








6

DAMAGE CONTROL AND REPAIR

The torture we put our old photographs through—storing them in damp basements, carrying them in wallets, folding, tearing, cutting, scribbling on them, and pasting them into albums—all leave the telltale marks, cracks, rips, tears, and misshapen corners. So if this is so bad for photographs, why do we put them through the gauntlet of abuse? Because we value, treasure, and cherish them. We like carrying pictures of loved ones in our wallets or purses; we take pleasure in making the family photo album or collage; and sadly, we often don't realize that the basement isn't the best place to store a valuable print.

So rather than relegating the damaged photos to a dark, forgotten, basement corner, let's get them out, scan them in, and learn to

- Eliminate scratches
- Remove wires and clutter
- Repair tears, rips, and cracks
- Make stains and discoloration disappear

The tools and techniques used to conquer these challenges include

- The Clone Stamp tool
- The Healing Brush and Patch tools
- Paths, layers, and layer masks
- Selections and adjustment layers

ELIMINATING SCRATCHES

One of the most pedestrian and irritating things you will need to retouch are scratches caused by dirty film processors, coarse handling, or specks of dust on the scanner or digital camera CCD (charged coupled device). But take heart; with the following techniques, you'll make those scratches disappear with ease and panache.

Combining the Clone Stamp and the Healing Brush

Old photos and negatives are often plagued with numerous irregular scratches, but you can hide them quickly and easily. Figure 6.1 shows an original print that curled over time and cracked when it was stored incorrectly and weight was placed on it. Figure 6.2 shows the repaired file. The Healing Brush is an ideal choice for removing thin cracks like those shown in the right side of figure 6.1. When you need to remove larger rips or tears (like those on the left side of the figure), combine the Clone Stamp tool and the Healing Brush to create a dynamic duo of crime fighting—I mean scratch removal.

ch6_scratch.jpg

1. To protect the Background layer, duplicate it and name it *scratch removal*.
2. For the thin cracks on the right, select the Healing Brush with a hard brush that is just large enough to cover the scratch. In most cases, when using the Healing Brush, I prefer to leave Aligned unchecked so that the Healing Brush samples from the same texture over and over again. When you are removing straight scratches, the Healing Brush is more effective with Aligned checked (see figure 6.3).
3. Move the mouse 1 to 2 brush widths to the left or right of the scratch and (Option + click)[Alt + click] to set the Healing source. For healing an area with an obvious directional pattern like this one, you can try to anticipate the point from which the data will be pulled by sampling slightly above or below where you first apply the brush.

figure 6.1

figure 6.2

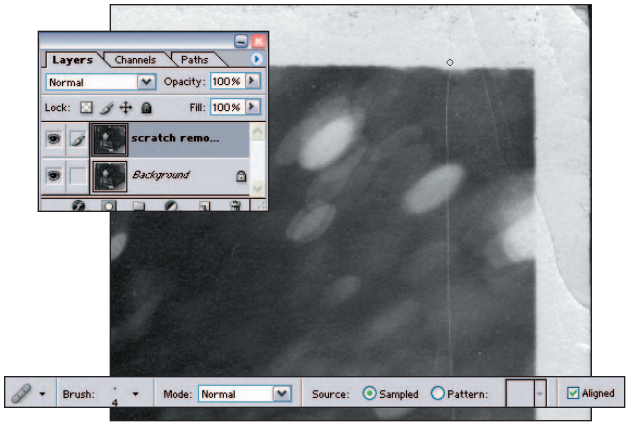

figure 6.3

Setting up the scratch removal layer and the Healing Brush parameters.

4. To spare yourself the trouble of having to draw along the entire scratch, Shift + click the Healing Brush at the top of the scratch.
5. Release the mouse button and move the brush about an inch down the scratch, and Shift + click again. The Healing Brush will heal in a perfectly straight line (see figure 6.4).

