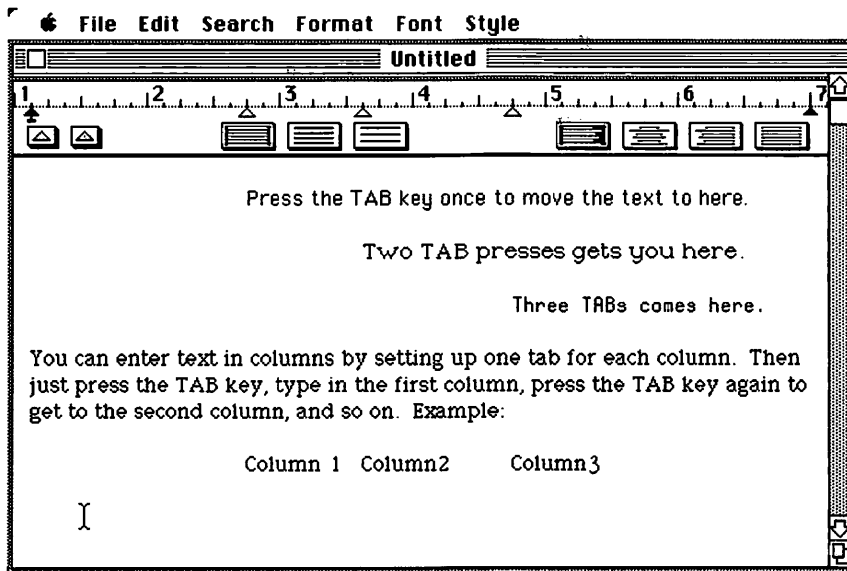


Figure 3-4. Tab settings in MacWrite

Both normal and decimal tabs have a special property that makes them extremely useful. When you press the TAB key to move the insertion point to the next tab position and then type in some text, the position of that text is tied directly to the tab. If you later move the tab, all of the text that is tied to that tab will move accordingly. This means you can type a multi-column table very quickly and with little regard for column positioning. After you finish typing the table, you can easily rearrange the columns so they are properly situated. For example, moving the tabs in Figure 3-5a just a bit will improve the table's appearance (Figure 3-5b).

There are three *line spacing* icons in MacWrite. These are used to select single spacing, 1 1/2-line spacing, and double spacing for your text. You can change the current line spacing at any time by pointing the cursor to another line spacing icon and clicking the mouse button. The text following the ruler will immediately be reformatted.

MacWrite also has four *text alignment* icons: *left alignment*, *center alignment*, *right alignment*, and *full justification*. Each of these icons selects a different method of aligning or justifying the text of a paragraph.

As mentioned earlier, when you type in text, MacWrite automatically ends each line after a complete word, so usually the right margin is not aligned. The text alignment icon tells MacWrite how to align the paragraphs following the ruler.

For example, selecting the left alignment icon causes all of the paragraphs to be aligned along the left margin. Selecting right alignment aligns the paragraphs along the right margin. Center alignment centers each line between the left and right margins. And full justification adds extra blank spaces between the words on each line so that both the left and right margins are aligned. Figure 3-6 shows an example of each.

While you can use a single ruler to format an entire document, using multiple rulers provides you with real flexibility in arranging documents. You can place more than one ruler in a document by using the Format menu (discussed later). All of the text following a ruler is formatted according to that ruler's settings until MacWrite encounters another ruler.

By placing rulers throughout your document, you can easily intermix a variety of paragraph formats to suit your needs. When the document is later printed, the rulers do not appear. In Chapter 4, you will see an example of how multiple rulers can be used quite effectively.

## THE MENU BAR

The MacWrite menu bar consists of seven pull-down menus: the desk accessory menu (indicated by the picture of the apple in the upper-left corner of

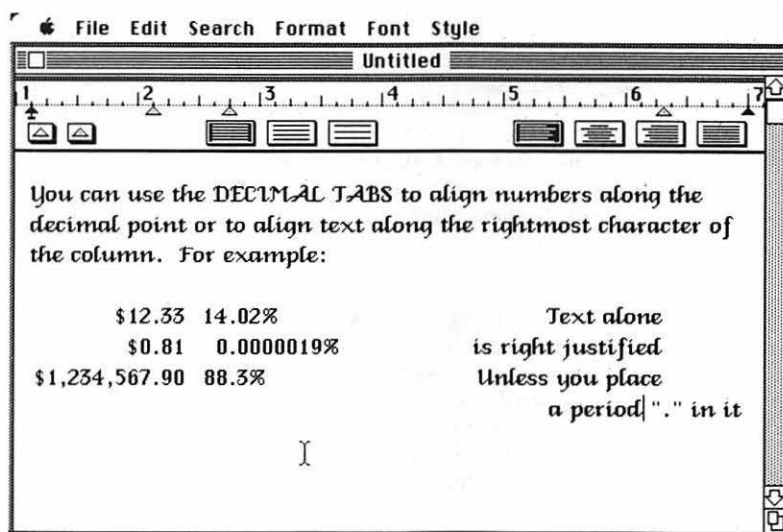


Figure 3-5a. Original column placement

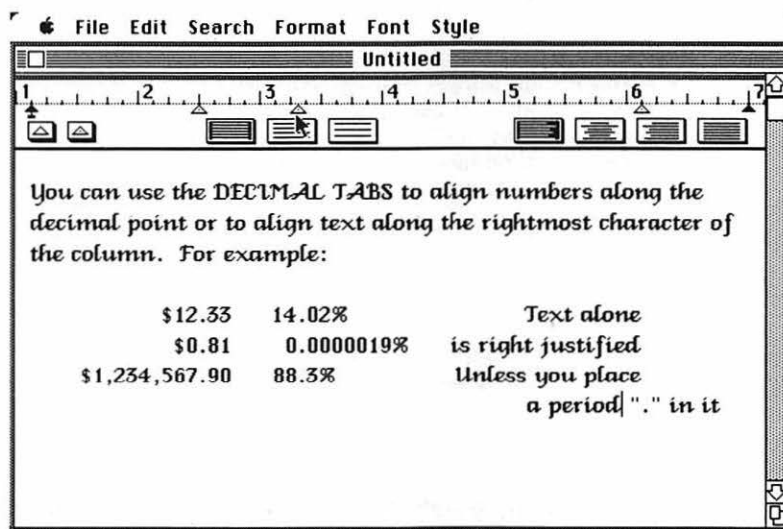


Figure 3-5b. Repositioned columns

**LEFT ALIGNED:**

This is some sample text that demonstrates the differences of LEFT, CENTER, and RIGHT alignment as well as FULL justification. These differences are often more noticeable when using short margins, as in this example.

**CENTER ALIGNED:**

This is some sample text that demonstrates the differences of LEFT, CENTER, and RIGHT alignment as well as FULL justification.

These differences are often more noticeable when using short margins, as in this example.

**RIGHT ALIGNED:**

This is some sample text that demonstrates the differences of LEFT, CENTER, and RIGHT alignment as well as FULL justification. These differences are often more noticeable when using short margins, as in this example.

**FULLY JUSTIFIED:**

This is some sample text that demonstrates the differences of LEFT, CENTER, and RIGHT alignment as well as FULL justification. These differences are often more noticeable when using short margins, as in this example.

---

**Figure 3-6.** *Four ways of aligning text*

the screen) and the File, Edit, Search, Format, Font, and Style menus. The desk accessory menu is used to access the Macintosh desk accessories that were discussed in Chapter 2.

## File Menu

MacWrite documents are stored in files on disk. The commands in the File menu allow you to create new files, access information stored in existing files, and print MacWrite documents.

**New** Opens up a new document. Any old documents must have previously been closed. The new document is untitled.

**Open...** Opens up a document stored on disk. You will be given a list of the documents found on the current drive and prompted for the name of the document to be opened. If you want to open a document stored on another disk, click on the Eject button that appears or use the Drive button if you have an external disk drive.

**Close** Closes the currently opened document. You will be given a chance to save any changes to that document before the closing process is completed.

**Save** Saves a copy of the current document to disk. If the document has not been saved before, you will be asked to enter a name for it. Otherwise, the new version of the document will replace the old one.

**Save As** Same as Save except that you will always be asked to enter a name for the document. This lets you save the new version under a different name or on a different disk without losing the original.

**Page Setup** Allows you to specify the size of paper to use for printing documents. To change the current selections, simply point the cursor at the appropriate button and click the mouse button. The default settings (those set up by the program when you start it up) are as follows:

<b>Paper:</b>	<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		
<b>Orientation:</b>	<input checked="" type="radio"/> Tall	<input type="radio"/> Tall Adjusted	<input type="radio"/> Wide	<input type="button" value="Cancel"/>

The types of paper you may use are

U.S. Letter—U.S. standard, 8 1/2" × 11"

A4 Letter—European standard, 8 1/4" × 11 2/3"

U.S. Legal—U.S. legal size, 8 1/2" × 14"

International Fanfold—8 1/4" × 12"

The orientations you may select are

Tall—Normal printing (left to right)

Tall Adjust—Compensates for distortion

Wide—Prints page sideways (top to bottom rather than left to right)

**Print** Lets you print the document. You will be given the chance to set the following options:

<b>Quality:</b>	<input checked="" type="radio"/> High	<input type="radio"/> Standard	<input type="radio"/> Draft	<input type="button" value="OK"/>
<b>Page Range:</b>	<input checked="" type="radio"/> All	<input type="radio"/> From: <input type="text"/>	To: <input type="text"/>	
<b>Copies:</b>	<input type="text" value="1"/>			
<b>Paper Feed:</b>	<input checked="" type="radio"/> Continuous	<input type="radio"/> Cut Sheet		<input type="button" value="Cancel"/>

**Print Quality**—The higher the print quality, the slower the printing. The High selection will give you even better looking text than that seen on the Macintosh display. Selecting Standard quality results in printouts identical to the screen. The Draft option is very fast, prints only text, and uses only one font, one character size, and the Bold and Underline styles.

**Page Range**—Lets you print all of the pages of the document or selectively print certain pages.

**Number of Copies**—Lets you print as many copies of the document as you desire.

**Paper Feed**—If you specify Continuous, MacWrite will proceed to print all of the pages without pause. If you select Cut Sheet, MacWrite will pause between each page to let you put a sheet of paper into the printer before it continues printing.

**Quit** Lets you leave MacWrite and return to the Finder. You will be given the chance to save any changes to the current document before leaving MacWrite.

## Edit Menu

The Cut, Copy, and Paste commands found in this menu work with the system Clipboard. Using these commands, you can easily move large chunks of text within a document or even to other documents. Furthermore, the Clipboard can be used to move graphics created in MacPaint into a MacWrite document. See Chapter 7 for more information on the system Clipboard and how to use it.

**Undo** If possible, undoes the effects of the last MacWrite command.

**Cut** Removes a selected portion of text from the document and places it onto the system Clipboard.

**Copy** Makes a copy of a selected portion of text and places it on the Clipboard. The document itself is left unchanged.

**Paste** Places a copy of the current contents of the Clipboard into the document at the insertion point. The Clipboard contents are unchanged.

**Show Clipboard** Displays the Clipboard window with its current contents.

## Search Menu

The commands in the search menu allow you to search for words, phrases, or other strings of text. This can come in handy when you need to quickly find all occurrences of a word or phrase in a long document. You can also use the Search menu to replace one sequence of characters with another.

**Find...** Lets you search for all occurrences of a string of characters. You will be prompted for the character string to search for. If you want to use Find to search for the next occurrence of the same text, you can simply click the Find Next button that is displayed.

You have the option of searching for a whole word or for a partial word that may be embedded within another word.

**Change...** Similar to Find except you can also specify a text string that will replace occurrences of the Find string. You can indicate whether you want to change only the first occurrence, change the first occurrence and look for the next, or change every occurrence in the document.

## **Format Menu**

The commands in the Format menu allow you to control the format of your document: the margins and tabs, headings and footings, page numbers, and the beginning and end of pages.

**Insert Ruler** Creates a new ruler and places it in your document at the insertion point.

**Show Rulers/Hide Rulers** Allows you to turn on or off the display of rulers in your text. The rulers will not be printed in the document, so turning them off (hiding them) lets you see the document as it will appear when printed. Turning the rulers on (showing them) lets you see and change their settings.

**Open Header** Opens the header window to allow you to set up a header to be displayed at the top of each printed page of your document. See the section on Headers and Footers later in this chapter for more information.

**Open Footer** Opens the footer window to let you set up a footer that will be displayed at the bottom of each printed page of your document.

**Display Headers/Remove Headers** Selecting Display Headers causes the contents of the header window to be placed at the top of each page of the document. If you select Remove Headers, the header will not be used.

**Display Footers/Remove Footers** Selecting Display Footers causes the contents of the footer window to be placed at the bottom of each page of the document. If you select Remove Footers, the footer will not be used.

**Set Page #** Lets you set the starting page number. Page numbers can be printed in either headers or footers.

**Insert Page Break** Forces the next page to begin at the insertion point. This can be used for such things as chapter breaks in a report, if you want to start each chapter at the beginning of a new page.

**Title Page** This is a switch that you select to turn it on and reselect to turn it off. When it is on (signified by a check mark next to the command in the Format menu), the first page of the document is assumed to be a title page, and no header or footer will be included on that page. When the switch is off, no title page is provided for.

## Font Menu

The Font menu allows you to select a character font. If you have any text selected when you change the font, all of the text will be changed to the new font. After selection of a new font, all text typed in will be displayed in that font. Some of the available fonts are shown in Figure 3-7.

## Style Menu

The Style menu lets you select from a variety of character styles and sizes. If you change the style or size for some selected text, all of the selected text will be changed to that style or size. All of the text you type after a style or size change will reflect that change until you select another style or size.

There are eight styles from which to choose. MacWrite's selection of styles and sizes are shown in Figure 3-8. The first, Plain Text, cancels any of the other styles. The five styles can be mixed together in any combination. The last two styles cannot be selected together. This gives you a total of 96 different styles to choose from.

## HEADERS AND FOOTERS

MacWrite allows you to place a header or footer in your document. A header (or footer) is information in the top (or bottom) margin of each page. You can use a header or footer to place the current page number, the current date, or even the current time into every printed page in a format that you specify.

Once you set up a header or a footer in your document, MacWrite will automatically include it on every page of your document. An exception to

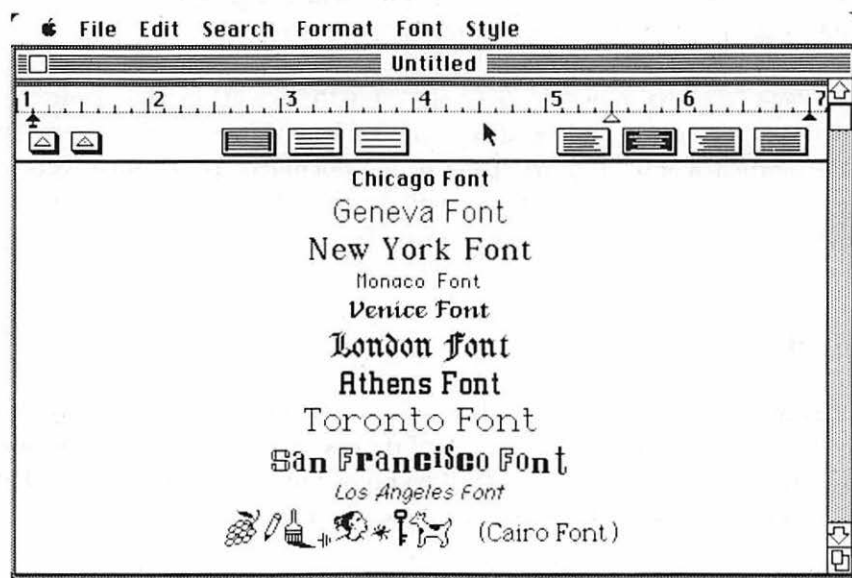


Figure 3-7. Fonts available with MacWrite

this occurs when you select the Title Page switch in the Format menu. In this case the header or footer will not appear on the first page.

A document can have both a header and a footer or just one or the other. You set up a header or footer by selecting the Open Header or Open Footer commands from the Format menu. This causes MacWrite to open a *header window* or a *footer window*. The header window is shown in Figure 3-9.

A header window is separate from the MacWrite document window in which you normally enter text. You can enter up to six lines of text in the header window. All of the MacWrite facilities for selecting text, changing character fonts, styles, and sizes, and even accessing the system Clipboard to bring in text or graphics objects from other applications are available. (See Chapter 8 for an example of using the header to set up a letterhead created with MacPaint.)

Notice the three small icons in the header labeled *Page Number*, *Date*, and *Time Of Day*. These special features place the current page number, date, or time of day into the header. To use any of these, simply point the cursor to

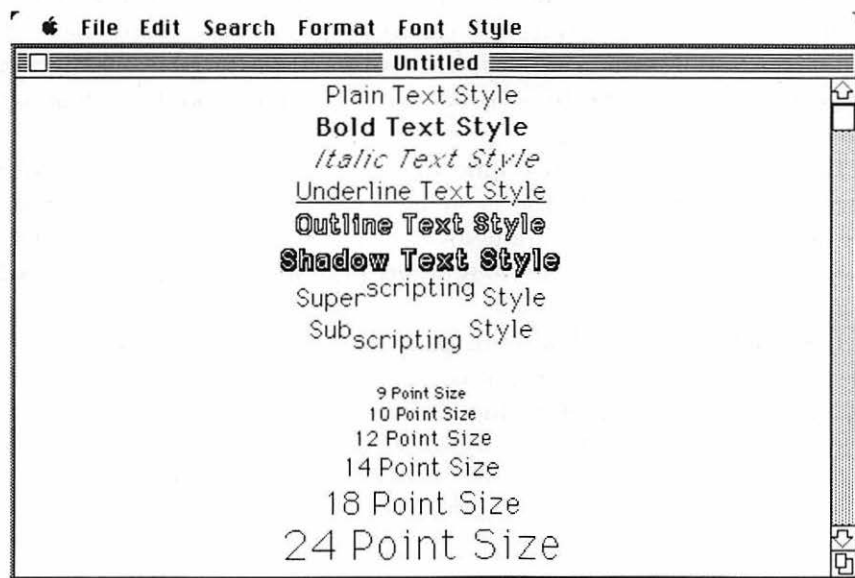


Figure 3-8. Type styles and sizes available with MacWrite

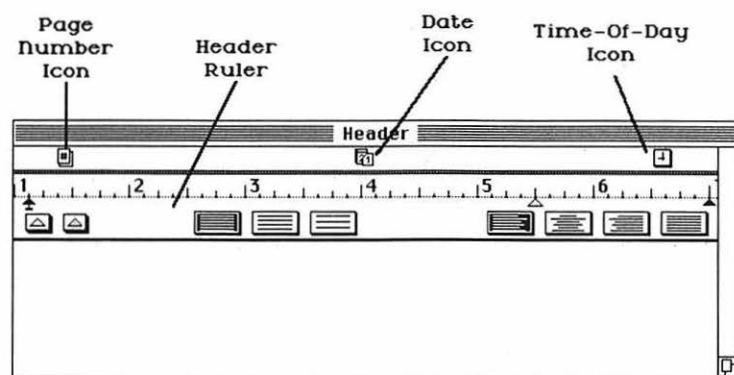


Figure 3-9. A header window

the appropriate icon, click and hold down the mouse button, and drag the icon to the position in the header where you want the information placed.

Once you set up these icons, you can forget about them. Later, when you edit or print your document, MacWrite will insert the proper page number, the current date, or the time of day into the header positions that you indicated.

To prevent the header from appearing on the screen and on the printed page, select the Remove Headers command from the Format menu. Hiding the header in this way will not destroy the header information. If you later select Display Headers, the previous header information will appear on each page of the document.

The capabilities of the footer are identical to those of the header. You can use the page number, date, or time-of-day icons and intermix them with text that you type into the footer window.

In Chapter 4, you will see an application that uses both the header and footer in a document.

## REPORT WRITING WITH MACWRITE

This chapter takes a look at the art of writing reports. The first section discusses general guidelines that can help improve the quality of your writing on any word processor. The remaining pages describe techniques that can be used specifically with MacWrite.

All kinds of people—not just students and businesspeople—read and write reports, so it is worth the time and effort to look at some common ways in which reports can be improved. The guidelines and MacWrite techniques discussed in this chapter are by no means limited to use in business or technical report writing. They can be applied to virtually any type of writing: memos, books, short stories, articles, and even personal and business letters.

### A FEW GUIDELINES

Two fundamental goals of good report writing are simplicity and organization: Your documents should be simple and organized logically. The general guidelines that follow can help you achieve these goals whether you use MacWrite or some other word processor.

- **Divide the document into logical divisions.** Then divide each section into subdivisions. Keep dividing as long as it is feasible. For example,

this book is divided into five parts, each part divided into chapters. Each chapter is divided into sections; some sections include subsections.

This technique will help both you and your reader. As a writer, you will be forced to be organized in order to establish the divisions in your report. If you begin to wander aimlessly in your writing, it will quickly become apparent. Likewise, your reader will be better able to follow the flow of the report. Logically placed divisions let the reader know when a discussion is finished and a new one is about to begin. They also help break up the report visually, making the report easy to read.

- **Give a descriptive heading to each division and subdivision of your document.** Headings help the reader understand the organization of the document. A concise yet descriptive heading tells the reader at a glance what the following portion of the document is going to discuss. The reader is then free to read it or skip to the next section.
- **Use simple, short sentences and simple, short paragraphs.** It is easier to absorb ideas in many small doses than in a few large ones.
- **Make judicious use of space throughout the document.** You can take advantage of varying margin widths and blank spaces left between headings to organize a document spacially, as well as to place emphasis on certain portions of text.
- **Include illustrations whenever possible and appropriate.** Illustrations not only break up the report visually, they also give you the opportunity to reinforce the message in your report. As you will see in later chapters, you can use the power of MacPaint to illustrate reports written with MacWrite.
- **Use an informal, conversational tone of voice.** Try to get a mental image of the “average” reader of your report, be it a manager at work, a professor or teacher at school, or someone else. Write as if you were having a casual conversation with that person (although take care not to overdo it).
- **Let your readers know where they have been and where they are going.** Whenever it is feasible, introduce a new subject, discuss it, and then summarize it.

The rest of this chapter discusses a variety of techniques for writing reports with MacWrite. Later chapters will discuss some of these techniques in more detail.

## REPORT HEADINGS

In organizing your reports, you will want to include multiple levels of headings. The use of unique *level headings* (the group of headings for one particular level of a report) can help guide the reader as well as make it easy to identify the various levels of division.

For example, consider a report that uses three levels of headings, each printed in a distinctive heading style. The headings at the first level identify the main sections of the report. The second level headings describe the subsections. The third level headings identify the subsections of the subsections. The level headings should be designed so that the reader does not have to make a conscious effort to determine the level a given heading is on.

One problem with many word processor packages is that they tend to restrict your ability to create appealing and distinctive level headings in your reports. Because they offer only one character size, font, and style, you must usually resort to a numbering scheme to identify the levels of headings you are using. For example, you might identify them with roman numerals: "I." for level one, "II." for level two, "III." for level three, and "IV." for level four. There is nothing wrong with this approach, but the numbers add clutter and can make divisions seem less natural to the reader.

MacWrite offers a number of tools that can be used to create level headings to subtly yet clearly differentiate between the different levels of a report. For example, at the highest division level, you can use large boldfaced characters, perhaps in uppercase and centered on the page. In creating the lower-level headings, you can incrementally reduce the size of the characters, introduce lowercase characters, and move the position of the headings.

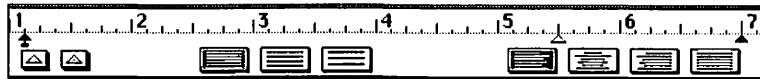
## ===== P R O J E C T =====

### CREATING A REPORT

Let's look at how you might use level headings to design and write a report with MacWrite. The process is fairly simple and yet may be a little confusing the first time you try it, so it is worth working through here.

Having analyzed the topic of your report and developed an outline, you see that the report needs to contain three levels of headings. An example of a three-level heading design is shown in Figure 4-1.

One important feature used in creating this example is the ruler, which was discussed in Chapter 3:



Recall that the ruler is set for left and right margins, automatic paragraph indentation, normal and decimal tabs, line spacing (single, 1 1/2, and double), and text alignment (centered, left-, right-, or fully justified). You can insert new rulers anywhere within a MacWrite document by using the Insert Ruler command in the Format menu. A ruler formats text according to its settings until another ruler or the end of the document is encountered.

In other words, every time you want to alter the format of a portion of text, you need to insert a new ruler just before the text itself. This is also true for level headings in your report. You will need to place a ruler just before each heading to position it properly. In addition, you will need to place another ruler immediately after the heading to position the body of text that follows.

You can create the sample shown in Figure 4-1 by following these steps:

- Step 1.** Start up MacWrite and get a blank page on which to begin writing. Can you see the initial ruler at the top of the page? If not, pull down the Format menu and select the Show Rulers command.
- Step 2.** The initial ruler will be used for setting up the report's title. The only change that needs to be made to the ruler's default (start up) settings is to select the centered alignment icon. Do this by moving the mouse so that the cursor arrow points to the centered alignment icon in the ruler and then clicking the mouse button.

You also need to select a text style format for the report title. For this example, pull down the Font menu and select the Athens

## **A HIERARCHICAL APPROACH TO WRITING**

This example demonstrates the use of several different levels of division in a report. The title of the report uses Center Aligned text with Athens font, Bold style, and 18-point characters.

### **OUTER LEVEL HEADINGS**

The outer level headings mark the major sections of the report. The heading above uses Center Aligned text with the Geneva font, Bold and Underline styles, and 14-point characters.

### **SECOND LEVEL HEADINGS**

The second level headings mark the subsections of the the main report. This heading uses the Geneva font, Bold style, and 14-point characters, and is aligned with the left margin.

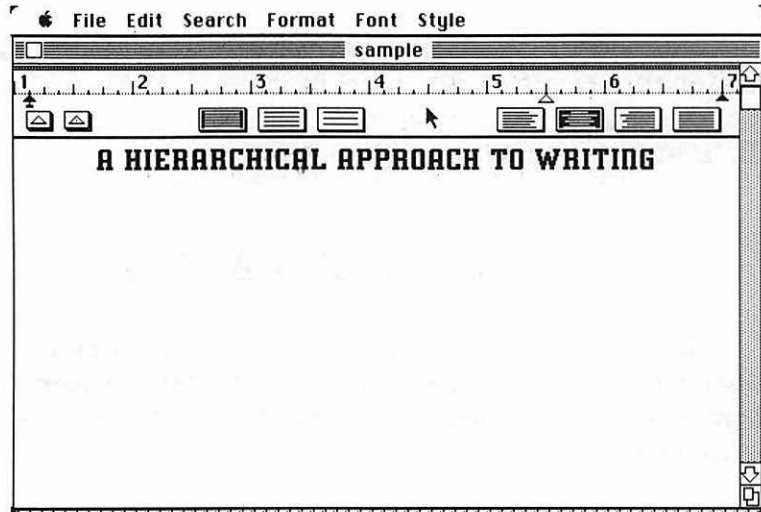
#### **Third Level Headings**

The third level headings further subdivide the report. In this third level section, the margins were changed to further accentuate the division.

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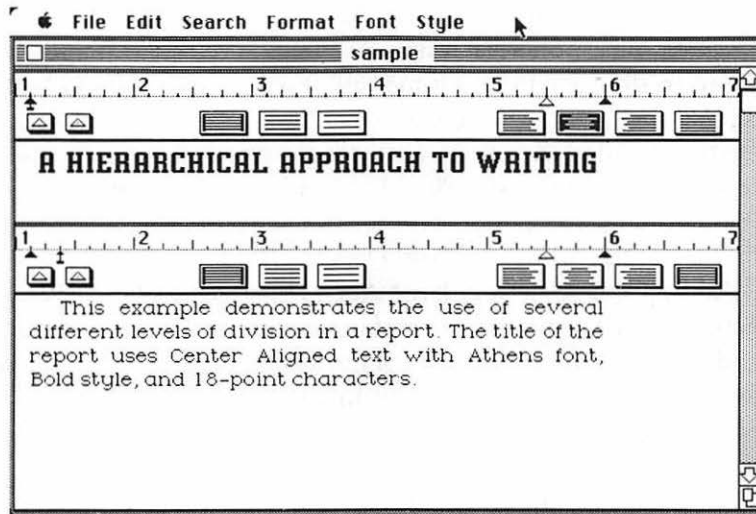
*Figure 4-1. A report with three levels of headings*

font. Pull down the Style menu and select the Bold style and 18 point character size. Now you can type in the title of the report as follows:



**Step 3.** Next, set up another ruler for the introductory paragraph of the report. First press the RETURN key a couple of times to add a blank line between the title and the text. Pull down the Format menu and select the Insert Ruler command. You will see a new ruler appear at the insertion point of your document. Select the full justification icon in this new ruler. Now point the cursor to the indent tab marker, hold down the mouse button, and drag this marker to the right of the left margin marker so that the first line of each paragraph will be indented.

Use the Font and Style menus to select the style of text for the introductory paragraph of the report. This example uses the Toronto font, Plain style, 12 point. You can now type the introductory paragraph.



- Step 4.** You may see that a pattern is being established. For every heading in your report, you insert and set up a ruler to control the format of the heading, change the character font and style as desired, and type in the heading. You then insert and set up another ruler that formats the paragraphs that follow, change the character font and styles again, and type in the text.

**NOTE:** The rulers are not printed with your text. They are only visible on your Macintosh display. If you want to see what your report will look like when it is printed without the rulers, pull down the Format menu and select the Hide Rulers command.

If the process of setting up numerous rulers and different character fonts and styles sounds a bit tedious to you, you are right. In addition, you must take special care to ensure that all the headings of a given level have the same ruler and character settings. But there are some things you can do to reduce the difficulty of setting up a report with multiple heading levels.

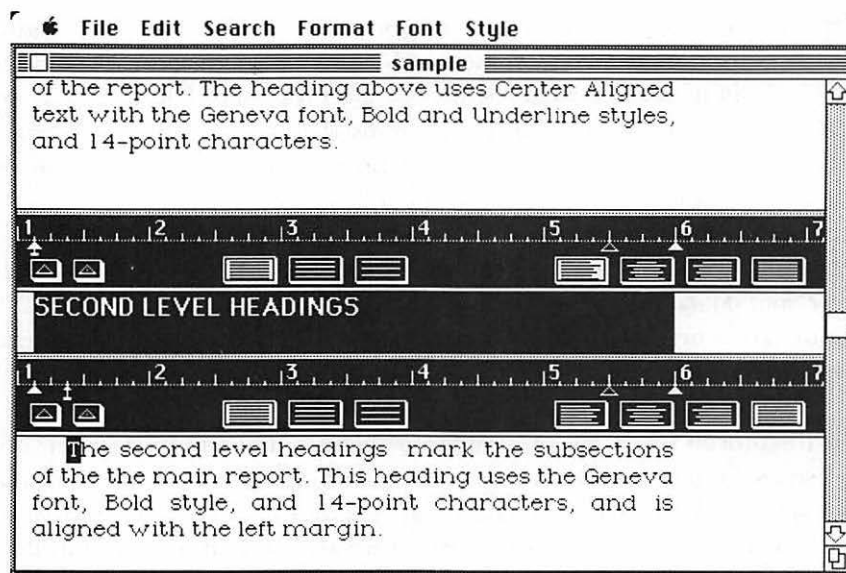
First, rulers can be selected and duplicated by using the Copy commands in the Edit menu in exactly the same way as with any text in a MacWrite document. You can use Copy and Paste to duplicate the ruler and character style assignments from one heading to another. An alternate method is to

copy the complete heading for a given level and paste it elsewhere in your document where another heading of the same level is needed. In this way you copy all of the ruler settings and text character styles of both the heading and the subsequent body of text.

