Adobe Seminars: Web Page Design
by Lisa Lopuck and Sheryl Hampton

The techniques within this Acrobat™ PDF file are from the upcoming Adobe Press book Adobe Seminars: Web Page Design.

Adobe Seminars: Web Page Design is a portable seminar on web page design taught by experienced professionals that documents Adobe software such as Adobe Photoshop 4, Adobe Illustrator 7, and Adobe PageMill 2, as well as the latest HTML language protocols.

This October 1997 Adobe Press book will bring all the essential information of a two-day seminar into a compact and reusable format, complete with CD and step-by-step techniques. Two noted Web seminar instructors, Lisa Lopuck and Sheryl Hampton of ElectraVision, have distilled their training sessions into over a hundred two-page techniques using popular Adobe applications to simulate how Web pages are actually created. The result is a reference book of clear, simple explanations and designs that are reusable page after Web page.

Adobe Seminars: Web Page Design

Publication Date: Oct. 1, 1997

US $40

ISBN: 1-56830-426-9

4-color, 264 pages, includes ImageClub CD

ADOBE
PRESS

Adding Natural Light and Shadows
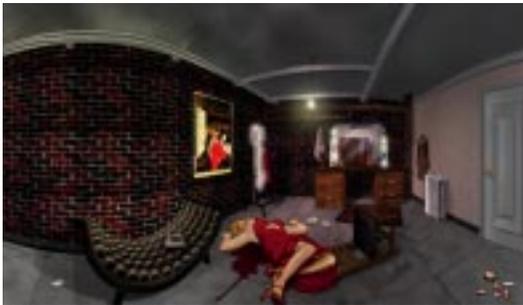
Often times images that you scan or illustrate need to be touched up—increasing highlights and shadows—until you have a perfect, natural image. In Photoshop, there are two painting techniques that essentially allow you to paint with natural light and shadow. For instance, you can add natural shines to hardwood floors, glows around light bulbs, or natural shadows to help add depth to an image.

PHOTOSHOP 4.0

STEP 1: PAINTING WITH LIGHT

In Photoshop, open an image that needs to be touched up. Create a new layer and set its mode to Overlay in the Layers palette. Using the airbrush tool and a large brush, paint broad strokes of a light, off-white color. Notice how the image underneath appears to brighten as if natural light has been cast upon it. Change the layer's mode back to normal and notice the large patches of solid color that, when in Overlay mode, create the lighting effect.
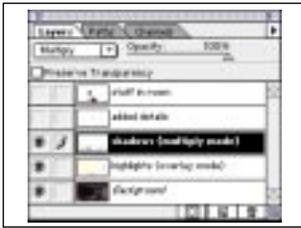
STEP 2: PAINTING WITH SHADOW

Adding shadow effects to an image is the same process as adding highlights. Create a new layer, and set the layer's mode to Multiply as shown. Paint with a medium-dark color using the airbrush. Notice that, rather than covering over the underlying image, the medium-dark color enriches underlying colors while creating a shadowed effect.

For Suspect, Dead Birds Don't Sing, an online murder mystery, the Surround Video room environments were first created and rendered in Strata 3D before being brought into Photoshop for finishing touches. These two images show how the rooms looked before and after Photoshop was used to enhance the highlights and shadows using the Overlay and Multiply modes.

Luanne Cohen

Luanne Seymour Cohen, *Creative Director at Adobe Systems, shares some super tips for working with* **layers** *in Adobe® Photoshop® 4.0*

on

Layers

Adobe

Drop shadows are easy to create using layers in Photoshop 4.0. In this example, the framed picture is on its own layer (picture frame). The area around the frame is transparent, allowing the background to show through.

CREATING DROP SHADOWS USING LAYERS

1. Make a copy of the first layer (picture frame) by dragging the layer name to the New Layer icon at the bottom of the Layers palette. This copy (picture frame copy) is placed on top of the original layer.

Layers palette
The active layer is highlighted and has a paintbrush icon next to it. The eye icons let you turn layers visibility on and off.

2. Select the original "picture frame" layer in the palette, and then use the move tool to offset the layer (which is underneath the copy). Release the mouse button when the layer is slightly offset. This will become the drop shadow. At this stage, the original and the copy are the same color(s).

Finetuning
The arrow keys on the keyboard allow you to move the layer in one-pixel increments.

3. For a more realistic shadow, select a foreground color other than black. In this example, we used the eyedropper tool to select a dark brown from the image.

2

CREATING DROP SHADOWS USING LAYERS

4. Choose Edit > Fill. Select Preserve Transparency, and fill using the foreground color.

Preserve Transparency
There are typically a thousand ways to do everything in Adobe Photoshop, but selecting Preserve Transparency is the trick that makes this technique the fastest way to create a drop shadow.

5. Use the Gaussian Blur filter (Filter > Blur > Gaussian Blur) to soften the shadow. Here we used a radius of 7.0 for a 72-ppi image. For higher resolution images, you'll need to use a greater radius value.

Shadows
Shadows add the illusion of three dimensions and are rarely hard-edged. Blurring the shadow adds realism and makes the main image stand out.

6. Combine the drop shadow with the background using the Multiply mode in the Layers palette.

Multiply mode
Using the Multiply mode on the shadow layer gives the effect of adding the shadow value and color to the texture and image of the background. This makes for a more realistic shadow since we usually see some texture and detail in real shadows.

Blending one image gradually into another is easy to do using layers in Photoshop 4.0. In this example, we will blend the red satin fabric from one layer into the floral fabric on another layer by using a layer mask on one of the layers.

BLENDING FROM ONE IMAGE TO ANOTHER

1. Select the top layer (floral) and choose Layer > Add Layer Mask > Reveal All.

Layer masks
You can create layer masks two ways. Choose Add Layer Mask from the Layers menu. Or you can create a selection and choose Select > Save Selection. Instead of creating a new channel, choose the mask option from the Channel pop-up menu.

2. With the layer mask selected, choose the gradient tool and create a gradient. Make sure your foreground and background colors are black and white. Remember that you are drawing on a layer mask that is grayscale. The areas that are white and gray will reveal the color image. The areas that are solid black will block it out.

Gradients
You can use any angle for your layer mask gradient. If you want a small transition area with larger solid areas of the two images, draw the gradient vector well inside the image areas instead of from edge to edge.

3. You may want to experiment with different midpoints for the blend. Double-click the gradient tool icon to bring up the Gradient Tool Options palette. Select Edit, and here you can set the midpoint. Then redraw the gradient in the layer mask.

4
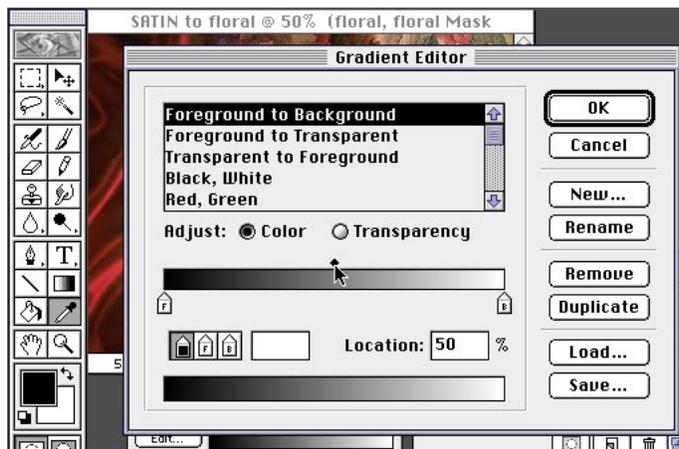
Blending parts of one layer into another is easy to do using the layers sliders in Photoshop 4.0. In this example, we will show just a few of the hundreds of possible combinations you can use when you play with the options in the Layer Options palette.

BLENDING LAYERS WITH THE LAYER OPTIONS PALETTE

1. Create or open an image that has two layers you want to blend together. In this example we want to reveal the lower layer image through the dark background color from the lace layer. Select the top layer.

Shortcuts
Throughout this document, "Command/Ctrl" means Command on the Macintosh and Ctrl on Windows. "Option/Alt" means Option on the Macintosh and Alt on Windows.

2. Double-click the layer name in the Layers palette to bring up the Layer Options dialog box. Since we want to drop out the dark background on the lace layer, we will move the shadow triangle on the This Layer slider to the right.
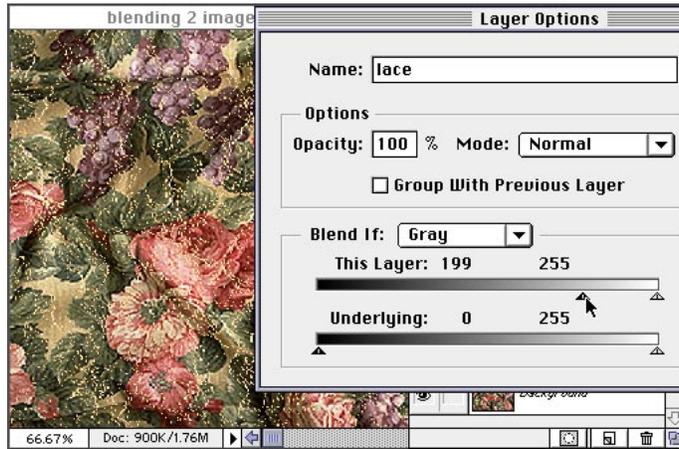
Blending sliders
Use the sliders in the Layer Options palette to define which pixels will appear in your composite image. For example, if you want to hide all the dark areas, move the shadow slider to the right. All the pixel values between 0 and the new shadow value number will not show in the composite image.

3. Another effect might be to have the floral background show through only the highlighted areas of the lace. To do this, split the highlight slider triangle by holding down the Option/Alt key and drag it to the left.
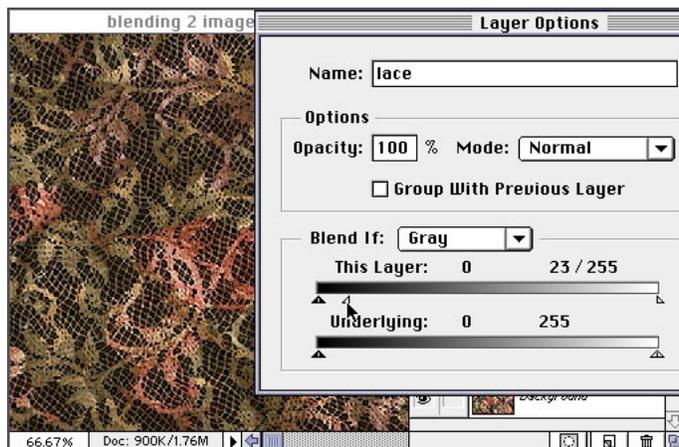
Smooth blending
For smoother transitions, you can split the triangles in half. Hold down the Option/Alt key while dragging the triangle, and it will split. For example, in step 3 the range for highlight values is now between 23 and 255. This means that all the pixels between those two values will appear with only some of their original colors.

5

BLENDING LAYERS WITH THE LAYER OPTIONS PALETTE

4. In this example we created the effect of applying the lace texture to the fabric while still retaining the folds and shadows of the underlying fabric.
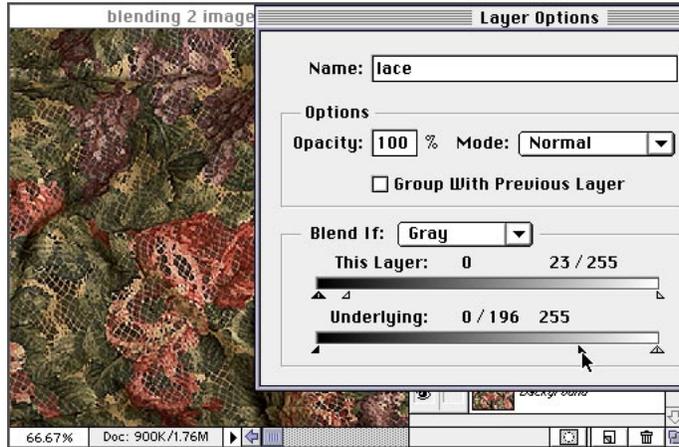
Previewing
Turn the preview button on while you experiment. This allows you to see what the result will be as you try different modes and layer-blending combinations.

5. This example is similar to the one in step 4 except that we moved the highlight slider for the Underlying layer. The result is a much lighter image.
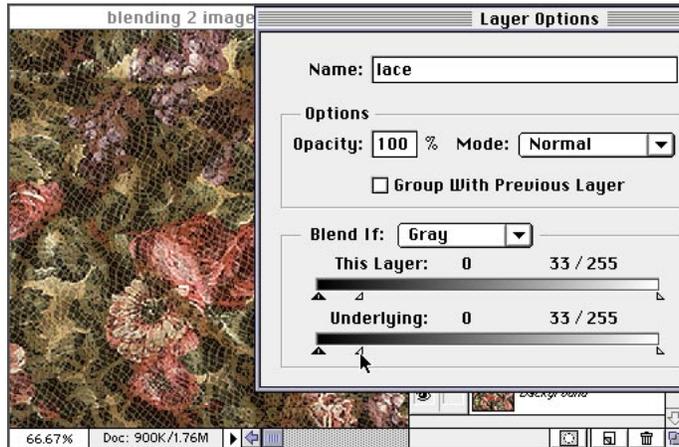
6. Experimenting with different modes will give you even more options for interesting visual effects. In this example, we split the highlight slider triangle for the lace layer. This allows some of the colors of the floral fabric to come through the light-colored lace. To give the colors more punch, we used the Luminosity mode.
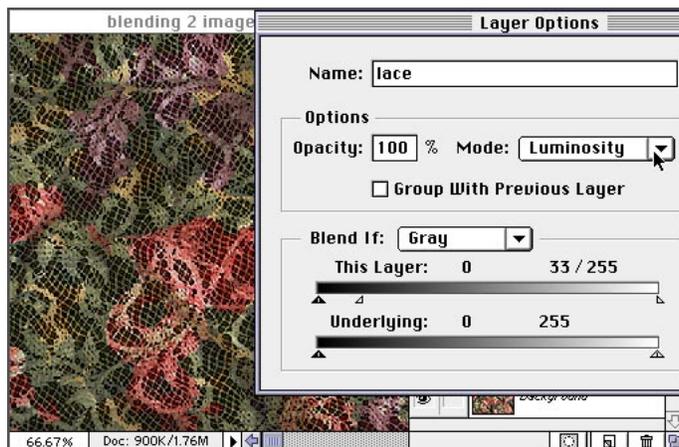
Sometimes you want to mask or crop more than one image with the same shape. To allow for the most flexibility, use a clipping group with your layers. In this example we used type as the masking layer and two different fabric layers. We wanted to leave them on separate layers to allow for more experimentation.

MASKING SEVERAL LAYERS WITH ONE IMAGE

1. Open or create a file that contains all the layers that you want to mask through a common mask. The layer that will mask the others should be the bottom-most layer. In this example we will mask both the lace and the floral layers with the big type layer. Remember to put your mask shape on a transparent background.
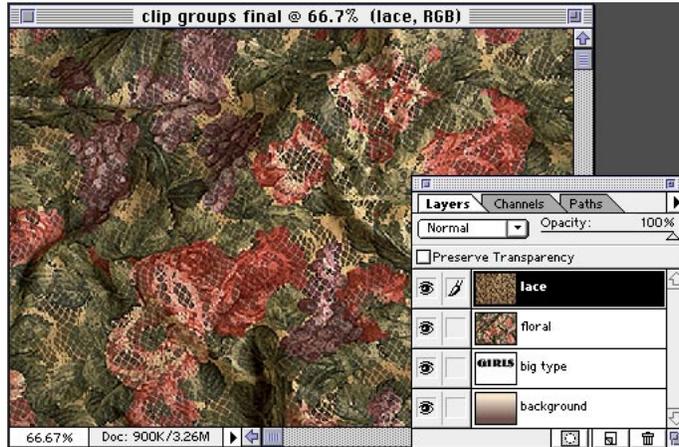
Base layer (mask)
The shape that masks all the layers in the clipping group must be on a transparent background or the effect will not work. The masking shape is created by every pixel on the base layer no matter what color it is. The edge of the mask shape is wherever there is a pixel next to a transparent area.

2. Make a clipping group by holding the Option/Alt key and clicking between the layers that will be in the group. Notice how the cursor changes to indicate that you are making a clipping group, and the Layer thumbnail indents.
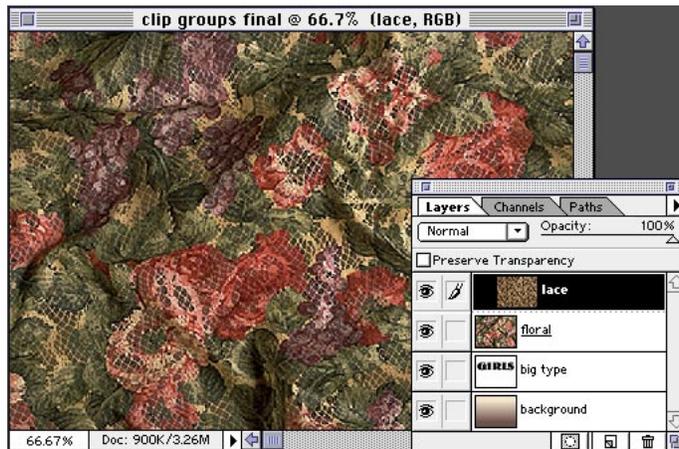
Group modes
All clipping groups have a base layer. This is the bottom layer in the group, and it defines the shape of the mask through which all the other layers in the group are displayed. The base layer defines the mode and transparency of all the layers in its group.

3. Option/Alt click between all the layers that will be in the clipping group. Note: You can move layers around within a group, but once you move a layer outside of the group, it will no longer be masked by the base layer.
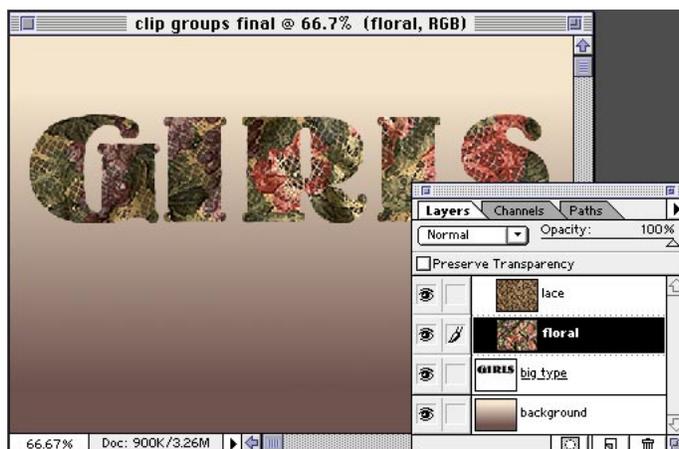
Clipping groups
As you click the lines between the layers to make a clipping group, they become dotted lines. The base layer is the one with the underlined layer name.

It's easy to add a layer mask to a layer and draw or paint on that mask. But sometimes you want to mask specific areas of an image that are not easy to create on a blank layer mask. This technique demonstrates how you can create layer masks from any selection made on any layer.

CREATING LAYER MASKS FROM SELECTIONS

1. In this example we just added the layer with the eyes, but we want the eyes to show through only the glasses lenses.
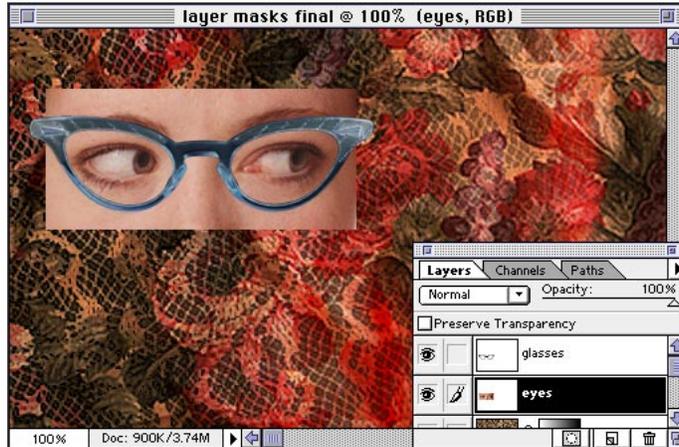
2. Sometimes it's easier to hide all layers except the ones you need to create the selection. Use the selection tools to create a selection that defines the area you want to mask. In this example, we turned off the eyes layer even though it will eventually contain the layer mask.

Viewing layers
To quickly turn off all layers except the one you want to work on, Option/Alt+click the eye icon for that layer in the Layers palette. To turn all the layers back on again, again Option+click the layer's eye icon.

3. Once your selection is made, turn on all the other layers (Option/Alt+click on the eye icon). Make the layer that will contain the layer mask the active layer in the Layers palette. Don't deselect the selection you made in step 2!
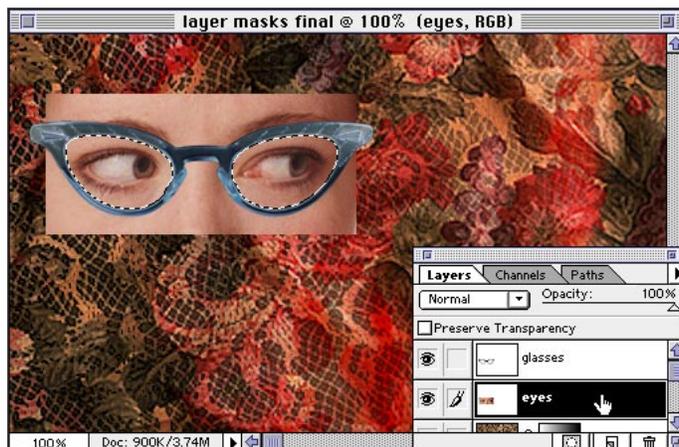
Selections on layers
You can make a selection on any layer, and if you click a different layer in the Layers palette, the selection is still active. This is a real time-saver, because you select the area only once, but you can make changes to that same area on several different layers without reselecting each time.

8

CREATING LAYER MASKS FROM SELECTIONS

4. Choose Select > Save Selection. Use the Channels pop-up menu to select the Mask option that will be named after the currently active layer. Instead of saving a channel to the Channels palette, this will save the selection as a layer mask to your layer.
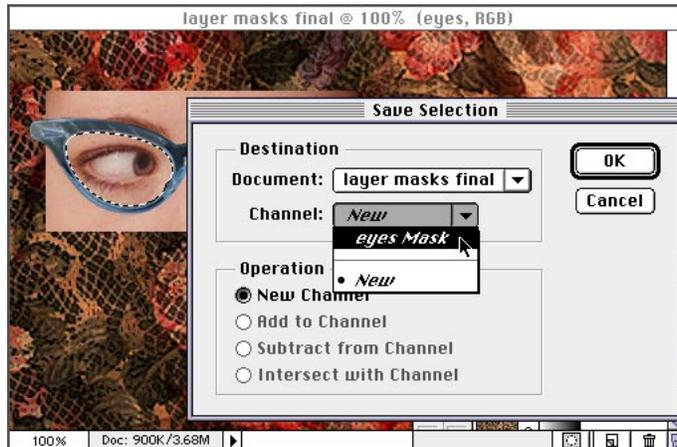
Layer masks
Layer masks are really just alpha channels that are attached to a layer. You can edit them just as you do channels. To view the mask as full size, hold the Option/Alt key and click the thumbnail of the layer mask in the Layers palette. To return to the layer view, Option/Alt+click the thumbnail again.

5. Once your selection is saved as a layer mask, it will appear as a thumbnail next to the layer thumbnail in the Layers palette. In this example we switched the layer mode to Hard Light for a more transparent effect.
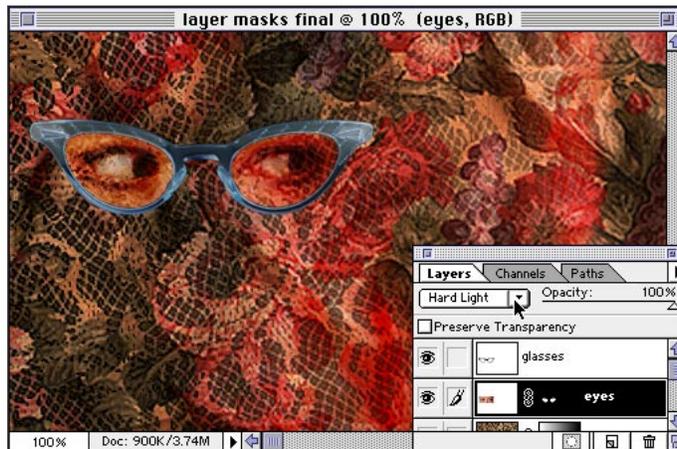
Layer masks on/off
You can temporarily turn the layer mask off without discarding it. Simply Shift+click the layer mask thumbnail in the Layers palette. Click it again to turn it back on.

Color Enhancement using "Digital Gels"

Adobe

Professional photographers often use "gels" (gelatin filters) for creative color enhancements. Here's how to add dramatic color effects using "digital gels" in Photoshop. With this technique, you can isolate each color effect on an independent layer and get more flexibility and control than you would with traditional gels set in front of the camera lens.

COLOR ENHANCEMENT USING "DIGITAL GELS"

1. Here's the image we'll start with in Photoshop. Our goal is to add dramatic color effects to this conventional photography. We'll add a blue-violet effect to the sky and gold to the field.

2. Select New Adjustment Layer from the Layers palette menu, and in the Type pop-up menu, choose Hue/Saturation. Name the new layer and click OK.
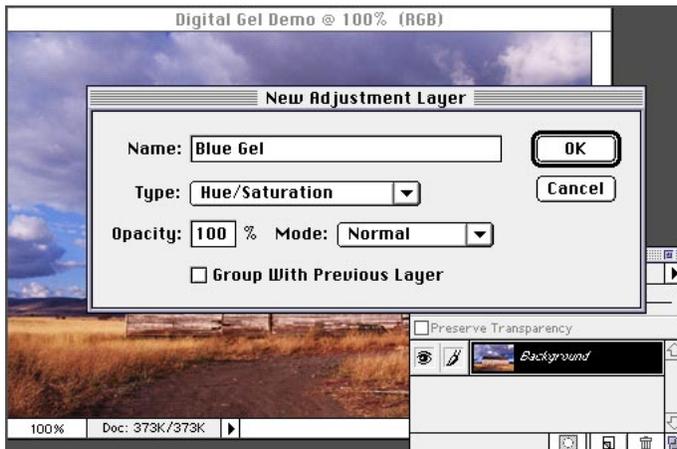
Adjustment Layer
With Photoshop 4.0's new Adjustment layers, you can easily make changes to underlying layers without affecting the actual layers.

3. The Hue/Saturation dialog box appears. Click the Colorize option. This transforms the layer you created in step 2 into a digital gel. Make sure the preview box is checked. Don't click OK yet.

2
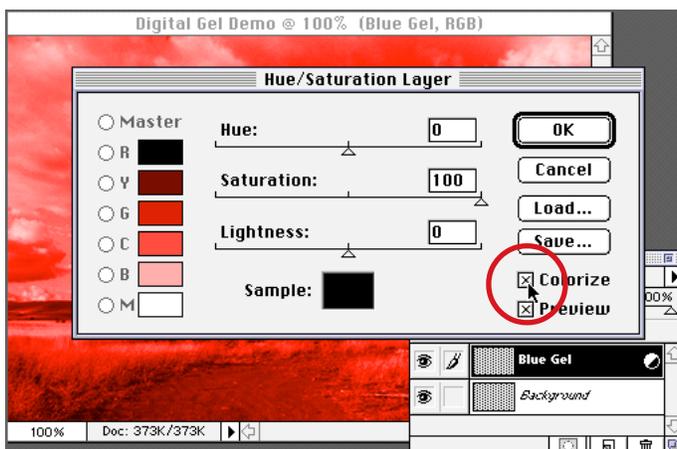
COLOR ENHANCEMENT USING "DIGITAL GELS"

4. Move the Hue slider to find the color you want. Use the Saturation and Lightness sliders to finetune the color. Click OK when you obtain a color you like.
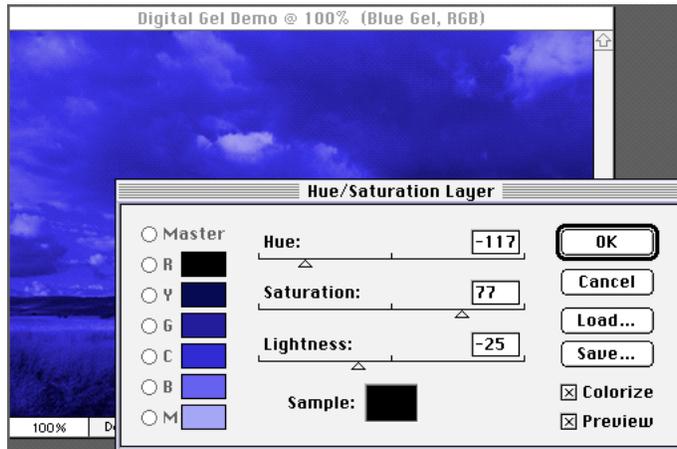
Lightness setting
The Lightness slider in the Hue/Saturation dialog box acts like a "gamma" control. Unlike traditional gels, highlights and shadows retain their original lightness values as if they are auto-exposed. In Soft Light blending mode, changing the lightness of a layer affects the midtones of the underlying image.

5. Set the mode in the Layers palette to Soft Light.
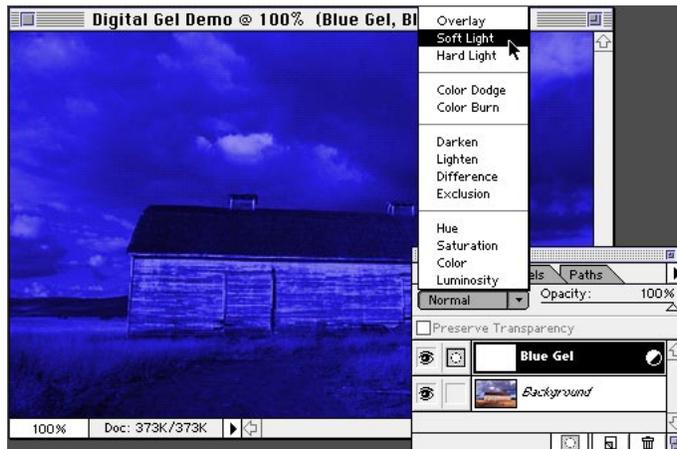
6. With the Adjustment layer still selected, choose the gradient tool. Pressing the D key, set the foreground and background colors to the default (black/white). Click and drag upward over the image from the horizon toward the sky. This will limit the gel effect to the sky portion of the image—the gradient mask you created.
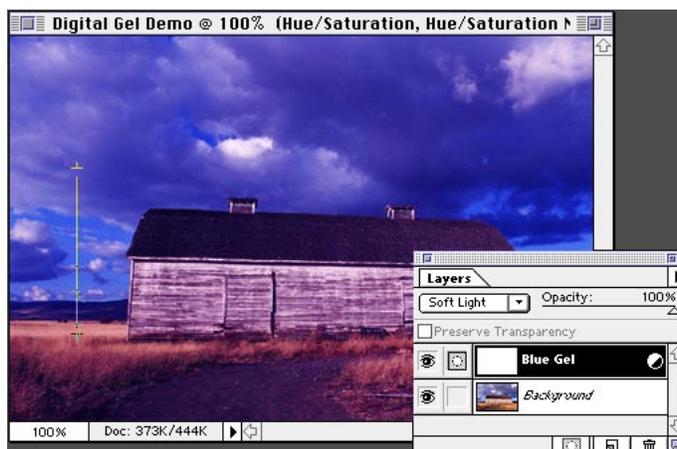
Tips
Press the D key to set foreground and background colors to the default black and white. You can also use the X key to exchange these colors. While you drag the gradient tool, press the Shift key to constrain the movement to a perfect vertical direction.

3

COLOR ENHANCEMENT USING "DIGITAL GELS"

7. To keep the barn uncolored by the gel, select the barn, and fill the selection with black in the layer mask. Deselect (Command/ Ctrl+D).
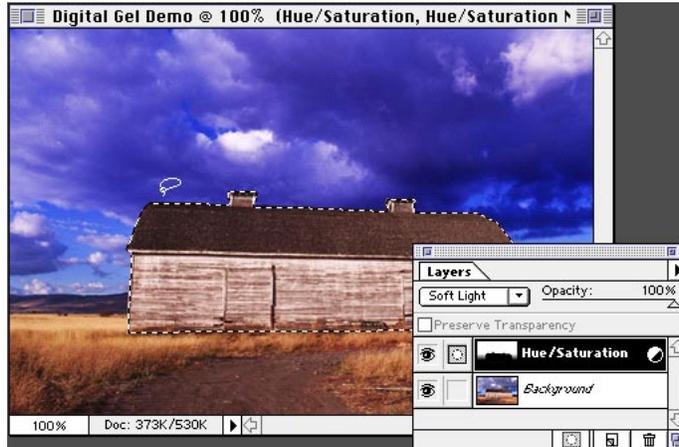
Fill shortcut
To fill a selection with foreground color, press Option/Alt+Delete/ Backspace. If you do not make a selection, doing a fill will fill the entire layer with foreground color.

8. As we did for the blue gel layer, we next add a gold gel layer (repeat steps 2-7). By painting in the adjustment layer directly, using a soft-edged brush tool with black foreground color, you can fade the gel color. Try this with different brush opacity settings. Of course, with a white foreground color, you can add back the gel color.

More shortcuts!
Press the bracket keys ([or]) to change your brush size without going to the Brushes palette. Press numeric keys (1,2,3...9 or 0) to change brush opacity. 1 is 10% opacity, 2 is 20% opacity, and so on. 0 (zero) is 100% opacity.

9. You can also adjust the gel color later at any time. Double-click the gel layer and the Hue/Saturation dialog box appears. You can then readjust the gel color easily.

Adobe Seminars: Web Page Design
by Lisa Lopuck and Sheryl Hampton

Adobe Seminars: Web Page Design is a portable seminar on web page design taught by experienced professionals that documents Adobe software such as Adobe Photoshop 4, Adobe Illustrator 7, and Adobe PageMill 2, as well as the latest HTML language protocols.

This October 1997 Adobe Press book will bring all the essential information of a two-day seminar into a compact and reusable format, complete with CD and step-by-step techniques. Two noted Web seminar instructors, Lisa Lopuck and Sheryl Hampton of ElectraVision, have distilled their training sessions into over a hundred two-page techniques using popular Adobe applications to simulate how Web pages are actually created. The result is a reference book of clear, simple explanations and designs that are reusable page after Web page.

Adobe Seminars: Web Page Design
Publication Date: Oct. 1, 1997
US $40
ISBN: 1-56830-426-9
4-color, 264 pages, includes ImageClub CD

The techniques within this Acrobat™ PDF file are from the upcoming Adobe Press book Adobe Seminars: Web Page Design.

ADOBE
PRESS

Compositing Graphics to a Background Tile

To keep the download time to a minimum, yet keep a rich feel to a Web page, people often use a decorative background tile. The problem with background tiles, however, is correctly preparing graphics so that they match when placed on top of the tile. Because you cannot predict where the tile will fall on the Web page, people often assume that they need to use rough-edged aliased graphics. This exercise, however, shows how to prepare soft-edged, anti-aliased graphics that will match your tile.

PHOTOSHOP 4.0	Object Gear, Amusements: Dog Biscuits, Crocodile Font: Image Club Overprint

STEP 1: PREPARING A SINGLE MERGED LAYER

Prepare an anti-aliased, soft-edged image merged into a single transparent layer and set aside for later.
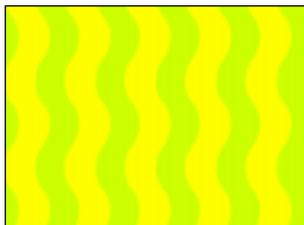
STEP 2: FILLING A LAYER WITH A BACKGROUND TILE

Create a new layer and fill it with the background tile (To create a background tile, see Exercise **C5**.) To fill a layer with a background tile, first select the tile with the Marquee selection tool and then choose Define Pattern from the Edit menu. With the pattern defined, choose Fill from the Edit menu and select "Pattern" from the Contents pop-up options.

STEP 3: CREATE AN ALIASED SELECTION

Leave the background tile layer and select the image layer. Using the Magic Wand, you need to make an aliased selection around the image. To do this, set the Wand's tolerance to zero and uncheck the anti-aliased option. Click on the transparent area around the image and then choose Similar from the Select menu to make sure you capture all the transparent areas. Invert the selection so that the object is selected.

> **NOTE:** *As opposed to generating a "shrink-to-fit" selection by Command-clicking on the layer icon, the Magic Wand works best in this case because you are creating an aliased selection that will include the soft anti-aliased edges.*

STEP 4: OPTION MERGE

With the selection still active, merge the image layer with the background tile layer (or create an "option merge," see Lesson **B7**). Make sure the new merged layer is the active layer, and copy the selected portion. Although you have an aliased selection, you will be grabbing the soft-edges that have been blended to the background tile pattern.

STEP 5: SELECTING A TRANSPARENT COLOR

Create a new file and fill it with a solid color from the web palette (see Lesson **E2** regarding the Web-safe color palette). This will become your transparent color so be sure to select a color that is not in your image (a bright color often works well). Paste the copied image into this new file.

> **NOTE:** *When you create a new file, its dimensions will automatically be the size of the copied image.*
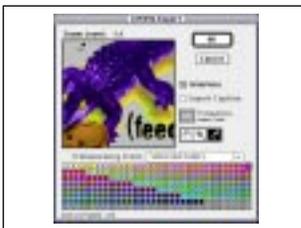
STEP 6: EXPORTING A GIF

Change the image's mode from RGB to Index Color and select either the Web colors or the Mac System palette. Next, export the image as a Gif using Photoshop's Gif 89A export feature located in the File menu. When the Gif 89A interface comes up, position the cursor over the color to be transparent and click once; the area should turn gray. Decide whether you want the image to be interlaced or non-interlaced and click OK.