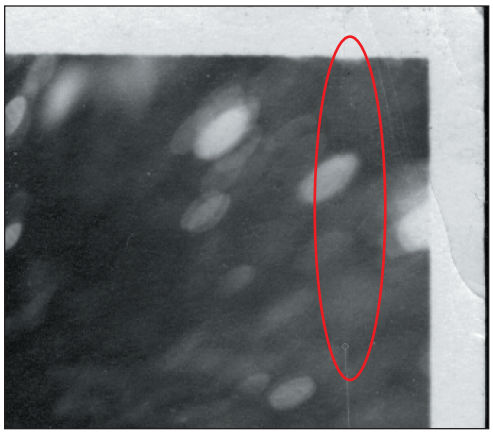

figure 6.4

After Shift + clicking along the scratch.

6. Continue Shift + clicking your way along the thin scratch on the right.

Tip

To rebuild the larger, thicker tears or damage, use the Clone Stamp or Patch tool to create initial image information and then follow up with a few passes of the Healing Brush. This is a quick way to cover up large tears or missing image information caused by torn away print emulsions or damaged corners.

7. To repair the larger cracks on the left side of the image, activate the Clone Stamp tool and (Option + click) [Alt + click] to sample good image information cover roughly the white tear and simultaneously lay down texture information that the Healing Brush will use, as shown in figure 6.5. Additionally, by covering up the white tear, you have a better chance of avoiding the Healing Brush blurriness that can appear when you are healing over wide tonal differences.

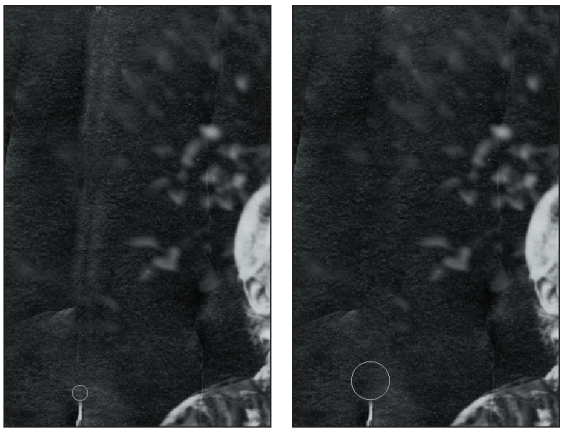

figure 6.5

The tear after roughly using the Clone Stamp tool and after cleaning up with the Healing Brush.

8. Activate the Healing Brush and paint over any telltale cloned areas.

Tip

When you are restoring close to high-contrast image areas with the Healing Brush, use a selection both to control where the Healing Brush works and to reduce the chance of creating blurry areas (see figure 6.6).

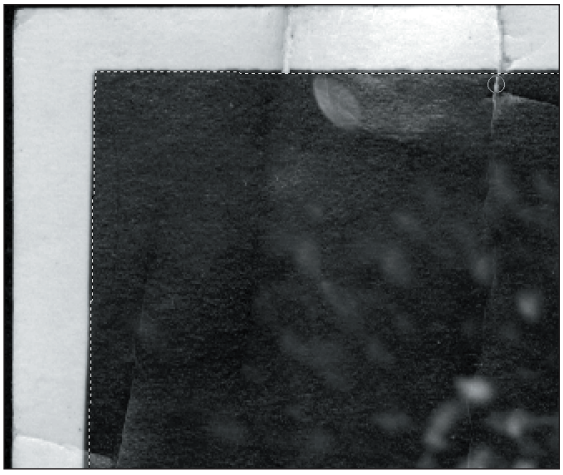

figure 6.6

Using a selection to control where the Healing Brush works.

Removing damage and scratches is akin to pulling back the veil of time. Fabrizio Fiorbianco did an astonishing job of removing the tears and rips while maintaining the charm of the original image, as you can see in figures 6.7 and 6.8. Fabrizio restored this image in Photoshop 6 and relied on careful use of the Clone Stamp tool. As the last section showed, you can achieve similarly brilliant results with careful use of the Clone Stamp tool and the Healing Brush.

figure 6.7

figure 6.8

REMOVING UNWANTED ELEMENTS

Wires, cables, and clutter serve only to distract the viewer from what is really important in the picture. You can use this technique when preparing real estate photos. By taking out the distracting telephone wires and electric cables, the homes come to the visual foreground and look much more attractive (translation: more sellable).

