PhotoMac®

PhotoMac®

Acknowledgements

Avalon acknowledges the contribution of Media Net, Ltd., to the development of PhotoMac's color separation module (CSM). All copyrights to CSM are held by Media Net, Ltd.

We also thank the talented artists at DesignSystems in Cambridge, Massachusetts for the layout of this manual, especially for the conception of our surrealistic package cover and for its execution using PhotoMac.

To all others who contributed to the making of this manual, including our favorite engineers, our gratitude.

– the authors, Liz Ewart and Carol McGarry.

Note: The images in this manual were created and/or retouched using PhotoMac.
The text was laid out using QuarkXPress.

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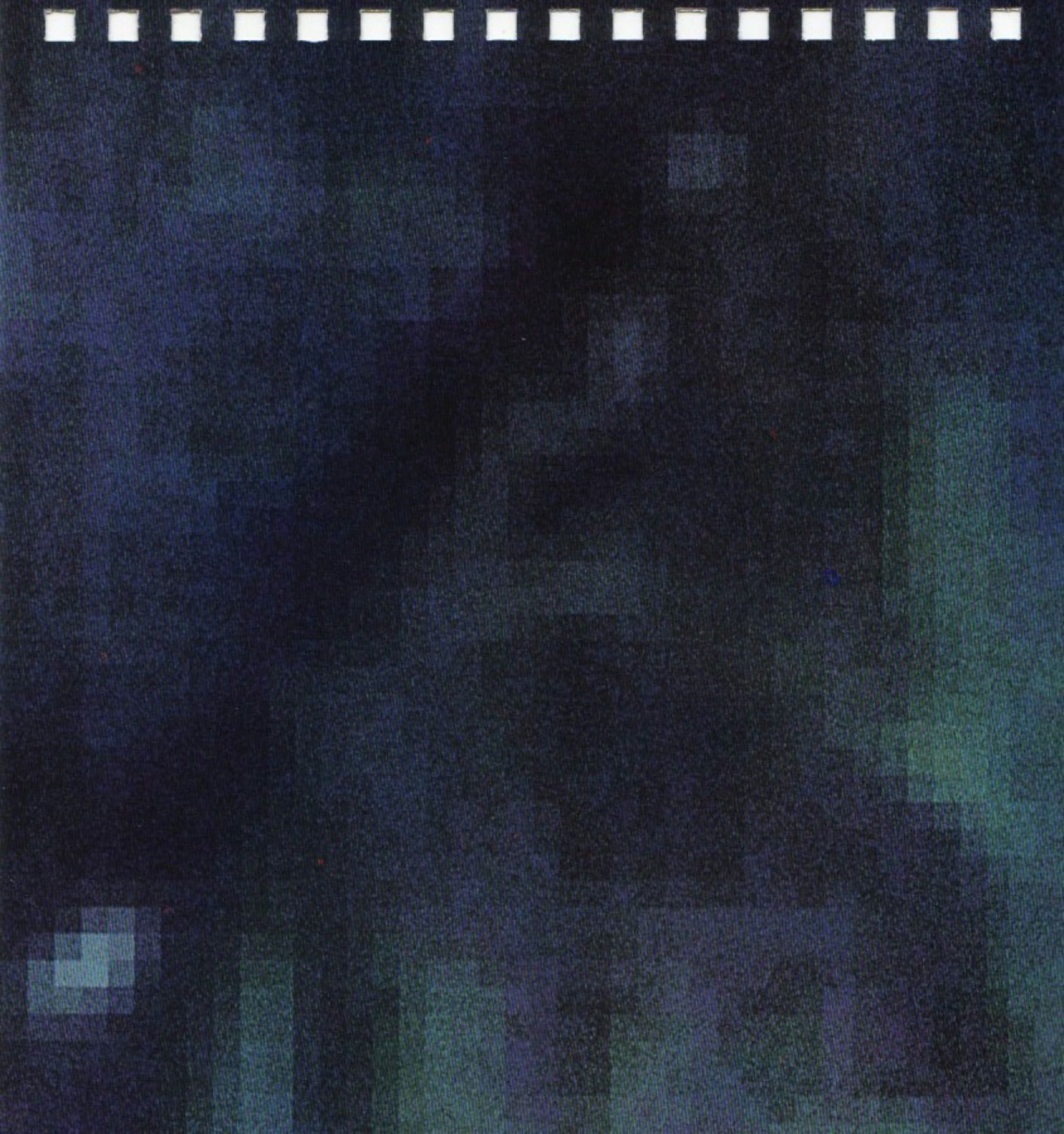
TABLE OF CONTENTS

APPENDICES

GLOSSARY

INDEX

Preface



Preface

Welcome to your new photodesign studio—PhotoMac® on the Macintosh II. With powerful photoretouching and image processing functions within easy reach, you'll see that PhotoMac gives you complete control over your color images—and your schedules.

This image—a montage of four different slides—was color separated using PhotoMac. The files were downloaded to the Linotype L300 to produce the films from which the image was printed.

Y M C K PhotoMac® Seascape

This manual describes the PhotoMac program, introducing its basic functions and detailing more advanced photodesign features. Use the manual initially as a tutorial guide, then later as a reference handbook.We assume that you have set up your Macintosh II and are familiar with its use. You should know how to use the mouse and standard Macintosh menus. If you wish to review these techniques, refer to your Macintosh II manual.

Using This Manual

No matter how much or how little experience you've had with the Macintosh II and painting and imaging programs, read Part I to get an overview of PhotoMac's capabilities, and to learn how to install and de-install the program. You may also want to watch the video to learn more about PhotoMac's retouching capabilities. What you do after that depends on you.

Here are some guidelines:

- If you're not familiar with Macintosh painting or imaging software, turn to Part II, Learning PhotoMac. This section introduces PhotoMac's tools, and includes a tutorial in which you retouch and combine two images. Then move to Part III, Using PhotoMac to learn more about completing specific tasks.

- If you're already familiar with painting and imaging programs, read Chapter 3, "A Tour of the Tools" to familiarize yourself with the PhotoMac tool palette. Then turn to Part III, Using PhotoMac. This section is organized around specific tasks, and explains how to do things like combine images, change color and tone, and create special effects.

- If you've used PhotoMac before and you're looking for information about a particular tool or command, turn to Part IV, PhotoMac Reference. This section discusses each PhotoMac tool and command, grouping the items according to the menus in which they appear.

If you have a problem...

If you have difficulty using one of PhotoMac's features, carefully review the relevant section(s) of the manual then try the operation again.

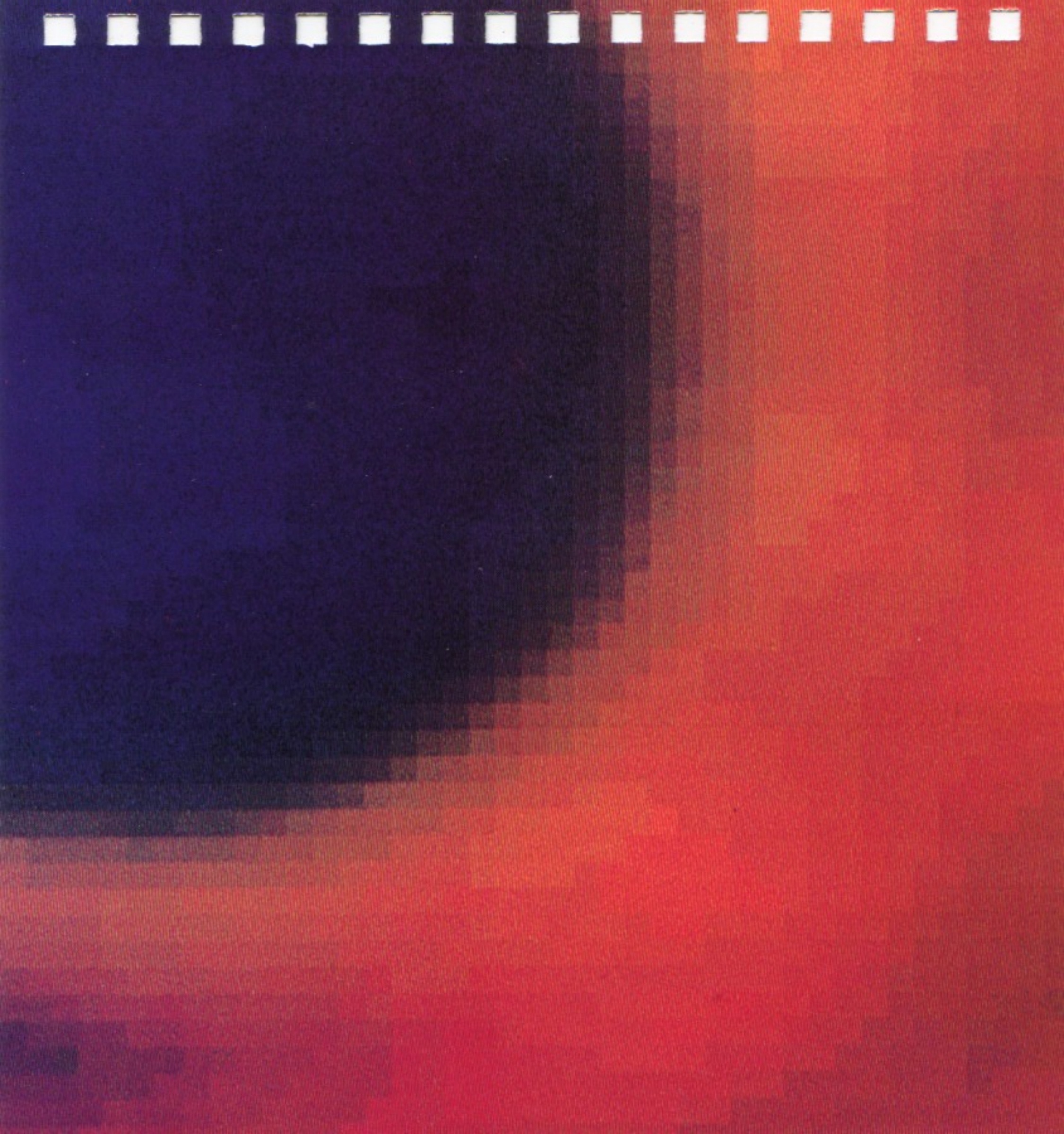
You can also call our technical support group at 1-800-522-0265 between 8:30 a.m. and 7:00 p.m. Eastern Time. (Outside the U.S, you should call (508) 481-3700.)

Section 1
Getting Started

SECTION 1

CHAPTER 1: INTRODUCING PHOTOMAC

CHAPTER 2: INSTALLING PHOTOMAC



Chapter 1
Introducing PhotoMac

This chapter provides an overview of PhotoMac's capabilities and contains a brief discussion of some of PhotoMac's unique features. PhotoMac's memory management capabilities and adaptive display make it the most powerful image retouching package you can buy for the standard Macintosh II platform.

Overview

PhotoMac is a complete color photodesign package for the Macintosh II. Created by the Avalon Development Group, PhotoMac is for art directors who need to edit and merge color images, photographers who need to retouch proofs, electronic publishers who want to combine color images with text in their publications—for anyone who works with color and form.

With PhotoMac, you can:

- Combine multiple pictures in a single montage
- Easily airbrush out features or flaws
- Select a color directly from the image and paint or airbrush with that color
- Change colors to any of the 16 million hues in the Macintosh II palette
- Convert full-color images to monochrome in 256 shades of gray, then add color tints
- Magnify the image for detailed work
- Select part of an image and move, duplicate, rotate, stretch, flip, or shrink it
- Mask part of an image and change the colors, airbrush, erase, or paint around it
- Generate process color separations as PostScript files
- Export images which can be incorporated into color desktop publishing documents

For example, we scanned a 35mm color negative and opened the file in PhotoMac

From there, it was easy to invert it to a positive, adjust the overall brightness and contrast, retouch the color of the sky, and sharpen the entire image.

Despite its power, PhotoMac is easy and fun to use. You won't need to learn complicated controls or commands. In fact, if you're familiar with Macintosh painting or imaging software, you already understand many PhotoMac features.

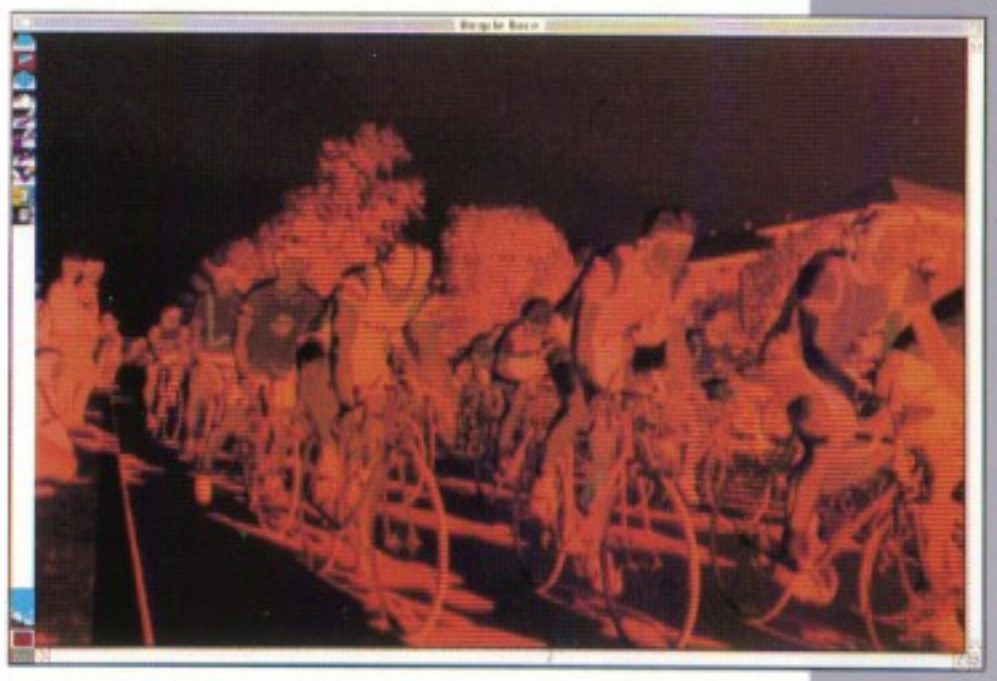
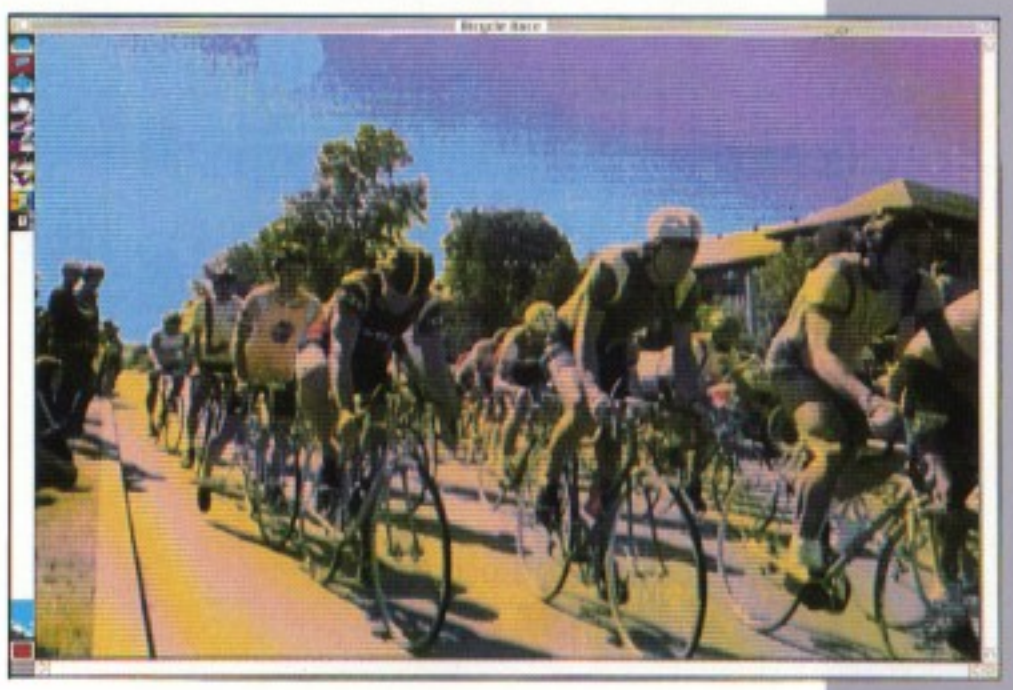


Photo: Wan Chi Lau



Compatibility

PhotoMac is compatible with a wide range of hardware and software products. You'll be able to manipulate color images input via any slide or image scanner or video framegrabber that produces PICT2, TIFF, or Truevision (TARGA or VISTA) files. You can import images from any drawing or painting package via the Clipboard. And you can output to any of the following:

- PostScript-compatible devices like the Linotype L300 will poduce films from your separation files. Use Adobe's *SendPS* program, included on the PhotoMac program disk, to download PostScript files to your printer.
- Desktop publishing and page layout software packages that accept PICT2 (8- or 24-bit) or TIFF (24-bit) files can import PhotoMac images so you can see your complete document layout.
- Data Translation's ColorCapture™ framegrabber board creates a video signal which can be received by video monitors, VCRs, thermal printers, video transceivers, or any NTSC device.
- Color printers
- Slide film recorders

Adaptive Color Display

Most color programs for the Macintosh II display images using a fixed palette of 256 colors, restricting the display to just a fraction of the Macintosh II's palette. Some programs try to come closer to "true" color by letting you define your own palette; however, that means you have to pick 256 colors yourself. This may be adequate for paint programs, but photographic images are very different. A photograph scanned at 24-bits/pixel resolution can contain hundreds of colors; limiting yourself to a single group of 256 colors means that you can't come close to the full range of hues in a photograph.

In PhotoMac, 16 colors are reserved for the fixed objects on the desktop (e.g., the tool palette). Of the remaining 240, PhotoMac looks at the original picture and finds the colors closest to the 24-bit image data. Every time you scroll the picture, changing the part being displayed, or zoom in on an area to magnify your view, PhotoMac will optimize the Macintosh II's color palette for just the area being shown. Each view of the image is the best it can possibly be.

Whenever you change the colors in an image using the color controls or painting tools, PhotoMac refreshes your view of the image, updating the color information and adapting the color palette to optimize the new color scheme.

In sum, PhotoMac gives you the high-quality composition images usually associated with a 24-bit board.

Virtual Memory Architecture

PhotoMac allows you to manipulate very large full color images with only 2 MB of RAM. This is because PhotoMac uses a virtual memory system that allows it to display images as large as 32,000 x 32,000 pixels.

Whenever you work on a file, PhotoMac creates up to three temporary copies of the image, and the image you edit is one of these temporary copies. The number of copies needed depends on the functions you use (Cut, Resize, Rotate, etc.). PhotoMac does not store these files in RAM; if it did, you'd need considerably more than 2 MB. Instead, the program stores the copies on your hard disk; you make changes to the image without affecting the original file until you use the Save or Save As command. The temporary copies are deleted when you close the file or quit the PhotoMac program.

With this virtual memory system, you can have as many files as you wish open at the same time. The number and size of files you can open is limited mainly by the amount of space on your hard disk.

Chapter 2
Installing PhotoMac

This chapter describes the hardware and software required for using PhotoMac. Instructions for installing PhotoMac on the hard disk of your Macintosh II are also included.

What You Need to Begin

To use PhotoMac, you need the following equipment:

- Macintosh II
- Color monitor
- Apple video card and video expansion card or equivalent
- Apple System software version 6.0 or later

  To check your System version number, choose About the Finder *from the Apple menu. A message box appears with the System version number listed in the upper-left corner. If you don't have the required version, obtain an upgrade from your Apple dealer.*

- A minimum of 2 MB of memory (RAM) under the Finder.
- A minimum of 1.5 MB of hard disk space. You will also need enough disk space to store and manipulate your image files.

The PhotoMac Package

When you open the PhotoMac package, you'll find a case containing two binders. The binder labeled "Media" contains a VHS format videotape and four disks. The disks are:

- PhotoMac Program
- Image 1 (*Watch*)
- Image 2 (*Fishtank*)
- Image 3 (*Montage*)

This binder also contains the product registration card.

The other binder contains this user manual. Note that you can easily slip the manual out of the binder to use it separately if your working area is small.

Copying PhotoMac to Hard Disk

Before you install PhotoMac, take a moment to fill out the product registration card. Returning this card ensures full product support, and also ensures that you will receive product updates and support literature as they become available.

After you install the program, copy Images 1 and 2 to your hard disk. In total, the images require 1 MB of disk space. PhotoMac requires about 500K disk space for storage, and at least 1.5 MB when running.

Warning PhotoMac cannot be run from a floppy disk. You *must* copy the program onto your hard disk.

1. Pull down the File menu and select *New Folder*, or type Command-N.

   A folder icon appears in the Finder.

2. Name the folder "PhotoMac® Program."

3. Insert the PhotoMac Program disk into the disk drive.

   After a few moments, the PhotoMac Program disk icon appears on the desktop.

4. If the window isn't open, double-click on the icon to open the disk.

   You'll see the PhotoMac icon.

5. Drag the PhotoMac icon to the *PhotoMac Program* folder.

   The program is copied onto your hard disk.

6. Drag the "SendPS 2.0" icon to the *PhotoMac Program* folder.

   SendPS *is an Adobe program which allows you to download separation files to a PostScript printer.*

7. Select **Eject** from the File menu to eject the PhotoMac disk from the drive.

   Alternatively, you can drag the PhotoMac Program disk icon into the trash, or type Command-E.

8. Insert the Image 1 disk into the disk drive.

   After a few moments, the Image 1 disk icon appears on the desktop.

9. Open the disk icon and drag the *Watch* file into the PhotoMac folder.

   A display will inform you about the progress of the copying.

10. When the copying is complete, eject the Image 1 disk, insert the Image 2 disk, open the disk, and drag the *Fishtank* file into the PhotoMac folder.

11. When the copying is complete, eject Image 2.

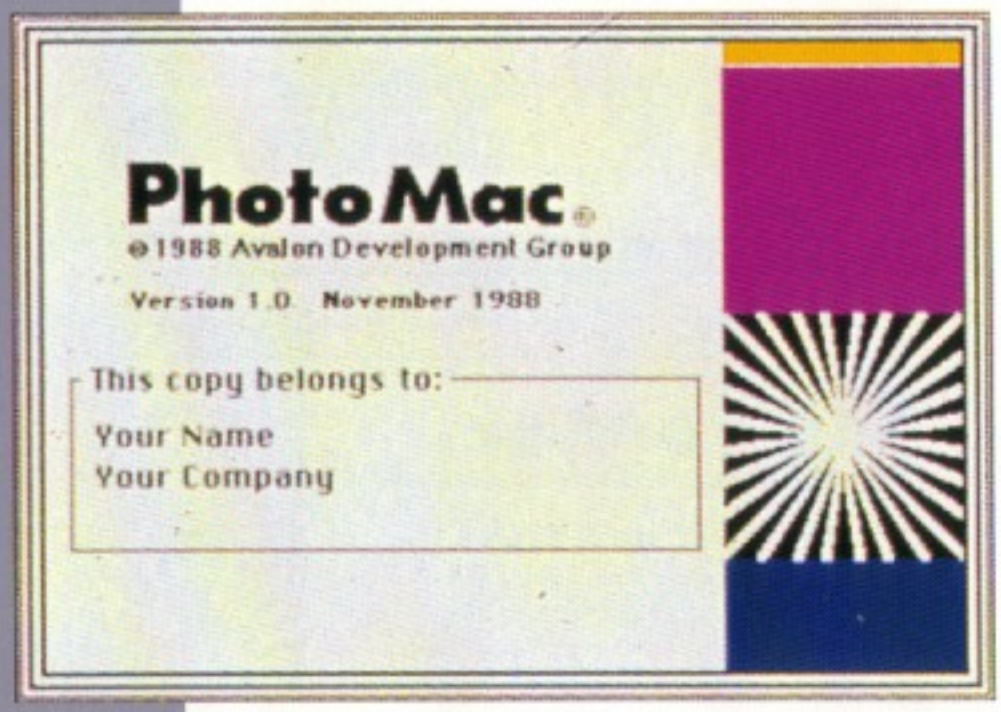
The file on the Image 3 disk does not have to be copied at this time. In fact, Image 3 is not used in any of our tutorials; it's part of the image on our package, and we've included it so you can practice using PhotoMac.

The final step is to make sure that your monitor is configured for color and is set to 256 colors in the Control Panel desk accessory. The Macintosh II documentation describes using the Control Panel and setting the monitor colors.

Personalizing PhotoMac

The first time you run PhotoMac, you'll see a dialog box allowing you to personalize your copy.

Whenever you run PhotoMac, you'll see a dialog box showing this information.



Your name and company will also appear on your separation films.

Section 2
Learning PhotoMac

SECTION 2

CHAPTER 3: A TOUR OF THE TOOLS

CHAPTER 4: TUTORIAL

Chapter 3
A Tour of the Tools

The easiest way to become familiar with PhotoMac is to use the tools and controls. In this Tour, you'll use the tools to alter the Fishtank file—you'll color correct the image, airbrush over existing features, and duplicate selected areas. You'll use the controls to change the overall brightness of the image and to zoom in for detailed work.

Before you start, you must install PhotoMac on your hard disk. You should also have a copy of Image 2 in the PhotoMac folder. Chapter 2 provides instructions for installing PhotoMac and copying images onto your system.

Start PhotoMac by double-clicking on its icon in the PhotoMac folder. The PhotoMac menu appears.

Now you need an image to work with.

1. Pull down the File menu and select **Open**.

2. Double-click on the file named *Fishtank*.

   A picture of a fishtank appears on the screen. There are two fish in the water and a shell lying on the sand at the bottom of the tank. Use the scroll tools or zoom box to see the entire image.

Along the left side of the *Fishtank* window, you'll see the PhotoMac tool palette.

The first three tools—the rectangle, lasso, and autoselect tool—are the selection tools.

Next is the grabbing hand, which allows you to reposition the image.

The next four are retouching tools—the paintbrush and airbrush for applying opaque or transparent paint, the eyedropper for selecting a paint color directly from the image, and the eraser for deleting parts of the image.

Below the eraser is the color correction control, which adjusts colors in the image. Then comes the tone scale control, which adjusts brightness and contrast.

The current magnification box reports the magnification of the current view of the image. The view is controlled by the zoom in (enlargement) and zoom out (reduction) tools. The current color box shows the currently-selected paint color.

Below the current color box is a gray rectangle. Whenever you've changed the colors in the image and PhotoMac recognizes the need to refresh the colors in the display, this gray area will show the refresh colors icon.

You can click on this icon to trigger the redisplay immediately, or you can continue working. If you pause for more than four seconds, your cursor changes to the refresh cursor, and PhotoMac repaints the picture, optimizing the Macintosh palette for the new combination of colors in the image.

Using the Selection Tools

- Use the rectangle tool to select rectangular areas. Once you've made a selection, you can move it, duplicate it, paint it, or change its colors.

1. Click on the rectangle tool.

   The pointer looks like crosshairs when you move it over the image.

2. Position the crosshairs pointer at one corner of the shell.

3. Drag the rectangle around the shell, and release the mouse button.

   A moving dotted line, called a marquee, outlines the area you selected. The crosshairs pointer changes into an arrow when you move it inside the marquee. If you make a mistake and want to start over, just move the pointer outside the marquee so it looks like crosshairs, then click the mouse button to cancel the selection.

4. Choose **Copy** from the Edit menu.

   The Copy *command stores a copy of the selection in the Clipboard.*

5. Click on the sand near the right side of the picture, and choose **Paste** from the Edit menu.

   The screen clears briefly, then PhotoMac refreshes the image. The Clipboard copy of the shell appears centered over the place you clicked, covering the sand there.

The selection is still outlined by a marquee, which means it is still active. If you want to reverse an operation on a selection, you can usually do so as long as the selection is active.

6. Choose **Undo Paste** from the Edit menu.

   The Paste *is canceled and the copy of the shell disappears.*

- Use the lasso to select irregularly-shaped areas.

7. Click on the lasso in the palette.

   The pointer turns into a lasso when you move it over the image. Draw selections with the dangling point of the lasso.

8. Position the lasso next to the silver fish. Press and hold the mouse button while you drag the lasso completely around the fish, then release the mouse button.

   Don't worry about including some water in the selection; just make sure you get all of the fish.

9. Move the pointer inside the marquee, press the Option key, and drag the marquee elsewhere in the fishtank.

   The Option key creates a duplicate of the selected area. When you release the mouse button, the duplicate appears inside the marquee in its new position.

10. Click on the sand in the fishtank.

    The marquee disappears. Clicking outside the marquee with one of the selection tools cancels the selection, pasting it into the image in its current position.

- The autoselect tool selects discrete image areas, using the colors you indicate as a starting point for its search. It works best on single-color regions with well-defined boundaries.

11. Click on the autoselect tool.

    When you move the pointer back on the image, it turns into crossed arrows. Make selections with the intersection of the arrows.

12. Position the pointer in the water and drag it in a short line, being careful not to touch the fish or the sand. Then release the mouse button.

    After a pause, the marquee outlines the water; the fish and sand are not selected.

If some of the water is outside the marquee, you can include it by pressing the Shift key and selecting again with the lasso or rectangle. If the marquee extends into the fish or sand, you can remove areas from the selection by pressing the Shift and Command keys, then selecting. This way, you can edit the marquee to make the selection as exact as you wish.