> **TIP:** *The Mac system palette includes all of the Web safe colors plus 40 extra. On 16 and 24 bit displays, you will not notice any change in quality. On 8 bit displays, the 40 extra colors will dither, but the effect is negligible.*

Adobe Seminars: Web Page Design
by Lisa Lopuck and Sheryl Hampton

Adobe Seminars: Web Page Design is a portable seminar on web page design taught by experienced professionals that documents Adobe software such as Adobe Photoshop 4, Adobe Illustrator 7, and Adobe PageMill 2, as well as the latest HTML language protocols.

This October 1997 Adobe Press book will bring all the essential information of a two-day seminar into a compact and reusable format, complete with CD and step-by-step techniques. Two noted Web seminar instructors, Lisa Lopuck and Sheryl Hampton of ElectraVision, have distilled their training sessions into over a hundred two-page techniques using popular Adobe applications to simulate how Web pages are actually created. The result is a reference book of clear, simple explanations and designs that are reusable page after Web page.

Adobe Seminars: Web Page Design
Publication Date: Oct. 1, 1997
US $40
ISBN: 1-56830-426-9
4-color, 264 pages, includes ImageClub CD

The techniques within this Acrobat™ PDF file are from the upcoming Adobe Press book Adobe Seminars: Web Page Design.

ADOBE PRESS

Creating a Collage

One of the more common tasks in Photoshop is combining images to create a custom collage. In this exercise, you create a Web site banner, complete with text, that wraps to the image by combining multiple images in Photoshop, (see Session **D10**).

PHOTOSHOP 4.0	Object Gear Gentleman's Study: Personal Letter
	Object Gear Travels: Helm, Water
	Object Gear Amusements: Starfish 2
	Font: Adobe Kepler
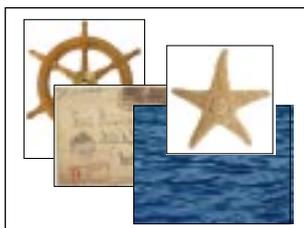
STEP 1: OPEN ALL IMAGES FOR THE COLLAGE

In Photoshop, open a few images that you would like to incorporate into your collage so that each image is open in a separate window. Create a new file with a white background that will be large enough to assemble your collage.

STEP 2: COMBINING IMAGES INTO ONE FILE

Using the Move tool, click one of the images and drag it into the new file. Drag the remaining images into the new file in the same way. If the image is on a solid background, the background comes with the image when it is dragged into the new file. To bring in just the image, select the background with the Magic Wand tool set on a tolerance of at least 32, with the anti-aliased checkbox selected. Invert the selection, and then drag the image into the new file using the Move tool.

TIP: *Image Club graphics have a perfect selection stored as a path. Simply go into the Paths palette, and load the path as a selection. To quickly convert the path to a selection, Hold down the Command key (Mac) or the Control key (Windows), and click the path's icon.*

STEP 3: RESIZING IMAGES

Resize each of the elements of your collage using the Free Transform function located in the Layer menu. To scale the image proportionately, hold down the Shift key while dragging one of the corner handles. To rotate the image, click and drag outside of the envelope.

> **TIP:** *You can access other Free Transform functions by pressing the Control key while clicking and holding anywhere in the document. A pop-up menu appears with more Transform functions like Skew and Perspective.*

STEP 4: CREATING SOFT EFFECTS

To create the faded effect on the ocean image, create a layer mask for the ocean layer. Using the Paintbrush tool and a large brush, paint black into the layer mask. Painting with black is like painting with transparency. The advantage to using a layer mask is you can "erase" your image without really erasing your image. To turn on and off the effects of the layer mask, hold down the Shift key and click the Layer Mask icon.

STEP 5: FINISHING TOUCHES

Now that all the images are in place, you can add a few finishing touches to polish the look. Add an instant drop shadow (see Session **D1**) for the starfish, and create cast shadows (see Session **D2**) for both the helm and the letter. Enhance the color contrast of the helm using both the Curves and the Levels functions. Finally, you can add text that wraps to the shape of the helm by following the instructions in Session **D10**.

Creative Masking Techniques for Compositing

Adobe Digital Video Evangelist George Jardine
demonstrates creative masking techniques
with Adobe® Photoshop®

Adobe

Making complex selections and creating the most effective channel (or mask) for compositing operations in Adobe Photoshop can be a fine art. Frequently the best mask for a given image already exists, ready to be used. In this exercise, I'll show you a method for creating a mask directly from an object in an image. This technique works best for objects on a dark background.

CREATIVE MASKING TECHNIQUES FOR COMPOSITING

1. Here's an image we'd like to composite against a background of another color—a photo of a clouded blue sky, for instance. It's obvious that creating a selection of the bird will be difficult, especially while attempting to preserve the motion blur in the wings.

Shortcuts
Throughout this document, "Command/ Ctrl" means Command on Macintosh and Ctrl on Windows systems. "Option/Alt" means Option on Macintosh and Alt on Windows.

2. It looks as if the luminosity of the RGB composite might be a good place to start creating our mask. Load the luminosity of any group of visible layers as a selection by pressing Option/Alt+ Command/Ctrl+~. Next, save the selection into a new channel by choosing Select > Save Selection. Deselect and go to the new channel.

Super-user tips!
You can load the luminosity of the RGB composite as a selection by Command/Alt+ clicking the RGB composite channel in the Channels palette, and you can easily save the current selection into a new channel by clicking the Save Selection icon at the bottom of the Channels palette.

3. Use Levels or Curves to eliminate most of the mid-tones in your new mask, preserving only the darkest edges. Notice the gray tones along the blurred portion of the wings. These areas will create semi-transparency during compositing. Be sure to use a paint brush to clean up your mask channel.
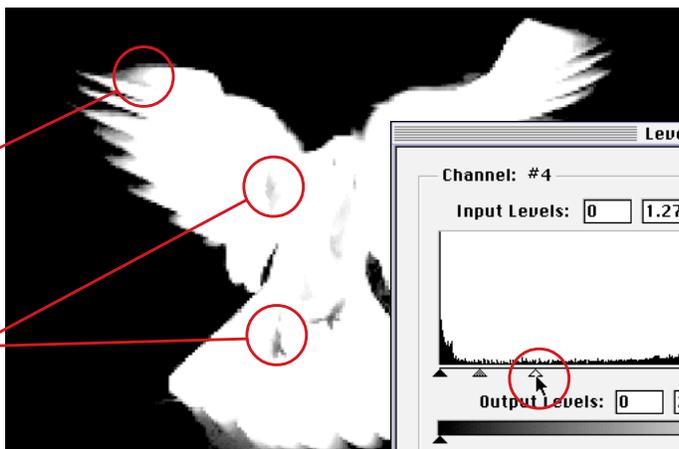
CREATIVE MASKING TECHNIQUES FOR COMPOSITING

4. Set your target back to the RGB composite and load your finished channel as a selection. Drag the selected area onto the new background.

5. Notice that the semi-transparent areas along the edges are too dark as they contain some black from the background of the original image. Finish the composite by using the dodge tool to lighten these edges. Set it to Shadow mode, and use a soft-edged brush set to 80% or 90% opacity.
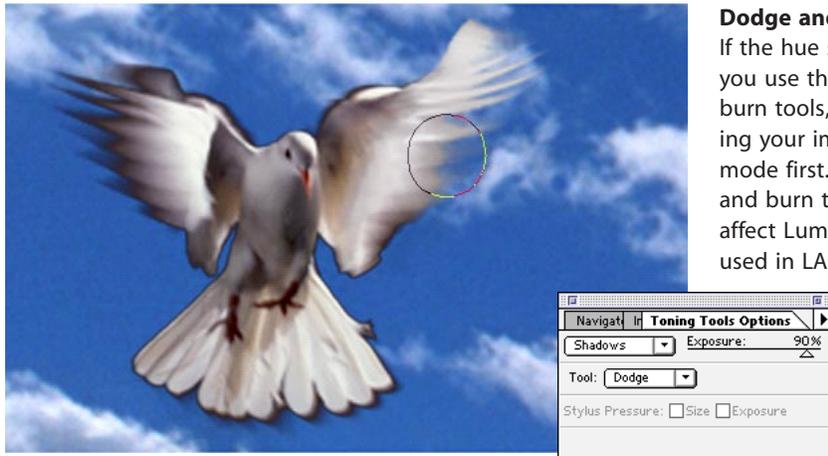
Dodge and burn tools
If the hue shifts when you use the dodge or burn tools, try converting your image to LAB mode first. The dodge and burn tools only affect Luminosity when used in LAB mode.

6. Here's our finished composite. Nice.

The new Free Transform in Adobe® Photoshop® 5.0 can give you a whole new perspective on life! Have you ever wanted to scale and move objects in a step and repeat pattern, as you do in Adobe® Illustrator®? Well, now you can. So let's get rolling and discover the secrets of transformation in Photoshop 5.0.

Adobe Senior Creative Director Russell Brown reveals secrets of transfromation in Photoshop 5.0.

INTERMEDIATE

DIGITAL DUPLICATION

1. Let's say you need an image of a typical business meeting. You have this image from the Adobe Image Library, but it just doesn't look like it's going to be a very big meeting. Let's imply that we're anticipating a few more attendees by adding a few more note pads. How will we pull this off? We'll duplicate the notepads by scaling and moving them with perfect perspective. And the one incredible feature we'll use to do it is the powerful Free Transform in Photoshop.

Shortcuts
Throughout this document, "Command/ Ctrl" means Command on the Macintosh and Ctrl on Windows. "Option/Alt" means Option on the Macintosh and Alt on Windows.

2. Before we start, it's important to note that this technique works best on images with a sequence of objects in perspective. This technique will attempt to match and copy the sequence so that it creates more objects with the correct perspective. Now, let's begin by placing guides around the last object in the sequence we want to duplicate. (You'll be using guides in combination with the Free Transform.) Choose View > Snap to Guides before you start.
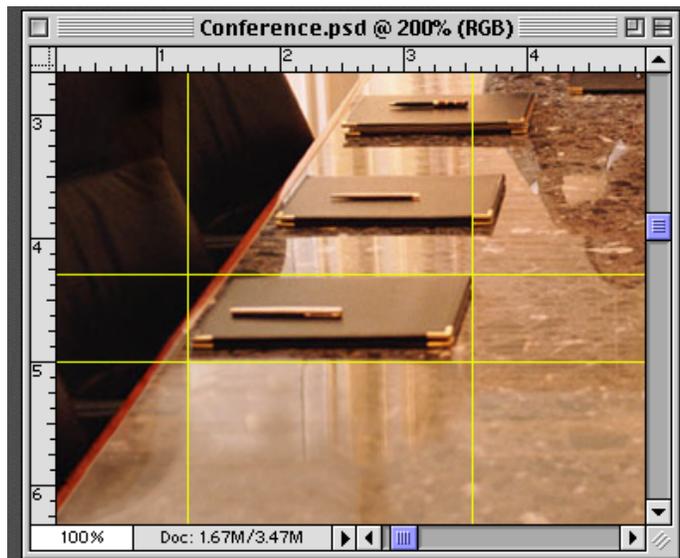
Guides
To create guides, click and drag from the ruler at the edge of the image. Show rulers by choosing View > Show Rulers.

3. Turn off the Guides temporarily by choosing View > Hide Guides. Now, select the second-to-the-last object in the sequence you want to duplicate. In this case, I selected the second-to-the-last note pad and its shadow using the polygon tool found under the lasso tool. (Click and hold the lasso tool to reveal the polygon tool.)

4. Next, while pressing the Option/Alt key, select Free Transform from the Edit menu. The Option/Alt key will modify the transformation and make a copy of the selection instead of cutting it out of the background image. This modification is a very important step in this process.

Shortcut
The keyboard shortcut combination for this step is: Option/Alt+Command/Ctrl+T.

5. Turn the Guides back on. Choose View > Show Guides. Move the object you are transforming over the last image in the sequence and snap it to one of the corners formed by the guides.
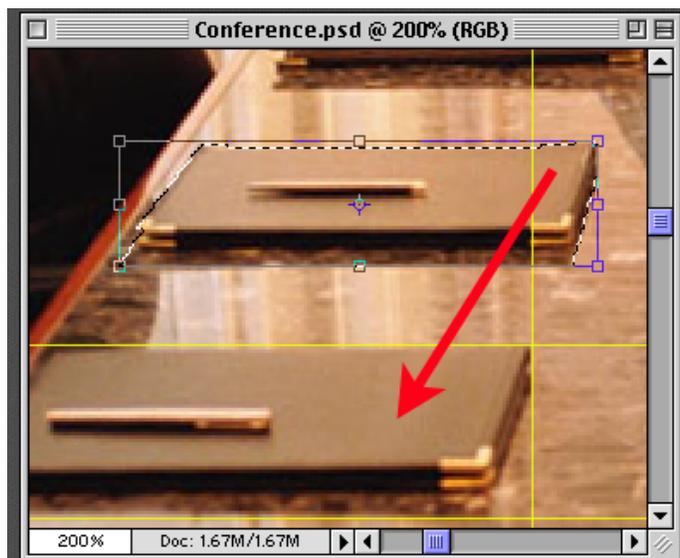
Transformations
You can move objects that are being transformed in one-pixel increments by using the keyboard arrows. Using the Shift key in combination with the arrow keys will move the object 10 pixels.

6. Stretch the four corners of the image out to the corners created by the guides. This will distort the image to match the angle and perspective of the sequence. When finished, press the Enter key. The object will be transformed to match your distortion and positioning.
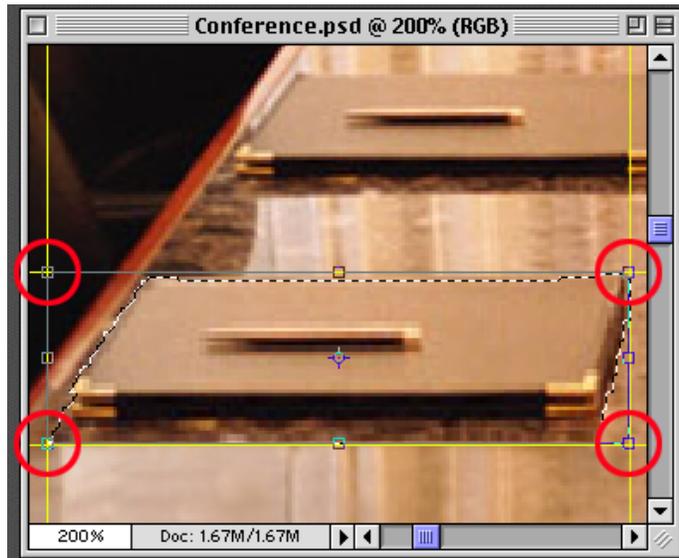
The Magic Key Combination!
7. OK, this is the final and most important step to this entire process. Press Option/Alt+Command/Ctrl+Shift+T. This crazy combination of keys will transform the last transformed image again to make a copy. Repeat this combination of keys until you have as many objects as you need to fill your image.
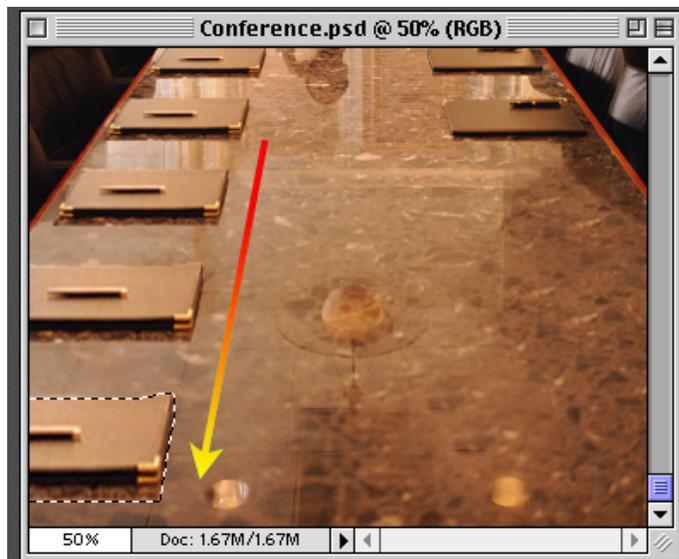
Paths
This same keyboard combination will work with paths in Photoshop. Just transform a path and then use these same keys to duplicate a sequence of paths.

8. As you can see, I repeated the same process down the other side of the table and now the high-powered meeting is ready to start!
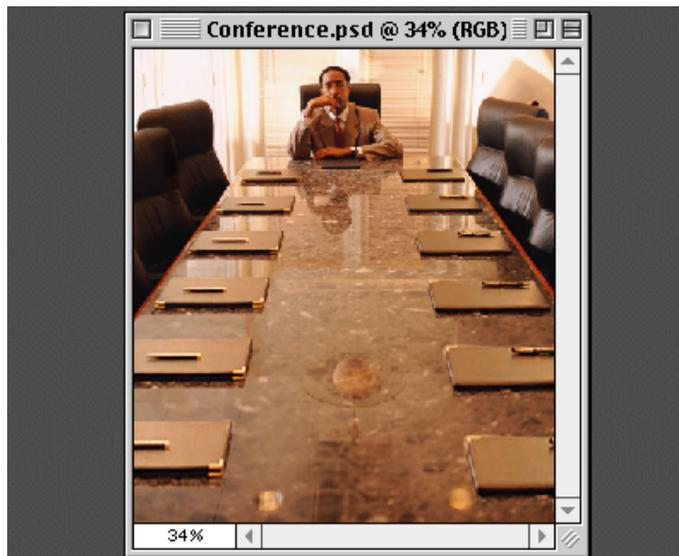
Adobe

Adobe, the Adobe logo, Illustrator and Photoshop are trademarks of Adobe Systems Incorporated. Macintosh is a trademark of Apple Computer, Inc., registered in the U.S. and other countries. Windows is either a registered trademark or a trademark of Microsoft in the U.S. and/or other countries.

Photo Credit © Adobe Image Library.

PS5.0 9/98

Digital Stain Remover
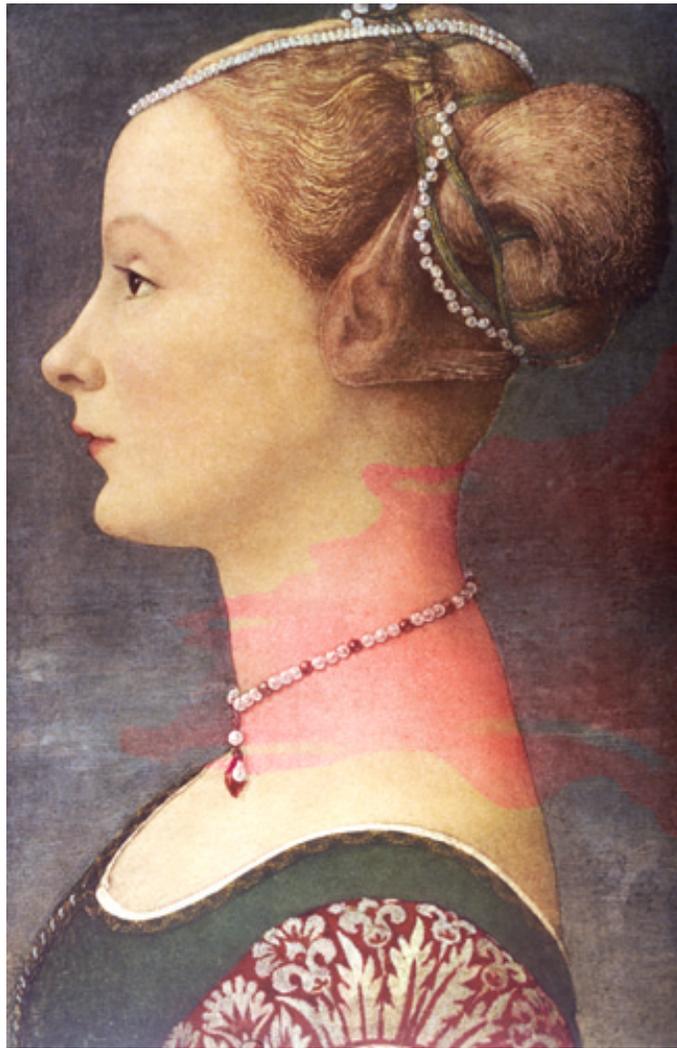
Russell Brown, Senior Creative Director
at Adobe, shows you how to remove those
pesky stains from your fine images
using Adobe® Photoshop®

The goal of our project is to remove the stain from this image, without altering the original brush strokes of the painting. The stain could be removed in a number of ways, but this technique is quite unique and, amazingly, does not require the use of Levels or Curves. This method is also great for removing unwanted blemishes and colored lighting.

STAGE 1: THE EASY STUFF

1. Let's start by correcting the easy portion of this image. Notice that some of the stain travels over the neutral values in the background of the painting. We can easily correct the neutral values with the sponge tool using the Desaturate mode.
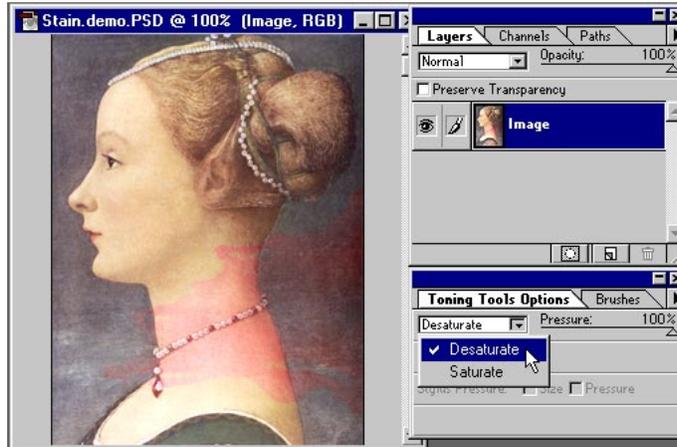
Desaturate mode
The Desaturate command converts colors to their grayscale equivalent without changing modes.

2. Use a combination of pressure settings to gently blend the stained area into the natural background. Also, use a combination of soft- and hard-edged brushes to treat different areas of the image. In this case, I also removed the stain from the pearls around the woman's neck.

Brush shortcuts
Photoshop gives you some great shortcuts for selecting brush pressure and size. The numeric keys 1 through 0 change a brush's pressure percentage to 10 times the number (or to 100% for 0). The **[** key selects the next smaller brush; **]** selects the next larger; **{** selects the first brush; **}** selects the last brush.

3. To start the clean-up process, we need to make a copy of the current image. The overall idea behind this technique is to make corrections to the original file and then transfer these corrections to a finished file. To do this, we will make an identical copy of our stained original, using Image > Duplicate.
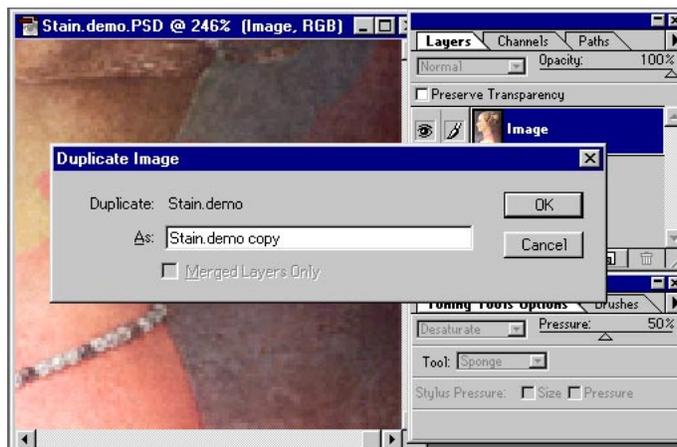
Note: When it's complete, set the image aside to work on later. Do not close the file.

OK, that was the easy part. Now we're ready for the hard part. The stain on the woman's neck cannot be removed with the sponge tool or else all the color would be lost. We could try making a selection of the neck area and then use Levels or any other of the many color controls. But I've got another technique that's out of this world!

STAGE 2: NEUTRALIZING THE STAIN

4. The secret to solving this problem is hidden in the channels. **In the channels!** Take a close look at the individual channels and you will see that they clearly show the staining in the gray shades. If we could neutralize the stain in the channels, then the problem would be solved. Right?

Shortcuts
Throughout this document, "Ctrl/Command" means Ctrl on Windows and Command on Macintosh systems.

5. Here you can see that the Green channel has the most obvious problem. This is because green is the color complement to red, and the stain in this image is red. The problem channel for our image will vary depending on the color of the stain.

Channel shortcuts
Press Ctrl/Command+1 to access the red channel; Ctrl/Command+2 for the green channel; Ctrl/Command+3 for the blue channel; and Ctrl/Command+~ for the RGB composite.

6. Notice that the Blue channel is unaffected by the red wine stain. This channel is not a problem, and we do not need to correct it in any way. The Blue channel also contains a significant portion of the detail in the image, and if we do not have to change it, we can maintain the integrity of the brush strokes. This is good!

Note: Earlier we corrected the background of this image. We should not see any major difference in values between the different channels shown on this page.

3

STAGE 3: SELECTING THE STAINED AREA

7. Return to the RGB composite. Double-click the lasso tool and set the Feather option to a value that will give you a soft edge. Remember, the value you use is based on the resolution of the image. The higher the resolution, the greater the feather value. Make a selection of the stained area.
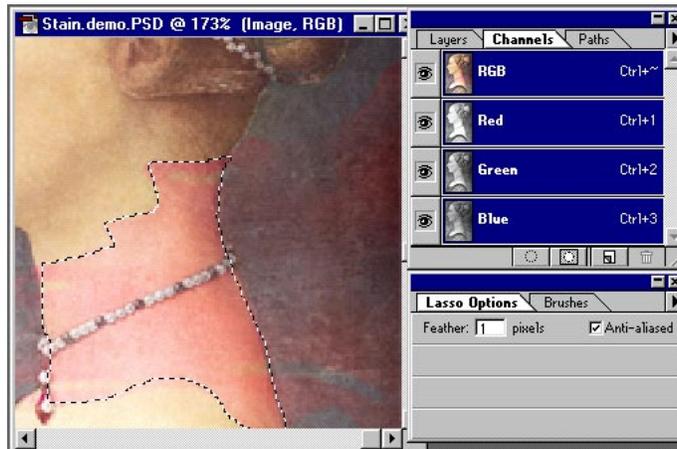
8. Select Quick Mask mode from the Tool palette and edit the selection area with the paintbrush tools. This is a great way to create a mask that matches your image exactly. It's important to take time here to create a good selection; it will pay off in the end.
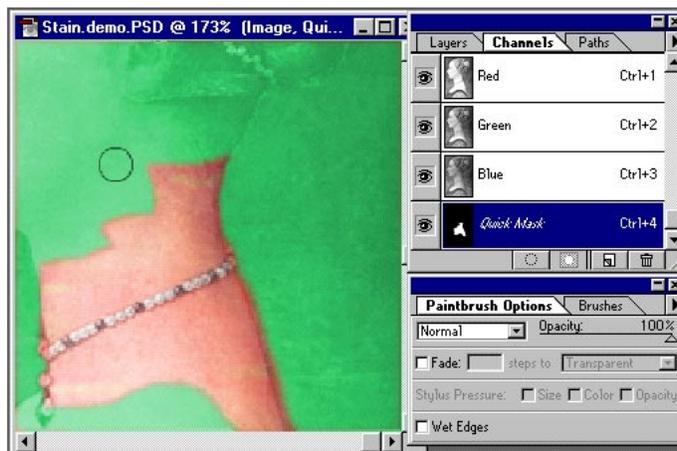
Quick Mask mode
Press the letter Q on the keyboard to change to Quick Mask mode. To change the color of the mask, simply double-click the Quick Mask channel in the Channels palette or double-click the Quick Mask icon. An adjustment dialog box will appear.

9. Finally, paint over any other areas that do not need to be corrected. In this case, we protected the pearls. The pearls were corrected earlier and do not need any more correction.

Super tip
Use the Levels controls to adjust the area of the Quick Mask. Levels are often overlooked as a convenient way to adjust a selection while in Quick Mask mode.

4

STAGE 4: NEUTRALIZING THE STAIN

10. Return to Selection mode by pressing the Q key. Choose Layer > New > Layer Via Copy (Ctrl/Command+J) to copy the selected area to a new layer.
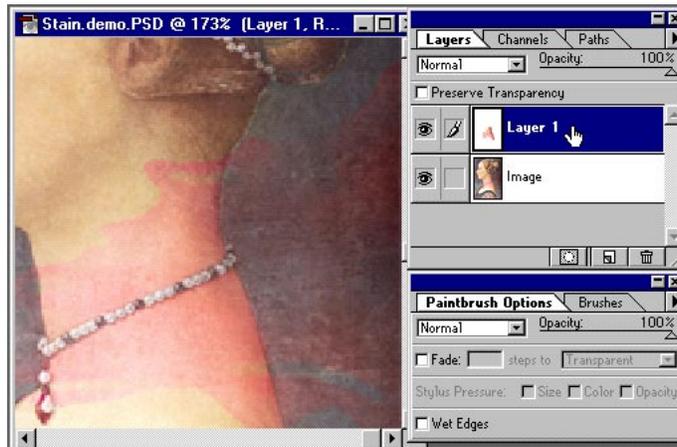
11. Invert the new layer from the Image menu (Ctrl/Command+I).

12. Set the mode for the layer to Color. The results should look something like this.
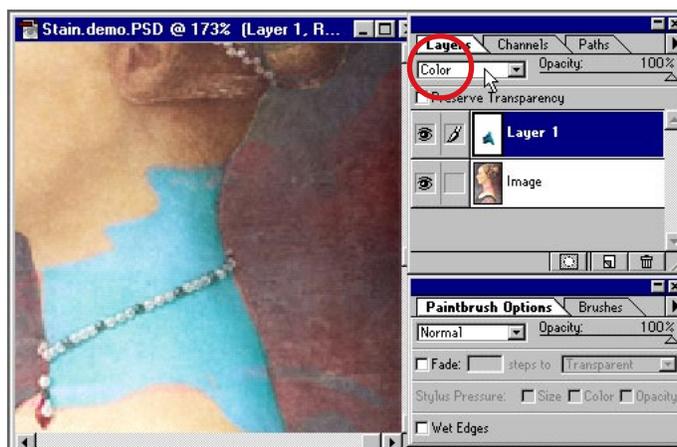
In the next few steps, we will correct the individual Red and Green channels of this image. Then we will copy the corrected results and place them into the second image. A little complex, but it works!

STAGE 5: DIGITAL MAGIC

13. Next, we need to view the Red channel only. To do this, press Ctrl/Command+1 on the keyboard. You will be viewing a grayscale representation of the composite of the two layers.

14. Here is where the magic starts! Adjust the opacity of the second layer until the gray values in the Red channel match the surrounding image. It's magic! It's amazing! Your friends and relatives will be thrilled! Here you see that, by adjusting the opacity of the inverted layer, we can neutralize the color problems on each channel. WOW!
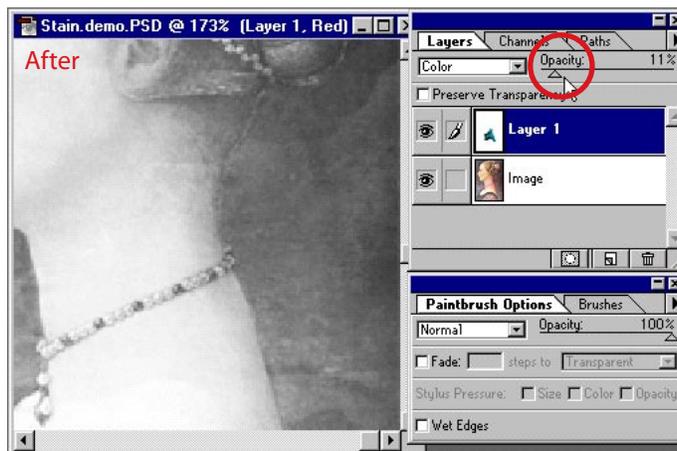
Hint: For best results, make sure that the abrupt edges have completely vanished into the surrounding image.

15. The next step is a little tricky. Our goal is to get a copy of this corrected Red channel into the duplicate image we made earlier. But wait! Copy and Paste will not work! Doing a copy and paste would only copy the targeted layer. We must use a special power-user technique. Press Ctrl/Command+A to select the entire image. Then select Edit>Define Pattern.
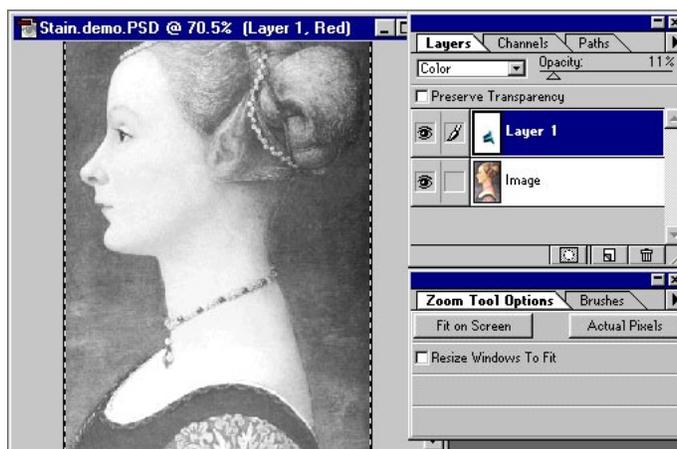
Define Pattern
Define Pattern is one of the few ways to make a copy of a composite image. The Copy command will not copy information on other layers.

Warning: You must make a selection before you can choose Define Pattern from the Edit menu.

STAGE 5: DIGITAL MAGIC

16. After you define the pattern, bring the second copied image to the fore-ground. Press Ctrl/Com-mand+1 on the keyboard. This displays the Red channel only.
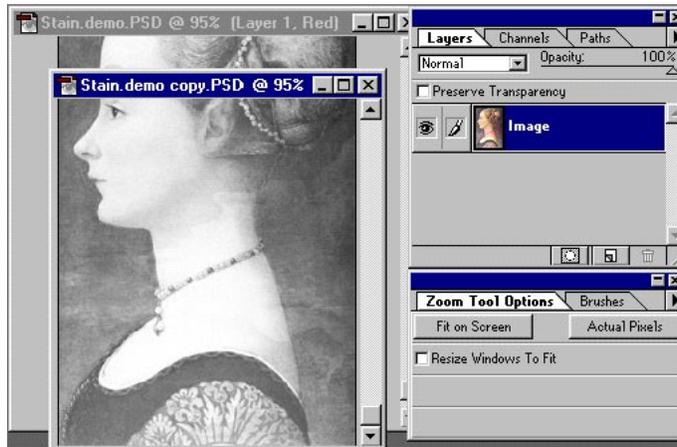
Note: Copying corrections directly into the original will not work! The corrected channels must be integrated with a copy of the image to make this technique work.

17. Next, select Edit > Fill and completely fill the Red channel with the pattern we just created. Continue this process (from step 14) of making corrections on the Green channel of the first image and then transferring the results to the second image. Remember, the opacity value of each channel may differ.
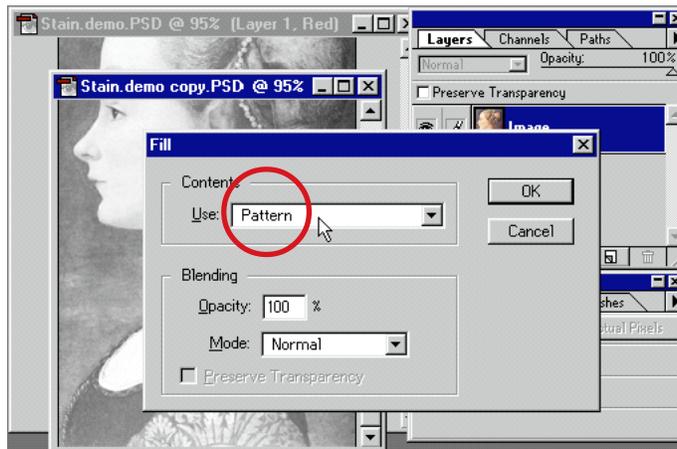
Pattern Fill
Remember, filling with a pattern is the only technique that works. In this case, only the Red and Green channels must be replaced.

18. Here is a comparison of the Green channel before the digital correction (on the left) and after the adjustments (on the right). The stain has been literally neutralized. Amazing but true!

STAGE 5: DIGITAL MAGIC

19. After you've made all the corrections, press Ctrl/Command+~ to display the full-color image. OH NO! There's a slight hue shift to the image! You will quickly notice that even the great master is not perfect. The abrupt edge is gone, but a slight discoloring may still exist.
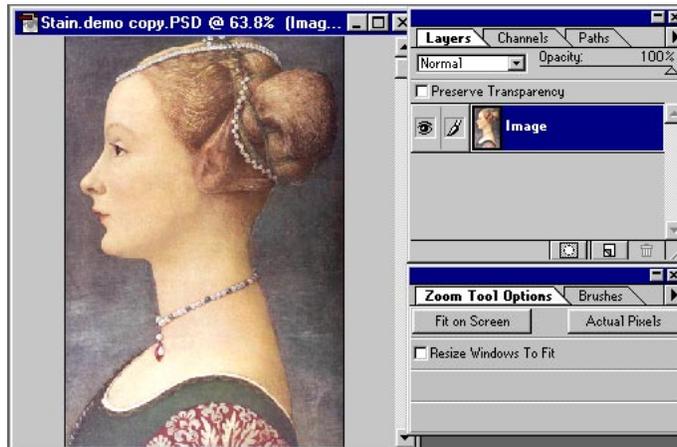
20. We can easily fix this with a soft-edged brush set to Color mode and opacity of 50% or less. Press the Alt/Option key to sample the color you want to use in that area (a Sample Size of 3 by 3 Average is best), and then paint over it with the new color.
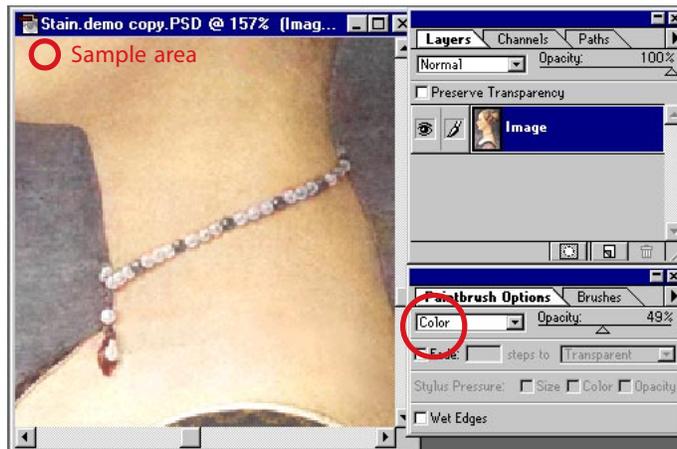
Finetuning
We still need to do a bit more touching up to complete this project. In this case I took a color sample from the woman's face and transferred it to the discolored areas of her neck.