Dismantling Wires or Cables

To remove telephone wires, cables, or smooth, long, thin scratches, start by tracing the problem with the Pen tool, and then stroke the path with the Clone Stamp or Healing Brush. In the example in figure 6.9, the wires and shadow detract from the picture of the bell tower in the Algarve in Portugal, and without the wires, the image looks much cleaner (see figure 6.10).

ch6_wires.jpg

figure 6.9

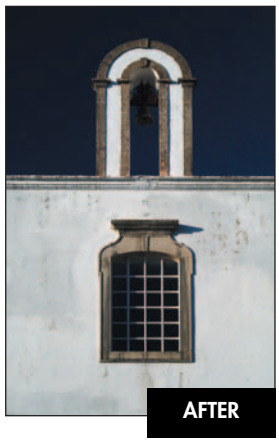

figure 6.10

1. Select the Pen tool and click the Paths icon on the options bar (circled in figure 6.11). Draw one path along the wire and name it, and draw a second path over the shadow. Each Photoshop file can have thousands of paths, and it is a good idea to name them as they are created.

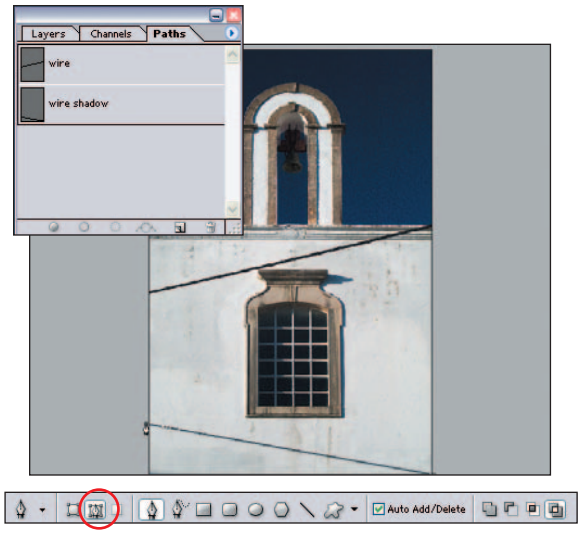

figure 6.11

Creating paths with the Pen tool along the wire and shadow.

2. Add a new layer, select the Clone Stamp tool, click Use All Layers, and set the brush to be a bit larger than the wire shadow. Move the mouse 1 to 2 brush widths from the wire shadow and (Option + click) [Alt + click] to define the clone source.
3. Select Stroke Path from the Paths palette menu (see figure 6.12). Select the Clone Stamp from the pull-down menu and click OK.

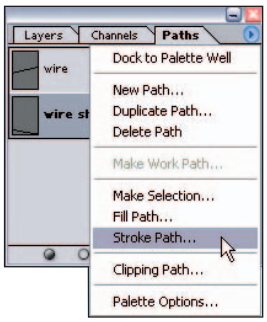

figure 6.12

Accessing the Stroke Path command.

4. Repeat with the path you made for each wire. If the alignment of the Clone Tool fix does not line up with the original image, simply erase the misaligned area and reclone over the area. To hide shorter sections of wire, I prefer to use the Shift + click method I described in the first scratch-removal example in this chapter.
5. If needed, add a new layer and (Option) [Alt] Layer > Merge Visible and fine-tune the repair with the Healing Brush.

Tip

If the Clone Stamp tool is active, you can just tap the Enter key (not the Return key on the Apple keyboard) by the numeric keypad, and Photoshop will stroke the active path with the Clone Stamp.

Hiding Clutter and Distractions

In the excitement of taking a picture, we often forget to look at the entire scene. We might not notice distracting clutter, bits of garbage on the sidewalk, or as seen in figure 6.13, the palm tree coming out of the woman's head that looks like a fantastic primal headdress. By removing the clutter and distractions, you can focus the viewer's attention on the picture and clean up the living room without getting out the vacuum (see figure 6.14).

figure 6.13

figure 6.14

You can't physically take something out of a digital image without leaving a white hole, but you can cover up distractions. You also could take the subject out of the image and put her on a new background (addressed in Chapter 7, "Rebuilding, Rearranging, and Re-creating Portraits"). In the following example, the palm tree coming out of the woman's head truly distracts from the picture; with just a few minutes of work and a tighter crop, you can produce a much better image.

ch6_palmtree.jpg

1. On a duplicate layer, use the Lasso tool to make a generous selection around the clutter to be removed. If the area is large or irregularly shaped (like the palm tree), start with a smaller area (see figure 6.15).

figure 6.15

Roughly selecting an area to be covered.