When defining the first heading for a given level, you will have to use the steps outlined previously. After that, however, you can simply Copy the first heading and Paste it into position for the next heading. A quick job of editing the text will result in the desired heading.

You begin the Copy and Paste process by selecting the following: the ruler preceding the heading, the text of the heading itself, the ruler following the heading, and the first character of the body of text that comes after the heading. (**NOTE:** It helps to select the first character of the body of text because that character contains all of the font and style information for the body of text.)

For example, you can select the initial occurrence of the second level heading like this:



Use the Copy command to place this text onto the system Clipboard. Move the insertion point to the part of the document where the new second level heading is to go; then Paste the heading material into the document. Now you can select the text that makes up the heading and replace it with

that of the new heading. Finally, move down to the first character of the body of text, select it, and replace it by typing in the new text.

Another way to create headings is to design the headings after the report is finished. As you write the report, add a label to identify the level of each heading (for example, L1, L2, and L3) but do not insert rulers or specify character fonts or styles for the headings. Then, after the report is written, you can use the Find command (in the Search menu) to locate all L1, L2, and L3 headings and use the Copy and Paste commands to set up the heading formats.

---

## TEXT HIGHLIGHTING

Highlighting text is an effective way of emphasizing an important word or thought in your text. MacWrite provides a great variety of methods that you can use to highlight text. For example, you can use different character styles, fonts, and sizes to highlight text in your document, as demonstrated in Figure 4-2.

---

When you want to highlight particular words or phrases, MacWrite offers a wide variety of choices. For example, you can *italicize words* and **set other words in boldface**. You can even *combine the italics and bold styles*.

Other character styles include the underline, outline, super<sup>script</sup>ing, sub<sub>script</sub>ing, and **shadow**. Of course you can mix any of these styles at your pleasure. You should be careful, though, not to **drive** your *reader to distraction*.

Aside from using styles, you can intermix different character **SIZES** and use a **variety** of fonts *too*.

---

**Figure 4-2.** Highlighting text

You can highlight a word or phrase as you type the document, or you can type a section of text and then go back and emphasize the appropriate items. To set up highlighting as you type in text, pull down the Font and Style menus to select whatever character settings are to be used for emphasis and then type in the text. When you are through entering the emphasized text, “deselect” the emphasis, that is, change the Font and Style settings back to whatever you were using for normal text.

It is often easier to set up highlighting after you have finished with a portion of the document, perhaps after finishing a paragraph or even after typing a full section of text. You can then go back and easily edit the portions of text that are to be emphasized. For example, suppose that you have just finished typing the following paragraph:

This chapter deals with two fundamental elements of good writing; simplicity and organization. The structure of any document should be well organized and simple to follow. The use of any of the various techniques presented in the chapter should be carefully selected in such a way as to attain the desired results without being too obtrusive to the reader. The final goal is, after all, to get some idea or message across to the reader.

You decide that the keywords *simplicity* and *organization* are so important that you do not want the reader to overlook them. You also want to emphasize the entire last sentence of the paragraph. You can quickly highlight them once you have typed the paragraph. Select the text to be emphasized and then use the commands in the Font and Style menus to effect the change. In the current example, you have to make three different selections and changes for emphasis.

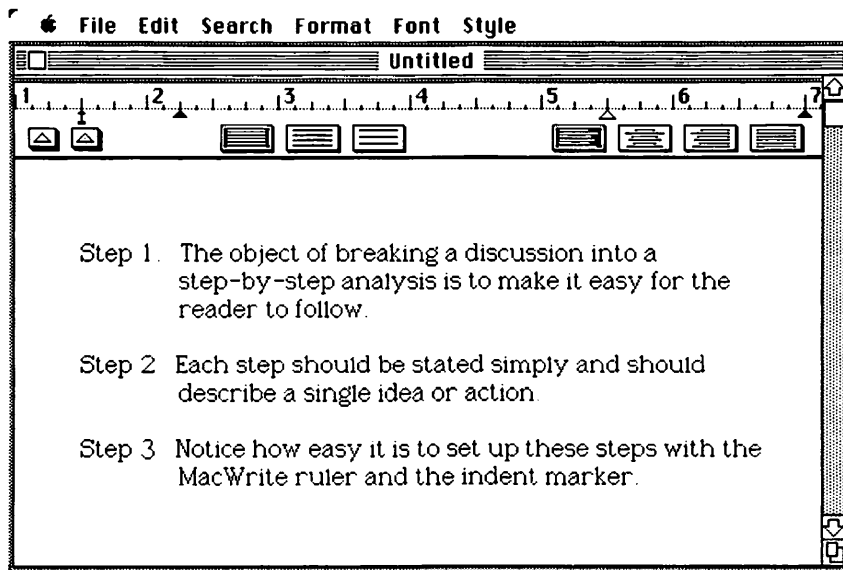
Here the text has been highlighted by using the Italic and Bold character styles:

This chapter deals with two fundamental elements of good writing; *simplicity* and *organization*. The structure of any document should be well organized and simple to follow. The use of any of the various techniques presented in the chapter should be carefully selected in such a way as to attain the desired results without being too obtrusive to the reader. ***The final goal is, after all, to get some idea or message across to the reader.***

Another effective highlighting technique, the use of the MacWrite indent tab to create a bulleted list, was discussed in Chapter 3. A slightly different application of this technique is to set off a sequence of instructions that you would like to explain to the reader.

For example, there are times when you might wish to set off each step of a chain of events so that the reader can easily follow along. Figure 4-3 shows an example of a ruler that will set off a series of steps.

MacWrite's many other text-highlighting techniques can be very effective when used properly. For example, you can set a very special thought or warning off by itself by building a *highlight box* around the text. Figure 4-4 shows what a highlight box might look like. Chapter 11 demonstrates how to combine the capabilities of MacPaint and MacWrite to create professional-looking and eye-catching highlight boxes.



**Figure 4-3.** Using the indent marker to set off a series of steps

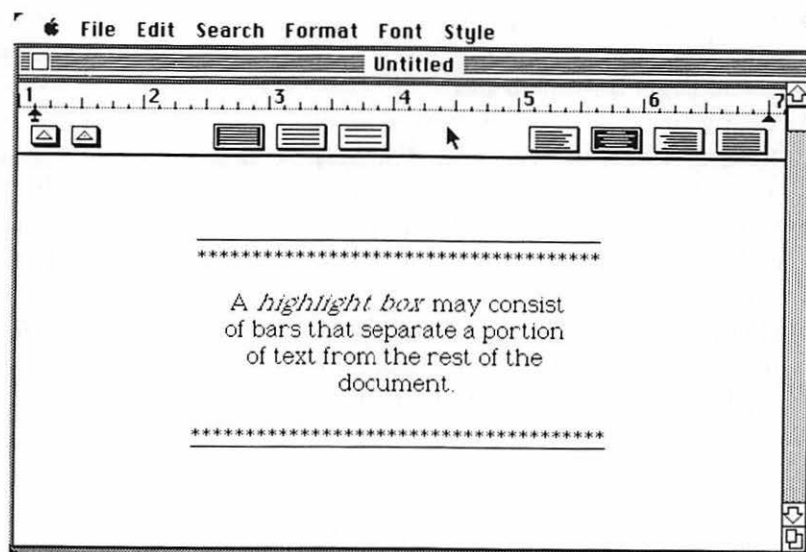


Figure 4-4. A highlight box created with MacWrite

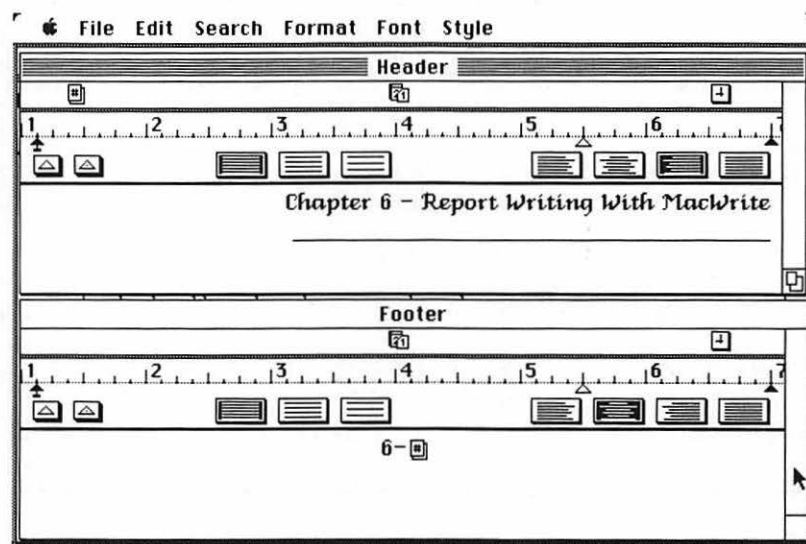


Figure 4-5. Header and footer for a report

## HEADERS, FOOTERS, AND TITLE PAGES

You can use MacWrite to set up headers and footers as well as a title page (with or without the header and footer) that identifies the report and author.

You saw in Chapter 3 that the header and footer in MacWrite can be independently turned on or off for your report. Either one can automatically insert the current page number, the date, and the time of day into a document.

Let's now see how headers and footers work. Suppose you would like to number each page of your report. If you save each chapter of the report in a separate MacWrite file, you can set up the report so that each page identifies the chapter number and title as well as the page number.

As an example, you can use the footer and the header shown in Figure 4-5.

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### **Chapter 4 - Report Writing With MacWrite**

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This page demonstrates the use of the header and footer on a page of text. Notice that the page number at the bottom of the page includes the chapter number too.

You can include up to six lines of text in both the footer and the header if you wish. You can even use MacPaint to create some special graphics object and move that object into the footer or header. See Chapter 8 for an application that shows how this is done.

You can use any combination of the MacWrite character fonts, styles, and sizes in your header and footer. You can even set up the header and footer icons (page number, time of day, and date) to display their information in any desired font, style, and size by selecting the icon in the normal way and then setting up the desired attributes.

---

**Figure 4-6.** Sample page with header and footer

Here the chapter heading has been placed in the upper-right corner of each page and the chapter page number in the lower center. A sample page is shown in Figure 4-6.

Of course, your own personal preference will determine whether you want to use a footer or a header in a report. Remember that if you want to prevent the footer and header from appearing on the first page of the document, you can turn on the **Title Page** option found in the **Format** menu.

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## P A R T   T H R E E

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# Introducing MacPaint

*MacPaint can best be described as a graphics processor. Just as a word processor is designed for entering and manipulating text, a graphics processor supports the creation and manipulation of graphics images.*

*MacPaint is a multifaceted program. It contains a selection of structured tools to design structured objects, as well as an array of painting and sketching tools for doing a wide range of freehand designing. Blending the tools of the architect and the artist, MacPaint gives you the power to create virtually any graphics image.*

## USING MACPAINT

MacPaint is a free-format graphics processor. When you first start it up, you are given a blank screen, or canvas, on which you can create almost any shape or form that you desire. This chapter introduces all of the tools and features of MacPaint.

### A TOUR OF THE MACPAINT SCREEN

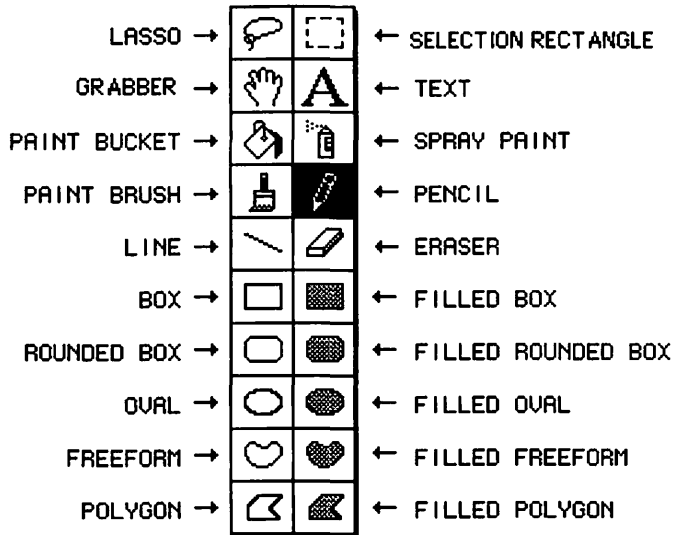
When you first start MacPaint, you should see the screen that is shown in Figure 5-1.

Along the top of the screen are the pull-down menus found in most Macintosh applications. The left side of the screen contains a *tool palette*, a selection of MacPaint tools that can be used for creating and editing graphics objects. The lower-left corner contains a *line width palette*, which lets you specify different line widths for use with some of the tools. The bottom of the MacPaint screen contains a *pattern palette*, 38 different patterns that you can use to fill and shade areas or objects on the screen.

MacPaint does not show you the whole canvas at once. Instead you see a window that displays about a fourth of the canvas. The commands discussed later in this chapter will provide ways to examine the entire canvas and to print it out. In the next section you will see how to move the canvas around to display a certain area in the window.

## THE TOOL PALETTE

There are 20 tools available in the tool palette. Some tools have several variations to choose from.



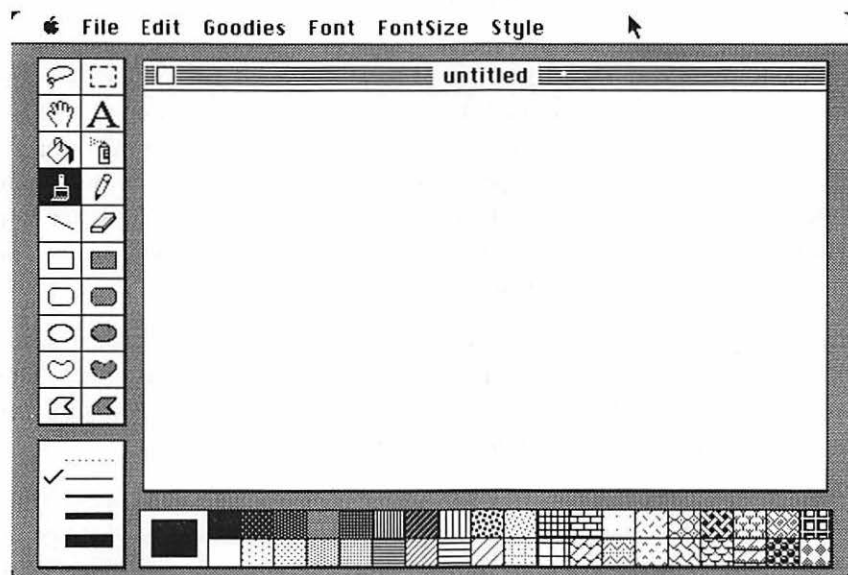
To select a tool, move the cursor so that it points to the tool in the tool palette. Click the mouse button. Now you can move the cursor back onto the window to use the tool.

**Lasso** Draws a “rope” around a shape or group of shapes on the window. Hold down the mouse button while you draw the rope. Release the mouse button so that the rope will tighten up to select the shape or shapes within the area encircled by the rope. You can now do the following:

**Move**—Position the cursor within the selected shape until the cursor changes into an arrow. Press the mouse button and drag the shape to the desired position on the window.

**Copy**—Press the **OPTION** key and hold it down while you drag the object. Makes a copy of the selected shape and moves the copy.

**Multiple Copy**—Hold down the **OPTION** and **COMMAND** keys while you drag the object. This makes a number of copies of the selected shape and leaves them scattered along the path that you make with the cursor. See



*Figure 5-1. MacPaint startup screen*

“Selecting Line Widths,” later in this chapter, for information on setting the spacing to separate each copy.

**Clear**—Select the Clear command from the Edit menu to erase the selected shapes.

**Invert**—Select the Invert command from the Edit menu to invert the selected shapes.

**Selection Rectangle** Lets you draw a dotted rectangle on the screen to select an entire region. Move the cursor to one corner of the region you want to select. Hold down the mouse button and drag the selection rectangle over to the opposite corner. Release the mouse button.

You can do the same operations that you can do with the Lasso tool as well as execute the Trace Edges, Flip Horizontal, Flip Vertical, and Rotate commands found in the Edit menu (discussed later in this chapter).

In addition, if you hold down the COMMAND key, and then press and hold down the mouse button, you can stretch or shrink the selected object by dragging the mouse in the appropriate direction.

**Grabber** Lets you reposition the MacPaint canvas so you can see any part of it through the window. Using the Grabber is similar to looking through a microscope and using your hand to move the slide you are examining. To move the canvas, position the Grabber in the window and hold down the mouse button. Drag the canvas around to the position you want. Releasing the mouse button will set the new canvas position and cause the screen to be updated.

**Text** Selects text entry mode. Move the cursor to the desired location on the window and click the mouse button to set the insertion point. Now you can type in text from the keyboard and use the Font, Fontsize, and Style menus to select a particular font, type size, and style.

**Paint Bucket** Provides an *area fill* function. Select a desired pattern from the pattern palette and position the paint bucket in an enclosed shape on the window. Click the mouse button, and the entire area will be filled with the pattern.

The area to be painted must be completely enclosed by a solid border. If the border is broken at any point, the paint will “leak” out and spill into other areas of the screen.

**Spray Paint** Lets you spray paint on the window. You can select different patterns from the pattern palette to spray onto the screen. To paint, hold down the mouse button as if it were a real can of spray paint.

**Paint Brush** Gives you a paint brush for freehand painting on the window. If you hold down the SHIFT key, you can constrain the paint brush to draw straight horizontal and vertical lines. Choose from a selection of 32 different paint brushes by double-clicking on the paint brush or via the Brush Shape command in the Goodies menu. You may choose the “color” of the paint from any of the patterns in the pattern palette.

**Pencil** Gives you a fine-edged pencil for freehand writing. Results in black writing on a white background or white writing on a black background. Especially useful for touching up graphics objects with the Fat-bits command in the Goodies menu. As with the paintbrush, if you hold down the SHIFT key you can constrain the pencil to draw straight horizontal and vertical lines.

**Line** Provides you with an easy way to draw straight lines. After selecting the line tool, move the cursor to the window and press the mouse button at the starting point of the line you wish to draw. Hold down the button as you move the cursor to the end point of the line. The line will follow the cursor until you release the mouse button.

**Eraser** Like a chalkboard eraser. Move the eraser out to the window and hold down the mouse button while you erase the appropriate areas. You can erase the entire contents of the window by double-clicking on the eraser. For very detailed erasing, use the eraser with the Fatbits command found in the Goodies menu.

The following tools are collectively known as shape tools. They are used to draw specific types of shapes:

**Box** Allows you to draw a box or rectangle easily. Position the cursor at the starting point and hold down the mouse button as you move the opposing corner of the box out to its final position. To draw perfect squares, hold down the SHIFT key and then hold down the mouse button while dragging the cursor around the screen.

**Filled Box** Just like the box, except the inside of the rectangle is filled with whatever pattern is selected from the pattern palette.

**Rounded Box** Like the box, except the corners of the box are rounded. Holding down the SHIFT key while dragging the cursor produces a square with rounded corners.

**Filled Rounded Box** Just like the filled box, except the corners of the rectangle are rounded off.

**Oval** Allows you to draw an oval easily. Position the cursor at the starting point. Hold down the mouse button, and drag the mouse until you have an oval of the proper dimensions. You can hold down the SHIFT key while dragging the mouse to draw perfect circles.

**Filled Oval** Like the oval, except the resulting oval is filled with the pattern selected from the pattern palette.

**Freeform** Allows you to draw freeform shapes. Works like the paint brush, except line thickness is controlled by the line width palette.

**Filled Freeform** Like freeform, except shapes are filled with the pattern selected from the pattern palette. You hold down the mouse button to

draw. When you release the button, the starting and ending points of the line are automatically joined and the shape is filled.

**Polygon** Allows you to create a polygon with a series of lines. Position the cursor and click the mouse button to set the starting point. The cursor will now control a line emanating from the last point set. Move the cursor to each successive vertex and click the mouse button to set a new point. The polygon will be complete when you join the start and end points.

**Filled Polygon** Like the polygon, except interior areas are filled with the pattern selected from the pattern palette.

## SELECTING LINE WIDTHS

The five choices in the line width palette affect the width of the lines drawn by the line tool and all of the shape drawing tools (box, oval, and so forth). For the filled-shape drawing tools, the dotted line choice will create filled-in shapes without border lines. The selected line width also determines the spacing for the multiple-copy features of the lasso and selection rectangle tools. The heavier the line width, the more space separating each copy.

If you press and hold down the **OPTION** key before using the line tool or any of the various shape tools, the currently selected pattern in the pattern palette will be used to draw the lines.

## PULL-DOWN MENUS

MacPaint has seven pull-down menus that work the same as those in any other Macintosh application—namely, you pull down the menu by pointing the cursor at the menu and pressing and holding down the mouse button.

Each menu contains a selection of commands. You execute a command by pointing to it with the mouse button held down and then releasing the button. The apple icon in the upper-left corner of the MacPaint display gives you access to the desktop accessories (see Chapter 2). The remaining pull-down menus are File, Edit, Goodies, Font, Fontsize, and Style.

### File

The commands in the file menu allow you to save and retrieve MacPaint documents in disk files. The menu also includes commands for printing

files on the printer and for exiting the MacPaint program.

**New** Provides a blank canvas for you to work with. You must have removed the existing canvas earlier via the Close command.

**Open...** Selects a MacPaint document to be read from disk. Gives you the option of ejecting the current system disk in order to read a document from another disk. Like the New command, any existing canvas must be closed before you can use Open.

**Close** Removes the current canvas from the MacPaint display. Gives you the opportunity to save any changes made on this canvas to disk before discarding the canvas. Use New or Open to request another canvas.

**Save** Copies the current canvas to disk. If this is the first time it is saved, you will be prompted for a name to be given to the canvas. Otherwise, the canvas will be saved under its current name, thereby overwriting the earlier version.

**Save As...** Same as Save, except you will always be asked for a name to give to the canvas. If you want to keep both the previous and current versions, use this command instead of Save and give the new version a different name.

**Revert** Discards all changes made to a canvas since it was last saved on or read from the disk. If this canvas was never saved on disk, you will get a blank canvas. Otherwise, the old version of the canvas will be read in from disk.

**Print Draft** Prints out the current canvas on the printer. The printed results are not quite as clear as Print Final produces, but the printing task is accomplished in less time.

**Print Final** Prints out a high resolution copy of the current canvas. Print Final offers more clarity than Print Draft.

**Print Catalog** Prints a catalog of all MacPaint documents stored on the current disk. Each document is printed as a compressed 1- by 1 1/4-inch picture. Up to 25 pictures are displayed on a printed catalog page.

**Quit** Lets you leave MacPaint and return to the Finder. If you have a canvas with unsaved changes, you will be given a chance to save the canvas on disk before quitting.

## Edit

You use the commands of the Edit menu to help you modify existing objects in the MacPaint window. All of the commands in the Edit menu (except for Undo) work on areas or objects that have been selected with the selection rectangle or the lasso.

**Undo** Undoes your last MacPaint operation. For example, if you erase something and then want to return it to the window, you can restore it by executing the Undo command. You can only restore the most recently completed operation.

**Cut** Removes the selected area from the MacPaint window and transfers it to the system Clipboard. The selected area is blanked out on the window.

**Copy** Makes a copy of the selected area and places it onto the system Clipboard. The MacPaint window is left unchanged.

**Paste** Makes a copy of whatever is on the system Clipboard and places it in the MacPaint window. The object is automatically selected by using either the selection rectangle or lasso. You can then immediately reposition the object where it is needed on the MacPaint window.

**Clear** Blanks out the selected area or shapes on the window.

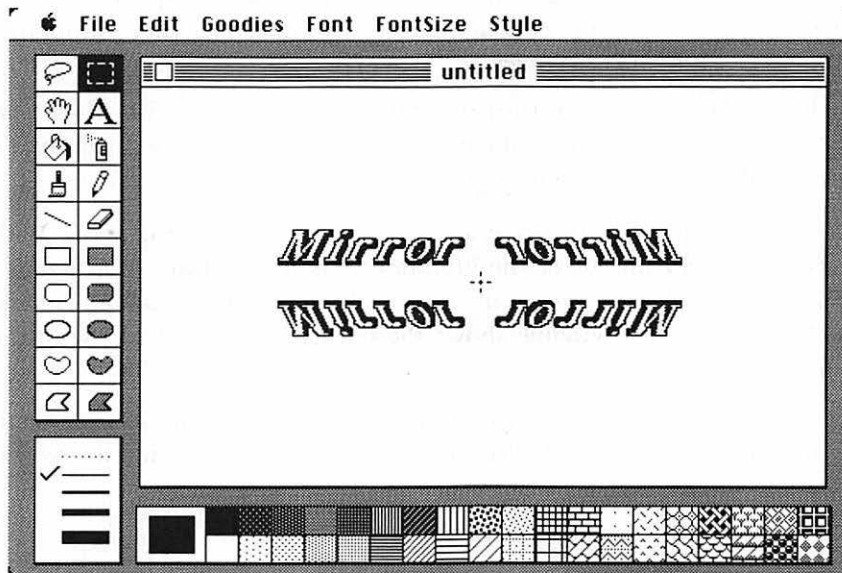
**Invert** Changes any black parts of the selected area to white and any white parts to black.

**Fill** Fills in the currently selected area with the pattern that you have chosen from the pattern palette. If the selection was made using the selection rectangle, the entire area is filled in. If the lasso was used to select one or more objects, just those objects are filled.

The remaining four commands in the Edit menu work only in areas that have been selected with the selection rectangle.

**Trace Edges** Traces the outline of any solid shapes lying within the selected rectangular region and then blanks out the solid portion of the shape. You can get some interesting results by repeatedly performing this command on a selected shape.

**Flip Horizontal** Turns the selected area around (front to back) and shows the area from the back side. The result is a mirror image of the selected area.



**Figure 5-2.** *The effects of Flip Horizontal and Flip Vertical*

**Flip Vertical** Turns the selected area around (front to back) and over (top to bottom) so that the resulting shape is reversed and upside down. The screen shown in Figure 5-2 was created by using both Flip Horizontal and Flip Vertical to make mirror images of the word *Mirror*.

**Rotate** Rotates the selected area 90 degrees counterclockwise. Four consecutive Rotates bring the area back to its original position.

## Goodies

The commands in the Goodies menu allow you to customize, fine-tune, or specially edit an image. The menu also includes commands for selecting brush styles, widths, and options. The Grid and Fatbits commands in this menu act like switches. You select them to turn them on and select them again to turn them off.

**Grid** Lays down an invisible grid of 52 by 30 lines on the MacPaint window. The lasso, selection rectangle, line, and all of the shape tools will then make use of beginning and ending points corresponding to the cross-points of the grid. This helps you create and position certain types of objects with better accuracy.

Grid can be selectively turned on and off as you work with MacPaint. This gives you the freedom of constraining one portion of a design to the grid while allowing another portion to be placed freely.

**Fatbits** Provides a close-up of a portion of the MacPaint window. With Fatbits you can use all of the graphics tools to fine-tune your designs. Notice the small rectangle in the upper-left corner of the Fatbits window in Figure 5-3. This window shows the normal, or “world,” view of the close-up area.

You leave Fatbits by either selecting Fatbits again from the Goodies menu or by clicking the mouse button with the cursor pointing into the world-view rectangle.

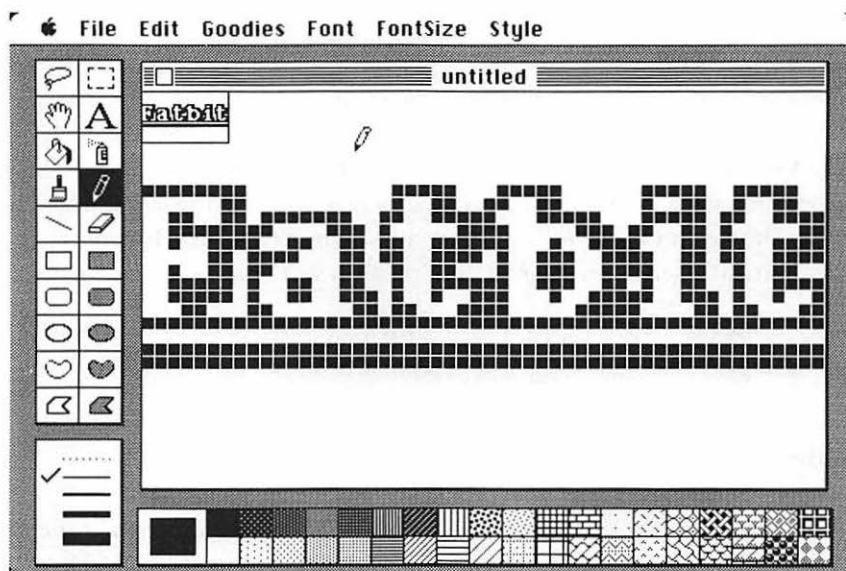


Figure 5-3. Fatbits screen

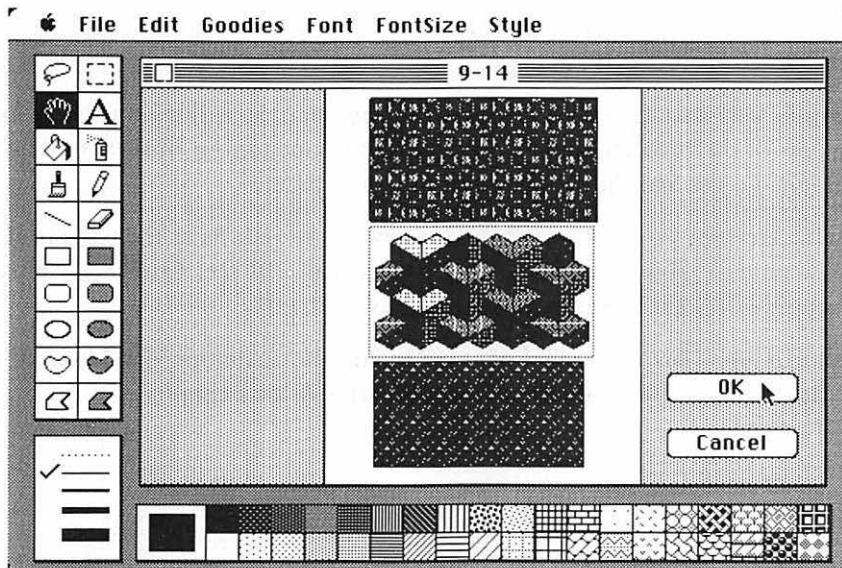
**Show Page** Displays the full MacPaint canvas (Figure 5-4), although with greatly reduced clarity (because the page is compressed into a small display area).

You can reposition the window in another part of the page by moving the cursor into the dotted rectangle, holding down the mouse button, and dragging the rectangle to the desired area. The entire page may be shifted by pressing the mouse button with the cursor outside of the dotted rectangle and then dragging the page around the screen.

