

7 Retouching and Repairing



New features in Adobe Photoshop 7.0 and ImageReady 7.0 build on the success of the clone tool to make retouching photographs even easier and more intuitive. Thanks to the underlying technology supporting these new features, even touchups of the human face appear so lifelike and natural that it is difficult to detect that the photograph has been altered.

In this lesson, you'll learn how to do the following:

- Use the clone stamp tool to eliminate an unwanted part of an image.
- Use the pattern stamp tool and pattern maker to replace part of an image.
- Use the healing brush and patch tool to blend in corrections.
- Make corrections on a duplicate layer and adjust it for a natural look.
- Backtrack within your work session using the History palette.
- Use the history brush to partially restore an image to a previous state.
- Use snapshots to preserve earlier states of your work and to compare alternate treatments of the image.

This lesson will take about 45 minutes to complete. The lesson is designed to be done in Adobe Photoshop. Several of the tools and features used in these procedures are not available in ImageReady, including the healing brush tool, patch tool, pattern stamp tool, and Pattern Maker.

If needed, remove the previous lesson folder from your hard drive, and copy the Lesson07 folder onto it. As you work on this lesson, you'll overwrite the start files. If you need to restore the start files, copy them from the *Adobe Photoshop 7.0 Classroom in a Book* CD.

Note: Windows users need to unlock the lesson files before using them. For more information, see "Copying the Classroom in a Book files" on page 4.

Getting started

Before beginning this lesson, restore the default application settings for Adobe Photoshop. See "Restoring default preferences" on page 5.

Unlike most other lessons in this book, you'll work on three separate image files in this lesson. Each of these employs the different retouching tools in unique ways, so you'll witness the strengths and special uses of the various tools.

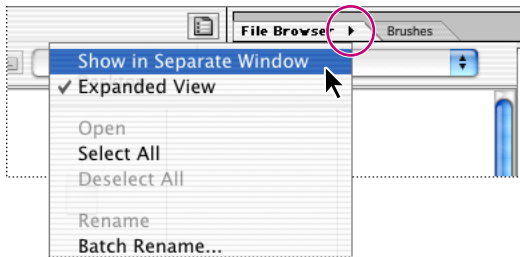
You'll start by using the File Browser to preview the three finished images that you'll retouch in this lesson and to open your first start file.

1 Start Adobe Photoshop.

If a notice appears asking whether you want to customize your color settings, click No.

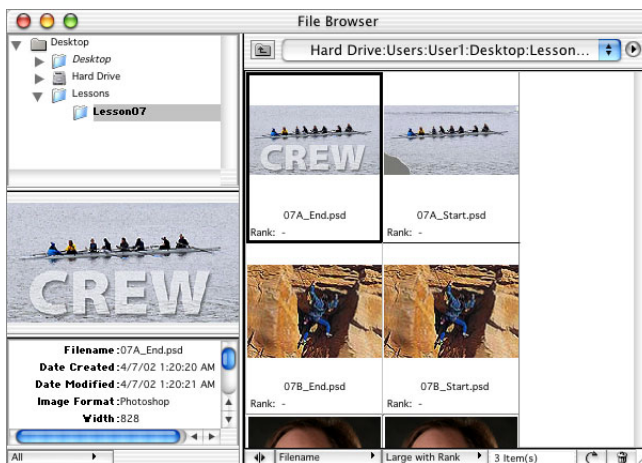
2 Choose File > Browse, or drag the File Browser tab from the palette well on the tool options bar to the center of your work area.

Or, after you select the File Browser tab in the palette well, you can click the arrow on the tab to open the File Browser palette menu, and then choose Show In Separate Window.



3 In the upper left pane of the File Browser, locate and select the Lessons/Lesson07 folder.

4 In the right pane, select the thumbnail for the 07A_End.psd file. If necessary, resize the middle pane on the left side of the File Browser (by dragging its upper, lower, and right edges) to see an enlarged thumbnail of the image.



The image includes a photograph of a women's crew team and some text in the foreground.

5 Select the other thumbnails in the Lesson07 folder to see the “before” and “after” states of the three images you’ll work on in this lesson:

- In the first project, you’ll repair a torn-off corner of the scanned image and then remove some distracting areas where a boat and its wake appear behind the rowers.
- In the second project, you’ll clean up the stone wall beside the climber to remove some graffiti and bullet holes from the surface of the rock.
- In the third project, you’ll retouch the portrait to remove some of the fine lines from the man’s forehead and around his eyes.

6 When you have finished previewing the files, double-click the thumbnail for the 07A_Start.psd to open the file. If necessary, zoom in to 100% and resize the image window so that you can see the entire image.