2. Press Q to enter Quick Mask mode and run the Gaussian Blur filter to soften the edge of the mask (see figure 6.16). This is identical to applying a feather to a selection, but the advantage is that you can see the effect that the blur, i.e. the feathering, is having on the selection edge.

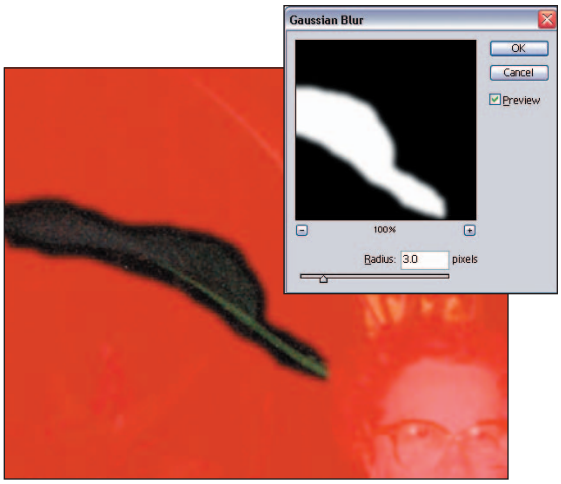

figure 6.16

Blurring the Quick Mask is identical to feathering the selection, except that you have an accurate preview of the effect.

3. Press Q again to exit Quick Mask mode and activate the selection.
4. With any selection tool, move the selection to an area that has uncluttered, good information, as shown in figure 6.17.
5. Create a new layer via copy with (Cmd + J) [Ctrl + J]. Use the Move tool to drag the good information over the bad. The result is shown in figure 6.18.
6. Continue the process with the remaining leaves and make sure to cover up any obvious edges, repeating patterns, or tone differences with the Clone Stamp tool set to Use All Layers.
7. Add a new layer (Option) [Alt] Layer > Merge Visible and go over the entire image at high magnification with the Clone Stamp and Healing Brush.
8. The final step is to crop the image if needed. In this example, the dark window above the women's heads doesn't add to the image and takes away visual focus. By cropping the image as you saw in figure 6.14, you can bring the image together much more strongly.

figure 6.17

Move the selection over to an area with good information.

figure 6.18

After floating the replacement area and moving it over the palm frond, you might need to do a bit of cleanup with the Clone Stamp tool to fine-tune the results.

REPAIRING TEARS, RIPS, AND CRACKS

Over the years, the photographs we cherish tend to get folded, cracked, torn, and damaged. If you're lucky, you'll at least have all the pieces to reconstruct the image. If you're not so lucky, you'll have to make up image information to reconstruct the missing pieces. In the following examples, the image was torn into pieces, which Wayne Palmer scanned on a flatbed scanner and then recombined in Photoshop to create the final image shown in figure 6.20.

As you can see in figure 6.19, the original print has been torn into five pieces. At first this looked like a daunting job, but after scanning the pieces on a flatbed scanner (Wayne used a piece of foam core to gently hold the pieces in place), the challenge morphed into a puzzle that required piecing the parts together and removing the ragged edges to make the image come to life, as you can see in figure 6.20.