You return to the normal MacPaint window by clicking the OK button or the Cancel button. Cancel causes MacPaint to disregard any positioning changes you made to the canvas or the window.

**Edit Pattern** Allows you to customize the currently selected pattern from the pattern palette. A pattern consists of a block of  $8 \times 8$  dots, each of which can be individually turned on or off.

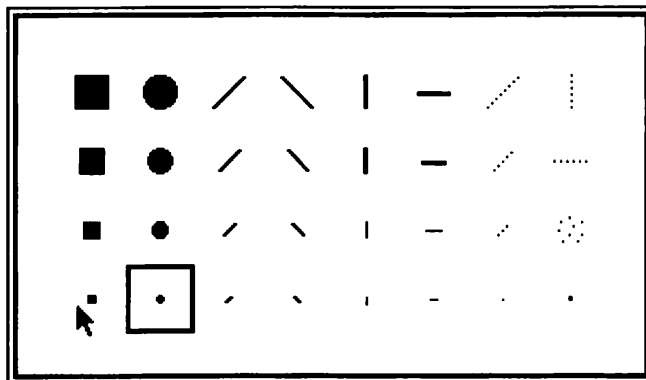
You turn the dots on and off by pointing the cursor at the appropriate dots in the pattern box and clicking the mouse button. If you point and



*Figure 5-4. Displaying the entire canvas with Show Page*

click on a dot that is off, it will be turned on, and vice versa.

**Brush Shape** Provides the following selection of brush shapes for use with the brush tool:



Select a brush shape by pointing at it with the cursor and clicking the mouse button. You can also change brush shapes by double-clicking on the brush in the tool palette.

**Brush Mirrors** Lets you select a set of *mirrors* that will reflect the movements of the brush tool. You can select from one to four mirrors to reflect along the vertical, horizontal, and diagonal axes.

**Introduction** You can use this to review the functions of the tools in the tool palette. Figure 5-5 shows the screen you will see. Click the Cancel button to return to your original window.

**Short Cuts** Displays a list of some of the shortcuts that can be used in MacPaint. (See the “Shortcuts” section later in this chapter).

## Font

This menu allows you to select from a list of different character fonts. To place the text in the MacPaint window, select the text tool from the tool palette. You can choose from any of the following fonts.

**Chicago Font**  
 Geneva Font  
 New York Font  
 Monaco Font  
**Venice Font**  
**London Font**  
**Athens Font**  
 Toronto Font  
**San Francisco Font**  
*Los Angeles Font*  
 (Cairo Font)

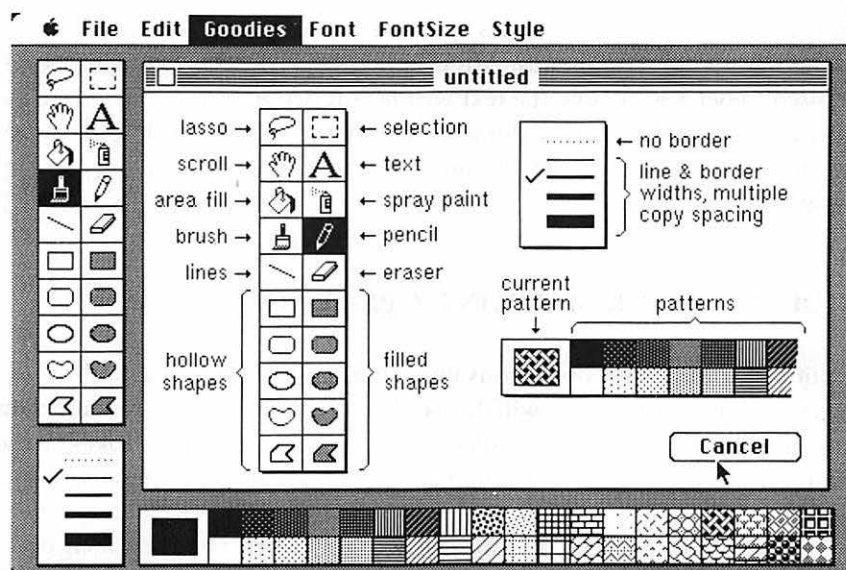


Figure 5-5. Introduction screen

## FontSize

This menu offers a variety of eight font sizes from which to choose: 9, 10, 12, 14, 18, 24, 36, 48, and 72 point. Certain font sizes may work better with a particular font than others. Appendix B shows the fonts printed in several sizes. After you select a given font, the recommended sizes for that font are highlighted in the FontSize menu.

## Style

This menu offers a variety of character styles to use with the text tool. The styles are fairly obvious from their names:

Plain  
 Bold  
 Italic  
 Underline  
 Outline  
 Shadow

An example of the various styles is shown in Appendix B.

The three align commands, Align Left, Align Middle, and Align Right, are used to determine how the text will be aligned on the screen. Align Left causes the text to be aligned along the left margin. Align Middle allows you to center the text. Align Right causes the text to line up along the right margin.

## SHORTCUTS FOR MACPAINT OPERATIONS

A number of MacPaint operations have shortcuts. These fall into three categories: keystroke shortcuts, which use the OPTION or COMMAND key along with another key or tool; double-clicking; and special keystrokes, which assign certain commands directly to a key. Figure 5-6 is a summary of these shortcuts.

The keystroke shortcuts are especially useful when you are touch-typing with the text tool. In this case, it is often faster to press a key than to take your hands off of the keyboard to work with the mouse.

For example, to select Italic text, you can either use the mouse to pull down the Style menu and then select the Italic command, or you can hold



down the COMMAND key and press the I key. If you are already using the mouse, it is usually quicker to use it to make a selection, since you do not have to shift over to the keyboard.

Double-click shortcuts are invoked by pointing the cursor at the appropriate tool on the tool palette and quickly pressing the mouse button twice. For example, to erase the entire MacPaint window, point the cursor to the eraser tool and click the mouse button twice. Notice, however, that this clears only the current window, not the entire canvas.

The special keystrokes allow you to enter a few of the MacPaint commands from the keyboard. For example, you can perform the Undo command found in the Edit menu by pressing UNDO, the leftmost key on the top row of the keyboard. You can Clear a selected area or shape by pressing the CLEAR key, the rightmost key.

The < and > keys work in conjunction with the COMMAND key to change the current character size. When used with both the SHIFT and COMMAND keys, the current font is changed instead.

The remaining special keystrokes work in conjunction with the mouse and some of the MacPaint tools. The CONSTRAIN key allows you to restrict the box to drawing squares, the oval to drawing circles, and the line to drawing lines at 45- and 90-degree angles. The CONSTRAIN key also restricts the paint brush and the pencil to drawing horizontal and vertical lines. The COPY key works with the selection rectangle and the lasso to create identical copies of selected areas or shapes. The STRETCH key works with the selection rectangle to stretch or shrink the size of selected areas. If you hold down both the COPY and the STRETCH keys, you can make multiple copies of an object selected with either the lasso or the selection rectangle.

# PATCHWORK PATTERNS

Some of the most intriguing and eye-catching art is based on geometric designs. A geometric design uses lines and simple shapes to form patterns that are then replicated and intermixed repeatedly. The results can be quite spectacular.

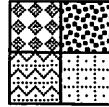
Perhaps the most common examples of geometric designs are patchwork designs. The patchwork design is usually based on a central motif, or theme, which is then replicated numerous times to create the desired patchwork. For example, Figure 6-1 shows a patchwork design in which the motif consists of four squares of equal size, each formed by a different pattern. Throughout this chapter, the term *patchwork* will refer to patterns made up of geometric designs.

MacPaint gives you the freedom to experiment with some fairly intricate patchwork designs. Using the techniques presented in this chapter, you will see how easy it is to create patchworks in a matter of minutes. The resulting designs are often quite surprising and attractive.

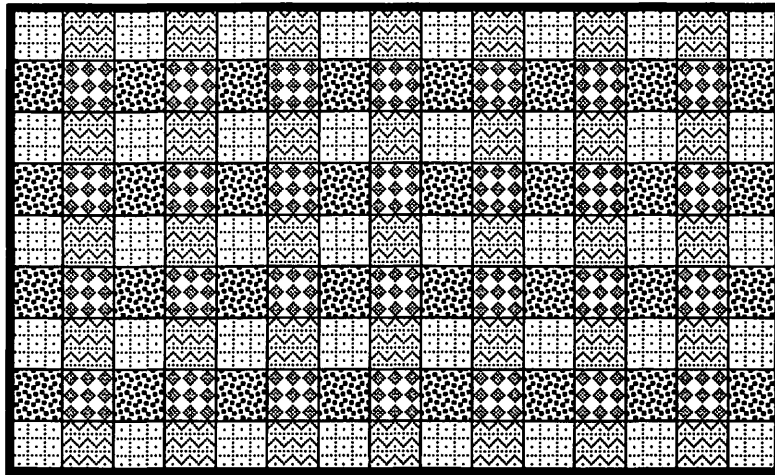
### SELECTING YOUR MACPAINT TOOLS

The basic idea behind creating a patchwork is simple. You start with a simple building block like a square, divide the block into several parts, and place a different pattern in each. Then you make copies of the building block and piece each copy into the patchwork.

Central Theme  
or  
*Motif*



Resulting Patchwork



---

**Figure 6-1.** *A central motif replicated to form a patchwork*

MacPaint has specific tools to do each of the steps required to build a patchwork. The box or oval tool can be used to set up the building block. The line tool and the paint bucket can be used to divide and embellish the block. The selection rectangle and the lasso are used to make copies of a block and position them on the screen.

Two special options make the creation of a patchwork both easier and more precise. These options are the *constrained* drawing operations and the *grid* feature.

## CONSTRAINED LINES, BOXES, AND OVALS

A patchwork design works best when it is symmetrical. For example, it is generally more effective to use a true square or circle as a building block rather than a random rectangle or oval. Likewise, you may want to use lines that lie along the horizontal or vertical axis or at 45-degree diagonals.

To draw diagonals, MacPaint offers the option of *constraining* lines along 45- or 90-degree angles. It also allows you to constrain the box tool to create true squares and the oval tool to make perfect circles.

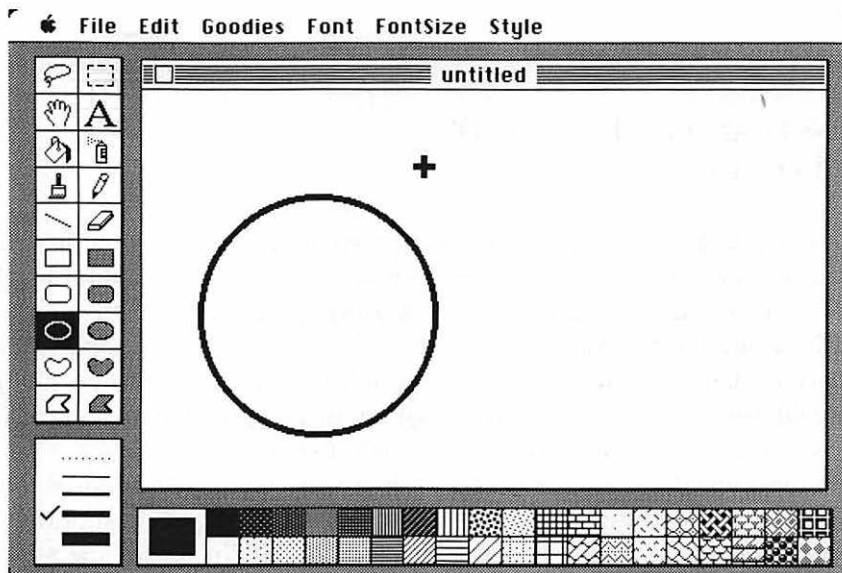
To constrain the operation of a tool, begin by selecting the desired tool from MacPaint's tool palette. Move the cursor to the desired starting point on the window. Now constrain the operation by holding down the SHIFT key. Depress the mouse button while you move the cursor around the window. Figure 6-2 is an example of the oval tool constrained to draw a perfect circle.

## USING THE INVISIBLE GRID

When you draw the basic building-block element for a patchwork, it is usually best to set up the building block so it can easily be divided into equal parts. For example, you might want to divide a square in half or a circle in quarters in order to put a different pattern in each section.

If you draw a random square on the MacPaint screen and attempt to divide it into an equal number of sections by "eyeballing" it, your chances of success will be pretty slim. While MacPaint will not automatically divide an object into equal parts, it does contain a feature that lets you draw an object so it can be divided easily. This feature is called the Grid command.

If you pull down the Goodies menu, you will see a command called Grid. If you select this command, you may not notice a change in how MacPaint operates. However, if you select the line or another tool, you will see that the cursor seems to jump and jerk more as you move it about the window. A



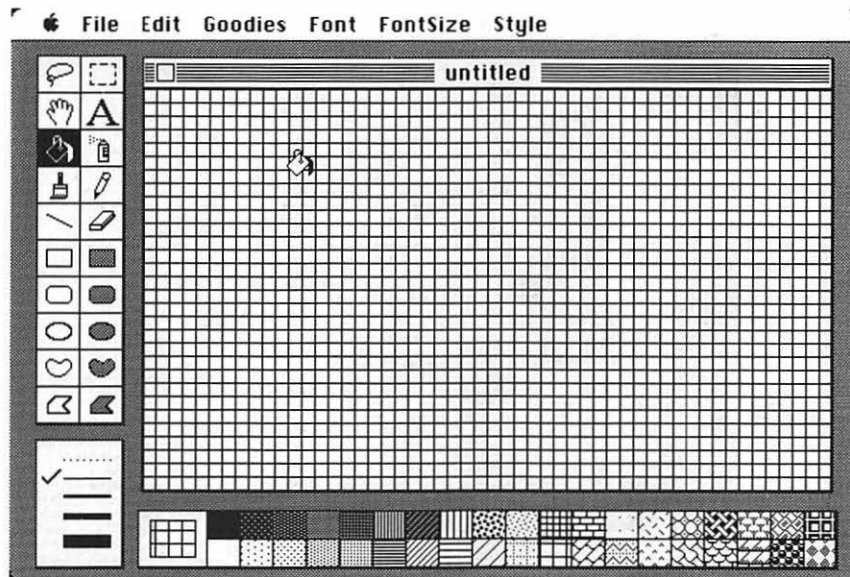
**Figure 6-2.** Circle created with a constrained oval

little testing will show that you are now limited in where you can start and stop a drawing operation.

When the Grid command is selected, MacPaint places an invisible grid of lines onto the window. After this, when drawing with tools like the line, box, and oval you are restricted to positions in the MacPaint window where these invisible grid lines intersect.

To get a better feel for what Grid does, clear the MacPaint window. (This can be done by moving the cursor to the eraser in the tool palette and double-clicking the mouse button.) Check to see that the grid is turned on by pulling down the Goodies menu and making sure there is a checkmark on the left side of the Grid command. If not, select the Grid command to turn on the grid.

Now select the paint bucket from the tool palette. Move down to the pattern palette and click on the larger of the two square grid designs. Move the



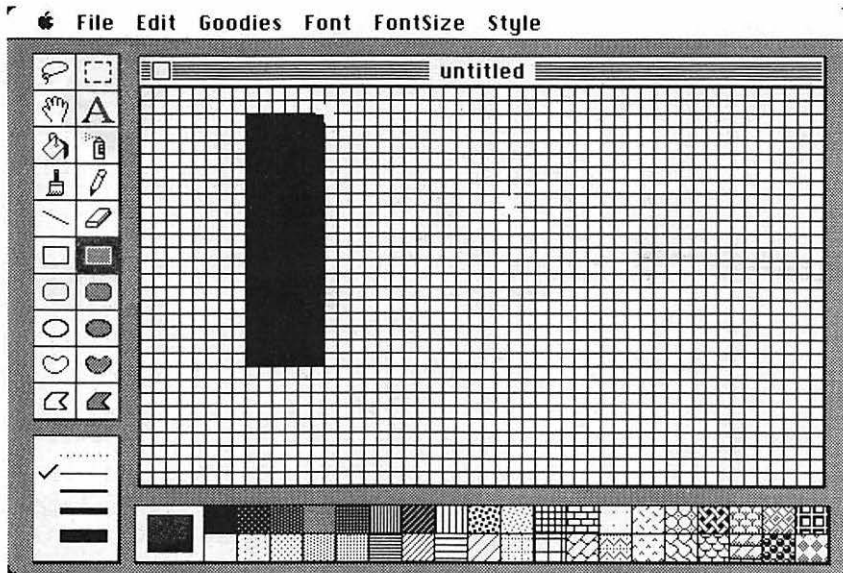
**Figure 6-3.** Grid pattern

cursor out to the window and click the mouse button. This will fill the screen as shown in Figure 6-3.

It just so happens that this grid is the same exact size as the invisible one used by the Grid command. In fact, this visible grid is placed in the same screen position as the invisible grid.

Choose the filled box tool from the tool palette. Move to the pattern palette and select the solid black pattern. Now move to the MacPaint window. Press and hold down the mouse button while you drag the cursor around the window. You should see something like the object shown in Figure 6-4.

Notice that no matter where you move, the resulting box falls exactly along the grid coordinates. Turn off the grid by pulling down the Goodies menu and selecting the Grid command again (this works like a light switch, turning the grid on and off). Return to the window and draw some more



**Figure 6-4.** Using a grid to place an object

filled boxes. The boxes fall anywhere on the window. The filled box tool is no longer restricted to the grid lines. In fact, it is difficult to draw a box that lies exactly along the grid.

Try this now. Choose the selection rectangle with the grid turned off. Move to the screen and try to draw a selecting rectangle around one of the solid boxes that you drew with the grid on. Next, turn the grid back on and try selecting the box again. Notice how much easier it is to draw and select boxes with the grid on.

When the grid is turned on, many MacPaint operations are constrained to the invisible grid lines. Remember that you saw the grid lines in the previous example only because you painted the window with the grid pattern from the pattern palette. You will normally not see the grid lines when you use the Grid command.

Normally, the MacPaint window has a resolution of 416 horizontal positions by 240 vertical positions. When you use the Grid command, the resolution is restricted to 52 horizontal by 30 vertical positions. What this means is

- You can create *measured* objects with the Grid command. Using the constrained box (to draw a square) with the Grid command on, you can count the number of “jumps” that the cursor makes as you carefully draw a square. If you count four such jumps, you know that the square is four sections wide by four tall and that it is thus divisible into halves or quarters. If you count six jumps of the cursor, you will have a square that can be divided into halves, thirds, or sixths.
- You can use the selection rectangle to *exactly select* any square or box that was designed with the Grid command on. This is important because any error in selecting a patchwork element will be replicated many times over.
- You can *exactly position* elements that have been selected with either the lasso or the selection rectangle. Just as the capability of exactly selecting a patchwork element is important, if you could not easily position each copy of the element, creating an entire patchwork would be quite tedious.

The Grid command makes creating patchwork fairly easy and precise. Certain difficulties involved in creating exotic patchworks still remain, but creating rudimentary patchwork designs with MacPaint is a straightforward task.

## ===== P R O J E C T =====

### DESIGNING YOUR FIRST PATCHWORK

Let's work through a simple patchwork design. You will use the Grid command and the constrain option to design, select, and position the elements of your patchwork.

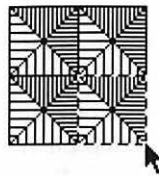
- Step 1:** Start off with a clean slate. Clear the MacPaint window if anything is on it. Make sure that the Grid command is turned on. Select the box tool from the tool palette and move the cursor onto the window. It is not important where on the window you begin.
- Step 2:** Hold down the SHIFT key (to constrain the box tool to draw squares), and press and hold down the mouse button. Slowly move the cursor diagonally (any direction is okay). As you move the cursor, count the number of jumps it makes. After four jumps, you should have a  $4 \times 4$  unit square (approximately half an inch square). Release the mouse button. If the mouse slips as you release the button, and you make a square of the wrong size, select the Undo command from the Edit menu and try again.
- Step 3:** Select the line tool and draw two diagonal lines connecting the opposing corners of the square. Select the paint bucket tool from the tool palette. Using four different patterns from the pattern palette, paint each of the four parts of the square. For example:



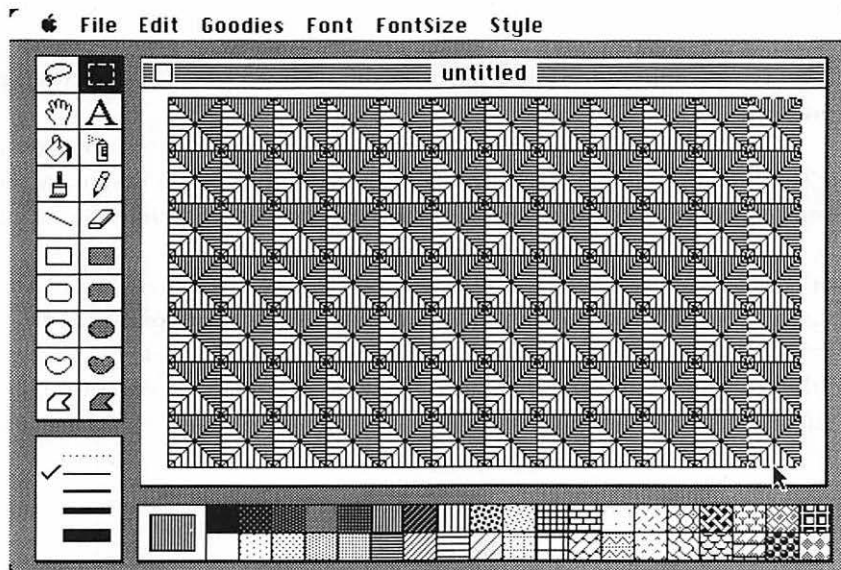
- Step 4:** This will be your basic building block for the patchwork. Get the selection rectangle and precisely select the complete square. You do this by moving the cursor to one corner of the square and then holding down the mouse button while you drag the cursor to the opposite corner of the square. Releasing the mouse button selects the square.
- Step 5:** Make a copy of the selected square and position it next to the original. Do this by moving the cursor inside of the selected area until the cursor becomes an arrow. Hold down the OPTION key and then press and hold down the mouse button to make the copy. Drag the copy beside the original and release the mouse button.

Make another copy of the selected square (again, simply by pressing the OPTION key and the mouse button) and position it into

the developing patchwork pattern.



At some point this task of building the patchwork one element at a time may get tiresome. No problem. Use the selection rectangle to select several of the elements at once and continue copying and moving with this block. The finished patchwork is shown in Figure 6-5.



**Figure 6-5.** The completed patchwork design

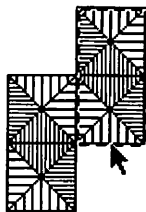
In a matter of moments you have built a fairly interesting and intricate patchwork design. Drawing a design like this with pencil, paper, and ruler would take hours of labor. The ease with which MacPaint can design patchwork greatly encourages experimentation since it is not too painful to discard the work of a few minutes.

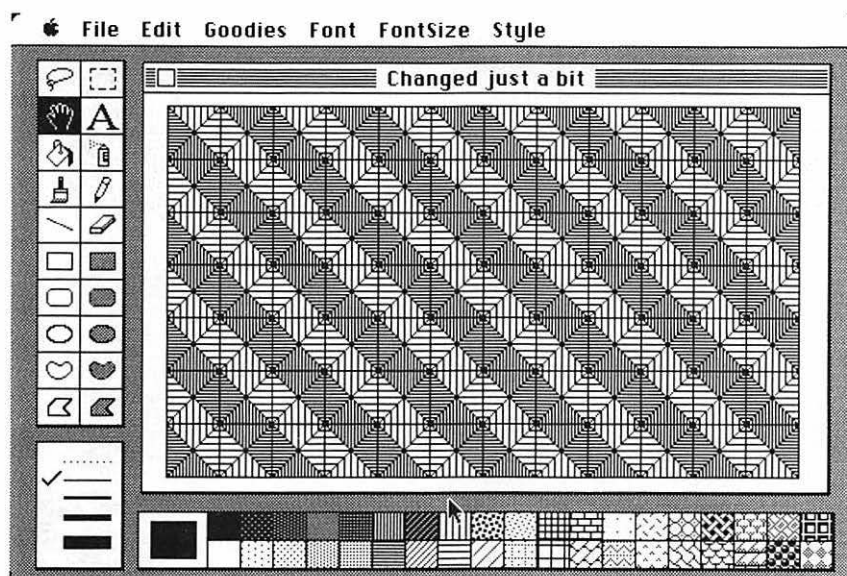
As you build different patchwork designs, you will notice that MacPaint will not let you position a selected object beyond the window border. You are restricted to moving selected elements only within the boundary of the current window. If you want to fill the whole MacPaint page with a patchwork, you will need to build as large a patchwork as possible in the window. First use the selection rectangle to select the entire patchwork; then use the Copy command in the Edit menu to place a copy of the patchwork in the system Clipboard. After this, you can use the grabber to move the page around in the MacPaint window and the Paste command to paste a copy of the patchwork into the blank parts of the page.

If you try to join two patchworks together, you may have a problem lining them up properly if the Grid command is still on. Any time you use the grabber to move the window around, you may lose the positioning of the grid system. In other words, if you save a copy of the patchwork to the Clipboard, use the grabber to move the page about, and paste the Clipboard into a new portion of the page, the old and new parts of the patchwork may not align properly with the Grid command on. In this case you will have to turn the Grid command off and position the two patchworks as accurately as you can.

One of the fun things about patchworks is the surprising effect that seemingly small changes to the basic motif can make on the final design. As an experiment, let's create a different patchwork design using a slight variation of the building block from the previous example.

Select the basic block with the selection rectangle. Make a copy of this selected block by using the OPTION key. Select the Rotate command twice from the Edit menu to turn this block first 90 degrees and then 180 degrees. Join the two blocks and use them as the new building block, except stagger the copies as you build the patchwork.





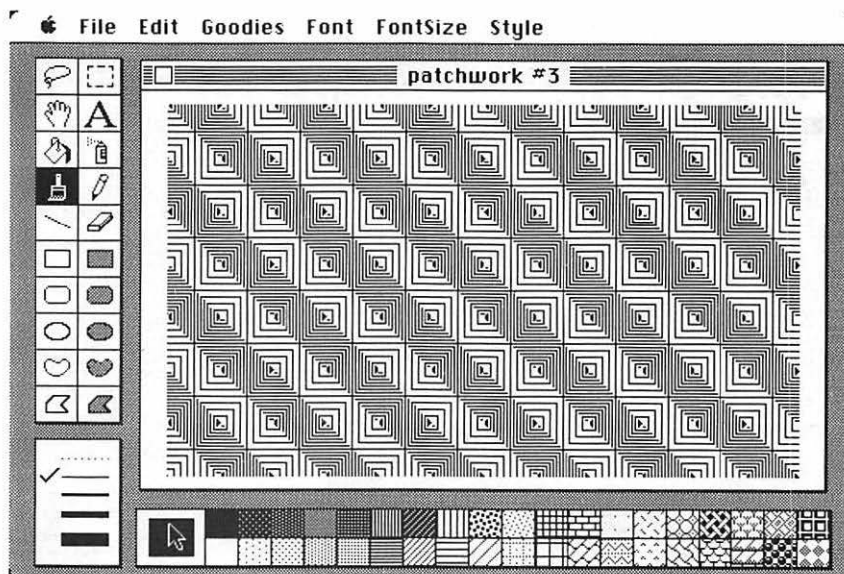
**Figure 6-6.** Patchwork design modified with *Rotate*

The result of combining the original square with a rotated copy of that square is a very different patchwork, as you can see from Figure 6-6.

Now try another example. Use the same two building blocks from the last example, but now use the *Fatbits* command in the *Goodies* mode. (*Fatbits* will be discussed in the next section.) Select the eraser and carefully erase the lines surrounding the squares. The resulting patchwork (Figure 6-7) is again markedly different even though the change to the building block was minor.

## OF HEXAGONS AND FATBITS

Patchwork design is by no means limited to the use of squares as the basic building element. In fact, the only general rule is to use symmetrical building blocks, and even this rule can be ignored. Shapes often found in patchwork designs include circles (easily created with the constrained oval tool),



*Figure 6-7. Patchwork design modified with Fatbits*

various polygons (pentagons, hexagons, octagons, and so forth), stars (with five, six, eight or more points), and many variants and combinations of these shapes.

In this next example, you will see how MacPaint's tools can help you create a special symmetrical shape, the hexagon, that is not offered as a standard shape. The process of designing the first hexagon for a patchwork is somewhat tedious, but once the hexagon itself is designed, using it to build a patchwork is no more difficult than using a square. Similar strategies can be used to make many other symmetrical shapes.

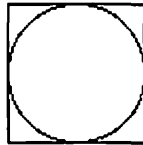
Designing complex shapes makes use of the Fatbits command. Fatbits is a "zooming" feature that lets you edit MacPaint shapes with extremely fine precision. It is like using a microscope to examine a picture in great detail and being able to make minute changes. All of the MacPaint tools work with Fatbits. For example, you can use the eraser to carefully remove specific parts of a drawing, or you can use the pencil to make fine changes. You can select Fatbits from the Goodies menu or, alternatively, by moving the cursor to the pencil in the tool palette and double-clicking the mouse button.

# --- --- --- P R O J E C T --- --- ---

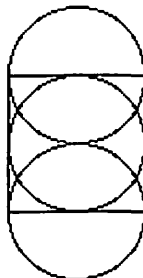
## DESIGNING A HEXAGON

A hexagon is a symmetrical six-sided figure with six sides of equal length. It is not obvious at first how you can draw such a shape using MacPaint, since no hexagon shape tool is available. Let's work through a step-by-step method for creating hexagons:

- Step 1:** Start off with a clean MacPaint window. Turn on the grid in the Goodies menu and select the box tool from the tool palette.
- Step 2:** Using the SHIFT key to constrain the box to draw only true squares, draw an  $8 \times 8$  grid (slightly less than an inch in size).
- Step 3:** Select the oval tool. Move the cursor to one corner of the square and, pressing the SHIFT key to constrain the oval to a circle, draw a circle that fits exactly within the square. At this point your figure should look like this:

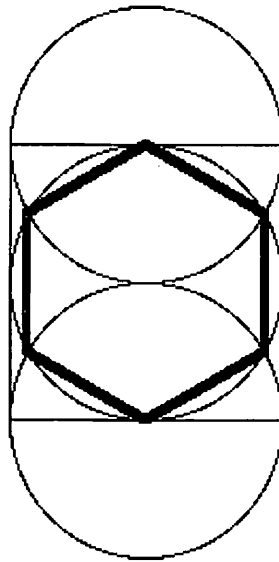


- Step 4:** Find the halfway point of the left side of the box. This is four sections up from the lower-left corner. Make a second and third constrained circle upward and downward from this point to fit the box as shown here:

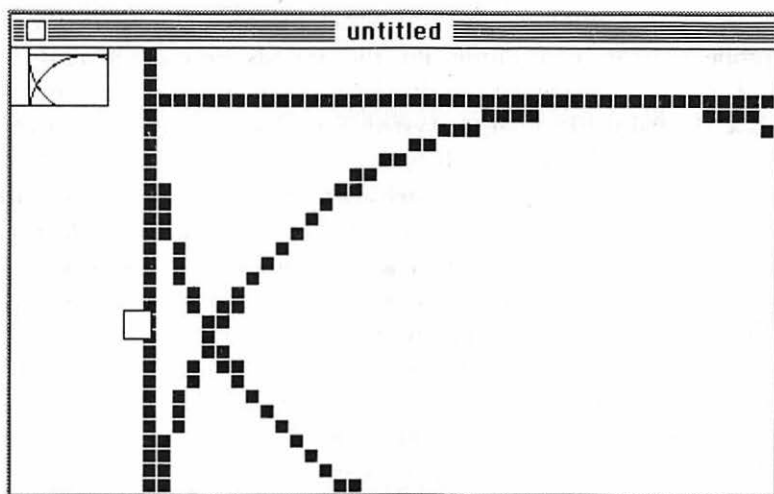


The four points where the two new circles intersect the first circle are four of the six corners of the hexagon. The points where the first circle intersects the top and bottom of the square are the remaining two corners. The exact center of the hexagon is the point where the two new circles meet.