Note If the pause lasts more than a minute, you've probably selected the fish or sand by dragging through them. The selection is "growing" out into these areas. Halt the selection process by Clicking on the Stop button in the progress indicator dialog box. Then, to clear the selection and start over, position the pointer outside the marquee and click the mouse button.

Now you're ready to change the color of the water.

The RGB system allows you to adjust the relative amounts of red, green, and blue in the image. Red, green, and blue are the primary (or additive) colors in light.

A temporary electronic mask is created when you make a selection and click on the paintbrush, airbrush, eraser, color correction control, or tone scale control. The mask protects the unselected parts of the image during your retouching or color correction operation.

Using the Color Controls

The color correction control lets you change the colors in an image using two color systems: RGB (red-green-blue) and LHS (luminance-hue-saturation).

Try the RGB system first. Use the RGB controls to change the red, green, and blue components of the water.

1. Click on the color correction control.

   The aquarium changes dramatically. The water is shown in full-color, while the rest of the image looks like it's been covered with a gray mask. Any operation you perform will affect only the full-color selection.

A dialog box shows the RGB (red-green-blue) sliders and a color grid. The color grid displays all the shades in the selection arranged by hue and saturation.

If the color grid shows colors other than the blue of the water, you can deselect those colors so your RGB change affects only the blue. Deselect a color by pressing the Command and Shift keys while you click on the corresponding color tile.

2. Click on the slider in the middle of the red bar and drag it to the left.

   As you move the slider, the amount of red in the water decreases. Notice that the colors in the grid change as the image changes.

3. Move the green slider to the right.

   The amount of green increases.

4. Move the blue slider to the left.

   You've reduced red and blue, but increased green, so now the water looks green.

5. Click on the **OK** button.

   Clicking OK records your changes and dismisses the color change box.

■ Now you'll use the LHS controls to make the water look pink.

6. Pull down the Options menu and choose **LHS Color Correction**.

7. Click on the color correction control.

   The LHS dialog box contains the hue wheel, the saturation slider, and the color grid. Again, the unselected areas of the image are masked.

8. Move the saturation slider to the left.

   As you move the slider, the green becomes less vivid. The slider affects the saturation—the intensity of the colors—in the image. At very low saturations, an image may even look gray.

9. Move the saturation slider to the right.

   Now the color become increasingly vivid. At very high saturations, colors take on an almost neon appearance.

10. Position the pointer over the hue wheel and drag the needle through the spectrum until the water looks pink.

    The hue wheel changes the colors in the image. As you rotate the needle in the wheel, you pass through all the hues in the Macintosh II's spectrum.

If you don't like a color change, you can reverse it.

11. Click on the **Reset** button.

    The slider bar snaps back to the middle of the sliders, and the color reverts to green.

12. Dismiss the LHS dialog box by clicking on the **Cancel** button.

***Hue** is pure color. It's what we mean when we say something is red or green or blue. **Saturation** is the "purity" of the color. Highly saturated colors are vivid, while less saturated colors are washed out or muddy. For example, scarlet red is a high saturation color; maroon red has low saturation. **Luminance** describes how light or dark a color is. For example, pink has a higher luminance value than does red.*

A histogram is a graph showing the distribution (in this case) of luminance values in the image. A dark image will have most of the peaks concen-trated at the left side of the graph; a bright image will have peaks concentrated on the right. Ideally, the peaks should be distributed as evenly as possible along the entire chart.

Adjusting Brightness and Contrast

1. Click on the tone scale icon.

   The tone scale box contains the brightness and contrast controls. These controls work in the same way as the brightness and contrast controls on a television set.

The tone scale box also shows a histogram of luminance values throughout the image. When you adjust the brightness or contrast, the histogram shows it graphically

2. Move the brightness slider to the right.

   The picture becomes brighter. Moving the slider all the way to the right makes the image look like it's flooded with bright sunlight.

3. Move the brightness slider slowly back to the left.

   The picture becomes darker.

4. Click on **Reset**.

   The picture returns to its original brightness.

5. Move the contrast slider to the left.

   The picture loses some of its definition.

6. Move the contrast slider to the right.

   The contrast between the colors in the picture increases.

7. Click on **Reset**.

   The picture returns to its original contrast level.

The tone scale box also holds the Auto button, which automatically adjusts brightness and contrast to produce a more regular histogram for the image. You can use the Auto button by itself or in combination with the sliders.

8. Click on **Auto**.

   There's a slight change in the luminance histogram as Auto takes effect. The overall brightness and contrast of the image increase.

9. Click on **OK**.

   This records the changes you've made and closes the tone scale box.

10. Press the Command key and click inside the marquee to cancel the selection.

Painting

The paintbrush applies color in solid lines. PhotoMac lets you match the paint color to image colors, or you can select from the Macintosh II's extensive palette. The paint color you select can be made opaque or transparent.

Before you start, select the color you wish to use.

1. Choose **New Paint Color** from the Options menu.

   A dialog box shows the color picker.

2. Click in the color wheel and drag the pointer to a shade of green.

3. Click on **OK** to put away the color picker box.

The color you selected appears in the current color box.

4 Select **Transparent Paint** from the Options menu.

5. Click on the paintbrush in the tool palette.

6. Paint over the pale areas of one of the silver fish.

   As you paint, the color will appear opaque. However, when you release the mouse button, the image refreshes itself and the color you painted looks transparent.

Airbrushing

The airbrush sprays color onto the image. Use it now to retouch one of the fish. First, use the eyedropper tool to "pick up" a color from the image.

1. Click on the eyedropper tool in the tool palette.

2. Position the eyedropper on the tail of the orange fish and click the mouse button.

   Look at the current color box to see if it contains the orange-pink color of the tail. If it's green, you selected the color from the water. Try selecting the tail color again.

3. Click on the airbrush in the tool palette.

4. Select **Airbrush Size** from the Options menu.

5. Type **20** in the size box and click on OK.

   You'll use an airbrush smaller than the default PhotoMac airbrush.

6. Select **Opaque Paint** from the Options menu.

7. Position the airbrush over the end of the fish's tail.

8. Press the mouse button and drag the airbrush from the tail out toward the left.

   When you release the mouse button, the airbrush stroke ends.

9. Keep airbrushing until the entire tail is longer.

Erasing

Use the eraser to delete parts of an image. As with the other tools, you can also Undo after erasing.

1. Click on the eraser tool.

2. Drag the eraser over the sand at the bottom of the aquarium.

   The path of the eraser turns white. Now use the Undo command to cancel your last action.

3. Choose **Undo** from the Edit menu.

   The sand you just erased reappears. Undo *only affects your last action. If you dragged the eraser twice, only the second erasure can be reversed.*

Zooming In and Out

Use the zoom controls to magnify or reduce your view of an image. You can zoom in for detailed work on the pixel level, or zoom out to show an entire image. The tools and color controls work at every magnification.

1. Click on the **Zoom In** icon (the large mountains).

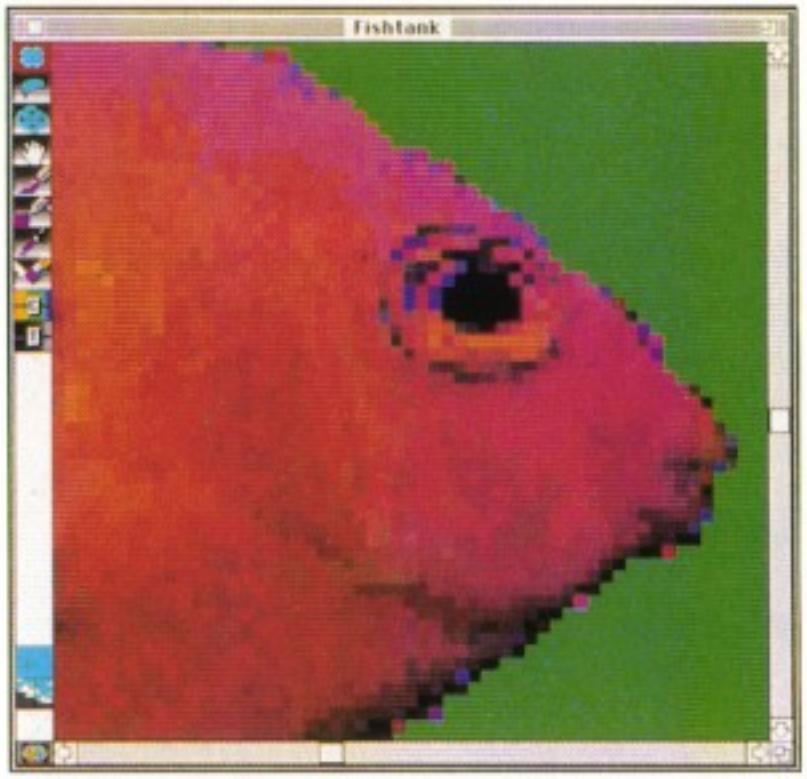
   After a pause, the image appears at 2x magnification. The middle of the image is centered over the last place you clicked the mouse.

2. Click on the **Zoom In** icon two more times.

   The image appears at 4x and then 8x magnification. At this magnification, you can see the individual pixels in the image. Now you can use the paintbrush, airbrush, or color change tools to retouch the image in very fine detail.

3. Choose **Paintbrush Shapes** from the Options menu.

   A box appears with a variety of brush shapes.



4. Click on the smallest brush size in the upper-left corner of the box.

   With this tiny brush you paint individual pixels.

5. Click on **OK**.

6. Click on the paintbrush in the tool palette.

Go ahead and experiment with fine retouching. You can match colors in the image using the eyedropper or add new colors by selecting a *New Paint Color* using that command in the Options menu.

7. To return to the normal view, double-click on the current magnification box.

   Or, you can click on the Zoom Out icon (the small mountains) three times.

Using the Grabbing Hand

Use the grabbing hand to move the entire image, in the same way as you would use the scroll box.

The hand will work only if the window is smaller than the picture being displayed. If the window and the picture are the same size, make the window smaller using the resize box at the lower right corner of the window. Drag the resize box toward the top left to make the window smaller.

1. Click on the hand icon in the tool palette.

2. Position the hand in the image, press the mouse button and drag the image to reposition it.

Now you can see the parts of the image that were hidden.

Ending the Tour

If you want to save your changes without replacing the Fishtank file, choose *Save As* from the File menu. Type "Aquarium" for the file name and click on the *OK* button.

To end the tour of the tools without saving your changes, click on the close box at the upper-left corner of the window. A dialog box will ask you if you want to save your changes. Click on *No*.

Summary of what you've learned

In this brief tour, you've already learned a great deal about how to use PhotoMac. You've covered:

- Selecting images
- Duplicating parts of images
- Changing the color, brightness, and contrast of images using the controls
- Retouching images with the paintbrush and airbrush
- Matching image colors
- Zooming in for detailed work, and zooming out for broad views
- Moving the image around with the grabbing hand

Chapter 4
Tutorial

When graphic designers or photographers create a photomontage, they go through a time-consuming and often expensive procedure. PhotoMac makes retouching and montaging much more simple. You can electronically change colors, combine images, rearrange parts of the picture, and create an array of special effects.

In this tutorial, you'll change the color of a watch, then combine it with an aquarium to create a photomontage. You'll carry out the steps shown in the introductory videotape.

You should have a copy of PhotoMac on your hard disk, and copies of Image 1 and Image 2 in your PhotoMac folder. If you have not yet done so, follow the instructions in Chapter 2 for installing PhotoMac.

Note This exercise uses two full-color images; it therefore requires at least 3MB available memory on your hard disk.

If you quit PhotoMac after taking the Tour of the Tools, restart it now by double-clicking on the PhotoMac program icon.

Step 1
Opening a PhotoMac Picture

First, you'll open an image file and change colors in the image.

1. Choose **Open** from the File menu.

   A dialog box lists the images PhotoMac can handle.

2. Highlight *Watch* and click the **Open** button.

   A picture of a silver watch on a blue backdrop appears on the screen.

Step 2
Selecting the Watch

1. Click on the autoselect tool.

   When working with a solid background and a variegated object, it's easier to select the background first and just reverse the selection.

2. Drag the autoselect tool in a short line through the blue. Be careful not to go inside the watch.

   After a few moments, two marquees appear. One outlines the watch and the other surrounds the entire picture. The selected area is between the two marquees.

3. Choose **Reverse Selection** from the Edit menu.

   The unselected areas of the image are now selected, and the original selection is deselected. A single marquee outlines the watch.

Step 3
Changing Colors

You can easily make the silver watch into a gold one using RGB Color Correction.

If you just completed the Tour of the Tools, your system is probably set to LHS Color Correction. Pull down the Options menu and, if necessary, change the setting to RGB Color Correction.

1. Click on the color correction control in the tool palette.

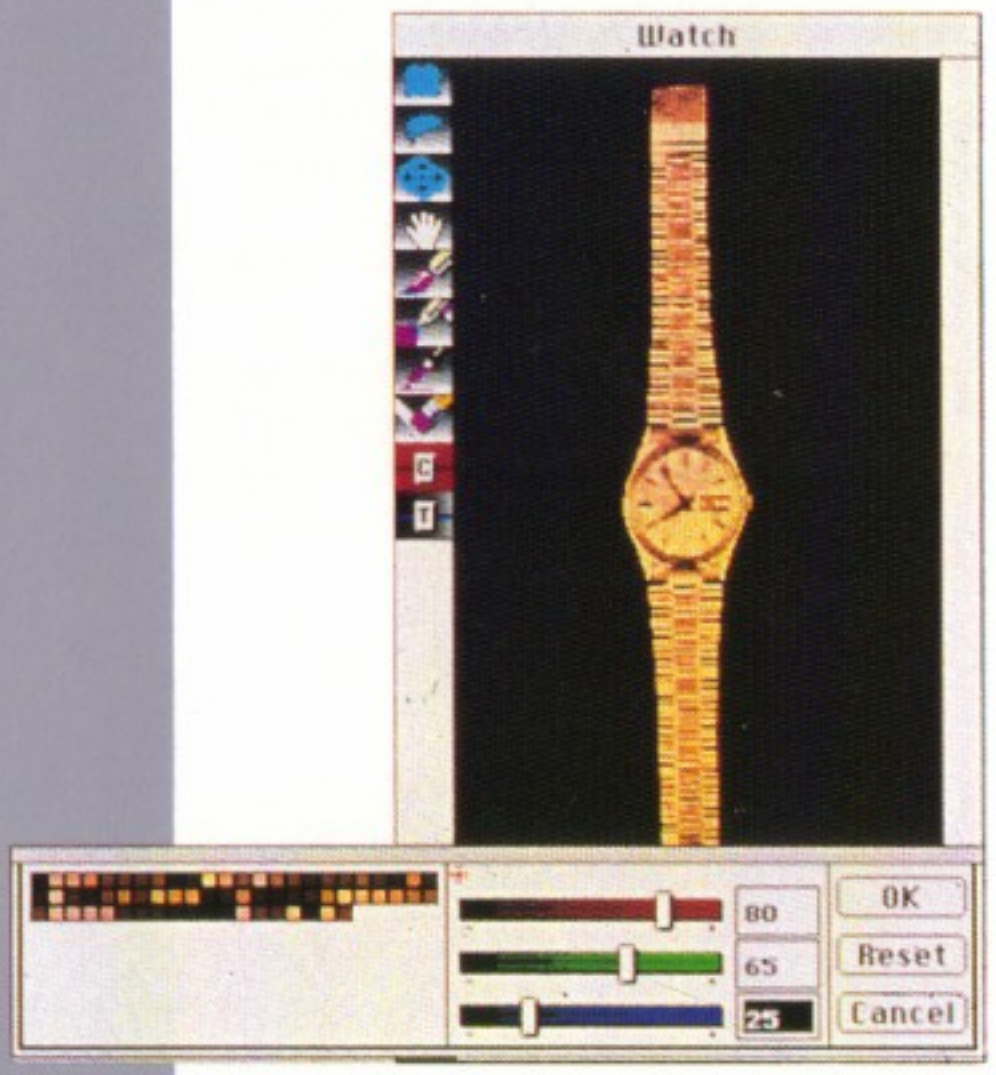
   The watch appears in full color, while the rest of the picture is masked. The color correction dialog box contains a color grid and three sliders, one each for red, green, and blue.

2. Move the red slider to the right until the numeric readout is between 75 and 80.

3. Move the green slider to the right until the numeric readout is between 60 and 65.

4. Move the blue slider to the left until the numeric readout is between 25 and 30.

   If you prefer a lighter or darker shade of gold, continue to adjust the red, green, and blue sliders until you find a color you like.



5. Click the **OK** button.

   The color correction dialog box closes. The watch is still outlined by a marquee. Now you can cut it out in preparation for creating the photomontage.

6. Choose **Cut** from the Edit menu.

   The watch disappears from the document. It's stored in the Clipboard.

Step 4
Opening a Second Picture

Next, you'll open the aquarium file and copy the watch into it. With PhotoMac, you can have several files open at once; the number of picture files is limited only by the available disk space.

1. Choose **Open** from the File menu.

2. Select *Fishtank* from the Open dialog box and click the **Open** button.

   A picture of a fishtank appears on the screen. The watch file is still open, but is hidden behind the fishtank file.

If you have a standard size Macintosh II screen, you probably see only the fishtank image now. If you have a large screen, however, you may also be able to see the title bar and tool palette of the watch document.

Step 5
Combining Images

Now, paste the Clipboard copy of the watch into the fishtank.

1. Choose **Paste** from the Edit menu.

   The watch appears in the fishtank.

Note *Don't click the mouse button outside the selection marquee yet.* Doing so will cancel the selection. The watch should remain selected from here through the end of step 7.

2. Move the pointer inside the watch and drag the watch so it is centered between the two fish.

Step 6
Rotating and Resizing the Watch

The watch is "floating" on the image. This means you can move it around without affecting the image beneath. Using the Resize and Rotate commands, you'll make the watch smaller and rotate it to another angle.

1. Choose **Resize** from the Arrange menu.

   A marquee with four handles replaces the standard selection marquee.

2. Position the pointer on one of the handles

   The cursor changes to four arrows.

3. Press the Shift key and drag the handle toward the middle of the selection.

   When you release the mouse button, the watch shrinks without changing its proportions. If you drag without holding down the Shift key, the image will be resized, but it will also be distorted to exactly fit the dimensions of the marquee.

4. Choose **Rotate** from the Arrange menu.

5. Drag the handle on the marquee to rotate the selection to the position you prefer.

   When you release the mouse button, the watch rotates into position. The watch is still selected.

Step 7
Blending Boundaries

To make the watch look as if it had been originally photographed inside the tank, blur the line between the watch and the rest of the tank.

1. Choose **Blend Boundary** from the Effects menu.

   The border between the watch and the fishtank is blurred slightly.

2. Click outside the marquee to deselect the watch.

   When you deselect the watch, it is fixed into the image (that is, it's no longer floating).

Step 8
Duplicating a Fish

To give a more realistic look to the fishtank, try adding some more fish.

1. Use the rectangle tool to select the bright orange fish and a portion of the water around it.

2. Choose **Copy** from the Edit menu.

   A copy of the fish is stored in the clipboard.

3. Draw a smaller rectangle in the lower right corner of the fishtank, just above the sand.

4. Select **Paste** from the Edit menu.

   The Clipboard copy of the fish is pasted into the small rectangle. Note that the fish is resized and possibly stretched to fit the marquee.

5. Select **Flip Horizontal** from the Arrange menu.

   The small fish is flipped so it is swimming in the direction opposite the original.

Step 9
Increasing the Contrast

The photomontage is complete. But it isn't as crisp as it could be. Let's fix that. This step will be carried out on the whole picture.

1. Choose **Select All** from the Edit menu.

   A marquee surrounds the entire image.

2. Click on the tone scale control.

   A dialog box shows the brightness and contrast controls and the Auto button.

3. Click on **Auto**.

   PhotoMac automatically adjusts the brightness and contrast in the picture.

4. Click on **OK** to close the tone scale box.

Now you're ready to save your new document.

Step 10
Saving the Montage as a PhotoMac File

1. Choose **Save As** from the File menu.

2. Type in *Fish Time* and click on the **Save** button.

   The name Fish Time *will replace* Fishtank *in the title bar, and the file will be saved on your hard disk.*

At this point, you can close the *Fish Time*, *Fishtank*, and *Watch* files. With *Fishtank* and *Watch*, a dialog box will ask if you want to save your changes. Click on No to retain the files in their original form. This way, if you want to repeat part or all of the tutorial, you can do so at any time without having to reload the files from floppy disk.

Section 3
Using PhotoMac

SECTION 3

CHAPTER 5: STARTING AND QUITTING PHOTOMAC

CHAPTER 6: VIEWING IMAGES

CHAPTER 7: SELECTING IMAGE AREAS

CHAPTER 8: COMBINING IMAGES

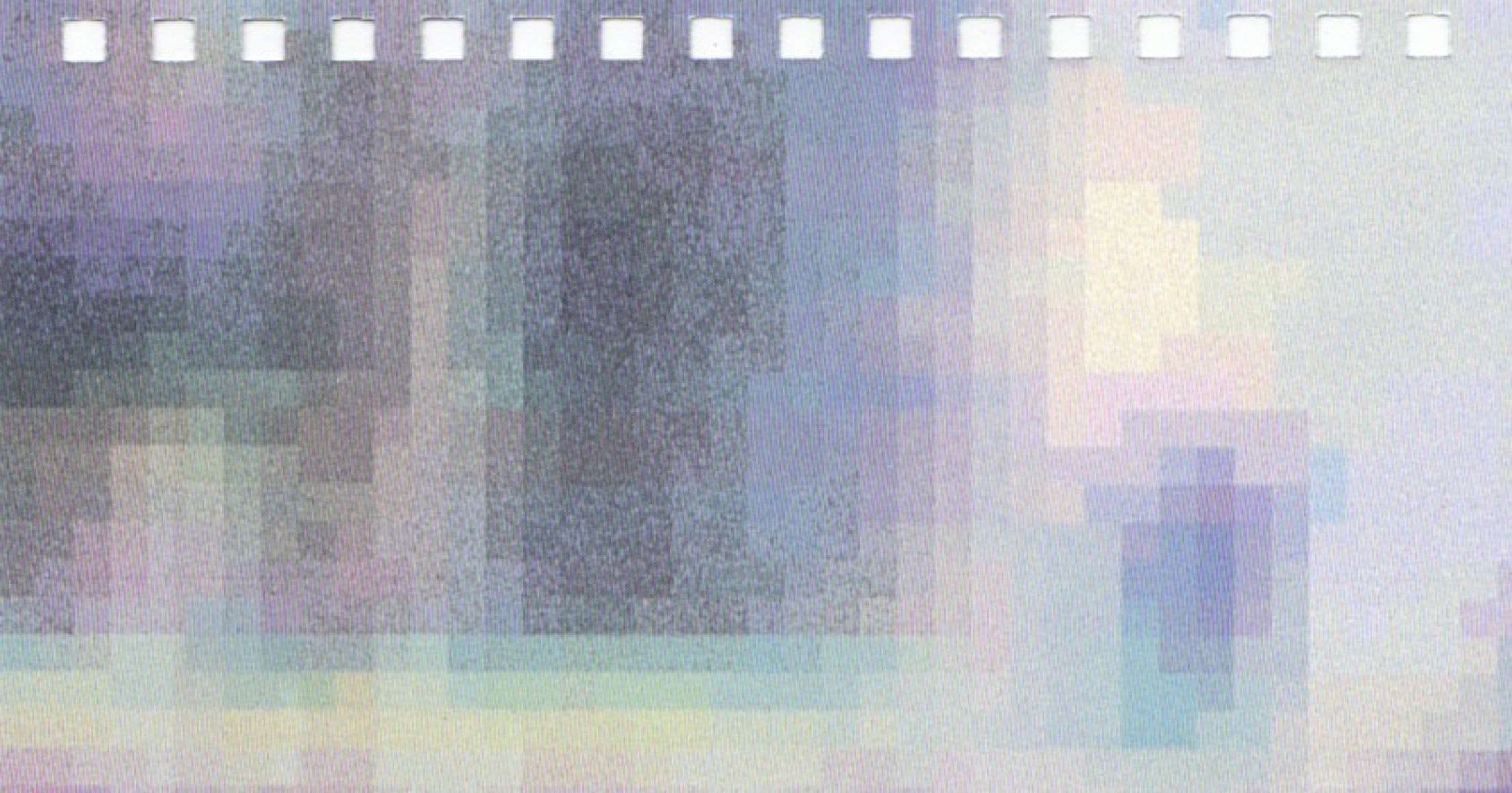
CHAPTER 9: ARRANGING IMAGES

CHAPTER 10: RETOUCHING IMAGES

CHAPTER 11: CHANGING COLOR AND TONE

CHAPTER 12: CREATING SPECIAL EFFECTS

CHAPTER 13: IMPORTING AND EXPORTING IMAGE FILES



Chapter 5
Starting and Quitting PhotoMac

This chapter explains how to:

- Start PhotoMac on your Macintosh II
- Open and close files
- Save files
- Quit the PhotoMac program

Starting PhotoMac

To get started with PhotoMac, first turn on your Macintosh II. If you haven't installed PhotoMac on your hard disk, do so now (see Chapter 2). When properly installed, you'll find the PhotoMac icon inside the PhotoMac® folder in the Finder.

Start PhotoMac in one of two ways:

- ☐ Click on the PhotoMac icon, pull down the File menu and select *Open*, or simply double-click on the PhotoMac icon.

  You'll see the PhotoMac menu bar.

- ☐ If you already have a PhotoMac image file on disk, double-click on the file icon in the Finder.

  PhotoMac starts and opens the image file.

Defining a New Document

PhotoMac lets you create a new, empty document into which you can paste images as though creating a collage on a white background.

1. Select New from the File menu, or type Command-N.

   A dialog box requests the document dimensions.

2. Type in the dimensions in pixels.

   Type in any height or width between 100 and 32,000 pixels.

   If you don't type in new values, PhotoMac sets the dimensions to 600 x 400 pixels, the size of the default PhotoMac window. Clicking on the OK button or pressing Return creates the new document. Clicking on the Cancel button closes the dialog box without creating a new document.

Opening Image Files

1. Pull down the PhotoMac File menu and choose **Open**.

   The Open box lists all the PICT, TIFF, TARGA, and VISTA image files on your disk.

2. If necessary, move to the appropriate folder, then select the file you want and click on the **Open** button.

   After a pause, the image is displayed on the screen. Larger images take more time to open than smaller ones.

Opening Multiple Files

PhotoMac lets you open more than one image file at the same time. With two or more windows open, you can cut and paste between images quickly and easily.

You can only work in one window at a time. The current window is called "active," the other open window(s) are inactive. To make a window active, you simply click in it. When you do, the following changes occur:

- The image in the active window is displayed in full color and, in the inactive window(s), in masking grays.
- The window elements (the scroll bars, close box, resize box, and the lines in the title bar) appear in the active window and disappear in the inactive window(s).
- The active window moves to the front of the desktop, with the inactive window(s) behind it.

1. Choose **Open** from the PhotoMac File menu.

   The Open box lists the image files.

2. If necessary, move to the appropriate folder before you select the file you want and click on the **Open** button.

   The image you selected appears in the document window.

3. Repeat steps 1 and 2, but select other image files.

   Each new image appears at the front of the desktop as the active, frontmost window.

You can open more than two files simultaneously, depending on available disk space. For each file you open, PhotoMac creates up to three temporary copies, and stores these copies on hard disk.

Note You cannot open the same file twice. If you try to do this, a warning message appears. To display two copies of the same image, save the file under two different names, then open both files.

Saving Image Files

There are two ways to save PhotoMac image files. You can save a new file under a new name, or you can save changes to a titled file.

In addition to the standard Macintosh Save commands, PhotoMac also lets you save parts of an image as a separate file (see "Saving Selections" in Chapter 7).

To Save a File

☐ To save a file, pull down the File menu and select **Save**.

Instead of using the menu, you can press Command-S. PhotoMac automatically saves your image file.

- To save a new, untitled picture, use the Save As command instead.

To Save a File under a New Name

1. Move the pointer to the File menu, pull it down and select **Save As**.

2. Type the name under which you want to save the file and click on the OK button.

   Click on the Cancel button instead if you want to cancel the save and dismiss the save box.

Closing Image Files

- ☐ To close the file, choose **Close** from the File menu.

  Or just click on the close box. If you've made changes to the file but haven't saved them, a message asks if you want to save the file before closing it.

Quitting PhotoMac

- ☐ Pull down the File menu and select **Quit**.

  If you've made changes to the open file(s) but haven't saved them, a message asks if you'd like to save the changes.

Chapter 6
Viewing Images

PhotoMac windows look and act like standard Macintosh II windows. You can resize, move, and close them as you would any other Macintosh window. However, unlike many color applications, you can have several image windows open when you're using PhotoMac. Only one window is active and in full color—the one in which you are currently working. The other window(s) will be displayed in gray.

When you open a file in PhotoMac, the window that opens will be as close as possible to the size of the image. If the image is larger than your Macintosh screen, you will have to move the image around to look at hidden sections. You can also enlarge or reduce the image to get a different view.