figure 6.19

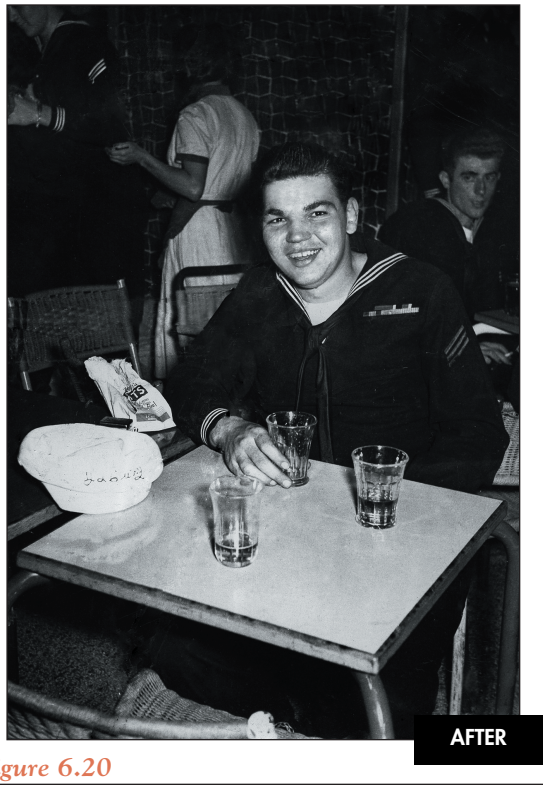

figure 6.20

ch6_rip.jpg

Tip

When scanning large print pieces or prints that are larger than your flatbed scanner platen, do not change the print orientation by rotating pieces. That will vary the reflectance of the paper texture between the pieces, making them difficult to merge.

1. Using the Lasso tool without feather, roughly select the first piece, as shown in figure 6.21.

figure 6.21

Roughly select a piece of the image with the Lasso tool.

2. Select the Magic Wand and (Option + click) [Alt + click] the white areas within the selection to subtract the large white areas of the scanner lid (see figure 6.22). Don't worry about removing the ripped paper edges from the selection; they may contain valuable image details.
3. (Cmd + J) [Ctrl + J] or Layer > New > Layer via Copy to place the selected print piece onto its own layer. I highly recommend naming the layers, as shown in figure 6.23.
4. You can make new layers only out of selections with pixel image information. Select the Background layer and repeat steps 1 and 2 for each piece of the image.

figure 6.22

Subtracting excess image information from the selection.

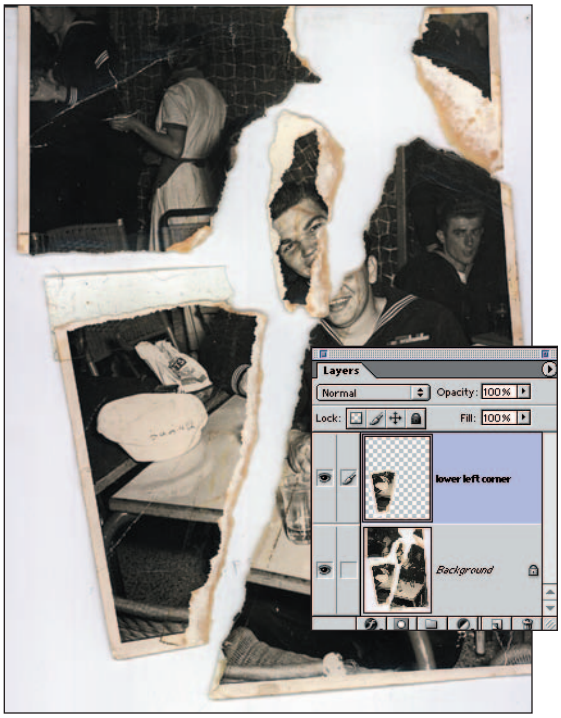

figure 6.23

After copying a section to its own layer, it is best to name it.

5. Because the Background layer is still intact, it could be confusing to see it while you are moving the individual pieces around. To block it from view but maintain the image data,

click the Background layer and add a new layer. Fill this with white to conceal the original Background layer.

6. When you have all the pieces on their own layers, the next step is to straighten them out. Select View > Show > Grid to use the grid and guides as a visual aid for alignment. Use Edit > Free Transform to position and rotate each piece roughly into place, as shown in figure 6.24.