The following illustration shows how the hexagon actually fits into this jumble of circles and squares. This is for demonstration purposes, so do not try to draw your hexagon yet.



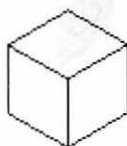
- Step 5:** The three circles and the square on the screen are used only to help you locate the six corners of the hexagon. You now need to erase everything except for these corner points and the center point. Select Fatbits from the Goodies menu. Use the grabber to position the Fatbits display so you can see one or more of the hexagon's corners. For example, in the following illustration you see an intersection of two circles as well as the intersection of the circle and square.



Select the eraser from the tool palette. Carefully erase all of the dots in all three circles and the square *except* where the described corners and the center point of the hexagon lie. You will need to use the grabber to reposition the Fatbits window as you erase these dots. You should be left with a screen containing only seven dots, the six hexagon corners and the center dot.

**Step 6:** Select the line tool and connect the dots of the hexagon. To do this, you will need to turn off the grid. If you have trouble connecting the dots, use the Fatbits command to find two dots and connect them.

Draw lines connecting the upper-left and -right corners of the hexagon to the center dot. Then draw another line to connect the center dot to the bottom corner. This divides the hexagon into equal thirds and is used quite often in patchwork designs. The final screen will look like this:



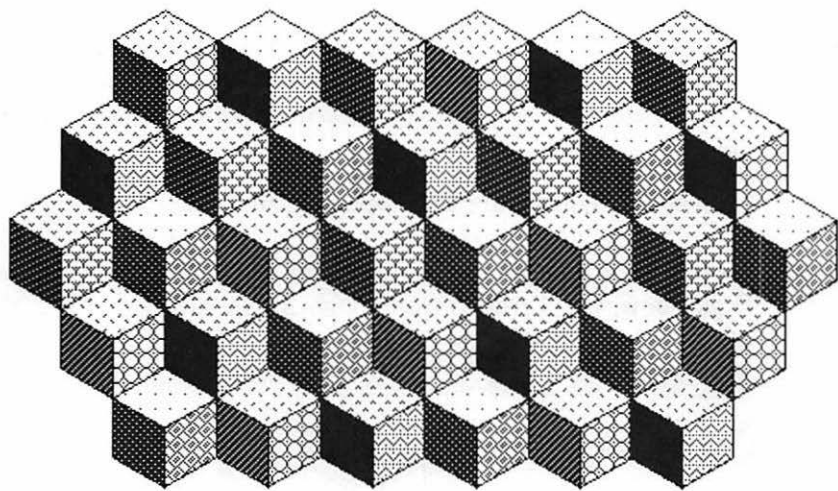
Drawing a true hexagon is a rather involved task. It is obviously error-prone and time-consuming. But the rewards are now in sight.

Before doing anything to this hexagon, you might wish to save it, either as a MacPaint file or in the system Scrapbook. That way you will not have to recreate the hexagon each time you want to try a new patchwork design.

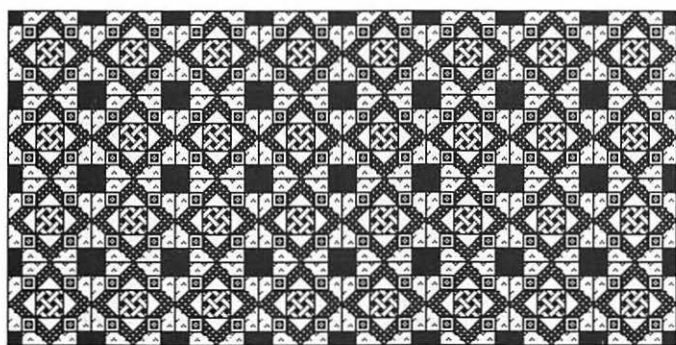
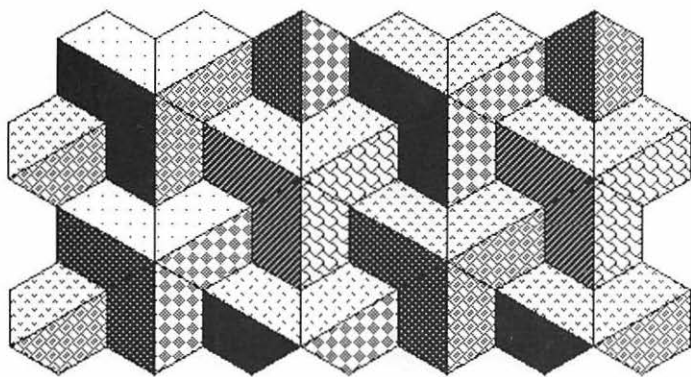
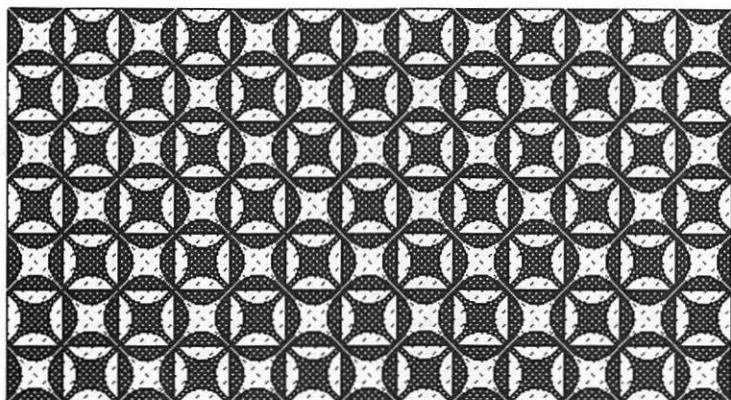
The next step, building a patchwork with hexagons, is not much different from building a patchwork with squares. You can fill in the three parts of the hexagon with selected patterns and build the patchwork by replicating this element. Or you can build the patchwork with blank hexagons and then fill it in with a variety of patterns once the main structure is complete.

Use the lasso to select the hexagon and start placing copies into a patchwork design. In the example shown in Figure 6-8, the patchwork structure was built with blank hexagons. Then the paint bucket was used to selectively put patterns into the patchwork.

The design in Figure 6-8 is known as “tumbling blocks” because it can appear to be a stack of blocks rather than an assortment of hexagons. To get the right effect, you should place light, medium, and dark patterns into the



*Figure 6-8. Patchwork created from a hexagon*



*Figure 6-9. Three patchworks created with MacPaint*

three different parts of each hexagon. In the example in Figure 6-8, a light pattern was always placed in the top third of the hexagon, a medium pattern in the right third, and a dark pattern in the left third.

These examples only touch the surface of possible patchwork designs. Many other types of building blocks can be used to create an infinite variety of patchwork designs with MacPaint.

The hardest part of creating a patchwork with MacPaint is the design of the building block. This may be a time-consuming task if you are using a complex block. But once the block is done, the patchwork goes together rapidly.

Before leaving the subject of patchworks, take a look at the three patchwork designs shown in Figure 6-9. None of these designs took more than a few minutes to create. You might see if you can determine what basic building blocks were used to make these designs.

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## P A R T   F O U R

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# *Integrating MacWrite and MacPaint*

*Visual aids, such as drawings and pictures, formulas, pie charts, and bar graphs, add to the impact of the written word. With the Apple Macintosh you can combine the graphics objects created in MacPaint with text produced by MacWrite to enhance the documents you produce.*

*In Part Four you will see how the Clipboard and Scrapbook are used to transfer graphics objects*

*from MacPaint to MacWrite. Once you become familiar with the use of these two accessories, you will have no problem in efficiently blending visual aids with text. Designing a letterhead is one practical example of combining text and graphics, and in Chapter 8 you will get a chance to design a few of your own. After learning the mechanics of combining MacWrite and MacPaint, you will be ready to begin experimenting with new ways of combining words and art.*

## USING THE MACINTOSH CLIPBOARD AND SCRAPBOOK

Two basic tools allow you to integrate Macintosh applications such as MacWrite and MacPaint. These are the Clipboard and the Scrapbook. You can usually choose either tool to transfer text and graphics from one application to another. As discussed in this chapter, you will favor one over the other, depending on your circumstances.

Although MacPaint and MacWrite are singled out in this chapter, the Clipboard and the Scrapbook are generic tools available to any Macintosh applications program. Thus, the techniques described here should be applicable to a variety of Macintosh applications.

### USING THE CLIPBOARD

The Clipboard is capable of temporarily holding text and graphics. For the sake of conciseness, this chapter refers to anything stored on the Clipboard as an *object*. You can move objects on and off the Clipboard at will.

An object must be selected before it can be placed on the Clipboard. To select text with MacWrite, place the cursor at the start of the desired text and click the mouse button once; then move the cursor to the end of the desired

text, hold down the SHIFT key, and click the mouse button again. The selected text will be inverted (white characters on a black background).

To select a portion of a MacPaint screen for storage on the Clipboard, you can use either the lasso or the selection rectangle. With the lasso you draw a “rope” around the desired area. Any graphics shapes within that area will be selected. With the selection rectangle you set up a rectangle around the area to be selected. Note that the selection rectangle selects an entire area, while the lasso selects objects within an area.

Once the desired object is selected, you use either the Cut or the Copy command in the Edit menu to place the object onto the Clipboard. The Cut command removes the selected object from your application and places it onto the Clipboard. Copy makes a copy of the object and places it on the Clipboard without changing the object in your application. Figure 7-1 shows a Cut operation in MacWrite. Note that the selected text is inverted.

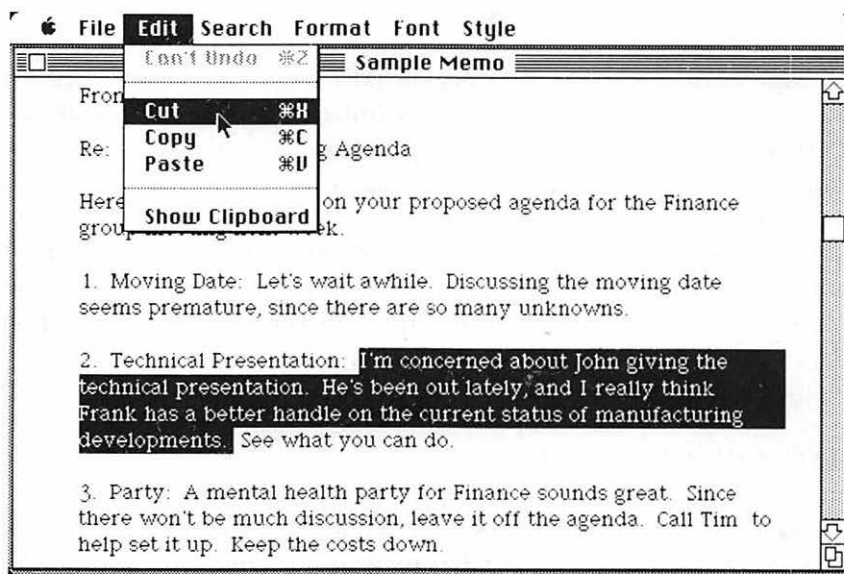


Figure 7-1. The Cut command in MacWrite

Once an object is on the Clipboard, you can put copies of that object into different Macintosh applications programs by selecting the Paste command in the Edit menu. If you are placing the object into a MacWrite document, the object will be added at the insertion point. Objects transferred from the Clipboard into MacPaint will simply appear in the middle of the window, selected and ready to be positioned.

When you use the Paste command, the contents of the Clipboard are not changed. Rather, a copy of the object on the Clipboard is pasted into the application. However, when you Cut or Copy another object, the previous contents of the Clipboard are discarded.

You are free to open and close different Macintosh applications without losing the contents of the Clipboard. As long as you do not turn off the power to the system or perform any subsequent Cut or Copy operations, the contents of the Clipboard will remain intact.

You can use the Clipboard in a number of ways, such as:

- Cutting a portion of text (for example, a paragraph) out of a MacWrite document and moving it to a different position in the same document.
- Copying a portion of text (for example, a phrase) and placing it in one or more places throughout the document.
- Moving a copy of some text into a different MacWrite document, either on the same or a different disk.
- Making a copy of a MacPaint object to be placed in a different part of the canvas.
- Setting aside a copy of a MacPaint object so you can experiment with the original. If you then want to return to the unmodified object, you can clear the window and Paste the copy from the Clipboard back onto the screen.
- Moving text from a MacWrite document onto a MacPaint canvas.
- Moving a MacPaint graphics object into a MacWrite document.
- Moving the contents of any Macintosh application to another application.

The real power of the Clipboard is its consistent operation regardless of the application you are running. Whenever you need to move a portion of text or a graphic from one place to another, the Clipboard provides you with a standard and easy-to-use method for doing this.

## USING THE SCRAPBOOK

The Macintosh Scrapbook is an extension of the Clipboard. You can think of the Scrapbook as a place to store Clipboard objects more permanently. Scrapbook objects are accessible by the Clipboard at all times. Objects remain in the Scrapbook even after you turn off your Macintosh.

The Scrapbook is a Macintosh desktop accessory (review Chapter 2 for more on desktop accessories). You can store any number of objects (text, graphics, or combinations of text and graphics) in the Scrapbook. Anything you can place onto the Clipboard you can permanently store in the Scrapbook. In fact, the only way to put objects into the Scrapbook and later get them back is with the Clipboard.

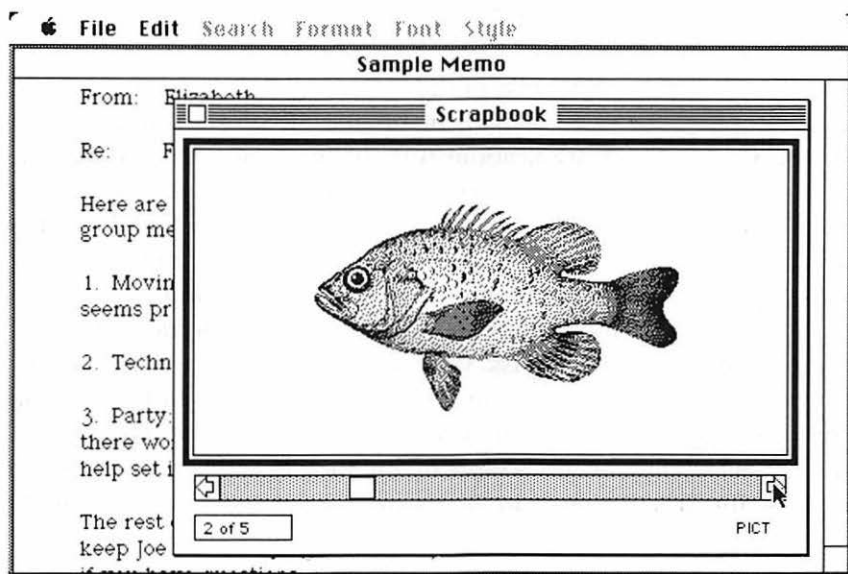
Move the cursor on your Macintosh screen over to the picture of the apple in the upper-left corner. Pull down the menu of desktop accessories. Move the cursor down to select the Scrapbook. You should see something like the screen shown in Figure 7-2 (the picture shown on the Scrapbook page may be different).

The Scrapbook contains a window that displays the current Scrapbook page, a scroll bar for scrolling through the different pages of the Scrapbook, a page number in the lower-left corner, and an identification of the object in the lower-right corner ("PICT" for MacPaint pictures, "MWRT, TEXT" for MacWrite text, and so forth). You can browse through the pages of the Scrapbook by pointing the cursor at the arrows on the right and left sides of the scroll bar and clicking the mouse button. You can also position the cursor on either side of the small box and click the mouse button to move a page at a time, or you can drag the small box along the scroll bar to jump to a particular place in the Scrapbook.

To add an object to the Scrapbook, you must first place it on the Clipboard as described in the previous section. Next, open the Scrapbook accessory. Pull down the Edit menu and select the Paste command. This copies the contents of the Clipboard into the currently active window, which happens to be the Scrapbook.

When the Macintosh realizes that you are pasting an object from the Clipboard into the Scrapbook window, it automatically places the object on a new page in the Scrapbook. The Scrapbook will thus grow in size as you place more and more objects in it. The Macintosh stores the Scrapbook on the system disk, so the only limit on adding to the Scrapbook is the capacity of the disk.

Just as you used the Paste command to move an object from the Clipboard into the Scrapbook, you use the Copy command to retrieve an object



*Figure 7-2. Opening the Scrapbook window*

from the Scrapbook and transfer it onto the Clipboard. Scroll through the Scrapbook until you see the object you want. Select the Copy command from the Edit menu to place a copy of the object onto the Clipboard.

Use the Cut command to move an object onto the Clipboard and delete the corresponding page from the Scrapbook. If your Scrapbook gets unmanageably large and you want to discard some of the objects, use the Cut command to remove the Scrapbook pages of your choice.

## **CHOOSING BETWEEN THE CLIPBOARD AND THE SCRAPBOOK**

Once you understand how the Clipboard and Scrapbook work, deciding which to use for transferring objects within an application and between different applications is usually easy.

The Clipboard provides the fastest mechanism for moving a single object. However, because it provides only temporary storage, you must be careful not to accidentally use another Cut or Copy command to replace an object that you want to save.

The Scrapbook is an extension of the Clipboard that allows you to build a library of objects for more permanent storage. If you want to move more than one object between applications (suppose you want to use MacPaint to draw four different graphics designs and then move them all into a MacWrite document), you should use the Scrapbook to store each of them. Then you can exit the first application, start up the second, and transfer the objects from the Scrapbook through the Clipboard into your application.

Note that if you are transferring an object from an application on one disk to an application on another disk, you must copy the object to be transferred onto the Clipboard prior to ejecting the disk. Since the Scrapbook is stored on disk, two different disks could contain two separate Scrapbook files.

If you need a copy of the Scrapbook on another disk, you can copy the Scrapbook file (usually found in the system folder) from one disk to another.

## **DIFFERENCES BETWEEN MACWRITE AND MACPAINT OBJECTS**

Let's now look briefly at the different ways that objects are treated in MacPaint and MacWrite. These differences can have an impact on how you transfer objects between applications.

MacWrite is a word processor. It looks at what you type at the keyboard as text characters. Each character of a MacWrite document can have its own font, size, and style, independent of the other characters around it. However, characters must be displayed as rows of text; so the largest character in a particular row will determine the height of that row. Different rows of text in a MacWrite document thus may have different heights.

MacPaint is a graphics processor. Everything in MacPaint is oriented to creating, displaying, and editing graphics objects. Even though MacPaint has a "text" mode with which you can enter text in many various fonts, sizes, and shapes, once you are done entering and editing the text, MacPaint ceases to treat the characters as text. Instead, it simply views the text as graphics shapes on the canvas.

When an object is created with MacPaint and then transferred to MacWrite with the techniques discussed in this chapter, MacWrite treats the object strictly as a graphics object. No attempt is made to determine whether

or not that object has text within it or whether it contains a number of separate objects. MacWrite sees it as a single graphics structure.

This means that MacWrite will be unable to edit any “text” that you have entered with MacPaint. Even if you create a MacPaint object composed entirely of text, MacWrite will treat the object as a graphics object. If you later find that you must edit part of this object, you will have to transfer it back to MacPaint and use MacPaint’s graphics-editing features.

Let’s look at a transfer in the other direction. When you move text from MacWrite (using either the Clipboard or the Scrapbook) to MacPaint, MacPaint accepts the text into its graphics page. However, as soon as the text is moved into MacPaint, it loses its identification as *text*. Instead, it simply becomes a graphics object.

Consider the following: Using MacWrite, type in some text. Select the text and copy it onto the Clipboard. Leave MacWrite and start up MacPaint. Paste the text into MacPaint. At this point, the text entered with MacWrite is now a graphics object. Even if you were to copy the text back onto the Clipboard and paste it into a MacWrite document, you could not edit it as text.

In other words, be aware that once you transfer text to a MacPaint document, you can only use MacPaint’s graphics tools (the eraser, the lasso, the text tool, and so forth) to edit the characters. This can be tedious and may not result in a good match. Similarly, you cannot edit text created with MacPaint once you transfer the text to a MacWrite document. Keeping these factors in mind, you can freely combine MacPaint graphics objects with MacWrite text objects for wonderful results.

## CREATING A LETTERHEAD

This chapter demonstrates a complete application that integrates MacPaint graphics with MacWrite text—creating a letterhead. Using the Macintosh, you will find it fairly easy to design attractive custom letterheads.

Letterheads identify the name and address of a business or individual at the top of a letter. A company logo or motto might also be included in a letterhead. Being able to create a custom letterhead can often be useful. For example, you might like to have three or four custom letterheads for different aspects of your business or hobby.

The ability of MacPaint and MacWrite to combine graphics and text into single documents gives you a prime opportunity to create an endless variety of unique letterheads. In addition, as you work through the example in this chapter, you will learn the mechanics of transferring graphics from MacPaint to MacWrite.

### A REVIEW OF MACPAINT OPERATIONS

Let's take a moment to review some of the operations that you will use in designing a letterhead.

- **To transfer objects from the Scrapbook to MacPaint:** With MacPaint running, point the cursor to the apple in the upper-left corner of the MacPaint screen. Press the mouse button to pull down the desk accessory menu. Move the cursor down the menu and select the Scrapbook. Next, scroll through the contents of the Scrapbook by clicking the arrows at the lower-right and -left sides of the Scrapbook. When you locate the desired object, pull down the Edit menu and select the Copy command. This copies the object from the Scrapbook to the Clipboard. Close the Scrapbook by clicking the close box in the upper-left corner of the window. Pull down the Edit menu and select the Paste command to copy the contents of the Clipboard onto the MacPaint window.
- **To move selected areas or shapes on the screen:** Select an object or a region in the MacPaint window with either the lasso or the selection rectangle. Move the cursor within the selected region until it becomes an arrow. Press and hold down the mouse button as you drag the area around the screen to position it.
- **To make a copy of a selected area:** Select and then drag the object as in the previous operation, but hold down the OPTION key before you press the mouse button. This creates a copy of the selected area. You can then position the copy of the selected area on the screen.
- **To constrain the movement of a selected area:** Constrained movement of a selected area permits the area to be moved only in a horizontal or vertical direction. Select the area to move; then hold down the SHIFT key before pressing the mouse button and dragging the object. For example, if you want to make a copy of an area and then move it horizontally, press and hold the SHIFT key, then the OPTION key, then the mouse button, and drag the copy horizontally.
- **To flip a selected region horizontally or vertically:** Select the area with the selection rectangle. Move the area to the desired position. Pull down the Edit menu and select the Flip Horizontal or Flip Vertical command.

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# P R O J E C T

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## LETTERHEAD DESIGN WITH MACPAINT

Now let's begin creating a letterhead with MacPaint. The completed design is shown in Figure 8-1.

While the step-by-step procedure can vary, this example demonstrates the general approach to making a custom letterhead. You will also see some common techniques that can be used in many other applications of MacPaint.

**Step 1:** Start up MacPaint.

**Step 2:** The Macintosh System Disk includes a few objects in the Scrapbook. Open the Scrapbook and locate the corner object.

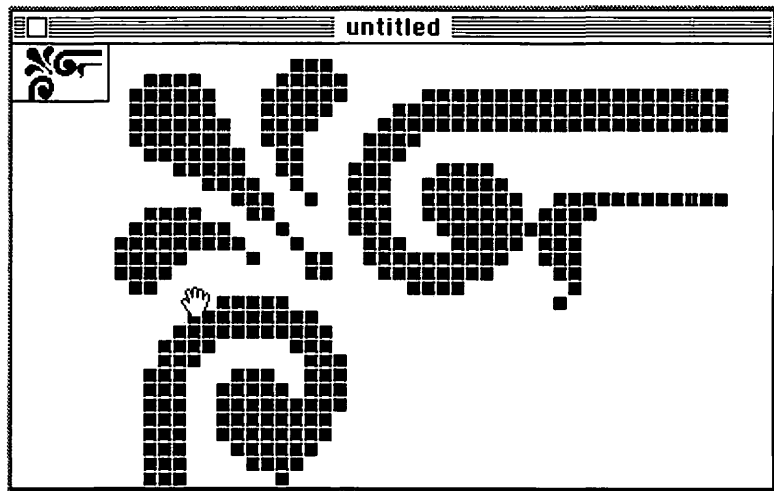


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*Figure 8-1. Completed letterhead*

Copy this object onto the MacPaint page. If the Scrapbook does not contain the corner object, skip to the next step.

- Step 3:** If your Scrapbook does not contain the corner object, draw your own. A Fatbits closeup of the corner object follows. You can create this on your own by choosing the Fatbits command from the Goodies menu and using the pencil tool to do a freehand sketch.

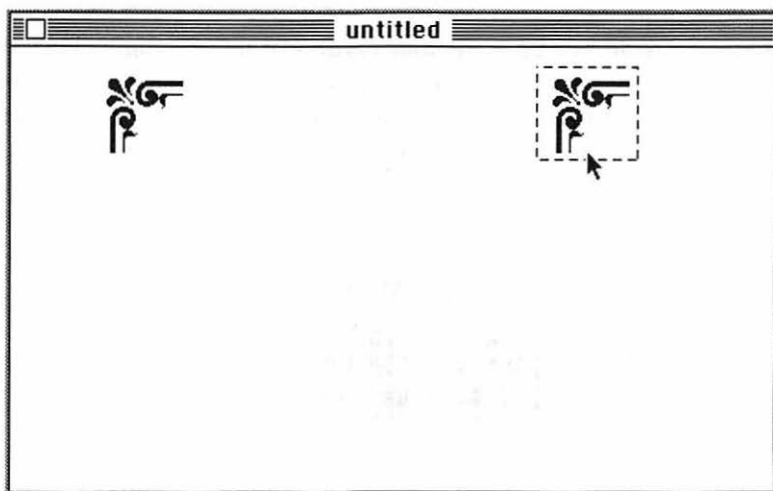


- Step 4:** At this point you should have a copy of the corner object in the center of your screen. Using the selection rectangle, select the corner object. Move the corner object into the upper-left corner of the window.

You will be placing four corners to form a rectangle. Do not worry too much about their placement right now since you will not know exactly how large you want the rectangle until the text is set up to go inside. You will later enlarge or shrink the rectangle to fit your company name and address.

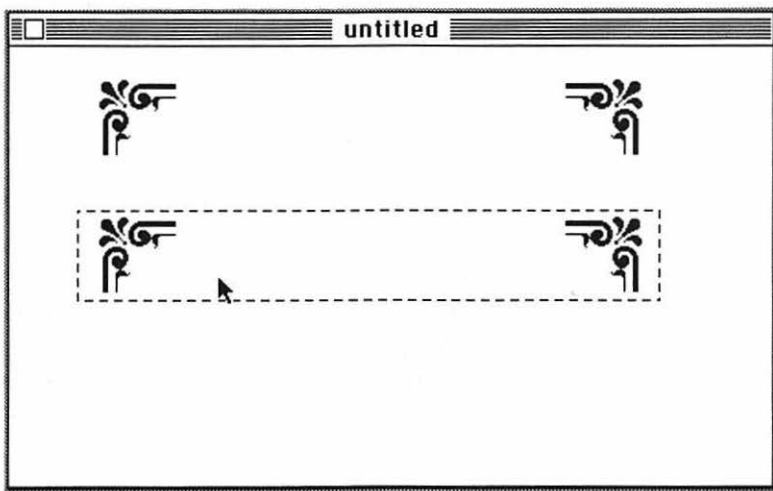
With the corner object still selected, make a constrained copy and move it to the right side of the window. (Remember, press and hold the SHIFT and OPTION keys before pressing the mouse

button to get a constrained copy of a selected object.) Your screen should look something like this:



Select the Flip Horizontal command from the Edit menu to rotate this corner in the appropriate direction.

Next, using the selection rectangle again, select both of the corners on the screen. Make a constrained copy of these corners (SHIFT-OPTION keys) and move the copy down until it clears the top two corners. The screen should look like this:



Use the Flip Vertical command from the Edit menu to flip the two bottom corners to the correct position.

- Step 5:** You now have the four corners of the rectangle. The next step is to select the line tool and, using appropriate line widths, to connect the corners of the rectangle. If you use the SHIFT key to constrain the line, drawing true vertical and horizontal connecting lines will be easier.

When you go to select the proper line width for the outer line, you will notice that MacPaint does not have a line width that exactly matches the one you need. However, you can place two thinner lines side by side (overlapping if necessary) to produce a single line of the proper width.

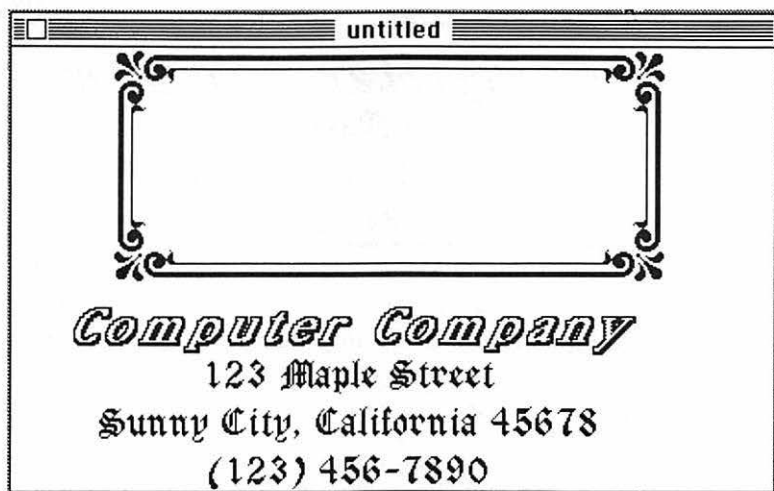
- Step 6:** You are now ready to type the text of the letterhead. If you wish, replace the text in the example with your own company name and address.

Begin by selecting the text tool from the tool palette. Pull down the Style menu and choose Align Middle to center the name and address of the company as you type it in. Move the cursor to the MacPaint window and click the mouse button in the center of a clear area of the screen. The center of the company name will be here. If you do not have enough room on the MacPaint window for both the rectangle and the text, use the grabber to reposition the page.

The company name in this example uses the Bold, Italic, and Shadow selections in the Style menu; the characters are 24 point New York. Type the company name using these selections.