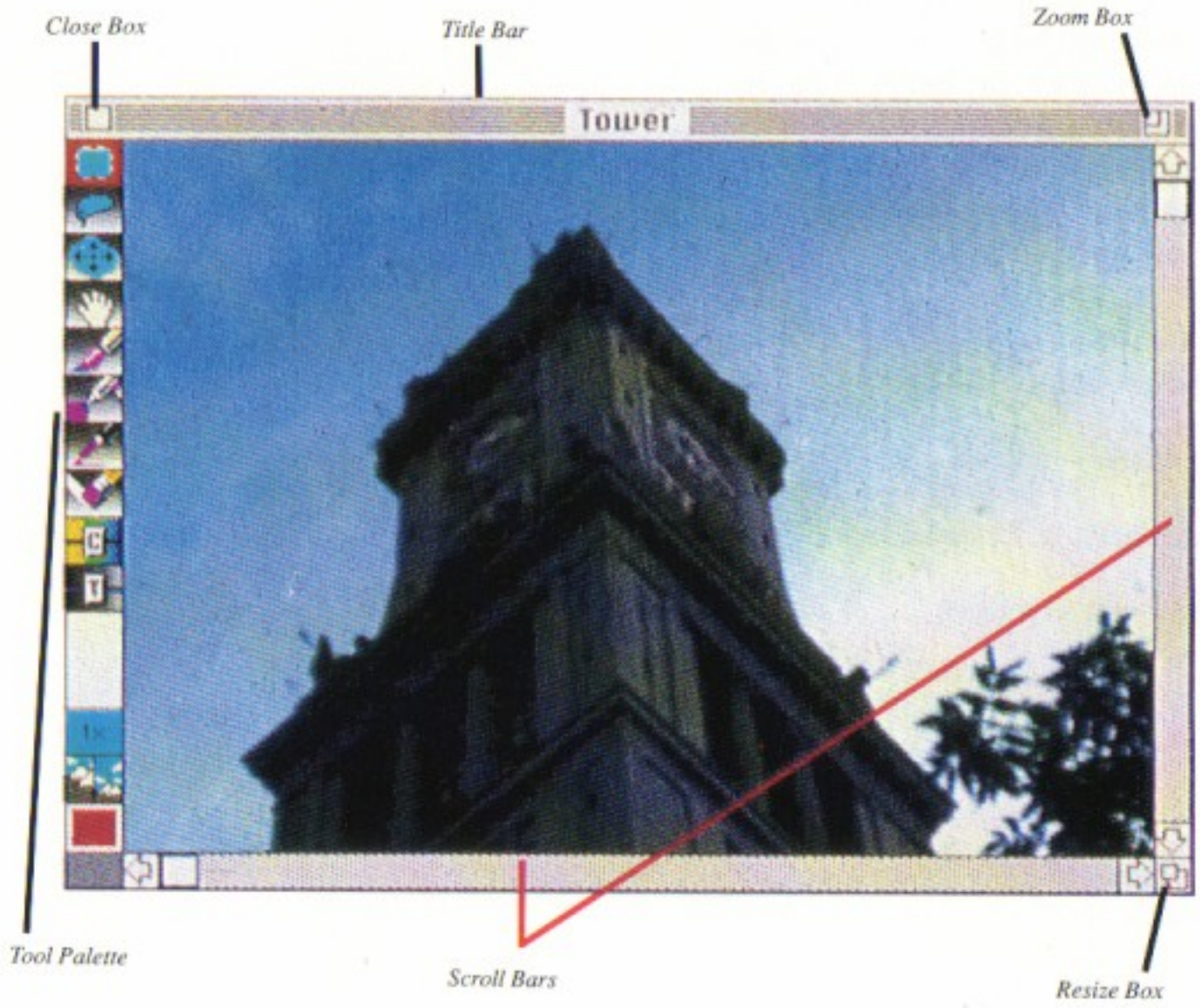
This chapter describes the elements of the PhotoMac window and tells you how to:

- Move and resize windows
- View hidden parts of images
- Magnify and reduce images

Parts of the Window

Each window is comprised of the following:

- a **title bar** showing the name of the file displayed in that window. New documents are "Untitled" until you use one of the Save commands to assign a filename.
- a **close box** (at the left corner of the title bar)
- a **zoom box** (at the right corner of the title bar)
- a **resize box** (in the lower right corner of the window)
- **scroll bars** along the left side and the bottom of the window
- the PhotoMac **tool palette** with the selection tools, retouching tools, color correction and tone scale controls, magnification controls, and refresh colors icon



Moving Windows

☐ Move the pointer to the title bar, press the mouse button and drag the bar.

As you drag, a dotted outline of the window follows. When you release the mouse button, the window appears in the new position. Don't worry about dragging too far; PhotoMac won't let you drag the title bar off the desktop.

Resizing Windows

1. Move the pointer to the resize box, press the mouse button, and drag the box toward the center of the window.

   As you drag, a dotted outline of the window follows. When you release the mouse button, the window changes size. The entire image is still available, but now you view just a portion of it. You can use the resize box again or the zoom box to expand the window.

2. Click on the zoom box.

   The window expands to fill the screen.

3. Click the zoom box again.

   The window returns to its original dimensions.

Changing Your View of an Image

The viewing tools allow you to change your view so you can see hidden parts of an image. This is especially helpful if an image is larger than your Macintosh screen.

To view hidden parts of the image, you can reposition the image with the grabbing hand or scroll the document using the scroll bars. To see an enlarged or reduced view of the image, use the Zoom In and Zoom Out controls.

To Scroll an Image

The scroll bars, scroll arrows, and scroll boxes are active only when your picture is larger than the window, and the grabbing hand is useful only when these scroll tools are visible.

1. Click on the grabbing hand icon in the tool palette.

   When you move the pointer over the image, it turns into the hand.

2. Press the mouse button and drag the image.

   The image moves as you drag it. Note that the scroll boxes move as you move the image. Release the mouse button when you get the view you want.

To scroll the image, you can also:

- press the scroll arrows to scroll slowly
- click in the gray area on either side of the scroll box to scroll more quickly
- drag the appropriate scroll box to move to the desired part of the image

To Enlarge or Reduce an Image

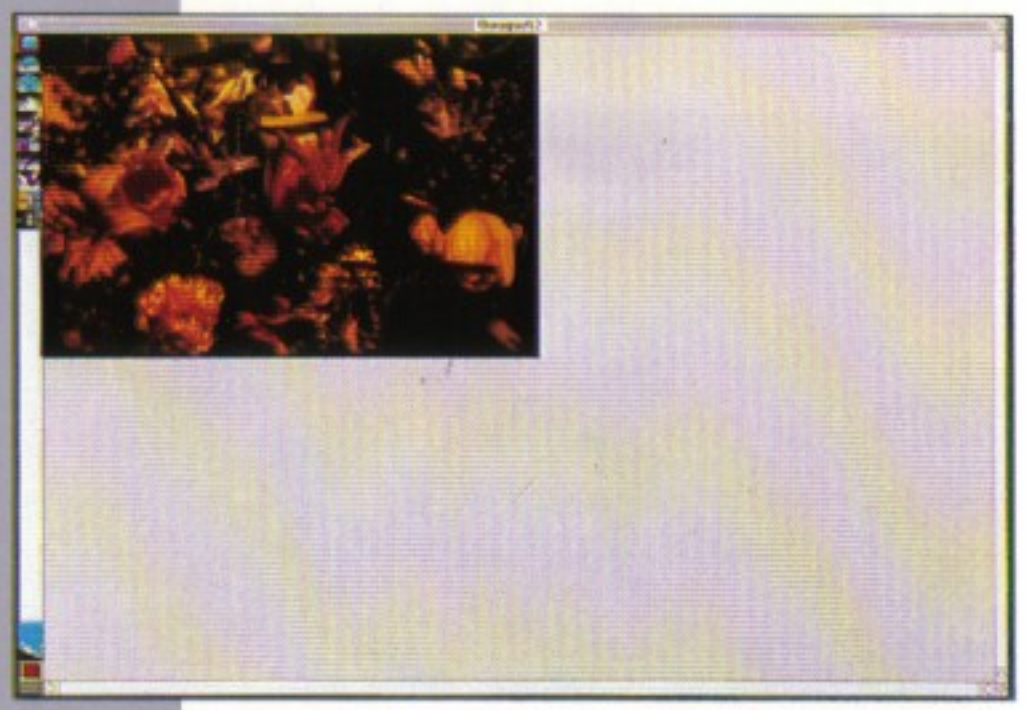
The Zoom In and Zoom Out controls respectively magnify and reduce your view of the image. You can zoom in to view an image in close detail, up to 32 times its original size. You can zoom out to view an image reduced to an eighth of its original size.

1. Click on the Zoom In control (the large mountains).

   The image is enlarged by a factor of two, giving you a closer view. Each additional mouse click magnifies the image by a factor of two. The current magnification box shows the enlargement of the current view (2x, 4x, 8x, 16x, 32x).

Hint If you want to zoom in on a specific part of the image, select the desired area then click on the Zoom In control. PhotoMac will center that area in the screen after the view is enlarged.

Photo: Rudy Burger



2. Click on the Zoom Out control (the small mountains).

   The image shrinks to half its previous size. Each additional mouse click shrinks the image by a factor of two. The current magnifications box shows the reduction of the current view (1/2x, 1/4x, 1/8x).

- To return the image to a 1x view from any magnification, double-click on the current magnification box. Double-click a second time to return to the previous magnification level.

Chapter 7
Selecting Image Areas

Making selections is a basic part of using PhotoMac. You'll seldom work on an entire image; usually, you'll choose a portion of the image and work on just the selection.

The tool palette holds three selection tools. If you've used a Macintosh paint program, you're already familiar with the standard rectangle and lasso tools. They're used to select rectangular and irregularly-shaped areas, respectively. PhotoMac provides a powerful third tool that automatically selects image areas.

When you make a selection, a moving dotted line, called the marquee, outlines the area. You can treat the selected area as a discrete object that you can move, duplicate, rotate, or resize. If you want to retouch the area, a gray mask protects the rest of the image while you airbrush, paint, or color correct the selection. Table 1, at the end of the chapter, lists the operations you can perform on selections.

In this chapter, you'll learn how to:

- Select rectangular areas
- Make freeform selections
- Automatically select areas
- Select boundaries
- Select entire documents
- Reverse selections
- Mask areas
- Move and copy selections
- Save selections

Freeform Selections

1. Click on the lasso in the tool palette.

   The pointer turns into a lasso shape when you move it over the image.

2. Press the mouse button and drag the dangling point of the lasso around the area you want to select.

   The marquee surrounds the selected area. Don't worry about closing the loop exactly; PhotoMac will draw a line between the open ends of the marquee.

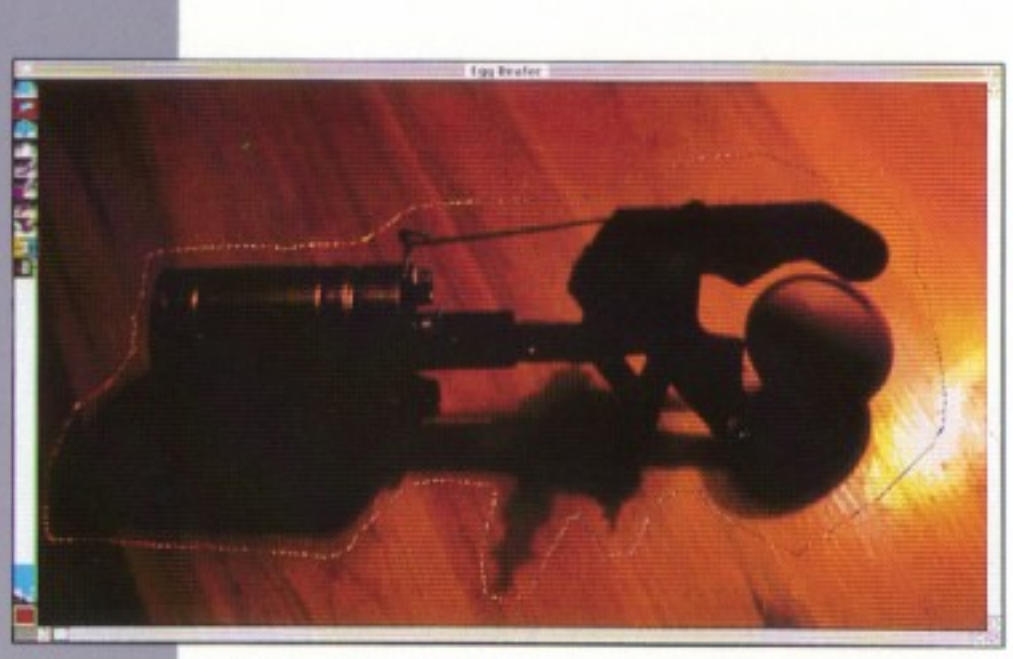


Photo: Steve Hollinger

Selecting Rectangular Areas

1. Click on the rectangle in the tool palette.

   The pointer changes to the crosshairs when you move it over the image.

2. Position the crosshairs at a corner of the rectangular area you want to select, press the mouse button, and drag an outline around the area.

   The points where you pressed and then released the mouse button now make up two opposite corners of the rectangular marquee.

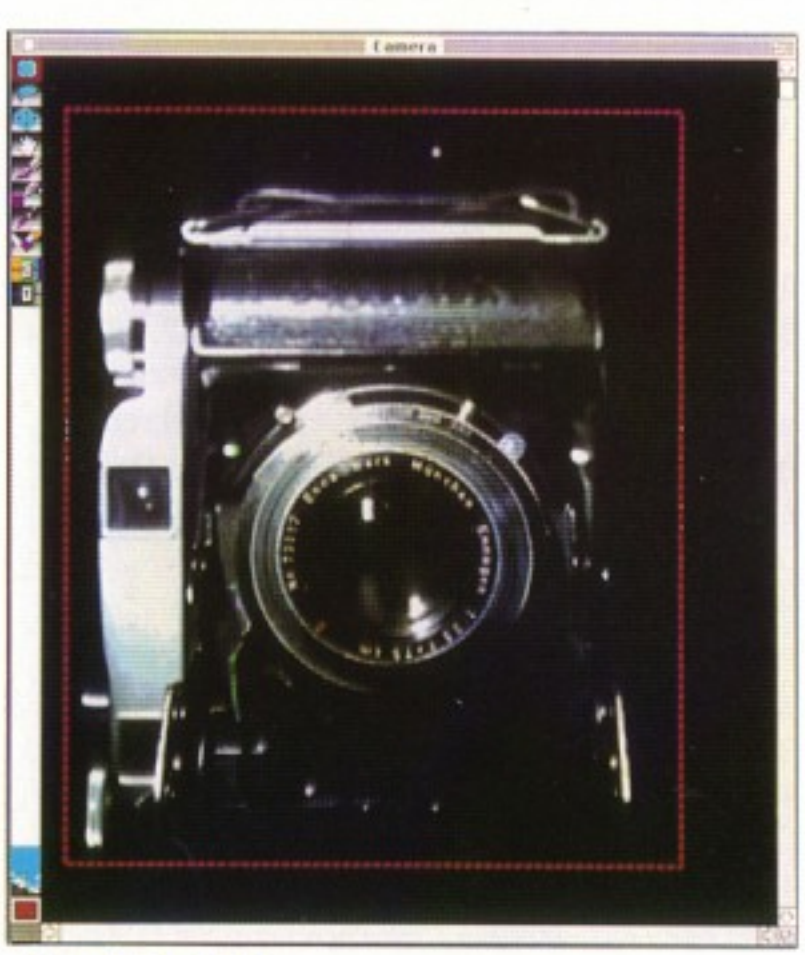


Photo: Wan Chi Lau

Autoselection

The autoselect tool lets you select a discrete image area by dragging in it. It uses the color information you give it to find the boundaries of the area. Once the marquee appears, you can treat the area as you would any other selection—you can move, copy, delete, resize, and so on. The autoselect tool works best on areas with fairly well-defined edges.

To Select an Object

1. Click on the autoselect icon in the tool palette.

   The pointer turns into crossed arrows when you move it over the image.

2. Drag the intersection of the arrows around inside the borders of the object you want to select.

   A marquee outlines the object. If you've chosen an object with ill-defined boundaries or more than one color, you may need to add or remove areas from the selection (see the section "Editing Your Selection").

- When selecting an object, drag the tool inside but as close as possible to the edges of the area without going over into the rest of the image.
- Don't drag through too many colors at one time. When you give it too many colors to work on, the autoselect tool will (a) take a longer time to select and (b) will probably end up selecting more of the image than you want. Even with a picture that seems to have relatively few colors, you may be surprised at how many different shades are present.
- If the area you are trying to select has colors which run through other parts of the image, you may find some bleeding occurs when you use the autoselect tool. Create a temporary, well-defined border by painting a single line in a contrasting color between the desired area and the rest of the image. Then select the area with the autoselect tool. Finally, choose *Undo Painting* from the Edit menu to erase the line of paint. Note that Undo works only on the last action, so the line you paint must be a single, unbroken stroke.
- If you're selecting a complex object which is set against a fairly plain background (like the watch in our tutorial), it may be easier to select the background, then use the Reverse Selection command from the Edit menu to capture the desired object.

To Stop the Autoselection Process

The time required to autoselect an area varies with (a) the size of the area and (b) the number of colors you've marked for selection. If autoselection seems to be taking a long time, it may be because you dragged the autoselect tool through a complex object or one with ill-defined boundaries, so the selection is "growing" out into surrounding areas.

☐ To halt the selection process, click on the Stop button in the progress indicator dialog box.

A marquee surrounds the selected areas.

At this point, you can either cancel the selection (click outside the marquee) and start over, or you can edit the selection.

Editing Your Selection

PhotoMac lets you add and remove areas from your selection. You can use a single tool to refine a selection or use the selection tools interactively.

To Add Areas or Colors to a Selection

1. Make a selection with the rectangle, lasso, or autoselect tool.

2. Click on the rectangle or lasso if you want to define areas to be added, or the autoselect tool if you want to define colors to be added to the selection.

   When you move the pointer over the unselected image, it turns into the rectangle, lasso, or autoselect pointer.

Note You can only make selections when the pointer looks like a selection tool. When you move the pointer into a selected area, it changes to the arrow. If you try to draw a line with the arrow pointer visible, you'll move the selection instead of adding to it.

3. Hold down the Shift key and select the area or color(s) to be added to the existing selection.

   When you add contiguous areas to a selection, the marquee surrounds the entire area. When you add unconnected areas, each area is outlined by a marquee.

To Remove Areas or Colors from a Selection

1. Make a selection with the rectangle, lasso, or autoselect tool.

2. Click on the rectangle or lasso if you want to define areas to be removed, or the autoselect tool if you want to define colors to be removed from the selection.

3. Press the Command and Shift keys, and select the area or color(s) to be removed.

   The marquee outlines the new boundaries of the selection.

You can use this method to remove an area inside an existing selection, creating a cutout. There will be two marquees, one inside the other; the area between the marquees is the selection.

Making Multiple Selections

1. Make a selection using the rectangle, lasso, or autoselect tool.

2. Hold down the Shift key and use the desired tool to make another selection. Again, the pointer must look like a selection tool before you can make a selection.

   Each selected area is surrounded by a marquee.

Making Reverse Selections

1. Make a selection with the lasso, rectangle, or autoselect tool.

2. Choose **Reverse Selection** from the Edit menu.

   Everything except the original selection becomes the current selection. You can reverse the selection again by choosing Reverse Selection a second time.

Selecting Entire Images

If you don't make a selection, most PhotoMac operations act on the whole image. However, to apply the Cut, Copy, Clear, Rotate, Resize, or Fill commands to the entire image, you need to select it first.

To Select the Image Using the Menu

☐ Choose **Select All** from the Edit menu, or type Command-A.

A selection marquee outlines the picture. The next operation you carry out will affect the entire image.

- To cancel the selection, choose **Select All** or type Command-A again.

To Select the Image Using the Tools

☐ Double-click on the rectangle or lasso in the tool palette.

The entire picture is selected.

- To cancel the selection, double-click again on the rectangle or lasso.

Photo: Steve Hollinger

Selecting Boundaries

In some cases, you may wish to perform operations on the area around the selection marquee. PhotoMac allows you to select the boundary and specify the width of the boundary area.

1. Choose **Boundary Width** from the Options menu.

   A dialog box appears requesting the new width.

2. Type in a number between 1 and 20.

   Specify the boundary width in pixels.

3. Click on **OK**.

4. Choose **Select Boundary** from the Edit menu.

   The original single marquee disappears, and is replaced by two marquees delineating the boundary. The space between the two marquees is the width you specified; this area is the selection.

Now you can treat the boundary area as you would any other selection.

Canceling Selections

There are two ways to cancel selections. Both methods deselect all active selections.

1. Choose one of the selection tools, move the pointer outside the selection marquee, and click the mouse button, or

2. Choose one of the selection tools, move the pointer inside the selection, and press the Command key while you click the mouse button.

Moving and Duplicating Selections

Once you've made a selection, you can use the mouse to move it to another position or duplicate it elsewhere in the picture.

To Move a Selection

1. Make a selection with the lasso, rectangle, or autoselect tool.
2. Move the pointer inside the selection.

   The pointer turns into an arrow.
3. Drag the selection any place in the window.

   An outline of the selection marquee moves with the pointer. When you release the mouse button, the selection moves to the new location, leaving white space behind. The selection is floating on the image, so you can move it around without affecting the underlying picture.

- To paste the selection back into the image, click outside the marquee.
- To move a selection in a straight line horizontally or vertically, hold down the Shift key while you drag the selection.

To Duplicate a Selection

1. Make a selection with the lasso, rectangle, or autoselect tool.
2. Position the pointer inside the selection, press the Option key and drag the marquee to its new location.

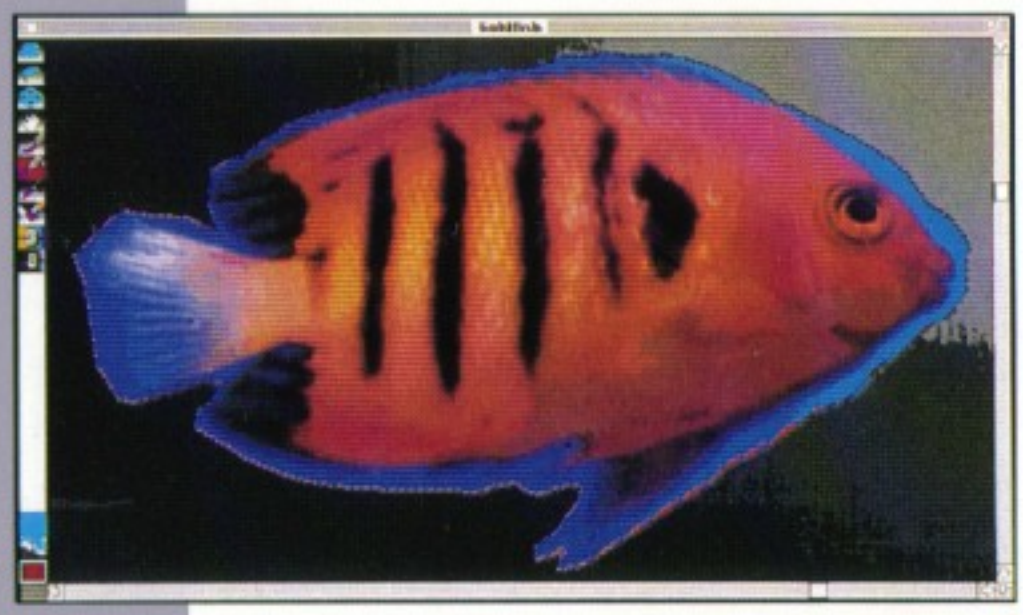
   When you release the mouse button, the selection moves to the new location, leaving the original image unchanged. The selection is floating, so you can move it around without affecting the underlying image.

- To paste the selection back into the image, click outside the marquee.
- To make subsequent duplications, press the Option key and drag the selection again. A copy stays behind where you pressed the mouse button to start dragging.
- To move a duplicate in a straight line horizontally or vertically, press the Shift and Option keys, and drag the selection.

Masking Areas

Graphic designers use a thin sheet of plastic or paper called a frisket to protect part of an image as they paint or airbrush around or across it. You can do the same thing in PhotoMac by applying an electronic mask.

When you retouch a selection or change its colors, PhotoMac applies a temporary mask to protect the rest of the image. The mask goes into place when you make a selection and then click on the paintbrush, airbrush, color correction control, or tone scale control. You'll see the following changes take place:



- The selection appears in color, and the rest of the image changes to masking grays.
- When you move the pointer into the selection, it turns into the paintbrush, airbrush, or color lasso.
- Operations (painting, airbrushing, erasing, color correction, and tone scale) affect the selected area only.

To Mask a Selection

1. Select one or more areas.
2. Click on the paintbrush, airbrush, eraser, color correction control, or tone scale control.

   A gray mask covers everything but the selected area(s).

To Cancel a Mask

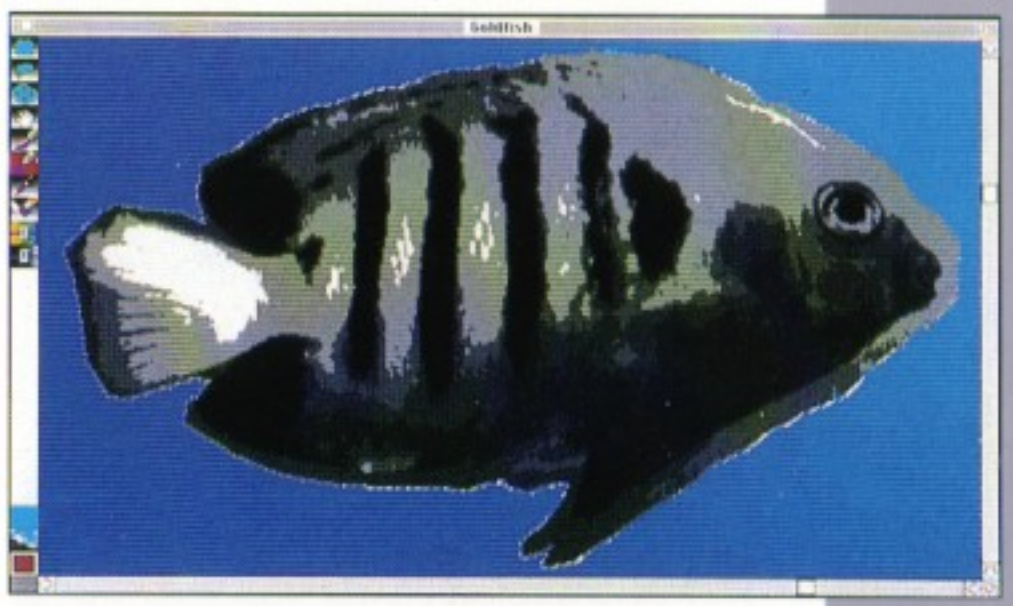
Choosing a selection tool always cancels a mask.

- ☐ If you invoked the mask by making a selection then clicking on the color correction or tone scale control, cancel the mask by dismissing the dialog box.
- ☐ If you painted, airbrushed, or erased before clicking on the color correction or tone scale control, cancel the mask by dismissing the dialog box, then clicking on one of the selection tools.

To Apply a Reverse Mask

1. Make a reverse selection (i.e., select one or more areas, then choose *Reverse Selection* from the Edit menu).
2. Click on the paintbrush, airbrush, eraser, color correction control, or tone scale control.

   A gray mask drops into place over everything but the selected area(s).



To Apply a Cutout Mask

1. Make a selection with the lasso, rectangle, or autoselect tool.

   A marquee outlines the selected area.

2. Move the pointer inside the selection, press the Shift and Command keys and select another area.

   A second marquee appears inside the first. You've punched a hole in the selection.

3. Click on the paintbrush, airbrush, eraser, color correction control, or tone scale control.

   Everything changes to masking grays except the area between the two marquees.

To Reverse a Cutout Mask

1. Make a selection with the lasso, rectangle, or autoselect tool.

   A marquee outlines the selected area.

2. Move the pointer inside the selection, and press the Shift and Command keys as you select another area.

   A second marquee appears, this time inside the first. You've punched a hole in the selection.

3. Pull down the Edit menu and choose **Reverse Selection**.

   Now, everything is selected except the area between the two marquees.

4. Click on the paintbrush, airbrush, color correction control, or tone scale control.

   The area between the marquees becomes masked.

Saving Selections

PhotoMac lets you save selected areas to create a new image file.

1. Make a selection with the lasso, rectangle, or autoselect tool.

2. Choose **Save Selection As** from the File menu.

   The Save dialog box requests a filename,

3. Enter the filename and press the **OK** button.

   The selected region is saved under the name you specify. The file you created can be opened and edited just like any other PhotoMac file.

Operations on Selections

Now that you know how to select image areas, you can change them to suit your design needs. Table 1 lists the operations you can perform on selections. Table 2 summarizes the shortcuts you can use with selections.

Table 1. Operations on Selections

Operation	Menu Command, Tool, or Control	Masks Selection?
Retouching and color change operations:		
Color correction	Color Correction control	Yes
Painting	Paintbrush	Yes
Airbrushing	Airbrush	Yes
Brightness correction	Tone Scale control	Yes
Contrast correction	Tone Scale control	Yes
Special effects:		
Fill with color	Fill	No
Fill with white	Clear	No
Invert colors	Invert Colors	No
Create a positive from a negative	Invert from Negative	No
Sharpen	Sharpen	No
Smooth	Smooth	No
Convert color to black andwhite	Monochrome	No

Table 1. Operations on Selections (cont'd)

Operation	Menu Command, Tool, or Control	Masks Selection?
Edit operations:		
Cut	Cut (⌘-X)	No
Copy	Copy (⌘-C)	No
Paste	Paste (⌘-V)	No
Clear white areas when pasting	Paste Transparent	No
Move	Drag selection	No
Duplicate	Press Option and drag selection	No
Arrange operations:		
Flip	Flip Horizontal, Flip Vertical	No
Rotate	Rotate, Rotate Right, Rotate Left	No
Resize	Resize	No
File operation:		
Save to disk	Save Selection As	No

Table 2. Summary of Selection Shortcuts

If you want to...	Do this...	Edit menu equivalent
Add areas to selection	Press Shift and make selection	
Remove areas from selection	Press ⌘-Shift and make selection	
Move selection	Move pointer inside selection and drag	
Duplicate selection	Move pointer inside selection, press Option and drag	
Select/Deselect entire picture	Double-click on lasso or rectangle, or press ⌘-A	Select All

Chapter 8
Combining Images

When graphic designers combine images to create a montage, they carefully cut out one or more images and paste them onto yet another background image. With PhotoMac, you combine images electronically—easily, conveniently, and without scissors, blades, or glue.