21. When you're done, the image should look perfect. No new brush strokes—and everything as good as new!
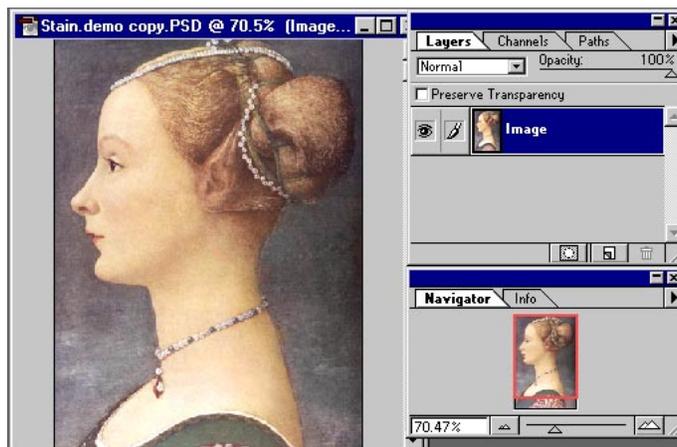
Have you ever wanted a shadow that followed the exact curve of a certain shape. Have you ever wonder just what a displacement map is used for anyway? Here's is your chance to find out. In this technique we will create a realistic drop shadow for a hat, like the one you see to the right.

Adobe Senior Creative Director Russell Brown gets displaced working in the shadows with Adobe® Photoshop® 4.0.
INTERMEDIATE

DISPLACE SHADOWS WITH PHOTOSHOP

1. In Photoshop, open up the image on which you would like to create the displaced shadow. Here we want to put a hat on this incredibly good looking face and give it a realistic shadow. To start, we want to create a new image file using this image.
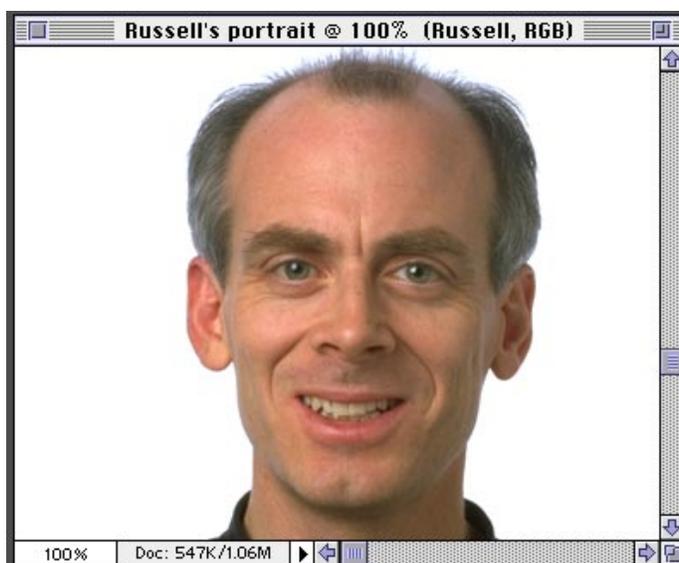
Shortcuts
Throughout this document, "Command/Ctrl" means Command on the Macintosh® and Ctrl on Windows®." Option/Alt" means Option on the Macintosh and Alt on Windows.

2. Go to the Channels palette. Toggle through the three channels by pressing
Command/Ctrl + 1 = Red
Command/Ctrl + 2 =Green
Command/Ctrl + 3 = Blue

Find the one channel with the most contrast. In our case it was the red channel. With the channel selected, choose Duplicate Channel.
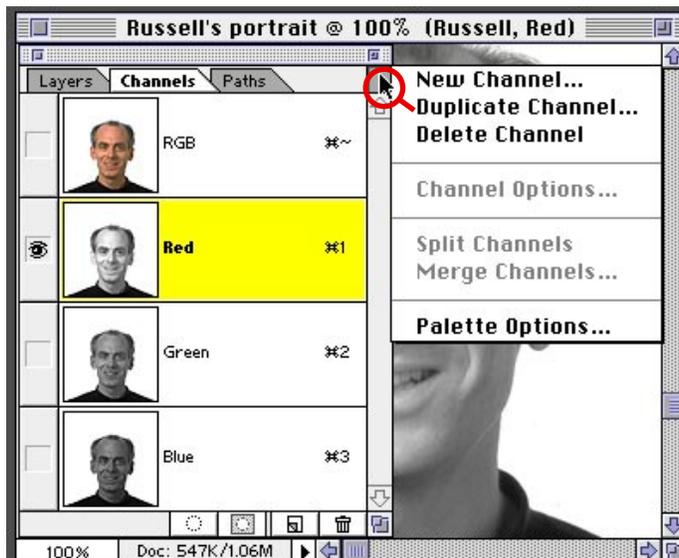
3. In the dialog box you will want to choose "New" under Document. Then in the Name field type in "Blur map". *Note: if you are on Windows you must give it the .psd extension.*
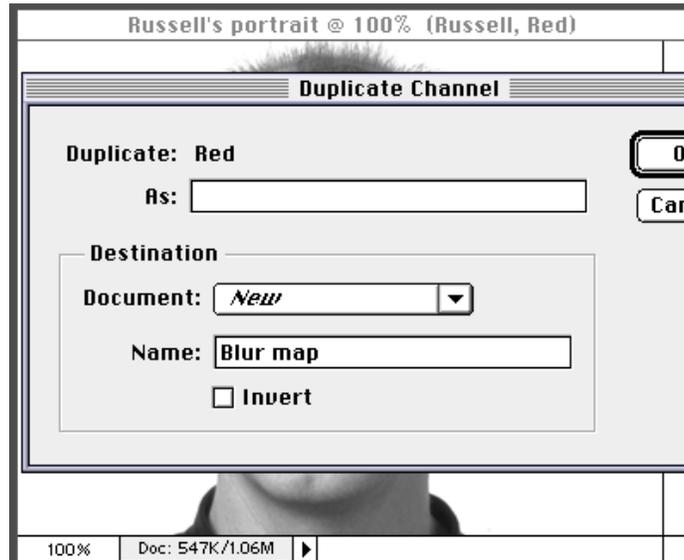
4. You should now have a new image with the file name *Blur map* open on your desktop. Notice: if you check its channels, it has only one channel. This is important because we only want to displace our shadow vertically. In order to have true horizontal displacement there must be a second channel.
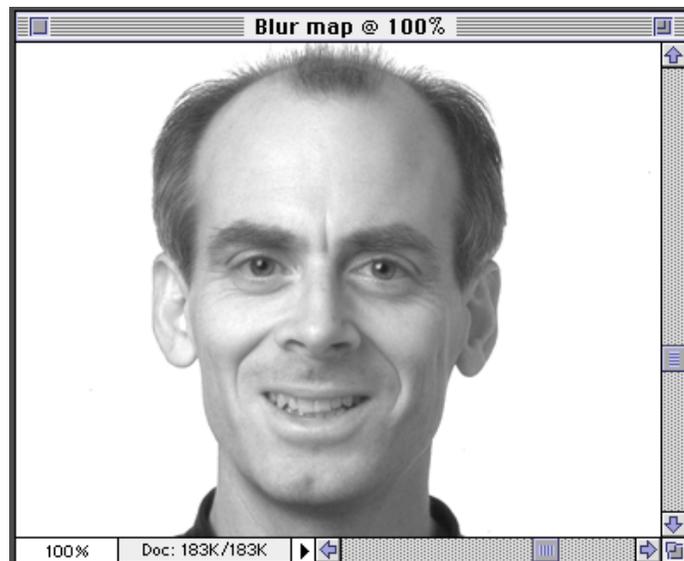
Displacement map
A Displacment map is basically a second image that the Displacement filter uses to determine how to distort the selection. Any Photoshop file except bitmaps can be used.

5. Now we want to smooth out the gradations in this image and have detail without any speckling. The best way to do this is to choose Filter > Noise > Despeckle. Repeat filter three to four times. (Command/Ctrl + F) The softer and smoother the displacement map, the smoother the shadow effect. Once you have done this, save the image and put it aside.
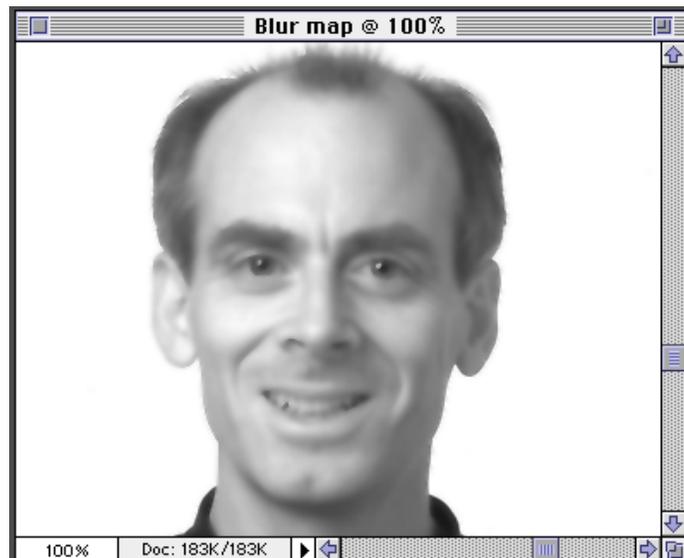
6. Let's go back to our original image. Get back in RGB composite mode. (Command/Ctrl + ~) Next, open the image that you want the shadow to fall under. In this case, we want to have a realistic shadow falling under the brim of this hat. Ahha, now it's starting to make sense! *Notice that our hat already has a transparent background.*
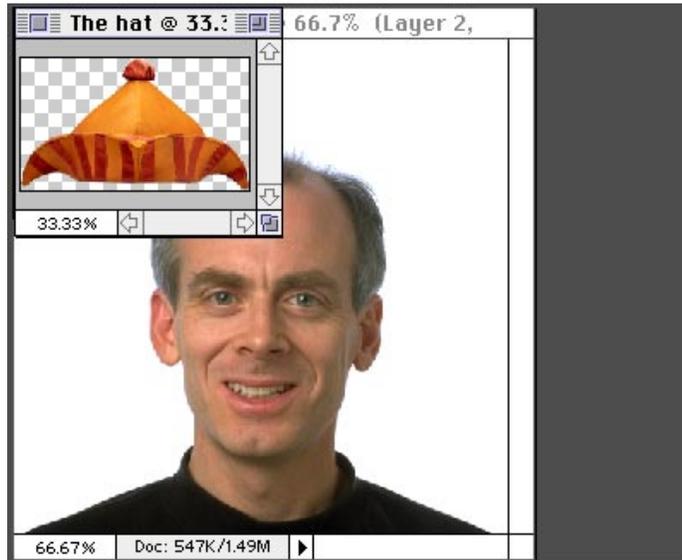
7. Bring in the second image either by copying and pasting or dragging and dropping. Size it using the transform tool (Command/Ctrl + T). Place it into final position. You'll want to do this in order to see where the shadow needs to fall.

Transform!
To bring up the dialog box for the Transform tool, try the shortcut Shift + Command/Ctrl + T.

8. Now, we want to create our shadow. Select the bottom layer and click the new layer icon. This will create a new layer between the hat and our face for the shadow. With this layer still selected, create an approximate shadow using one of the selection tools. *(Remember, the the exact shaping will be done with the Diplacement filter).* Fill your selection with 50% gray. Deselect, and choose Filter > Blur > Gaussian blur to create a soft shadow.

Shadows
Another quick way to create a soft shadow is make your selection then choose Select > Feather. Type in a pixel value for the selection edges to be feathered.

9. With the shadow layer still selected choose Filter > Distort > Displace. Enter 0 in the Horizontal scale and approximately 30 in the Vertical scale. (Although you may want to experiment with the amount.) The rest of the settings can stay the same. Click OK.
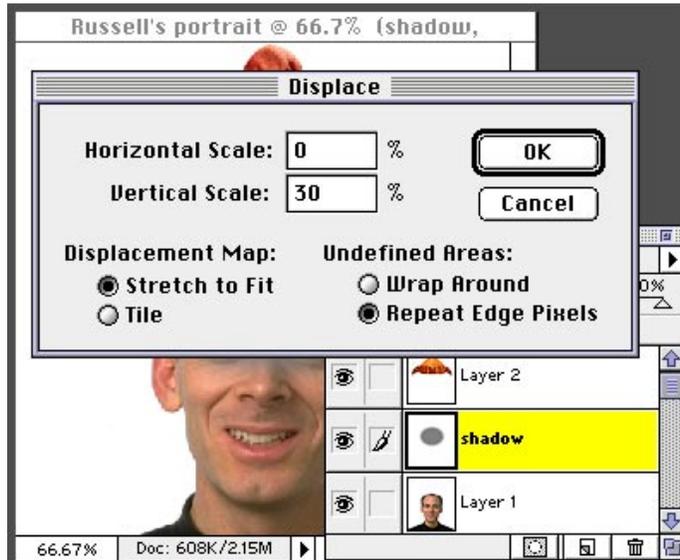
Displacement Filter
Remember, the image we're using for our displacement map has only one channel. Through experimentation, we have found that only the vertical scale is needed for a good-looking shadow.

10. Next, a dialog box appears asking for a file to use for the displacment map. Navigate to where you saved the *Blur map* file and select it. Click OK and wait for the results. Wow! The shadow magically bends over the contour of this perfect face. Ahaa.

11. Now, to make it a little more realistic, set the mode to Mulitply. Looks OK, but we can do better than this!
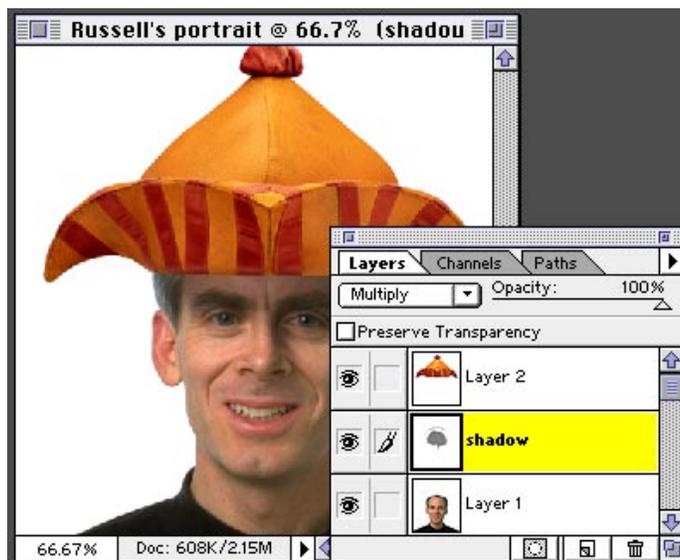
Multiply Mode
Effectively like sandwiching two negatives together, this mode looks at the color information in the channels and multiplies the base color by the blend color, darkening the color underneath it.

12. For the final touch we want to add a bit of warmth and color to the shadow as there would be in real life. Fortunately, Photoshop 4.0 Adjustment layers make this a snap. Choose New Adjustment Layer from the layers pop-up menu. Choose Hue/Saturation and make sure to select "Group with Previous Layer." This way the adjustment layer will affect only the shadow layer.
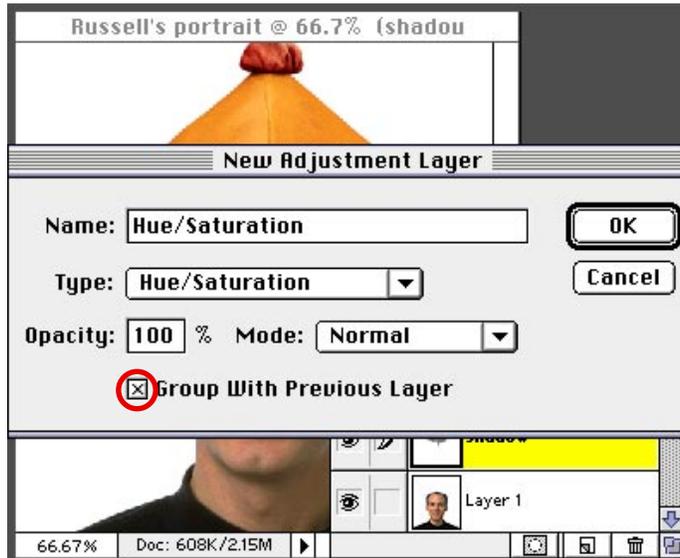
13. In the Hue and Saturation dialog box, select Colorize and then adjust your HSL levels until you have your desired density and shadow color.
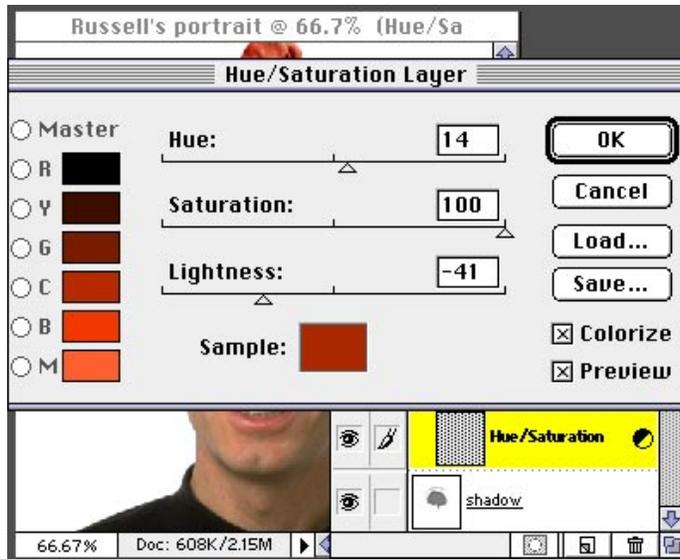
Colorize
You can use this effect to colorize black-and-white images or to create a monotone effect. Your selected image will be converted to shades of red. You can then adjust the color using the Hue slider.

12. Voila! There you have it! The perfectly shaped and shaded shadow. For a finishing touch to make the hat appear as though it were sitting on the head, we added a single 50% brushstroke to the shadow layer underneath the hat.

Nicer Looking Fade Effect

Adobe

Have you ever had a fade effect look as if it's starting or ending too abruptly—or almost being cut off? Here we explain how to use Adobe Photoshop to solve that problem and achieve better fade effects. Although the visible quality enhancement with this technique may vary, it's a good tip to know…

NICER LOOKING FADE EFFECT

1. Let's quickly review how to get a fade effect in Photoshop. Place an image to fade on a layer, and choose Layer > Add Layer Mask > Reveal All. Make sure that the Layer Mask Thumbnail icon is selected in the Layers palette. Using the gradient tool, set to default black and white, and click and drag over the image.

Layers Palette
The eye icon in the first column lets you know if the layer is visible or not. The second column has two icons, one being the paintbrush which tells you that you are painting on the layer, the other telling you that the layer mask is selected.

2. Now let's check out the fade effect you've created. You may notice that the fade looks as if it's starting or ending too quickly or almost as if it's being cut off. The higher the lightness contrast between the fading image and the background, and the shorter the distance of the fade, the more obvious this becomes.

3. Here's how to solve the problem. Follow the same process described in step 1, but when you draw a gradient on the layer mask, draw it about 25% longer than usual toward both the starting and ending directions.

NICER LOOKING FADE EFFECT

4. With the layer mask channel still selected as the current target channel, choose Image > Adjust > Curves. By adding two control points, shape an S-curve as shown here. You may want to adjust the curve to change the look of the fade transition. If you like the fade effect in the preview, click OK.
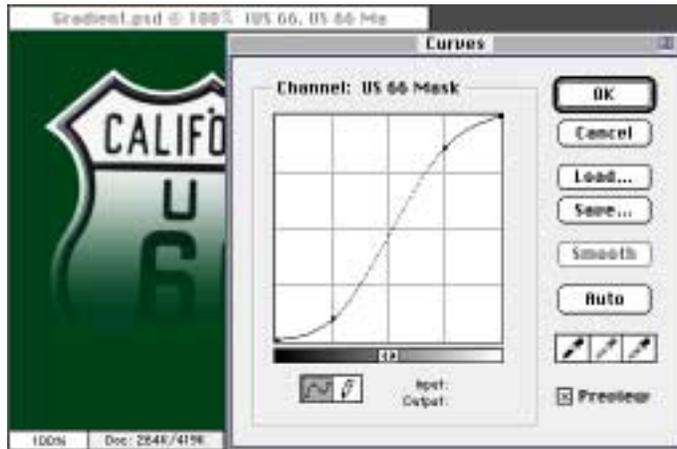
Curves dialog box
To add a control point in the Curves dialog box, click and drag on the graph area. To remove a control point from a curve, drag the control point off the graph area.

5. By applying the S-curve-based tonal correction to the layer mask, you add speed changes to the fade transition—some speed acceleration at the beginning and some speed reduction at the end. This prevents the fade from starting or ending too quickly; thus you get a more natural-looking fade.

Right: Fade created with the S-curve technique.

Left: Fade effect with default gradient.

Note: Fading edges also can be created with the Feather option on the Select menu and some Selection tools. Feather always creates natural-looking fading edges because it has the S-curve effect built-in.

Adobe, the Adobe logo, and Photoshop are trademarks of Adobe Systems Incorporated.

©1996 Adobe Systems Incorporated. All rights reserved.

Contributing author: Etsuro Endo
Photography: PhotoDisc

PS4.0 11/96

Layer Mania

Russell Brown,
Senior Creative
Director at
Adobe Systems,
performs layers
magic with
Adobe®
Photoshop®

ADVANCED

Adobe

In this demo, we will bring an object that has flat lighting (the blender) into another image (Russ the magician) and light it so that it appears to be in the scene. We will do all of this without the aid of the Lighting Effects filter, or the Levels or Curves dialog boxes. We will do this with layers!

BLENDER DEMO PART 1 - LIGHTING EFFECTS

1. With both your background and your object image open in Photoshop, create or load the selection of the object. Here we loaded the selection of the blender, which we already made and saved as a channel.

Loading selections
A shortcut to loading an existing selection is to press Option/Alt+ Command/Ctrl+4 (4 corresponds to the number of the channel). To load the selection of an object that is on a transparent background, the shortcut is Command/ Ctrl+click the layer in the Layers palette.

2. Using the move tool, drag the selected image into the background image. Move the object into position. Double-click the new layer and name it.

Shortcuts
Throughout this document, "Command/ Ctrl", means Command on the Macintosh and Ctrl on Windows. "Option/Alt" means Option on the Mac and Alt on Windows.

3. The original blender image is too light, in relation to the background image. So we need to increase the density of the blender. Here's how we can do that without using levels or curves. Duplicate the Blender layer by dragging it onto the New Layer icon at the bottom of the Layers palette. Set the mode of this new layer to Multiply by using the Mode pop-up menu in the Layers palette.

Multiply mode
The Multiply mode is the equivalent of placing two transparencies over each other and viewing them on a light table. Multiply mode combines the densities of the two layers and darkens the images, just as it is doing here.

2

4. To increase density even more, duplicate the copied layer two more times. Notice how the blender darkens with each layer duplicated.

5. The top portion of the blender is still not lit correctly. We need to erase some of each of the layers, and we can do this using layer masks. With the topmost layer selected, choose Layer > Add Layer Mask > Reveal All. Add a layer mask to the next two layers also.

6. Target the topmost layer mask. Then select the gradient tool, make sure your default colors are white and black, and click and drag at the same diagonal as the blender to create a smooth transition. Repeat this step for each layer that has a layer mask. Notice how the highlights start to form along the top edge. BINGO!

Default Colors
Pressing the D key on the keyboard when a layer mask is selected gives you the default white and black as your foreground and background colors.If on a Layer image, the default colors would be black and white as your foreground and background.

BLENDER DEMO PART 1 - LIGHTING EFFECTS

7. Next, a reflection of my nice shiny head and white gloves needs to appear on the blender so that it looks like it's really part of the scene. Duplicate the Background layer by dragging it onto the New Layer icon in the Layers palette.

Finetuning
If the image needs more adjustments, use the dodge and burn tools or select the paintbrush tool and paint black on the layer mask to add more highlight effects.

8. Choose Layer > Transform > Scale, and drag the lower middle point up to compress and distort the image. Don't double-click yet.

9. The reflection should be an exact mirrored image, so with the transform points still active, choose Layer > Transform > Flip Vertical. Double-click inside the image. Then, using the move tool, move the image into position.

10. The image should appear inside the blender. Move the Background copy layer up between the Blender layers. Hold down Option/Alt, and move the pointer over the line between the Background copy layer and the Blender layer below it. When the pointer changes to the clipping group icon, click to define the two layers as a clipping group.

Clipping groups
A clipping group is somewhat like using the Paste Into command with two layers. In this case, think of the blender layer as the masking shape and the background copy as the image that will be pasted into the mask.

11. With the Background copy layer still selected in the Layers palette, choose Overlay from the Mode pop-up menu.

Overlay mode
Colors are overlaid on the existing pixels while the highlights and shadows of the base color are preserved. The base color is not replaced but is mixed with the blend color to reflect the lightness and darkness of the original image.

12. Using the move tool, move the image into place so you can see the reflection in the surface. If the image is too light, duplicate the Background copy layer by dragging it onto the New Layer icon at the bottom of the palette.

Reflections 101
Don't forget your basic physics when making realistic reflections. The angle of incidence always equals the angle of reflection.
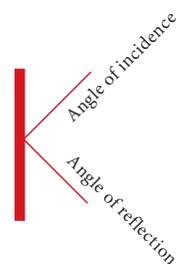
BLENDER DEMO PART 1 - LIGHTING EFFECTS

13. Merge the layers that create the reflection for further finetuning. With Background copy 2 selected, choose Merge Down from the Layers palette pop-up menu.

14. With the Background copy layer targeted, select the eraser tool with a medium size, soft edge. Clean up the hard edge of the reflection in the blender by erasing the image. Also, because the reflection would not appear that high on the blender, take out some of the reflection appearing higher up on the surface. And there you have it, the fantastic blender trick!

Flexibility
By creating the reflection on a layer of its own, you can easily edit and reposition it at any time.

In this next portion of the demo, we'll experiment with more advanced capabilities to enhance the blender. Yes, it's a little more tricky, because more layers will be added. First, we'll tone down the bright highlights on the blender with some great brush tricks, and then we'll add a fish so that it looks as if it's inside the blender.

BLENDER DEMO PART 2 - WORKING WITH SMALL ANIMALS

1. Continuing to work with the blender image from the previous demo, choose Preferences > Display & Cursors. Select Brush Size and Precise. Click OK. Select the paintbrush tool with a medium size, soft-edge brush.
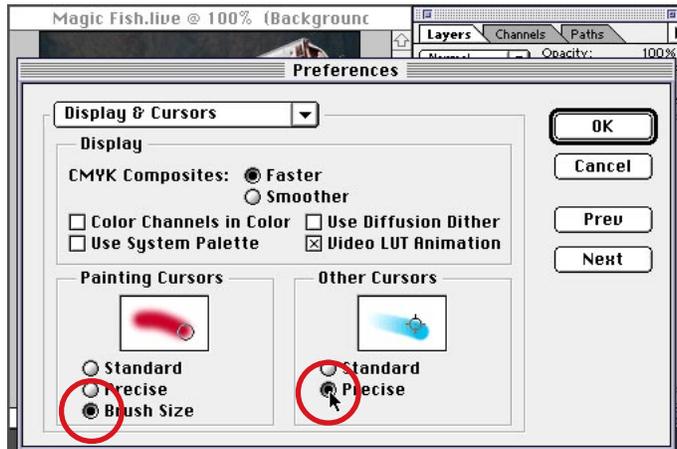
Brush size tip
To change your brush size without going to the Brushes palette, press the Open Bracket and Close Bracket ([and]) keys to reduce and enlarge the brush size.

2. Target the original Blender layer. While holding down the Option/Alt key (which toggles you from the paint-brush to the eyedropper tool), select a light copper color from the blender to tone back the highlight areas. Then check Preserve Trans-parency in the Layers palette.
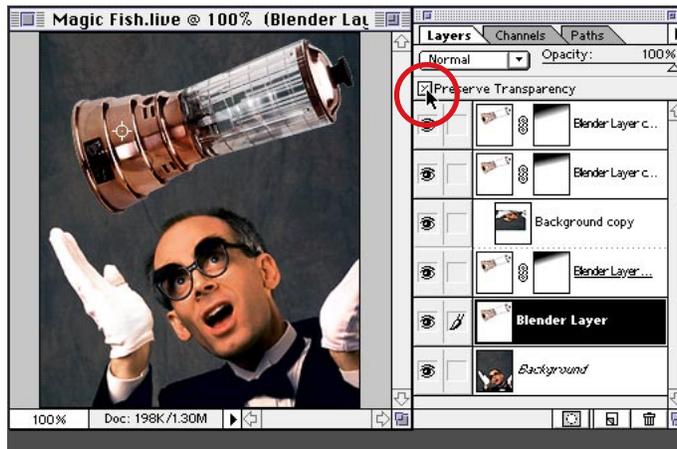
Preserve Transparency
Preserve Transparency will protect the transparent areas in the image and allow you to paint only where there are pixels. Preserve Transparency creates something like an invisible mask.

3. Double-click the paint-brush tool to bring up the paintbrush options. Choose an opacity of 50% and select Darken mode in the pop-up menu.

Darken mode
With Darken mode, the paintbrush will paint only where the chosen foreground color is darker then the highlight color. It will not paint in the dark shadow areas.

7

BLENDER DEMO PART 2 - WORKING WITH SMALL ANIMALS

4. Paint over the highlight areas. Notice that you don't have to worry about going beyond the boundaries of the blender—Preserve Transparency is at work! Continue painting over all the highlight areas to tone them back. Feather the highlight at the top of the blender to keep the curvature of the lid.
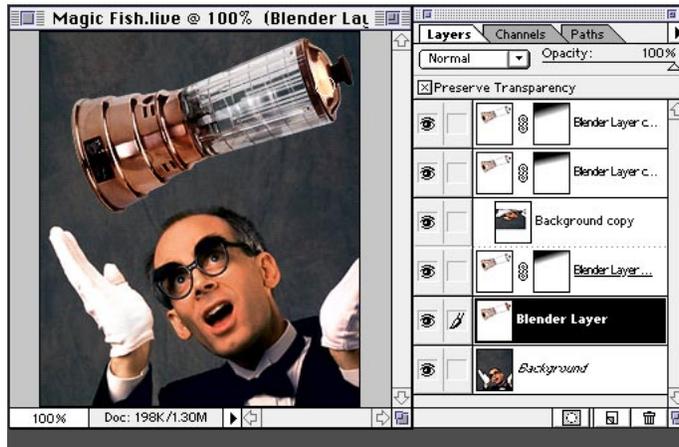
Opacity tip
When a selection tool is active, pressing any of the numeric keys changes the opacity to a corresponding percentage. Press 1 for 10% and 0 (zero) for 100%, and so on.

5. Now, as a challenge for you super users, we're going to put a fish inside the blender. With the move tool, drag the fish into the blender image and position it in the blender. Move the fish to the topmost layer.
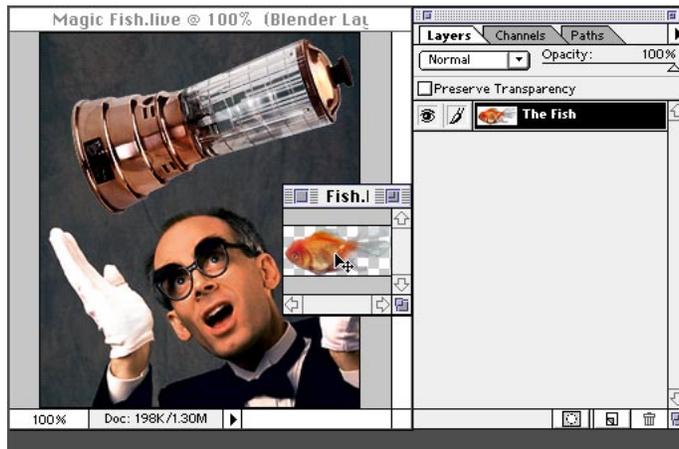
Note: No small animals were harmed in the creation of this demo.

6. Select the lasso tool, and then target the original Blender layer. Holding down the Option/Alt key, click the blender area around the fish, selecting the area that will be sandwiched over the fish.
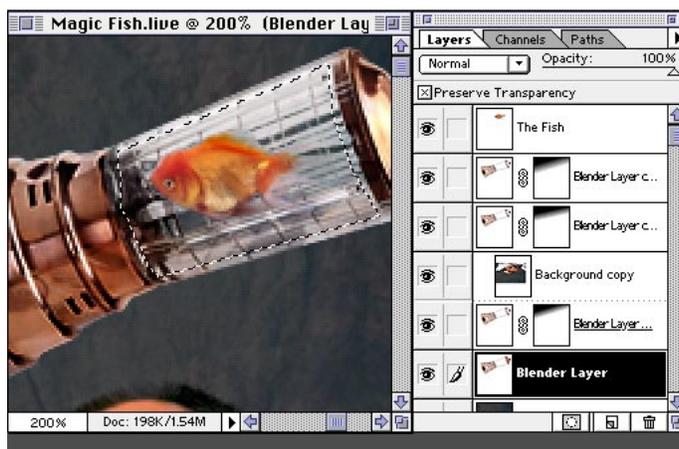
7. From the menu bar, choose Layer > New > Layer Via Copy. In the Layers palette, move the new layer above the Fish layer.
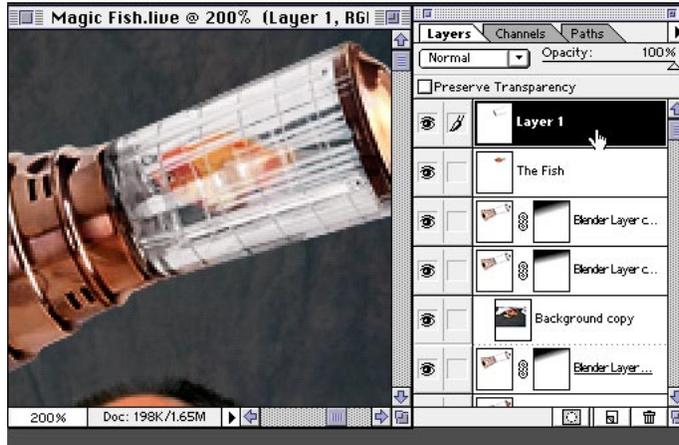
8. Double-click this new layer to bring up the Layer Options dialog box. Option/Alt+click the This Layer high-value range slider (white triangle) and move half of the triangle to the left.
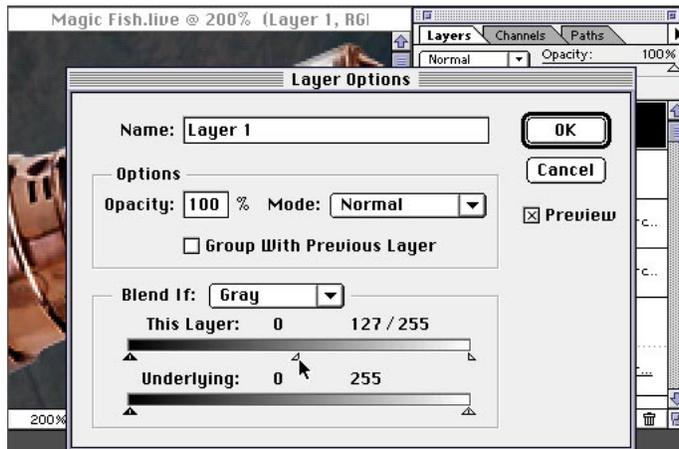
Blending layers
The sliders here let you define which pixels are blended by indicating a range of brightness values for the replacement pixels. In our example, the highlight range was split to soften the layer, giving it a semi-transparent and fogged look. The further apart the triangles, the softer the appearance of the layer.

9. You can see the goldfish, semi-transparent inside the blender. There you have—super advanced—the next steps for working with layers and lighting a particular scene.

To make a pattern in Adobe® Photoshop®, you simply select an area using the rectangle marquee tool and then choose Edit > Define Pattern. Almost always, however, filling an area with this pattern will leave telltale tiling lines, or grids. For a pattern to tile seamlessly, the edges of the pattern tiles must align exactly to create a continuous image. This technique shows how to create a pattern tile with edges that won't be visible when the tile repeats.

Luanne Seymour Cohen, Creative Director at Adobe Systems shows you how to make a Photoshop pattern without seam lines.

INTERMEDIATE

MAKING SEAMLESS PATTERNS

1. Open the image that contains the area you want to use for a pattern tile.

The tile image
Images with plain or textured backgrounds are the best candidates for a smoothly tiling pattern because it is easier to smooth away the tile lines. Try to avoid images with gradations because these are very difficult to touch up. Also, select an image or object that doesn't bleed off the edge of the tile.