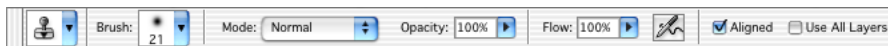
7 On the File Browser palette menu, choose Dock to Palette Well, or click the File Browser close button to close it.

Repairing areas with the clone stamp tool

The clone stamp tool uses pixels from one area of an image to replace the pixels in another part of the image. Using this tool, you can not only remove unwanted objects from your images, but you can also fill in missing areas in photographs you scan from damaged originals.

You’ll start by filling in the torn corner of the photograph with cloned water from another area of the picture.

- 1 Select the clone stamp tool (👤).
- 2 In the tool options bar, open the Brush pop-up palette and select a medium-sized brush with a soft edge, such as Soft Round 21. Then, make sure that the Aligned option is selected.



3 Move the clone stamp tool pointer to the center of the image so that it is at the same horizontal level as the top edge of the torn corner. Then, hold down Alt (Windows) or Option (Mac OS) so that the pointer appears as target cross hairs, and click to start the sample or copy at that part of the image.



4 Starting at the top edge of the torn corner of the photograph, drag the clone stamp tool over the missing area of the image.



Notice the cross hairs to the right of the clone stamp tool and how they follow the brush as you paint. The crosshairs indicate the area of the image that the clone stamp tool is using to paint.

5 When you finish cloning a small area of the missing corner, release the mouse button. Move the pointer to another area of the missing corner, and start dragging again.

Notice that the crosshairs reappear at the original sampling position. This happens because you selected the Aligned option, which resets the crosshairs at that position regardless of the position of the brush.

Note: When the Aligned option is not selected and you make multiple brush strokes, the crosshairs and the brush maintain the same spatial relationship (distance and direction) that they had when you started your first brush stroke, regardless of the location of the original sample site.

6 Continue cloning the water until the entire missing corner of the image is filled in with water.

If necessary to help make the surface of the water appear to blend in naturally with the rest of the image, you can adjust your cloning by resetting the sample area (as you did in Step 3) and recloning. Or, you can try deselecting the Aligned option and cloning again.

7 When you are satisfied with the appearance of the water, choose File > Save.



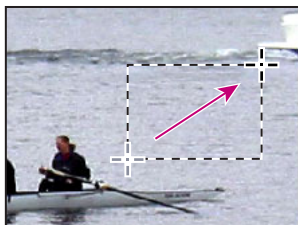
Using the pattern stamp tool

The next task to be done is to remove the boat and its wake from the upper area of the image. You could do this with the clone stamp tool, but instead you'll use another technique. Since the entire area has a similar pattern, you can use the new Pattern Maker feature in Photoshop 7.0 to create a realistic pattern that you can use to paint out the wake and boat.

Creating a pattern

You'll begin by defining a new pattern for your project.

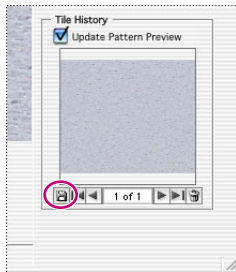
1 In the toolbox, select the rectangular marquee tool () . Then, drag to select an area of the water between the right end of the rowing shell and the wake. Make sure that your selection includes only water and that it does not include any of the wake behind the passing motor boat.



- 2 Choose Filter > Pattern Maker.
- 3 Under Tile Generation in the Pattern Maker dialog box, click the Use Image Size button.
- 4 Click Generate. The Pattern Maker image area fills with your water pattern.

 You can click Generate again to create variations on the pattern. Then, you can use the arrow buttons at the bottom of the right side of the dialog box to review the different patterns and select the one you want to use. However, for the water image, these will probably be quite similar.

- 5 Under Tile History in the lower right area of the dialog box, click the Saves Preset Pattern button ().



- 6 In the Pattern Name dialog box, type **Water**, and click OK to return to the Pattern Maker dialog box.
- 7 In the Pattern Maker dialog box, click Cancel to close the dialog box without replacing the image with the Water pattern.