You start by cutting or copying a selection into the Clipboard. The Clipboard is a temporary holding place in Macintosh memory. You can paste the Clipboard selection into the same picture, into another PhotoMac picture, or even into a document in another application.

In this chapter you'll learn how to:

- Cut, copy, and paste selections
- View the contents of the Clipboard
- Paste pictures into specific areas
- Combine images from two files

Photo: Steve Hollinger

Placing a Selection in the Clipboard

1. Make a selection with the selection tools or menu commands.

2. Choose **Cut** or **Copy** from the Edit menu.

   If you choose Cut, *the selection is deleted from the document, leaving white space. If you choose* Copy, *a copy of the selection remains in the document.*

- You can press Command-X instead of using *Cut*

- You can press Command-C instead of using *Copy*

- To remove the selection from the Clipboard and replace it in the document, select *Undo* from the Edit menu or press Command-Z.

Looking at the Clipboard

The Clipboard holds the last selection you cut or copied from a document. Each time you cut or copy a selection, it replaces whatever the Clipboard holds. You can retrieve the previous contents using the Undo command.

The Show Clipboard command displays the contents of the Clipboard. You can look at the contents of the Clipboard, but you can't edit or change a Clipboard image.

☐ Select *Show Clipboard* from the Edit menu.

- To close the Clipboard window, select *Hide Clipboard* from the Edit menu, or click on the close box.

Pasting Selections

The Paste command is active only if there is a selection in the Clipboard.

☐ Choose **Paste** from the Edit menu, or press Command-V.

The Clipboard selection will appear centered over the place where you last clicked the mouse.

- To move the selection, position the pointer inside the marquee, and drag it wherever you like.
- To undo your action, choose *Undo Paste* from the Edit menu, or press Command-Z.
- To create a more realistic transition between the selection and the rest of the picture, use the Blend Boundary command to smooth the selection boundary.
- To fix the selection into the image, click outside the marquee.

Note These instructions assume that you do not have an active marquee in the document. If you do, the selection from the Clipboard will be pasted into the marquee. See "Pasting Selections into Predefined Areas" later in this chapter.

Paste Transparent

When you paste a selection using the Paste Transparent command, the white portions of the selection become transparent. In Chapter 2, you learned how to erase a white margin around an image before selecting it. In that exercise, you used the eraser from the tool palette. You can also use the Clear command from the Edit menu to erase colors, or you can paint or airbrush with pure white paint. (Pure white paint has the Brightness, Red, Green, and Blue components set to 65535; any other setting produces off-white, which does not work with the Paste Transparent command.)

Use the Paste Transparent command to combine images more realistically than simply pasting.

The Paste Transparent command is available only if there's a selection in the Clipboard.

1. Create white areas in the selection.
2. Use **Cut** or **Copy** from the Edit menu to place the selection in the Clipboard.
3. Choose **Paste Transparent** from the Edit menu.

   The Clipboard selection will appear centered over the place where you last clicked the mouse.

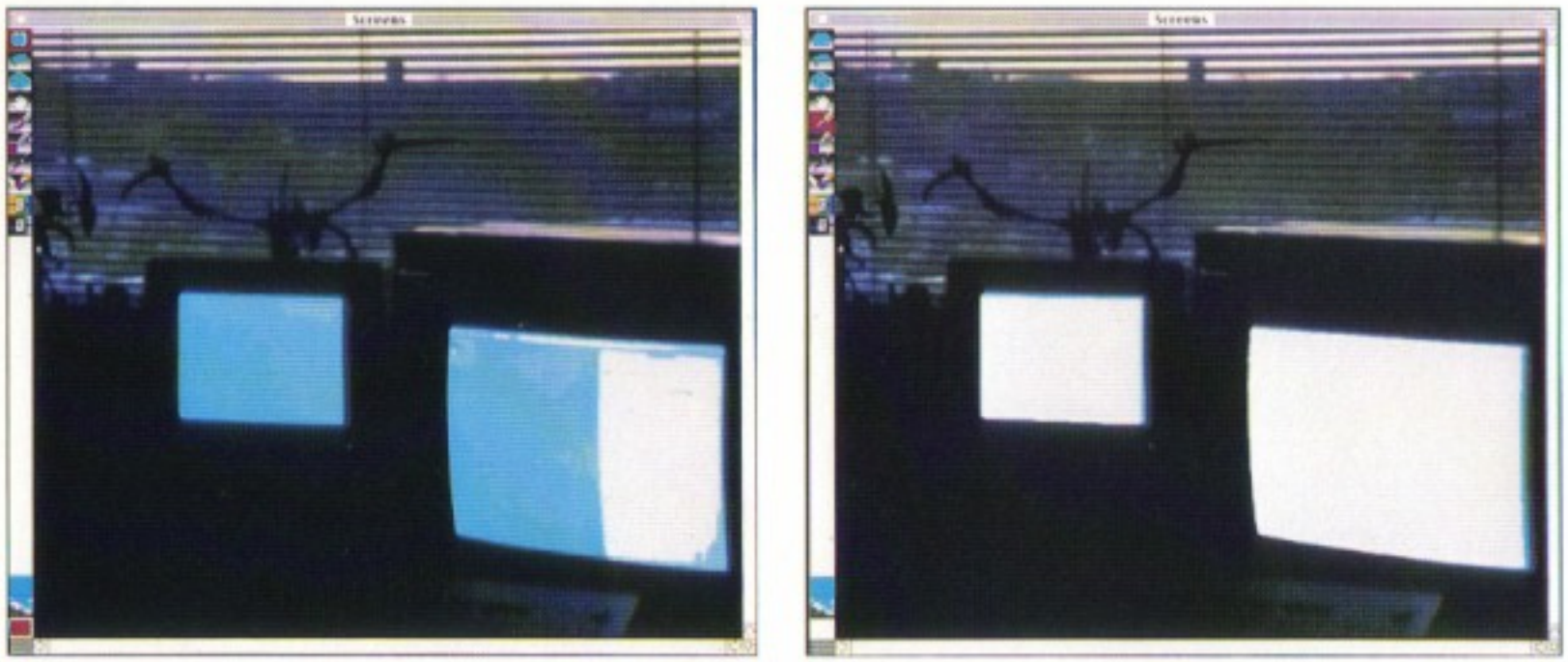


Photo: Wan Chi Lau

- To move the selection, position the pointer inside the marquee and drag it wherever you like.
- To reverse your action, choose *Undo Paste Transparent* from the Edit menu, or press Command-Z.
- To create a more realistic transition between the selection and the rest of the picture, use the Blend Boundary command to smooth the selection boundary.
- To fix the selection into the image, click outside the marquee.

Note These instructions assume that you do not have an active marquee in the document. If you do, the selection from the Clipboard will be pasted into the marquee. See "Pasting Selections into Predefined Areas" later in this chapter.

Pasting Selections into Predefined Areas

You can select an area into which the Clipboard image should be pasted. PhotoMac stretches the Clipboard image to fit the selected area, then crops it to fit the selection exactly.

1. Using the selection tools or menu commands, select an area into which you'll paste the Clipboard image.

   The marquee outlines the selected area.

2. Choose **Paste** or **Paste Transparent** from the Edit menu.

   The Clipboard selection is resized to fit the marquee. Depending on the size and proportions of the marquee, the selection may be distorted.

- Hold Option while selecting *Paste* or *Paste Transparent* to resize the selection and preserve its aspect ratio. If the shapes of the marquee and selection are different, PhotoMac crops off the portions of the picture that don't fit.

- Hold Shift while selecting *Paste* or *Paste Transparent* to prevent the resize. If the shapes of the marquee and selection are different, PhotoMac crops off the portions of the picture that don't fit.

Cutting and Pasting Between Files

You can cut and paste between files to combine images into a montage.

1. Open a file, make a selection, and choose **Cut** or **Copy** from the Edit menu.

   The selection is stored in the Clipboard.

2. Open a second file.

   The second image appears on the screen. The first image is hidden behind the new window.

3. Choose **Paste** or **Paste Transparent** from the Edit menu.

4. When the Clipboard image appears in the window, drag it to the desired location.

Cutting and Pasting Between Applications

The contents of the Clipboard don't change as you move from one application to another. This means you can use the Clipboard to move images from PhotoMac to other applications, and vice versa.

1. Make a selection and choose Cut or Copy.

2. Switch to the other application and open the file into which you'd like to paste the PhotoMac image.

   If you're not running Multifinder, you will have to quit PhotoMac before accessing the other application.

3. Choose **Paste** from the Edit menu.

   The PhotoMac selection appears in the document window.

Note The Macintosh Clipboard requires that information moved between applications be completely in memory. The size of an image you move via the Clipboard is therefore limited by the amount of available memory (RAM) on your machine. This limitation does not apply to selections you are moving from document to document within PhotoMac.

Table 3. Summary of Combining Shortcuts

If you want to...	Do this...	Edit menu equivalent
Cut selection	⌘-X	Cut
Copy selection	⌘-C	Copy
Paste selection	⌘-V	Paste
Paste into predefined area without resizing	⌘-Shift-V	
Paste into predefined area while resizing	⌘-V	
Paste into predefined area, but preserve aspect ratio while resizing	⌘-Option-V	

Chapter 9
Arranging Images

In this chapter, you'll learn how to:

- Flip images
- Rotate images
- Resize images
- Crop images

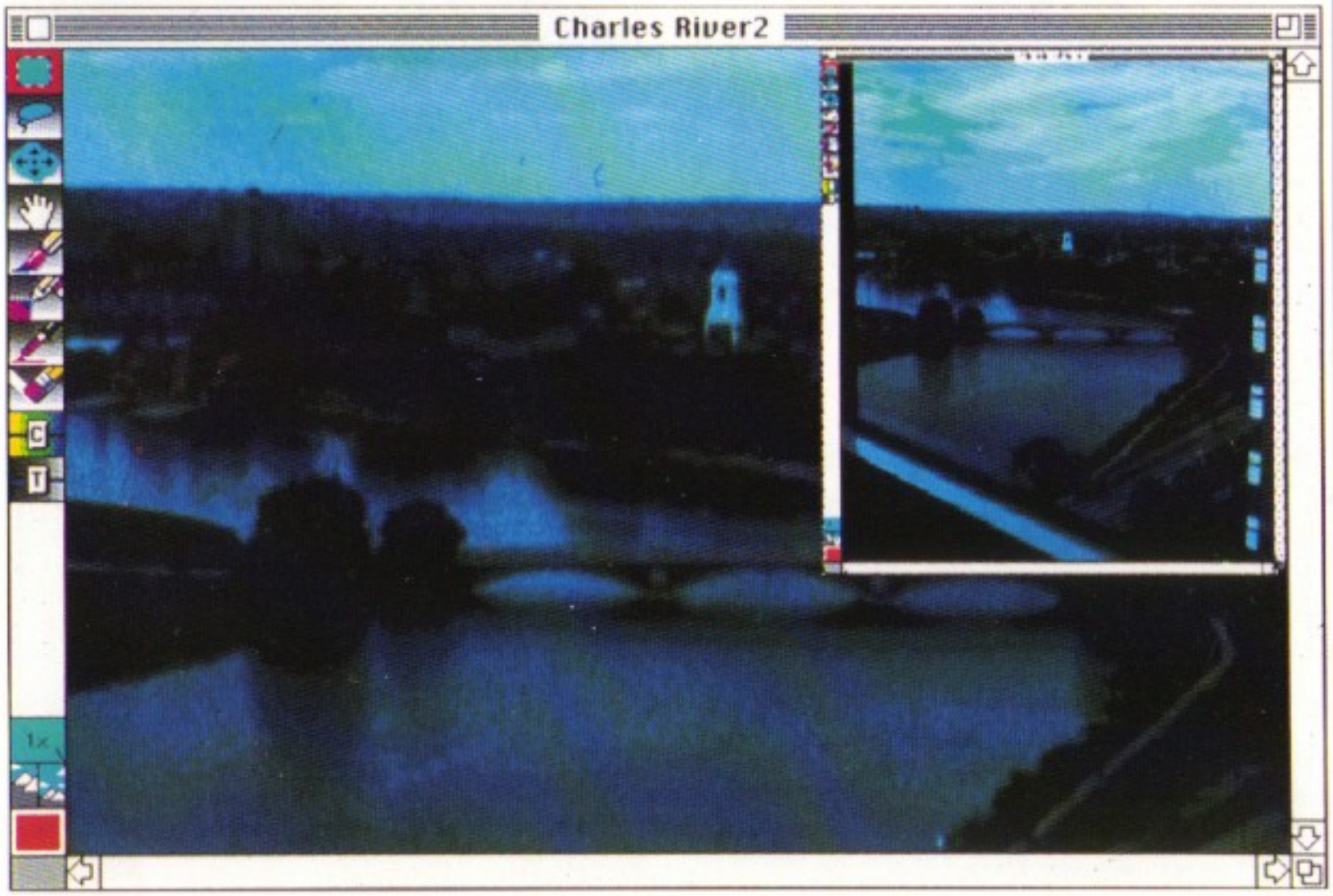


Photo: Liz Ewart

Flipping Images

1. Select an area using the selection tools or menu commands.

   If you don't make a selection, the entire image will be rotated.

2. Choose **Flip Horizontal** or **Flip Vertical** from the Arrange menu.

   The Flip Horizontal *command creates a mirror image of the selection on a horizontal plane. The* Flip Vertical *command creates a mirror image of the selection on a vertical plane.*

Photo: Rudy Burger

Rotating Images

PhotoMac gives you three ways to rotate selected image areas. You can:

- Rotate the selection to the right 90 degrees
- Rotate the selection to the left 90 degrees
- Rotate the selection through any angle

To Rotate Through 90 Degrees

1. Make a selection with the selection tools or menu commands.

   If you don't make a selection, the entire image will be rotated.

2. Choose **Rotate Right** or **Rotate Left** from the Arrange menu.

   The selection rotates 90 degrees to the right or to the left, leaving white space behind. Handles appear at the corners of the selection marquee.

3. Click outside the marquee to paste the selection in place, or choose one of the Rotate commands to rotate it into a different position.

While the marquee surrounds the newly-rotated selection, you can perform any action you wish. The Rotate handles will disappear if you select another operation. For example, if you want to move the rotated selection, simply move the cursor inside the selection and drag it to another place in the image.

Hint If you want to rotate a selection without leaving white space behind, first make a copy of the selection (hold the Option key and drag the selection), then rotate the copy.

To Rotate Through Any Angle

1. Select part or all of an image.
2. Choose **Rotate** from the Arrange menu.

   If you made a rectangular selection, handles appear at the corners of the marquee. If you made freeform or multiple selections, a single marquee with handles frames the entire selected area.

3. Move the cursor over one of the handles to get the special Rotate cursor (four arrows in a circle). Drag the handle to rotate the marquee.

   When you release the mouse button, the selected area rotates into position, leaving white space behind.

4. Click outside the marquee to finish the rotation and paste the selection in place.

Note If you rotate a selection such that parts of it extend outside the original document dimensions, those parts will be lost when you fix the selection in place. To rotate a large selection (or the whole image without shearing off pieces, you can paste the image onto a new, larger document before you rotate.

Resizing Images

PhotoMac allows you to change the size of your image, and gives you the option of distorting the picture to create special effects.

1. Select part or all of an image.
2. Choose **Resize** from the Arrange menu.

   If you made the selection with the rectangle tool, handles appear at the corners of the selection marquee. If you made freeform selections or multiple selections, a marquee with handles at the corners outlines the entire selected area.

3. Move the pointer over one of the handles to get the special resize cursor (four arrows pointing outward). Drag the handle to resize the selection.

   Drag toward the center of the selection to shrink the image. Drag away from the center of the selection to expand the image. When you release the mouse button, the selection is resized.

- To preserve the aspect ratio of the selection, hold down the Shift key then drag the handle.

Hint If you want to resize a selection without leaving white space behind, first make a copy of the selection (hold the Option key and drag the selection), then resize the copy.

Cropping

PhotoMac lets you crop off parts of an image that you don't want to use.

1. Use the selection tools or menu commands to make a selection.

2. Choose **Save Selection As** from the File menu, and type in the new file name.

   PhotoMac calculates the size of the selection and sets the dimensions of the new document accordingly. The new file can be opened and edited like any other PhotoMac file.

Chapter 10
Retouching Images

When photographers need to change the final appearance of a picture, they have a number of physical tools available to them. PhotoMac's electronic retouching tools give you multiple choices, from extremely fine lines to big, broad strokes.

This chapter discusses the retouching tools: the paintbrush, airbrush, and eraser. You use the paintbrush or airbrush to apply transparent or opaque paint. The paintbrush tool draws solid lines using any of 32 brush shapes. The airbrush sprays paint onto the image: you can control the size and density of the airbrush, as well as the rate at which paint is applied.

This chapter also discusses the ways you select paint colors in PhotoMac. You can use the eyedropper tool to pick colors directly from the image. Or you can choose paint colors from the Macintosh II's palette of over 16 million colors.

In this chapter, you'll learn how to:

- Use the paintbrush
- Use the airbrush
- Choose a color for painting and airbrushing
- Fill areas with color
- Undo retouching
- Erase colors
- Clone image areas

Painting

The paintbrush draws solid lines and patterns. You can choose from a variety of paintbrush shapes and sizes for specific retouching effects.

To Paint

1. Click on the paintbrush in the tool palette.
2. Move the pointer over the image.
3. Drag the brush to apply paint and release the mouse button to end the brush stroke.

- Hold down the Shift key while painting to restrict brush strokes to straight horizontal, vertical, or diagonal lines.

To Choose the Brush Shape

1. Choose **Paintbrush Shapes** from the Options menu or double-click on the paintbrush in the tool palette.

   A dialog box shows the available paintbrush shapes. A square outline indicates the currently-selected brush shape.

2. Click on the brush shape you want and click on **OK**.

   When you use the paintbrush, it paints in the brush shape you selected.

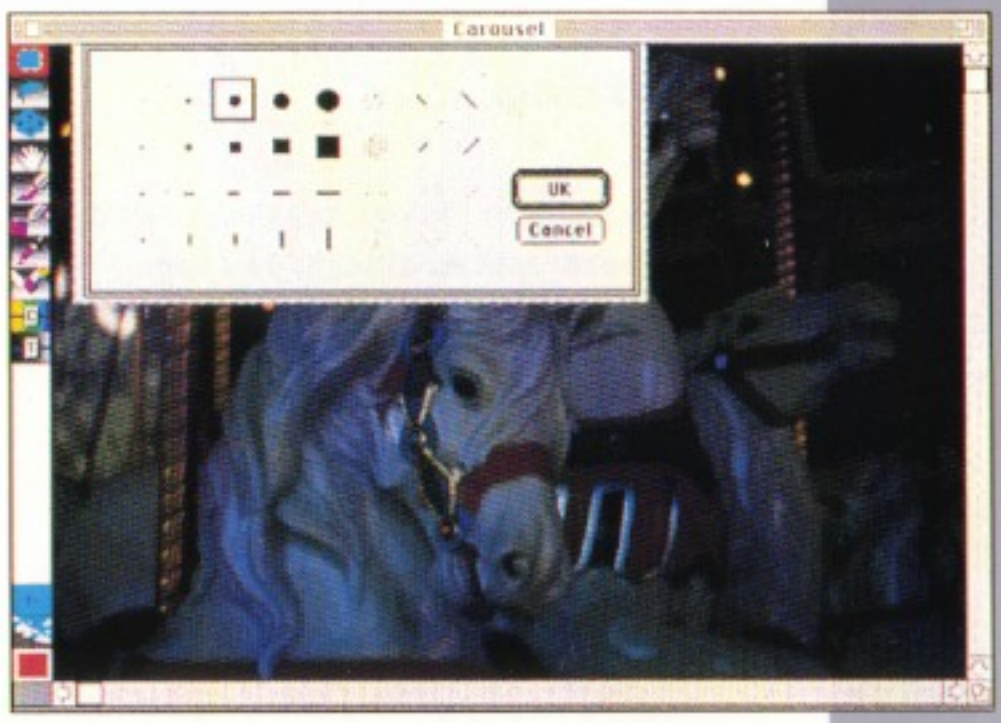


Photo: Wan Chi Lau

Airbrushing

Use the airbrush to retouch images, paint out flaws or create special effects. You can customize the airbrush shape by defining its size, density, and paint rate.

To Airbrush

1. Click on the airbrush in the tool palette.
2. Move the airbrush pointer over the image.
3. Click to spray a spot of paint, or drag the airbrush to stroke on paint.

- Hold down the Shift key while airbrushing to restrict brush strokes to straight horizontal, vertical, or diagonal lines.

To Choose the Airbrush Size

1. Choose **Airbrush Size** from the Options menu or double-click on the airbrush icon in the tool palette.

   A dialog box allows you to define the airbrush size, density and the paint rate. A circle shows the current airbrush size.

2. Type in a size between 2 and 32 (the default is 32).

   The size determines the airbrush diameter in pixels. This setting simulates the distance between a real airbrush and the surface to which paint is being applied: the closer the airbrush is to the surface, the more focused the paint, so the smaller the size of the brush.

3. Type in a density between 0 and 100 (the default is 8).

   The density determines how much paint is concentrated at the center of the brush, simulating the air flow control on a real airbrush. A high density airbrush applies a narrow, heavy brush stroke. A low density airbrush applies a wide, feathery or stippled brush stroke.

4. Type in a rate between 0 and 100 (the default is 50).

   The rate determines how quickly the paint is transferred to the image, simulating the paint flow control on a real airbrush.

5. Click on the OK button or press Return to use the newly defined airbrush. Click on the Cancel button to use the previously-defined airbrush.

Selecting New Colors

The New Paint Color command displays a special dialog box called the color picker. Use the color picker to choose from the entire spectrum of Macintosh II colors.

The color wheel shows hue and saturation simultaneously. The center of the wheel is zero saturation (no hue is mixed in), and the outside of the wheel is maximum saturation (pure hues). The slider to the right of the color wheel controls the brightness of the color.

The top colored rectangle on the left shows the current paint color. The bottom rectangle shows the color you started with. The numeric color coordinates describe the color using the red-green-blue and hue-saturation-brightness systems.

1. Choose **New Paint Color** from the Options menu, or double-click on the current color box or eyedropper in the palette.

   The color picker appears.

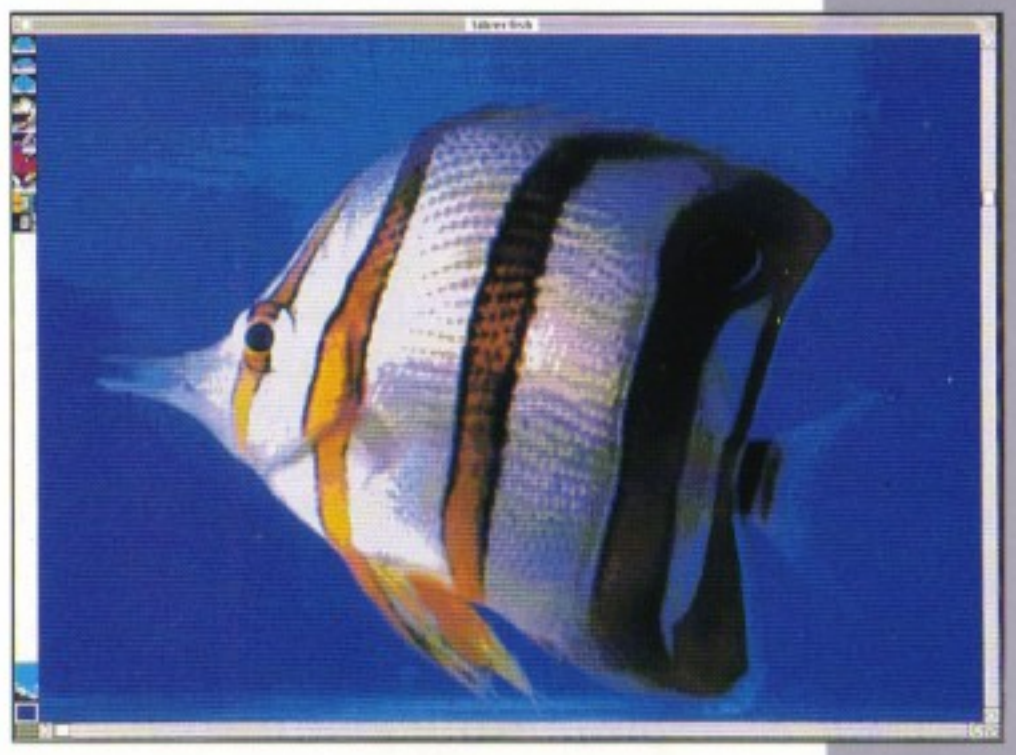
2. Use the color wheel, brightness slider, and value boxes to change the current color.

Hint You can always recapture a color by recording its RGB or hue-saturation-brightness values. If you want to use the same color again—in another image, for example—simply type those values into the appropriate boxes.

3. Click the **OK** button to dismiss the color picker.

   The color appears in the current color box at the bottom of the tool palette. Now you can paint or airbrush in this color.

Matching an Existing Color



You can use the eyedropper to pick colors directly from the image.

1. Click on the eyedropper in the tool palette.
2. Move the pointer into the image and click on the image color you want.

   The color appears in the current color box. Now you can paint or airbrush in this color.

- If you drag the eyedropper pointer over the image, the current color box will display each color you touch on. When you release the mouse button, the last color displayed will remain in the current color box.

Selecting Paint Type

Whether you select a paint color from the color picker or using the eyedropper, you can specify how the color should be applied. PhotoMac allows you to stroke on opaque paint or apply layers of transparent paint.

1. Select the color you want to use.
2. Choose **Opaque Paint** or **Transparent Paint** from the Options menu.
3. Use the paintbrush, airbrush, or Fill command to apply color to the image.

To Set the Transparency of the Paint

If you use transparent paint, the underlying image colors will show through. The more paint you apply on a single area, however, the closer the paint will come to looking opaque. Using transparent paint, you can control just how much color is applied to the image.

Further, you can control the transparency of each stroke of paint. If you select *Transparent Paint* from the Options menu, you'll have the added option of customizing the transparency level.

1. Select **Set Transparency** from the Options menu.

   The transparency level dialog box is displayed.

2. Type in a number between 1 and 100.

   The default setting is 25. The lower your transparency level setting, the more paint strokes you will need to apply to make the paint opaque.

3. Click on **OK**.

   The dialog box closes. The paintbrush, airbrush, and Fill command will apply transparent paint at the level you set.

Note If your transparency setting is very low, the paint may be so transparent that you won't be able to see it. The color change will affect the image, but may be too subtle to be visible on the screen.

Filling with Color

1. Select the area you want to fill with color.

   If necessary, choose a paint color and a paint type.

2. Choose **Fill** from the Effects menu.

   The current paint color fills the selected area.

Erasing Image Areas

The eraser tool erases parts of the image, leaving behind lines of white. Use the eraser to clear small parts of an image. To clear a selection, use the Clear command. You may want to erase parts of the image before using *Paste Transparent*. (Paste Transparent is described in Chapter 8.)

To Erase

1. Click on the eraser in the tool palette.
2. Press the mouse button and drag the pointer over the image to erase it.

   The path of the eraser changes to white.

- The size of the eraser is not adjustable. If you need to erase more accurately, you can magnify the image by clicking on the Zoom In icon.
- Hold down the Shift key while erasing to drag in straight horizontal, vertical, or diagonal lines.

To Clear Selections

1. Select the image area you want to clear.
2. Choose **Clear** from the Edit menu, or press the Delete key.

   White replaces the colors in the selection and the marquee disappears.

Cloning Image Areas

You can eliminate a section of the image by covering it up with a selection from another part of the image.

1. Select the area you want to copy.
2. Position the pointer inside the selection, press the Option key and drag it to the area you want to cover.

- If the patch doesn't match its new surroundings, you can use the Blend Boundary command to make the patch look more natural, or reverse the move by choosing Undo from the Edit menu.

Table 4. Summary of Retouching Shortcuts

If you want to...	Do this...	Options menu equivalent
Constrain tool to straight vertical, horizontal, or diagonal lines	Press shift and drag tool	
Show *Paintbrush Shapes* dialog box	Double-click on paintbrush icon	Paintbrush Shapes
Show *Airbrush Size* dialog box	Double-click on airbrush icon	Airbrush Size
Show color picker dialog box	Double-click on current color box or on eyedropper	New Paint Color

Chapter 11
Changing Color and Tone

The color correction control lets you alter the colors in an image using two color systems: RGB and LHS. You can change the entire image, a part of the image, or just specific colors to design natural-looking or surrealistic effects. The tone scale control lets you manually or automatically adjust the brightness (luminance) of the colors in the image and change the contrast between neighboring colors.