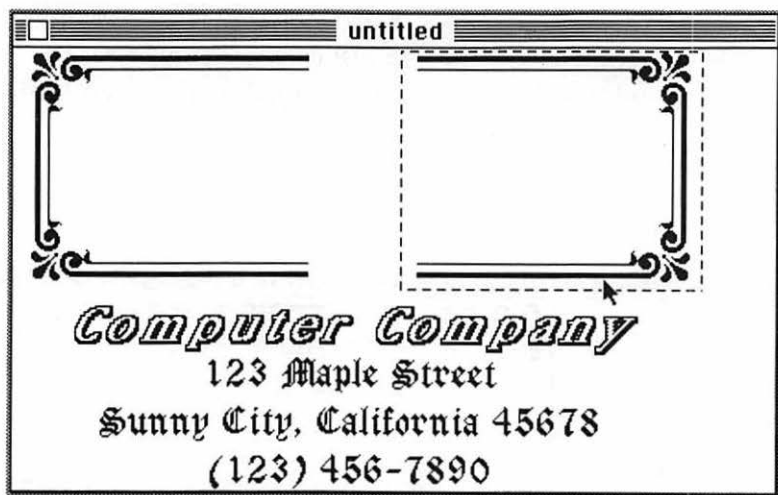
After typing in the company name, press the ENTER key to specify that the remainder of the text will be in a different style, size, and font. Press the RETURN key to move to the next line and choose Plain from the Style menu, 18 point letters from the Font-Size menu, and the London font from the Font menu.

Now type the street address of the company. Press RETURN and add the city, state, and ZIP code. Press RETURN one more time and type the company phone number. The resulting display will look something like this:



**Step 7:** The rectangle in this example is obviously too small to enclose the company name and address. Thanks to MacPaint, stretching out the rectangle is a simple matter.

One option is to use the selection rectangle, which can stretch or shrink a selected area. However, this tool will often distort the shapes within the area. You might try a second method instead. Notice that you really do not want to stretch the corners of the rectangle; you just need to change the lengths of the lines joining the corners. So you can use either the lasso or the selection rectangle to select half of the rectangle and *break* the rectangle in two. The halves are separated and then the broken lines can be connected with the paint brush to make a new and larger rectangle. The following screen demonstrates this technique.



Be sure to constrain the selection tools so that the rectangle stays properly aligned. It is important that you always move the corners in pairs, rather than one at a time, in order to maintain alignment of all the corners.

When the rectangle appears to be just a little larger than the area of the text, use the lasso tool to select the text. If the text is on a different part of the page, use the Cut command in the Edit menu to place the text into the system Clipboard. Then reposition the page so you can see the letterhead box in the window, and paste the text into the box.

If the box is too big, you can use the lasso tool, selecting two corners at a time, to shrink the rectangle to fit perfectly around the name and address. The resulting letterhead is the one shown in Figure 8-1.

**Step 8:** Save the letterhead on disk. Simply choose the Save As command from the File menu and save the letterhead under the name of your choice.

You can also use the Scrapbook as the permanent storage location for this and any other letterheads you might design. This will allow you to store the letterhead until you are ready to use it. If you choose to use the Scrapbook to store the letterhead, just



**Figure 8-2.** *Letterheads created with MacPaint*

copy the letterhead directly from MacPaint into the system Clipboard and then into the Scrapbook. In the following sections, you will see how to integrate the letterhead with your letters.

Figure 8-2 contains several ideas for other letterheads that you can easily create with MacPaint. These letterheads were all designed with standard MacPaint tools—particularly text, box, rounded box, paint bucket, and line.

If you have a company logo, mascot, motto, or any other special symbol of identification, you may want to include it in your letterhead.

## INTEGRATING THE LETTERHEAD INTO MACWRITE

Once you have saved the letterhead, there are several ways you can integrate it into a MacWrite document.

First, you can set up the letterhead as part of the header in a MacWrite document. Recall from Chapter 3 that MacWrite allows you to set up a header that includes the date, time of day, and page number. You can also add text or graphics of your own design to the header.

Placing the letterhead in the header is a logical choice with only one potential disadvantage: MacWrite places a copy of the header at the top of every page in a document. So if you have multipage letters, each page will be printed out with the letterhead.

To avoid this problem, the letterhead can simply be placed at the start of the letter. This ensures that it will only appear once. However, if you use the header (for example, to insert the current date at the top of the page), you also need to select the Title Page option in the Format menu to prevent the header from appearing before the letterhead.

Let's set up a header to include the letterhead. You should still have a

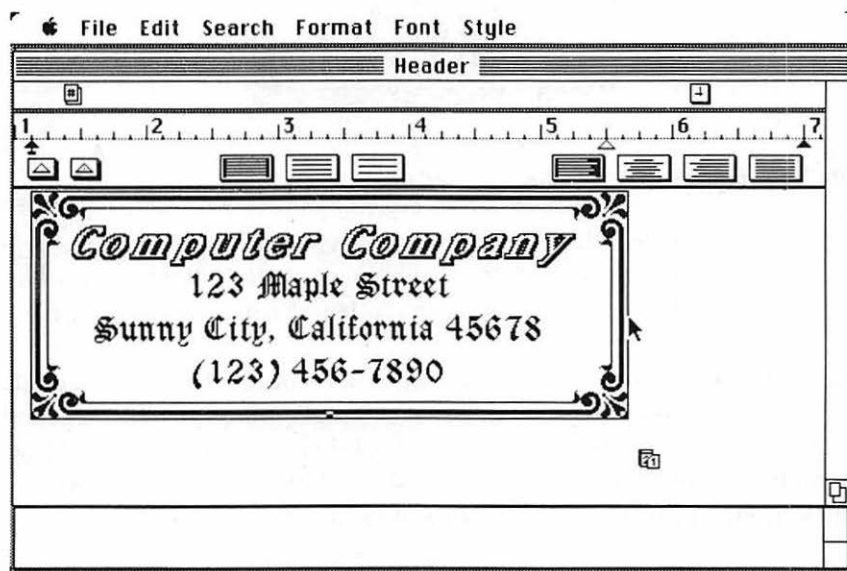


Figure 8-3. Moving the letterhead to the header

copy of the letterhead on the Clipboard. If not, use the Copy command to transfer a copy from either the Scrapbook or from the file where the letterhead is stored. Then you can start up MacWrite to create the new document. From MacWrite, pull down the Format menu and choose the Open Header command. This will open up the header window on your MacWrite screen.

Select the Paste command from the Edit menu to copy the letterhead from the Clipboard into the header as shown in Figure 8-3.

You can now select the letterhead. To select a MacPaint object that is in MacWrite, just move the cursor within the object and click the mouse button. This allows you to manipulate the complete object.

You can do three things to a selected MacPaint object in MacWrite. You can move it horizontally (from left to right) in order to center it or position it as you desire. You can add Return characters in front of the object in order to position it vertically. Or you can stretch and shrink the object.

To center the letterhead on the page, move the cursor so it touches the far right or left border of the selected letterhead and hold down the mouse button. You can then drag the letterhead into the appropriate position.

If you want to stretch or shrink the letterhead, move the cursor to one of the small squares along the bottom of the rectangle that surrounds the letterhead. Click the mouse button and hold it down while you drag the cursor around the screen. This technique changes the size of the letterhead, but be aware that it may distort your MacPaint object.

Here is a portion of a letter in which the letterhead is part of the header. Notice from Figure 8-3 that the Date facility of the header was used to cause the current date to be printed out.



## CREATING A FORM LETTER

You can use the Clipboard to move the letterhead into a MacWrite *form letter*. To do this, Copy the letterhead onto the Clipboard and Paste the letterhead into a blank MacWrite document. Then go ahead and set up any margins, line spacings, and other settings that you will be using in the letter. Save the MacWrite file on disk with a name such as "FORM LETTER," identifying it for future reference.

When it comes time to write a letter, you just open up the FORM LETTER file and type in the text. This way you do not have to be concerned with the margins, spacing, and the letterhead each time you write a new letter. When you finish the letter, use the Save As command in the File menu to save the letter in a separate file.

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## P A R T F I V E

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# *Applications and Ideas*

*The remaining chapters describe additional applications for MacPaint and MacWrite. The goal of these chapters is twofold. First, you will see by example how many of the commands discussed in earlier chapters actually work. Second, you will see new ways in which you can use the combined power of MacWrite and MacPaint to meet your particular needs. By the time you finish working through these chapters, you can put your creative ideas and your understanding of the Macintosh's capabilities to work on projects of your own.*

## WORKING WITH TEXT IN MACPAINT

MacPaint offers a variety of *text-oriented operations* that allow you to enter and edit strings of text on the MacPaint window. You may edit to delete characters or change the font, style, or font size of the text. Text-oriented operations are accomplished with the text tool and the commands found within the Font, Fontsize, and Style menus.

Comparing the text manipulation features of MacPaint with those of MacWrite may lead you to believe that there is little or no difference in how the two programs handle text. However, because of the fundamentally different goals of the two programs, MacPaint and MacWrite perform text operations in quite different ways.

MacWrite, being a word processor, is geared toward text-editing tasks. When you create a memo or some other text document, MacWrite saves the contents of that document as a set of text characters, each character having its own *character attribute* (the font, font size, and style associated with that character). You can edit any portion of text within a document simply by selecting that text (as discussed in Chapter 3) and performing the appropriate MacWrite operations.

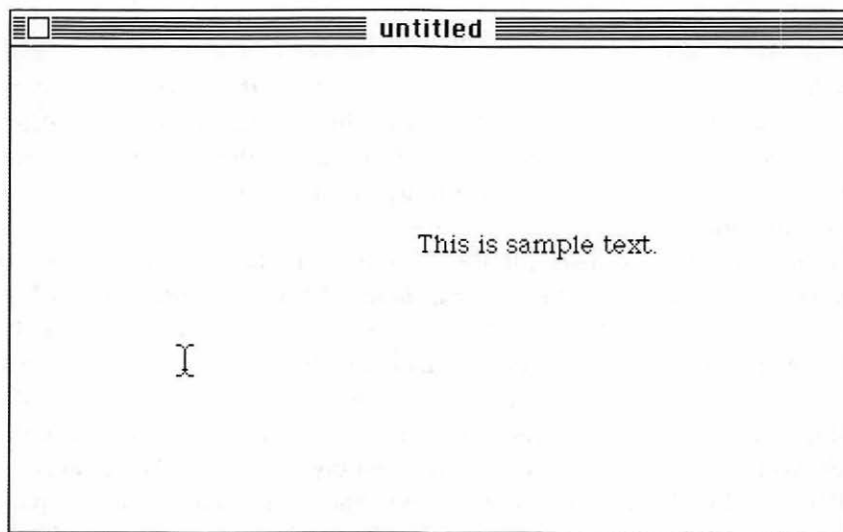
MacPaint, being a graphics processor, is geared toward efficient graphics design. When you use any MacPaint tool to place an image on the window,

whether it is a filled-in oval, a figure drawn with the pencil tool, or even text typed in with the text tool, MacPaint treats the object only as an image.

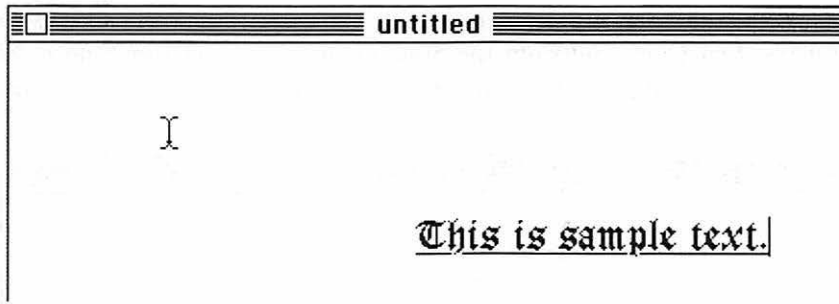
When you use the text tool to type in characters, MacPaint temporarily treats those characters as text, and you have the opportunity to edit them. However, as soon as you perform a graphics-oriented command, MacPaint no longer considers the text as a string of characters, but rather as a group of graphics objects on the window.

## USING THE TEXT FEATURES OF MACPAINT

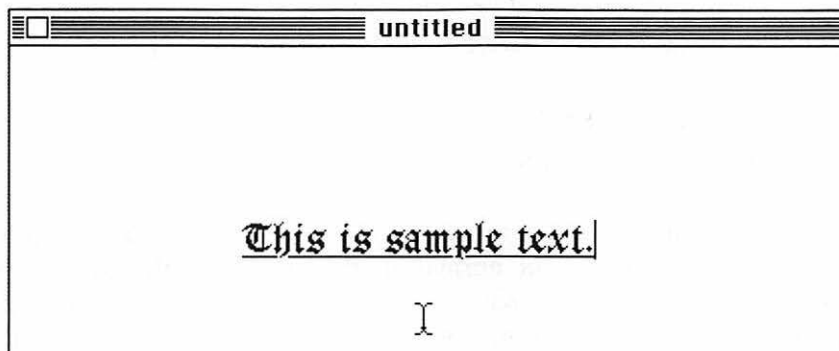
Let's work through a simple example to demonstrate the use of MacPaint text operations. Start up MacPaint and select the text tool. Point the cursor to a position on the window where you would like to enter text. Click the mouse button to set the insertion point, which indicates where the text is to be placed (see Chapter 3 for more on the insertion point). Now type in some sample text. For example:



You may now pull down the Font, FontSize, and Style menus to experiment with the variety of character attributes available. If you choose the 18 point London font and the underline style, the text will change as shown in the following illustration.



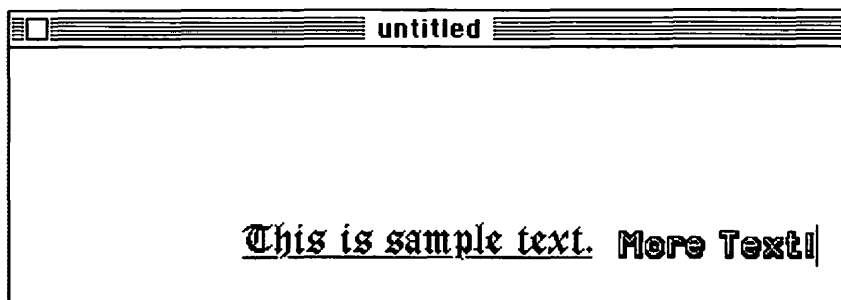
The text-oriented commands (all of which are found in the Font, Font-Size, and Style menus) were covered in Chapter 3 with the exception of three commands unique to MacPaint: the Align Left, Align Middle, and Align Right commands in the Style menu. The Align Left command, the default choice, sets the left margin of the text at the initial insertion point. Align Right sets the right margin of the text at the initial insertion point. Align Middle causes the text to be centered on the initial insertion point. If you pull down the Style menu and select the Align Middle command, the previous example will look like this:



Notice that each time you select a text-oriented command, every character that you entered is affected. You can even press the RETURN key, type in more text, and change the attributes for all the text at once. At this point, MacPaint recognizes the entire portion of text as a string of characters.

Press the ENTER key and type in some more text. If you now change some of the character attributes, you will notice that the only characters affected are those you typed in after the ENTER key was pressed. The ENTER key is used to indicate that you are finished with the editing and attribute changes

to a portion of text. Using the previous example, press the ENTER key, select the Align Left command from the Style menu, and enter some more text. Now you can change the font and style attributes to obtain the following:



Pressing the ENTER key, repositioning the insertion point, or using any graphics-oriented command actually alters the way in which MacPaint views the characters you have entered. From that moment on, MacPaint sees the previously entered text characters only as graphics shapes. You will not be able to edit those characters with any of the text-oriented commands. Thus, you should be sure that you are done editing the text before you press the ENTER key or use any non-text MacPaint function.

## MANIPULATING TEXT AS GRAPHICS OBJECTS

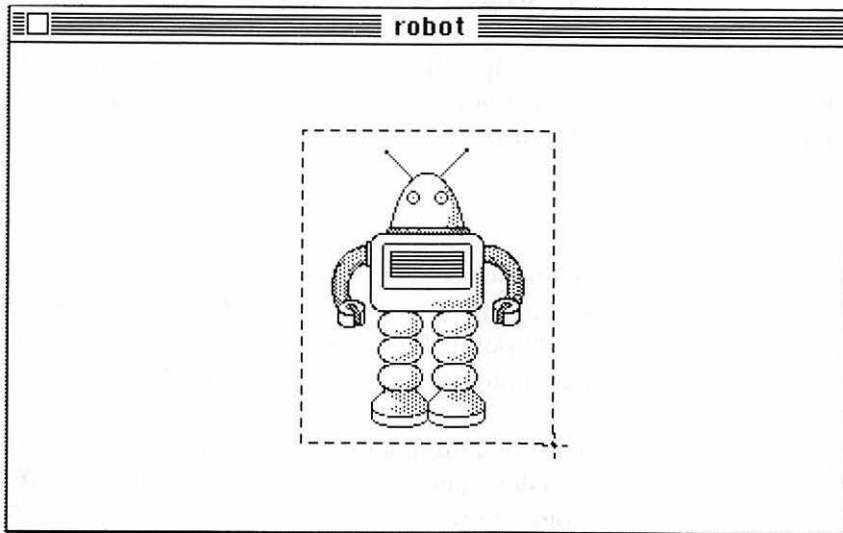
Since MacPaint normally views text characters as standard graphics objects, you are free to use any of the normal graphics tools like the lasso or the eraser to manipulate all or part of the text string. If text changes are required after you press ENTER, you will have to erase the text (using the eraser) and start over again.

One tool that is particularly useful with text is the selection rectangle (discussed in Chapter 5). Recall that this tool allows you to select a rectangular area for a variety of operations, such as repositioning, deleting, or making an exact copy and moving it somewhere (either to another part of the window, to the Clipboard, or even to the Scrapbook).

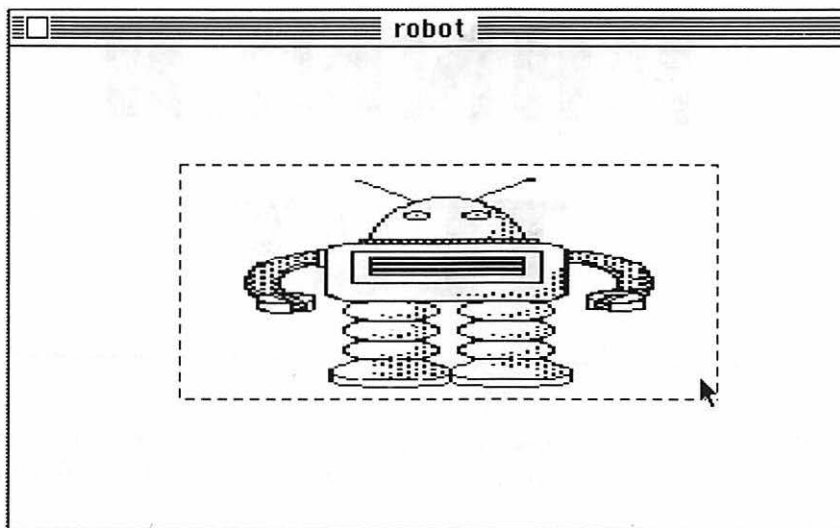
Once you have selected an area of the MacPaint window with the selection rectangle, you also have the opportunity to stretch or shrink all of the objects within that rectangular area in horizontal and vertical directions. To accomplish this, you move the cursor within the selected area until it becomes an arrow, hold down the COMMAND key while pressing the mouse

button, and drag the cursor left, right, up, down, or along a diagonal. You will see the shapes within the selected area stretch or shrink as appropriate.

In the following example, the image has been selected with the selection rectangle:



You can make the object wider and shorter by positioning the cursor arrow in the lower-right corner of the selected area, holding the COMMAND key down, and dragging the cursor to the right and slightly upward. Notice, however, that the image tends to distort somewhat.

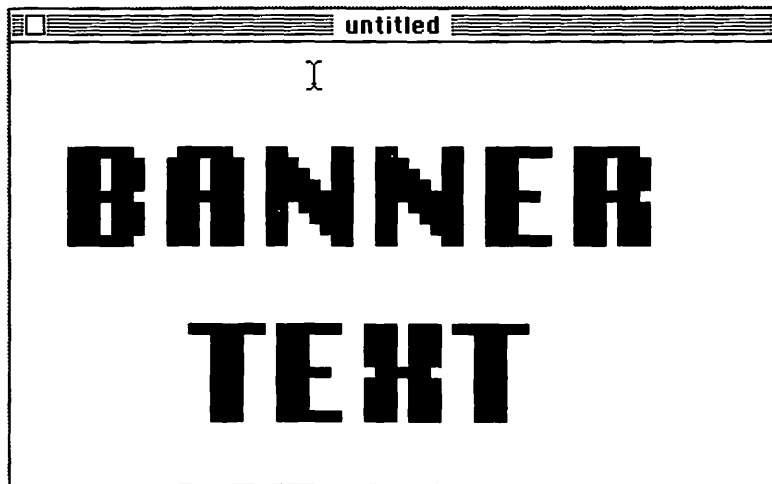


## ===== P R O J E C T =====

### AN EXAMPLE: BANNER TEXT

Let's combine the stretching capabilities of the selection rectangle with MacPaint's text manipulation features to create characters larger than the maximum 72 point size offered by the FontSize menu.

- Step 1:** Clear the MacPaint screen. Select the text tool. Pull down the Font menu and select the Chicago font. Pull down the FontSize menu and select 72 point. Pull down the Style menu and select the Align Middle, Bold, and Underline commands.
- Step 2:** Place the cursor about a third of the way down and halfway across the MacPaint window, and click the mouse button to position the insertion point. Now type in **BANNER**. Press the RETURN key and type in **TEXT**. Your screen should look like this:



- Step 3:** Choose the selection rectangle. Draw as small a selection rectangle as possible to enclose the text completely. Reposition the

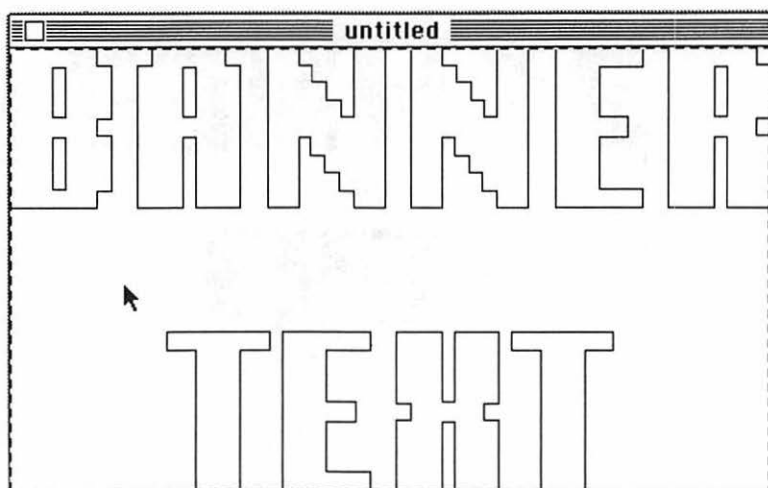
selected text in the upper-left corner of the window by pointing the cursor within the selected region, holding down the mouse button, and dragging the entire area into the corner.



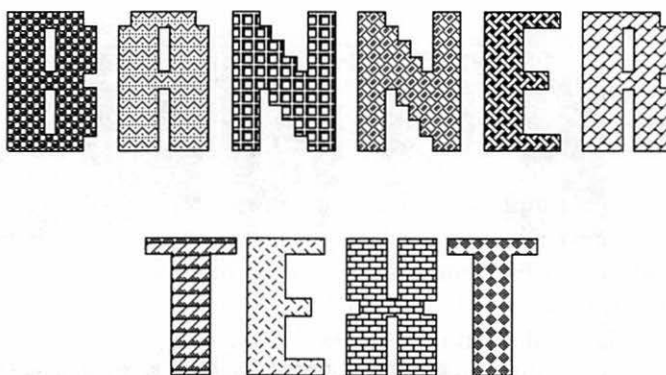
**Step 4:** You can now stretch the text to fill the screen completely. Move the cursor into the lower-right corner of the selected rectangle. Press and hold down the COMMAND key; then press and hold down the mouse button. Drag the cursor down to the lower-right corner of the window. This should stretch the text so it fills the screen:



- Step 5:** Pull down the Edit menu and select the Trace Edges command. This tells MacPaint to “hollow” out all of the objects in the selected area.



- Step 6:** Select the paint bucket from the tool palette. To choose a different pattern for each letter, point the cursor at the desired pattern from the pattern palette and click the mouse button; then paint the letter by moving the paint bucket cursor into the letter and clicking the mouse button. The final result looks like this:



As you can see, MacPaint makes no distinction between text characters and other graphics objects. While this may seem restrictive, it actually gives you more freedom to intermix graphics and text with all of MacPaint's graphics-oriented tools.

# CREATING SCIENTIFIC AND MATHEMATICAL FORMULAS

Formulas combine text and graphics to form a specialized language for communicating thoughts and ideas. In this chapter, you will look at some methods for creating formulas on the Macintosh. You will see that the unique features of the Macintosh allow you to depict formulas clearly and accurately—something not possible on most microcomputers.

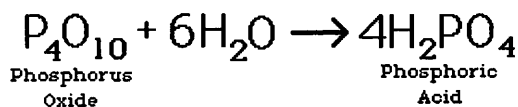
## AN INTRODUCTION TO FORMULAS

A formula is simply a collection of symbols that are joined in such a manner as to express a concept or thought concisely, providing a standardized method by which all members of a particular group can exactly understand a concept. Each branch of science and mathematics has its own special types of formulas, and oftentimes its own set of symbols. Even when symbols are shared among different fields, their meanings can differ. Figure 10-1 gives examples of formulas from different areas of science and mathematics.

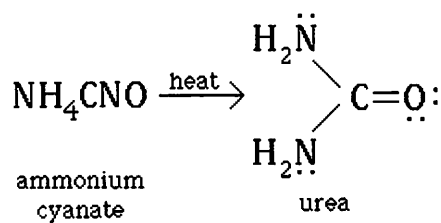
Notice the variety of symbols used in these formulas. Formulas may include alphanumeric characters, Greek characters, custom or special-purpose symbols, and superscripted and subscripted variations of all of

$$\int \frac{dx}{(x+1)\sqrt{\ln(x+1)}}$$

$$\sum_{i=1}^n i^4 = \frac{n(n+1)(6n^3+9n^2+n-1)}{30}$$



$$L = \int_a^b \sqrt{[f'(t)]^2 + [g'(t)]^2} dt$$



$$\frac{\binom{r}{k}\binom{b}{n-k}}{\binom{r+b}{n}} \quad \text{where} \quad \binom{s}{r} = \frac{s!}{r!(s-r)!}$$

Figure 10-1. A sampling of formulas

these. In addition, character styles like **boldface** and *italics*, as well as different character sizes, are used in formulas.

Most microcomputer systems have a limited set of characters, sizes, and styles available for creating formulas. To avoid this limitation, the actual formula is often replaced with the best approximation possible using the available characters. This is true of even very simple formulas. For example:

$$\text{Area of a circle} = \pi R^2$$

$$\text{Volume of a sphere} = \frac{4}{3} \pi R^3$$

On many microcomputers, these formulas would be displayed as

$$\text{Area of a circle} = \text{PI} * R^2$$

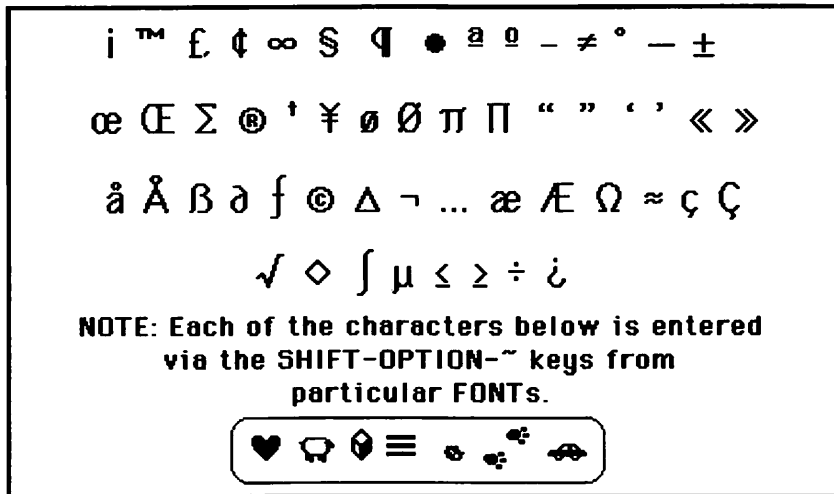
$$\text{Volume of a sphere} = 4/3 * \text{PI} * R^3$$

While the differences are not too radical in these examples, more complex formulas become almost indecipherable on most microcomputers. The Macintosh provides two methods of accurately representing formulas in documents: a quick method using MacWrite, which will usually give you acceptable though rough-quality results, and a more detailed approach using MacPaint, which yields formulas that are close to picture-perfect.

## ENTERING FORMULAS WITH MACWRITE

The basic idea of the quick MacWrite approach is to use its wide selection of characters, fonts, styles, and sizes to make the best-looking formulas that you can. The Macintosh offers a number of special characters that are useful for writing formulas. In addition to the standard alphanumeric (A-Z, 0-9) and punctuation characters, the Macintosh offers the special characters shown in Figure 10-2.

Looking at your Macintosh's keyboard, you may well wonder where these characters are. They are entered by holding down the **OPTION** key and then



**Figure 10-2.** *Special character set*

pressing one or two other specified keys. The keyboard layout (for the United States version of the Macintosh) is shown in Figure 10-3. Figure 10-3a shows the normal characters that are entered when a key is pressed. Figure 10-3b shows the unshifted and shifted characters entered when a key is pressed in conjunction with the **OPTION** key. Notice that not every key has an alternative character.

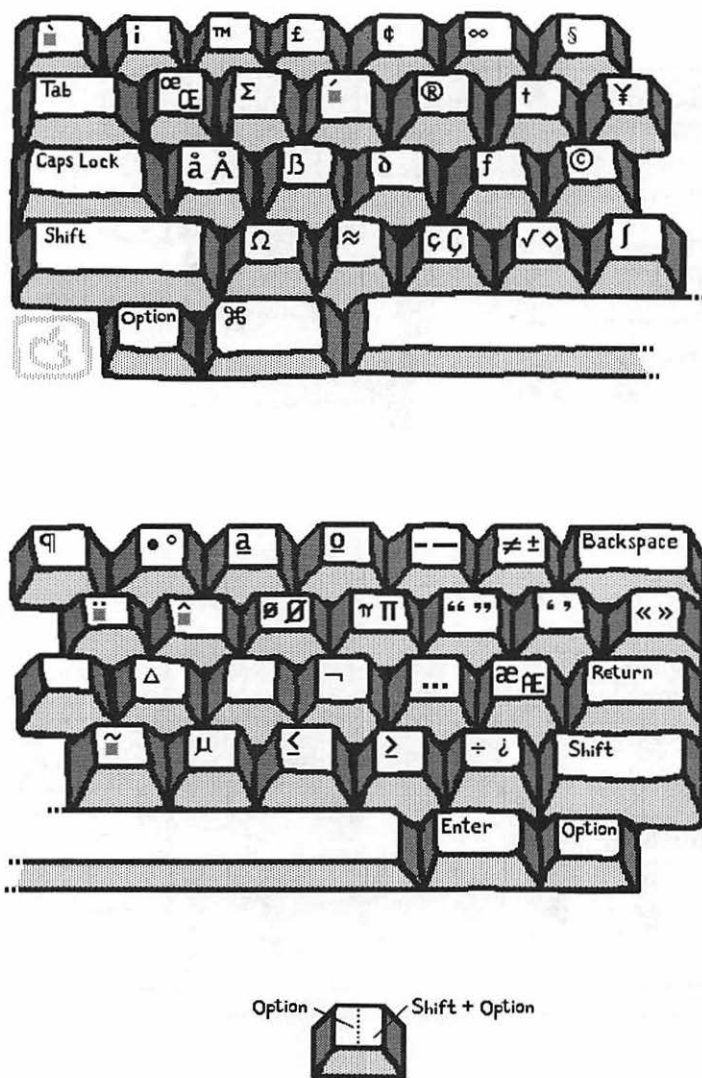
**NOTE:** Certain font types and sizes available on the Macintosh will not display some of the special characters. See Appendix A for a listing of the different characters that can be used with each font and font size.