2. Crop the image to the size and area you want the pattern tile to be.
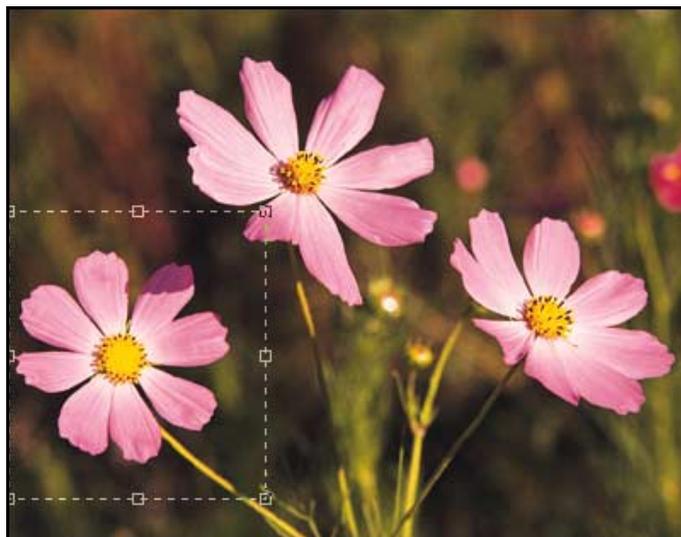
Shortcuts
Throughout this document, "Command/ Ctrl" means Command on the Macintosh and Ctrl on Windows. "Option/Alt" means Option on the Macintosh and Alt on Windows.

3. Check the size of the file by holding down Option/Alt and selecting the size box in the lower left corner of the window. Make a note of the width and height pixel values.


```
        Width:      400 pixels (1.333 inches)
        Height:     327 pixels (1.09 inches)
        Channels:     4 (CMYK Color)
95%     Resolution: 300 pixels/inch
```
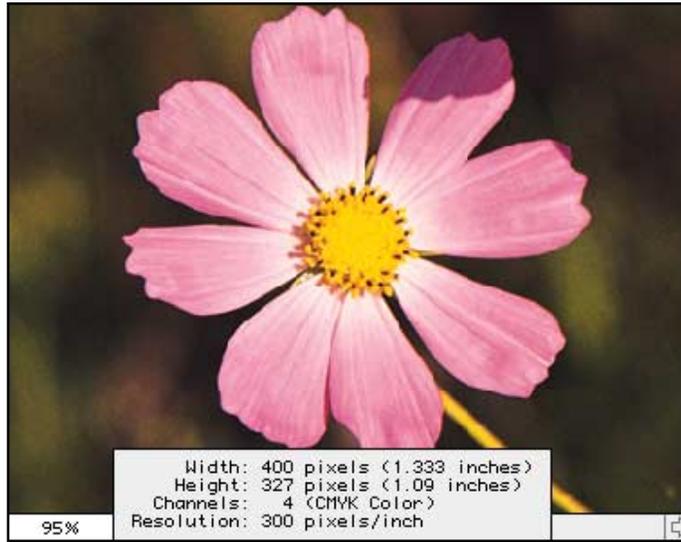
4. Choose Filter > Other > Offset. Select the Wrap Around option; for the horizontal and vertical values, enter approximately half the value of the width and height you noted in step 3.
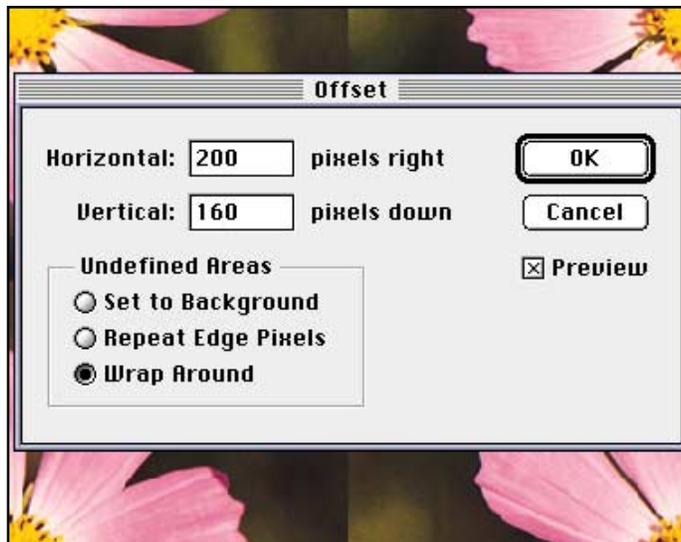
The Offset Filter
This filter basically slices up your image and moves it horizontally and vertically. It is helpful to do this so we can see how the edges of the pattern tiles will meet.

5. Click OK. The Offset filter splits the image into four sections. Notice that the left half of the image completes the right half and the top half of the image completes the bottom half.
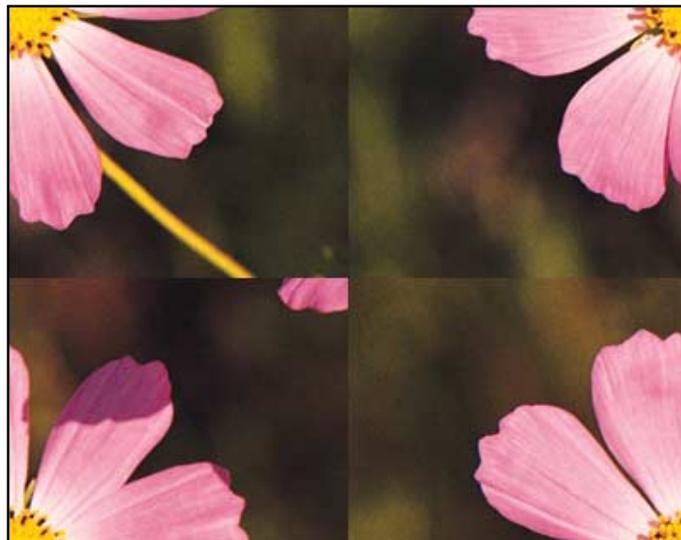
6. Now use the rubber stamp tool to blend the center seams between the four sections of the image. I use a soft-edged brush set at 50% opacity. The goal is to try to blend the backgrounds of each rectangle together and to remove other elements that you don't want to repeat. (In this example, I removed the stem and the stray bit of petal.)
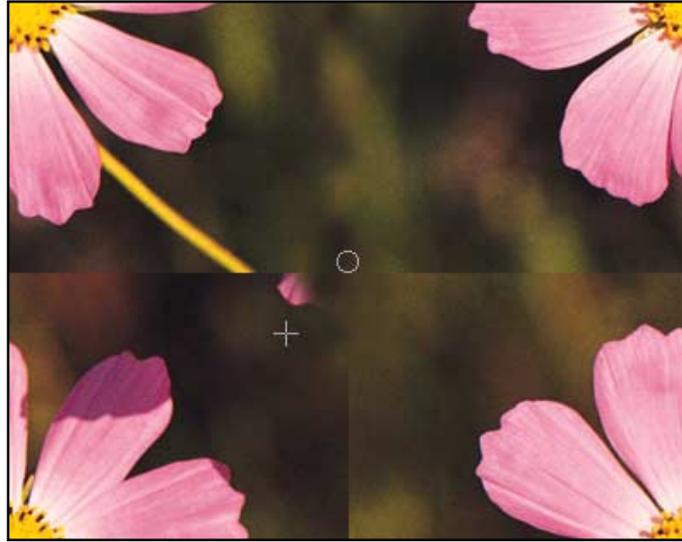
Cloning a smooth background
Try to clone using multiple, short brush strokes so that the stroke itself is not visible. Use a brush that is similar in size and texture to the background. For this soft, diffused background I used a soft, transparent brush.

7. To put the finishing touches on the pattern tile, we must reverse the offset process. Choose Filter > Other > Offset. This brings up the filter dialog box last used. Add a minus before each of the pixel values to reverse the offset effect. Click OK.
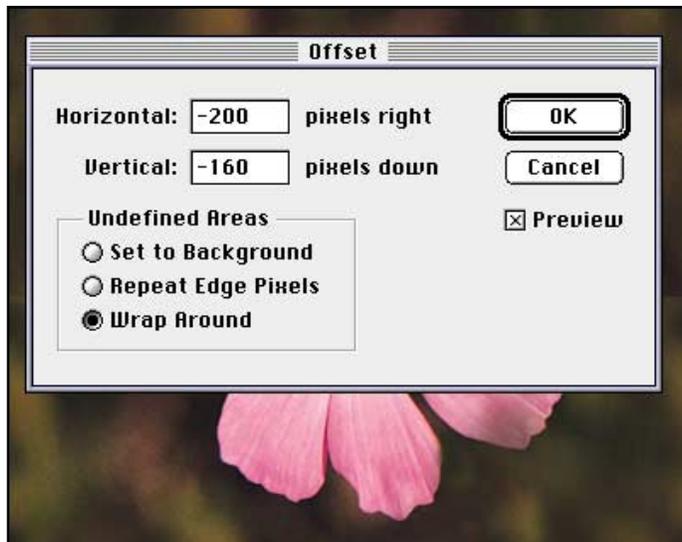
Filter shortcuts
To apply the last filter you used, simply press Command/Ctrl+F. If you want the same filter but need to adjust some values, press Command/Ctrl+Option/Alt+F. The dialog box of the last used filter will appear.

8. Check to see if any problems were created by painting or cloning near the edge of the tile in step 6. If so, carefully cover these up using the rubber stamp tool again. Use a small brush and be careful not to change any of the pixels right on the edges of the tile. In this example, the arrows point to the areas where I painted too close to the edge and need to repair.

9. Next, test the pattern tile for any flaws. Choose Select > All (Command/Ctrl A); then choose Edit > Define Pattern.

10. Create a new file to use as a pattern fill test. Make sure that the file is several times larger than the pattern tile. Select a large area (or the entire file), and choose Edit > Fill. From the Use pop-up menu, choose Pattern. Use a Mode of Normal and an Opacity of 100% so that you can easily identify any problems in the pattern. Click OK.

11. Evaluate the overall look of the pattern and identify any problem areas. If you like the effect, save the pattern tile file. If you want to touch up the tile, return to step 8.

Learn how to create a painting from a photograph. In just a few simple steps you can turn a run of the mill snapshot or stock photo into a digital painting.

Luanne Seymour Cohen, Creative Director at Adobe Systems, makes a good impression with Adobe® Photoshop® 4.0.

BEGINNER

PAINTERLY IMAGES

1. Open a new CMYK or RGB file. The best types of images for this technique are ones that contain lots of color and texture. Landscapes and still lifes work very well. Peopled scenes are fine but close-ups of faces don't work as well because the facial features can become too distorted or smeared.
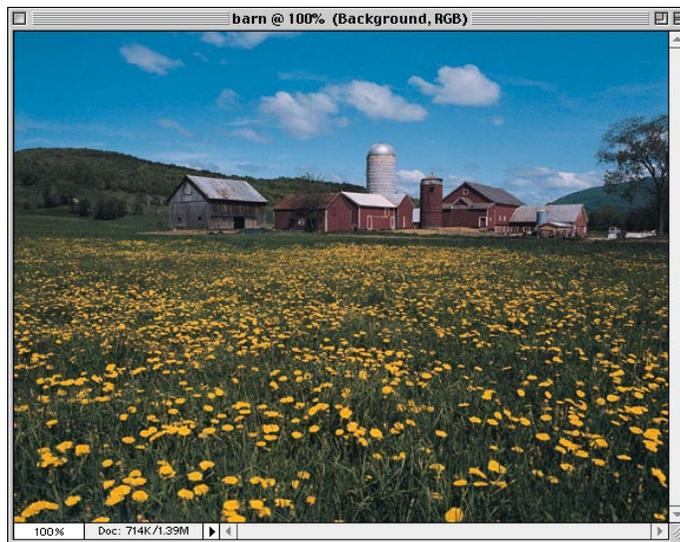
Shortcuts
Throughout this document, "Command/Ctrl" means Command on the Macintosh and Ctrl on Windows. "Option/Alt" means Option on the Macintosh and Alt on Windows.

2. Optional: If your image has flat or dull colors, you might want to intensify them for the painting. Create an Adjustment layer by holding the Option/Alt+Command/Ctrl keys while clicking on the new layer icon. Choose Hue/Saturation. Move the saturation slider to the right to intensify the colors in your image.
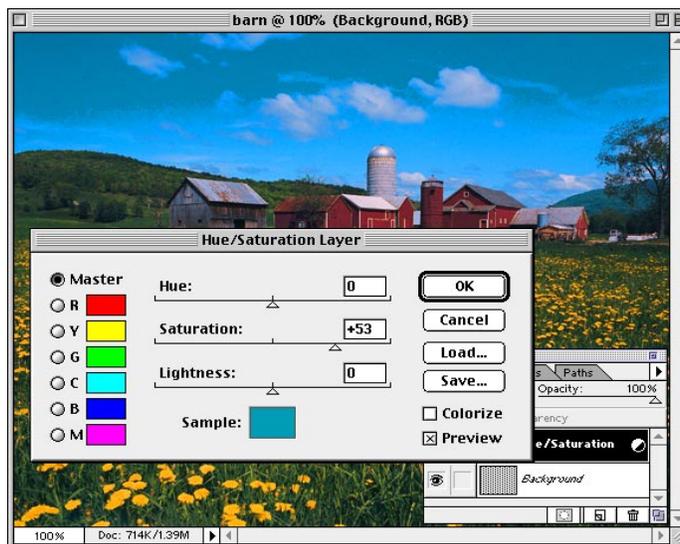
Adjustment layers
Adjustment layers allow you to alter the look of your image without actually making a permanent change to the original. They give you the flexibility of being able to change the adjustment as many times as you want. To readjust, simply double-click on the adjustment layer name and make changes in the dialog box that appears.

3. Now we will make a copy of the background layer by dragging it to the new layer icon. The original background layer will be left as is and we will paint on the copy. **Important:** Save the file at this point.
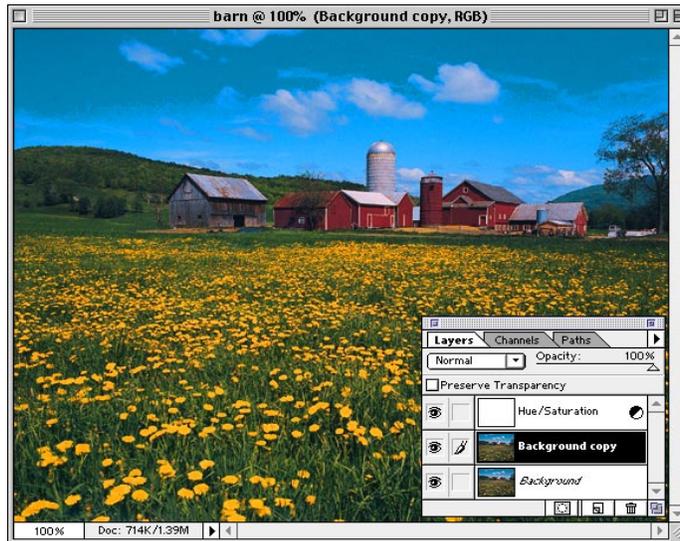
4. Double-click the rubber stamp tool and change the Option in the Rubber Stamp Options palette to Impressionist.
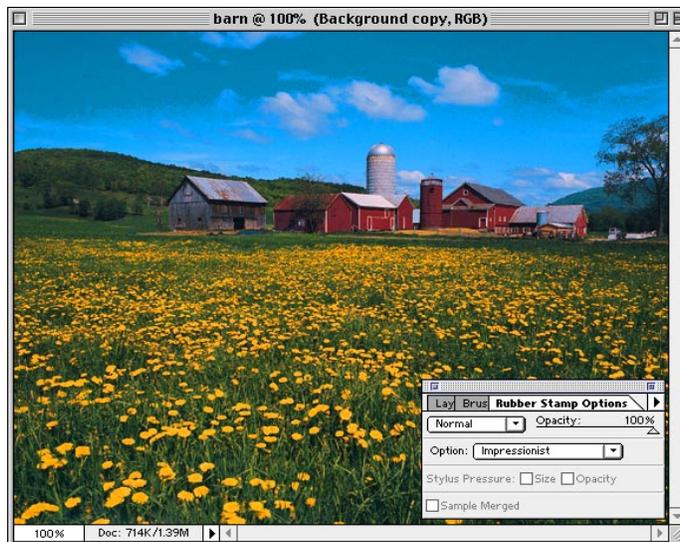
5. Before you begin painting, you'll need to choose a brush that approximates the texture of the subject matter. You can use the default brushes in your brush palette. But for the flower field in this image, I'm going to use a custom brush. Select Load Brushes from the Brushes palette. Go to the Photoshop folder and open Brushes > Assorted. (Mac users: Goodies > Brushes & Patterns > Assorted Brushes.) The extra brushes will appear in the brushes palette.
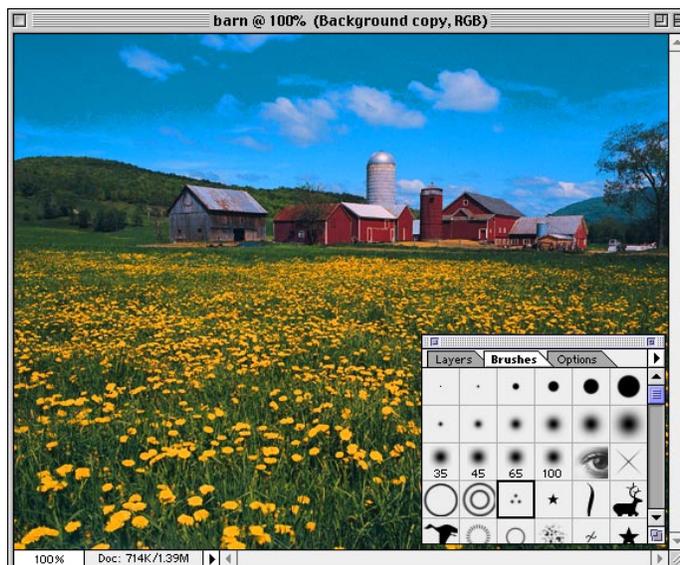
Custom brushes
You can use any image or part of an image to create a custom brush. The most effective brushes are created with black and gray pixels on a white background. Once you've created the brush image, select it and choose Define Brush from the Brushes palette.

6. Select your brush and begin painting the image. The impressionist tool samples the colors that are in the saved image and allows you to smear them. It's as if the photo was made of wet paint and you are moving it around with a brush. **Note**: Do not save the file while you paint! If you want to keep interim copies, choose File > Save a Copy. If you save the file during the painting process you will no longer be painting with the original source pixels.
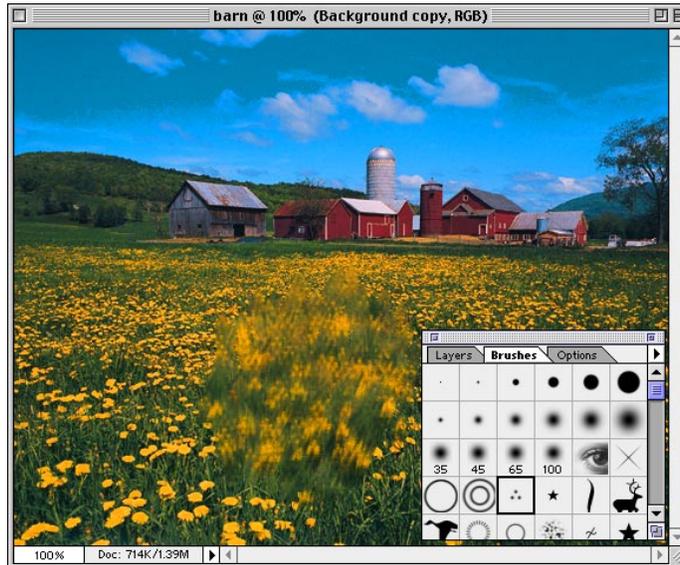
7. You may want to zoom in to paint certain sections or objects in your image. Or change the brushes or brush stroke direction based on the subject matter. In this example, I tried to match the brush stroke direction to the texture of the rusty shed.
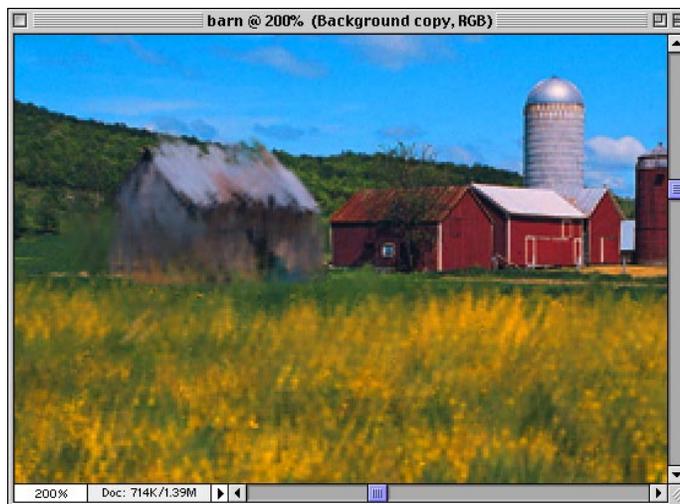
8. Continue brushing the entire image until you are satisfied with the result. You may want to go back over certain areas with a smaller brush, if you want to recover detail that might have been lost.

Sometimes you want to make a photographic image look very graphic with crisp, sharp edges and high contrast colors. You can do this by first posterizing it in Adobe® Photoshop®, tracing it in Adobe® Streamline® and then editing and finessing the colors and shapes in Adobe Illustrator®. This technique shows you how.
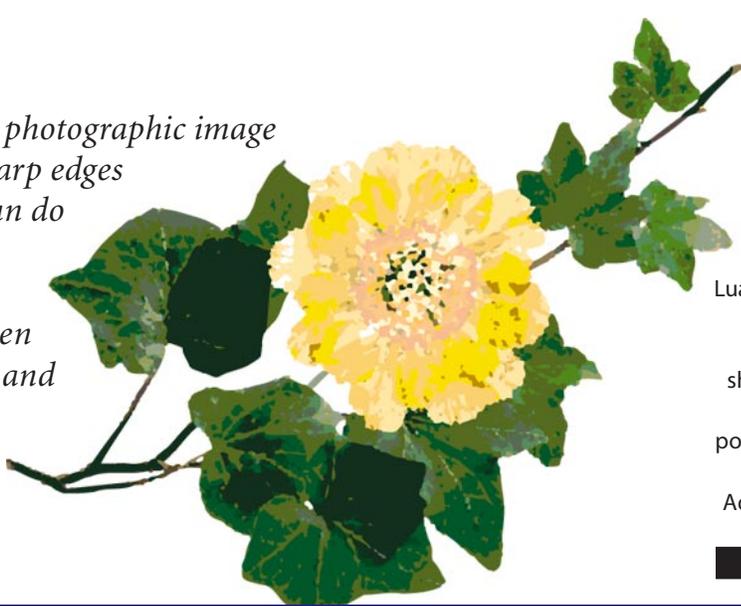
Luanne Seymour Cohen, Creative Director at Adobe Systems, Inc., shares a technique on how to create cool posterized images with Adobe Streamline, Adobe Photoshop and Adobe Illustrator.

INTERMEDIATE

POSTERIZED IMAGES WITH STREAMLINE

1. Open the original image in Photoshop. For best results, use a higher resolution image. 300-600 pixels per inch will give the best results in Streamline.
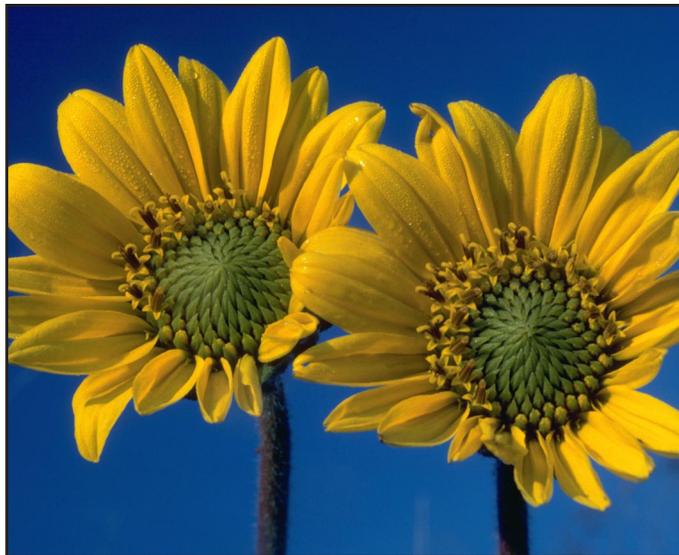
2. To get the best results in Streamline you must first simplify the shapes in your image using Photoshop. To do this choose Image > Adjust > Posterize. Play around with the number of levels, and turn on the Preview button to see the results. Don't worry about the number you end up with, just pick a number that gives you the best shapes while still maintaining detail.
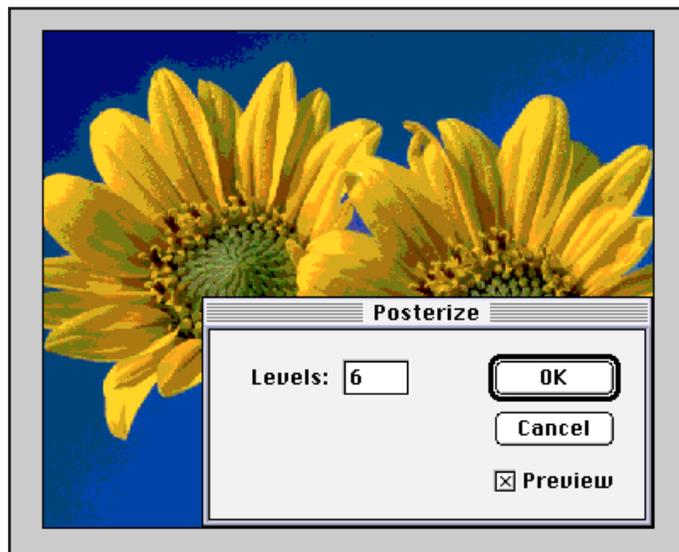
Posterizing in Photoshop

6 levels of posterization means that Photoshop will use 4 tonal values in each channel. This means that for a 3-channel RGB image, you'll end up with 4x4x4 colors or 64 colors.

3. Save the file with a new name. You can save the file in TIFF, TIFF compressed, PICT, Photoshop, or Photoshop 2.0 format.
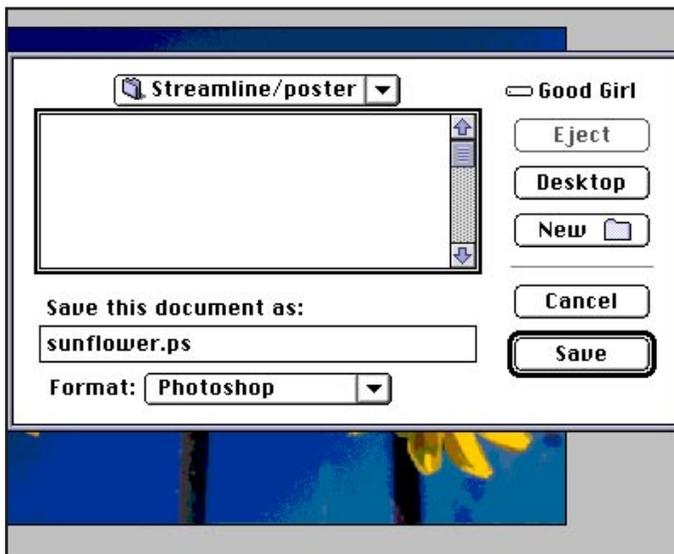
4. Switch to Streamline and open the Photoshop file you just saved. Choose Options > Settings. Select one of the preset Color settings. Don't worry if the number of colors is different from what you want because we will adjust that later.
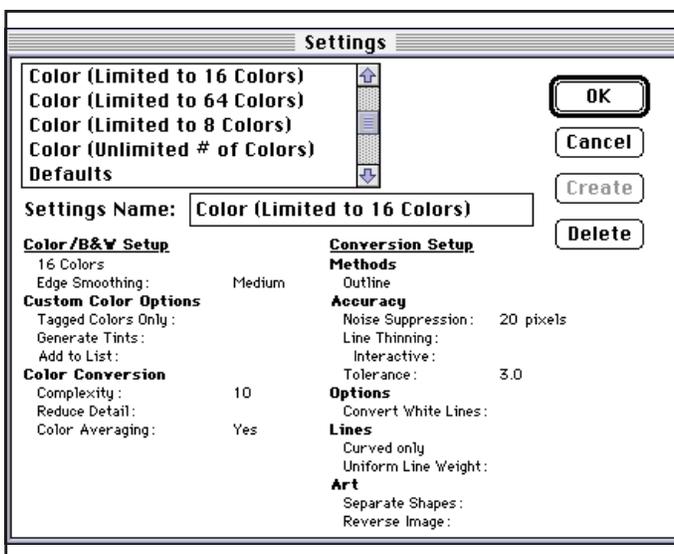
5. Choose Options > Color/ B&W Setup. This is where you will experiment with the Maximum # of colors for your posterization. Select the Add new colors to custom color list. Select Reduce detail. Deselect (for photographic image) or select Color averaging (for images with large areas of color).
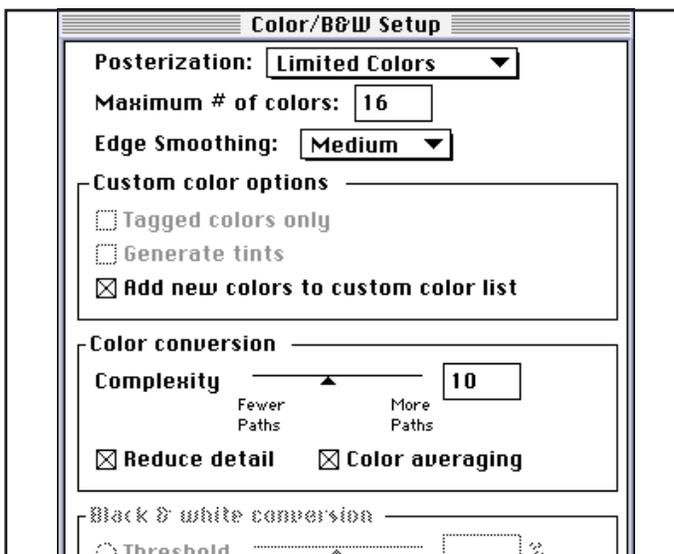
Streamline's posterization
Streamline creates a graph of the image color values (histogram). Then it divides the colors evenly into a color palette that contains the number of colors selected in the Color/B&W Setup dialog.

6. Click the Preview button to see how the image's color shapes will be divided up. Keep trying different numbers of colors and complexity levels, (don't forget to click Preview), until you are satisfied with the shapes and level of detail in the preview. The actual colors can be changed later in Illustrator.

Experimentation pays off

In the image at the left, I tried several different color settings starting with 6 colors. I found that 16 was the minimum number I needed to retain the detail in the flower centers. Anything less and the detail I wanted was lost.

---

7. Choose Options > Conversion Setup. Choose Outline for a photographic image. If your image has a lot of noise correct it by increasing the Noise Suppression slider. If your image has straight and curved lines, make that selection also.
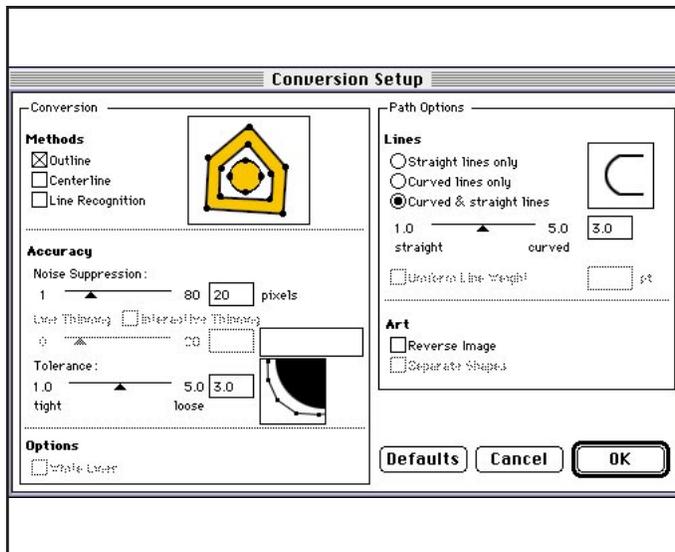
Noise Suppression

Pixel areas with a diameter measuring the number of pixels selected in the Noise Suppression setting are ignored during conversion.

---

8. Because you've changed some of the specifications, Streamline has given your settings a new name. You can change it in the Settings dialog if you want, then click Create.
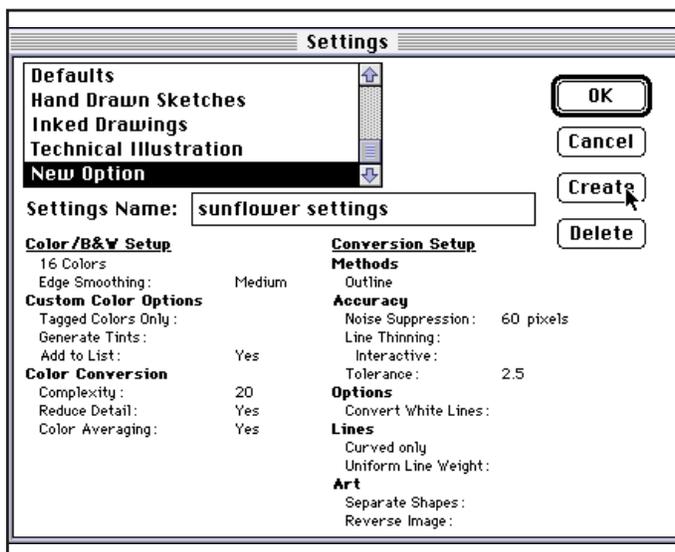
Naming Settings

If you make a change to either the Conversion Setup or Color/B&W Setup after you have saved your settings you will need to resave the new settings with a different name.

9. Once your settings are adjusted, you are ready to autotrace the image. Choose File > Convert and Streamline will begin the autotrace process. When the tracing is complete, choose File > Save Art As and save in Adobe Illustrator format. Streamline will add or replace a suffix of *.ai* to the file name.

Smoothing paths
If the shapes that Streamline created are too complex or have too many anchor points, use the Smooth Path feature. Select the path or paths that need simplifying. Choose Edit > Smooth Path. Choose Minimum, Medium or Maximum.

10. Open the *.ai* file in Illustrator. Choose Window > Show Swatches and view by Name. Notice that there are now several new spot colors at the bottom of the Swatches palette. They are named "Auto Color" followed by a number.
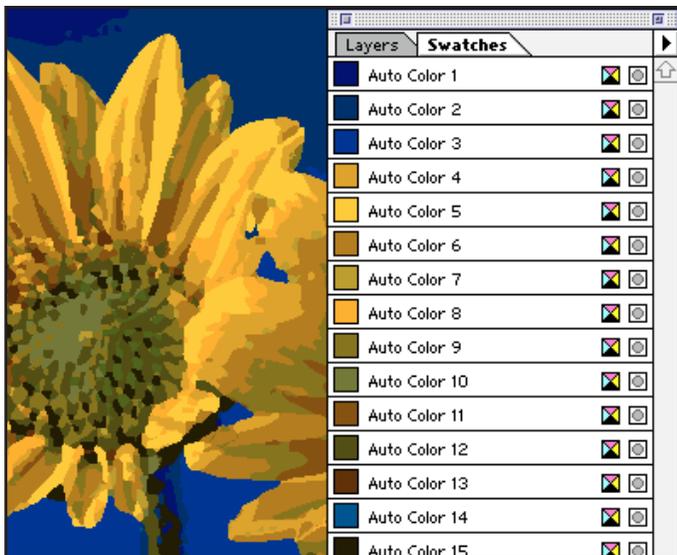
Auto Colors
The colors created by Streamline are named "Auto Color" and are spot colors in Illustrator.