In this section, you'll learn how to:

- Use the LHS and RGB color controls
- Select colors and change them
- Adjust brightness and contrast

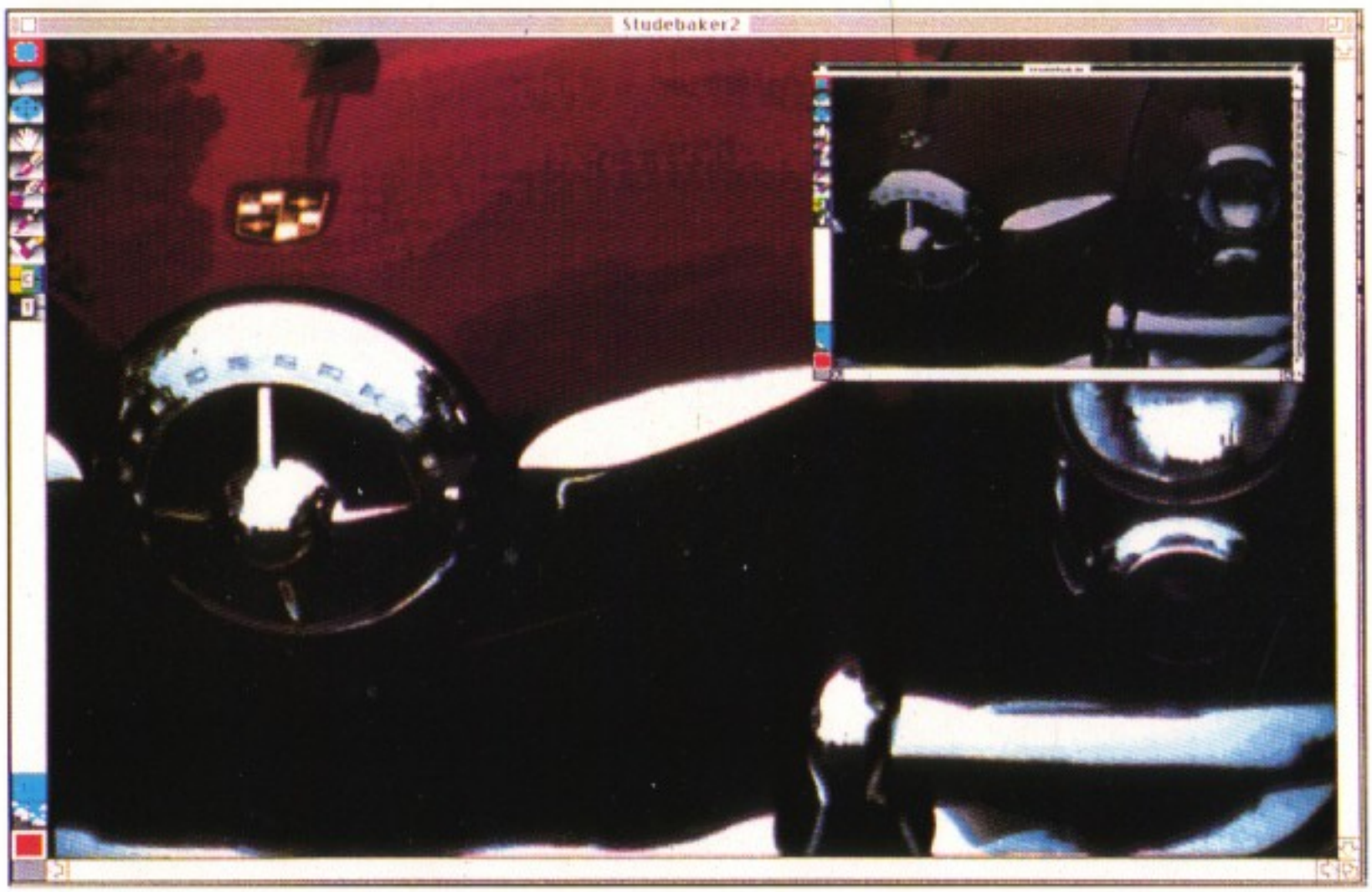


Photo: Wan Chi Lau

Using the Color Controls

1. Select the area you want to change.

   If you don't make a selection, the entire image is affected.

2. Choose **RGB Color Correction** or **LHS Color Correction** from the Options menu.

   A check mark in the menu indicates the color correction control you've selected. The default is RGB Color Correction.

3. Click on the color change icon.

   A dialog box appears with the color correction control you've chosen. You can reposition the dialog box by dragging the grey bar along the top.

   The selected area appears in color; the rest of the image appears in masking grays. The masked region won't be affected by color correction.

The RGB and LHS color correction controls are discussed below. Also see Appendix B.

Choosing Between RGB and LHS Color Correction

The RGB color system follows video technology most closely. The color you see on your color television or Macintosh II screen is created by light emitted by red, green, and blue phosphors in the picture tube. The lights combine to simulate the colors in the visible spectrum. The LHS system is analogous to the way people perceive color. We see color as a range of hues, with qualities of purity and brightness, without the artificial focus of three colors (red, green, and blue).

When selecting a color correction system:

- Use RGB to correct scanned images for color imbalances caused by the scan, or to compensate for lighting problems.
- Use LHS to produce a desired effect.

RGB Color Correction

The RGB control adjusts the brightness of the red, green, and blue components of the image. Red, green, and blue can be combined to create all the colors in the spectrum.

The Red, Green, and Blue sliders are initially set to the middle of the scale, and the value boxes read 50. Red, green, and blue values can range from 0 to 100.

1. Drag the Red slider to the right.

   The amount of red in the image increases. Notice that the number in the value box increases as you move the slider. You can also click in the slider bar instead of dragging the slider, or type a number between 0 and 100 into the value box.

2. Drag the Green slider to the right.

   The amount of green increases.

3. Drag the Blue slider to the right.

   The amount of blue increases.

- To decrease a color, drag its slider to the left.
- To get cyan tints in the selected area, increase the blue and green components and decrease the red.
- To get magenta tints, increase the red and blue and decrease the green.
- To get yellow tints, increase the red and green and decrease the blue.
- To increase the brightness of the selected area, increase the red, green, and blue components by equal amounts. To make the selection darker, remove equal amounts of all three components.

Hint Photographs taken under fluorescent lights sometimes have a greenish cast. You can adjust the image with RGB Color Correction to compensate for the lighting. Just move the Green and Blue sliders to the left until the green tinge disappears and the image looks more natural. (Photographers compensate for fluorescent lights by using an ultraviolet filter; RGB lets you simulate this filter.)

LHS Color Correction

The LHS control changes the hue and saturation of the image. The LHS dialog box contains the hue wheel, saturation slider, red Show Colors button, and color grid.

The hue wheel corrects the color, and the saturation slider adjusts the purity of the color. The needle in the hue wheel points to the average hue. If the image is predominantly red, the needle points to the red portion of the wheel. If the image has mainly yellows and blues, the needle points to the green portion of the wheel. The value in the text box starts at zero, and shows the degree of change (0 to 359).

You can change colors by dragging the needle around in the hue wheel.

The saturation slider is initially set to the middle of the scale, and the value box reads 50. Saturation values can range from 0 to 100. Pure hues are the colors with highest saturations. Hues mixed with white, gray or black have lower saturations.

1. Click on the needle and drag it around the hue wheel.

   As you rotate the needle, the image changes colors.

2. Drag the saturation slider to the right.

   The colors in the selection appear more vivid, and the saturation value increases. When you move the slider to the left, the colors become less intense.

Note Instead of dragging the hue wheel needle or the saturation slider, you can type a value into the appropriate value box. Enter hue values between 0 and 359, and saturation values between 0 and 100.

The Color Grid

The color grid shows all the colors in the selection, arranged by hue and saturation. You can use the color grid to find out where a specific color appears, to select specific colors for editing, and to add colors to or remove colors from the selection.

1. To select a color, click on the matching color tile.

   The selected tile is highlighted and the other tiles are deselected.

2. Press the red **Show Colors** button.

   A brightly flashing display shows you exactly where the selected color appears in the image. It may appear in one tiny spot or in several places, depending on the image.

3. Use the RGB or LHS controls to make color changes.

   The parts of the image that match the highlighted tiles change colors.

- To add colors to the selection, press the Shift key and click on the color tiles you want.
- To remove colors from the selection, press the Shift and Command keys as you click on the color tiles.
- To quickly select adjacent color tiles, click and drag through them.

The Color Lasso

When you use the color correction control, the color lasso is the only available selection tool. The tool palette is not available.

The color lasso works like the standard lasso except that, instead of selecting areas, it selects colors. Use it to select specific colors to change.

To refine your selections, use the color lasso and color grid interactively. When you drag with the color lasso, you may pick up colors you don't want to change. They'll show up in the color grid, so you can easily see and remove them from the selection.

1. With the LHS or RGB dialog box open, move the pointer over the image.

   The pointer turns into a color lasso. If the image is masked, the pointer changes to the color lasso only over the selection. The pointer remains an arrow in the masked areas.

2. Click the color lasso on the color you want to change or drag an outline around several colors.

   Notice that the marquee disappears as soon as you release the mouse button. You're not selecting an area; you're simply selecting colors.

   The color tiles that remain highlighted represent the colors you've selected. The other colors are deselected.

3. Press the red **Show Colors** button.

   A brightly flashing display shows you exactly where the selected colors appear in the image. You can add or remove colors, if desired.

- To find the location of a single color, hold down the Option key while you indicate (click on) a color in the selection or in the color grid.

- To add colors to the selection, press the Shift key while you select a set of colors with the color lasso.

- To remove colors from the selection, press the Shift and Command keys while you select a set of colors with the color lasso.

Restoring the Original Picture

- ☐ Click on the **Reset** button any time you want to restore the image to its appearance when the color correction dialog box opened.

  In the LHS dialog box, the numeric hue value returns to zero and the saturation value returns to 50. In the RGB dialog box, the sliders snap back to the middle and the values return to 50.

Leaving Color Correction

- ☐ When you're satisfied with the changes you've made, click the OK button.

  Your changes are recorded, and the RGB or LHS dialog box closes. If you don't want to record your changes, click Cancel instead of OK. The dialog box closes, and the image does not retain your changes.

Note Choosing *OK* to record changes is not the same as saving the file. You still need to save the file periodically to write it to disk. Use the *Save* or *Save As* command from the File menu whenever you make a color change you want to preserve.

Adjusting Brightness and Contrast

The tone scale controls adjust the brightness (luminance) and contrast of your images. The brightness is how light or dark a color looks. Contrast is the relative brightness of adjacent colors.

The tone scale dialog box can be repositioned by dragging the gray drag bar. The dialog box contains two sliders—the top slider controls the brightness, and the bottom slider controls the contrast—and a luminance histogram showing the distribution of light in the image.

The contrast and brightness sliders are initially set to the middle of the scale, and the value boxes read 50. The values can range from 0 to 100.

1. Select the area you want to change.

   If you don't make a selection, the entire image is affected.

2. Click on the tone scale icon.

   The tone scale box appears on the screen.

3. Drag the brightness slider to the right.

   The luminance increases, and the lines in the luminance histogram shift to the right, reflecting the new values.

4. Drag the contrast slider to the right.

   The contrast in the image increases. The lines in the histogram become more spread out because the luminance range has broadened.

- To reduce the brightness, move the slider to the left.
- To reduce the contrast, move the slider to the left.
- To reverse your changes and return to the original image, click on the Reset button.

Note Instead of dragging the brightness and contrast sliders, you can type a number between 0 and 100 into the appropriate value box.

Automatically Enhancing the Image

The tone scale dialog box has an Auto button, which automatically adjusts the brightness and contrast in the image to improve the overall clarity. The Auto button redistributes the luminance values of the pixels over the entire luminance scale, creating a wider range of lights and darks in the image.

When you click on the Auto button, the subtle details in the picture become more distinct. At the same time, the luminance values in the histogram spread out and the image changes.

You can use the Auto button by itself or in combination with the brightness and contrast sliders to increase the effect.

- To restore the image to its previous appearance, click on *Reset*.

Leaving Tone Scale

☐ When you're satisfied with the changes you've made, click the **OK** button.

Your changes are recorded, and the tone scale dialog box closes. If you don't want to record your changes, click Cancel *instead of* OK. *The dialog box will close, and your changes will be cleared from the picture.*

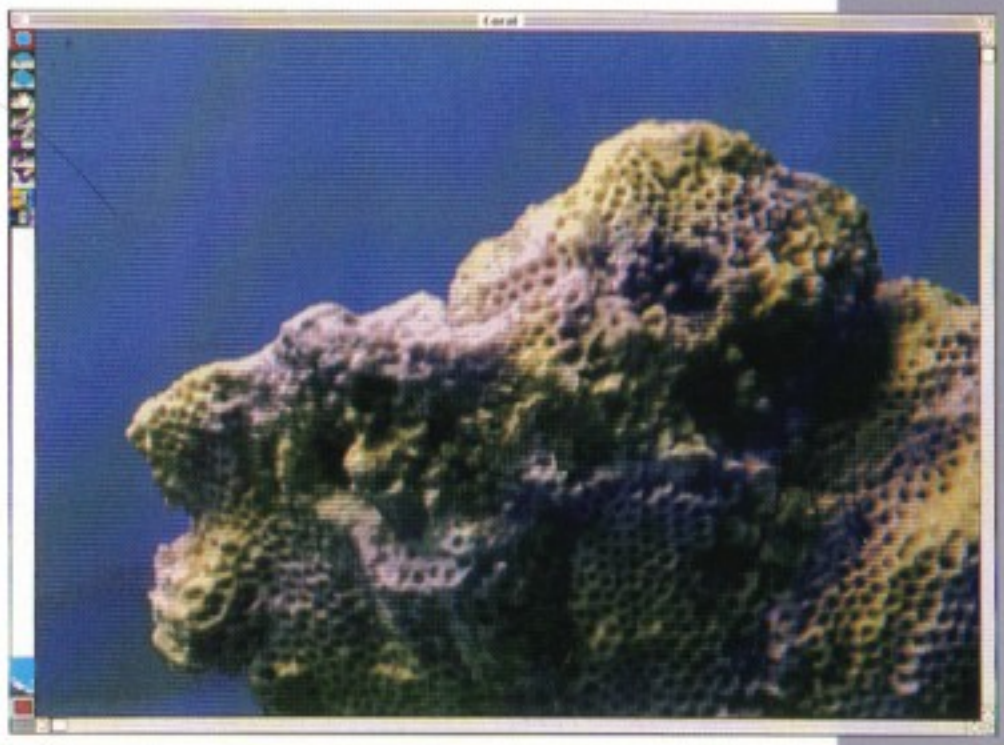
Note Choosing OK to record changes is not the same as saving the file. You should save the file periodically (using *Save* or *Save As* from the File menu) to write your file to disk.

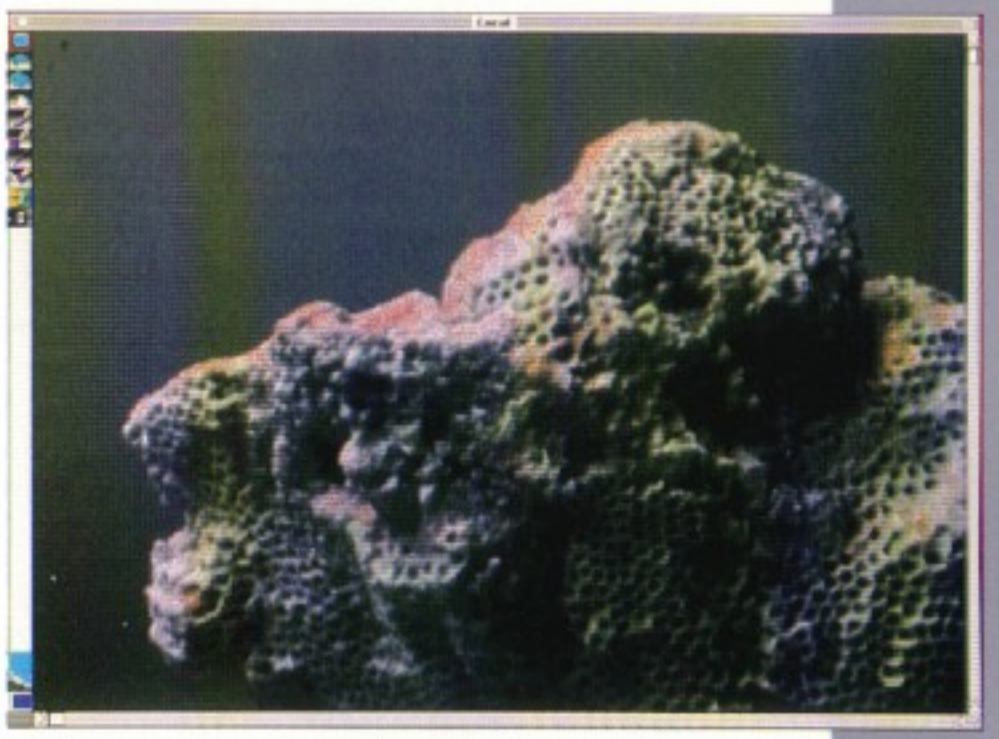
Chapter 12
Creating Special Effects

This chapter describes unusual effects that can be applied to entire images or selected areas of an image. You may want to pay special attention to the section on blurring boundaries, which explains how to create more realistic transitions between images in a photomontage.

In this chapter, you'll also learn how to:

- Enhance details or smooth them away
- Convert color images to gray and then colorize them
- Invert the colors in an image
- Create positives from negatives





Making Details Sharper or Softer

The Sharpen command makes an image look more crisp. The Smooth command creates a soft focus effect and blends the transition between different areas. Technically, sharpening increases the edge contrast in the image, and smoothing decreases it.

To Sharpen an Image

- ☐ Choose **Sharpen** from the Effects menu.

  The edges in the image become more sharply defined. The image looks more clear and in better focus. This technique is also referred to as unsharp masking.

To Smooth an Image

- ☐ Choose the **Smooth** command from the Effects menu.

  The image becomes softer and slightly blurred. You can repeat the Smooth command until you get the look you want.

Blending Boundaries

When you edit, retouch, or move a selection, it may not match the surrounding image. The Blend Boundary command blends colors across the selection boundary, creating a more even transition between image areas.

There is an additional advantage to using the Blend Boundary command. If you use the Select Boundary-Smooth combination, you will not end up with your original single selection marquee; instead, your selection will be the boundary, outlined by two marquees. With Blend Boundary, the original marquee is still available after the blend operation.

You can use Blend Boundary on any selection, but it's particularly effective for selections that have been painted, airbrushed, moved, rotated, or corrected for color, contrast, or brightness. The selection must be active (outlined by the scrolling marquee).

1. Choose **Boundary Width** from the Options menu.

   The boundary is the immediate area on both sides of the selection marquee. The first time you start PhotoMac, it's set to 6 pixels wide (3 pixels on either side of the marquee). You may want to try this setting first, to see if it creates the effect you want. If you want to smooth a different size border, type in a value between 1 and 20.

2. Click on **OK** to dismiss the Boundary Width box.

3. Select **Blend Boundary** from the Effects menu.

   The boundary becomes more uniform and slightly blurred. As long as the selection is surrounded by the marquee, you can choose Blend Boundary *repeatedly to increase the effect.*

Hint When you select or draw on the diagonal, the border looks jagged, as if made up of tiny steps. The Blend Boundary command is particularly useful for getting rid of this staircase effect.

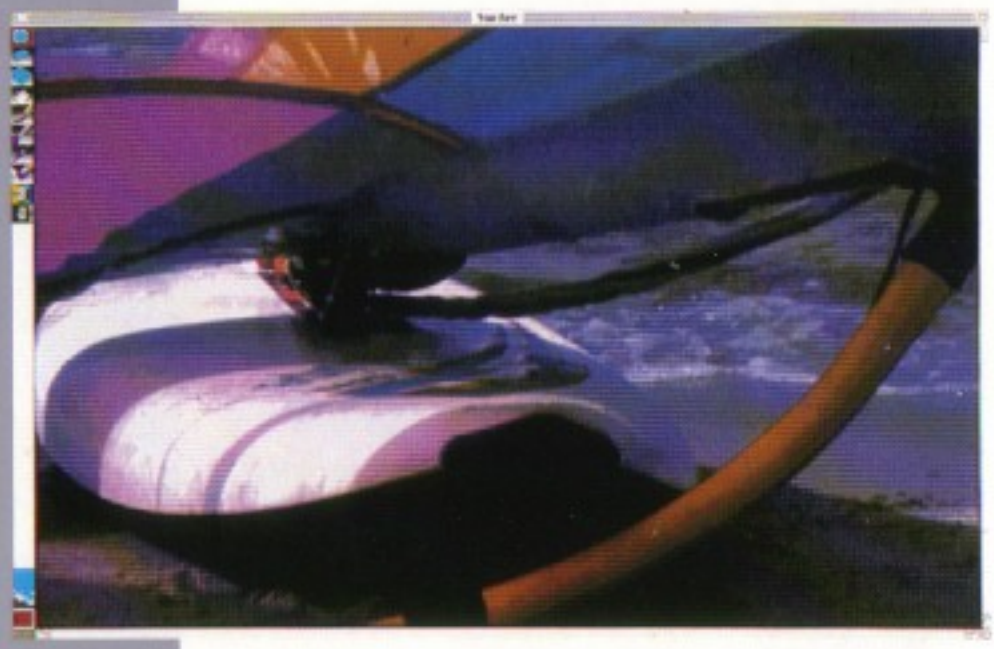


Photo: Wan Chi Lau

Converting Color to Monochrome

☐ Select **Monochrome** from the Effects menu.

PhotoMac converts full-color selections to monochrome in 256 shades of gray. If you haven't made a selection, the entire image will be changed

Note The image is shown in monochrome, but PhotoMac's color features are still available. You can paint, airbrush, change colors, or adjust the brightness and contrast.

You can use the color correction controls or retouching tools to add tints to monochrome images. For a more delicate touch when painting or airbrushing, use transparent paint.

Inverting Colors

☐ Select **Invert Colors** from the Effects menu.

Each color in the selected area is changed to its complementary color. You can use this command to create startling special effects.

Changing Negatives to Positives

☐ Select **Invert from Negative** from the Effects menu.

This command converts a color negative to a positive that you can retouch and manipulate. You can work with the positive without sending out the negative to be developed photographically.

Note Selecting the Invert from Negative command a second time will not reproduce the negative. This command does not give you negatives for positives.

Hint After inverting a negative to a positive, try using the Auto button in the Tone Scale control dialog box to bring out the details of the picture.

Chapter 13
Importing and Exporting Image Files

In this chapter, you'll learn how to:

- Bring files into PhotoMac
- Create new image files from video input
- Export PICT2 and TIFF files
- Separate files into process color components (CMYK) for four-color printing
- Output a file via a framegrabber board

This chapter explains how to open files created by other applications or input devices, and how to export images from PhotoMac to other applications or hardware. It also discusses how to create color separations for printing.

Most scanners allow you to digitize slides or photographs in a variety of image file formats. Many page layout programs, on the other hand, only accept specific image file formats. The most popular formats for the Macintosh II are PICT2 and TIFF. PhotoMac will open PICT2 and TIFF files, whether 8- or 24-bit, and will output both PICT2 and TIFF 24-bit file formats.

Importing Files

PhotoMac opens image files created by other applications or input devices, including scanners and transfer stands, if the files are in one of the following formats:

- PICT (sometimes called PICT1), the original Apple file format for transferring Macintosh graphics between applications
- PICT2 (8-bit), an expanded version of PICT for 8-bit Macintosh graphics
- PICT2 (24-bit), a further expansion of PICT2 for 24-bit Macintosh graphics
- Truevision TARGA or VISTA (8, 16, 24, and 32-bit). These files must be type *TEXT* because they are created on an IBM personal computer (or compatible).
- TIFF (24-bit color, 8-bit grayscale), formats produced by a number of slide and flatbed scanners and Macintosh application packages.

When you start PhotoMac and choose *Open* from the File menu, the Open dialog box lists all the files in these formats.

Note You can also bring images created in drawing and painting applications into PhotoMac via the Clipboard. Most Clipboard images are in PICT 8-bit format, which is fully supported by PhotoMac.

Capturing Images from Video Input

If you have Data Translation's ColorCapture™ board installed in your Macintosh II, you can capture an image from a video input source. The ColorCapture board can be connected to a video camera, VCR, or still video device. It will display the realtime video image on the screen, and will capture any desired frame with a single command. PhotoMac will display the image frame in an "Untitled" window.

- ☐ To capture a frame, choose *Grab Image* from the Video menu.

  Now you can edit and save the file as you would any other image.

Chapter 21 has more detailed information about the Video menu.

Exporting Files

PhotoMac offers several options for exporting image files. You can:

- Export a PhotoMac image to another application through the Clipboard or by using the *Export As* command
- Generate process color separation files for printing
- Output the image to a high-resolution monitor (like a TV screen) or any RGB or NTSC device.

To Export a Selection Via the Clipboard

Use this method to move PhotoMac images into other applications.

1. Make a selection using the selection tools or menu commands.
2. Select **Cut** or **Copy** from the Edit menu.

   The selection is cut or copied to the Clipboard. It's in PICT2 (8-bit) format, so you can paste it into any application that accepts this format. Also see "Pasting Between Applications" in Chapter 7.

Note The Macintosh Clipboard requires that data moved between applications be held completely in memory. This limits the size of images you can move via the Clipboard. If you get a "Clipboard too large" message, save the image or selection in a file, and open the file directly from the other application.

To Export an Image File

The Export As command allows you to save a PhotoMac file in one of three file formats. It's useful for exporting images that are too large for the Clipboard or for exporting images to applications that can't read 24-bit PICT2 files.

1. Open the image file you want to export.
2. Select **Export As** from the File menu.

   A dialog box gives you a choice of export formats and requests the file name.
3. Click on the **PICT (24-bit)**, **PICT (8-bit)**, or **TIFF (24-bit)** button to select a format.
4. Type in the filename.

   You may want to include information in the name that identifies the file type. For example, you could name the file "Fishtank.TIFF" to indicate that this copy of the Fishtank file is in TIFF format.
5. Click the **Save** button or press Return to save the file, or click the Cancel button to stop the save and dismiss the dialog box.

To Generate Color Separations

With PhotoMac, you can generate four-color separation files for process printing. When you are separating an image using PhotoMac, you can customize the separation process to produce the best result at any print shop. You should talk with your printer to get the settings he thinks appropriate for the following choices:

- The screen or resolution for the image — You can specify screens between 50 and 400 lines per inch, including common halftone screens of 85, 120, 133, and 150 lines per inch.

- Screen angles for each separation color — Having a different angle for each color minimizes the likelihood of moire patterns in the final print.

  The default angles theoretically produce the fewest moire patterns. You may need to customize them for your printer.

- The position of the emulsion side — Negative and positive films can be created with the emulsion side up or down (right reading).

- The type of paper — You can customize separations for coated stock, uncoated stock, or newsprint.

- Gray balance — You can specify the amount of cyan, magenta, and yellow ink to be combined to get the truest gray. The default settings should be correct for most printing inks.

- Gray component enhancement — Colors created by combining cyan, magenta, and yellow have some proportion of gray. With gray component enhancement, you can replace that gray with a specified amount of black to either tone down or boost the colors in the image.

  Again, the default settings should be appropriate for most situations.

1. Choose **Separation Setup** from the File menu.

   A dialog box shows the separation choices listed above.

2. Choose the desired settings, and click the OK button.

   The dialog box closes, and PhotoMac saves the separation setup values with the image file.

3. Choose **Separate Colors** from the File menu.

   A dialog box allows you to scale the separation to a specified size.

4. If you want to distort the image, deselect the **Fixed Aspect Ratio** box. Leave the box selected if you wish to maintain the image's aspect ratio.

5. Type in values for the height and width.

   If you opt to maintain the aspect ratio, type in the height, width or percentage enlargement/reduction and press Tab.

   PhotoMac calculates the separation dimensions in inches.

5. Click the **OK** button to accept the separation dimensions and dismiss the box.

   A second dialog box appears for saving the separations to disk using the file name and location you specify.

6. Type in the file name and click the Save button.

   PhotoMac saves the separation files to disk. A suffix is automatically appended to each of the files, identifying them as cyan (.C), magenta (.M), yellow (.Y), or black (.K).

Use *SendPS* to download these separation files to any PostScript device, including the Linotype L300.

To Output an Image Via Framegrabber

Use the commands in the Video menu to send the picture or selection in the active window to the ColorCapture board. You can use the board to do the following:

- Display the image on an NTSC composite video monitor or on a high-quality RGB monitor ("genlock")
- Produce color proofs on a video thermal printer
- Communicate with any analog device that accepts an NTSC signal (e.g., video transceivers, VCRs)

☐ To output the image via the ColorCapture board, choose *Display Image* or *Display Selection* from the Video menu.

Chapter 21 contains more detailed information on the Video menu.

Section 4
PhotoMac Reference

SECTION 4

CHAPTER 14: THE PHOTOMAC DESKTOP

CHAPTER 15: THE APPLE MENU

CHAPTER 16: THE FILE MENU

CHAPTER 17: THE EDIT MENU

CHAPTER 18: THE OPTIONS MENU

CHAPTER 19: THE ARRANGE MENU

CHAPTER 20: THE EFFECTS MENU

CHAPTER 21: THE VIDEO MENU

Chapter 14
The PhotoMac Desktop

The PhotoMac desktop consists of a menu bar at the top of the screen and one or more image windows with tools and controls. The image window does not appear until you open a file.

The menu bar allows you to access PhotoMac's pull-down menus. Pressing the mouse button on a menu title shows the menu options.

When you open a file, the image is displayed in a window which matches as closely as possible the size of the image, within the limits imposed by the size of your screen. The maximum size of a PhotoMac document is 32,000 pixels on each side. To see parts of an image that aren't visible on the screen, PhotoMac provides viewing tools for scrolling and zooming for a different view.