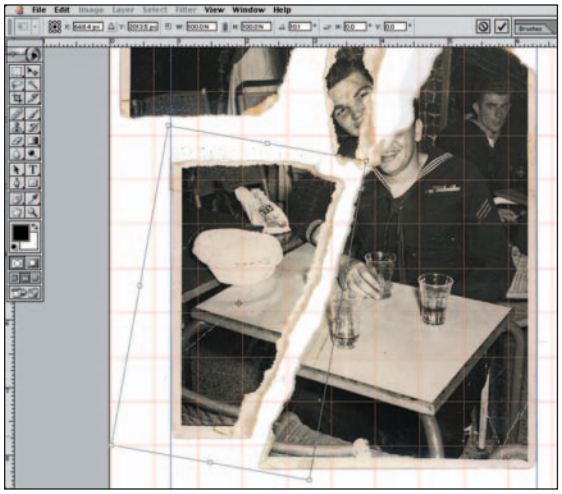

figure 6.24

Use Edit > Free Transform to position and rotate each piece roughly into place.

7. With the Move tool set to Auto Select Layer and Show Bounding Box, grab the lower-left corner piece and move it toward the large right piece (see figure 6.25). These two pieces come together well, but the ripped edge of the right corner print is covering up good image information of the left corner.

8. To control how the pieces come together, you could erase the ripped paper edge, but that approach is risky because it can be difficult to control, and by erasing, you are deleting pixels—something which always makes me very nervous. To control what is visible without actually removing it, use a layer mask on the piece of the image that is blocking good image information. In this case, the ripped edge of the large right piece is covering image information of the left piece.

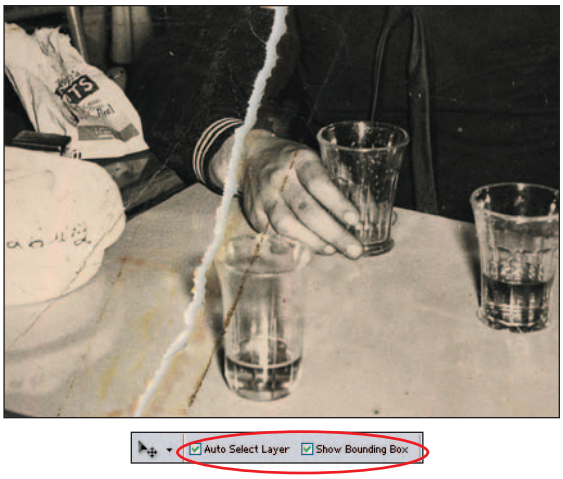

figure 6.25

Setting Auto Select Layer and Show Bounding Box will allow you to easily grab and move pieces with the Move tool.

9. Add a layer mask and use a small, hard-edged black brush to paint over the ripped edge. It will look as though you are erasing, but you're not, as you can see in figure 6.26. The black brush on the layer mask is concealing the image information, not deleting it.

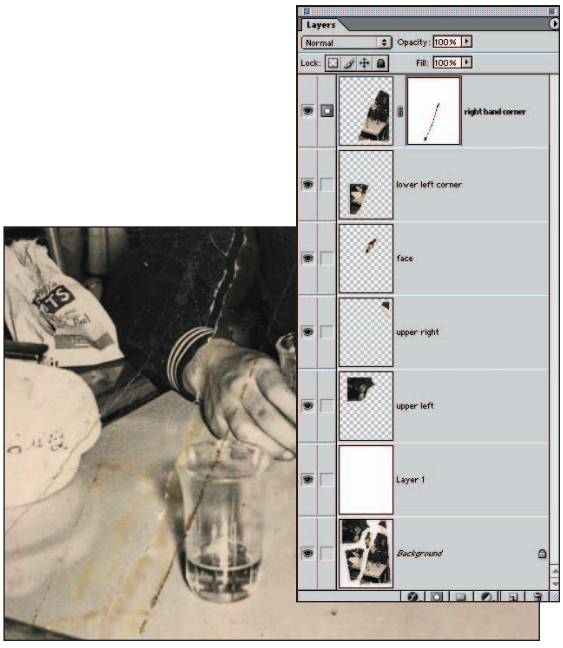

figure 6.26

Adding a layer mask and painting on it with a black brush hides the ripped edges without actually deleting them.

10. Continue moving pieces together and adding layer masks wherever the torn paper is blocking good image information, as seen in figure 6.27.