11. To adjust or change a color, double click on an Auto Color in the Swatches palette. Move the Swatch Options dialog so you can see the image. Adjust the sliders to the desired color. The artwork will update in the window so you can preview the new color change. Click OK.
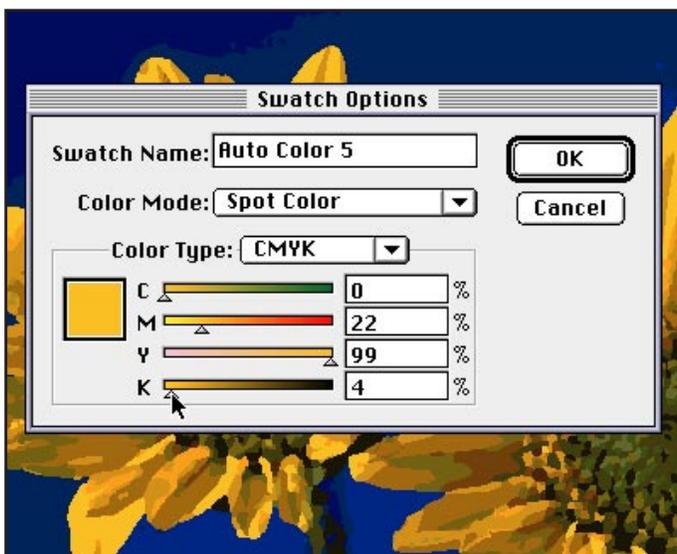
12. To adjust the tone of a spot color, select its name in the Swatches palette and move the slider in the Color palette. The new tonal value of the auto color can then be dragged to the Swatches palette. The added swatch will retain the original color name and have a percentage after it. You can then make a selection in your artwork and target the tonal color.
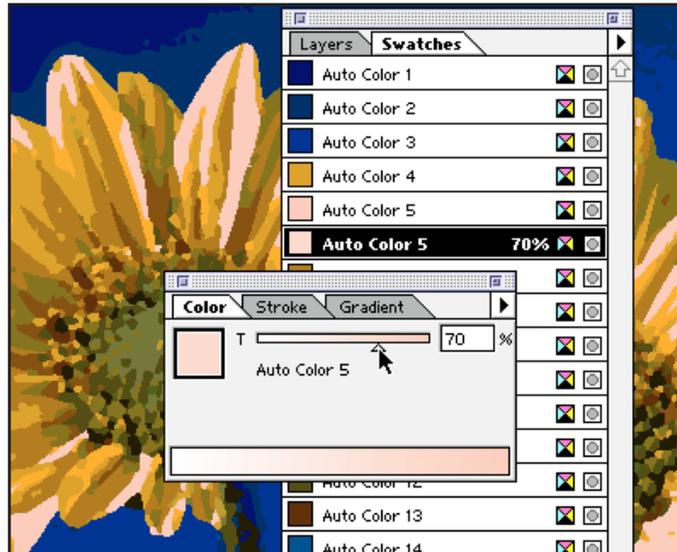
13. To clean up your file you may want to remove unwanted shapes, breakup complex paths or remove points from a path. To clean up shapes, zoom in on that area. Depending on the complexity of the image you traced, you might have some unwanted lumps and bumps in some of the paths. Use the delete anchor point tool, the scissors tool and/or the knife tool to simplify and split up paths.
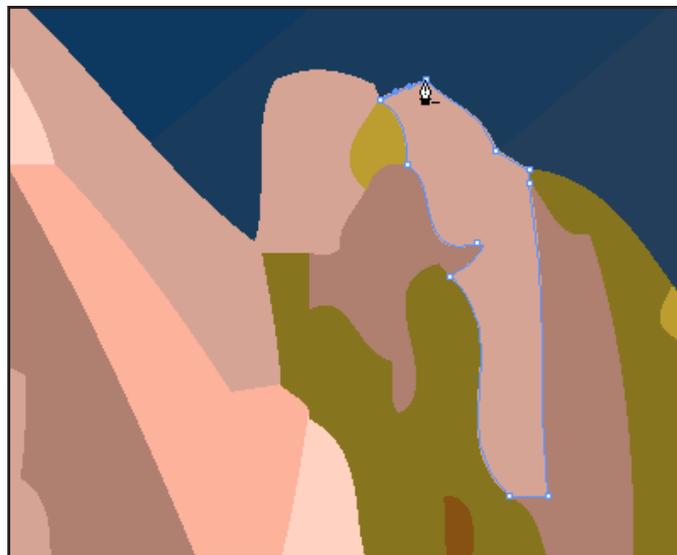
14. Once you've removed or simplified the really complex paths, you're done. In the image at the right, I added a gradient and a stroke to the background shape. This adds visual depth to the image.
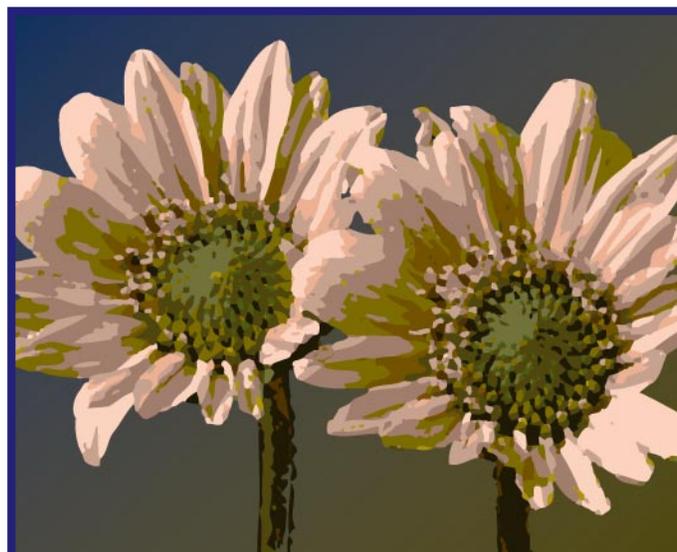
PS4.0, SL4.0, AI7.0

Adobe® Photoshop® 5.0 comes with more than 100 different Actions. Several of these Actions create frames. If you like the frame but want to customize it for your image, you can do so easily. In this technique, you will make a picture frame for your image and then change its color using an adjustment layer. Adjustment layers allow you to alter the color of the frame without losing its shading, beveling and texture.

Luanne Seymour Cohen, Adobe Imaging Evangelist, customizes Actions in Adobe Photoshop 5.0.

BEGINNER

QUICK PICTURE FRAMES

1. Open the image you want to frame. The image size must be more than 100 pixels in both width and height. This action works best on a flattened or a one-layer file. Here we are using the *Wilderness* file found in the Adobe Photoshop 5.0 Goodies Sampler folder.

⊚ Wilderness @ 100% (RGB)

100%   ⊚ Doc: 274K/274K
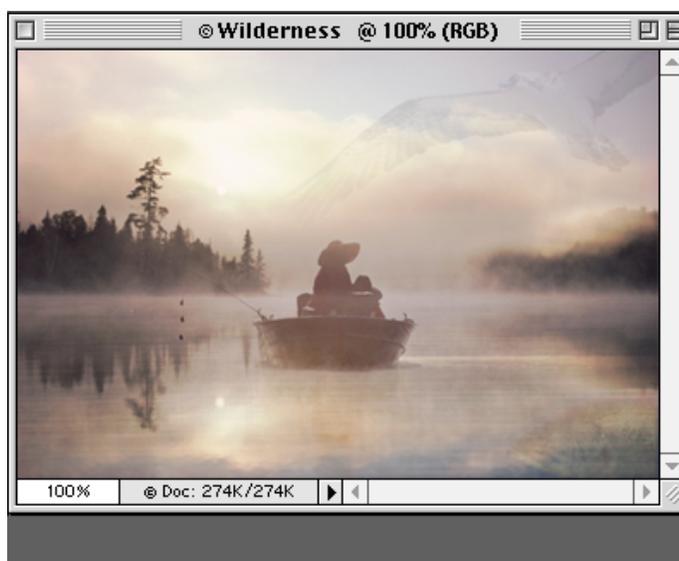
2. Choose Window > Show Actions to display the Actions palette. Open the Default Actions set.

Actions

✓ ▽ ☐ Default Actions
✓   ▷ Large Rectangular Button
✓   ▷ Large Square Button
✓   ▷ Large Round Button
✓ ▣ ▷ Vignette (selection)
✓ ▣ ▷ Frame Channel – 50 pixel
✓   ▷ Wood Frame – 50 pixel
✓   ▷ Cast Shadow (type)
✓   ▷ Clear Emboss (type)
✓ ▣ ▷ Custom RGB to Grayscale
✓ ▣ ▷ Custom CMYK to Grayscale
✓ ▣ ▷ Make Clip Path (selection)
✓   ▷ Sepia Toning (layer)

100%   ⊚ Do
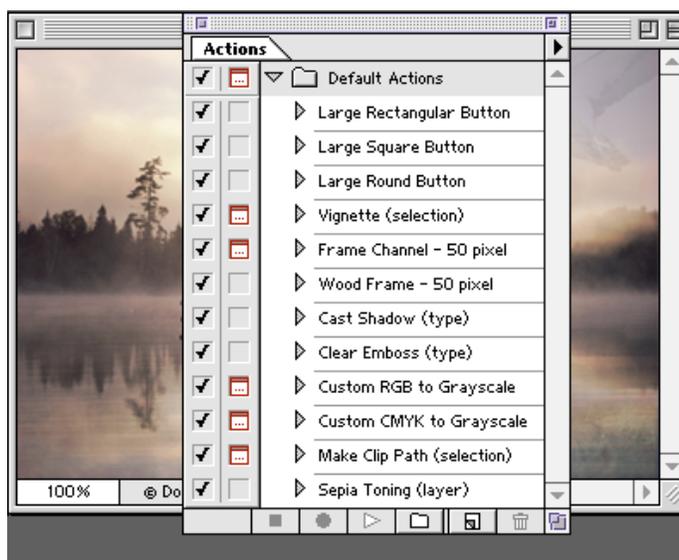
100 free Actions
Photoshop 5.0 ships with eight Action sets containing more than 100 different Actions. You can find them in the Goodies folder inside the Photoshop 5.0 application folder for both Mac and Windows versions.

3. Select the Wood Frame - 50 pixel Action and click the Play button. Once you click the Play button a dialog box will appear. Click Continue if you have at least a 100 pixel wide and tall image. Click Stop if your image is smaller than this. Applying the Action to your image will make your image 100 pixels wider and 100 pixels taller than the original image.
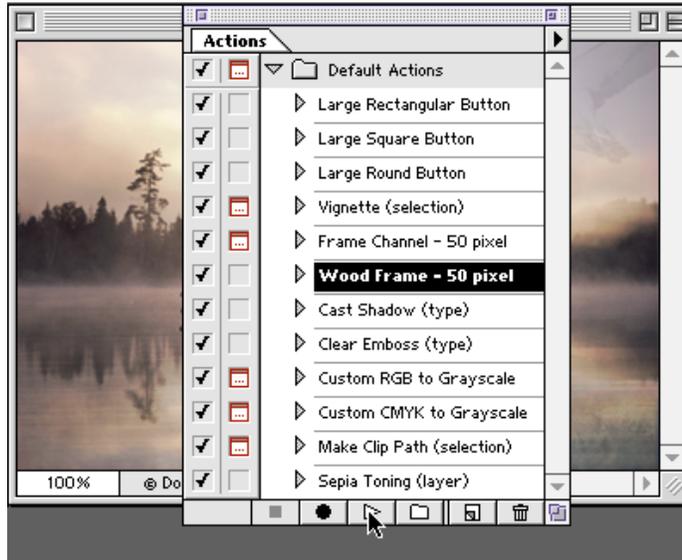
4. The Action creates a "wood" frame around your image. If you are satisfied with the image, save the file now and you are finished. If you want to change the color of the frame, go to step 5.
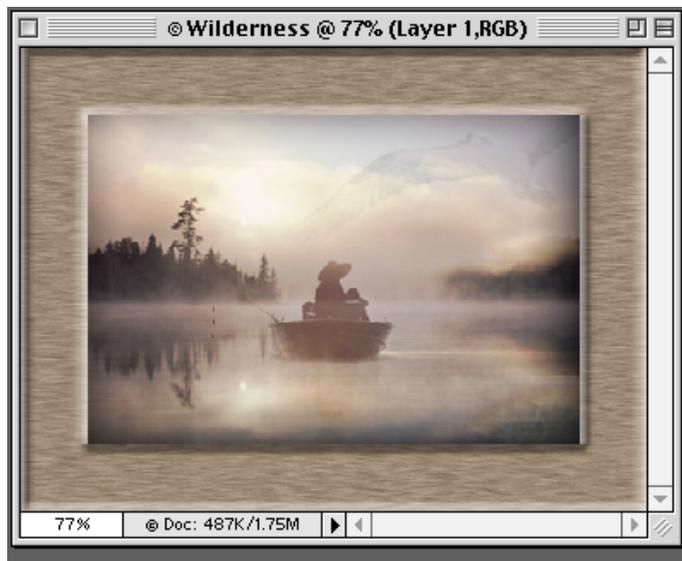
Layer Effects
To change a layer effect setting, double-click on the layer effect icon, located in the Layer palette.

5. Select the *frame* layer. From the Layers palette, choose New Adjustment Layer.
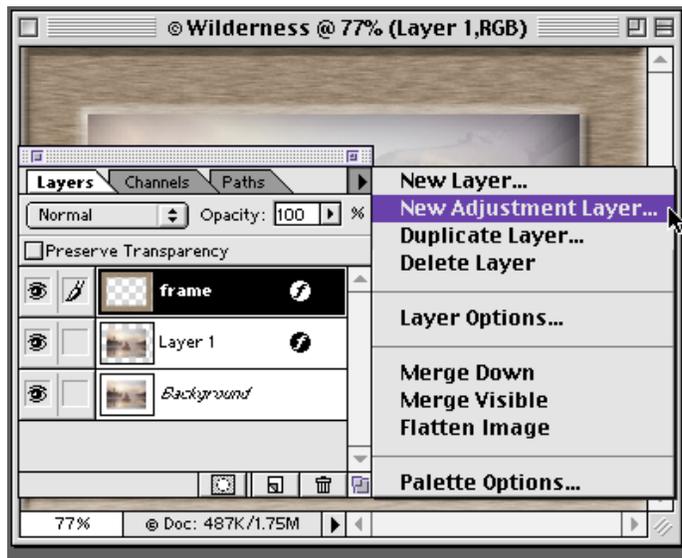
6. Choose the type of adjustment you want to make. In this case we want to change the color of the frame so choose Hue/Saturation. Click Group With Previous Layer so that the color adjustment affects only the *frame* layer.
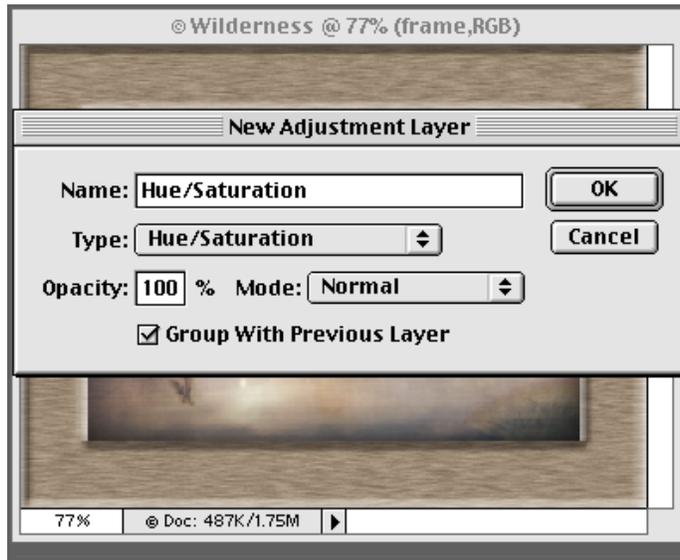
Adjustment Layers
If you want to experiment with color or contrast adjustments but you don't want to permanently change the original, use adjustment layers. They float above the layers you want to alter. If you don't like the effect, just double click on the adjustment layer and change the values. You can apply an adjustment layer to an entire file or to just one layer at a time.

7. Select the Colorize option. Then move the Hue slider until you find the color you want. To make the color more or less intense, adjust the Saturation slider. To make the color lighter or darker, adjust the Lightness slider.

8. Click OK to view the results. Remember, you used an adjustment layer for maximum flexibility, so you can double click on it at any time and change the values.

For all you Photoshoppers wanting your own slice of paradise, here is the tip for you! You will learn how to create your own rainbow using the new Photoshop gradient tool, along with channels and layer masks. It's a virtual pot of gold.

Adobe Senior Art Director
Russell Preston Brown in
a virtual paradise with
Adobe® Photoshop® 4.0™

INTERMEDIATE

RAINBOW IN PARADISE WITH PHOTOSHOP 4.0

1. Open the image you want to begin working on. As you can see, I have chosen an image that lends itself to a natural-looking rainbow, with a dark stormy background and front highlights.

Shortcuts
Throughout this document, "Command/Ctrl", means Command on the Macintosh and Ctrl on Windows. "Option/Alt" means Option on the Macintosh and Alt on Windows.

2. Open Gradient Tool options by double-clicking on the Gradient tool. Click the Edit button to bring up your Gradient Editor dialog box.
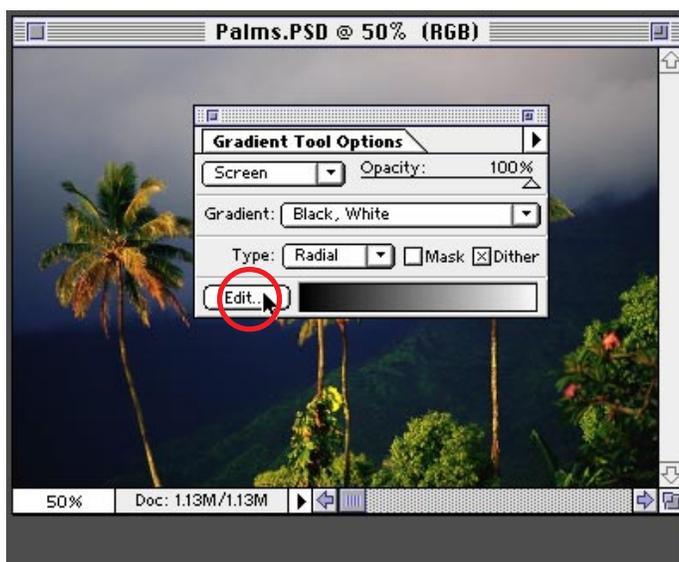
3. Next, select New to begin creating your rainbow gradient. Once you name the new gradient, start adding colors by simply clicking below the gradient bar. Edit your new color by clicking in the color swatch area.
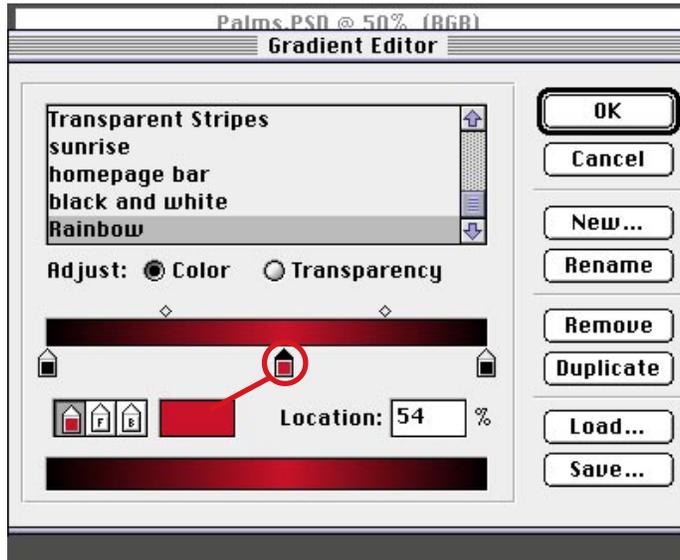
Duplicating Colors
By holding down the Option/Alt key while clicking on any color square, you can duplicate that color.

4. The key step here is to make sure that your color bands are at one end of the bar, as in the example shown. I've chosen the following simple set of four colors: 28-137-18 / 210-255-0 / 255-60-0 /0-0-0 for black

You can also experiment to find your own color solutions, if so you might be tempted to create that soft blend right here–but don't do it! We will do that later. Click OK once you have the gradient you want.
Download gradient for PC
Download gradient for Mac
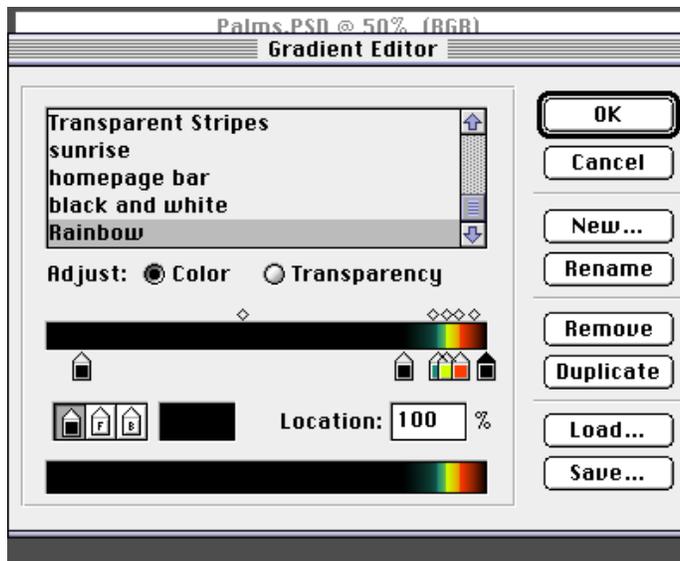
Tab Tab Tab!
When your colors are close together, use the Tab key to move through your selections to ensure you don't accidently select the wrong one.

5. Finally, set the Type of gradient to Radial.
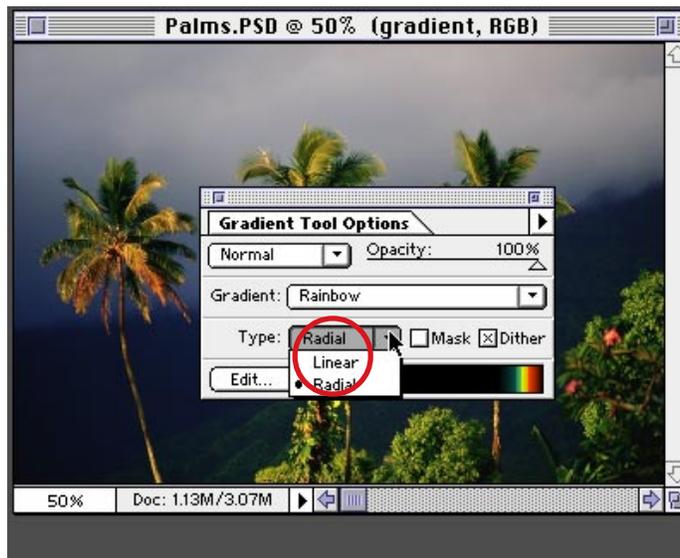
6. Create a new layer for the rainbow by pressing the new layer icon. Then zoom out so that you can start the gradient well below the actual image.
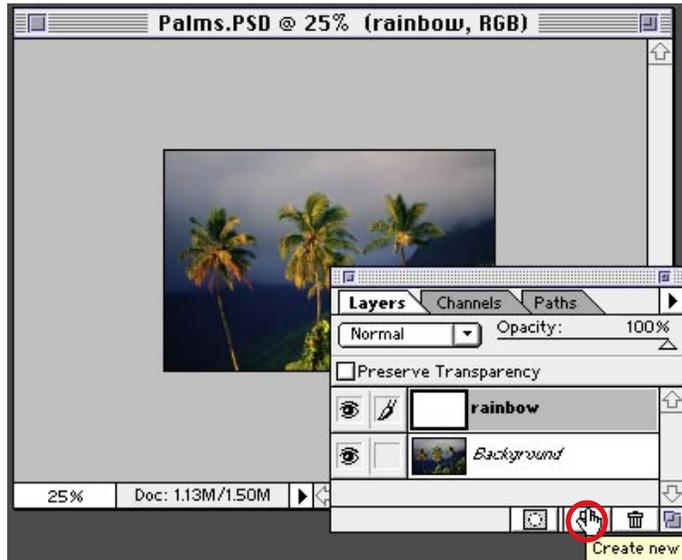
7. Click and drag your gradient tool about two-thirds the way up the image. Yikes! Right away you will notice two obvious problems: The gradient will be black with harsh bands of color.
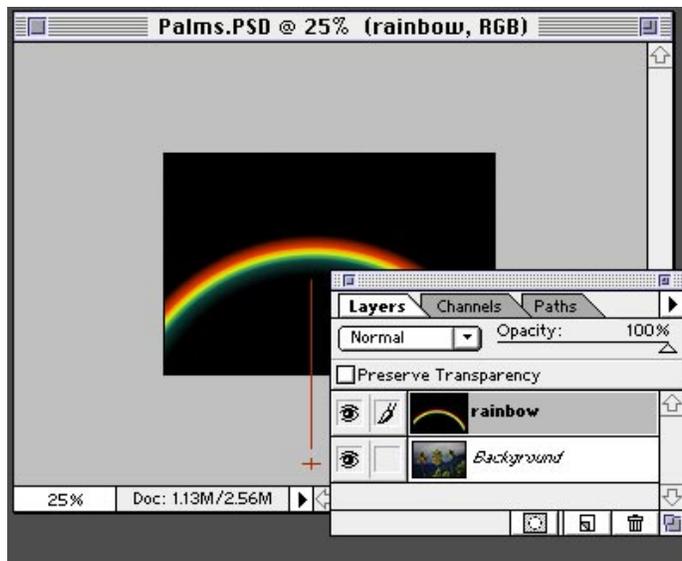
8. So first, set the Layer mode to Screen and move the opacity back to 60%.
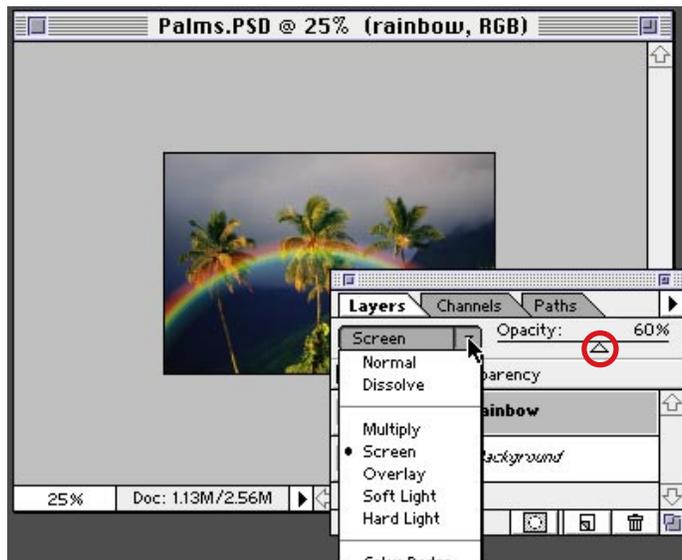
Screen Mode
This Blend mode is like taking two separate transparencies and projecting them on top of each other. Resulting colors will always be lighter. Black will change nothing and white remains white.

9. Next we want to soften the bands of color. Choose Filter > Blur > Gaussian Blur. Your image resolution will determine how much you will want to set your blur to. I chose about 9 pixels for this 72-dpi image.

There is still one thing that we need to do. We need to make the rainbow appear as though it's coming from behind the trees. We can do this using a simple layer mask.
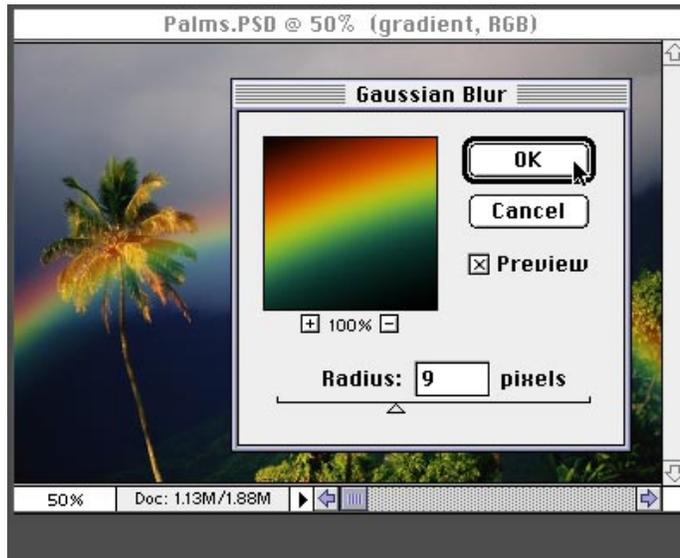
10. You could paint a mask to hide parts of the rainbow or start with one of the channels in your image. I am going to use the channels, but some photos may not work as well as this one. First turn off the Rainbow layer (click on the eye next to the layer) and go to the Channels palette. Now, view each channel separately to find which one has the best contrast to make a layer mask.
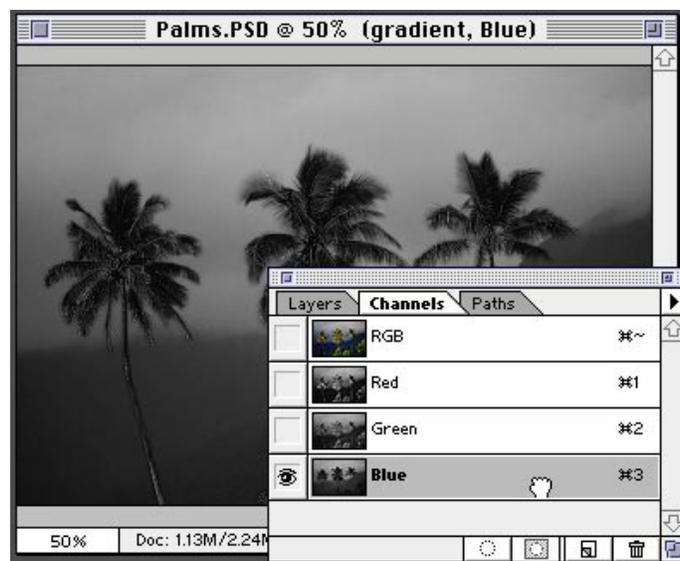
Display Shortcut
To go through your channels quickly you can use these shortcuts:
Command/Ctrl+1 = Red
Command/Ctrl+2 = Green
Command/Ctrl+3 = Blue
Command/Ctrl+~ = Composite

11. Duplicate this channel by dragging it over the new channel icon. To heighten the contrast as I've done, you can adjust the levels by choosing Image > Adjust > Levels.
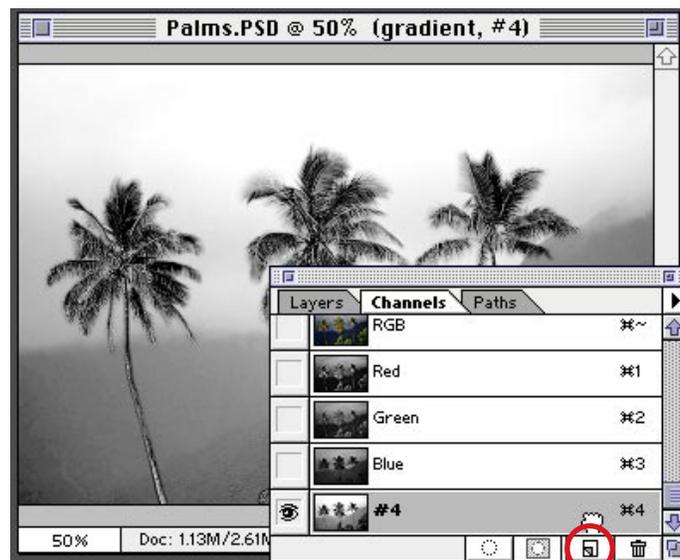
12. Turn this new channel into a selection either by dragging it over the dotted circle at the bottom or using the shortcut: Command/Ctrl + click on the target channel.
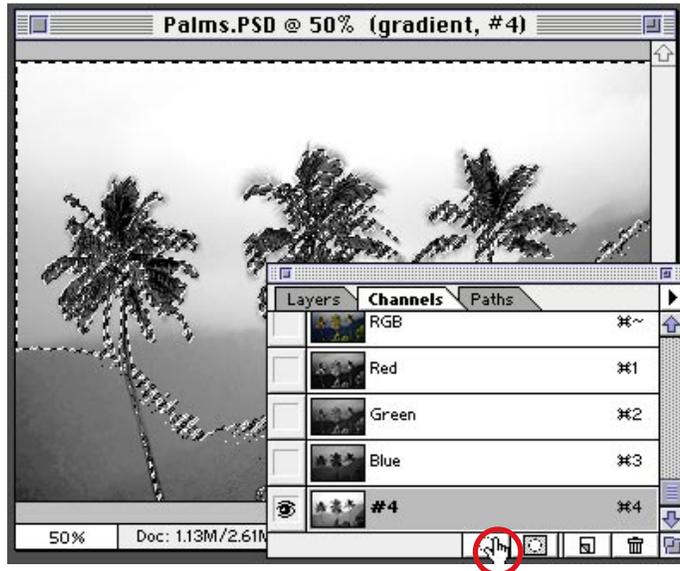
13. Switch back to the composite channel and then back to your Layers palette. Target your rainbow layer. With the channel as your selection click the layer mask icon.
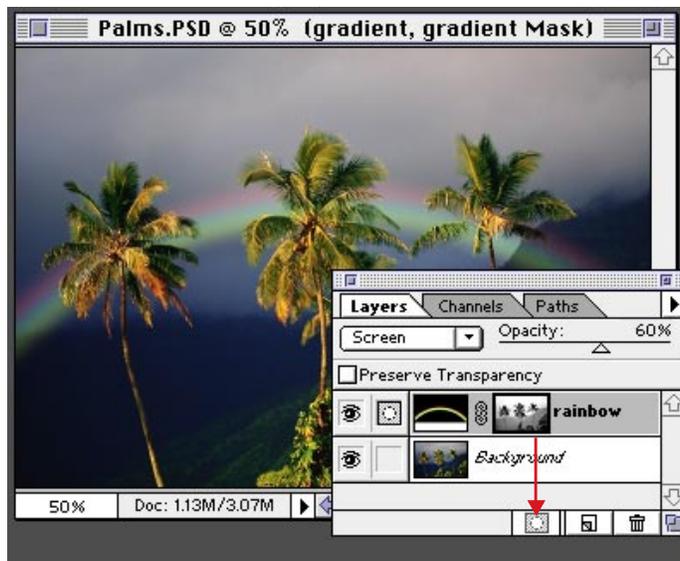
14. There you have it! The perfect rainbow in paradise.
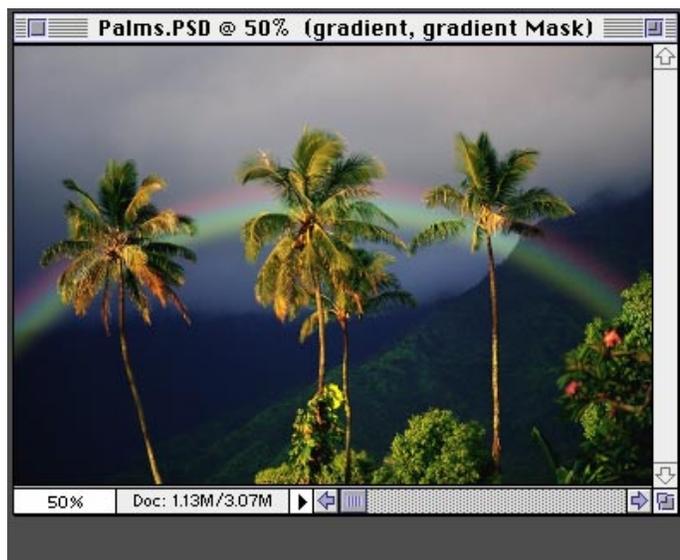
Repairing Digital Photographs

Adobe Senior Creative Director
Russell Brown shows you how to repair your
digital images with Adobe® Photoshop®

ADVANCED

Adobe

In this demo, we will repair a photograph taken with a low-resolution digital camera—in this case, the Kodak DC50. Often these cameras produce excellent results, but they have a few deficiencies that can be repaired digitally using layers. This technique is also quite useful for repairing badly scanned images.

REPAIRING DIGITAL PHOTOGRAPHS, PART 1

1. Open your digital image file in Photoshop. Zoom in on the image and take a close look at the problem areas, especially noting the skin tone in this image.
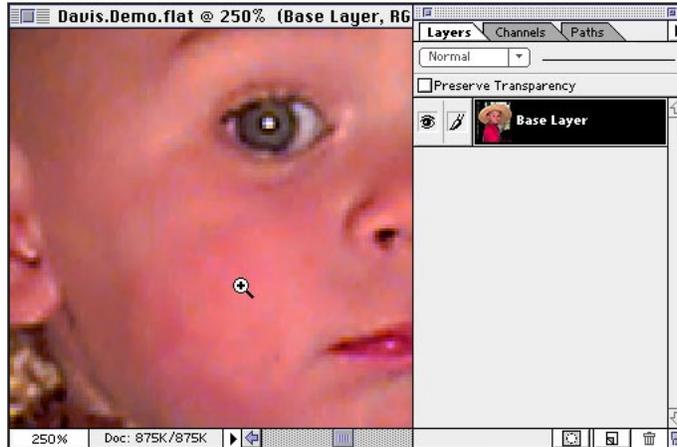
Preferences
For this demo, we chose Preferences > Display & Cursors, and selected. Brush Size and Precise.

2. Go through the RGB channels. Press Command/ Ctrl+1 for the Red channel, Command/Ctrl+2 for the Green, and Command/ Ctrl+3 for the Blue channel. Notice the artifacting and extra noise in the Blue channel. The Blue channel is the telltale channel of a scanned image and often will show the errors of the scan.
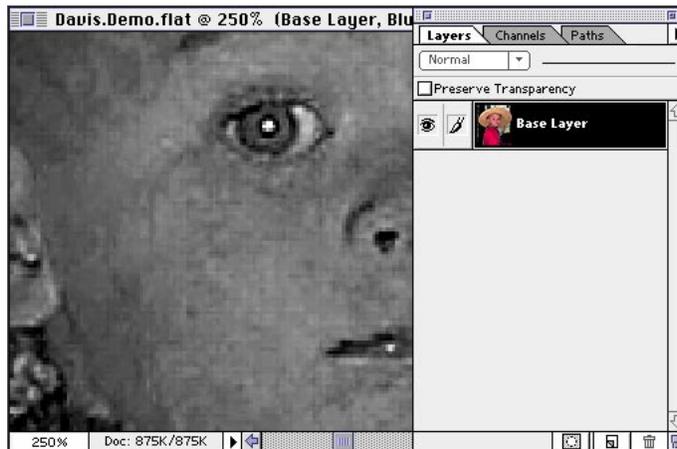
Blue channel
The CCD (Charged Couple Device) in the camera is least sensitive to the blues, and it is more difficult to interpret those colors. Also, when you capture an image with a digital camera, it's compressed with JPEG compression. The combination of these two factors creates noise in the blue channel.

3. Zoom out of the image and return to the RGB composite. Here's how to easily fix this image using Photoshop layers. Duplicate the Base Layer by dragging it onto the New Layer icon at the bottom of the Layers palette. Double-click this new layer and rename it Color Blur.
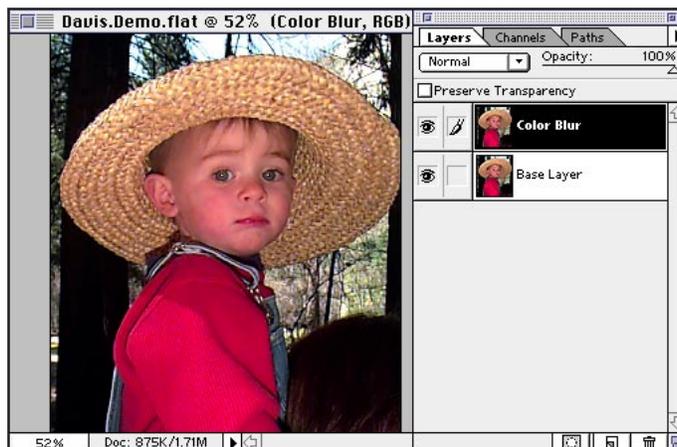
Shortcuts
Throughtout this document, "Command/Ctrl" means Command on the Macintosh® and Ctrl on Windows®. "Option/Alt" means Option on the Macintosh and Alt on Windows.