The title bar at the top of each window contains the name of that document. When you open a new document or a document in TIFF or Truevision (TARGA or VISTA) format, or input a file via the ColorCapture board, it is "Untitled." When you save the document, the name you assign is displayed in the title bar. You can drag the title bar to reposition the window anywhere within the screen.

The close box appears to the left in the title bar. When you've finished working with a document, clicking the close box closes the document and the window. If you haven't saved the document, a message box gives you the opportunity to do so.

You use the zoom and resize boxes to change the size of the window. The zoom box is to the right in the title bar. Clicking it expands the window to the full size of the screen. Clicking the zoom box again returns the window to its original dimensions. The resize box is in the lower-right corner of the window. Dragging it changes the window dimensions to any size that fits the screen. If you make the window larger than the image document, the area between the document and the window will be displayed in gray.

When several PhotoMac windows are open at once, you can resize and reposition them to move conveniently between them. See Chapter 6, "Viewing Images" for more details.

The scroll bars are the gray bars down the right side and across the bottom of the window. When an image is larger than the window, you can see the scroll bars and arrows. Use them to scroll your view of the document horizontally or vertically in the window. Dragging a scroll box moves the document quickly. Clicking or pressing an arrow scrolls the document more slowly.

The PhotoMac tool palette appears along the left side of the window.

The Tools and Controls

The PhotoMac palette offers a variety of tools and controls for changing images. You use the tools to select, move, or retouch the image. The controls change the colors, the tones, or your view of the image.

To choose a tool or control, simply click on it. You'll notice that some changes take place. The background color of the selected tool or control changes to red. When you move the pointer over the image, it turns into a representation of the highlighted tool. Only one tool or control can be selected at any time.

Selection Rectangle

Use the rectangle to make rectangular selections.

To make a selection, position the cursor at one corner of the area you want to select and drag an outline around it. A scrolling dotted outline, called the marquee, surrounds the area. Release the mouse button when you've selected the area you want. The entire outlined area is selected.

You can add areas to the selection by pressing the Shift key and making another selection. If the new selection adjoins the old one, a marquee outlines the entire area. If the selections are separate, they're each outlined by a marquee. To remove areas from the selection, press the Command and Shift keys while you select the area to be removed.

If you move the cursor inside the selection, it changes into the arrow pointer. Now you can drag the selection to move it, leaving white space behind. Pressing the Option key while dragging duplicates the selection.

Double-clicking on the selection rectangle in the palette selects the entire document. Clicking outside the selection or pressing Command and clicking inside the selection cancels it; the marquee disappears.

Lasso 

Use the lasso to select irregular shapes.

You can add areas to the selection by pressing the Shift key and making another selection. If the new selection adjoins the old one, a marquee outlines the entire area. If the selections are separate, they're each outlined by a marquee. To remove areas from the selection, press the Command and Shift keys while you select the area to be removed.

If you move the cursor inside the selection, it changes into the arrow pointer. Now you can drag the selection to move it, leaving white space behind. Pressing the Option key while dragging duplicates the selection.

Double-clicking on the lasso in the palette selects the entire document. Clicking outside the selection or pressing Command and clicking inside the selection cancels it; the marquee disappears.

Autoselect Tool 

Use the autoselect tool to automatically select discrete image areas. It works best on single-color objects with well-defined edges.

To make a selection, drag the pointer around an area which contains representative colors. PhotoMac will expand the selection to the boundaries of the selected color(s).

The time required to autoselect an area varies with (a) the size of the area and (b) the number of colors you've marked for selection. If autoselection seems to be taking a long time, it may be because you dragged the autoselect tool through a complex object or one with ill-defined boundaries, so the selection is "growing" out into surrounding areas. You can cancel the autoselection process by clicking on the Stop button in the progress indicator box.

If you try to select an object with poorly defined edges, the selection marquee may extend past the edge of the object.

You can add to the selection by holding down the Shift key while you use the lasso or rectangle to select areas to be added, or the autoselect tool to select colors to be added. If the new selection adjoins the old one, a marquee outlines the entire area. If the

selections are separate, they're each outlined by a marquee. You can remove areas from the selection by holding down the Command and Shift keys while you use the lasso or rectangle to select areas to be removed, or the autoselect tool to select colors to be removed.

If you move the pointer inside the selection, it changes into the arrow. Now you can drag the selection to move it, leaving white space behind. Pressing the Option key while dragging the selection duplicates it instead.

Clicking outside the selection cancels it; the marquee disappears.

When selecting an object, drag the tool inside but as close as possible to the edges of the area without going over into the rest of the image.

Don't drag through too many colors at one time. When you give it too many colors to work on, the autoselect tool will (a) take a longer time to select and (b) will probably end up selecting more of the image than you want. Even with a picture that seems to have relatively few colors, you may be surprised at how many different shades are present.

Grabbing Hand

Use the grabbing hand to reposition an image in the window. The hand will work only if the scroll tools are active (i.e., if the image is larger than the window).

To reposition the image, you drag it with the hand. You can move the image in any direction.

Paintbrush

Use the paintbrush to apply paint in solid brush strokes. You can select transparent or opaque paint in a new paint color or in a color you select directly from the image. Drag the pointer to apply paint, and release the mouse button to end the brush stroke.

Choosing the *Paintbrush Shapes* command from the Options menu or double-clicking on the paintbrush icon in the palette opens the Paintbrush Shapes dialog box. The dialog box offers a choice of 32 brush shapes and sizes. Chapter 18, The Options Menu, has more information on the Paintbrush Shapes dialog box.

Pressing the Shift key while painting restricts your brush stroke to a straight horizontal, diagonal, or vertical line.

Airbrush

Use the airbrush to spray paint onto the image. The airbrush applies dots of paint in a random pattern, as if it were sprayed on. You can select transparent or opaque paint in a new paint color or in a color you select directly from the image. Drag the pointer to spray on paint, and release the mouse button to end the brush stroke.

Choosing the *Airbrush Size* command from the Options menu or double-clicking on the airbrush icon opens the Airbrush Shapes dialog box. You can create your own airbrush by adjusting the size, density, and the rate at which paint is applied. Chapter 18, The Options Menu, has more information on the Airbrush Size dialog box.

Pressing the Shift key while airbrushing restricts your brush stroke to a straight horizontal, diagonal, or vertical line.

Eyedropper

Use the eyedropper to select a paint color directly from the image for painting or airbrushing. Move the pointer into the image and position it over the color you want. Click on the color to select it. The color of that pixel appears in the current color box. You can also drag the eyedropper over the image. As you pass over each pixel, its color shows in the current color box. Release the mouse button when you see the color you want to use.

Eraser

Use the eraser to delete areas from an image. Every stroke of the eraser leaves white in its place.

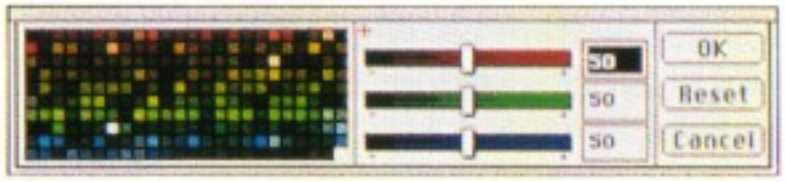
Usually, you'll erase colors prior to using the Paste Transparent command. When you use *Paste Transparent* to paste in the selection, those areas you erased to white will appear clear, and the underlying image shows through. This results in more realistic photomontages than could otherwise be achieved.

Pressing the Shift key while erasing restricts your brush stroke to a straight horizontal, diagonal, or vertical line.

Color Correction

Use the color correction control to change the colors in an image. Select a color correction system from the Options menu prior to clicking on the color correction control.

If you've selected the RGB (red-green-blue) Color Correction system, you'll get a dialog box containing red, green, and blue color sliders, a red Show Colors button, and a grid composed of color tiles. The tiles represent the colors in the selection simply arranged by hue and saturation.



If you've selected the LHS (luminance-hue-saturation) Color Correction system, you'll get a dialog box containing a hue wheel, a saturation slider, a Show Colors button, and a color grid. Again, the tiles in the color grid represent the colors in the selection arranged by hue and saturation.

Color Grid

The color grid gives you color information about the selection. The colors are grouped by hue, with the reds at the top of the grids, the yellows and greens in the middle, and the blues and violets at the bottom. Within each hue, the colors are arranged by saturation (purity), with the purest color first and the least saturated shade last.

If you wish to work only on specific colors within the selection, you can choose those colors from the grid by clicking on them. You can add colors to your selection by pressing the Shift key while you click on a color, and you can remove colors from the selection by pressing the Command and Shift keys while clicking on a color. Use *Select All* from the Edit menu or press Command-A to reselect all the colors.

You can see where the color(s) you've chosen appear in the selection by pressing the red Show Colors button. Areas with the selected color(s) flash while you hold down the button.

Color Lasso

Once the dialog box has appeared, the tool palette and pull-down menus become inactive. At this point, you have a new selection tool: the color lasso. The color lasso works like the standard lasso, except that it selects colors instead of areas. The color lasso appears when you move the pointer in the selected area of the image.

If you wish to work only on specific colors within the selection, you can choose those colors by selecting them with the color lasso. You can add colors to your selection by pressing the Shift key while selecting and remove colors from the selection by pressing the Command and Shift keys while selecting. Use *Select All* from the Edit menu or press Command-A to reselect all the colors.

You can see where the color(s) you've chosen appear in the selection by pressing the red Show Colors button; areas with the selected color(s) will flash while you hold down the button. Or you can press the Option key while you click on a color within the selection or in the color grid to see where that color occurs in the selection.

Tone Scale

Use the tone scale control to adjust the brightness and contrast. You will be able to do this manually by adjusting the sliders, or automatically by clicking on the Auto button.

The tone scale dialog box contains a histogram, a brightness slider (which ranges from white to black), and a contrast slider (ranging from highest to lowest possible black-white contrast). The dialog box also contains the Auto button.

The histogram is a graph of the distribution of light in the image. In darker images, most of the peaks in the histogram appear concentrated on the left side; in bright images, they're on the right. High contrast images have very high peaks, while low contrast images show relatively low peaks. Ideally, the peaks should be evenly distributed over the entire width of the histogram area, and should be of moderate height.

Clicking on the Auto button causes PhotoMac to automatically adjust the brightness and contrast to optimize the appearance of the image.

Current Magnification Box

The current magnification box shows the magnification of your view of the image. The size of the view is adjusted using the Zoom In and Zoom Out controls.

Double-click on this box at any time to alternate between the current magnification and a 1x view.

Zoom In, Zoom Out

The zoom controls allow you to enlarge or reduce your view of the image. Use them to zoom in for fine retouching or zoom out for a wider view. You can zoom out to 1/2x, 1/4x, and 1/8x by clicking on the small mountains; zoom in to 2x, 4x, 8x, 16x, and 32x by clicking on the big mountains.

When you zoom out to 1/2x, 1/4x, or 1/8x, you'll see the document in the upper-left corner of the window. The rest of the window is filled with a gray background.

If you attempt to drag a selection into the gray background, the area that extends outside the document disappears. As long as the marquee outlines the selection, you can restore the whole selection by dragging it back into the document. If, however, you cancel or change the selection, any part left outside the document will be deleted.

Current Color Box

The current color box shows the paint color that will be used if you paint, airbrush, or Fill the image with color.

Select the current paint color directly from the image using the eyedropper, or choose a new paint color from the color picker dialog box. Open the color picker by:

- Choosing *New Paint Color* from the Options menu;
- Double-clicking on the eyedropper tool; or
- Double-clicking on the current color box.

The color picker dialog box contains a color wheel, a brightness slider, a box showing the selected color (top) and the current color (bottom), and text fields showing the color values in the red-green-blue and hue-saturation-brightness color systems.

To select a new color, simply drag the pointer in the color wheel until the color you want shows up in the selected color box. If this is a color you may need to match, record the text field values; they represent the numeric equivalent of the color. To replicate that color in another file, type the color values into the text boxes.

Refresh Colors Icon

Below the current color box is a gray rectangle. Whenever you've changed the colors in the image and PhotoMac recognizes the need to refresh the display, this gray area will show the refresh colors icon.

You can click on this icon to trigger the redisplay immediately, or you can continue working. If you pause for more than four seconds, your cursor changes to the refresh cursor, and PhotoMac repaints the picture, optimizing the Macintosh palette for the new combination of colors in the image.

Chapter 15
The Apple Menu

The Apple menu contains general information about PhotoMac. In addition, you can choose from the available desk accessories.

About PhotoMac

This item brings up a dialog box showing PhotoMac's copyright information and tells you what version of PhotoMac you are running.

To dismiss the About PhotoMac window, click on the *OK* button.

Desk Accessories

PhotoMac is compatible with the standard Macintosh desk accessories. Refer to the Macintosh II manual for more information about desk accessories.

Chapter 16
The File Menu

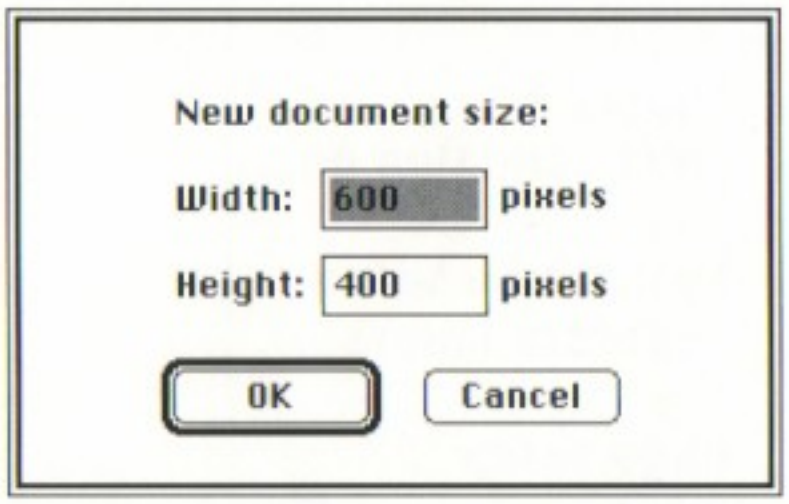
The File menu contains commands for defining a new document, opening, saving and closing a document, and ending the session. If you make changes you don't like, you can erase them by reverting to the most recently saved version of an image. Another command lets you save selections as new documents. For desktop publishing, the Export As command prepares your file for export to other applications. The Separation Setup command lets you choose options prior to four-color image separation, and the Separate Colors command makes color separation files for output to a PostScript printer.

If you do not have a PhotoMac window open on your desktop, the only File menu commands that will be available are New, Open, and Quit.

New

✣ *Keyboard equivalent: ⌘-N*

New lets you define a new (empty) document. A dialog box appears asking for the document dimensions.



Type in dimensions between 100 and 32,000 pixels. If you don't enter the dimensions, the document size is automatically set to 600 x 400 pixels. Clicking the OK button opens the new document on the desktop.

The document size is limited only by available disk space. You'll need 3 bytes/pixel to store images on your hard disk. For example, a 600 x 400 pixel image has a total of 240,000 pixels, and therefore requires 720,000 bytes of storage space.

The number of documents you can have open at one time is also restricted by your disk space.

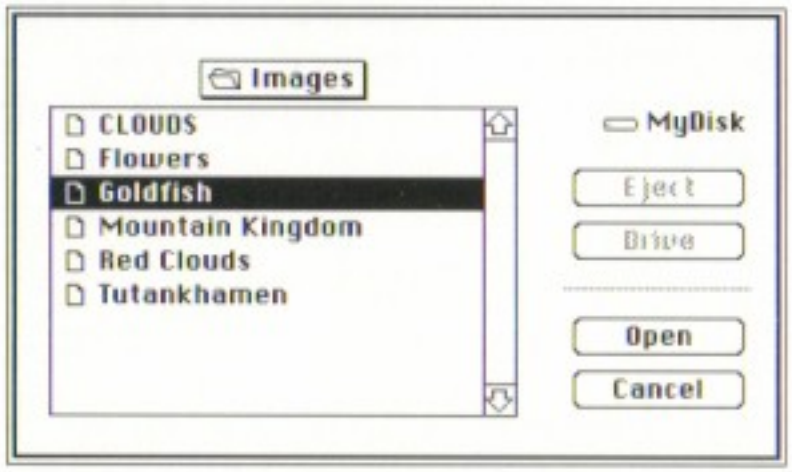
When you open a new document, it's named "Untitled" and given a number. The first document you open is called "Untitled-1," the second is "Untitled-2" and so on. If you save the document, the filename you type in replaces "Untitled."

The new document looks like a white, blank page. You can paste images into it or create your own image using the tools in the tool palette.

Open

✣ *Keyboard equivalent: ⌘-O*

Open reads an image file from disk, and displays the contents of that file. A dialog box lists the available files.



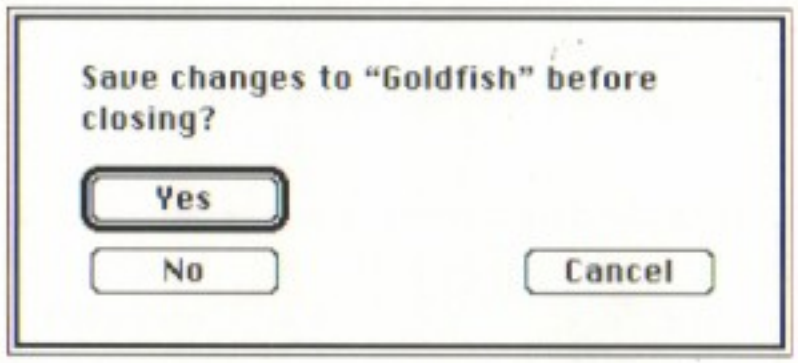
PhotoMac opens PICT and PICT2 files created by PhotoMac and other Macintosh applications. It also opens TIFF images as well as TARGA and VISTA files generated by the Truevision boards (these files will open as "Untitled" documents).

Your Macintosh II manual contains detailed information about opening files.

Close

✣ *Keyboard equivalent: ⌘-W*

Close closes the active window. If more than one window is open, the next frontmost window becomes active. If you've made changes to the document but haven't saved them, a message box asks if you want to do so.



To save your changes, click the Yes button. If the document is titled, clicking Yes automatically saves the document. If the document is untitled, the Save dialog box appears so you can name the document.

If you don't want to save your changes, click the No button to dismiss the message box and close the document.

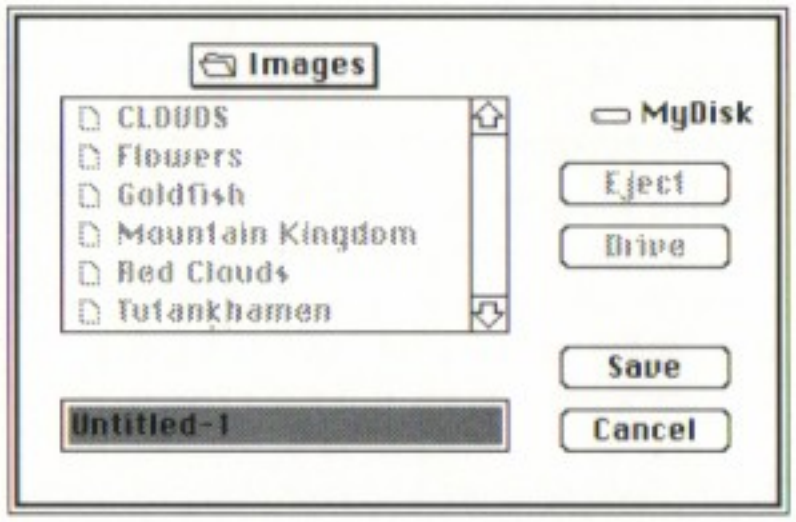
You can also close the window by clicking in its Close box.

Save

✣ *Keyboard equivalent:* ⌘-*S*

Save writes the document in the active window to disk using the filename displayed in the title bar. The document is saved in PICT2 24-bit format. If the document has been previously saved, the document on the screen replaces the version of the document on disk.

If the document has never been saved, a dialog box requests the filename and location.



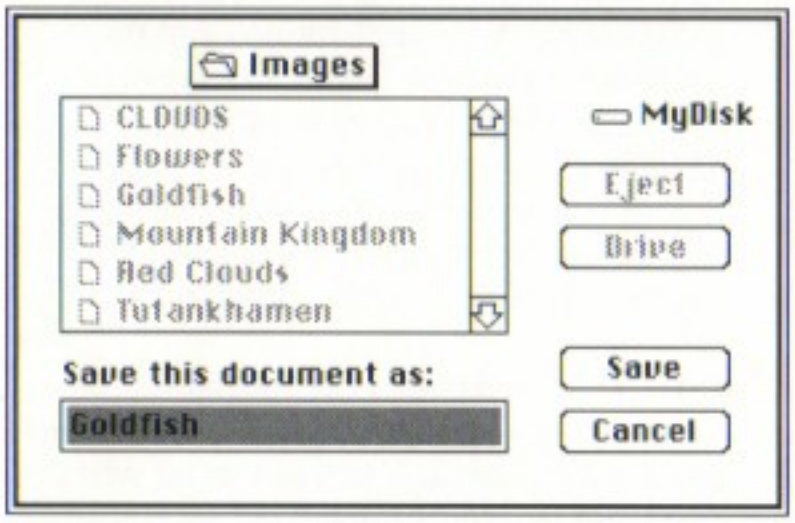
Type in the filename and click the Save button. The document is saved in the folder whose name appears above the list box.

To save the document in another folder, choose another folder from the list of available folders. Type in the filename and click the Save button.

The name of the current disk appears at the top right. To see the contents of another disk, click the Drive button. If a floppy disk is in the drive, you can eject it by clicking on the Eject button.

Save As

Save As writes the document in the active window to disk using the name you specify. The file is saved in PICT2 24-bit format. A dialog box requests the filename and location.



Type in the filename and click the Save button or press Return to save the document. Clicking the Cancel button closes the dialog box without saving the document.

Use the Save command to save changes to a titled document. Use the Save As command to save a new document or to save a new version of the document without replacing the previous version on disk.

Revert

Revert eliminates any changes made to a titled document since the last Save operation. This is an easy way to erase changes you don't like and start over with an earlier version of the document.

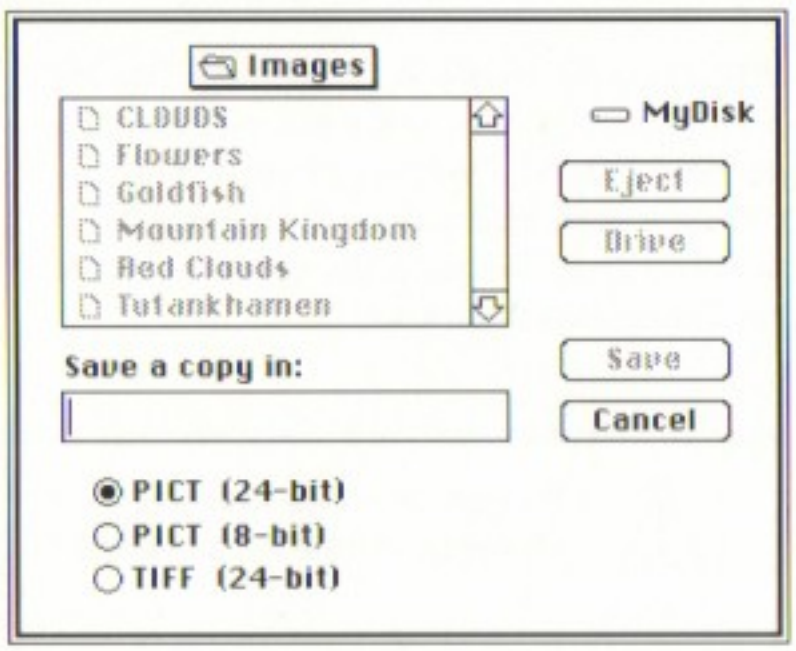
When you choose Revert, a message box asks if you want to return to the last version of the document saved. To do so, click the OK button; Revert will re-open the document saved on disk. To cancel the operation, click the Cancel button instead.

The Revert command is dimmed if you haven't changed the file since your last save.

Note The Undo command is not available after choosing Revert.

Export As

Export As saves a file in one of three image file formats for export to other Macintosh software. A dialog box requests the filename, location, and format.



Type in the filename. You may want to include a suffix indicating the file format. For example, a TIFF version of the *Goldfish* file might be called *Goldfish.TIFF*.

Choose the image file format by clicking its button. The formats include:

- *PICT (24-bit)*, Apple's expanded file format for transferring 8-bit and 24-bit graphics between applications and the Clipboard. Use this format to export full color PhotoMac images to other Macintosh painting, drawing, or page layout applications. (Note that this is the format you get if you use the *Save*, *Save As*, or *Save Selection As* command.)

- *PICT (8-bit)*, Apple's file format for transferring graphics between applications and the Clipboard. Use this format when you want to export PhotoMac images to Macintosh applications that can't handle the 24-bit PICT2 file format.

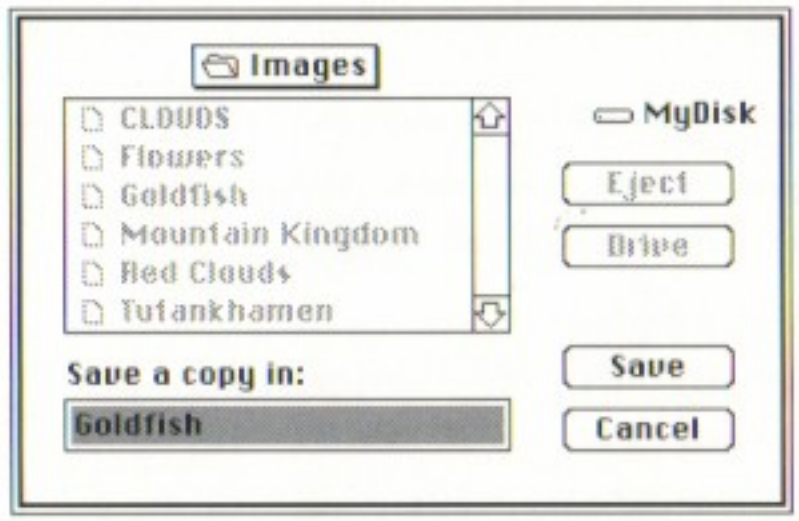
- *TIFF (24-bit)*, a file format used to represent scanned images and other large bitmaps. Use this format to export PhotoMac images to desktop publishing software packages like QuarkXPress.

To save the file, click the Save button. To cancel the save and dismiss the box, click the Cancel button.

The file is saved on the current disk, in the folder whose name appears above the list window.

Save Selection As

Save Selection As saves a selection in a new file. This command is available only if there is a selection in the active window. A dialog box requests the filename and destination.

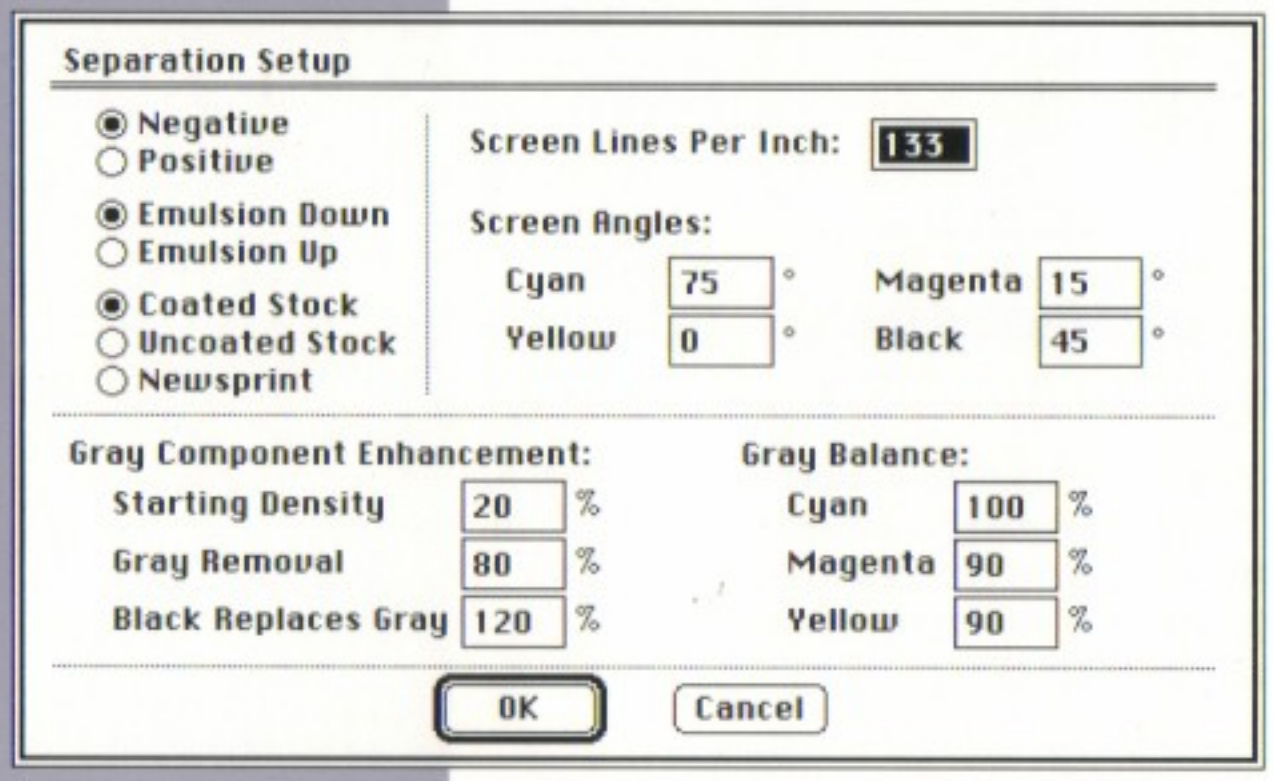


Type in the filename and click the Save button. The new document is automatically sized to fit the selection. An irregularly-shaped selection is saved in a rectangular document, with white filling in the edges.