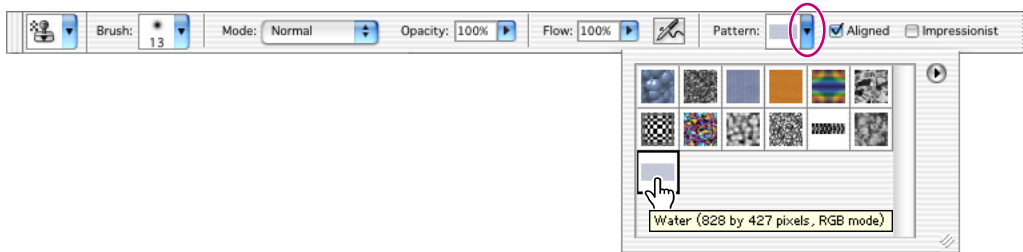
If you clicked OK instead of Cancel, the Pattern Maker dialog box would replace the entire image with the new pattern you've just created and saved. Replacing the image is not what you want to do, so Cancel is the right button to click.

Note: If you accidentally filled the image with water, choose Edit > Undo. Because you already saved your Water pattern, it is not lost and there is no need to redo this procedure. Furthermore, this pattern is now a permanent part of your Pattern set until you actively delete it, so you can apply the Water pattern to other Photoshop images, even in later work sessions.

Applying a pattern

Now you're ready to use your pattern to take out the boat and wake.

- 1 Choose Select > Deselect.
- 2 In the toolbox, select the pattern stamp tool () , hidden under the clone stamp tool ().
- 3 In the tool options bar, change the Brush selection to a brush about 13 pixels in diameter. Leave the Mode set to Normal, Opacity at 100%, Flow at 100%, and the Aligned checked box selected.
- 4 Click the arrow for the Pattern option to open the pattern picker. Then select the Water pattern you created earlier, and click outside the palette to close it. The Water thumbnail now appears in the Pattern option on the tool options bar.



 To identify a pattern, let the pointer hover over the thumbnail in the pattern picker for a few seconds until a tooltip appears, showing the pattern name and information about its dimensions and mode. Or, click the arrow button in the upper right area of the pattern picker to open the palette menu, and select one of the other display options that include the names: Text Only, Small List, or Large List.

- 5 In the image window, drag the pattern stamp tool brush over the wake and boat to replace them with the Water pattern. Continue painting with the pattern stamp tool until you are satisfied with the results.



You'll add just one final touch to this retouching project, and then you'll be finished working on this image.

6 In the Layers palette, click to place an eye icon (👁) in the CREW layer, so that the text is visible in the image window.



7 Choose File > Save, and then close the 07A_Start.psd file.

Using the healing brush and patch tools

The new healing brush and patch features in Photoshop 7.0 go one step beyond the capabilities of the clone stamp and pattern stamp tools. Using their ability to simultaneously apply and blend pixels from area to area, they open the door to natural-looking touchups in areas that are not uniform in color or texture.

In this project, you'll touch up the stone wall, removing some graffiti and bullet holes marring its surface. Because the rock has variations in its colors, textures, and lighting, it would be challenging to successfully use the clone stamp tool to touch up the damaged areas. Fortunately, the healing brush and patch tools make this process easy.

If you want to review the “before” and “after” versions of this image, use the File Browser, as described in “Getting started” on page 194.

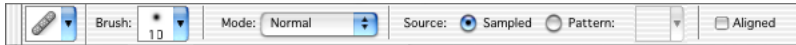
Using the healing brush to remove flaws

Your first goal for this image is to remove the initials marring the natural beauty of the rock wall.

1 Choose File > Open, and open the 07B_Start.psd file, or use the File Browser and double-click the thumbnail to open the file.

2 Select the zoom tool (🔍) and click the initials “DJ” that have been scratched into the lower left area of the rock, so that you see that area of the image at about 200%.

- 3 In the toolbox, select the healing brush tool (.
- 4 In the tool options bar, click the Brush option arrow to open the pop-up palette of controls, and drag the slider or type to enter a Diameter value of **10 px**. Then, close the pop-up palette and make sure that the other settings in the tool options bar are set to the default values: Normal in the Mode option, Sampled in the Source option, and the Aligned check box deselected.



- 5 Hold down Alt (Windows) or Option (Mac OS) and click a short distance above the scratched-in graffiti in the image to sample that part of the rock. Release the Alt/Option key.



- 6 Starting above the graffiti “D,” paint straight down over the top part of the letter, using a short stroke.

Notice that as you paint, the area the brush covers temporarily looks as if it isn’t making a good color match with the underlying image. However, when you release the mouse button, the brush stroke blends in nicely with the rest of the rock surface.



- 7 Continue using short strokes to paint over the graffiti, starting at the top and moving down until you can no longer detect the graffiti letters.

When you finish removing the graffiti, look closely at the surface of the rock, and notice that even the subtle striations in the rock appear to be fully restored and natural in the image.