4. Choose Filter > Blur > Gaussian Blur. Choose values based on the resolution of the image. You want to soften the image—not lose the image completely, but soften it—especially in the troubled area of the blue channel.
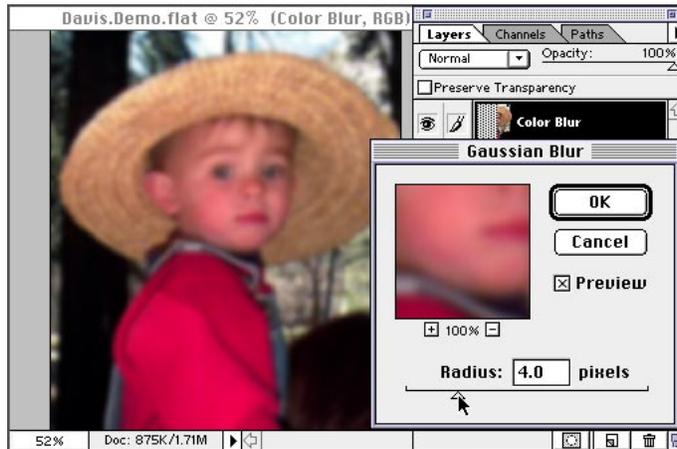
5. With the Color Blur layer still targeted, create an overlay of the two layers using Color mode from the pop-up menu in the Layers palette.
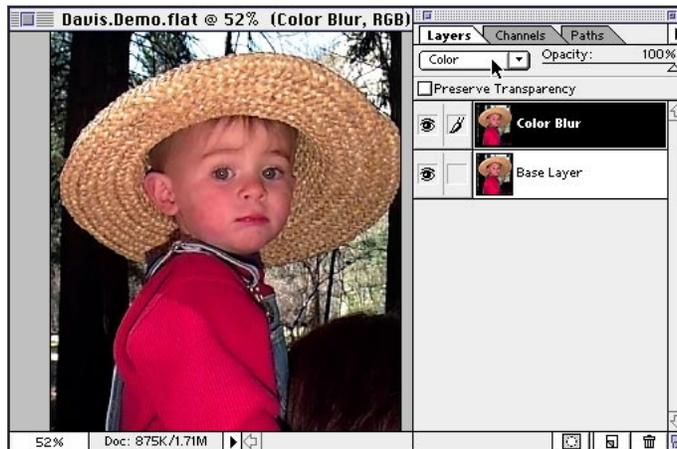
Color mode

Colors are overlaid on the existing pixels while the highlights and shadows of the base color are preserved. The base color is not replaced, but is mixed with the blend color to reflect the lightness and darkness of the original.

6. Zoom in to the image and look at the same area. Press Command/Ctrl+3 to go to the blue channel again. See how the noise has been smoothed out. Amazing but true! But wait, there's more...
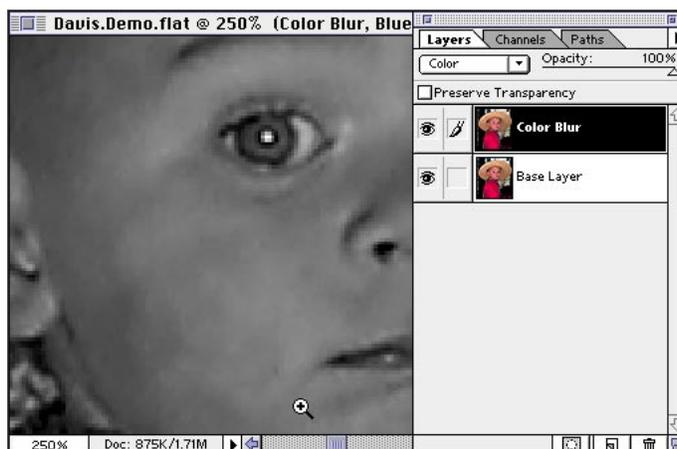
7. Let's continue working with this image and give it more of a portrait look by softening the focus of the image, as if it were shot through a special filter. Duplicate the Color Blur layer by dragging it to the New Layer icon, and then double-click the new layer and rename it Soft Focus.

8. With the Soft Focus layer targeted, change the mode back to Normal and set opacity to 30%. This creates a nice soft look around the edges of the image, especially the face, hair, and hat areas.
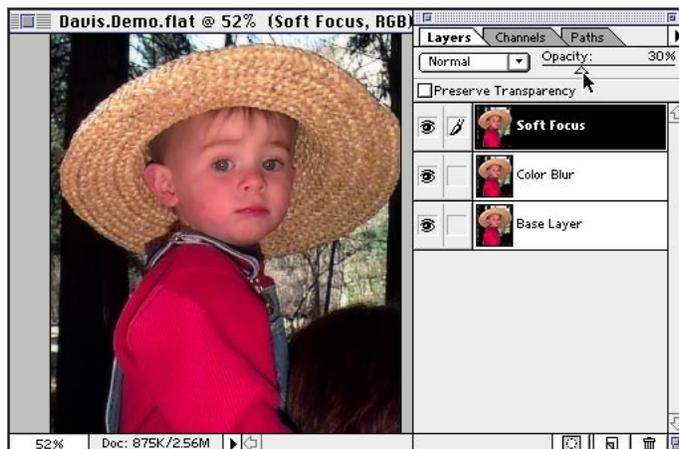
Opacity Tip
When a selection tool is active, pressing any of the numeric keys changes the opacity to the corresponding percentage. Press 1 for 10%, 0 for 100%, and so on.

9. The eyes are also being softened, which is not something we want, so we will create another layer to sharpen parts of the image. Duplicate the original Base Layer, and then move it to the top (above the Soft Focus layer). Name this layer Sharpen Details.

10. Create a new layer by clicking the New Layer icon, and then move it to the bottom of the stack. Option-click the eye icon for this layer, and then choose Select All and fill the layer with white. Deselect. This new layer is needed only to preview the effects of blending layers—which you are about to see.
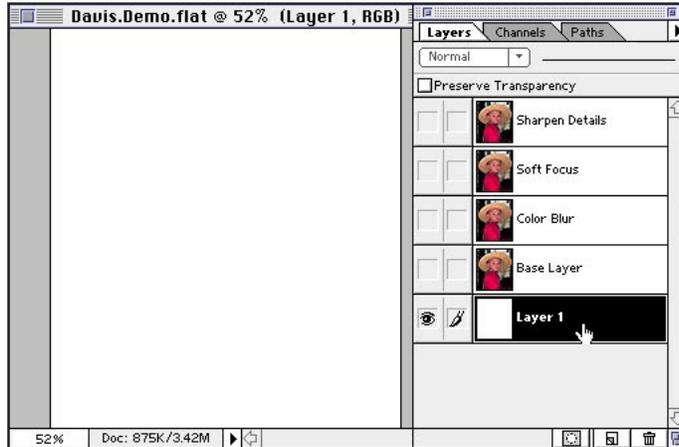
Fill shortcut
Pressing Option/Alt+ Delete fills the area with the foreground color. Pressing Command/Ctrl+Delete fills the area with the background color.

11. Click the eye icon for the Sharpen Details layer so that only the bottom and top layers are visible. Target the Sharpen Details layer.
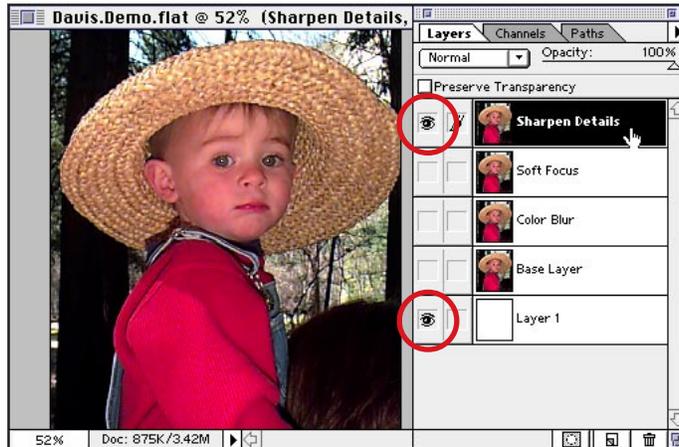
12. Now we will isolate the areas of this layer that need to overlay the image. Double-click the layer to bring up the Layer Options dialog box. Make sure Preview is checked. Move the This Layer high-value range slider (white triangle) to the left. Notice that areas of the face and hat are being eliminated.
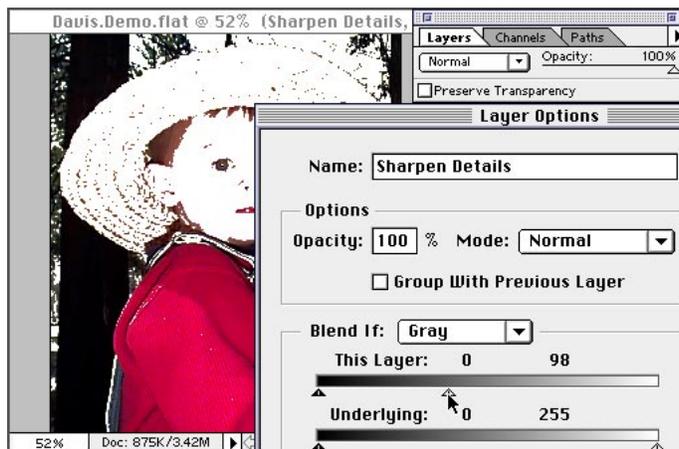
Blending Layers
The sliders here let you define which pixels are blended by indicating a range of brightness values for the replace-ment pixels. In our example, the highlight range was split to soften the layer, giving it a semi-transparent and fogged look. The further apart the triangles, the softer the appearance of the layer.

13. The transition is very harsh and needs to be softened. Option/Alt+click the white triangle slider, and move half of the triangle to the left. Splitting the triangle softens the transition. Move the two half-triangles around to achieve a soft look, being sure not to add back detail where you don't want it.
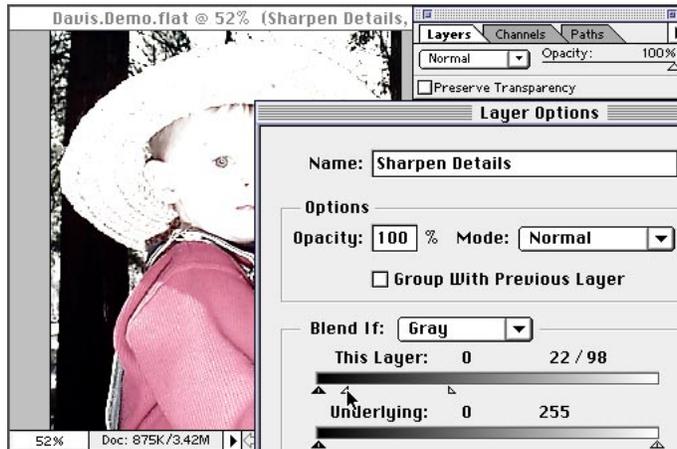
14. The face has been adjusted fine, but too much of the red shirt is showing. Select the Red channel in the Blend If pop-up menu. Now adjust the slider to isolate the reds. Remember to split the slider to soften the image. Go back to the Gray channel to do any final adjustments, and then click OK.
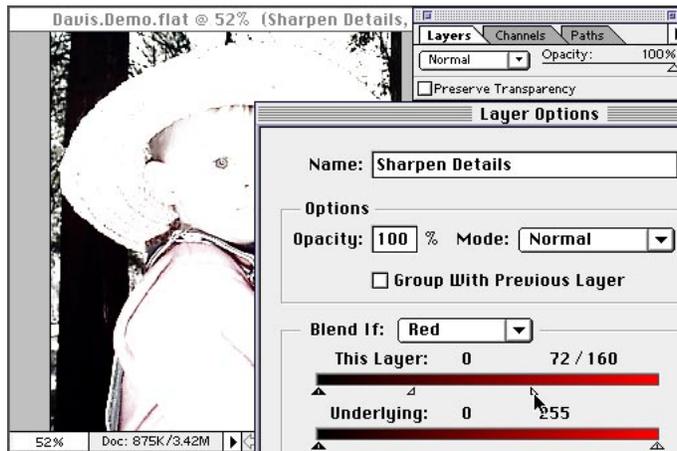
15. Click the eye icon to view the other layers and turn off the bottom layer eye icon. Looks pretty good! On to the next phase.

Before and after
To see the effects of sharpening, click the eye icon on and off next to the Sharpen Details layer. This trick can be used on any of the layers.

6

16. Another thing we can do to this image is to bring back some of the white in the eyes, which was dimmed when the soft blur was applied. Zoom in on the eye and target the Soft Focus layer. To bring back the detail, we will make a layer mask. Press Comand/Ctrl-click the New Layer mask icon at the bottom of the Layers palette to add a layer mask.
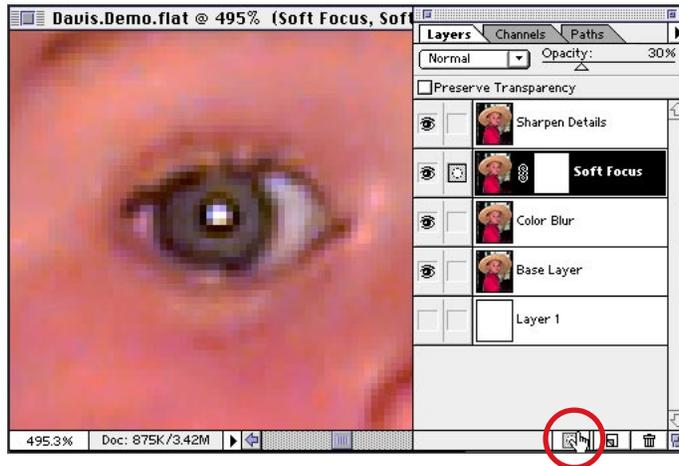
Add Layer Mask
A layer mask can be added to any layer to isolate particular areas you don't want affected.

17. Choose a small brush, set the opacity to 50%, make sure the foreground color is black, and begin painting in the area of the eye where you would like to bring back that nice white highlight. Notice that you are painting on the layer mask, and not directly on the image.
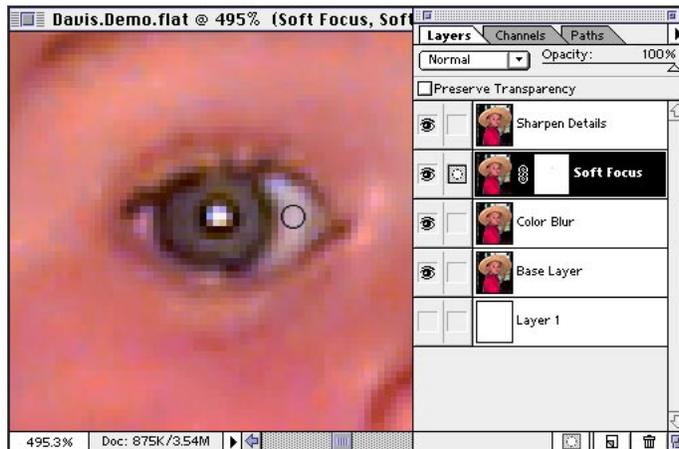
18. Zoom out to view the larger image. Very nice!

Continuing to work with the same digital image, I'd like to alter the focus range. Low-resolution digital cameras offer no control of depth of field, but we can add a professional quality to the image—as if there were a depth of field control. To do this, we will first separate the little boy from the background, and then we'll blur the background.

REPAIRING DIGITAL PHOTOGRAPHS, PART 2

1. With your digital image file still open in Photoshop, save a version with all the layers. For this exercise, we need to flatten the image so that it becomes one composite layer. After saving, choose Flatten Image from the Layers Palette pop-up menu.
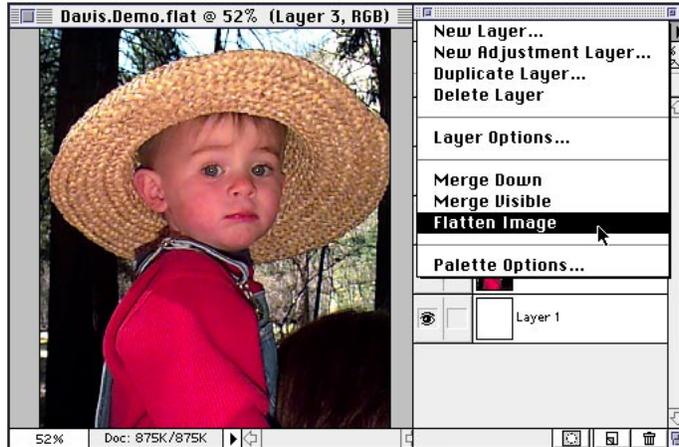
2. Now we need to create a selection mask so that the little boy in front can be separated from the background image. Zoom in on the edge of the hat. Double-click the paintbrush tool to bring up the Paintbrush Options palette. Select 100% opacity, and on the Mode pop-up menu, choose Dissolve. Select a large hard-edge brush from the Brushes palette.

Dissolve mode
Dissolve gives the brush a ragged, rough, dissolving quality which takes on some of the quality of the edge of the hat in the image. This allows us to simulate the same grain of the photo so the mask will not look fake.

3. Make sure the default foreground and background colors are black and white respectively (press D on the keyboard). Then choose the Quick Mask mode on the Tool palette, just below the background color.

Quick Mask mode
With Quick Mask mode on, you can paint directly on the surface of the image, without affecting it, to make a mask. Press Q to toggle between Quick Mask mode and Standard mode.

4. Begin painting on the inside edge of the hat. Notice that you are painting with the Quick Mask paintbrush. Paint all the way around the edge of the hat in Dissolve mode to get the rough texture of the hat. You could never achieve the same quality of selection with the lasso tool. This gives you a much more natural selection.

Mask
You can add and subtract from the mask while painting by switching your foreground color from black, which adds to the mask, to white, which subtracts from the mask. Pressing X on the keyboard toggles between the foreground and background color.

5. Choose Normal mode, and continue painting along the edge of the shirt and overalls. The Normal brush works here because the edge is softer and smoother.
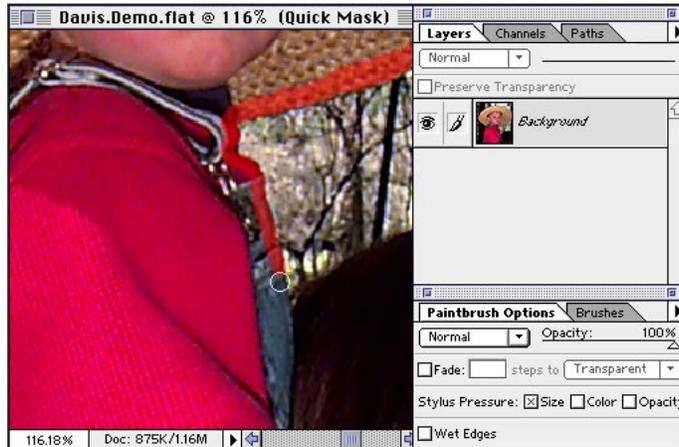
6. Make sure that there is a continuous outline of the quick mask around the little boy, and then select the bucket tool from the tool bar. Click in the middle of the Quick Mask outline to fill the area with the quick mask.
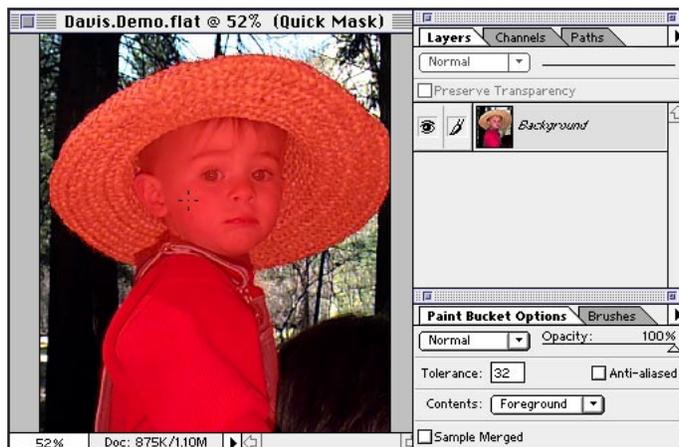
7. Return to Selection mode by clicking the icon to the left of the Quick Mask icon or by pressing Q.

8. Go to the Channels palette, and click the Selection icon at the bottom to save the selection as a channel.
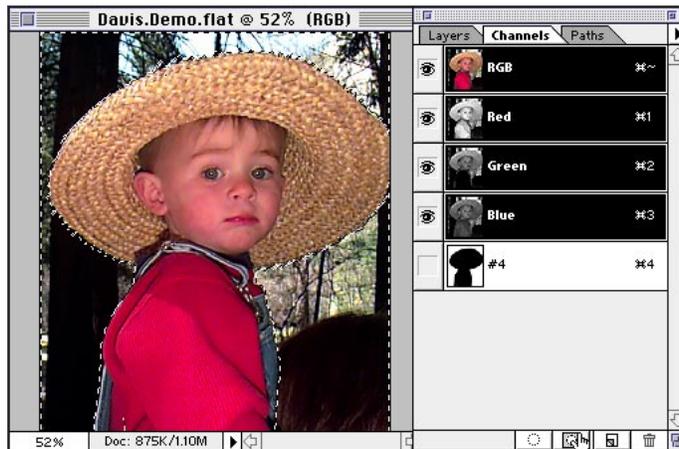
9. Deselect. Click the new channel to view it and make it active.
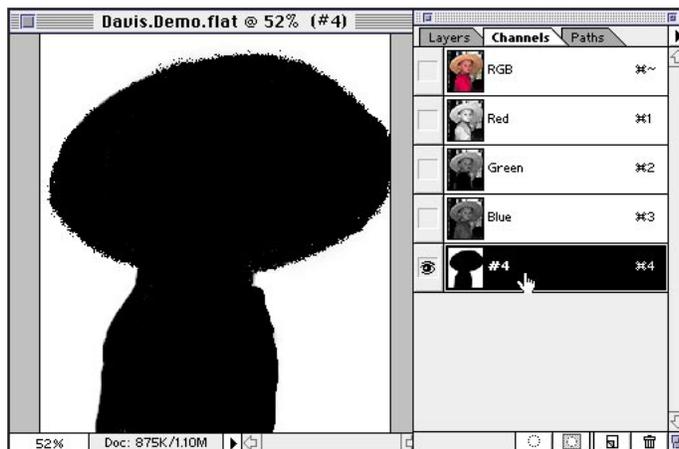
10. Because we used a hard-edge brush, the edge of this channel needs a little softening. We will give it just a little bit of blur. Choose Filter > Blur > Blur More.
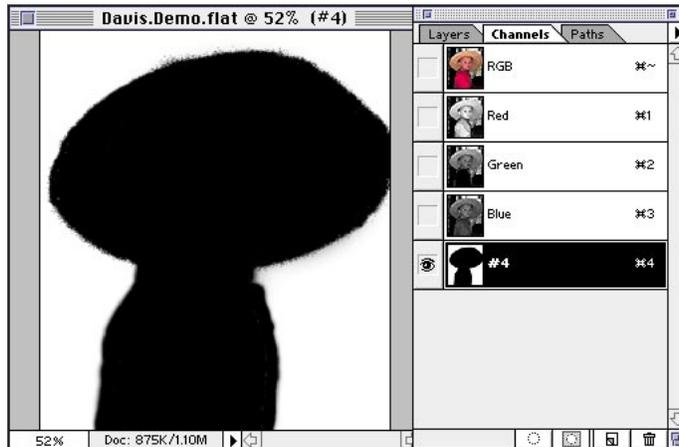
Blur More filter
The Blur More filter smooths transitions by averaging the pixels next to the hard edges of the defined lines and shaded areas. It does this three to four times more than the Blur filter.

11. Click the RGB composite channel, and then Command/Ctrl+click the Mask channel to load the selection.
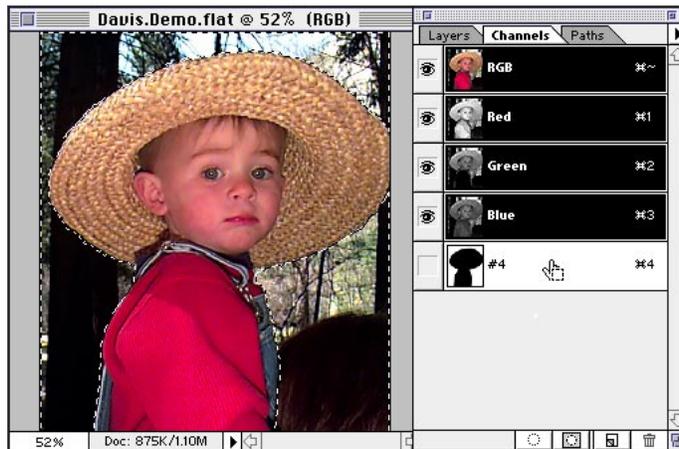
12. Return to the Layers palette. Now choose Layer > New > Layer Via Copy to place a copy of the background selection over the image. Double-click the new layer and name it Background blur.

REPAIRING DIGITAL PHOTOGRAPHS, PART 2

13. With this new layer targeted, turn off the view of the Background layer by clicking the eye icon. You can see that the background has been isolated from the foreground (the little boy).
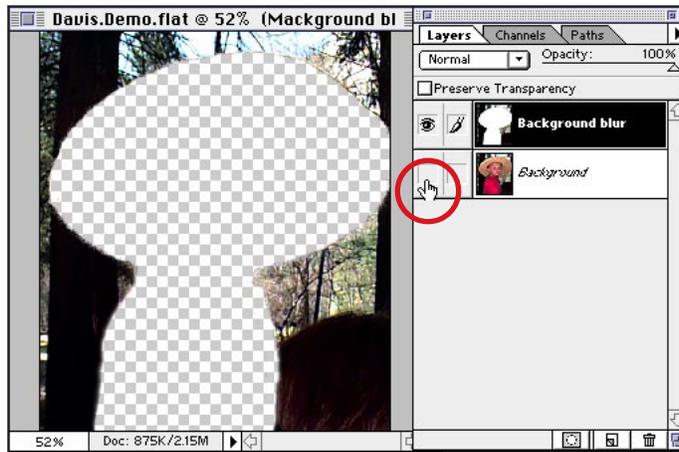
14. Now we will blur the background, yet make it look realistic against the boy. Choose Filter > Blur > Gaussian Blur. Your blur value will vary, depending on your resolution. Click OK.

15. Click the eye icon on the Background layer to view it again. There is a problem; the blur is blurring into the hat. To fix this, choose Layer > Matting > Defringe. The amount of defringe you use will depend on the resolution of your image and the quality of the edge. View your results. Excellent!

Defringe
Defringe will push the blur back to meet the edge of the hat. This gives a more solid and resolved edge against the hat and bleeds underneath the hat.

12

Russell Brown,
Senior Creative
Director at
Adobe Systems,
shares some
super tips and
techniques for
preparing
images for the
**World Wide
Web** in Adobe®
Photoshop® 4.0

INTERMEDIATE

Russ Goes Surfing with GIF

Adobe
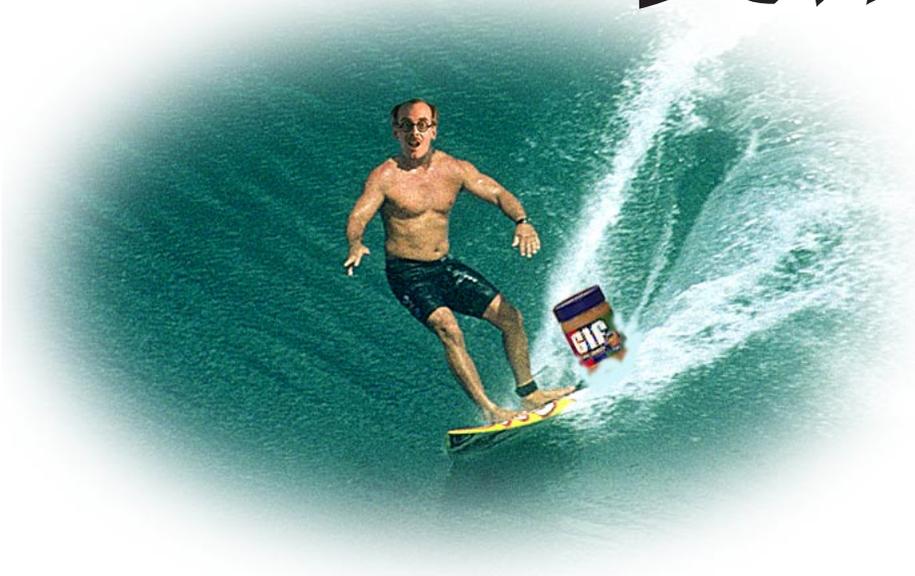
OK, Web surfers. I have a great tip and technique just for you. I'm going to show you how to magically make a color in an indexed color image appear transparent in one area and opaque in another. "How can I use this?" you ask. Well, it's a great way to see through a background color but not disturb that same color inside the image.

CREATING TRANSPARENT AREAS WITH A CHANNEL MASK

1. Open an indexed color image that has a solid background that you want to remove. This image has a black background and black outlines inside the letterforms. (If the background color doesn't also appear within your image, you don't need this technique. The tools in the GIF Export filter let you mask out any single color throughout the image.)

2. Double-click the magic wand tool in the toolbox. This image has an anti-aliased edge, so increasing the tolerance ensures that the selection eats into the colored foreground edges and eliminates any black halo around the selection. Here I chose a Tolerance of 60 and, checked the Anti-aliased option.

3. Now click all the areas in the image that you want to be transparent on your Web page. Remember, the Shift key lets you add to the selection; the Command/Ctrl key lets you subtract from the selection. When everything that you want to be transparent is selected, choose Select > Inverse. In my image, this selects everything but the background.

Shortcuts
Throughout this document, "Command/ Ctrl", means Command on the Macintosh and Ctrl on Windows.

CREATING TRANSPARENT AREAS WITH A CHANNEL MASK

4. Choose Select > Save Selection, and save this selection as a New channel. Click OK.

5. Deselect (Command/ Ctrl+D). Then choose File > Export > GIF89a Export.
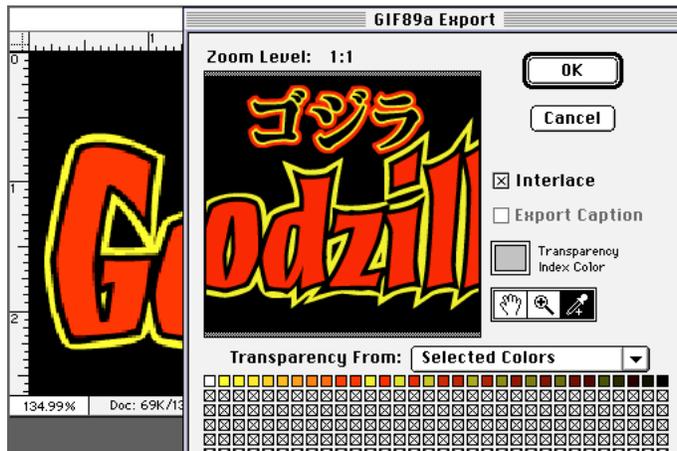
6. Just to make sure you understand why we made the mask, let's first use the eyedropper to select the background color in this image and make it transparent. Aha! Our dilemma is clear: All the blacks in the image become transparent, including the outlines around the letterforms.
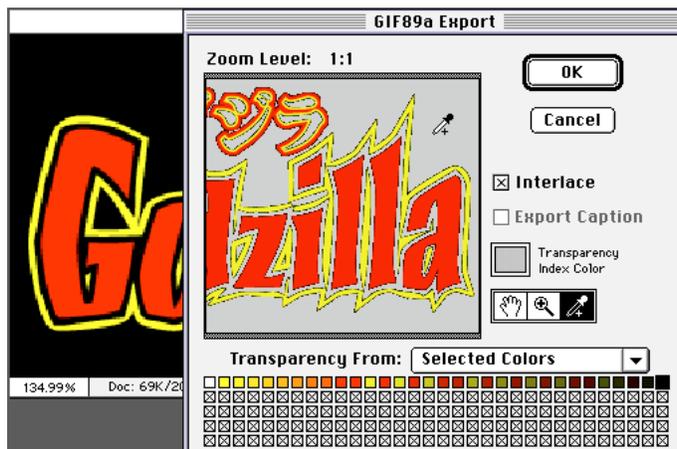
CREATING TRANSPARENT AREAS WITH A CHANNEL MASK

7. Now for the simple solution: Choose the channel you just created from the Transparency pop-up menu to load your background mask. In this example, my mask is in Channel #2. Notice how nicely the mask takes out the background without affecting the inner areas of the image.
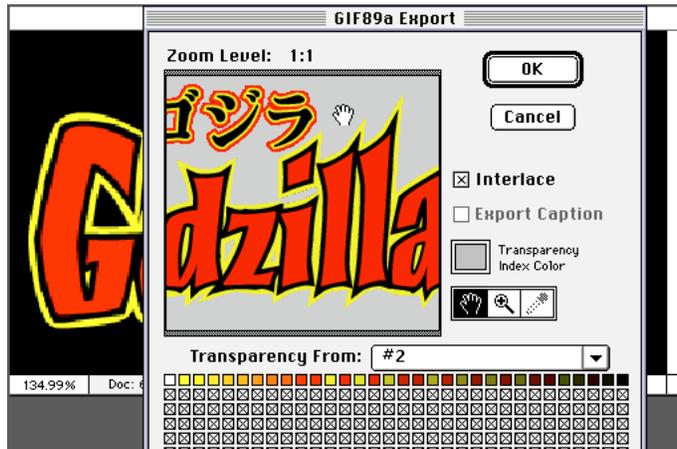
8. To create the GIF file, click OK to export the results. Notice that the name of the file has been appended with the extension .gif. Be sure to save your file with a nice short name with no spaces so that it's compatible across multiple computer environments.

9. Here is the final image placed in the Web page.
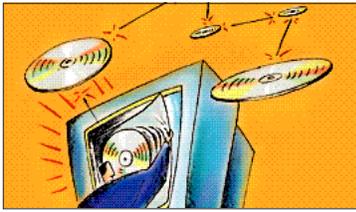
Surf's up, Web-heads. I've got a great Web design tip for you. I'm going to show you how to create an irregularly shaped, soft-edged graphic that looks good on your Web pages.

CREATING IMAGES WITH A SOFT EDGE

1. Open the image you want to use. Make sure that the image is a 72-ppi RGB image displayed at a 1:1 magnification. (This is how the image will appear on the Web.) If it's already an indexed color file, convert it to RGB mode for this technique. Double-click the lasso tool and increase the Feather value. (I used 10.) Make sure that Anti-aliasing is checked.

2. Make a selection around the image or area that you want to appear on your Web page. Hold down the Alt/Option key to constrain the lasso tool to straight lines. Note that the pen tool is a great means for making a more complex selection, since you can edit your pen tool path before you convert it to a selection. Choose Select > Inverse to invert the selection.
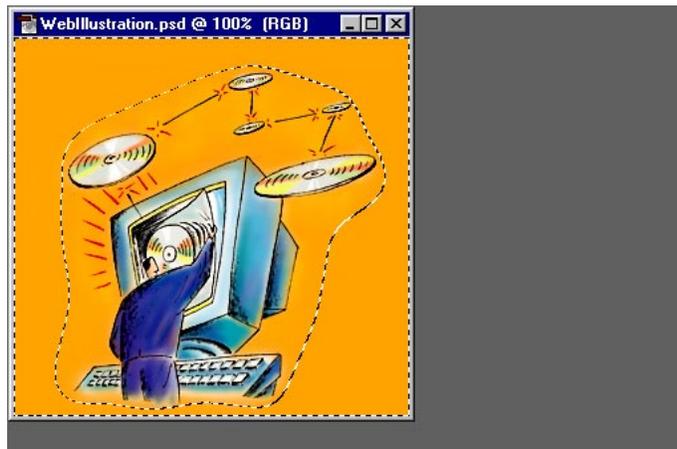
Shortcuts
Throughout this document, "Alt/Option" means Alt on Windows and Option on the Mac.

3. If this is a single-layered document, double-click the Background layer in the Layers palette and give the layer a new name.
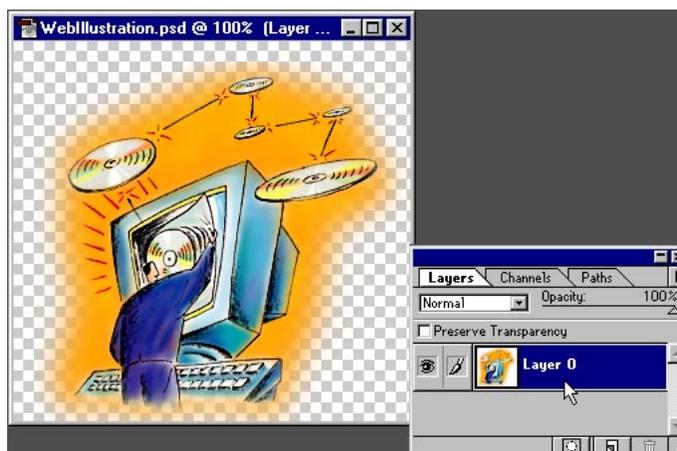
Layer Redefinition
Redefining the Background layer as a non-background layer lets you delete to transparent instead of to the background color.