Separation Setup

Separation Setup opens a dialog box with options for making color separations.

Use these options to prepare the separations and adjust for variables in the printing process.



- You can choose between producing negative and positive films with the emulsion side up or down (right reading). Your printer can tell you which to choose for the printing process you use.

  PhotoMac can adjust the separations depending on the printing paper. You can choose coated stock, uncoated stock, or newsprint.

- **Screen Lines Per Inch**

  Color images are screened to prepare them for printing. Screening breaks the image up into tiny halftone dots. You can enter a screen between 50 and 400 lines per inch. The higher the number of screen lines per inch, the smaller the dots and the more finely-grained the resulting print. Lower screen rulings produce larger grains in the image.

  Most commercial, magazine, and book printing uses a 120, 133, or 150 line halftone screen. Newspapers often use screens set between 65 and 85 lines per inch.

- **Screen Angles**

  Full-color images are usually printed in four colors--cyan, magenta, yellow, and black (CMYK). PhotoMac will generate files for each of these color components.

  You can set the screen angles for each color. If all four colors are printed with the same angle, you will get very distinct moire patterns in the image. Angles can be between 0 and 359 degrees.

  The default settings are intended to minimize patterning in the output. Your specific printer may require a different set of screen angles.

- **Gray Component Enhancement**

  Because they are produced by combining the primary subtractive colors (cyan, magenta, and yellow), most colors contain some amount of gray. A process called *gray component enhancement (GCE)* removes a specified percentage of gray and replaces it with black.

  You can set the threshold at which GCE should be implement via the *Starting Density* setting. Enter a number between 0 and 100. For example, if you set a starting density of 20, colors composed of less than 20% gray will not be affected.

  Set the amount of gray over the threshold to be removed via the *Gray Removal* setting. Enter a number between 0 and 100. Continuing the example, if a color is 30% gray (i.e., 10% over the starting density threshold), you can specify that all or just some part of that 10% be removed.

  Set the amount of black to be added via the *Black Replaces Gray* setting. Enter a number between 0 and 200. To evenly replace the black for gray, type in 100. Adding more black than the amount of gray removed boosts the intensity of the color; adding less results in a slightly more pastel shade.

- **Gray Balance**

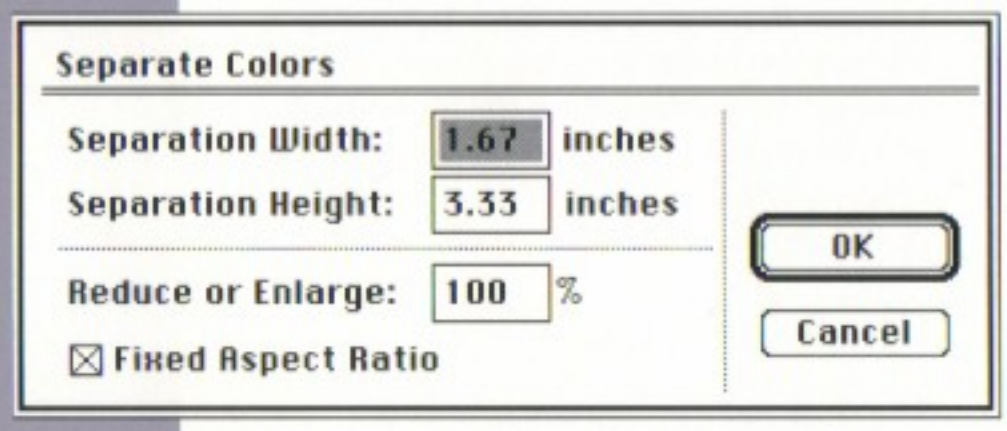
  The gray balance option adjusts for impurities in printing inks. You can specify the amount of cyan, magenta, and magenta ink to be combined to give true gray. The default settings may need to be adjusted for your printer.

When you've chosen the separation options you want, click the OK button. To use previously-defined values instead, click the Cancel button.

Moire patterns--named after the patterns in watered silk--often appear in prints produced with improperly-set screen angles.

Separate Colors

Separate Colors creates PostScript files in each of the process colors for the image in the active window. A dialog box requests the target size for the separations.



If the Fixed Aspect Ratio box is selected, you can type in the target height or width (in inches) or the percentage reduction/ enlargement. If you press the Tab key, the remaining values will be calculated based on the aspect ratio of the image. For example, if you type in a new height, the width and percentage will be updated.

If the Fixed Aspect Ratio box is not selected, the option of typing in the reduction/ enlargement value is not offered. The image will be distorted to exactly fit the height and width you specify.

Click the OK button to accept the dimensions and close the dialog box. To dismiss the box without making separations, click the Cancel button.

If you click on OK, a second dialog box requests a name and destination for the separation files.

Type in the filename. When you click the Save button, PostScript files for the cyan, magenta, yellow, and black separations are created and saved to disk. Each filename receives a ".C", ".M", ".Y", or ".K" suffix to identify its color.

Use a PostScript download application (such as Adobe's *SendPS*) to print the files on the Linotype L300, the LaserWriter, or on any other PostScript-compatible printer.

Page Setup

Page Setup shows a dialog box to specify page setup options for the printer you selected from the Chooser desk accessory. The options vary depending on your printer and System software. Refer to the owner's guide for your printer to get information about using the options in the Page Setup dialog box.

Print

✣ *Keyboard equivalent:* ⌘-*P*

Print outputs documents to a color LaserWriter or other color printer. The output is in 8-bit form.

Use Print for downloading documents to color output devices (e.g., film recorders). If you attempt to print to a black and white printer, PhotoMac will send the image data to the printer, but the document won't print.

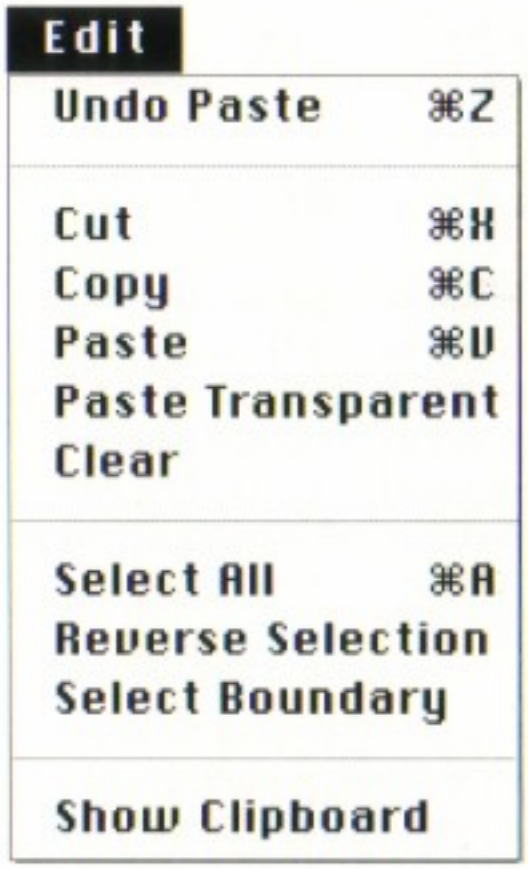
Quit

✣ *Keyboard equivalent: ⌘-Q*

Quit closes all document windows on the desktop and exits PhotoMac. If you have not saved your changes to the document(s), a dialog box lets you do so.

Chapter 17
The Edit Menu

The Edit menu contains commands for editing, selecting, and combining images. If you do something you don't like, you can cancel your last action with the Undo command. To combine images, you can cut or copy a selection to the Clipboard and paste it into another image. Three other commands let you select an entire document, reverse a selection, or select just the edges of the selection. If you want to discard a selection, the Clear command will delete it.



Undo, Redo

✣ *Keyboard equivalent:* ⌘-Z

Undo cancels the last action you carried out. For example, if you paint a stroke with the paintbrush, then decide the color is wrong, you can choose Undo to cancel the paintstroke. Undo only affects your last action. Previous actions are unaffected, so if you painted two strokes with the wrong color, only the last paintstroke would be removed.

Use Undo to reverse the following actions: painting, airbrushing, erasing, cutting, copying, pasting, color and tone correction, smoothing and sharpening, moving, resizing, rotating, flipping, inverting, and filling.

You can cancel the Undo itself by choosing *Redo*.

Cut

✣ *Keyboard equivalent:* ⌘-X

Cut removes selected material from the document and puts it in the Clipboard, leaving white space behind. Use Cut to remove a selection in preparation for moving it elsewhere in the same document or pasting it into another document.

Before choosing the Cut command, you need to make a selection using the selection tools and/or menu commands. The Cut command is dimmed if there is no selection.

Copy

✣ *Keyboard equivalent: ⌘-C*

Copy puts a copy of the selected material into the Clipboard, leaving the original document unchanged.

You must make a selection before choosing Copy. Use the lasso, rectangle, autoselect tool, or the *Select Boundary*, *Reverse Selection*, or *Select All* command from the Edit menu to make a selection. The Copy command is dimmed if there is no selection.

Paste

✣ *Keyboard equivalent: ⌘-V*

Paste inserts a copy of the contents of the Clipboard into the document in the active window. Because a copy remains in the Clipboard, you can choose Paste repeatedly. If the Clipboard is empty, the Paste command is dimmed.

When you choose Paste, the Clipboard image appears over the last place you clicked the mouse, or in the middle of the document. As long as the marquee outlines it, you can drag the selection, retouch it, or perform other operations on it before fixing it into the document.

To cancel the selection and paste it into the document, click outside the marquee, or press Command and click inside the marquee. Using *Smooth*, *Blend Boundary*, or *Sharpen* will automatically fix the selection into the document without deselecting it.

Before choosing Paste, you can select an area into which you'll paste the Clipboard image. Choosing Paste puts the Clipboard image into the selected area. If the image is a different size or shape than the selection, the image is automatically resized and cropped to fit. Pressing the Option key while choosing Paste preserves the image's aspect ratio when it's resized. Pressing the Shift key prevents the resizing of the Clipboard image.

Paste Transparent

Paste Transparent inserts a copy of the Clipboard image into the document, removing white portions of the copy so that the document is visible through those areas. If the Clipboard is empty, the Paste Transparent command is dimmed.

When the Clipboard image appears in the document, it's outlined by a marquee. You can perform any operation that you might use on a selection. Clicking outside the marquee deselects the image and fixes it into the document.

Use Paste Transparent to combine images realistically. Before cutting or copying an image into the Clipboard, you can use the eraser tool or Clear command to make parts of the selection white. Then cut or copy the image into the Clipboard and choose Paste Transparent. The white portions of the Clipboard image are clear when it appears in the document, so areas under those portions show through.

Using Paste Transparent, you can also paste an image into a selected area. If the image is a different size or shape from the selection area, it's resized and cropped to fit. Pressing the Shift key while choosing Paste Transparent prevents the resizing of the Clipboard image. Pressing the Option key preserves the image's aspect ratio when it's resized.

Clear

✣ *Keyboard equivalent: Delete*

Clear removes a selection from the document but doesn't store it in the Clipboard. This is a convenient way to discard a selection without affecting the contents of the Clipboard.

The Clear command can also be used to prepare an image before using the Paste Transparent command. If you want to make part of an image transparent, select that area and choose Clear. Then, make a new selection, *Cut* or *Copy* the image into the Clipboard, and choose *Paste Transparent* to paste it into its new position.

The Clear command is dimmed if there is no selection.

Select All

✣ *Keyboard equivalent:* ⌘-A

Select All selects the entire document. A marquee outlines the document when it's selected. If the entire document is already selected, choosing Select All cancels the selection.

Another way to select the entire document is to double-click on the rectangle or lasso in the tool palette. Double-clicking again cancels the selection.

Use Select All to select a document before choosing Cut, Copy, Clear, Rotate, Resize, or Fill. Other PhotoMac operations affect the whole document by default, unless a selection has been made using the lasso, rectangle, or the autoselect tool.

Reverse Selection

Reverse Selection selects all of the document except the currently selected material. Use this command to reverse a selection before masking it.

Before choosing Reverse Selection, you need to make a selection. If no selection has been made, the command is dimmed in the Edit menu.

Clicking on the paintbrush, airbrush, eraser, color correction control, or tone scale control covers the deselected area with a gray mask, so you can work on the selected area.

Select Boundary

Select Boundary changes the selection to just the area around an existing selection marquee. Use Select Boundary before editing, retouching, arranging, or applying special effects between the selection and the rest of the image.

The boundary extends a specified width on both sides of the selection marquee. Before choosing Select Boundary you can define the width using the Boundary Width command from the Options menu.

When you choose Select Boundary, two marquees outline the boundary and the original selection marquee disappears. To cancel the selection, click outside the marquees. You will not be able to get back to the original single marquee without reselecting the area.

Show Clipboard, Hide Clipboard

Show Clipboard opens the Clipboard window so you can see its contents. The Clipboard holds the last image you cut or copied from a document. Whenever you *Cut* or *Copy* a selection, it replaces the previous Clipboard contents.

Paste and *Paste Transparent* are the only commands that access Clipboard images. You can't edit images in the Clipboard.

Select *Hide Clipboard* or click in the Clipboard's close box to dismiss the Clipboard.

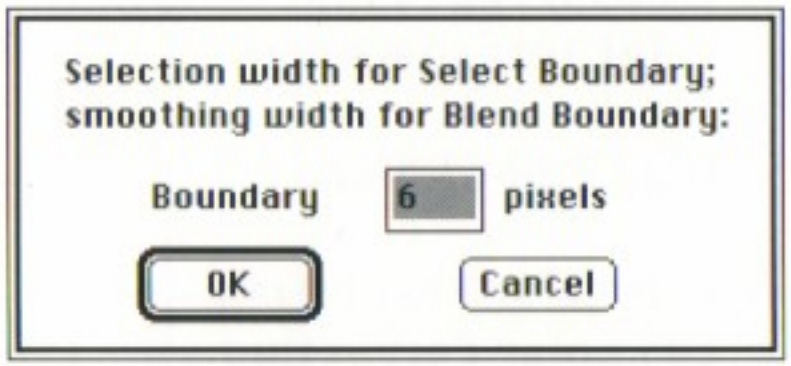
The contents of the Clipboard don't change when you close the Clipboard window or when you quit PhotoMac. Note, however, that the size of images moved between applications is restricted by the amount of memory (RAM) in your Macintosh II. If the Clipboard image is larger than the amount of available RAM, you will not be able to move it between PhotoMac and another application in this way. If the application accepts 8- or 24-bit PICT2 or 24-bit TIFF, you can save the image in one of these formats using the *Export As* command.

Chapter 18
The Options Menu

The Options menu contains the commands for choosing paintbrush and airbrush shapes and sizes, paint color and type, and color correction system. Two additional commands make your selections more precise: Boundary Width lets you specify a region at the edge of a selection on which to carry out special effects, and the Paint Transparency command lets you customize the transparency of the paint color.

Boundary Width

Boundary Width defines a boundary around a selection marquee using the width you specify. Use Boundary Width before selecting a boundary with Select Boundary or blurring it with Blend Boundary.

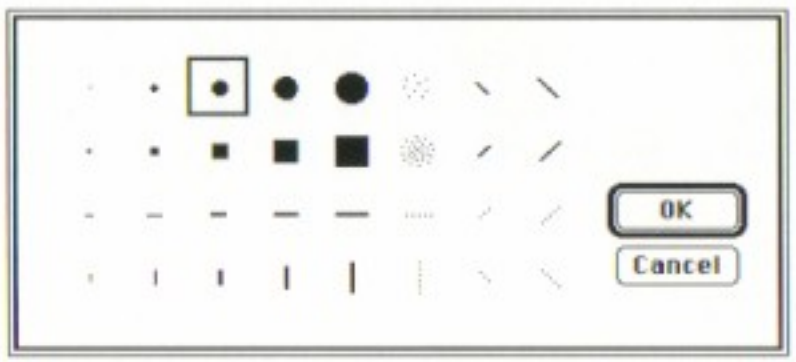


When you first start PhotoMac, the boundary width is automatically set to 6 pixels. To set a new width, type a value between 1 and 20 pixels into the text box. The boundary extends an equal distance on each side of the selection marquee.

Click the OK button to save the new value and close the dialog box. Click the Cancel button to use the previous value instead and close the dialog box.

Paintbrush Shapes

Paintbrush Shapes displays a dialog box from which you can select one of 32 paintbrush shapes. Alternatively, you can double-click on the paintbrush icon in the tool palette to open the Paintbrush Shapes dialog box.

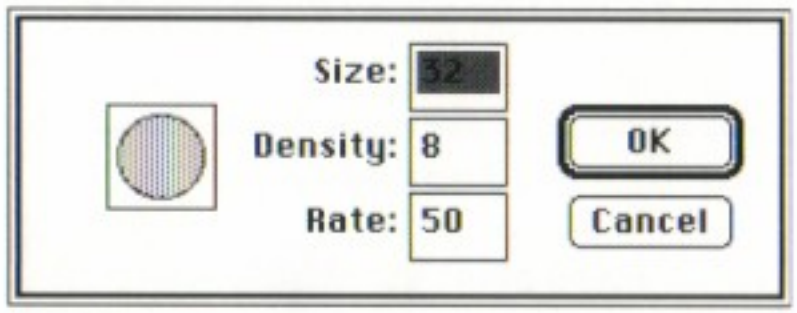


To select the brush shape you want, click on its icon. A square outlines the selected brush.

Click the OK button to save your selection and close the box. To use the previously selected brush instead, click the Cancel button to dismiss the box.

Airbrush Size

Airbrush Size shows a dialog box that lets you select the size, density, and paint rate of the airbrush. Alternatively, you can double-click on the airbrush icon in the tool palette to open the Airbrush Size dialog box. The current airbrush shape is shown in the square.



When the box opens, the size text box is highlighted. The size determines the diameter of the airbrush, which simulates the distance between a real airbrush and the surface to which paint is being applied. The closer the airbrush is to the surface, the more focused the paint and, therefore, the smaller the airbrush size. Type in a value between 2 and 32 pixels and press Tab to move the insertion point to the density box. The airbrush shape changes to show the new size.

The density determines how much paint is concentrated at the center of the brush, simulating the air flow control on a real airbrush. A density value close to 100 produces a narrow, heavy brush stroke; closer to 0, the stroke is wider, more feathery (stippled). Type in a value between 0 and 100 and press Tab to move to the rate box.

The rate determines how quickly the paint spatters onto the image, simulating the paint flow control on a real airbrush. Type in a rate between 0 and 100, with 100 being the fastest rate.

Click the OK button to save the new airbrush shape and dismiss the dialog box. Click the Cancel button to use the previously-defined airbrush instead.

Opaque Paint

Opaque Paint makes the current paint color opaque. A check mark appears in the menu to show that it's selected. When you apply opaque paint, it covers the background image with the selected color.

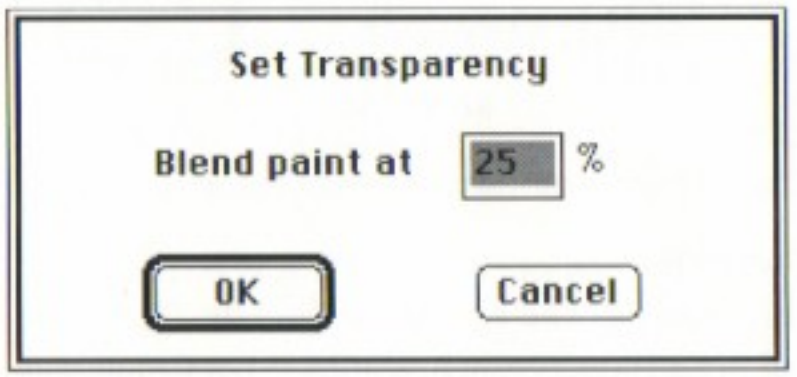
Transparent Paint

Transparent Paint makes the current paint color transparent. A check mark in the Options menu indicates that it's selected. When you apply transparent paint, the color blends with the background image, creating a watercolor effect. As you apply more layers of paint, the background details gradually wash away. Finally, after several applications, the paint appears opaque. The number of applications necessary to go from transparent to opaque depends on the level of transparency you set (see Set Transparency, below).

Set Transparency

Set Transparency is available only if you select Transparent Paint (above).

This command opens dialog box that lets you specify the sheerness of the color to be applied with the paintbrush, airbrush, or Fill command. You can set a transparency level between 1 and 100. The default setting is 25.



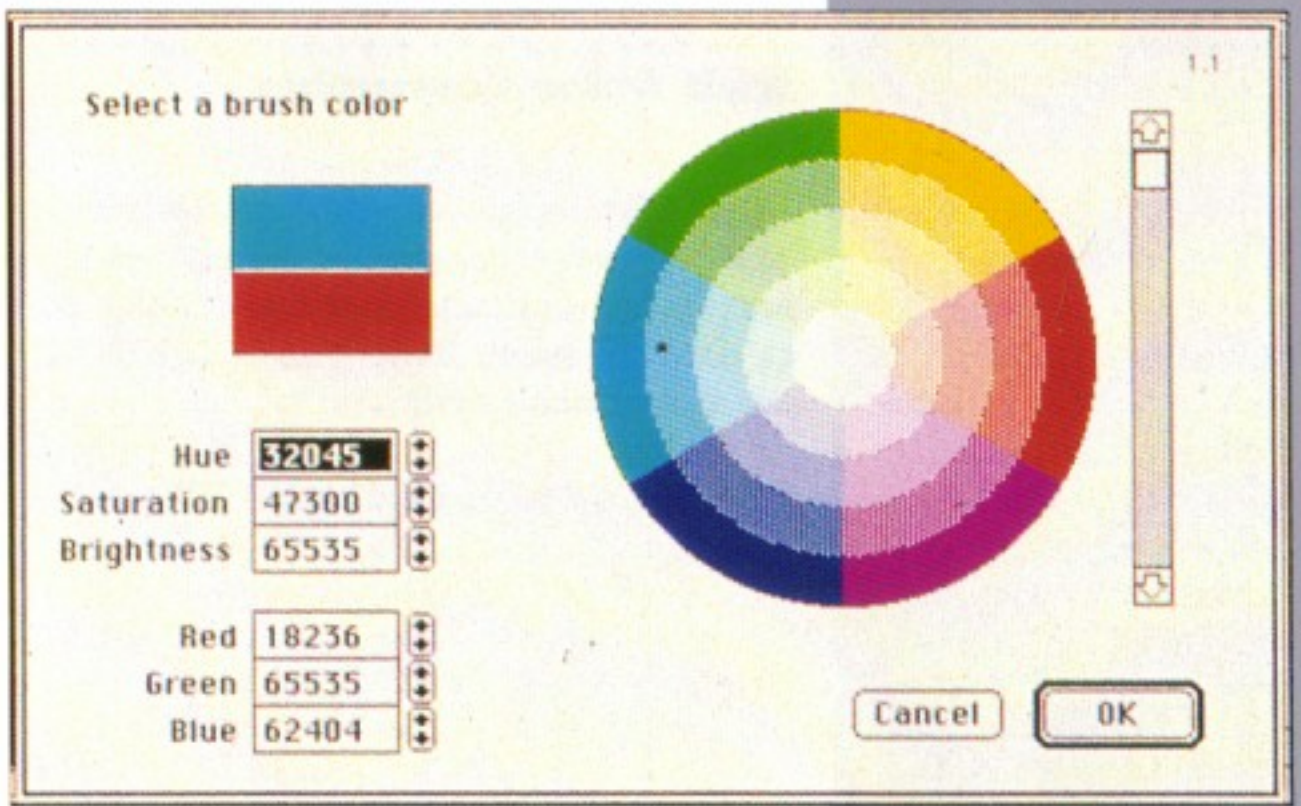
New Paint Color

New Paint Color opens a dialog box that lets you choose from over 16 million available colors. Double-clicking on the current color box or the eyedropper tool also opens the New Paint Color dialog box.

The dialog box contains a color wheel, which shows hue and saturation, and a slider bar which controls brightness. The color wheel is arranged so that the outer rim represents pure hues. The closer you get to the center of the wheel, the lower the saturation of the hue.

The brightness slider bar starts out with the slider at the top, so that saturation is decreased by mixing the color with white, and the center of the color wheel is white. As you drag the slider down the bar white changes to darker and darker shades of gray until, at minimum (or zero) brightness, the wheel is black.

To select a color, click or drag in the color wheel and adjust the brightness to the desired level. The selected color appears in the upper rectangle, the original color in the bottom rectangle.



Text fields show the color values in two color systems, red-green-blue (RGB) and hue-saturation-brightness (HSB). You can select colors by typing values between 0 and 65535 directly into the text boxes. You can also change the values by clicking on the arrow buttons next to the text boxes.

To match a paint color exactly, record the RGB or HSB values of the color you choose. When you want to use the same color again, just type those values into the appropriate boxes.

Click the OK button or press Return to accept the new paint color and close the dialog box. Clicking the Cancel button closes the box without changing the color.

The new paint color appears in the current color box in the tool palette.

RGB Color Correction

RGB Color Correction selects the red-green-blue color correction system. A check mark appears in the menu to show that this item is selected. To use the RGB system, click on the color correction control.

See *Color Correction* in Chapter 14 for more details.

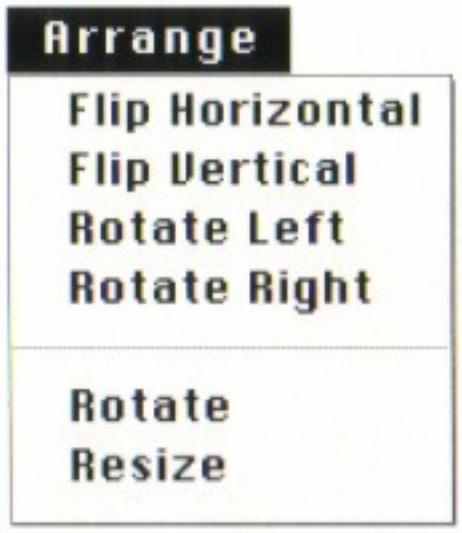
LHS Color Correction

LHS Color Correction selects the luminance-hue-saturation color correction system. A check mark appears in the menu when this item is selected. To use the LHS system, click on the color correction control.

See *Color Correction* in Chapter 14 for more details.

Chapter 19
The Arrange Menu

The commands in the Arrange menu manipulate images spatially. Most of the commands act on selections or on the entire image. The Rotate and Resize commands are dimmed if no selection has been made.



Flip Horizontal

Flip Horizontal flips your selection along the horizontal plane (across the y-axis). If you haven't made a selection, the entire image is flipped.

The Flip Horizontal command is useful for creating a mirror image effect. To create mirror images, make a selection and duplicate it. Then choose Flip Horizontal to flip the duplicate.

Flip Vertical

Flip Vertical flips your selection along the vertical plane (across the x-axis). If you haven't made a selection, the whole image is flipped.

The Flip Vertical command is useful for creating a mirror image effect. To create mirror images, make a selection and duplicate it. Then choose Flip Vertical to flip the duplicate.

Rotate Left

Rotate Left rotates a selection 90 degrees to the left (counterclockwise). If you haven't made a selection, the whole image is rotated.

If you rotate part of the selection out of the original document dimensions, you can retrieve that area as long as the selection is floating.

Rotate Right

Rotate Right rotates a selection 90 degrees to the right (clockwise). If you haven't made a selection, the whole image is rotated.

If you rotate part of the image out of the original document dimensions, you can retrieve that area as long as the selection is floating.

Rotate

Rotate displays handles at the corners of the marquee; the handles allow you to rotate the selection through any angle. The pointer changes into the rotate cursor (four arrows arranged in a circle) when you move it over one of the handles.

Before choosing Rotate, you must use the selection tools or menu commands to make a selection. When you choose Rotate, handles appear at the corners of the selection marquee. If you made the selection with the rectangle tool, handles appear at the corners of the selection marquee. If you made freeform selections or multiple selections, a rectangular marquee with handles at the corners outlines the entire selected area.

Drag a handle to rotate the marquee. When the mouse button is released, the image is redrawn in its new orientation.

The Rotate command is dimmed if you haven't made a selection, or if the selection already has rotation handles.

Resize

Resize displays handles at the corners of the selection marquee; the handles allow you to enlarge or reduce the selection to the size you choose. The pointer changes into the resize cursor (four arrows pointing outward) when you move it over one of the handles.

Before choosing this command, you must select the area to be resized using the selection tools or menu commands. When you choose Resize, handles appear on the selection marquee, one at each corner. If you made the selection with the rectangle tool, handles appear at the corners of the selection marquee. If you made freeform selections or multiple selections, a rectangular marquee with handles at the corners outlines the entire selected area.

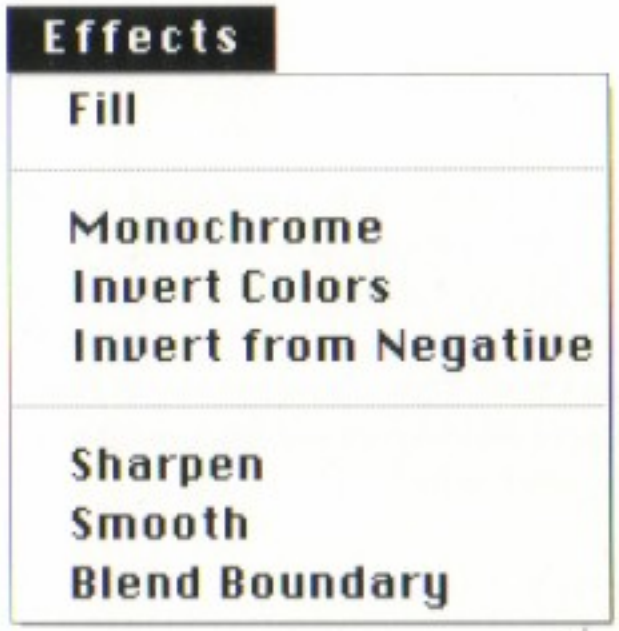
Drag a handle to resize the marquee. Dragging toward the center of the selection shrinks the marquee, while dragging away from the center of the selection expands the marquee. When the mouse button is released, the image is resized to fit the new marquee dimensions.