There are no special tricks to entering formulas with MacWrite. All it takes is a little thought about the most suitable placement, style, and size of the characters to be used. Once a formula has been typed into a document, you can use the features of MacWrite to make changes.



Art generated by Erfert Nielson

**Figure 10-3a.** Standard character keys on Macintosh keyboard (U.S. version)



Art generated by Erfert Nielson

*Figure 10-3b. Special character keys*

Figure 10-4 shows MacWrite versions of the formulas shown earlier in Figure 10-1. Notice that the biggest problem with these formulas is the positioning of the characters. The reason is that MacWrite is primarily a word processor. While characters of all different sizes and typefaces can be mixed on the same line, MacWrite will automatically expand the height of the line to accommodate the largest character. Furthermore, the bottoms of all characters on a line must align. This means you cannot place individual characters in any position you wish. Nevertheless, MacWrite can be used for many formulas and give quite acceptable results.

## PICTURE-PERFECT FORMULAS

If you need to enter formulas accurately, you can take advantage of the graphics tools in MacPaint. The idea here is to use MacWrite as you type up reports or papers, but leave space for any formulas; then you can work with MacPaint to design the formulas and integrate them into your MacWrite documents.

It is quite easy to use MacPaint to enter formulas, and after just a little practice, you can do it fairly quickly. Most important, though, the results will be excellent. For examples of formulas entered with MacPaint, look at Figure 10-1 again—those formulas were all generated with MacPaint.

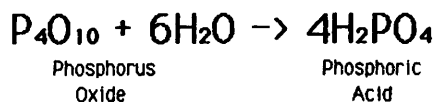
Creating formulas with MacPaint is superior to creating them with MacWrite for two reasons. One, as you saw earlier, MacWrite is limited in its ability to position characters in the formula. For example, even though you can intermix both small and large characters on a MacWrite text line, you cannot freely position characters in the text line.

This is done easily with MacPaint, however. MacPaint allows you to specify the position of any character or group of characters on a page, because it does not distinguish between text characters and graphics objects, as you saw in Chapter 9.

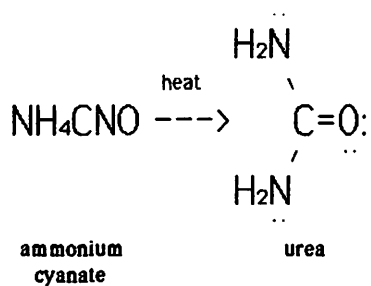
MacPaint's second advantage is that it allows you to customize select portions of the formula. If you need a special character that is not part of the Macintosh's character set, you are free to design it yourself with MacPaint. You can also modify and enhance an existing character to fit into your formula. In the following example, you will use this capability to extend the bar of the square root character to form a more traditional square root sign.

$$\int \frac{dx}{(x+1)\sqrt{\ln(x+1)}}$$

$$\sum_{i=1}^n i = \frac{n(n+1)(6n^2+9n+n-1)}{30}$$



$$L = \int_a^b \sqrt{([f'(t)]^2 + [g'(t)]^2)} dt$$



$$\frac{(r)(b)}{(r+b)} \frac{(k)(n-k)}{(n)} \text{ where } (s) = \frac{s!}{r!(s-r)!}$$

Figure 10-4. Formulas created with MacWrite

# --- --- P R O J E C T --- ---

## ENTERING FORMULAS WITH MACPAINT

The procedure for entering formulas with MacPaint has two steps: (1) break the formula into segments and enter each segment on the MacPaint window, and (2) assemble the segments into the final formula.

**Step 1:** First, separate the formula into groups of characters that are similar in size and alignment. Enter each group into the MacPaint window in any position. This will give you an “exploded view” of the formula. Once the parts of the formula are entered, you can combine these groups into a single formula.

As an example of this step, let’s look at how you might divide the following formula:

$$L = \int_a^b \sqrt{[f'(t)]^2 + [g'(t)]^2} dt$$

You can divide this formula into 11 different segments, all of which you enter separately into the MacPaint window. The font, size, and style of each of these 11 parts is specified in Figure 10-5.

An important part of this step is to select appropriate character fonts, sizes, and styles for the components of the formula. For example, if a formula includes superscripted or subscripted symbols, you will probably select a small character size for them, say 9 or 12 point. You might then choose the Plain character style since this is often more legible at small sizes than are the Bold or Italics styles.

After selecting the font, size, and style for a component of the formula, select the text tool from the MacPaint tool palette. Move the cursor to an unused portion of the screen. Click the mouse button to position the insertion point and type in a component.

$$L = \int_a^b \sqrt{[f'(t)]^2 + [g'(t)]^2} dt$$

**Font, Size, and Style of Each Part:****L**

New York, 24 pt, Bold

**=**

New York, 18 pt, Bold

**∫**

Geneva, 24 pt, Bold

**√**

Geneva, 24 pt, Bold

 **$\frac{b}{a}$** 

Geneva, 12 pt, Plain

 **$\frac{2}{2}$** 

Geneva, 9 pt, Plain

**dt**

Geneva, 18 pt, Plain

**\_\_\_\_\_**

LINE Operation

**[f'(t)] + [g'(t)]**

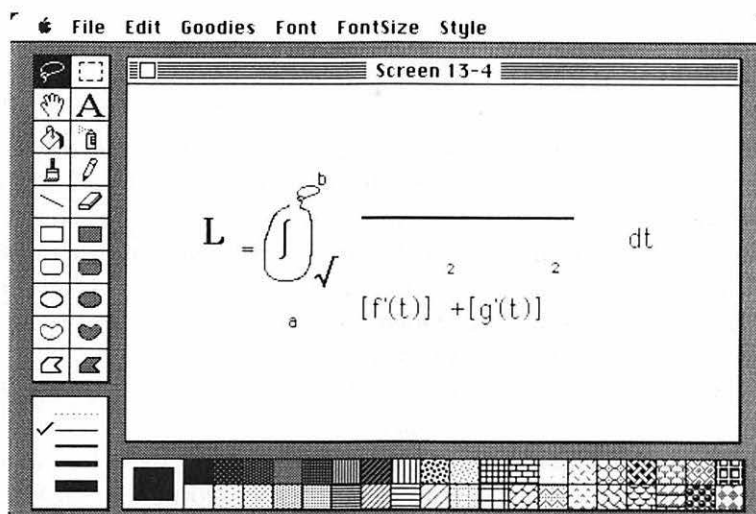
Geneva, 18 pt, Plain

**Figure 10-5.** *Parts of a formula*

Repeat this step until you have entered all the components of the formula in different areas of the screen.

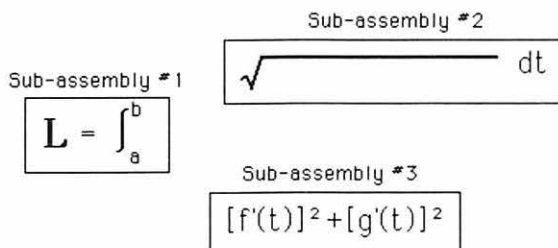
**Step 2:** This step is like assembling a simple puzzle. Using the lasso, all you need to do is to select and move the pieces around so they fit together to create the final picture.

Select the lasso from the tool palette. Move the lasso over to a part of the formula that you want to move. Pressing the mouse button, draw a loop around that part. Release the mouse button to cause the loop to tighten around the image.



Having selected a component from your formula, move the cursor into the selected image until it changes into an arrow. Press the mouse button so you can drag the image around the screen. Move this image into place and release the mouse button.

Rather than try to assemble the whole formula at once, you may want to build *subassemblies* from the individual components. In other words, if the formula consists of three or four natural sub-units, assemble these first. Then you can easily join the sub-assemblies together to form the final formula. The example easily divides into three subassemblies:



After completing the construction of the subassemblies, you can use the lasso to merge these into the final formula.

---

## **MOVING THE FORMULA INTO MACWRITE**

Once your formulas have been created with MacPaint, you will need to move them into a MacWrite document. If you have only one formula to move, you can use the Macintosh Clipboard to transport it into the MacWrite document. This is a simple process. Using the selection rectangle in conjunction with the Edit menu's Cut command, move the completed formula into the Clipboard. Exit MacPaint. Open your MacWrite document and Paste the formula into the proper part of the document.

If you have more than one formula, you will probably be better off if you save each one on a separate "page" of the Macintosh Scrapbook. You can then open your MacWrite document and transfer these formulas one at a time. The mechanics of moving items back and forth between MacWrite and MacPaint are explored more fully in Chapter 7.

After creating a formula with MacPaint and moving it into a MacWrite document, you may discover that you need to change the formula. MacWrite, of course, does not allow direct editing of any item created by MacPaint, even if that item consists only of text. In that event, you will have to move the item to be edited back into MacPaint, make the necessary changes, and then move it back again to the MacWrite document.

A suggestion: When creating a document containing formulas, you might want to use MacWrite to enter the formulas quickly while typing in the document. This makes it easier for you to edit the formulas as changes are needed. When you are finished with all of the changes, you can use MacPaint to create the final formulas and move them into the MacWrite document.

## TEXT HIGHLIGHTING AND EMPHASIS

An important goal in writing good reports (or memos or letters or even books) is to make them easy to read. There are few things as difficult to read as a long report filled with unbroken text, regardless of the quality of writing. One technique often used in report writing is text highlighting, to emphasize the major ideas of a discussion. By applying several highlighting techniques, you can use MacWrite and MacPaint to produce visually exciting and well-organized reports.

You will look at two types of highlighting in this chapter. First, you see how to design headings that identify major sections of text. An example illustrates the design of an attractive chapter heading for use in a report or book. Second, you will work with various MacPaint tools to emphasize portions of the text itself. This type of highlighting can help ensure that very important points are brought to the reader's attention.

# ===== P R O J E C T =====

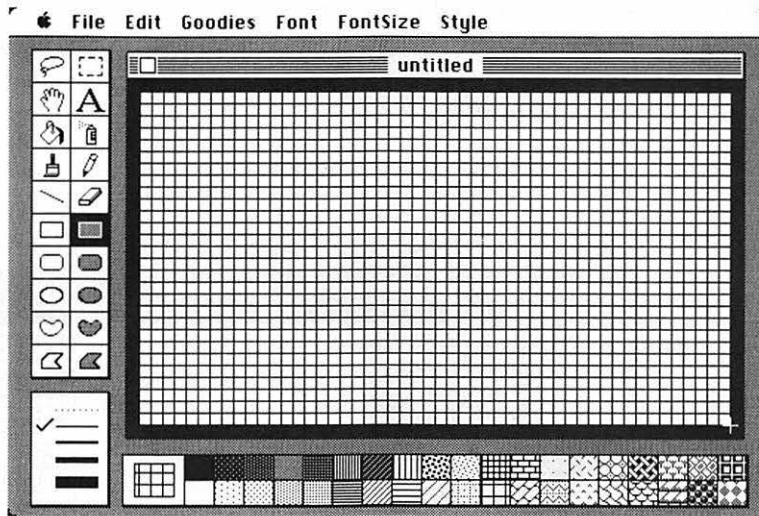
## CREATING CHAPTER HEADINGS

Chapter 4 discussed the advantages of using level headings to identify the various divisions of a report. The design of the level headings presented in that chapter are adequate for most needs, but sometimes you might want to go still further and create some very distinctive headings to separate major divisions. For example, you might use MacPaint to design very eye-catching chapter headings.

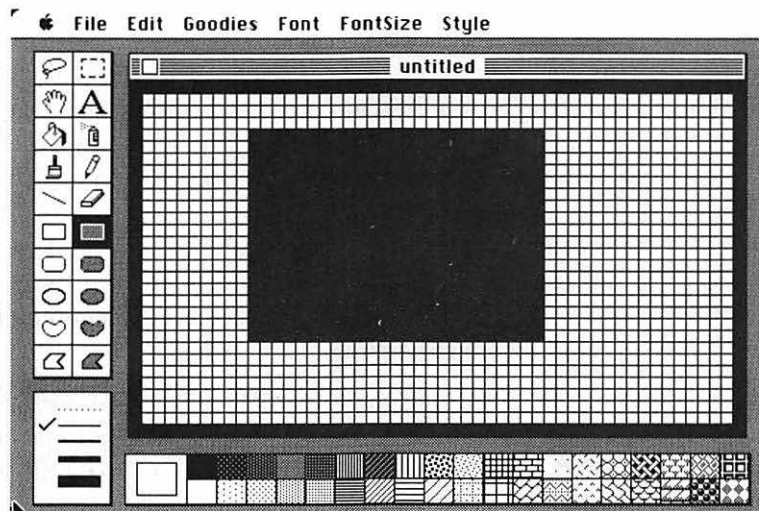
In much the same way that a letterhead was created in Chapter 8 using MacPaint and then transferred to a MacWrite document, you can use MacPaint to design attractive chapter headings and then integrate them into a MacWrite document.

There is really nothing special about the techniques used for creating chapter headings. In fact, you can take some of the designs used as letterheads and easily adapt them as chapter headings. Should you desire more practice in the combined process of using MacPaint and MacWrite, you may wish to take a few minutes to try the following example.

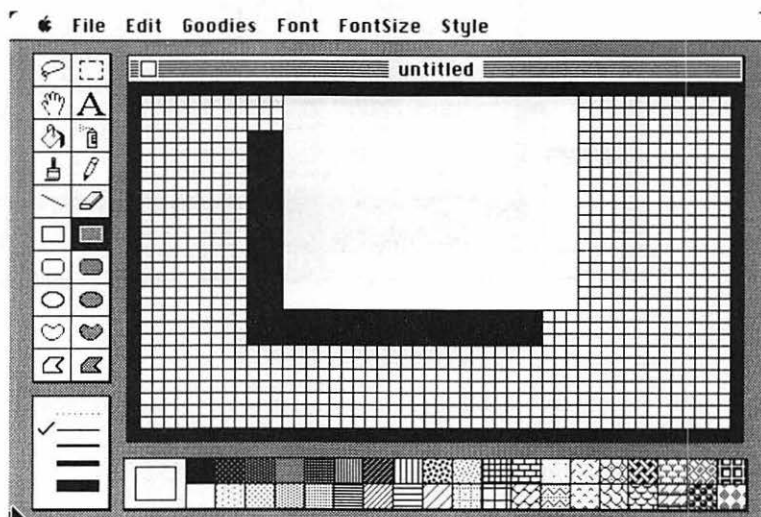
- Step 1:** Start up MacPaint with a clear window and select the paint bucket from the tool palette. Choose the solid black pattern from the pattern palette. Move the cursor to the window and click the mouse button. After a moment, the entire window should turn solid black.
- Step 2:** Select the filled box from the tool palette and choose the larger of the two grid patterns from the pattern palette. Pull down the Goodies menu and select the Grid command to turn on the grid feature (see Chapter 6 for more information on the Grid command). Move the cursor to the window and draw a filled box covering the entire screen except for a solid black border.



**Step 3:** Again select the black pattern from the pattern palette, and still using the filled box tool, draw a smaller solid box on the window, something like this:



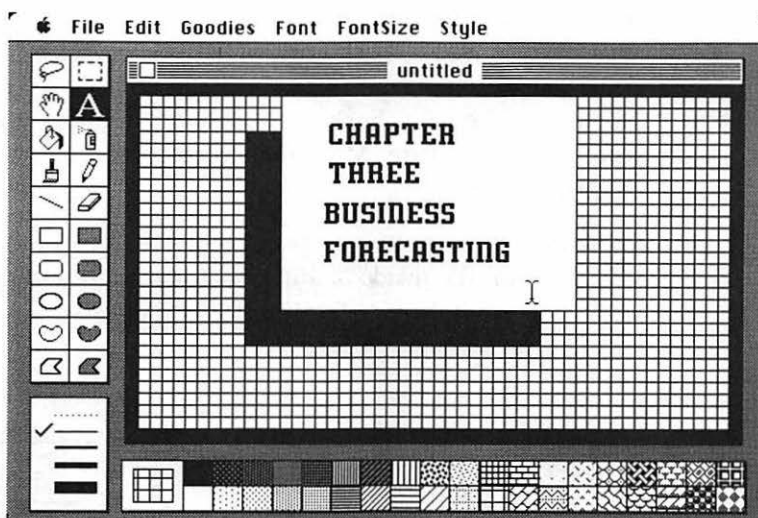
- Step 4:** Select the solid white pattern from the pattern palette. Still using the filled box tool, draw a white rectangle on the screen overlapping the black rectangle. Notice the three-dimensional effect that results from this.



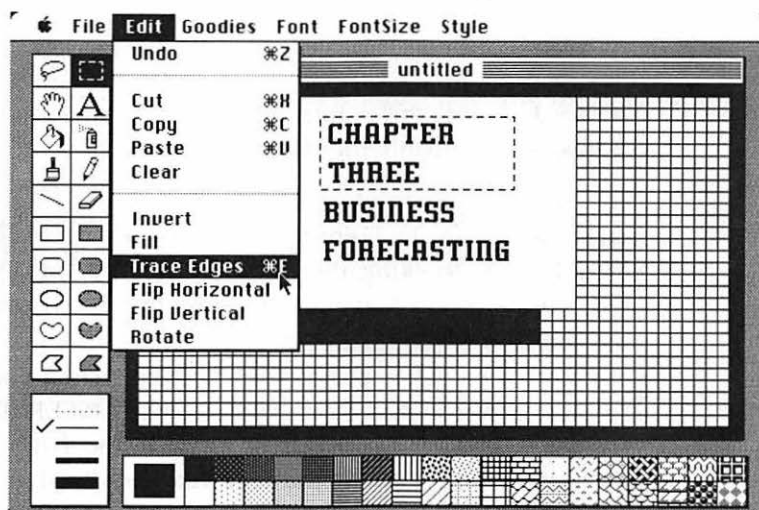
This gives you the skeleton of a chapter heading. You should save a copy of this on disk so you can use it for each chapter of the report. To do this, pull down the File menu and select the Save As command, supplying an appropriate filename.

- Step 5:** Select the text tool; then choose Athens from the Font menu, 18 point from the FontSize menu, and Bold from the Style menu. Turn the grid off by pulling down the Edit menu and selecting the Grid command again.

Move the cursor into the upper-left corner of the white rectangle and click the mouse button. This sets the insertion point. Now, enter the chapter heading, for example, "CHAPTER THREE—BUSINESS FORECASTING," pressing the RETURN key after each word. Your screen should look like the illustration on the following page.



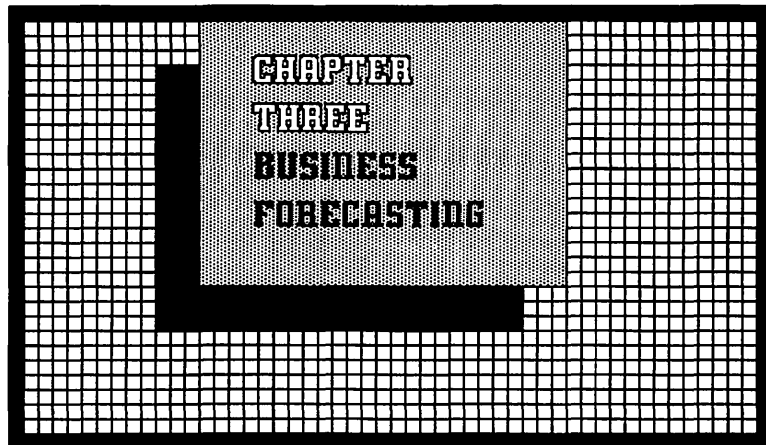
- Step 6:** Choose the selection rectangle from the tool palette. Move the cursor over to the window and draw a rectangle around the words “CHAPTER THREE.” Pull down the Edit menu and select the Trace Edges command, as shown here:



This will “hollow out” any objects within the selected region, in this instance, the “CHAPTER THREE” heading.

**Step 7:** Now select the paint bucket tool. Choose the light gray shading from the tool palette. Move the cursor to the white area of the chapter heading.

Press the mouse button to paint the white area gray. You will need to paint the inside of any closed letters, for example, any O or Q. The final chapter heading looks like this:



**Step 8:** You need to store the chapter headings as you create them. The Scrapbook is probably the best place to store them.

To move a chapter heading into the Scrapbook, select the entire MacPaint window by pointing the cursor at the selection rectangle and double-clicking the mouse button. Pull down the Edit menu and select the Cut command to move the chapter heading onto the Clipboard.

**Step 9:** Pull down the desk accessory menu (the apple icon) and select the Scrapbook accessory. Use the Paste command in the Edit menu to place the chapter heading into the Scrapbook.

For each chapter of the report, you can copy the heading skeleton saved on disk in step 4. Then add in the chapter number and title, and save the completed heading in the Scrapbook. When you are done, the Scrapbook should contain all of the chapter headings. At this point you can exit MacPaint, start up MacWrite with your report, and insert the chapter headings into the report.

---

## HIGHLIGHTING TEXT

The idea behind text highlighting is to set off selected portions of a document so they stand out. Creative use of highlighting not only helps make a report more readable but can also ensure that very important points will not be overlooked. If the most vital themes are summarized in small highlighted text areas scattered throughout a report, even a casual reader will be able to get the point.

You can highlight words, phrases, or sections of text. If you just want to emphasize a particular word or phrase in the midst of a paragraph, using a different character style may suffice. For example, you can use some combination of boldface, italics, and underlining to get the desired result. If you want to set off a section of text, you can place it between two solid lines made with the underline character.

A common and effective method of highlighting special text is to build a box around it. These boxes are called *highlight boxes*. Using MacWrite, you can build a crude highlight box with characters like the asterisk. However, if you want professional-looking highlight boxes, you will need to use the facilities of MacPaint. The advantage of using MacPaint is that you can design any kind of box that you want. The disadvantage is that you must use MacPaint to build the complete box—including the text to be set within it—and then move the results to your MacWrite document. If you later need to edit the text in the box, you will have to move the box back to MacPaint to make the changes.

## SIMPLE HIGHLIGHT BOXES

Building highlight boxes in MacPaint is a breeze. The box and rounded box tools give you all that is needed to create a box of any size. The line width

palette gives you a selection of border sizes for these boxes.

The best approach is to enter the text to be highlighted and then build an appropriate box around it. In fact, you can enter the text with MacWrite and use the Clipboard or Scrapbook to move the text into MacPaint. Then you can use MacPaint to create the highlight box.

Figure 11-1 shows a variety of simple text boxes created with the box and rounded box tools. The first box, Figure 11-1a, is the traditional highlight box. This is often the most effective method of highlighting because of its simplicity. It catches the reader's attention without being a source of distraction.

The box in Figure 11-1b was shaded with the paint bucket tool. Shading can sometimes be effective, but the result in this example is less than perfect. The shading only makes the text hard to read.

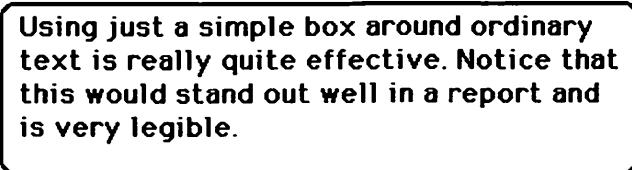

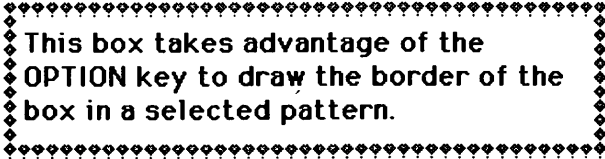
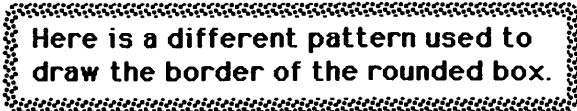
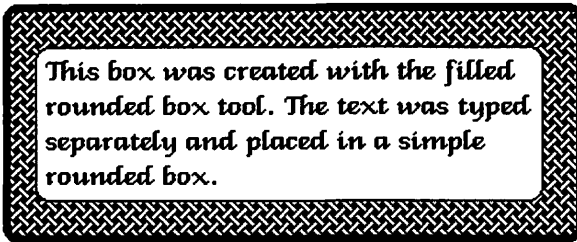
If you wish, you can build a box with a border of a selected pattern. The boxes in Figures 11-1c and 11-1d take advantage of a special feature of the shape tools like box and rounded box that allows you to select custom borders. To draw a custom border, select an interesting pattern from the pattern palette and then choose a heavy line width from the line width palette; move the cursor onto the window, and hold down the OPTION key while you press the mouse button and draw the border.

To create the box in Figure 11-1e, first use the filled rounded box tool and the pattern of your choice to create the outer portion of the highlight box. In a separate part of the MacPaint window, use the plain rounded box tool to enclose the text (as in Figure 11-1a). Next, select the lasso and draw a rope around the text box. Move the cursor within the selected box and press the mouse button. Now drag the text box into the larger filled box. Position it appropriately and release the mouse button.

With the large selection of patterns to choose from and the ability to create your own patterns (using the Edit Pattern command in the Goodies menu), you can design many variations of highlight boxes.

## ICON BOXES

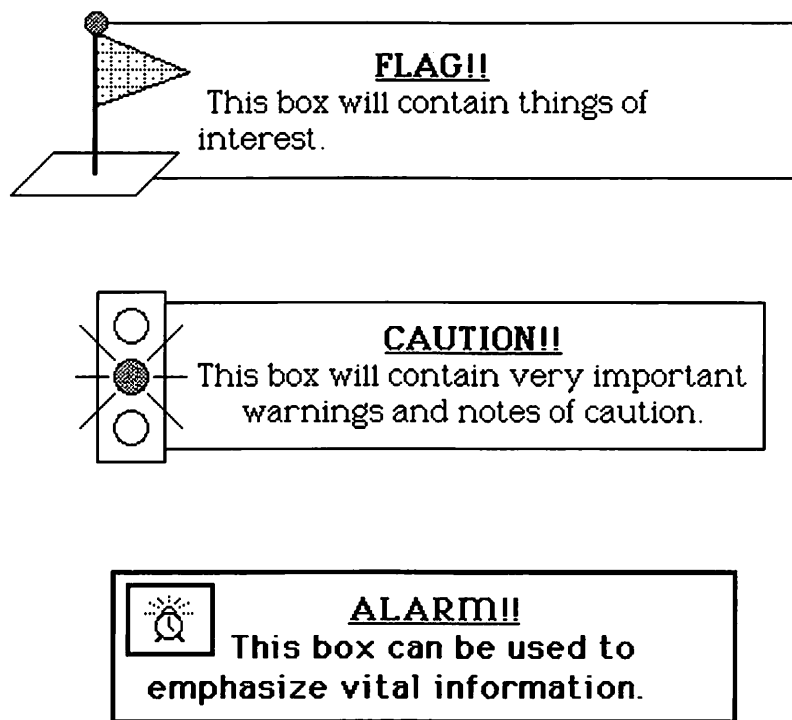
The highlight boxes just discussed are easy to create, but they take little advantage of MacPaint's capabilities. You can use the extensive drawing features of MacPaint to help you create *icon boxes*, special types of highlight boxes. An icon box is a text box with a special icon or picture that immediately identifies the function of the box. The icon box can be used to attract a reader's attention. However, you should take care not to overuse it.

- a*
- 
- Using just a simple box around ordinary text is really quite effective. Notice that this would stand out well in a report and is very legible.
- b*
- 
- This box uses shading. Notice how hard this is to read.
- c*
- 
- This box takes advantage of the OPTION key to draw the border of the box in a selected pattern.
- d*
- 
- Here is a different pattern used to draw the border of the rounded box.
- e*
- 
- This box was created with the filled rounded box tool. The text was typed separately and placed in a simple rounded box.

*Figure 11-1. Highlight boxes*

Figure 11-2 shows three different icon boxes: one to *flag* the reader's attention, one to *caution* the reader, and one to act as an *alarm*. There are many more forms that an icon box could take, each broadcasting a special type of message to the reader.

The first two icon boxes in Figure 11-2 were drawn with the standard tools found in MacPaint. When creating icon boxes, concentrate on creating the icons first. Once you have made an icon that is acceptable, save it in the system Scrapbook for future use. You can then use the line tool to box in the icon and the text to be highlighted.

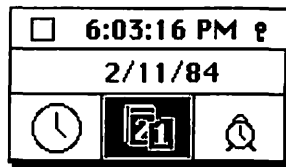


**Figure 11-2.** *Icon boxes*

## CAPTURING MACINTOSH ICONS

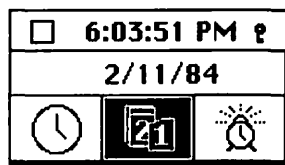
Let's look for a moment at the alarm box in Figure 11-2. It would not be too difficult to draw the alarm clock icon freehand, but there is an easier way — by copying the alarm clock icon from the Macintosh alarm clock accessory. Following the steps described here, you can “capture,” or copy, any Macintosh icon for use in your MacPaint canvases.

Pull down the desk accessory menu in the upper-left corner of the menu bar. Select the alarm clock accessory to display the time of day on your screen. Move the cursor to point to the “switch” on the right side of the box and click the mouse button. This should open up the clock window to show you the current date:



At the bottom of the alarm clock window are three icons, a clock, a calendar, and an alarm clock. Selecting the clock icon will let you set the current time of day. Selecting the calendar icon allows you to view and change the date. The alarm clock icon allows you to set the alarm. It also lets you turn the alarm feature on or off.

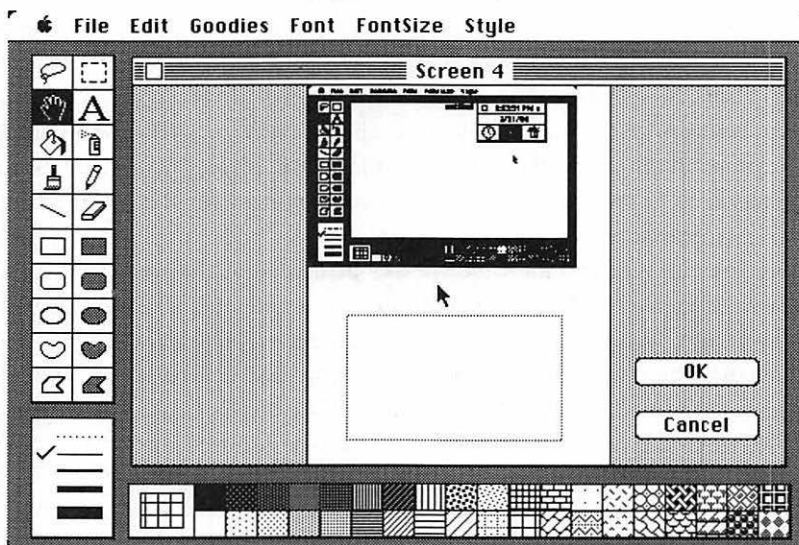
Notice that the alarm clock icon looks almost like the icon used in the alarm box of Figure 11-2. The only difference is that the alarm clock in the accessory is not “ringing.” To add this detail, first click the mouse button with the cursor pointing to the alarm clock icon. Next, turn on the alarm by moving the cursor to the switch at the left end of the clock window. Finally, move the cursor to the calendar icon and click the mouse button. The screen should look like this:



The alarm clock icon is now ringing. The next step is to move the alarm icon into MacPaint so you can build the alarm box.