5

CREATING IMAGES WITH A SOFT EDGE

4. You're now ready to export the image to GIF. Choose File > Export > GIF89a Export. If the filter doesn't appear in the Export submenu, reinstall the filter or check your Plug-in Preferences to make sure that the correct plug-ins folder is selected. Click the Transparency color box and select your transparency color if it is something other than the standard Netscape gray.
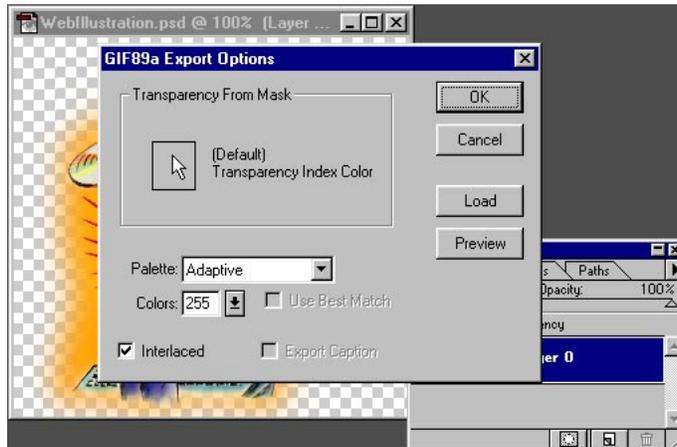
5. Preview the image and experiment with reducing the number of colors in the Adaptive palette. The fewer the colors in the image, the smaller and faster the image will be for display and when downloaded over the Web. With larger images, choosing fewer colors can make a big difference in file size; with smaller images, the difference is less significant.
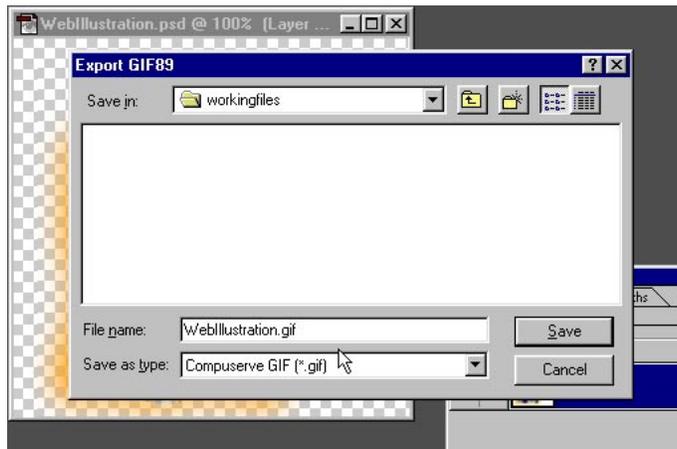
6. To finish, click OK in the GIF89a Export dialog box to export the file. Notice that the name of the file has been appended with the extension .gif. Be sure to save the file with a nice short name with no spaces so that it is compatible across multiple computer environments.
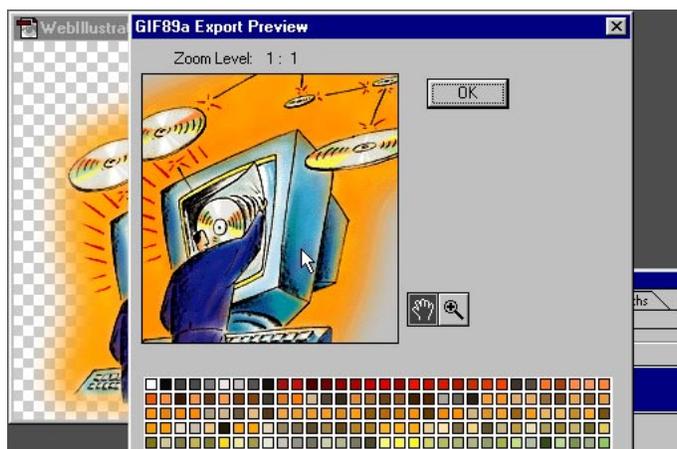
6

Ever found yourself trying to make an elliptical selection with a round tool? Well here are a couple of great new ways to get a handle on time and learn some Adobe® Photoshop® 5.0 timely techniques.

Adobe Senior Creative Director Russell Brown makes selections the easy way with Photoshop 5.0.

INTERMEDIATE

TIMESAVING SELECTIONS

1. The goal of this project is to make elliptical selections easily and quickly. We'll start by making a standard selection with the ellipse tool as shown in this image. We can access the ellipse tool by clicking and holding the marquee tool on the tool palette. No need to make the ellipse selection exact. That's the beauty of this technique.
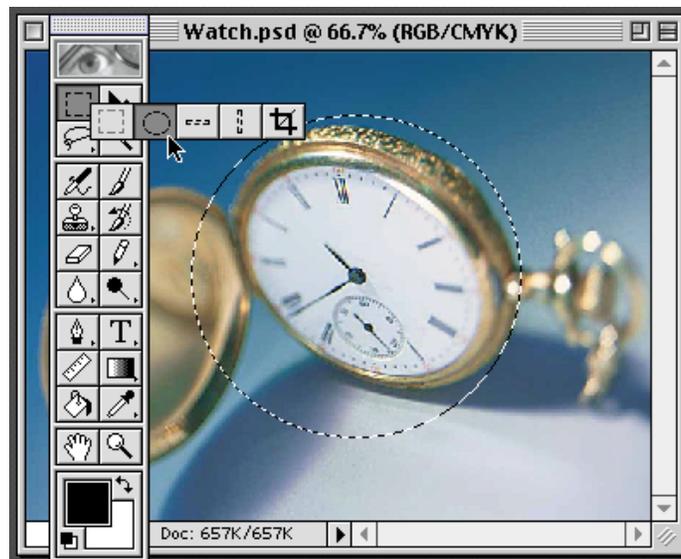
Shortcuts
Throughout this document, "Command/Ctrl" means Command on the Macintosh and Ctrl on Windows.

2. Now, to introduce a new feature found only in Adobe Photoshop 5.0 or later… From the Select menu, choose Transform Selection, as shown to the right. This new feature will transform the shape of the selection without altering its contents. It's new! It's wild! You'll use it all the time!

3. WOW! You can now rotate, scale, and distort the selection until the ellipse fits the shape of the face of the watch. Press the Enter key and the newly transformed selection will be precisely in position. Amazing! But wait – there's more!

Selections
To reshape the selections, simply select and move any of the control points available. To rotate the selection, move the mouse just outside the selection until you see the rotation icon, and then rotate the selection. **Special note:** You can now change the point of rotation by moving the central control point to any other location on the image.

Technique number two!
1. Here's another, less obvious approach to transforming a selection. We'll use it to transform the watch as we did with technique number one. However, this time we'll get a special kind of preview!

Once again, make a selection with the ellipse tool as shown to the right. Remember, there's no need to be exact.
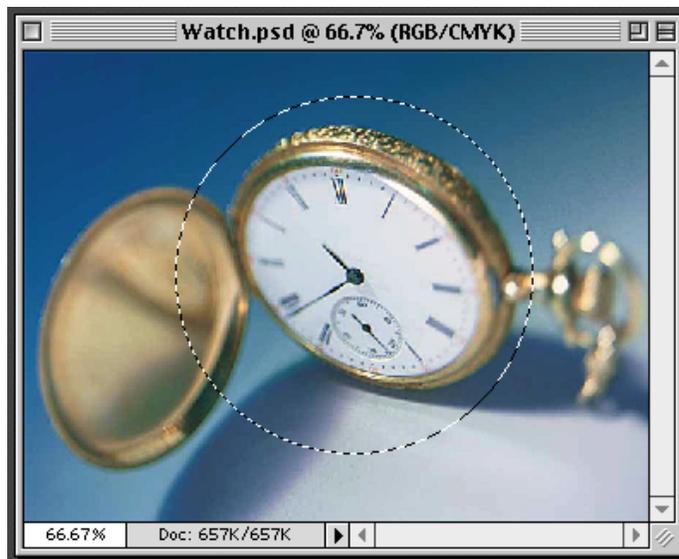
2. In the tool box, click on the edit in quick mask mode icon. The flashing selection will now be displayed as a Quick Mask. The default color for the Quick Mask is red with a 50% opacity. As you can see here the Quick Mask appears like a transparent layer of plastic over the image. Painting on this layer with white will add to the selection and painting with black will subtract from the selection.
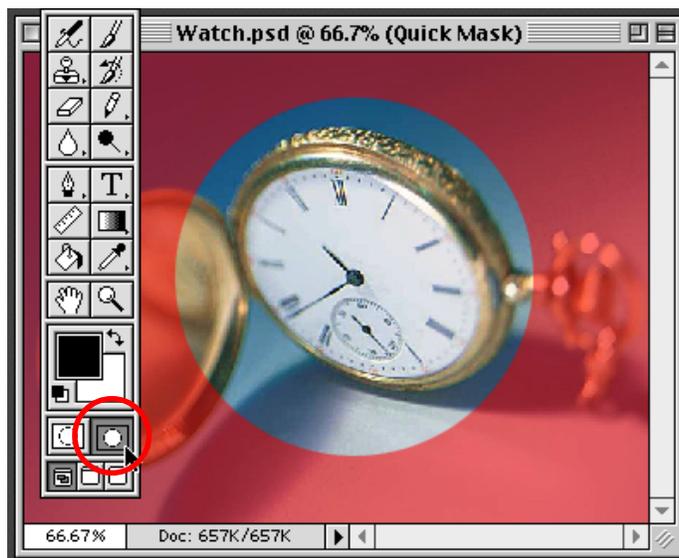
Quick masks
Make a selection. A shortcut for the edit in Quick Mask mode is to press the Q key on the keyboard.

3. This time, choose Free Transform from the Edit menu.
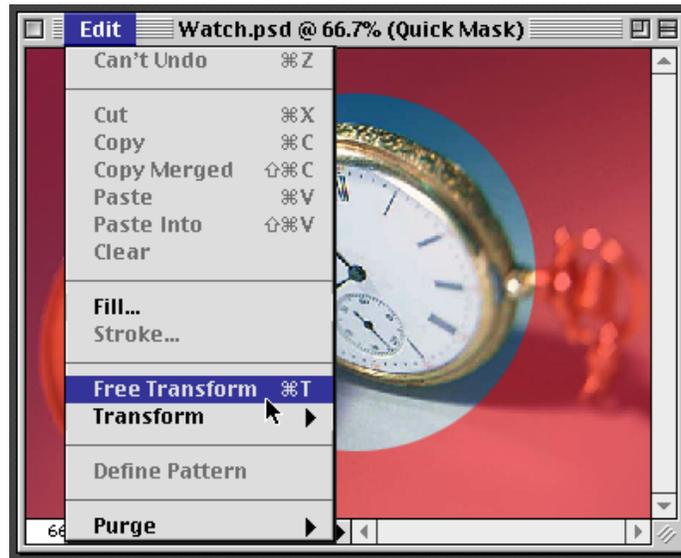
4. The transformation control vectors appear as before, but this time we are transforming a visible mask. The selection area becomes much more clear and distinct.
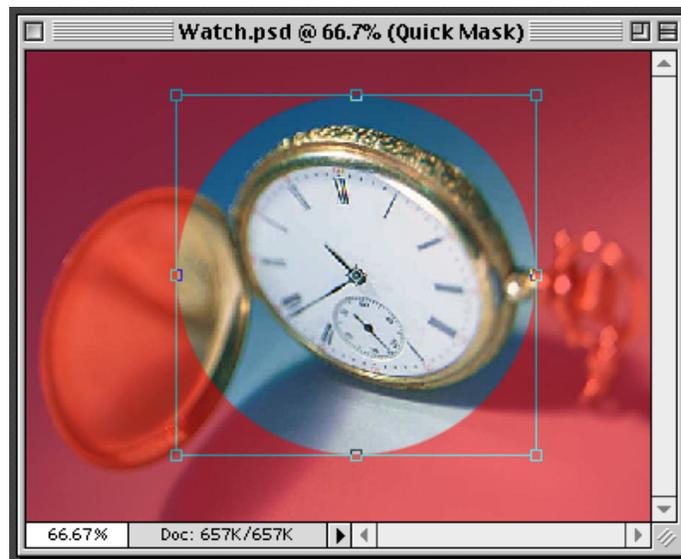
5. As before, we can rotate, scale, and distort the Quick Mask with the transformation tool until it fits the watch face exactly. Then we can press the Enter key to apply the transformation.
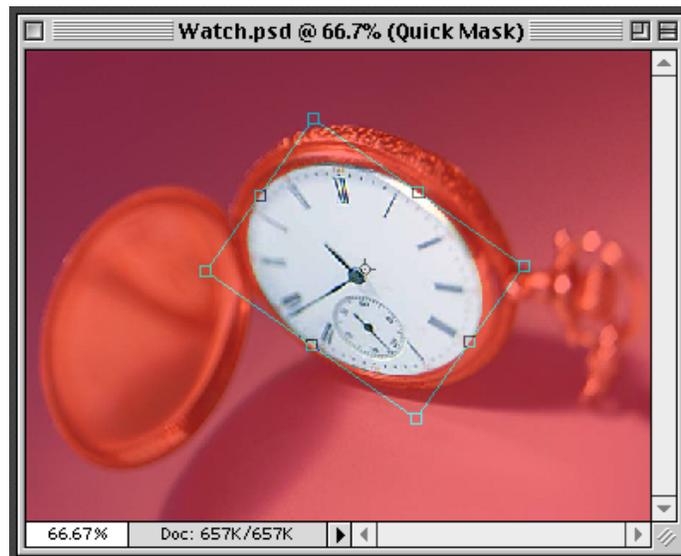
Super user tip
Double-clicking inside the transformation region is a quick and easy way to apply the transformation.

6. Fifty percent red is the default color for the Quick Mask. However, it's possible to change the color of the Quick Mask to help make the preview of the selection more distinct. On the the Channels palette, double-click the words *Quick Mask*. The Quick Mask Options dialog box will appear.
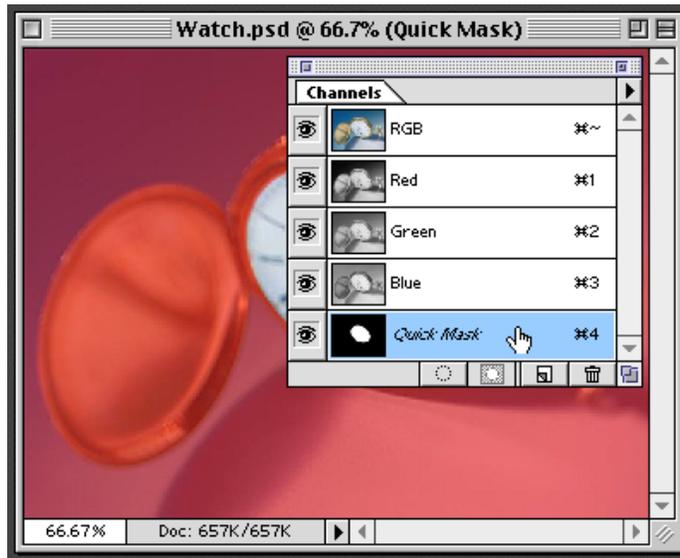
7. Experiment with changing the color and opacity of the Quick Mask until it is more apparent with your image.
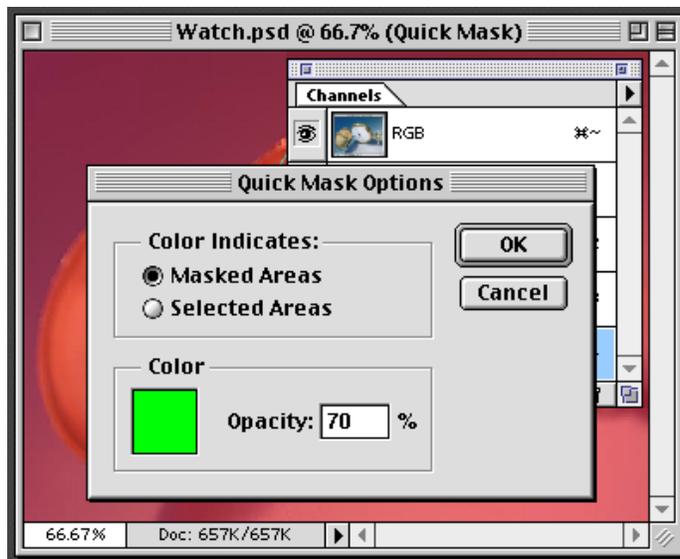
8. As you can see in this example, the new Quick Mask color makes the selected area more distinct. The selection can be transformed with more accuracy when the color has greater contrast.

Cropping an image
This same technique can be used to preview the cropping of an image. Try setting the Color to white and the Opacity to 100% to block out the image outside the cropping area.

9. After completing the transformation of the Quick Mask, select the edit in standard mode icon, or press the Q key on your keyboard, to revert the Quick Mask back to a selection.
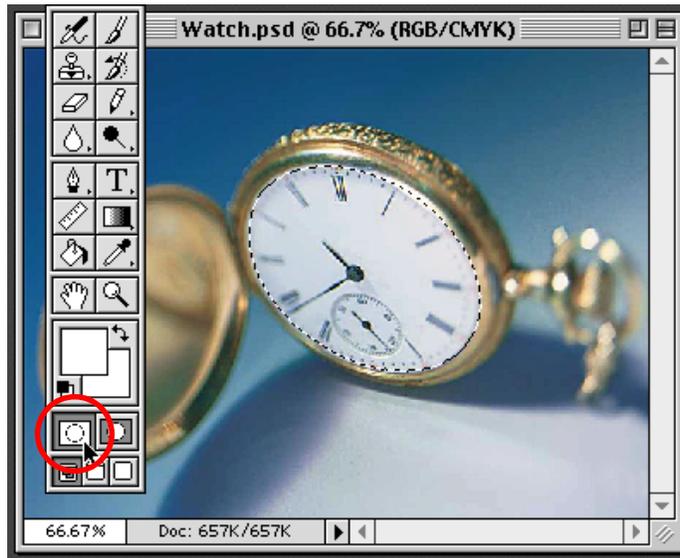
10. Here's a simple way to use this selection. Open up a new image. In this case, I'm using an image of a desert road stretching to the horizon. Select the entire image by choosing Select > All or Command/Ctrl+A. Then copy the selection by choosing Edit > Copy or Command/Ctrl+C. Close the image you copied.
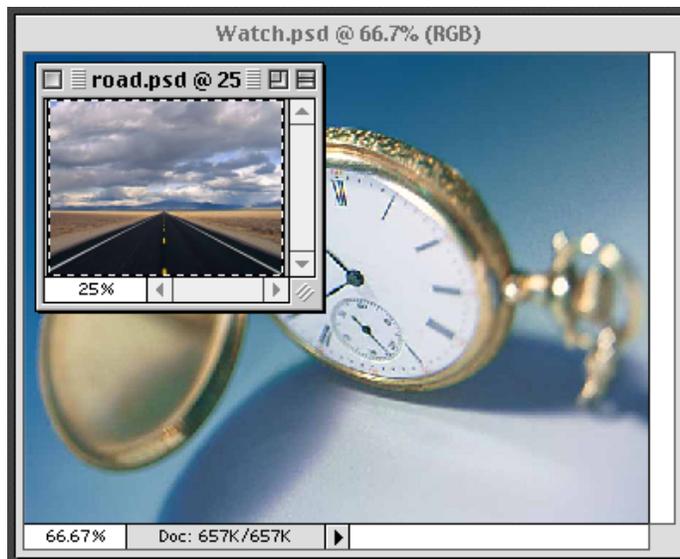
11. With your selection made, choose Edit > Paste Into. Then as the final step in this project, set the Mode for this newly created layer to Multiply, with an Opacity of 85%.

And there it is: You've learned how to control time and space.
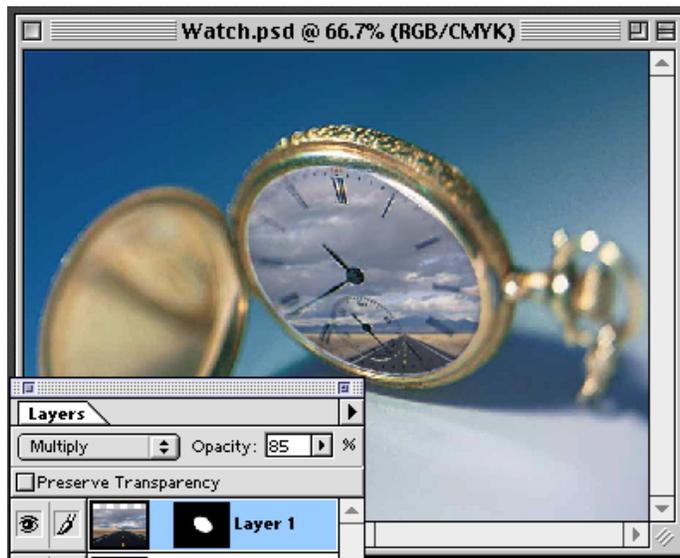
Adobe

Want your graphics to have a great textured look? Want your shadows with different colors? Add dimension and character to your type or graphics using textured gradations. You'll build a different layer for each color you want to spatter onto your image. Then you'll add a layer mask and texturize it. You'll end up with a multi-layered file that is very versatile. You can experiment with different colors, layer modes, and textures as you lay one colored texture on top of another.

Luanne Seymour Cohen, Creative Director at Adobe Systems, gets textural with Adobe® Photoshop® 4.0.

ADVANCED

TEXTURED GRADATIONS

1. We will begin to build the textured, gradated graphic by first creating its basic shape and filling it with a color. Make a new layer named *base* and use the selection tools or type tools to create the graphic. You can also paste shapes from other files or import the graphic from Adobe® Illustrator®. Select the shape (if it is not already selected) by Command/Ctrl-clicking on the layer name.
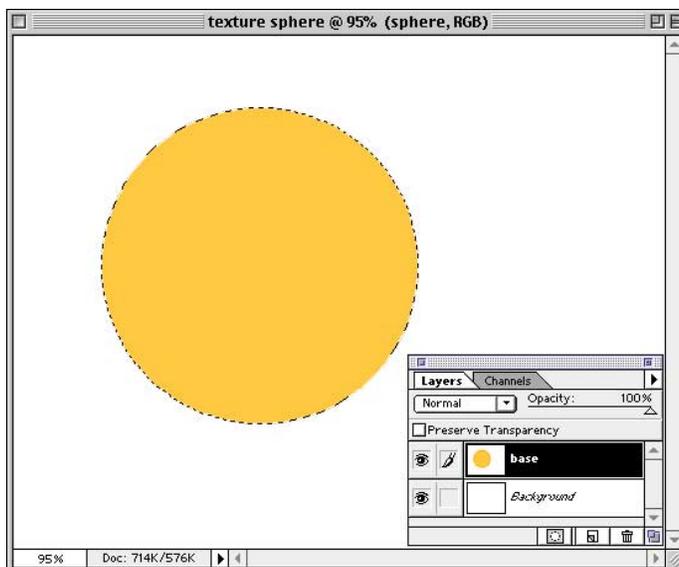
Shortcuts
Throughout this document, "Command/Ctrl" means Command on the Macintosh and Ctrl on Windows. "Option/Alt" means Option on the Macintosh and Alt on Windows.

2. Switch to the Channels palette and click on the save selection icon. Do not deselect yet! Click on the new channel name in the palette to view it.
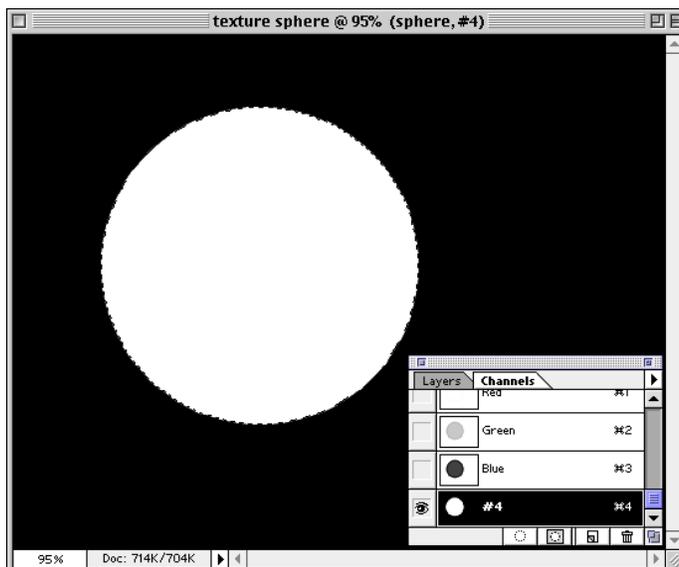
Why use alpha channels?
Alpha channels are a quick and convenient way to select objects or images. If you know you'll need to select something more than once during a Photoshop session, it may be worthwhile to save that selection as an alpha channel. When you need to activate the selection, simply hold down the Command/Ctrl key and click on the channel name.

3. Add a gradient to the selected area. Remember that when you are working in channels, you are working with a negative version of your image. Also, channels contain only grayscale information. The gradient you choose should be grayscale. The areas that are dark will block out more color in the final image, and the areas that are lightest will let the most color through. Save the file at this point.
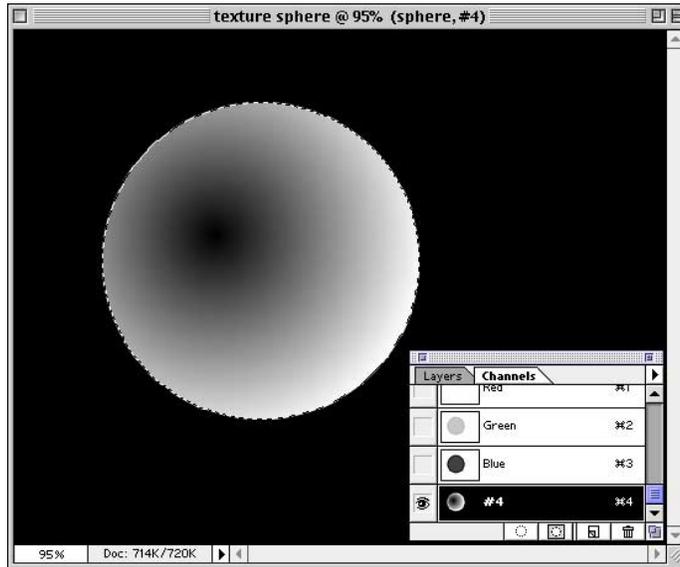
4. Load the new channel as a selection by Command/Ctrl-clicking on the channel name.
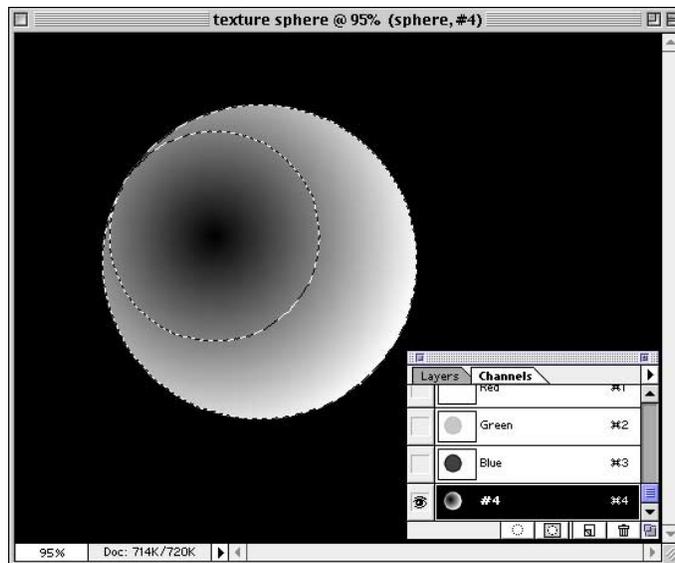
Selecting gradations
When you load a selection that contains a gradient, you might wonder why it looks as if some parts aren't selected. Photoshop only displays a selection border around pixels that are up to 50% transparent. Feathered, soft edges that are more than 50% transparent will not have a selection border, but they will still be selected.

5. Now we will apply the gradation to the graphic. Switch to the Layers palette and click on the *base* layer to activate it. With the gradation selection still active, click on the layer mask icon to save the selection as a layer mask for the graphic layer.
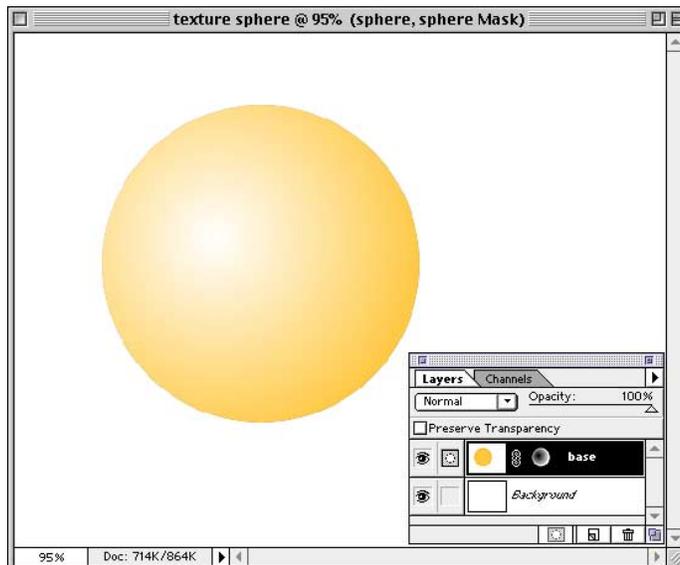
6. To get a richer looking texture, you will want to create more than one colored texture layer. A quick way to create a new layer is simply to duplicate the existing one. Option/Alt-drag the *base* layer onto the new layer icon in the Layers palette. Give the layer a new name. Because the layer masks have some transparency, the duplicate layer saturates the image with more color.
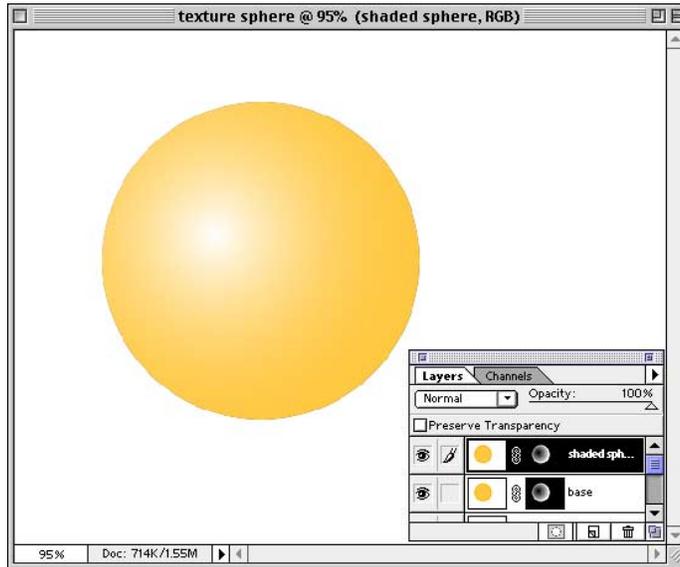
7. Lets fill this second layer with the color of the shadow we want in the final artwork. Pick a new foreground color. To fill only the area of your graphic, select the Preserve Transparency option, and then fill the layer with the new color (Option/Alt+Delete/Backspace). Don't worry if the colors don't look right yet, because they will change once we add the texture.
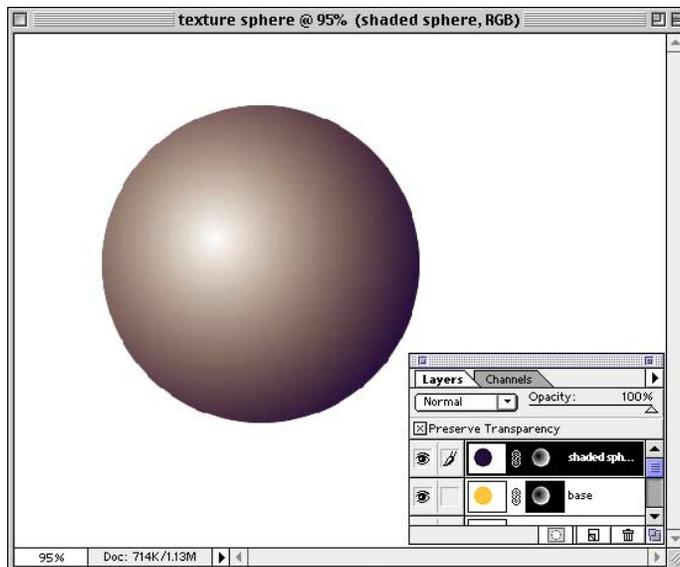
Layer masks

The great advantage of using layer masks in a technique like this is that you aren't committed to a certain color for your graphic. You can change the colors at any time during the design process simply by using the Preserve Transparency option and filling the layer with a new color.

8. Now we will add texture to the shaded layer. Click on the layer mask for the shaded layer. Choose Filter > Noise > Add Noise. Select Uniform Distribution, and experiment with the slider to see what values work best for your image. When you're satisfied with the result, click OK. There are many other textures besides noise that you can use in this step. See page 4 for a few examples of other textures.
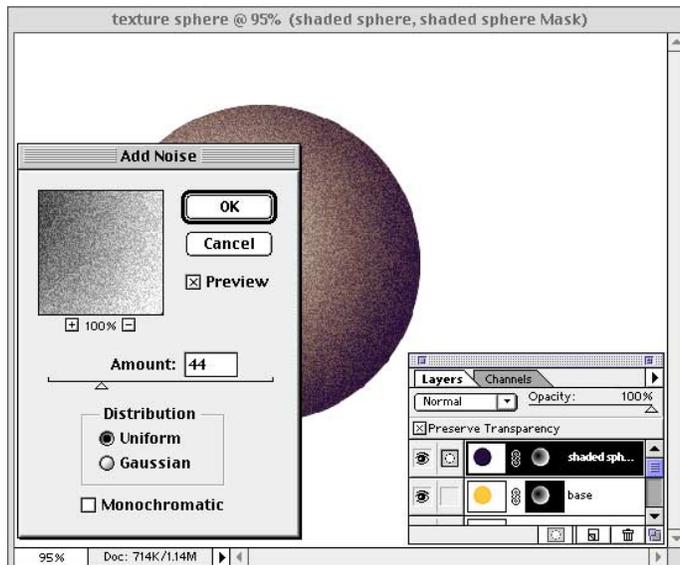
9. To add more colored texture to your image, repeat steps 6-8 for as many different layers as you want. In this example I added one more layer of orange. Its important to reapply the texture filter to each new layer. Most of the filters randomly apply texture and if you just copy the same texture from another color layer, it will cover up the other color's texture.
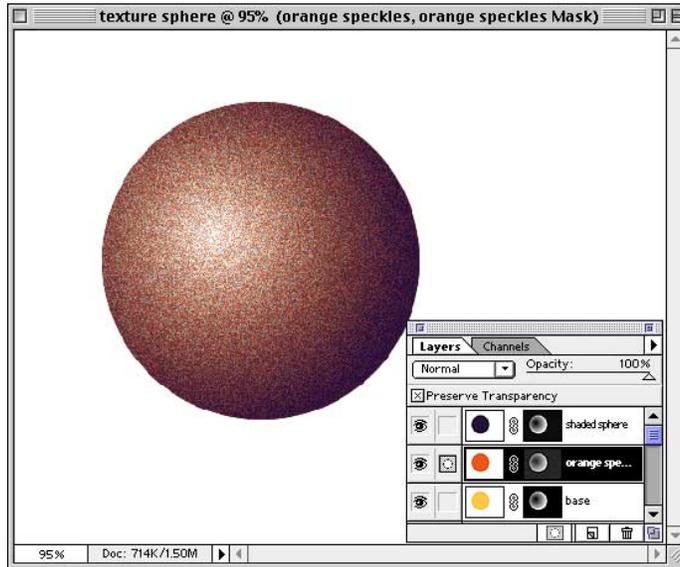
Variation 1: This is the same file used above. The only difference is that in step 8, I chose Filter > Artistic > Sponge instead of the Noise filter.
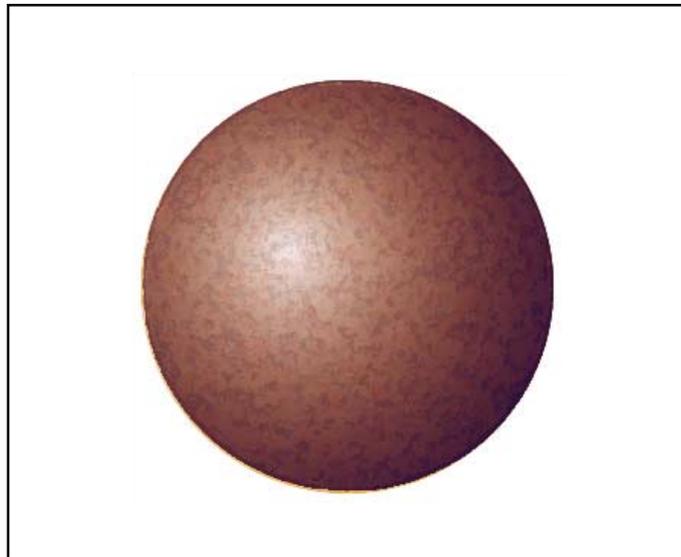
Variation 2: For this texture, use Filter > Sketch > Reticulation instead of Noise in step 8.
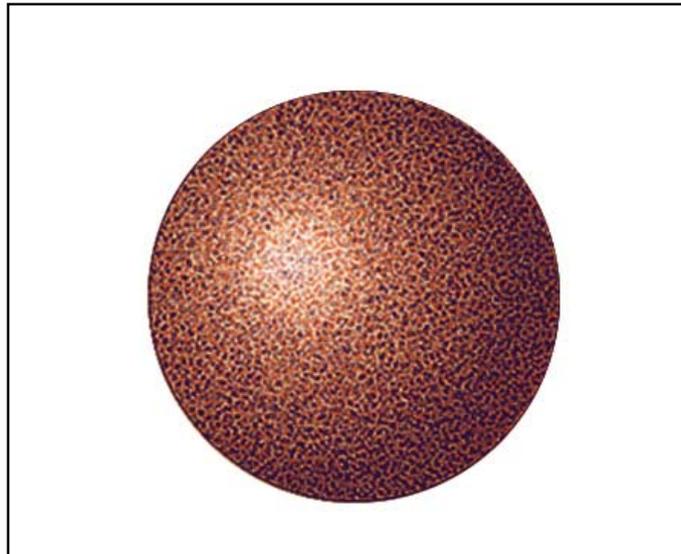
Photoshop 5.0 makes selections more easy with the magnetic lasso tool; gives you more power when working with the type tool; and makes simple layer effects a one-step process.