8 Zoom out to 100%, and choose File > Save.

About snapshots and History palette states

When you do retouching work, it can be easy to over-edit images until they no longer look realistic. One of the safeguards you can take to save intermediate stages of your work is to take Photoshop snapshots of the image at various points in your progress.

The History palette automatically records the steps you take when you work on a Photoshop file. You can use the History palette states like a multiple Undo command to restore the image to previous stages in your work. For example, to undo the most recent six steps, simply click the sixth step above the current state in the History palette. To return to the latest state, scroll back down the History palette and select the state in the lowest position on the list.

The number of steps saved in the History palette is determined by a Preferences setting. The default specifies that only the 20 most recent steps are recorded. As you perform additional steps, the earliest states are lost as the latest ones are added to the History palette.

When you select an earlier step in the History palette, the image window reverts to the condition it had at that phase. All the subsequent steps are still listed below it in the palette. However, if you select an earlier state in your work and then make a new change, all the states that appeared after the selected state are lost, replaced by the new state.

***Note:** The following technique is not recommended when you work with large or complex images, such as ones with many layers, because this can slow down performance. Saving many previous states and snapshots is RAM-intensive. If you work frequently with complicated images that require maximum RAM, you should consider reducing the number of history states saved by changing that setting in your Photoshop Preferences.*

Snapshots give you an opportunity to try out different techniques and then choose among them. Typically, you might take a snapshot at a stage of the work that you are confident that you want to keep, at least as a base point. Then, you could try out various techniques until you reached a possible completed phase. If you take another snapshot at that phase, it will be saved for the duration of the current work session on that file. Then, you can revert to the first snapshot and try out different techniques and ideas for finishing the image. When that is finalized, you could take a third snapshot, revert to the first snapshot, and try again.

When you finish experimenting, you could scroll to the top of the History palette to where the snapshots are listed. Then, you can select each of the final snapshots in turn and compare the results.

Once you identify the one you like best, you could select it, save your file, and close it. At that time, your snapshots and History palette steps would be permanently lost.

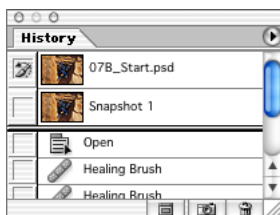
Taking a snapshot

Because you are satisfied with the results of your healing the graffiti marks, now is a good time to take a snapshot. This will serve as a baseline for any future experimentation.

- 1 If the History palette is not open, choose Window > History. If necessary, scroll to the bottom of the History palette so that you can see the last change you made to the image, and make sure that you leave that state selected.
- 2 Click the New Snapshot button (📷) at the bottom of the History palette to create a snapshot of the current state.



- 3 Scroll to the top of the History palette. A new snapshot, Snapshot 1, appears at the top of the palette.



- 4 Double-click the words *Snapshot 1* and type **Post-graffiti** to rename the snapshot.

Note: You can also take snapshots of earlier phases of your current work session. To do this, scroll to that step in the History palette, select it, and click the New Snapshot button at the bottom of the palette. After you rename the snapshot, reselect the step at which you want to continue working.

- 5 Make sure that either the Post-graffiti snapshot or the last state in the History list is selected in the History palette. Then choose File > Save.

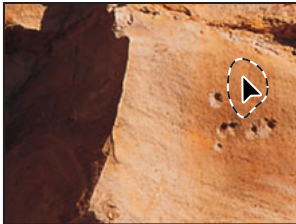
Using the patch tool

The patch tool combines the selection behavior of the lasso tool with the color-blending properties of the healing brush tool. With the patch tool, you can select an area that you want to use as the source (area to be fixed) or destination (area used to do the fixing). Then you drag the patch tool marquee to another part of the image. When you release the mouse button, the patch tool does its job. The marquee remains active over the mended area, ready to be dragged again, either to another area that needs patching (if the Destination option is selected) or to another sampling site (if the Source option is selected).

- 1 In the toolbox, select the patch tool (🔧), hidden under the healing brush tool (🖌️).
- 2 In the tool options bar, make sure that Source is selected.
- 3 Drag the patch tool cursor around a few of the bullet holes to the right of the climber, as if you were using the lasso tool, and then release the mouse.



- 4 Now that you've defined the area to be patched, drag the selection to an unblemished area of the rock, preferably one that is similar in color to the rock around the bullet holes but this is not absolutely necessary.



When you release the mouse, the selection marquee snaps back to its original position over the bullet holes, replacing and blending the bullet-hole pixels with pixels from the unblemished area.