The Macintosh has a special “snapshot” feature that you can use for doing this. If you hold down the SHIFT and COMMAND keys and press the 3 key, the Macintosh will take a snapshot of the screen. That is, an exact image of the screen as you see it is placed into a file on the disk. The first snapshot you take will be given the name “SCREEN 0.” Successive snapshots will be called SCREEN 1, SCREEN 2, and so forth. The wonderful thing about this feature is that the Macintosh saves each snapshot in a MacPaint file. This means you can use MacPaint to edit or print the contents of the snapshot.

Going back to the example, take a snapshot of the entire screen, making sure to include the alarm clock icon. Start up MacPaint. Select the Open command from the File menu and open the SCREEN 0 file. This will load the snapshot of the screen onto the MacPaint canvas. Looking at this with the Show Page command found in the Goodies menu, you see



Use the grabber tool to move the snapshot around until you can see the alarm clock icon in the window. Then use the selection rectangle to draw a selection box around the alarm clock. Select the Copy command in the Edit

menu to place a copy of the alarm clock on the system Clipboard. Close SCREEN 0.

Next, open a new file and select the Paste command from the Edit menu. Now you can position the alarm clock icon wherever you wish and finish designing the alarm box using MacPaint.

This same approach can be used to make a copy of any icon used in MacPaint, MacWrite, or even the system desktop. Pressing the SHIFT, COMMAND, and 3 keys always saves a snapshot of the current screen in a MacPaint file.

## MACPAINT SHORT TAKES

You do not have to be an artist in order to create exciting images with MacPaint. But for those lucky few who do have an artistic bent, MacPaint offers unlimited opportunities for experimentation.

This chapter offers ideas for exploring the creative possibilities of MacPaint. In most cases, the examples provide more challenging applications of the features and functions introduced in earlier chapters. All of these techniques are fun to try and can come in handy at the most unexpected times.

### **FREEHAND DRAWING**

The two basic tools used in freehand design are the paint brush and the pencil. You can draw any imaginable shape with them—the only limitations are your drawing talent and ability to use the mouse.

Moving the cursor around the screen for pointing and selecting is easy with the mouse. The mouse also works quite well for drawing such things as lines, boxes, and ovals. However, drawing anything more complex requires practice and patience.

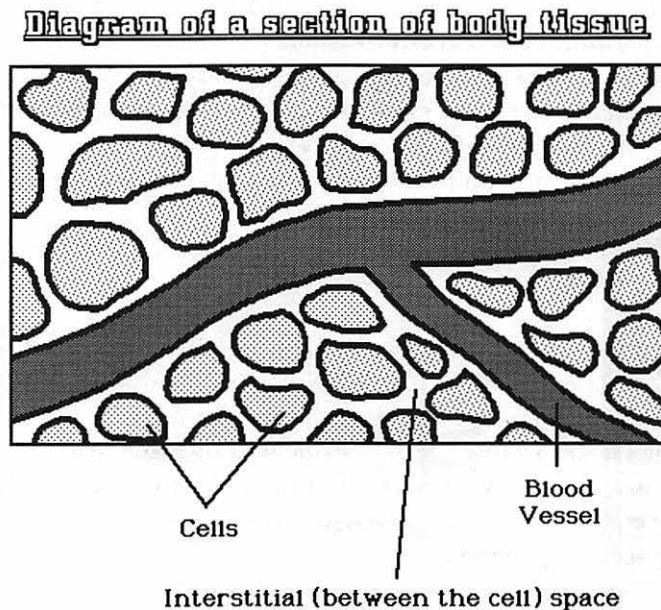
Becoming adept at drawing with the mouse is the most difficult part of creating freehand drawings. But what MacPaint loses in ease of drawing with the mouse, it more than makes up for in its selection of tools. With its

wide variety of brush shapes, the ability to undo (cancel) a previous operation, and the use of the *Fatbits* command, which allows you to make detailed changes to an image, you can readily experiment with a vast range of freehand drawing techniques.

As you try to create more and more detailed and precise drawings with MacPaint, the difficulty factor increases, but fairly simple and straightforward pictures can be sketched by almost anyone. For example, Figure 12-1 shows a section of body tissue. This modest but effective diagram could easily be included in a report written with MacWrite.

## BRUSH MIRRORS

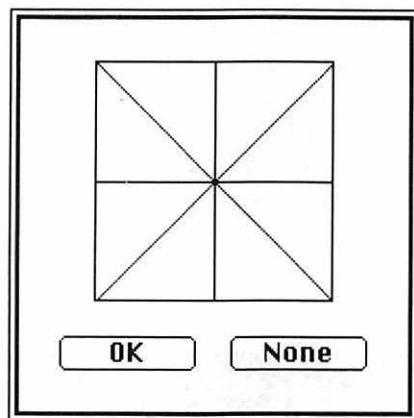
The Goodies menu contains a special command called *Brush Mirrors*. If you select this command and then use the paint brush tool on the MacPaint screen, you can obtain some interesting effects. Multiple copies of your brush strokes will appear as if they were being reflected in a mirror.



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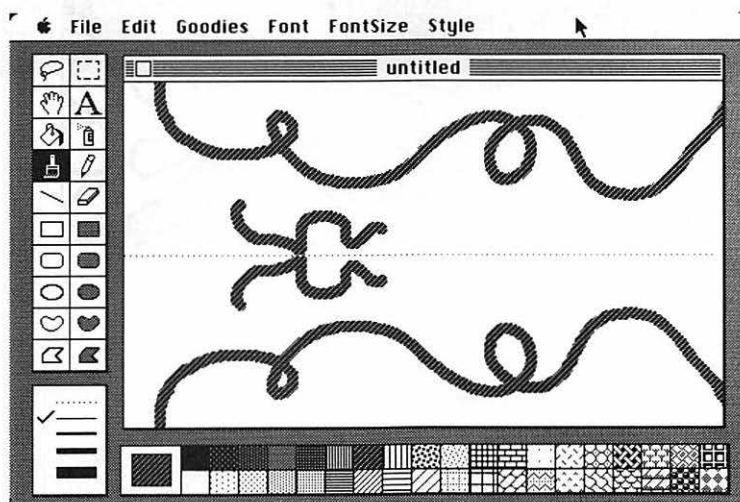
*Figure 12-1. Freehand sketch using MacPaint*

When you select the Brush Mirrors command, the following window will appear:



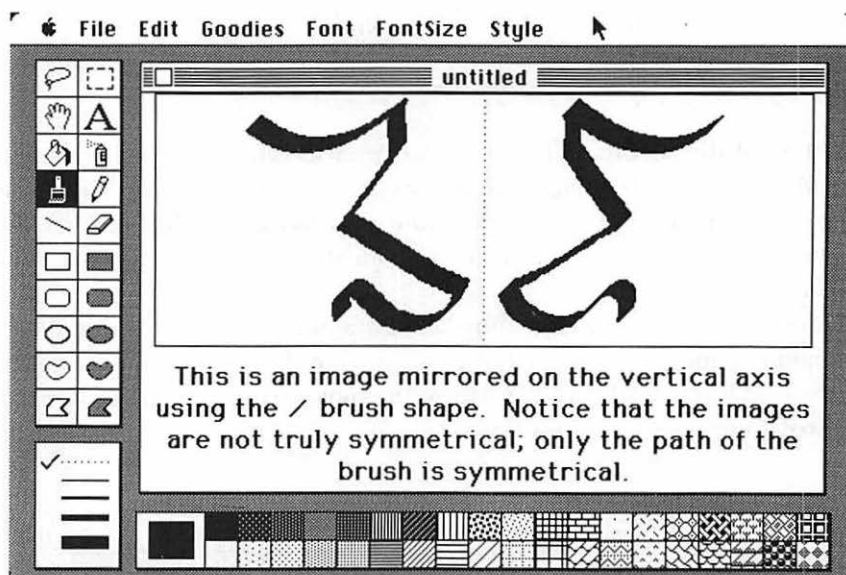
Each line of the square represents a mirror. You can select the horizontal, vertical, or either of the diagonal mirrors by clicking the mouse button on the appropriate line. Any or all of the four mirrors can be selected. Click the OK switch and select the paint brush from the tool palette to start your drawing.

For example, if you select just the horizontal mirror line, MacPaint places an imaginary mirror along the horizontal axis in the center of the screen. As you paint a brush stroke on the screen, the movement of the paint brush is mirrored to make a reflecting line:



The brush mirrors let you create symmetrical shapes, something not possible (or at least not easy) with freehand drawing. Notice one thing, though: the mirrors reflect the *movement* of the brush, not the lines drawn by the brush.

The previous screen display was created with a round paint brush. Since the paint brush was symmetrical, the resulting drawing also was symmetrical. The following example illustrates the use of one of the angular paint-brush shapes. If you look closely at the curves, you will notice that the shape they form is not truly symmetrical; only the path that the brush followed was perfectly reflected:



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# P R O J E C T

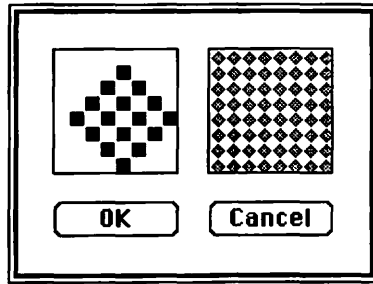
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---

## EDITING PATTERNS

MacPaint offers a total of 38 standard patterns that you can choose from the pattern palette. However, you can replace any or all of these with patterns of your own design. To create a custom pattern, first pull down the Goodies menu and select the Edit Pattern command. This will allow you to edit the currently selected pattern. As a shortcut, you can point the cursor at any of the patterns in the palette and double-click the mouse button to edit it.

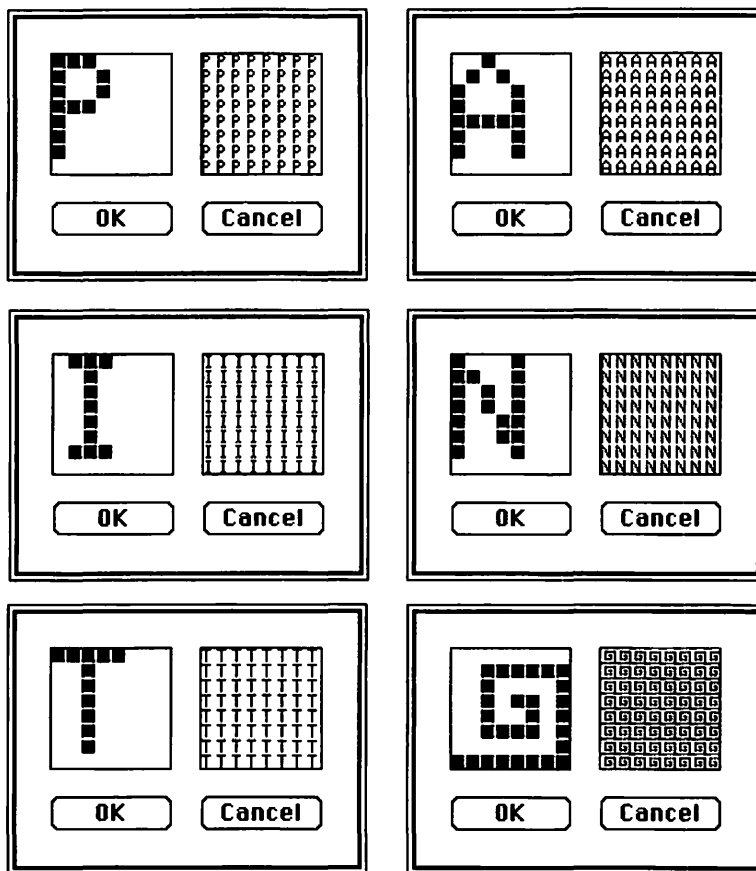
Creating your own pattern involves the same process as that of creating your own desk pattern in the desk accessory Control Panel (see Chapter 2 for more on this). Selecting the Edit Pattern command will result in the following display:



The left-hand box shows the dot structure that makes up the currently selected pattern. This box is eight dots wide by eight dots high. Each of the dots can be independently turned on or off by pointing the cursor at it and clicking the mouse button. As mentioned in Chapter 3, this box can show over 18,000,000,000,000,000,000 different patterns, so you can really have some fun creating them. The right-hand box shows the changes you make to the pattern.

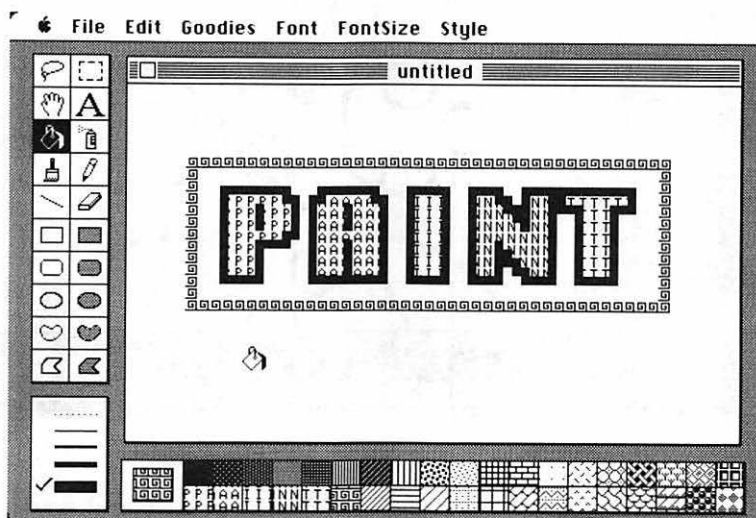
Let's look at an example of setting up six custom patterns in the pattern palette. You can then use them as you would use any of the standard patterns.

**Step 1:** Using the steps just discussed, replace six of the standard patterns (any six of your choice) with the custom designs shown on the following page.



- Step 2:** Select Chicago from the Font menu, 72 point from the FontSize menu, and Outline and Bold from the Style menu. Use the text tool to type the word "PAINT" on the MacPaint window in outlined, or "hollow," letters.
- Step 3:** Select the paint bucket tool; then select the appropriate custom patterns and paint each hollow letter on the screen. For example, select the "P" pattern, move the cursor inside the P of PAINT, and click the mouse. Repeat for the remaining letters in "PAINT."
- Step 4:** Select the sixth custom pattern; then select the box tool from the tool palette. Using the heaviest line from the line width palette,

hold down the **OPTION** key and draw a rectangle around the word "PAINT." The **OPTION** key causes the selected pattern to be used as the border for the rectangle. Your screen should look like this:

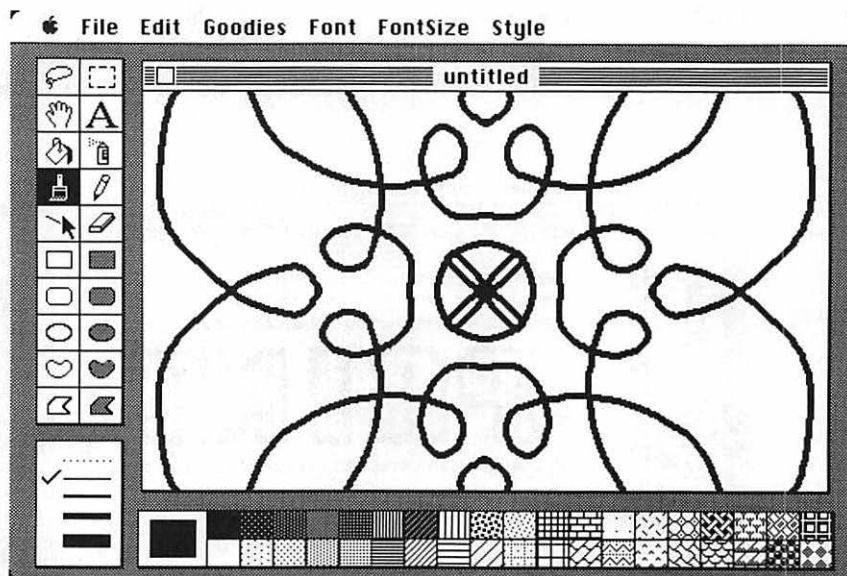


To save any custom patterns for future use, you can use the **Save** or **Save As** commands in the **File** menu. Then anytime you open this saved file, the custom patterns will be available in the pattern palette.

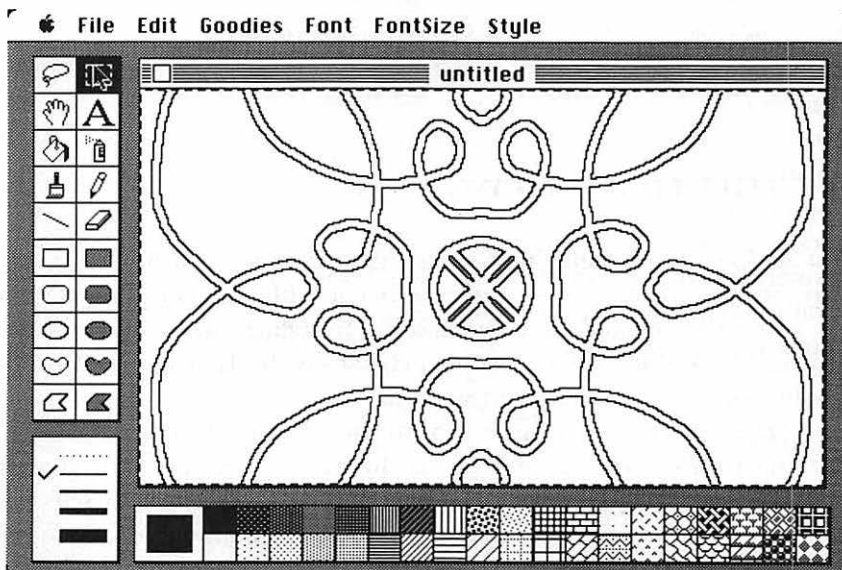
## REPETITIVE EDGE TRACING

If you are looking for some interesting and unexpected (maybe even a little bizarre) special effects, you might experiment with the **Trace Edges** command in the **Edit** menu. This command was introduced in Chapter 9, where it was used to outline the edges of text characters. It also can be applied to any solid object on the MacPaint window.

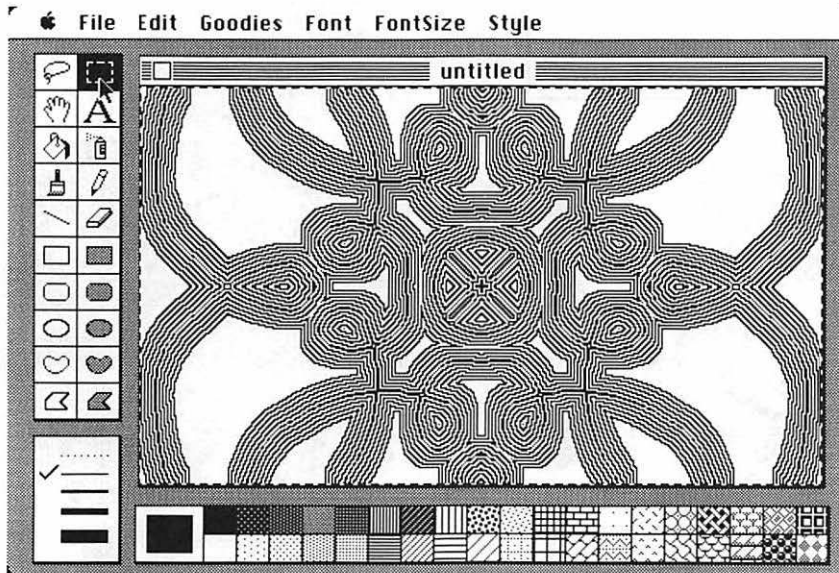
Let's try this now. Select the **Brush Mirrors** command from the **Goodies** menu and turn on all four mirrors as discussed in the previous section. Select the **Brush Shapes** command from the **Goodies** menu and select an interesting brush shape. Paint a design on the MacPaint screen; it doesn't need to be intricate or even pretty.



Point to the selection rectangle in the tool palette and double-click the mouse button. This will select the entire MacPaint window. Now select the Trace Edges command from the Edit menu to show the design in outline:



The result is not very interesting, but let's see what happens when you execute the Trace Edges command a number of times. (**NOTE:** You might want to use the shortcut for executing Trace Edges; that is, hold down the COMMAND key and press the E key on the keyboard. To repeat the command, hold down the COMMAND key and press the E key again.)

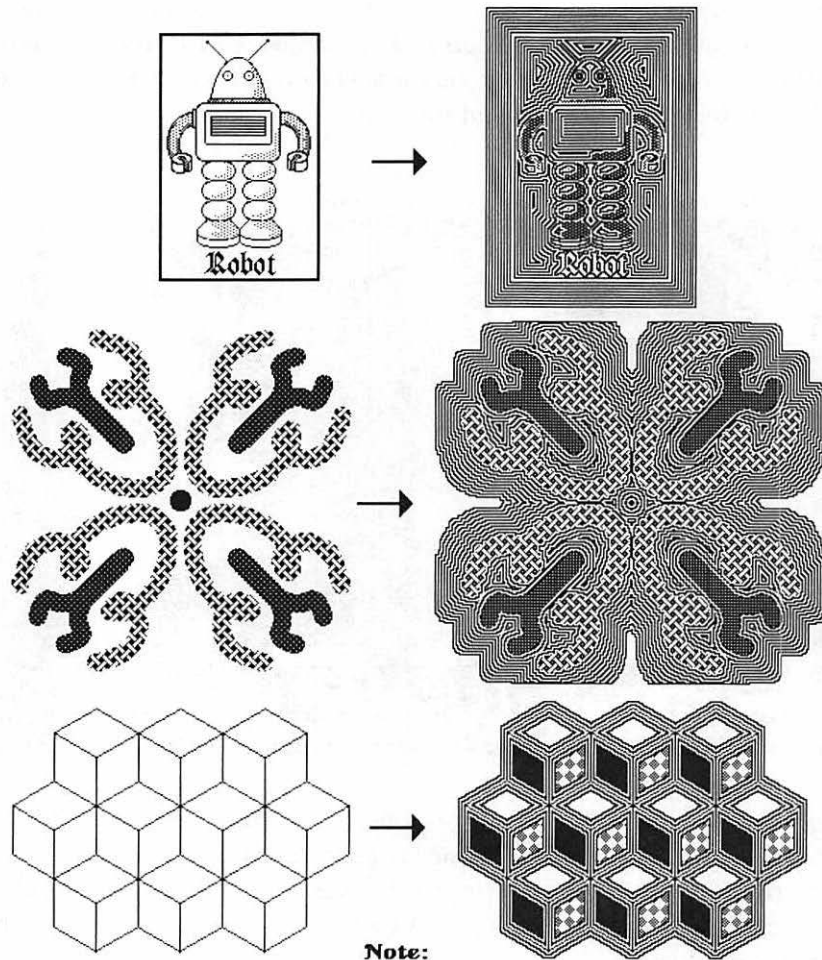


Notice that with each execution of the Trace Edges command, the last edge itself is traced. The newly formed edges radiate like ripples on a pond. As the ripples intersect, they form interference patterns. This technique is called *repetitive edge tracing*, and it can be used with any shape on the MacPaint window.

You can use different patterns from the pattern palette and various brush shapes to get strikingly unique results. You can even limit the ripple effect to a small area of the display by selecting the area with the selection rectangle, rather than selecting the entire screen. Figure 12-2 illustrates examples of repetitive edge tracing.

## SHADING

The spray paint tool can be interesting but somewhat difficult to work with. You use it as you would a real can of spray paint. Once you select the spray

**Note:**

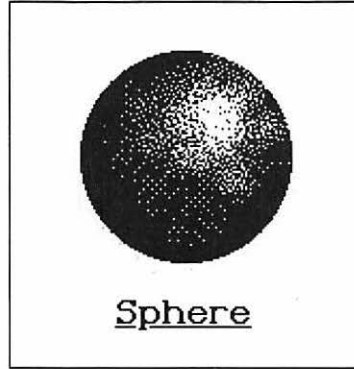
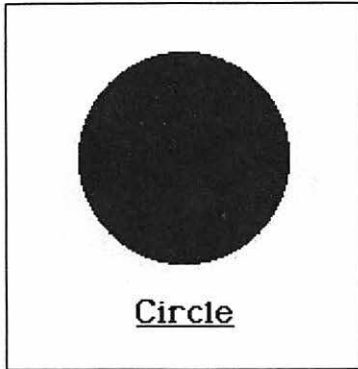
This is a variant of the "tumbling blocks" patchwork pattern from Chapter 6. The patchwork is filled with the pattern *AFTER* the edge tracing.

**Figure 12-2.** Patterns created with repetitive edge tracing

paint tool from the tool palette in MacPaint, you can make quick stroking motions with the mouse while holding the mouse button down to spray an object lightly, or you can make slow strokes and multiple passes to fill in an area completely. Since the Macintosh cannot display colors, MacPaint allows you to spray paint with different patterns. You can select any pattern

from the pattern palette (including a pattern of your own design) and spray in that pattern.

One application of the spray paint tool is to use it to *shade* objects so they look three-dimensional. In the following example, a flat circle was shaded to look like a sphere:



Three-dimensional shading is a difficult technique to master but can be fun to experiment with.

## PRINTING WITH THE MACINTOSH

This chapter looks at the similarities and differences in printing with MacWrite and MacPaint. An understanding of how and why these programs print in slightly different ways may help you decide which method to use for printing.

The primary printer for the Macintosh is the Apple Imagewriter. The information in this chapter deals specifically with the Imagewriter and may or may not apply to other printers. But regardless of the printer used, the mechanics of printing are greatly simplified with the Macintosh. You need to know absolutely nothing about the technical aspects of the printer in order to use all of its capabilities.

### **PRINTING WITH MACWRITE AND MACPAINT**

You look in the File menu to find the printing operations for MacPaint, MacWrite, and most other Macintosh applications programs. The MacPaint File menu offers two printing selections, Print Draft, which gives you very

good quality printed output of the MacPaint document, and Print Final, which produces even better looking output than Print Draft. Once you select one of these printing commands, the current MacPaint graphics page will be printed out immediately.

MacWrite offers two sets of printing options. The first is accessed by selecting the Page Setup command from the File menu. This gives you the following setup choices:

<b>Paper:</b>	<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	
<b>Orientation:</b>	<input checked="" type="radio"/> Tall	<input type="radio"/> Tall Adjusted	<input type="radio"/> Wide
			<input type="button" value="Cancel"/>

These options allow you to choose the type and size of paper on which your documents will be printed. Once you select settings, they will be used each time you print a document.

You are offered a second set of options after you select the Print command from the File menu. At that time you will be presented with the following choices:

<b>Quality:</b>	<input type="radio"/> High	<input type="radio"/> Standard	<input checked="" type="radio"/> Draft	<input type="button" value="OK"/>
<b>Page Range:</b>	<input checked="" type="radio"/> All	<input type="radio"/> From: <input type="text"/>	To: <input type="text"/>	
<b>Copies:</b>	<input type="text" value="1"/>			
<b>Paper Feed:</b>	<input checked="" type="radio"/> Continuous	<input type="radio"/> Cut Sheet		<input type="button" value="Cancel"/>

These choices allow you to print a portion of a document and to select the quality of printing you want. (See Chapter 3 for more information on these options.)

MacWrite gives you all of these choices while MacPaint gives you only two because of fundamental differences in the way the programs work.

Recall from Chapter 7 that MacPaint looks at everything, including text characters, as graphics objects. When MacPaint prints a page, it simply prints out rows of dots in the same form as they appear on the screen. However, when MacWrite prints a document, it prints out the document as a

series of characters and as a result has control over the appearance of each character.

The following four figures combine text and a MacPaint graphics image to illustrate the differences between the two printing methods. Figures 13-1, 13-2, and 13-3 show the three qualities of printing in MacWrite. Note that the text within the graphics image was created with MacPaint and thus is not affected by the print quality of MacWrite. Notice also that the draft-quality copy in Figure 13-3 does not include the MacPaint image and uses only one character font and size. The purpose of these restrictions is to give you the fastest printing speed.

Figure 13-4 shows the example document printed out from MacPaint using the Print Draft command. The output from the Print Final command is not significantly better when using the Imagewriter printer and is not shown. The quality of text printed with MacPaint falls somewhere between standard- and high-quality printing with MacWrite. But the print quality of graphics objects in MacWrite is inferior to those same objects printed with MacPaint. The tradeoff is that some graphics quality will be sacrificed for superior text output or some text quality for superior graphics reproduction.

---

This is a sample of the quality of printing done by  
MacPaint and MacWrite:

**18 Point London Font**

9 Point Geneva Font

**12 Point New York Font in Bold**

***12 Point Toronto Font in Bold Italics***

**14 Point Venice Font Outlined**

Let's also include a MacPaint graphics object here:




---

**Figure 13-1.** High-quality MacWrite printing

This is a sample of the quality of printing done by  
MacPaint and MacWrite:

**18 Point London Font**  
9 Point Geneva Font  
**12 Point New York Font in Bold**  
*12 Point Toronto Font in Bold Italics*  
**14 Point Venice Font Outlined**

Let's also include a MacPaint graphics object here:



---

**Figure 13-2.** Standard-quality MacWrite printing

---

This is a sample of the quality of printing done by  
MacPaint and MacWrite:

18 Point London Font  
9 Point Geneva Font  
12 Point New York Font in Bold  
12 Point Toronto Font in Bold Italics  
14 Point Venice Font Outlined

Let's also include a MacPaint graphics object here:

---

**Figure 13-3.** Draft-quality MacWrite printing

---

This is a sample of the quality of printing done by MacPaint and MacWrite:

**18 Point London Font**  
9 Point Geneva Font  
**12 Point New York Font in Bold**  
***12 Point Toronto Font in Bold Italics***  
**14 Point Venice Font Outlined**

Let's also include a MacPaint graphics object here:



**Figure 13-4.** MacPaint print quality

## PRINTING WITH THE FINDER

If you are using the Macintosh Finder (see Chapter 1), you can print any MacWrite document or MacPaint page simply by selecting it, pulling down the File menu, and selecting the Print command. The Finder will then start up the appropriate application and begin to print, giving you a choice of printing options if the document was created with MacWrite. When the printing is complete, you will return to the Finder.

You can print more than one document at a time by selecting all of the documents you want to print and then selecting the Print command. To select more than one document, point the cursor to each document in succession and hold down the SHIFT key as you click the mouse button. If you print several MacWrite documents with this method, you must use the same settings for all of them.

## THE PRINT SCREEN FUNCTION

If you want a quick printed copy of the Macintosh screen, you can use the print screen function. This function can be used at any time (provided you are not printing something else) by holding down the SHIFT and CONTROL keys while you press the 4 key. This takes a *snapshot* of the screen and prints it out.