Adobe Senior Designer
Lisa Jeans Trail
shows the basics of
three new features in
Adobe® Photoshop® 5.0.
BEGINNER

GLASSES OF STYLE

Three New Features Overview

1. Open an image in Adobe Photoshop that has an object to select. From the Tool palette select the magnetic lasso tool, found under the lasso tool. Click once and begin dragging near the object; the magnetic lasso tool will distinguish the edges for you. To finish off the selection, place the tool over the starting point and click. Your selection is made.

glasses.psd @ 50% (layer1,RGB)

Doc: 2.32M/4.88M

Doc: 2.16M/5.02M
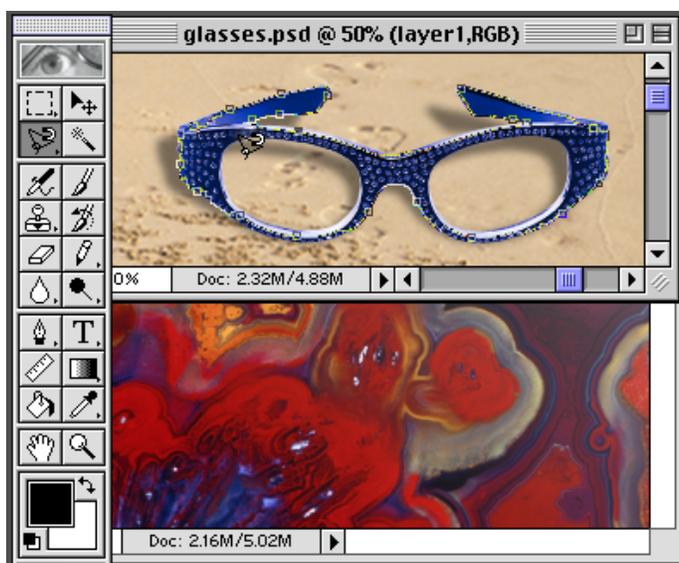
Magnetic lasso
Double-click on the magnetic lasso in the tool box to access its options.
• Lasso width is the distance from the pointer at which the lasso will detect edges.
• Frequency is the rate at which the lasso sets fastening points (a higher value anchors more quickly).
• Edge Contrast is the lasso's sensitivity to edges (a higher value detects high contrast edges).

2. To make a selection within a selection, hold down the option key while dragging. With the object selected, hold down the command key or select the move tool and click inside the selection and drag and drop the image onto another file.
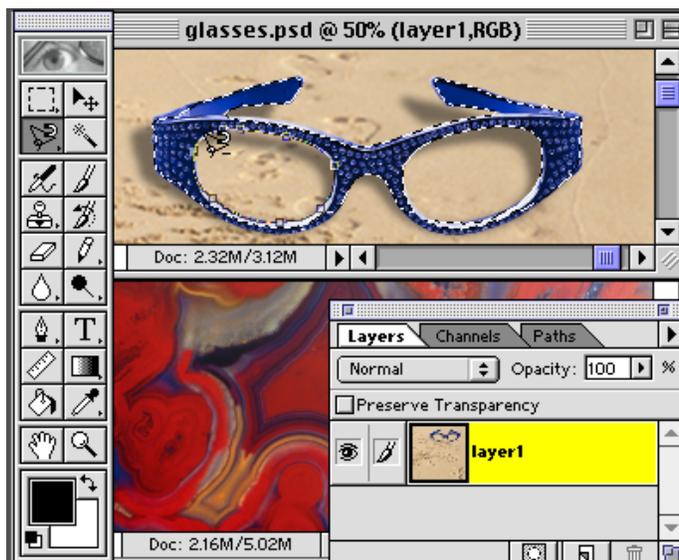
glasses.psd @ 50% (layer1,RGB)

Doc: 2.32M/3.12M

Layers   Channels   Paths

Normal   Opacity: 100 %

☐ Preserve Transparency

layer1

Doc: 2.16M/5.02M

Shortcuts
Throughout this document, "Command/ Ctrl" means Command on the Macintosh and Ctrl on Windows.

3. The image is placed on a new layer and can now be scaled and rotated using Free Transform (Command/Ctrl+T). Once the image is placed as you would like, press the Return/Enter key to set the transformation.
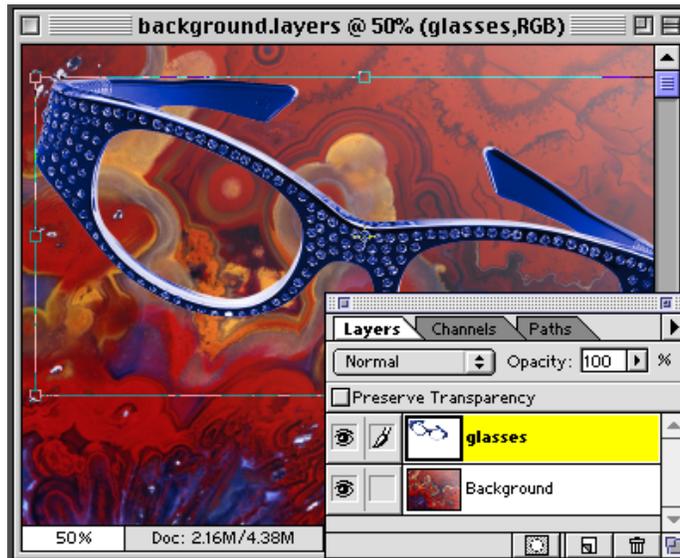
Transformation
Yet another new feature in version 5.0 is the ability to transform selections found on the Select > Transform Selection menu. This allows you to transform a selection only and not the image underneath.

4. Next, let's add text to the image. Select the type tool and click approximately where the text should be placed. Move the dialog box so you can make use of the new Preview option. Notice that you can now highlight part of your text and apply multiple styles and sizes as well as control the leading. You also have the ability to change the color of the text while in the dialog box. Click OK once your text is as you would like it.
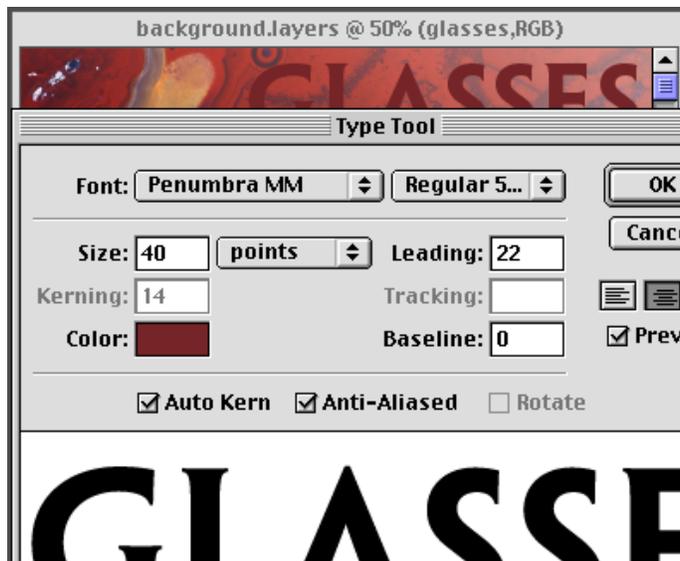
Moving type
While in the Type Tool dialog, you can now click outside the dialog and move our type into position–just one more feature that makes working with type in Photoshop 5.0 that much easier.

5. You can add some new layer effects with the text layer still selected. Here we are going to add the Bevel and Emboss effect. I've used an Inner Bevel and then tried different mode and opacity settings to achieve the effect I like. I even specified the shadow color by clicking on the color box.
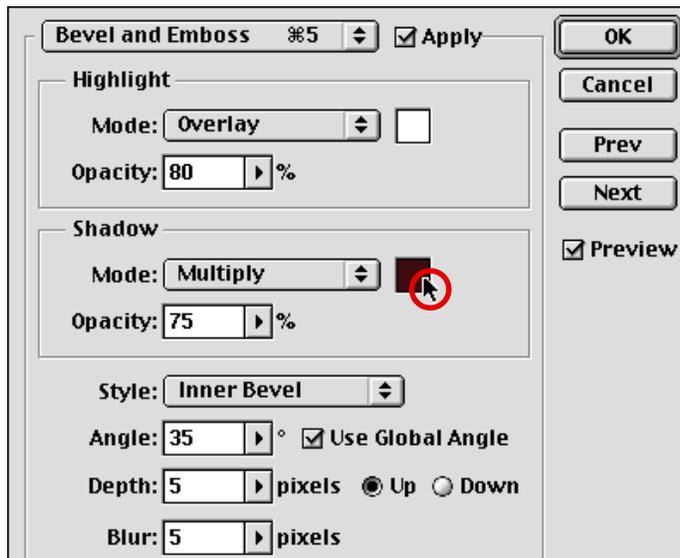
6. Click OK once you have the effect you want.
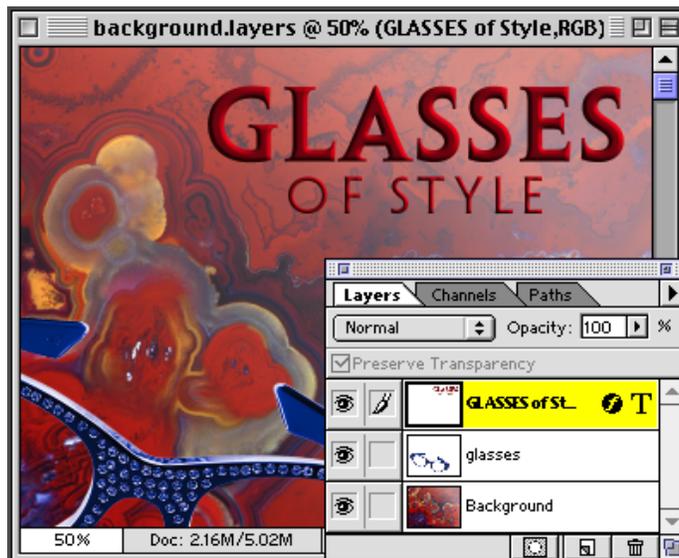
7. Even with an effect added to the text layer, the text is still fully editable. Double-click on the "T" in the text layer to bring up the Type Tool dialog box and make any changes. See how the layer effect is added to your changes.

Copy/paste effects
With the new layer effects you can copy and paste effects between layers. Select a layer with an effect and choose Layer > Effects > Copy Effects. Then select the layer to which you would to add the effect to and choose Layer > Paste Effects.

8. You can also make changes to the layer effect by double-clicking on circle f (the layer effect icon) to the right of the layer name. This brings up the effect dialog box last used on that layer. You can then either make changes to the existing effect or select a new effect from the pop-up menu.

Adobe Seminars: Web Page Design
by Lisa Lopuck and Sheryl Hampton

Adobe Seminars: Web Page Design is a portable seminar on web page design taught by experienced professionals that documents Adobe software such as Adobe Photoshop 4, Adobe Illustrator 7, and Adobe PageMill 2, as well as the latest HTML language protocols.

This October 1997 Adobe Press book will bring all the essential information of a two-day seminar into a compact and reusable format, complete with CD and step-by-step techniques. Two noted Web seminar instructors, Lisa Lopuck and Sheryl Hampton of ElectraVision, have distilled their training sessions into over a hundred two-page techniques using popular Adobe applications to simulate how Web pages are actually created. The result is a reference book of clear, simple explanations and designs that are reusable page after Web page.

Adobe Seminars: Web Page Design

Publication Date: Oct. 1, 1997

US $40

ISBN: 1-56830-426-9

4-color, 264 pages, includes ImageClub CD

The techniques within this Acrobat™ PDF file are from the upcoming Adobe Press book Adobe Seminars: Web Page Design.

ADOBE
PRESS

Trimming Graphics to the Smallest Possible Size

Web graphics always need to be made as small as possible in terms of file size. A few factors that contribute to making smaller files include: reducing the color palette, using flat color whenever possible, avoiding horizontal gradients, and finally, trimming your graphics to their smallest possible size. In this case, the image to be cut out has highly feathered edges. These types of graphics are difficult to cut out by eye-balling it alone. Often times, you will end up cropping too closely and you will see a hard edge once the image is on the Web (as shown).

PHOTOSHOP 4.0	Object Gear, Vol. 1 Design Elements: Skull Steer Object Gear, Travels: Road Sign Photo Gear, Skyscapes: Clouds#7 font: Garage Gothic Black

STEP 1: MERGING LAYERS

If the image is in multiple layers, merge them together. Use the Option Merge technique discussed in Lesson **B7** to keep the source layers intact.

TIP: *Instead of using option + merge, you can simply turn on all the eyeball icons of the layers to be merged, and select Duplicate from the Image menu. Check the Merged Layers Only check box to create a new merged file apart from your source file.*

STEP 2: USING THE MAGIC WAND TO FIND THE EDGES

Using the Magic Wand tool, set on a tolerance of zero and with no anti-aliasing, select the transparent background surrounding the image. To ensure that you capture all the transparency, choose Similar from the Select menu. Invert the selection. This selection shows you the absolute outer edges of your image.
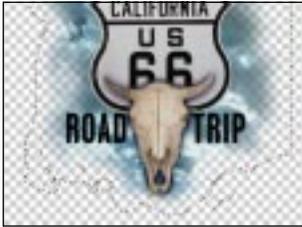
STEP 3: CREATING A RECTANGULAR SELECTION

In order to crop the image according to the selection created in Step 2, you need to convert the selection into a rectangular one. Hold down the shift key to add to the current selection using the Marquee tool until you have a perfect rectangle.

Because you are adding to the selection, you do not have to do it all in one step; you can build it in stages. For example, start at the top-most point and draw to one of the side-most points.

If the Crop function is grayed out in the Image menu, your selection is not a perfect, there may be a tiny bulge somewhere. Crop the image with the Crop function once the selection is perfect.

NOTE: *The crop tool does not work in this case because it erases your Magic Wand selection.*

Need a liquid logotype? Then try this Photoshop technique to create wet words. First you pick a script typeface design. Then you add some drips and drops around it. Use the Plaster filter to create a soft rounded effect on the type. Try some of the variations for different wet effects. Finally, you add the color and ...

...·voilà !

Luanne Seymour Cohen, Creative Director at Adobe Systems, gets wet and wild with the Plaster filter in Adobe® Photoshop® 4.0.
ADVANCED

WET PAINT TYPE

1. Create a new file. Select the Channels palette and create a new channel named *mask*. We are going to create black and white artwork in the channels, instead of layers, to give ourselves more flexibility with coloring and highlighting the final art.
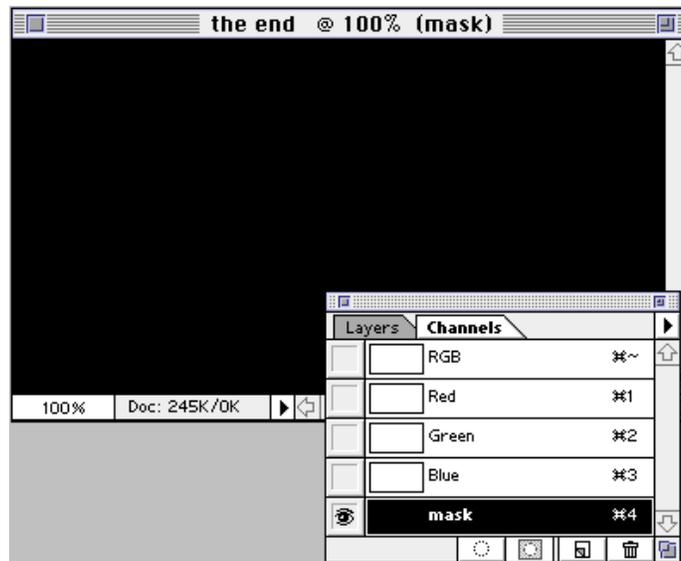
Shortcuts
Throughout this document, "Command/ Ctrl" means Command on the Macintosh and Ctrl on Windows, "Option/Alt" means Option on the Macintosh and Alt on Windows.

2. Be sure that your foreground color is set to white and the *mask* channel is selected. Use the type tool to create your type. Position the type before you deselect it. Type created in channels is only a selection, not a separate layer that can be edited and moved later.
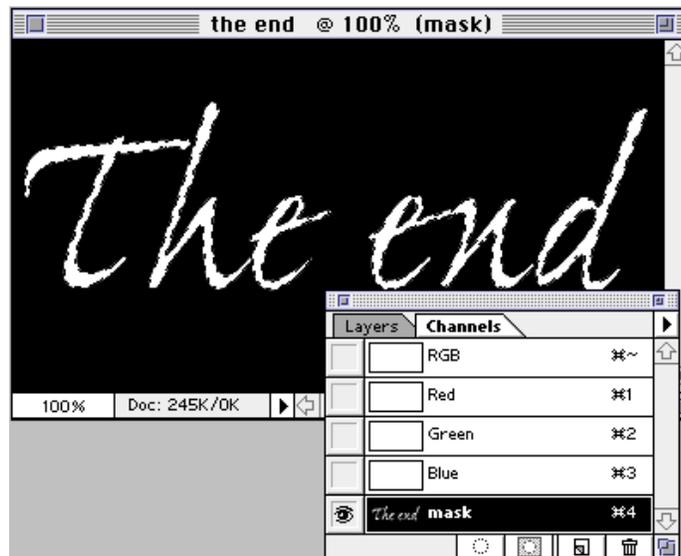
Liquid typefaces
The best typefaces to use for this technique are script or calli- graphic. If you want a slightly eroded look, choose a face with more pronounced thicks and thins. The typeface used in this illustration is Ex Ponto.

3. Use a paintbrush to add a few white drips and drops around the type. They won't look much like drips at this point, but they will turn into small "blobs of paint" later. We've now created the mask that we will use to bring crisp, sharp edges back to our type after we use the plaster filter.

4. Create a duplicate of the *mask* channel. You can do this quickly by holding the Option/ Alt key while dragging the *mask* channel icon down to the New Channel icon. Doing so brings up the dialog box to duplicate the channel. Name the dupli-cate *plaster type.*
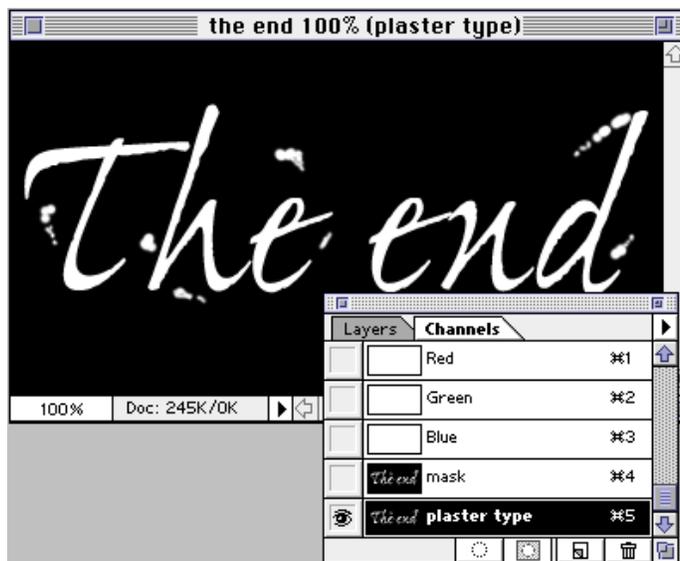
5. Select Filter > Sketch > Plaster. Choose the lighting position you want. Remember that since this is a channel, the image is in negative form. In this example, I want the final artwork to have highlights on the top. The Plaster filter puts the foreground color in the shadow areas and the background color in the highlight areas. Play around with the values on the sliders. Click OK when you are satisfied with the result.
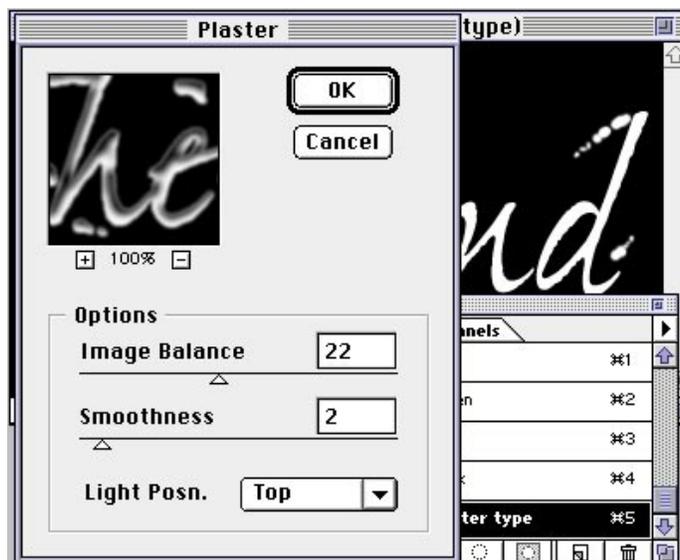
The Plaster filter
The Plaster filter uses the foreground color for the shadows and the background color for the highlights. It doesn't matter what color the image is to start with, the results will be created with the foreground and background colors. We won't get good results on layers with transpar-ency, so we are doing this first part in a channel in order to create the type on a layer later.

6. Return to the Layers palette and click on the background layer to view it. Option/Alt-click on the new layer icon to create a new layer. Name it *wet type.*
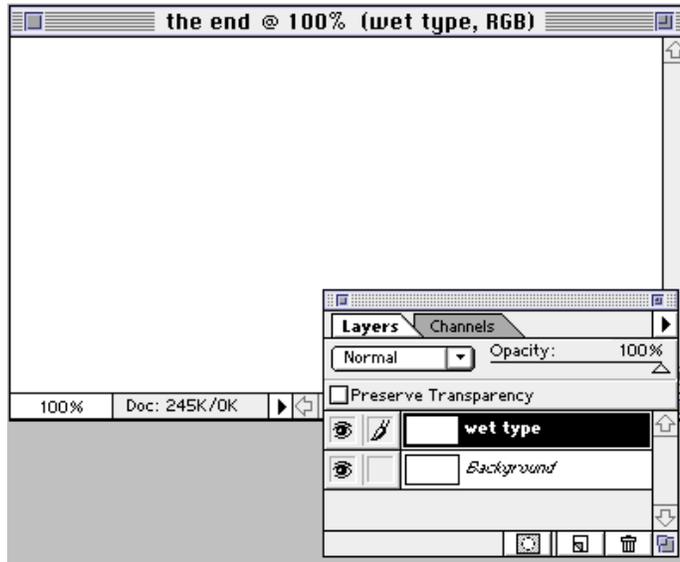
7. With the *wet type* layer selected, load the *plaster type* channel as a selection. You can do this from the Channels palette or from the Select menu. Choose Select > Load Selection. Select *plaster type* as the Channel. Click OK.
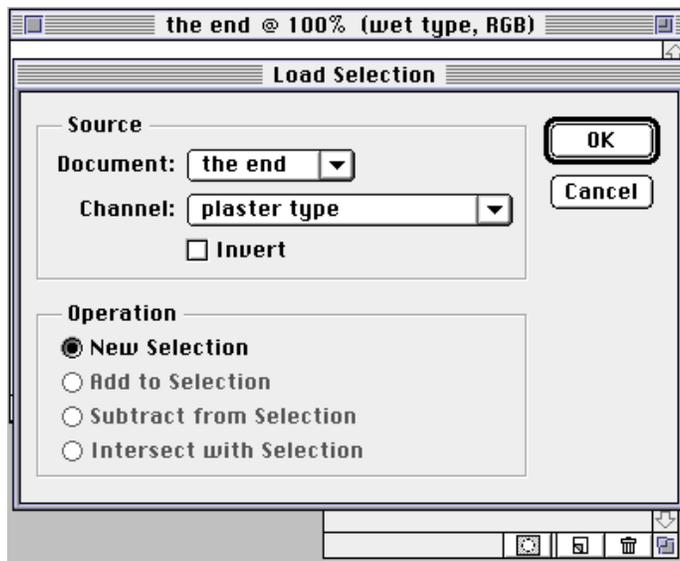
Selection shortcuts
If you want a quick way to load channels without using menus, try this. Separate the Layers palette from the Channels palette. When you are on a certain layer and you need to load a selection, hold the Command/Alt key and click on the channel name in the channel palette. The cursor will change to the selection cursor to remind you that it will now load the selection.

8. Choose a foreground color for the type and fill the selection (Option/Alt+Delete/Backspace). I recommend darker colors for this step.
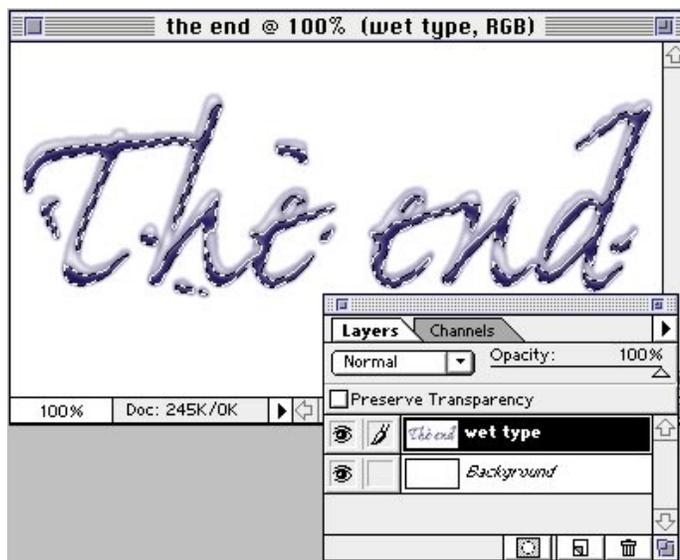
Fill shortcuts
To fill with 100% of the foreground color, press Option/Alt+Delete/Backspace. To fill with 100% of the background color, press Ctrl+Option/Alt+Delete/Backspace.

9. The Plaster filter softens and spreads the letter forms. This is fine for a plaster effect but for liquid, we need a crisper, cleaner edge. Use the magic wand (set to anti-aliased, 32 tolerance) to select the transparent background of the *wet type* layer. Choose Select > Similar to add any protected areas that you might have missed.
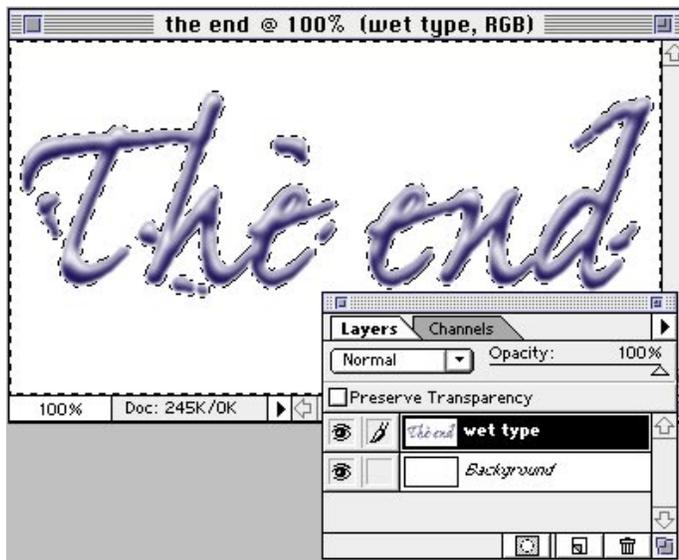
Select similar
Once you've created a selection, you can add to it automatically using the Select Similar command. Photoshop analyzes the colors of the pixels currently selected and proceeds to select all the other pixels in the image of those same values. In this example, we want all the white areas selected. Because the selection is anti-aliased, it also picked up the off-white areas along the edges of the letters.

10. To encompass a little more of the type's new bulgy shape, expand the selection. Choose Select > Modify > Expand. Expand the selection by 1 pixel. If your image is very high resolution, you might want to try 2. You'll have to experiment with this value on your own.
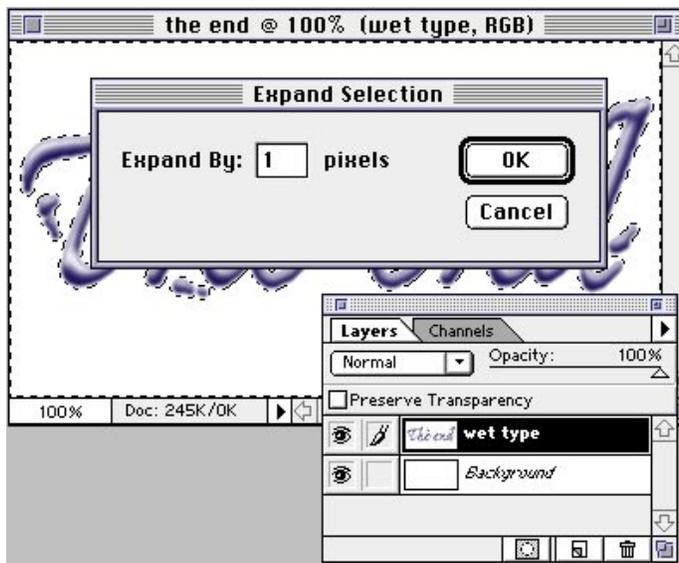
11. Invert the selection by choosing Select > Inverse (Command/Ctrl+Shift+I).
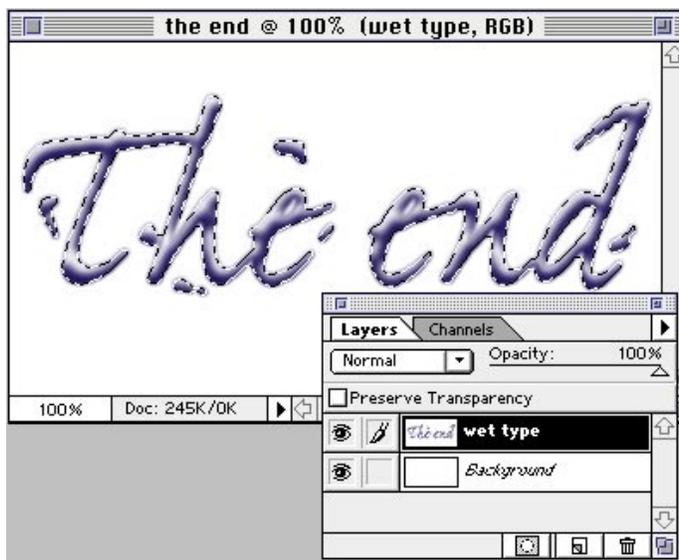
12. Next we will make a layer mask with only the selected areas showing through the mask. Click on the layer mask icon in the Layers palette, or choose Select > Save Selection and select *wet type Mask* as the channel. This automatically creates a layer mask with the selection. Basically, we are hiding the fuzzy edges with this layer mask.
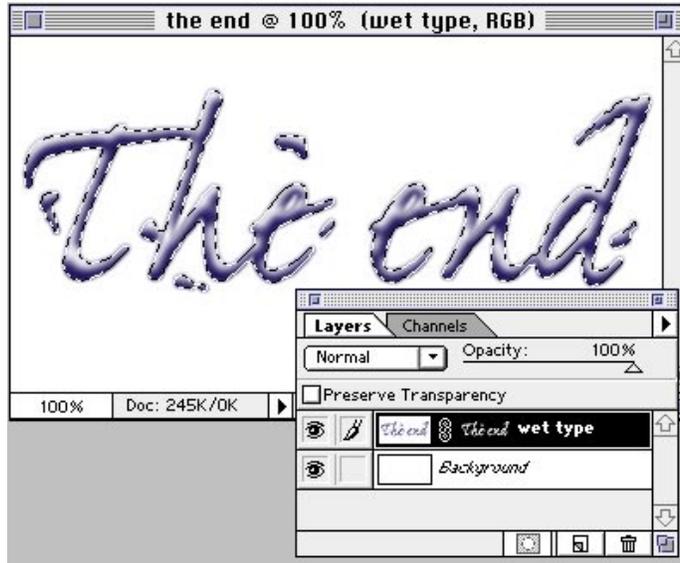
13. Deselect and evaluate the result. You may like it as is or you might want to increase the contrast and sharpen up the smooth gradations. If so, use the Unsharp Mask filter. See Variation 1 for this effect.

Variation 1: You can increase the contrast and make it look "glossier" by using the Unsharp Mask filter. In this example I used the following values:
Amount: 440%
Radius: 0.6 pixels
Threshold: 8 levels

Unsharp mask
Unsharp mask is a traditional film compositing technique used to sharpen edges in an image.The Radius value determines the number of pixels surrounding the edges' pixels that will be sharpened. Increasing the Threshold value allows you to protect some areas of your image from the noise introduced by sharpening. Usually the threshold is increased for skin tones.

Variation 2: For a puddling paint effect, try the following settings in step 5. The top image was created with Image Balance set at 8 and Smoothness at 12. If you want your letters to look sparsely painted as shown in the lower image, try using 40 for Image Balance and 4 for Smoothness.

Variation 3: To add a shadow of a different color, you'll need to make a copy of the *plaster type* channel. Name the new channel *shadow*. Open the Levels dialog (Command/Ctrl+L) and move the black input slider to the right. The light pixels remaining in the preview are the areas where the shadow will appear in your image. Experiment with the values depending on how heavy or light you want the shadow. In this example, we used Input Levels of 187, 1.00, 255.

Variation 3 cont'd.: Repeat steps 6 through 13, but name the new layer *shadow*. If you want to experiment with colors, turn on the Preserve Transparency option so you can simply fill the layer with a new color.
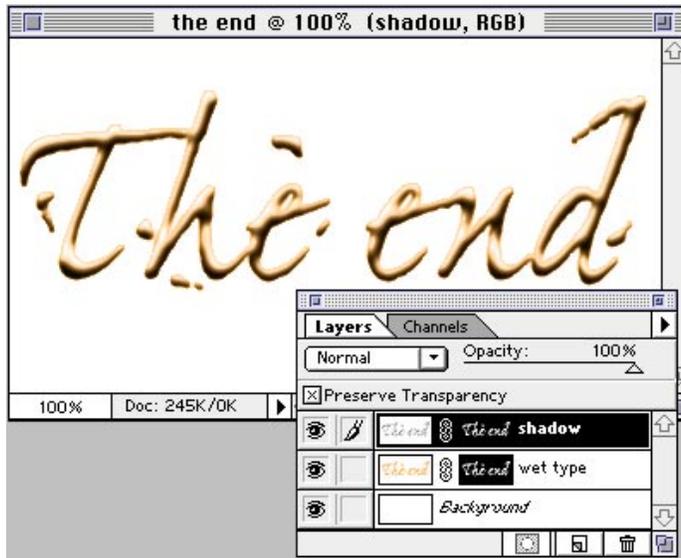
White to Transparent Magic

Adobe

WhiteMagic

Have you ever wanted to eliminate white areas from an image? Here we'll demonstrate magic, turning white areas into transparency. Even gradients and anti-aliased edges will return for your further creative work!

WHITE TO TRANSPARENT MAGIC

1. Before you launch Photoshop®, you must have installed a special plug-in filter called Eliminate White (only available for the Machintosh at this time). This is freeware by Etsuro Endo, created with the Filter Factory, a scriptable plug-in that comes with the Photoshop 4.0 Deluxe CD-ROM. Copy the plug-in file into your Plug-Ins folder.
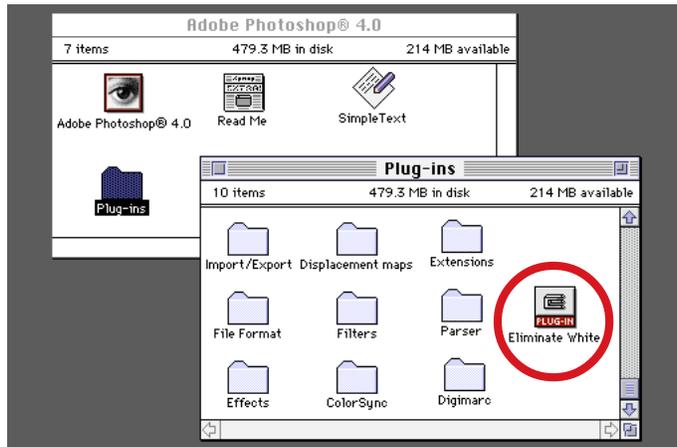
The Eliminate White filter
Available for free at the author's Web site at http://www.edesign.com/filters/

2. Here's our image. It's flattened, so the only available layer is the Background layer. It has anti-aliased type and a gradient as a design element against a white background. It's totally impossible to get a selection using the Magic Wand, and the Select > Color Range command does not do as good a job as we would like.
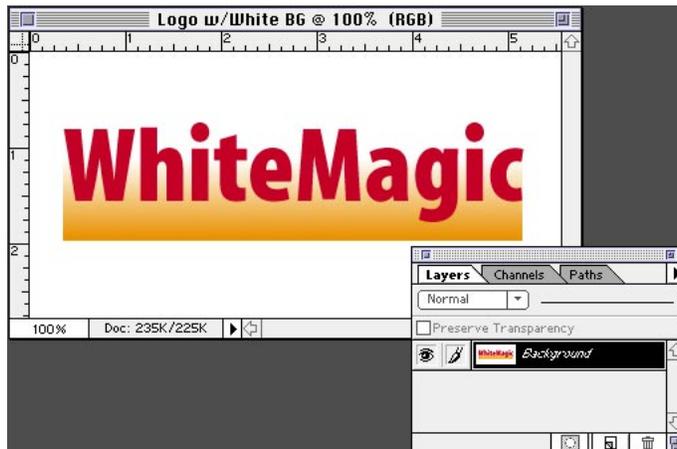
3. Now the magic starts! First, you must convert the background layer into a non-background layer, which can have transparency. Double-click the Background layer in the Layers palette, and in the New Layer dialog box, simply press OK.

WHITE TO TRANSPARENT MAGIC

4. Choose Filter > Transparency > Eliminate White. Wow! The white areas turn transparent. But now the white halo needs to be eliminated and the overall image saturation needs to be adjusted. Proceed to the next step.

Eliminate White
The Eliminate White filter creates transparency based on the "whiteness." If your image has less saturated colors, like pastel tones, try increaseing saturation using the Hue/Saturation command and desaturate after you use the filter.

5. Choose Layer > Matting > Remove White Matte. Now you get the real thing. Saturation is restored and gradients that used to be fading into white now fade into transparency. Depending on your colors, you may have slight color shifts.

Remove White Matte
This mode is used to eliminate the ghosting of white around the edges of images created on white backgrounds. Through a miracle of science this actually works. Few people know why, but you never question a miracle.

6. Now you have the creative freedom of transparency back in your hands. As an example, here we exported a transparent GIF file for a Web page using the GIF89a Export plug-in.

Contributing author: Etsuro Endo