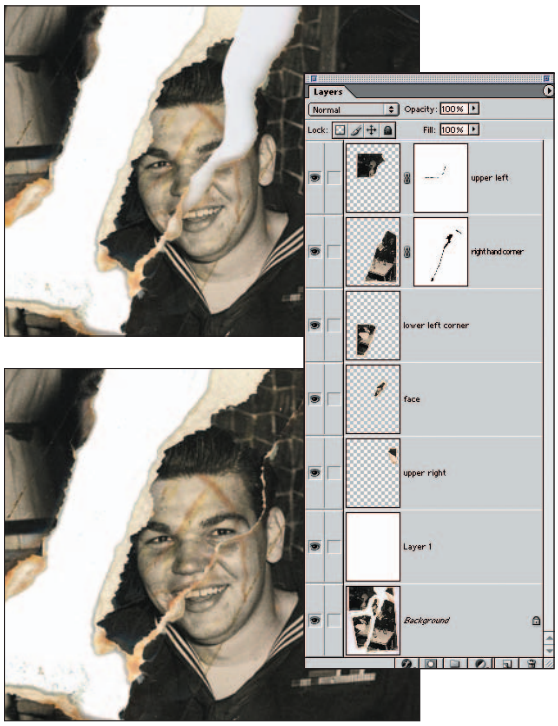

figure 6.27

Continuing to match pieces together while hiding torn areas with layer masks.

11. Once the pieces are together, add a new layer to the top of the layer stack and (Option) [Alt] Layer > Merge Visible to flatten all of the layers into one, as you see in figure 6.28.
12. Use a combination of Cloning and Healing as described previously to repair the remaining cracks and to build up image data.

All in all, when the pieces initially came out of the original envelope, the job looked like a hopeless cause. By thinking of the pieces as a puzzle, Wayne was able to piece them together seamlessly to create the final image, which the client loved.

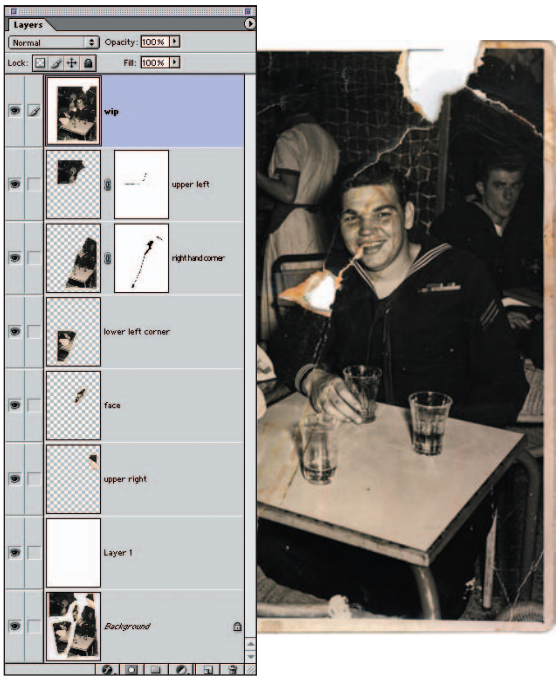

figure 6.28

Refine the rotation on a merged layer with the Clone and Healing tools.

REMOVING STAINS AND DISCOLORATION

The only dirt that you should remove from the physical print original is the type that you can brush or blow off easily. A professionally trained conservator should be the only one to treat stains that are embedded in the film or print emulsion. There are many types of stains and discoloration that can befall an image, ranging from overall yellowing to density changes caused by sun, fire, or water damage to child-inflicted scribbling with pens, markers, or crayons. To hide these injustices, you take advantage of channel information to rebuild the image with layers, cloning, and healing; and sometimes you even borrow image information from parts of the image that aren't stained.

Removing the Stain of Age

Photographs change over time. Especially older photographs, which may not have been processed to archival standards, have a tendency to yellow as the paper oxidizes and reacts with the cardboard it is mounted on or the box it is stored in. We can't stop time, but we *can* stop the staining. In figure 6.29, you see the original portrait of Ellie Kennard's great grandmother in Newfoundland, Canada. Figure 6.30 shows the image with the staining removed and with a slight sepia tone.