An alternative approach is to hold down the SHIFT and CONTROL keys and press the 3 key. This will save a snapshot of the screen on disk as a MacPaint image. You can then use MacPaint to print this image. You can also use any of the MacPaint tools to manipulate the screen snapshot. For example, you can copy an icon for use with another MacPaint image. An example of this was discussed in Chapter 11.

## THE KEYBOARD AND CHARACTER SET

The Macintosh keyboard is made up of 58 keys: 10 control keys and 48 character keys. The control keys are generally used for the specific purposes listed here; however, their uses may differ among applications programs. The 10 control keys are:

**TAB** Has the same function as the TAB key on a typewriter. Causes the cursor to jump to the next tab setting on the screen.

**CAPS LOCK** Locks the letter keys into shifted position, but does not shift the numeric and punctuation keys.

**SHIFT** (two of these) Enters the uppercase or shifted character for a given key. As on any typewriter, you hold down the SHIFT key and press the key. There is no difference between the left and right SHIFT keys.

**OPTION** (two of these) Works in the same manner as the SHIFT keys. Can be used in conjunction with the SHIFT key and other keys to enter over 60 special characters. (**NOTE:** These special characters are not shown on the keyboard. See the next section for more information on special characters.)

**COMMAND (Cloverleaf)** Used in conjunction with other keys to issue special commands to an applications program. Each application specifies the use of the COMMAND key. This key is frequently used in shortcuts for commands that are normally accessed on pull-down menus.

**RETURN** Tells an applications program to move the insertion point to the next line on the screen.

**ENTER** Generally used to tell an applications program that you are finished with a certain part of a text entry. Acts like a special-function RETURN key.

**BACKSPACE** Deletes the character to the left of the insertion point. If a section of text or some object is selected, BACKSPACE will erase the entire selected area.

## THE MACINTOSH CHARACTER SET

The 48 standard character keys can be used in conjunction with the SHIFT and OPTION keys to enter a wide range of characters. There are four different ways of entering characters: the normal way (that is, using neither the SHIFT nor the OPTION key), using the SHIFT key, using the OPTION key, and using the SHIFT and OPTION keys (holding down both the SHIFT and OPTION keys while pressing a character key). The keyboard characters are shown in Figure 10-3.

There are two special features to be noted in the figure. First, notice the key in the upper-left corner of the keyboard (with the accent and tilde characters). This key, when used with the SHIFT and OPTION keys, generates a number of special shapes depending on the character font and size you choose.

For example, using this key with the New York font at 9 points generates a heart-shaped character, while the same key and font at 12 points gives you a picture of a small robot. If you select the Geneva font at 18 points and use the SHIFT and OPTION keys, you get a sheep character. All of the SHIFT-OPTION characters for this key using each of the character sizes (9, 10, 12, 14, 18, and 24 points) and the fonts are shown in Figure A-1.

Second, notice the five keys in Figure 10-3b that show a shaded rectangle for the OPTION character. These keys generate special accent characters for use

with international character sets:

OPTION-`	Grave accent
OPTION-e	Acute accent
OPTION-i	Circumflex
OPTION-u	Umlaut
OPTION-n	Tilde

If you enter one of these characters with the OPTION key, nothing will appear on your screen. However, if you then press a vowel (a, e, i, o, or u), that vowel will appear with the appropriate accent above it as a single character.

Figures A-2 through A-12 list the full character set for each of the eleven fonts. These are arranged in columns that show the normal, SHIFT, OPTION, and SHIFT-OPTION characters for each key. The sequence of keys begins in the upper-left corner of the keyboard and continues from left to right. Notice that if a font does not support a given OPTION or SHIFT-OPTION character, the Macintosh displays a box for that character.

**Chicago:**



**Geneva:**



**New York:**



**Monaco:**



**Venice:**



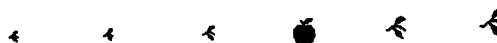
**London:**



**Athens:**



**Toronto:**



**San Francisco:**



**Los Angeles:**




---

**Figure A-1.** Characters for SHIFT OPTION (9, 10, 12, 14, 18, and 24 point)

**NEW YORK FONT:**

`	~	`	♥	\		«	»
1	!	i	□	a	A	å	Å
2	@	™	□	s	S	ß	□
3	#	£	□	d	D	□	□
4	\$	¢	□	f	F	□	□
5	%	□	□	g	G	e	□
6	^	§	□	h	H	□	□
7	&	¶	□	j	J	□	□
8	*	•	°	k	K	□	□
9	(	²	□	l	L	□	□
0	)	³	□	:	:	...	□
-	_	-	-	;	;"	æ	Æ
=	+	□	□	z	Z	□	□
q	Q	œ	Œ	x	X	□	□
w	W	□	□	c	C	ç	Ç
e	E	'	□	v	V	□	◇
r	R	®	□	b	B	□	□
t	T	'	□	n	N	~	□
y	Y	¥	□	m	M	□	□
u	U	"	□	,	<	□	□
i	I	^	□	.	>	□	□
o	O	ø	Ø	/	?	□	¿
p	P	□	□				
[	{	"	"				
]	}	'	'				

**Figure A-2.** New York font character set (normal, SHIFT, OPTION, SHIFT-OPTION)

**GENEVA FONT:**

`	~	˘	◊	\		«	»
1	!	¡	□	a	A	â	Å
2	@	™	□	s	S	ß	□
3	#	£	□	d	D	ð	□
4	\$	¢	□	f	F	ƒ	□
5	%	∞	□	g	G	©	□
6	^	§	□	h	H	□	□
7	&	¶	□	j	J	Δ	□
8	*	•	°	k	K	□	□
9	(	ª	□	l	L	¬	□
0	)	º	□	;	:	...	□
-	_	-	-	'	"	æ	Æ
=	+	≠	±	z	Z	Ω	□
q	Q	œ	Œ	x	X	≈	□
w	W	Σ	□	c	C	ç	Ç
e	E	'	□	v	V	√	◇
r	R	®	□	b	B	∫	□
t	T	‘	□	n	N	~	□
y	Y	¥	□	m	M	μ	□
u	U	¨	□	,	<	≤	□
i	I	^	□	.	>	≥	□
o	O	ø	Ø	/	?	÷	÷
p	P	π	Π				
[	{	“	”				
]	}	‘	’				

**Figure A-3.** Geneva font character set (normal, SHIFT, OPTION, SHIFT-OPTION)

**TORONTO FONT:**

`	~	^	ø	\		«	»
1	!	¡	□	a	A	â	Â
2	@	™	□	s	S	ß	□
3	#	£	□	d	D	□	□
4	\$	¢	□	f	F	□	□
5	%	□	□	g	G	©	□
6	^	\$	□	h	H	□	□
7	&	¶	□	j	J	□	□
8	*	•	°	k	K	□	□
9	(	²	□	l	L	□	□
0	)	²	□	;	:	...	□
-	-	-	-	'	"	œ	Æ
=	+	□	□	z	Z	□	□
q	Q	œ	Œ	x	X	□	□
w	W	□	□	c	C	ç	Ç
e	E	'	□	v	V	□	◇
r	R	®	□	b	B	□	□
t	T	†	□	n	N	~	□
y	Y	¥	□	m	M	□	□
u	U	¨	□	,	<	□	□
i	I	ˆ	□	.	>	□	□
o	O	ø	Ø	/	?	□	¿
p	P	□	□				
[	(	"	"				
]	)	'	'				

**Figure A-4.** Toronto font character set (normal, SHIFT, OPTION, SHIFT-OPTION)

<b>MONACO FONT</b>							
1	!	!	0	\		<	>
2	@	"	0	a	A	&	À
3	#	£	0	s	S	ß	0
4	\$	¢	0	d	D	0	0
5	%	¤	0	f	F	0	0
6	^	§	0	g	G	0	0
7	&	¶	0	h	H	0	0
8	*	•	°	j	J	0	0
9	(	²	0	k	K	0	0
0	)	³	0	l	L	0	0
-	_	-	-	;	:	...	0
=	+	0	±	'	"	€	0
q	Q	0	€	z	Z	0	0
w	W	0	0	x	X	0	0
e	E	'	0	c	C	ç	Ç
r	R	0	0	v	V	0	♦
t	T	†	0	b	B	0	0
y	Y	¥	0	n	N	~	0
u	U	"	0	m	M	0	0
i	I	^	0	,	<	≤	0
o	O	0	0	.	>	≥	0
p	P	0	0	/	?	÷	0
[	{	"	"				
]	}	'	'				

Figure A-5. Monaco font character set (normal, SHIFT, OPTION, SHIFT-OPTION)

**CHICAGO FONT**

`	~	`	□	\		«	»
1	!	i	□	a	A	ô	Â
2	@	™	□	s	S	ß	□
3	#	£	□	d	D	ð	□
4	\$	¢	□	f	F	f	□
5	%	∞	□	g	G	©	□
6	^	§	□	h	H	□	□
7	ø	¶	□	j	J	Δ	□
8	*	•	°	k	K	□	□
9	(	®	□	l	L	˘	□
0	)	©	□	;	:	...	□
-	_	-	-	'	"	æ	Æ
=	+	≠	±	z	Z	Ω	□
q	Q	œ	Œ	x	X	≈	□
w	W	Σ	□	c	C	ç	Ç
e	E	/	□	v	V	✓	◇
r	R	®	□	b	B	¡	□
t	T	†	□	n	N	˜	□
y	Y	¥	□	m	M	μ	□
u	U	¨	□	,	<	≤	□
i	I	^	□	.	>	≥	□
o	O	ø	□	/	?	÷	□
p	P	π	□				
[	{	"	"				
]	}	'	'				

Figure A-6. Chicago font character set (normal, SHIFT, OPTION, SHIFT-OPTION)

**VENICE FONT SET**

`	~	^	°	\		<	>
1	!	l	□	a	À	å	Ä
2	□	□	□	s	S	ß	□
3	#	□	□	d	D	□	□
4	\$	□	□	f	F	□	□
5	%	□	□	g	G	□	□
6	^	□	□	h	H	□	□
7	&	□	□	j	J	□	□
8	*	□	□	k	K	□	□
9	(	□	□	l	L	□	□
0	)	□	□	;	:	□	□
-	-	-	-	'	"	□	□
=	+	□	□	z	Z	□	□
q	Q	□	□	x	X	□	□
w	W	□	□	c	C	ç	Ç
e	E	'	□	v	V	□	□
r	R	□	□	b	B	□	□
t	T	□	□	n	N	~	□
y	Y	□	□	m	M	□	□
u	U	□	□	,	<	□	□
i	l	^	□	.	>	□	□
o	O	°	°	/	?	□	¿
p	P	□	□				
[	{	"	"				
]	}	'	'				

**Figure A-7.** Venice font character set (normal, SHIFT, OPTION, SHIFT-OPTION)

**LONDON font:**

□	□	□	□	\	I	□	□
1	!	□	□	a	Œ	□	□
2	@	□	□	s	Š	□	□
3	#	□	□	d	Đ	□	□
4	\$	□	□	f	ƒ	□	□
5	%	□	□	g	Œ	□	□
6	□	□	□	h	Œ	□	□
7	&	□	□	j	Œ	□	□
8	*	□	□	k	Œ	□	□
9	(	□	□	l	Œ	□	□
0	)	□	□	;	:	□	□
-	-	-	-	.	"	□	□
=	+	□	□	3	Œ	□	□
q	Œ	□	□	x	Œ	□	□
w	Œ	□	□	c	Œ	□	□
e	Œ	□	□	b	Œ	□	□
r	Œ	□	□	b	Œ	□	□
t	Œ	□	□	u	Œ	□	□
y	Œ	□	□	m	Œ	□	□
u	Œ	□	□	,	□	□	□
i	Œ	□	□	.	□	□	□
o	Œ	□	□	/	?	□	□
p	Œ	□	□				
[	{	"	"				
]	}	'	'				

Figure A-8. London font character set (normal, SHIFT, OPTION, SHIFT-OPTION)

**ATHENS FONT:**

`	~	^	°	\		<	>
1	!	l	o	a	R	â	Â
2	@	™	o	s	S	ß	o
3	#	£	o	d	D	o	o
4	\$	¢	o	f	F	o	o
5	%	o	o	g	G	©	o
6	^	o	o	h	H	o	o
7	G	o	o	j	J	o	o
8	*	•	°	k	K	o	o
9	(	²	o	l	L	o	o
0	)	²	o	;	:	...	o
-	-	-	-	'	"	œ	Æ
=	+	o	o	z	Z	o	o
q	o	œ	Œ	x	X	o	o
w	W	o	o	c	C	ç	Ç
e	E	'	o	v	V	o	◊
r	R	®	o	b	B	o	o
t	T	'	o	n	Π	~	o
g	Y	Y	o	m	Μ	o	o
u	U	"	o	,	<	o	o
i	I	^	o	.	>	o	o
o	O	ß	ß	/	?	o	¿
p	P	o	o				
[	[	"	"				
]	]	'	'				

**Figure A-9.** Athens font character set (normal, SHIFT, OPTION, SHIFT-OPTION)

**SAN FRANCISCO FONT:**

	□		☛	\		□	□
1	!	□	□	a	A	□	□
2	@	□	□	s	S	□	□
3	#	□	□	d	D	□	□
4	\$	□	□	f	F	□	□
5	%	□	□	g	G	□	□
6	□	□	□	h	H	□	□
7	&	□	□	j	J	□	□
8	*	□	□	k	K	□	□
9	(	□	□	l	L	□	□
0	)	□	□	;	:	□	□
-	-	-	-	,	.	□	□
=	+	□	□	z	Z	□	□
q	Q	□	□	x	X	□	□
w	W	□	□	o	O	□	□
e	E	□	□	v	V	□	□
r	R	□	□	b	B	□	□
t	T	□	□	n	N	□	□
y	Y	□	□	m	M	□	□
u	U	□	□	,	<	□	□
i	I	□	□	.	>	□	□
o	O	□	□	/	?	□	□
p	P	□	□				
[	{	"	"				
]	}	'	'				

**Figure A-10.** San Francisco font character set (normal, SHIFT, OPTION, SHIFT-OPTION)

**LOS ANGELES FONT:**

	~		□				
1	!	i	□		\	/	□
2	@	□	□		a	A	□
3	#	□	□		s	S	□
4	\$	¢	□		d	D	□
5	%	□	□		f	F	□
6	^	□	□		g	G	□
7	&	□	□		h	H	□
8	*	•	°		j	J	□
9	(	□	□		k	K	□
0	)	□	□		l	L	□
-	_	-	-		;	;	□
=	+	□	□		z	Z	□
q	Q	□	□		x	X	□
w	W	□	□		c	C	□
e	E	'	□		v	V	□
r	R	□	□		b	B	□
t	T	□	□		n	N	□
y	Y	□	□		m	M	□
u	U	¨	□		,	<	□
i	I	ˆ	□		.	>	□
o	O	ø	ø		/	?	□
p	P	□	□				□
{	{	"	"				□
}	}	`	`				□

**Figure A-11.** Los Angeles font character set (normal, SHIFT, OPTION, SHIFT-OPTION)

# **CAIRO FONT:**

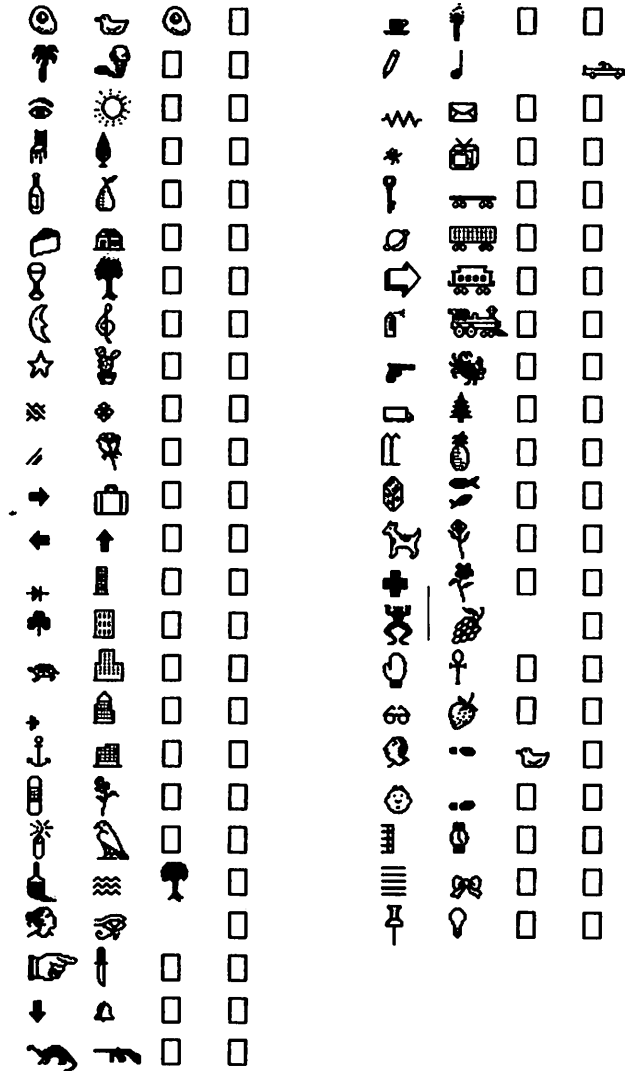


Figure A-12. Cairo font character set (normal, SHIFT, OPTION, SHIFT-OPTION)

## FONTS, SIZES, AND STYLES

The Apple Macintosh provides a wide selection of character fonts, sizes, and styles available to MacWrite, MacPaint, and many other applications programs. The actual fonts, sizes, and styles may vary from application to application. Figure B-1 demonstrates some of the character choices that you might see. By mixing and matching the various character styles with the different fonts and sizes, you have several thousand types of characters to work with.

Character fonts are stored on the System Disk and can be used by any applications program. These fonts require a considerable amount of disk space. In fact, over a quarter of your disk may be occupied by the fonts.

You can free up a lot of this disk space if you find that you rarely or never use some of the fonts. The Font Mover program that comes with your Macintosh System Disk can be used to transfer selected fonts from the System Disk to a document file on a backup disk. Later, if you find that you want to restore one or more of these fonts, you can again use Font Mover to perform that task.

The Font Mover program instructs you on how to move fonts into and out of the system. If you find certain fonts mentioned in this book that are not available in your applications programs, you should check your original System Disk for a file called Fonts. You can run Font Mover to check which fonts are stored in the Fonts file.

Character Fonts:

Chicago Font  
Geneva Font  
New York Font  
Monaco Font  
Venice Font  
London Font  
Athens Font  
Toronto Font  
San Francisco Font  
Los Angeles Font  
⌘+⌘ ⌘ ⌘ ⌘ ⌘ (Cairo Font)

Text Styles:

Plain Text  
Bold  
*Italic*  
Underline  
**Outline**  
**Shadow**  
Super<sup>scripting</sup>  
Sub<sub>scripting</sub>

Character Sizes:

9 Point  
10 Point  
12 Point  
14 Point  
18 Point  
24 Point

---

**Figure B-1.** Character fonts, styles, and sizes in MacWrite

**9 Point:**

Chicago Font  
Geneva Font  
New York Font

Monaco Font  
Venice Font  
London font

Athens Font  
Toronto Font

San Francisco Font  
Los Angeles Font

**10 Point:**

Chicago Font  
Geneva Font  
New York Font

Monaco Font  
Venice Font  
London font

Athens Font  
Toronto Font

San Francisco Font  
Los Angeles Font

**12 Point:**

Chicago Font  
Geneva Font  
New York Font

Monaco Font  
Venice Font  
London font

Athens Font  
Toronto Font

San Francisco Font  
Los Angeles Font

**14 Point:**

Chicago Font  
Geneva Font  
New York Font  
Monaco Font  
Venice Font

London font  
Athens Font  
Toronto Font  
San Francisco Font  
Los Angeles Font

**16 Point:**

Chicago Font  
Geneva Font  
New York Font  
Monaco Font  
Venice Font

London font  
Athens Font  
Toronto Font  
San Francisco Font  
Los Angeles Font

**24 Point:**

Chicago Font  
Geneva Font  
New York Font  
Monaco Font  
Venice Font

London font  
Athens Font  
Toronto Font  
San Francisco Font  
Los Angeles Font

Figure B-2. Suggested fonts and sizes in MacWrite and MacPaint

When you are using different character types in an applications program, you may notice that certain combinations of character sizes and fonts look better than others. Both MacPaint and MacWrite “suggest” the best size or sizes for a selected font by outlining them in the menu of character sizes. For example, if you are in MacPaint and select the London font, when you pull down the FontSize menu you will see the 18 point size outlined, telling you that this is the best size for London characters.

Font	FontSize
Toronto	9 point
San Francisco	10
Los Angeles	12
Cairo	14
Chicago	✓18
Geneva	24
New York	36
Monaco	48
Venice	72
✓London	
Athens	

This does not mean that you cannot or even should not use character sizes other than the recommended ones. It is just that the suggested sizes are the best choices under most circumstances. Figure B-2 shows the range of character fonts and sizes (shown only in the Plain style) that are available with both MacWrite and MacPaint.

# INDEX

## A

Aligning text, 40, 42  
Alphanumeric characters, 135  
Auto-repeat, 26

## B

Banner text, 130-32  
Box tool. *See* Shape tools  
Brush Mirrors command, 78, 160-62  
Brush Shape command, 78  
By Date command, 14  
By Icon command, 14  
By Kind command, 14  
By Name command, 14  
By Size command, 14

## C

Calculator, 22-23  
Change command, 46  
Character set, 178-91  
    displaying, 23-24  
    special, 136  
Clean Up command, 14  
Clear command  
    in the Finder, 14  
    in MacPaint, 74  
CLEAR key, 82  
Clipboard, the, 18, 103-05  
    commands used with, 13-14  
    using to create form letters, 122  
    vs. the Scrapbook, 107-08

## Clock

    Alarm, 19-21  
        internal, 26  
Close All command, 13  
Close box, 8, 15  
Close command  
    in the Finder, 13  
    in MacPaint, 73  
    in MacWrite, 43  
Command blinking control, 26  
COMMAND key, 16, 80-82, 178  
CONSTRAIN key, 82  
Constrained tools, 85  
Control Panel, 25-28  
Copy command  
    in the Finder, 13  
    in MacPaint, 74  
    in MacWrite, 45  
    use with the Clipboard, 18, 104-05  
    use with the Scrapbook, 18, 107  
COPY key, 82  
Cursor, 5  
Cut command  
    in the Finder, 13  
    in MacPaint, 74  
    in MacWrite, 45  
    use with the Clipboard, 18, 104-05  
    use with the Scrapbook, 18, 107

## D

Dates  
    control for setting, 26  
    displaying, 20

- Decimal tabs, 39-41
- Desk Accessories, 17-29
  - Alarm Clock, 19-21
  - Calculator, 22-23
  - Control Panel, 25-28
  - Key Caps, 23-25
  - Note Pad, 21-22
  - Puzzle, 28-29
  - Scrapbook, 18-19
- Desktop, the, 5
- Desktop pattern control, 27
- Dialog box, 15
- Directory windows, 6-10
  - commands to change display of, 14
- Disk drive, 3-4
- Disks
  - commands used to organize, 14-15
- Display Footers/Remove Footers command, 46
- Display Headers/Remove Headers command, 46
- Display screen, 3-4
  - copying contents onto disk, 156-57
    - in MacPaint, 67, 69
  - printing copy of contents, 176
- Double-click speed control, 27
- Drawing, freehand, 159-60
- Duplicate command, 12

**E**

- Edit menu
  - in the Finder, 13-14
  - in MacPaint, 74
  - in MacWrite, 45
- Edit Pattern command, 77-78, 163-65
- Editing text
  - in MacPaint, 126-28
  - in MacWrite, 35-36
- Eject command, 13
- Empty Trash command, 14
- ENTER key, 15, 127-28, 178
- Erase Disk command, 15
- Eraser tool, 71

**F**

- Fatbits command, 76
  - using to design patchworks, 93-94
- File menu
  - in the Finder, 11-13
  - in MacPaint, 72-73
  - in MacWrite, 43-45
- Fill command, 74
- Filled shape tools, 71-72
- Find command, 45-46

- Finder, the, 6
  - menu bar of, 10-15
  - printing with, 175
  - shortcuts with, 15-16
- Flip Horizontal command, 74
- Flip Vertical command, 75
- Folders, 6
- Font menu
  - in MacPaint, 78-79, 126-27
  - in MacWrite, 47
- Fonts, 47, 48
  - character sets for all, 181-91
  - display of all, 79
  - emphasizing text with different, 59
  - suggested sizes for different, 195
- FontSize menu, MacPaint, 80, 126-27
- Footers, 47-50
  - commands used with, 46
  - use in reports, 62-64
- Form letters, 122
- Format menu, MacWrite, 46-47
- Formulas, 133-44
  - creating with MacPaint, 139-44
  - creating with MacWrite, 135-39
  - defined, 133-34
  - moving into MacWrite, 144

## G

- Get Info command, 12
- Goodies menu, MacPaint, 75-78
- Grabber tool, 70
- Graphics objects
  - integrating into text files, 120-21
  - manipulating text as, 128-29
  - selecting, 104
  - shading, 167-69
- Grid command, 76, 85-89
  - using to design patchworks, 89-93

## H

- Headers, 47-50
  - commands used with, 46
  - use with letterheads, 120-21
  - use in reports, 62-64
- Headings
  - creating chapter, 146-51
  - designing different level, 53, 55
  - inserting in text, 54, 56-59
- Hexagons
  - designing, 95-97
  - drawing patchworks with, 98-100
- Highlight box, 61-62, 151-54
- Highlighting text, 59-62, 151-54

**I**

Icon boxes, 152-54  
 Icons, 5  
     copying Macintosh, 155-57  
 Insert Page Break command, 47  
 Insert Ruler command, 46  
 Insertion point, 13, 33  
 Insertion point blinking rate control, 27  
 Introduction command, 78  
 Invert command, 74

**K**

Keyboard, 3-4  
     illustration of, 137  
 Keyboard touch control, 27  
 Keys  
     control, 177-78  
     special, 138  
     standard, 137

**L**

Lasso tool, 68-69  
 Letterheads  
     creating, 113-19  
     integrating into text files, 120-21  
     using to create form letters, 122  
 Line spacing, 40  
 Line tool, 71  
 Line width palette, 67, 72

**M**

Margins, 37-39  
 Menu bar, the Finder, 10-15  
     Edit menu in, 13-14  
     File menu in, 11-13  
     Special menu in, 14-15  
     View menu in, 14  
 Menu bar, MacPaint, 72-80  
     Edit menu in, 74-75  
     File menu in, 72-73  
     Font menu in, 78-79  
     FontSize menu in, 80  
     Goodies menu in, 75-78  
     Style menu in, 80  
 Menu bar, MacWrite, 40-47  
     Edit menu in, 45  
     File menu in, 43-45  
     Font menu in, 47  
     Format menu in, 46-47  
     Search menu in, 45-46  
     Style menu in, 47  
 Menus, pull-down, 5  
 Mouse, 3-4  
     clicking, 5

*Mouse, continued*

    double-clicking, 5, 15, 82  
     dragging, 5  
     drawing, 159-60  
     shift-clicking, 15  
 Mouse tracking control, 26

**N**

New command  
     in MacPaint, 73  
     in MacWrite, 43  
 Note Pad, 21-22

**O**

Open command  
     in the Finder, 12  
     in MacPaint, 73  
     in MacWrite, 43  
 Open Footer command, 46  
 Open Header command, 46  
 OPTION key, 24, 80, 177  
     Special characters accessible with,  
     135-36  
 Oval tool. *See* Shape tools

**P**

Page Setup command, 43-44, 172  
 Paint brush tool, 70  
     using for freehand drawing, 159-62  
 Paint bucket tool, 70  
 Palettes, 67-72  
     line width, 67, 72  
     pattern, 67, 69  
     tool, 67, 68-72  
 Paragraphs, 36-37  
 Paste command  
     in the Finder, 13  
     in MacPaint, 74  
     in MacWrite, 45  
     use with the Clipboard, 18, 105  
     use with the Scrapbook, 18, 106-07  
 Patchworks  
     designing, 89-93  
     with hexagonal motifs, 93-100  
     tools used to create, 83-85  
 Pattern palette, 67, 69  
 Patterns  
     creating custom, 163-65  
 Pencil tool, 70  
     using for freehand drawing, 159-62  
 Pointer. *See* Cursor  
 Print Catalog command, 73

Print command  
     in the Finder, 13, 175  
     in MacWrite, 44, 172-74  
 Print Draft command, 73, 171-73  
 Print Final command, 73, 172-73  
 Printer, 3-4  
     Apple Imagewriter, 171  
 Put Back command, 12  
 Puzzle, 28-29

**Q**

Quit command  
     in MacPaint, 73  
     in MacWrite, 45

**R**

Repeating keys rate control, 26  
 Reports, 51-64  
     designing headings for, 53, 55, 146-51  
     guidelines for writing, 51-52  
     headers and footers in, 63-64  
     highlighting text in, 59-62, 151-54  
     setting up using rulers, 54, 56-57  
 Revert command, 73  
 Rotate command, 75  
     using to design patchworks, 92-93  
 Rulers, 37-40  
     commands used with, 46  
     copying, 57-58  
     creating a report using, 54, 56-57

**S**

Save As command  
     in MacPaint, 73  
     in MacWrite, 43  
 Save command  
     in MacPaint, 73  
     in MacWrite, 43  
 Scrapbook, the, 18-19, 106-07  
     vs. the Clipboard, 107-08  
 Scroll bar, 9-10, 35  
 Search menu, MacWrite, 45-46  
 Select All command, 14  
 Selecting  
     graphics objects, 104  
     text, 36  
 Selection rectangle tool, 69-70, 128-29  
 Set Page # command, 46  
 Set Startup command, 15  
 Shape tools, 71-72

Short Cuts command, 78  
 Shortcuts  
     for the Finder, 15-16  
     for MacPaint, 80-82  
 Show Clipboard command  
     in the Finder, 14  
     in MacWrite, 45  
 Show Page command, 77  
 Show Rulers/Hide Rulers command, 46  
 Size marker, 10  
 Sizes, character, 80, 193-95  
 Speaker volume control, 26  
 Special menu, the Finder, 14-15  
 Spray paint tool, 70, 167-69  
 STRETCH key, 82  
 Style menu  
     in MacPaint, 80, 126-27  
     in MacWrite, 47  
 Styles, text, 47, 49, 80  
     display of all, 194  
     emphasizing with, 59-62

**T**

Tab, 39-40  
 Tabs, 39-40  
 Text  
     aligning, 40, 42  
     creating banner, 130-32  
     editing, 35-36  
     highlighting, 59-62, 151-54  
     selecting, 36  
     transferring between programs, 108-09  
     using with MacPaint, 126-32  
 Text tool, 70, 126-28  
 Time control, 26  
 Title bar, 8, 34  
 Title Page command, 47  
 Title pages, 47  
     use in reports, 63-64  
 Tool palette, 67, 68-72  
 Trace Edges command, 74, 132, 165-67

**U**

Undo command  
     in the Finder, 13  
     in MacPaint, 74  
     in MacWrite, 45  
 UNDO key, 82

**V**

View menu, the Finder, 14

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ISBN 0-88134-137-1