If you change the aspect ratio, you'll distort the image. You may do this intentionally to create special effects. To resize without changing the aspect ratio, however, press the Shift key while dragging a handle.

The Resize command is dimmed if you haven't made a selection, or if the selection already has resize handles.

Chapter 20
The Effects Menu

The commands in the Effects menu apply a variety of special effects to images. Some effects are simple, like Fill, which fills a selection with color. Three commands, Monochrome, Invert Colors, and Invert from Negative create special color effects. Three other commands, Smooth, Sharpen, and Blend Boundary, enhance the image quality. With the exception of Fill, the commands in the Effects menu affect the whole image unless a selection has been made.



Fill

Fill fills a selection with the paint color in the current color box. Before choosing Fill, you can select a fill color using the eyedropper (to pick a color from the image) or from the color picker dialog box. Then choose *Opaque Paint* or *Transparent Paint* from the Options menu to set the type of paint.

Fill works only if there's a selection. If there's no selection, the Fill command is dimmed.

Monochrome

Monochrome changes the colors in an image to 256 shades of gray. Use the Monochrome command to convert color images to grayscale for black-and-white publishing or for colorizing. Before choosing Monochrome, you can make a selection with the selection tools and menu commands. If no selection has been made, the entire image changes to monochrome.

Invert Colors

Invert Colors changes the colors in an image to their complementary colors. For example, blue would be changed to yellow, and cyan would be changed to red. If you invert colors twice, you'll end up with the original colors.

Invert Colors will work on either a selection or on the entire image.

Invert From Negative

Invert From Negative converts a color negative to a color positive. It allows you to work with images scanned from color negatives without the need for photographic development.

All color negatives contains some amount of orange; the amount varies with the type of film. Invert from Negative subtracts a specific amount of orange as it inverts the colors. Because of this subtraction, Invert from Negative will not transform a color positive into a negative.

Sharpen

Sharpen enhances the color transitions in an image, increasing the definition of boundaries between colors. To Sharpen part of an image, select it with the selection tools or menu command. If no selection has been made, the entire image is sharpened.

If you have a floating selection, Sharpen pastes the selection into the image at it's current position. The marquee still outlines the selection.

You can select Sharpen repeatedly to increase the effect.

Smooth

Smooth blurs the colors in an image, smoothing over changes in color. Before choosing Smooth, you can make a selection using the selection tools or menu commands. If no selection has been made, the entire image is smoothed.

If you have a floating selection, Smooth pastes the selection into the image at it's current position. The marquee still outlines the selection.

You can select Smooth repeatedly to increase the effect.

Blend Boundary

Blend Boundary blends the colors in the area surrounding a selection marquee. It creates a more even, natural transition between different image areas.

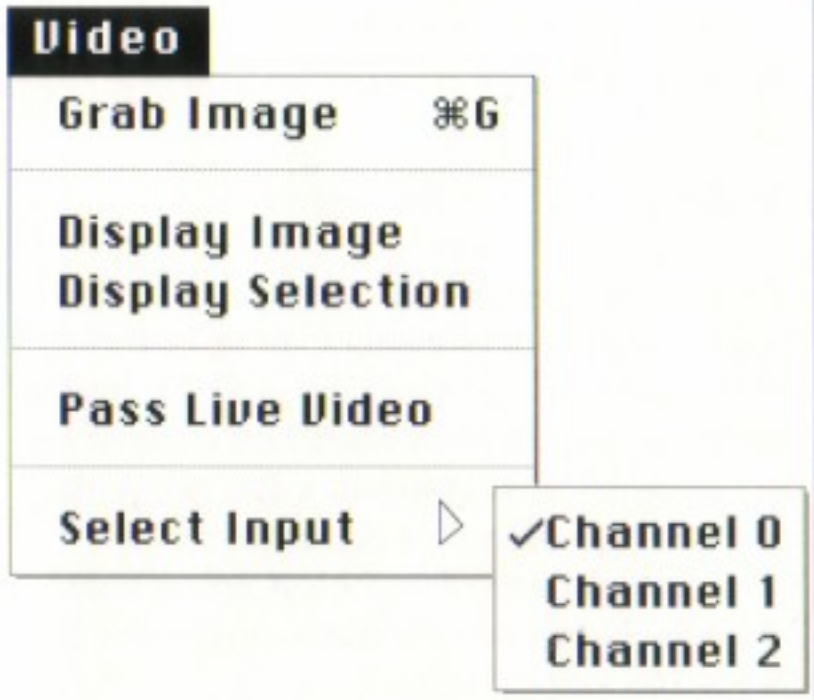
Use Blend Boundary after pasting a selection into an image, retouching it, flipping or moving it, or applying special effects to it. It's also useful for smoothing the jagged lines that sometimes appear when you select or paint on the diagonal.

Before choosing Blend Boundary, you can set the boundary width using the Boundary Width command from the Options menu. When you choose Blend Boundary, the colors in the boundary are blended and the selection is pasted into the underlying image. The marquee remains active so you can blend repeatedly.

Chapter 21
The Video Menu

The commands in the Video menu let you capture a color image from a video source, display it on the Macintosh II for editing, and transmit it back to an analog output device.

To use these commands, you must have the Data Translation ColorCapture™ framegrabber board installed in your Macintosh II. If you don't have the color framegrabber, the Video menu is dimmed.



Grab Image

✣ *Keyboard equivalent:* ⌘-*G*

Grab Image captures an image from a video source (e.g., a video camera, VCR, or still video recorder) and puts it in a new document on the screen. The new document dimensions are automatically set to 640 x 480 pixels, the standard size of images generated by the American version of the ColorCapture board. With the European ColorCapture, the size is set to 768 x 512 pixels.

You can capture as many images as you wish; the only limitation is the amount of disk space available on your Macintosh.

When the image is acquired, it's placed in a document named "Untitled" and given a number. The first document is "Untitled-1," the second is "Untitled-2," and so on.

Once you've grabbed an image, you can edit it into other documents, retouch it, flip it vertically or horizontally, apply special effects, and save it just as you would any other PhotoMac document.

Display Image

Display Image sends the image in PhotoMac's active window to the framegrabber board for output to a composite or RGB video monitor, still video recorder, VCR, video printer, or video transceiver. For the highest quality video image, use ColorCapture's RGB output rather than its NTSC output.

If the image sent to the framegrabber is larger than ColorCapture's 640 x 480-pixel frame buffer, it's cropped to that size. (The buffer is 768 x 512 pixels if you are using the European version of ColorCapture.) If the image is smaller or non-rectangular, the extra space is filled with white.

Pressing the Option key when you choose Display Image causes the picture to be resized to fit the frame buffer. Its aspect ratio is maintained. Then it's sent to video output.

The Display Image command can be used with any PhotoMac picture, not only the video images captured using the *Grab Image* command.

Display Selection

Display Selection sends the selection in the active PhotoMac window to the framegrabber board for output to a composite or RGB video monitor, still video recorder, VCR, video printer, or video transceiver.

Before choosing Display Selection, you must make a selection using the selection tools and menu items. If there is no selection, the Display Selection command is dimmed.

If the image sent to the framegrabber is larger than ColorCapture's 640 x 480-pixel frame buffer, it's cropped to that size. (The buffer is 768 x 512 pixels if you are using the European version of ColorCapture.) If the image is smaller or non-rectangular, the extra space is filled with white.

Pressing the Option key when you choose Display Selection causes the picture to be resized to fit the frame buffer. Its aspect ratio is maintained. Then it's sent to video output.

Pass Live Video

Pass Live Video resets the ColorCapture board to pass realtime video images to the video output. Use Pass Live Video to restart live video after it's been stopped by *Display Image* or *Display Selection*.

Live video is useful for adjusting your video source. For instance, if you have a video camera and monitor, you can focus the camera while watching the live video on the monitor.

Select Input

Select Input displays a submenu of video channels. Use Select Input to switch between video input sources. Up to three devices can be connected to the ColorCapture board via its BNC input connectors.

Select the video channel from this submenu. You can choose between Channel 0, Channel 1, and Channel 2. A check mark in the submenu indicates the selected channel.

Appendices

Appendix A
Summary of Shortcuts

As you become more familiar with PhotoMac, you'll find yourself using some menu commands again and again. The selection, retouching, and combining shortcuts are summarized on the following pages.

Double-clicking and Using Modifier Keys

In order to...	Do this...
Select/deselect entire image	Double-click on rectangle or lasso or type ⌘-A
Add areas to selection	Hold Shift while selecting with rectangle, lasso, or autoselect
Remove areas from selection	Hold ⌘-Shift while selecting with rectangle, lasso, or autoselect
Deselect all selections	Press ⌘ and click inside the image with rectangle, lasso, or autoselect
Move selection	Move pointer inside selection and drag
Move selection in straight vertical or horizontal lines	Press Shift and drag
Duplicate selection	Move pointer inside selection, press Option and drag
Move duplicate in straight vertical or horizontal lines	Press Shift-Option and drag

Double-clicking and Using Modifier Keys

In order to...	Do this...
Resize image while pasting it into a predefined area	Select target area in image, then press ⌘-V
Paste into predefined area without resizing	Select target area in image, then press ⌘- Shift-V
Resize image (preserving aspect ratio) while pasting it into predefined area	Select target area in image, then press ⌘- Option-V
Access *New Paint Color* dialog box	Double-click on eyedropper or current color box
Access *Paintbrush Shapes* dialog box	Double-click on the paintbrush
Access *Airbrush Shapes* dialog box	Double-click on the airbrush
Constrain cursor to straight vertical, diagonal, or horizontal lines	Hold Shift while using paintbrush, airbrush, or eraser
Alternate between 1x and current magnification	Double-click on current magnification box

Keyboard Equivalents for Menu Commands

Menu Command	Keyboard Equivalent
Clear	Delete
Close	⌘-W
Copy	⌘-C
Cut	⌘-X
Grab Image	⌘-G
New	⌘-N
Open	⌘-O
Paste	⌘-V
Print	⌘-P
Quit	⌘-Q
Save	⌘-S
Select All	⌘-A
Undo, Redo	⌘-Z

Appendix B
A Discussion of Color and Tone

While you're editing an image, PhotoMac gives you access to two color correction systems—RBG and LHS—and a tone system for enhancing the appearance of your images. These color correction and image enhancement features are discussed in this appendix.

The RGB system is based on the three primary additive colors of light. Additive mixing—combining different amounts of red, green, and blue—can produce any desired color. For example, the colors you see on your television or Macintosh II screen are created by combinations of the lights emitted by red, green, and blue phosphors in the picture tube. Mixing 100 percent of all three colors produces white (in the Macintosh II palette, 100 percent equals a setting of 65535).

The values in the table below are derived from the RGB system in the color picker dialog box.

Color	Red	Green	Blue
Red	65535	0	0
Pink	65535	50462	50462
Maroon	35354	0	0
Magenta	65535	0	65535
Blue	0	0	65535
Cyan	0	65535	65535
Green	0	65535	0
Yellow	65535	65535	0
White	65535	65535	65535
Gray (50%)	32767	32767	32767
Black	0	0	0

The LHS system takes a different approach to color. In LHS, an individual color is a specific point on on a continuum of hues. In addition, each color has qualities of purity (saturation) and brightness (luminance). The hue wheel, one of the LHS controls, allows you to select the point which represents the desired color at a specific saturation level. The saturation slider, the other LHS control, allows you to change the purity of the selected hue, diluting it gray. As the saturation level approaches zero, the color approaches gray.

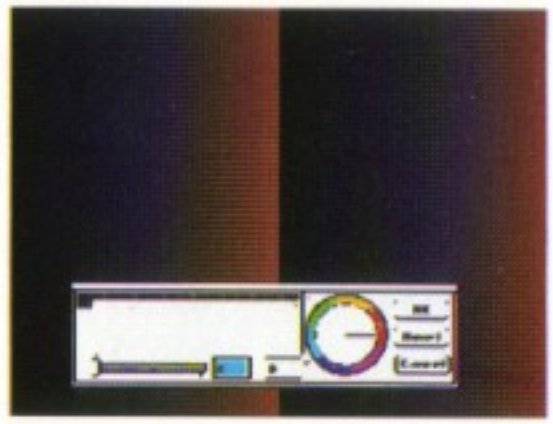
The values in the table below are derived from the LHS system in the color picker dialog box.

Color	Hue	Luminance (Brightness)	Saturation
Red	0	65535	65535
Pink	0	65535	15073
Maroon	0	35354	65535
Magenta	54614	65535	65535
Blue	43690	65535	65535
Cyan	32768	65535	65535
Green	21845	65535	65535
Yellow	10922	65535	65535
White	65535	65535	65535
Gray (50%)	0	0	32767
Black	0	0	0

Luminance and contrast are controlled via PhotoMac's tone scale control. Luminance is a measure of how bright a color appears; changing the luminance does not change the hue. For example, in the table above, red, pink, and maroon have the same hue. Maroon is produced from red by changing only the luminance, while pink is produced by changing only the saturation. Contrast relates to the difference between the darkest and lightest shades in an image.

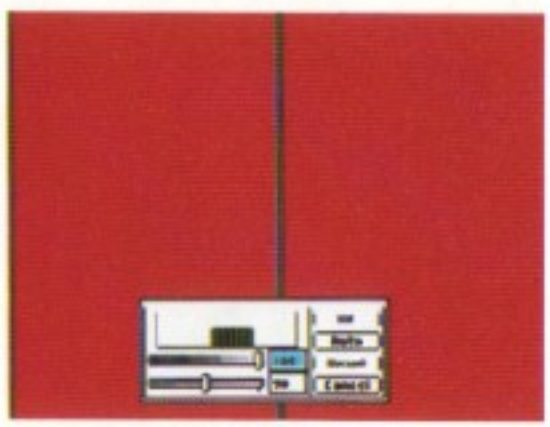
The images below illustrate the difference between changing the luminance and saturation of a color.

Saturation set to 50 (starting image)

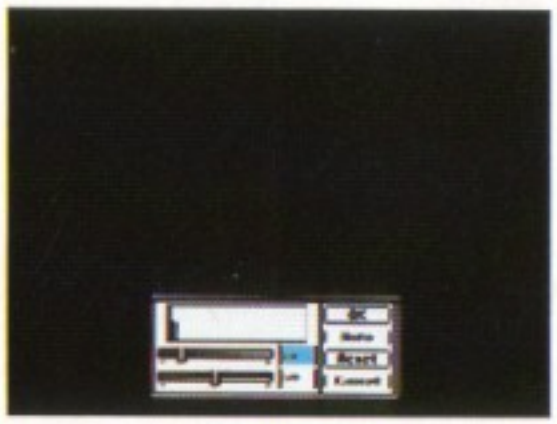


Saturation dropped to 0

Luminance set to 50 (starting image)



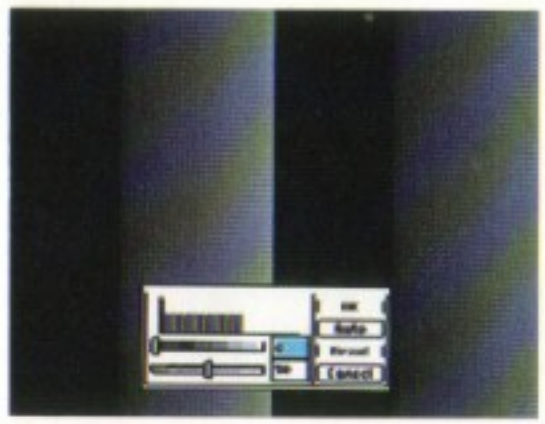
Luminance increased to 100



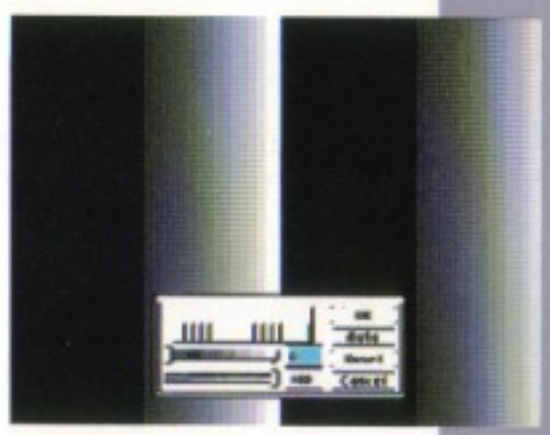
Luminance dropped to 18 (at 0, the picture appears almost black)

The images below illustrate what happens when you change the luminance and contrast of an image.

Luminance 0, Contrast 0

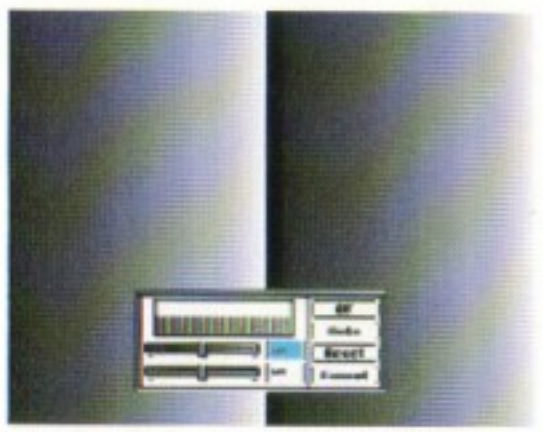


Luminance 0, Contrast 50

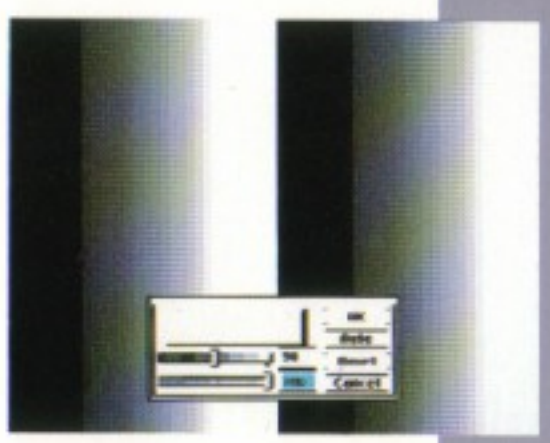


Luminance 0, Contrast 100

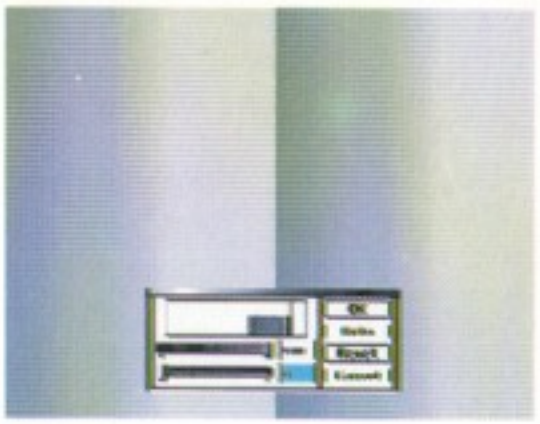
Luminance 50, Contrast 0



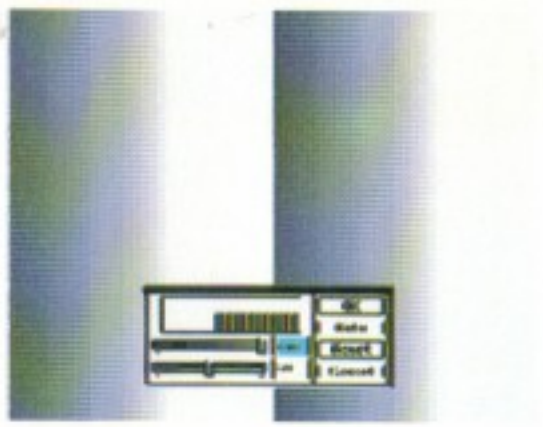
Luminance 50, Contrast 50 (starting image)



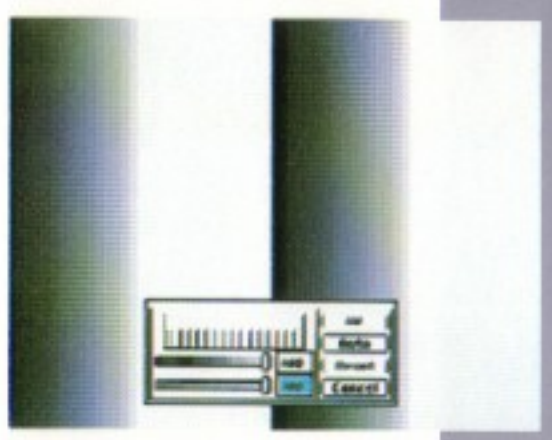
Luminance 50, Contrast 100



Luminance 100, Contrast 0



Luminance 100, Contrast 50



Luminance 100, Contrast 100

Glossary

Glossary

Active
Selected and currently available for use. The active image is the one in the frontmost window. The active selection is the area bordered by a marquee in the active window.

Airbrush
An airbrush is an atomizer for spraying paint. The size of the airbrush is controlled by the size setting (2-32 pixels), the density (concentration) of the spray is controlled by the density setting (0-100), and the speed of spray by the flow setting (0-100).

Anti-aliasing
see *Smoothing*.

Aspect Ratio
The ratio of width to height. During resizing and color separation, PhotoMac gives you the option of maintaining the aspect ratio of the image, or distorting the selection to create special effects.

Bit
A binary digit representing either 0 or 1.

Also see *Byte*.

Blend Boundary
The command which creates a more realistic transition between image areas. This command is especially useful when a selection has been moved or copied into a different part of the image, and the selection edges appear distinct from the surrounding area.

Boundary Width
The command which allows you to specify the width of the border around a selection. The boundary can be made anywhere from 1 to 20 pixels wide. Once the width is set, you can use the Blend Boundary command to soften the edges. Or, use the Select Boundary command to outline the new width. The Smooth and Sharpen commands will then act only on the selected border region.

Brightness
see *Luminance*.

Byte
A group of eight bits. Many file formats use the byte as a basic unit to store complex information such as shades of gray.

Color
see *Hue*.

Color Correction
The process of changing the color balance in an image to achieve a desired effect. PhotoMac offers color correction based on two models: RGB (red-green-blue) and LHS (luminance-hue-saturation). Each model represents color using three components or attributes of color: RGB uses the three primary colors which can be mixed in varying proportions to produce any other color. LHS works with the purity and intensity of a hue. Both color correction models may be used on the same image.

Color Separations
PhotoMac creates separate PostScript files for the magenta, cyan, yellow, and black components of the image. When output to a PostScript printer like the Linotype L300, films are made that are then combined to produce a single, full-color image.

Continuous Tone
An image that has grays or shades of color. Continuous tone images cannot be produced by most printing methods, which either place ink or tone on a given spot or leave the spot bare. Similarly, most methods of digitizing an image cannot produce intermediate tones. Scanners therefore break up images with gray tones into small dots in a process called screening.

Also see *Halftone*.

Contrast
The spread between the lightest and the darkest shades in an image. The greatest contrast occurs when the shades fall at the extremes of the range between white and black.

Current Color Box
A box in the lower left corner of an image window; it shows the color that will be used for retouching the image. The color can be changed by double-clicking on the current color box and then selecting from the color picker, or using the eyedropper to choose a color already existing in the image.

Default
The choice or set of choices for functions or features that the program uses unless you specify different settings. For example, the default option for the Color Controls is RGB, but you could choose LHS instead.

Dialog Box
A box that contains a message requesting more information or warning of an error condition.

Digitizing
Converting information from analog form into digital form, which can be represented by bit values in a computer file. You digitize a photograph or a slide using a scanner; then you can edit the image using PhotoMac.

Emulsion
A light-sensitive coating on a film or printing plate.

Emulsion Side
The matte side of a film. This is the side that is placed in contact with the emulsion of another film or plate to ensure a sharp image when printing.

Framegrabber
A board or circuit that extracts a single frame (image) from a video signal, making that image available for editing or printing.

Frisket
see *Mask*.

Gray Balance
Gray balance refers to the proportion of ink in each of the process colors that will combine to give true gray.

Gray Component Enhancement
Any spot in an image on which cyan, magenta, and yellow have some amount of gray. This gray can be removed and replaced by black to get colors that are more vivid, vibrant.

Halftone
A printed image in which shades of intensity are represented by different sizes of full-intensity dots to give the impression of continuous tone. Light areas would be represented using tiny, more widely spaced dots, while dark areas would have larger, more densely packed dots. For example, a mid-gray tone might be represented by tiny black and white dots, with approximately half the dots being black.

Hue
The attribute of color which describes a pure color, such as pure red. Hue is what we usually mean when we say "color." In nature, there is a continuous range of hues; however, only a few have names, and even fewer can be shown as discrete colors on a color wheel. PhotoMac's color wheels display the three additive primary hues, red, green, and blue, and the three subtractive primaries, cyan, magenta, and yellow.

LHS Color Correction
A system based on adjusting the luminance, hue, and saturation of the image.

Also see *RGB Color Correction*.

Luminance
The terms luminance, brightness, and intensity are often used interchangeably. There are slight differences between them, but those differences are visible more in the mathematical formulae by which each is calculated than in visual or conceptual terms.

Luminance is closely related to saturation; both are attributes which refer to the amount of gray in a hue. Luminance is what determines whether a low-saturation color is diluted with light or dark shades of gray. Luminance relates to the lightness or darkness of a color.

Also see *Saturation*.

Mapping
Assigning colors or gray levels based on information in the original image.

Marquee
A moving dotted line surrounding a selection.

Mask
In photoretouching, masking means covering part of an image so it will not be affected by airbrushing or other operations. In PhotoMac, you can select an area using the rectangle, lasso, and/or autoselect tool, then have a mask cover the selected area. Click outside the selected area to remove the mask.

Masking Grays
When you select an area of an image and then choose one of the retouching tools (paintbrush or airbrush) or color correction tools, the active, selected area is shown in full color while the remainder of the image is masked and appears in eight shades of gray. When you open two image files simultaneously, the rear image is masked. The file in the foreground is the selected file, and that is displayed in full color while the file in the background is non-active and appears in shades of gray.

Also see *Mask*.

Moire
A pattern visible in printed images when screen angles are improperly set.

Monochrome
The PhotoMac monochrome command maps the colors of the current image (or selected part of the image) to grays of the same luminance, creating a similar black and white image with 256 levels of gray.

NTSC
National Television Standard Code. The U.S. standard for video signals.

PICT
A Macintosh format for storing and exchanging graphic documents. This is the format used by the Clipboard.

PICT2
An expansion of the PICT graphic file format. There are two flavors of PICT2: 8- and 24-bit. PICT2 (24) has higher resolution capabilities, and is therefore a better format for continuous tone and halftone images. PICT2 (24) is the default PhotoMac file format, but PhotoMac can also import and export files in PICT and PICT2 (8) formats.

Pixel
Short for picture element. The basic unit into which a scanned image is divided. The number of pixels per inch in an image is known as the resolution of the image.

PostScript
The page-description language created by Adobe Systems that drives specific, PostScript-compatible printers including the LaserWriter and the Linotronic. PhotoMac separations are completely PostScript-compatible.

Prepress
All the stages up to final printing, particularly those steps needed to transform the finished original into the plates or other medium needed for reproduction.

Process Color
One of the four colors (cyan, magenta, yellow, and black) used in process printing.

Process Printing
A printing method in which the process colors are combined to produce a full spectrum of color. Process printing requires a maximum of four negatives, regardless of the number of colors in the image.

Registration Mark
In printing, a mark in the margins used for lining up color separations or to delineate the edges of a page smaller than the paper used for printing. PhotoMac places one registration mark in each of the four margins, approximately three-tenths of an inch from the image.

Resolution
The number of pixels (or dots) per inch on a display or in an image file, or the number of dots or lines per inch in a halftone screen. The more dots (lines, pixels) per inch, the higher the resolution, the sharper the appearance of the image. The resolution of the Macintosh screen is 72 dots per inch (dpi), the LaserWriter is 300 dpi, and the Linotronic 300 is approximately 2500 dpi (maximum).

Retouch
To edit an image to erase flaws or create new effects.

RGB Color Correction
A system based on adjusting the levels of red, green, and blue in an image.

Also see *LHS Color Correction.*

Saturation
An attribute of color which describes the purity of a color, or the degree to which a pure color is diluted with white or gray. A highly-saturated color contains very little white, and is therefore closer to the pure hue. A color with low saturation looks pale and washed out.

Also see *Hue.*

Scanner
A device used to convert analog images into a digital form for manipulation.

Screen
Originally, a device used to create halftones. A screen is placed over a continuous tone image when it is photographed in order to break the shades into halftone dots or lines. Now, screening is done via an electronic process. PhotoMac allows you to specify the screen size (in lines per inch) when generating separations.

Also see *Halftones* and *Color Separation.*

Screen Angle
The angle at which a screened color is applied to a print. Specifying different angles for each separation color helps to prevent moire patterning in the image.

Separation
see *Color Separation.*

Index

INDEX

D

E

F

G

H

I

K

L

M

N

O

P

Q

R

S

T

U

V

W

Z

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