figure 6.29

figure 6.30

The first thing you need to recognize when working with old images from the 19th and early 20th century is that they were not in color and did not have a heavy yellow or sepia tone. They were originally black-and-white images, meaning that the color you see in the yellowed print is not important and it makes sense to pull the best black-and-white image from the file before doing any restoration work. The easiest and least effective method to change a color image to black and white is to use the Image > Mode > Grayscale feature in Photoshop. I highly recommend that you do not use this; I explain why in Chapter 8, "Refining and Polishing the Image." In the meantime, trust me and work along.

ch6_stain.jpg

1. Before converting a file to grayscale, always inspect the image channels either by clicking the words *red*, *green*, and *blue* in the channels palette or by using the command keys (Command) [Ctrl] 1, 2, and 3 to see the difference of the three channels (see figure 6.31). By inspecting the channels, you can see which ones have image information that you either want to preserve or ignore. You can see that the red and green are faint but still have useful information and that the blue channel is the most robust; but, alas, it also reveals the most image damage.

figure 6.31

Inspecting the individual color channels reveals many differences in detail and apparent damage.

2. Taking this knowledge into account, add a Channel Mixer Adjustment Layer and click Monochrome in the lower-left corner. By adjusting the sliders to add some of the red and green and a lot of the blue (see figure 6.32), you can create a black-and-white image that has good tonality and detail without including all of the damage that the blue channel is carrying.

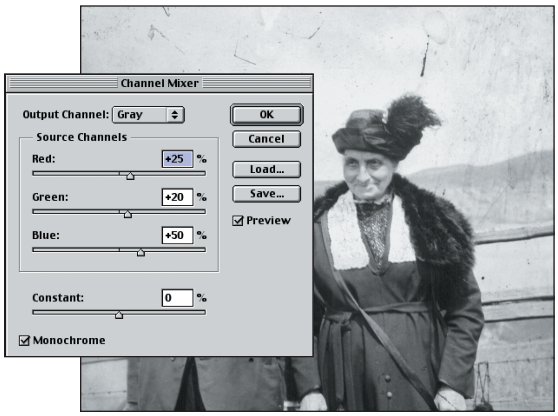

figure 6.32

Adjusting the Channel Mixer sliders to use only the best information from each channel.

3. Next you need to be very realistic and decide which parts of the image are not important. In other words, it doesn't make any sense to spend time repairing the sky when it is practically pure white due to the lack of blue response in the photographic emulsions available in the 19th century. Ellie selected the sky area by drawing around the figures with the Lasso tool.
4. Ellie sampled a light gray from the image, added a new layer, and filled the selection by selecting Edit > Fill > Use Foreground Color set to normal.
5. Then Ellie added a hint of monochrome noise to the sky (see figure 6.33). The noise adds visual texture and minimizes the sterile computer look.
6. Ellie then (Cmd + clicked) [Ctrl + clicked] the sky layer to load the layer transparency and, with the sky gray as a foreground and white as a background color, she selected Filter > Render > Clouds, as shown in figure 6.34. If the computer clouds are too artificial, select Edit > Fade Clouds immediately after running the filter and reduce the opacity.

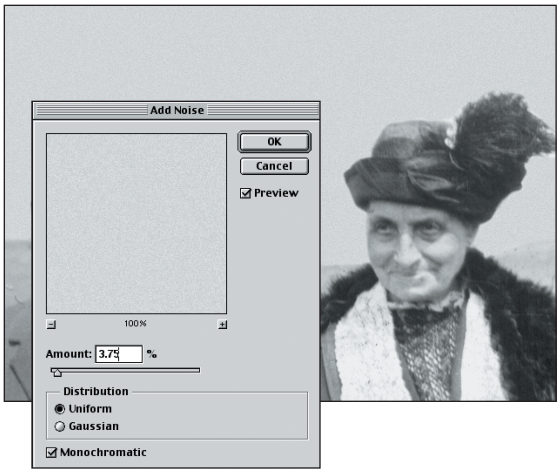

figure 6.33

Adding monochrome noise after filling the area with light gray.

figure 6.34

After using Filter > Render > Clouds on the active area.

7. To control the brightness of the sky without affecting the rest of the image, Ellie added a Levels adjustment layer that was grouped with the sky layer. She chose Layer > New Adjustment Layer and checked the Group With Previous (see figure 6.35). She reduced the brightness of the sky by lowering the Output Levels highlight value to 235.