- 5 Drag a new patch-tool selection around some of the other bullet holes and then drag to an unblemished area of the image. Continue to patch the image until all the scars are repaired to your satisfaction. (Don't overlook the holes on the left side of the image.)
- 6 Choose Select > Deselect.
- 7 Choose File > Save.

Using the history brush tool to selectively reedit

Even with the best tools, retouching photographs so that they look completely natural is an art and requires some practice. Examine your rock-climber image critically to see if any areas of your work with the healing brush or patch tools are now too uniform or smooth so that the area no longer looks realistic. You'll correct that now with another tool.

The history brush tool is similar to the clone stamp tool. The difference between them is that instead of using a defined area of the image as the source (as the clone stamp tool does), the history brush tool uses a previous state as the source.

The advantage of the history brush tool is that you can restore limited areas of the image. Because of this, you can keep the successful retouching effects you've made to some areas of the image and restore other, less successfully retouched areas to their previous state so that you can make a second attempt.

- 1 In the toolbox, select the history brush tool ().
- 2 Scroll to the top of the History palette and click the empty box next to the Post-graffiti snapshot to set the source state that the history brush tool will use to paint.
- 3 Drag the history brush tool over the area where the bullet holes appeared before you edited them to start restoring that part of the image to previous condition. The bullet holes reappear as you paint.



4 Using the tool options bar, experiment with the different settings for the history brush tool, such as Opacity and Mode. Notice how these affect the appearance of the rock as you paint.

If you don't like the results of an experiment, choose Edit > Undo, or click a previous step at the bottom of the History palette to revert to that state.

5 Continue working with the history brush and patch tools until you are satisfied with the final appearance of your image.

6 Choose File > Save.

You've finished your work on this image.

7 Choose File > Close to close the file.

Retouching on a separate layer

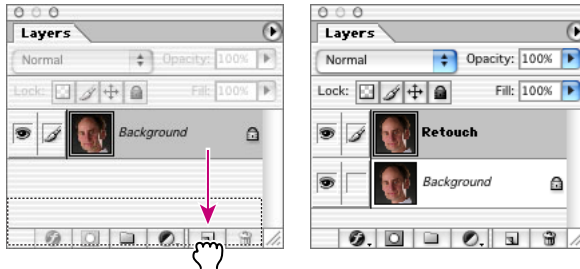
In the previous project, you safeguarded your retouching work by using snapshots and the history brush tool. Another method of protecting your original image is to do your retouching work on a duplicate layer of the original image. Then, you can retouch the duplicate layer. When you finish retouching, you can blend the two layers. This technique usually enhances the results, making your touchup work look more natural and realistic.

Using the healing brush on a duplicate layer

For this project, you'll work on a portrait photograph. To review the "before" and "after" sample file, click the File Browser tab in the palette well and examine the 07C_Start.psd and the 07C_End.psd files.

1 When you are ready to start working, double-click the thumbnail of the 07C_Start.psd file in the File Browser to open the file, and then click the File Browser tab to dock it in the palette well. Or, choose File > Open and select the 07C_Start.psd file in the Lessons/Lesson07 folder.

2 In the Layers palette, drag the Background layer onto the New Layer button (📄) at the bottom of the palette to create a duplicate layer. Double-click the new layer and type **Retouch** to rename the layer; leave the Retouch layer selected.



3 In the toolbox, select the healing brush tool (👉), which may be hidden under the patch tool (👉).

4 In the tool options bar, open the pop-up Brush palette and set the brush diameter at 12 pixels. Close the palette and select the Aligned check box. Leave the other settings at the defaults (Normal selected as the Mode option and Sampled selected for Source).



Notice the two wrinkles running horizontally across the man's forehead.

5 Hold down Alt (Windows) or Option (Mac OS) and click a smooth area of the forehead, on the left side of the image to set the sample point. Then drag the healing brush tool over the lower of the two forehead wrinkles.



As you drag, the image looks as if you must be doing something terribly wrong because the painted pixels appear much, much darker than the man's natural skin tones. However, when you release the mouse button, the colors self-correct so that the wrinkle is covered and the skin looks quite natural.

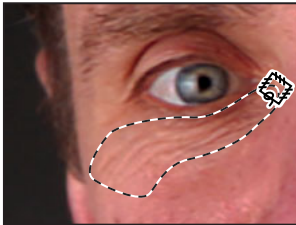
- 6 Continue painting with the healing brush tool to remove the upper forehead wrinkle and the furrow line between the eyebrows.



Patching and softening using the separate layer

You'll continue to do cosmetic work on the face image, using the patch tool and the duplicate layer you created in the previous topic. Make sure that the Retouch layer is selected in the Layers palette before you begin.

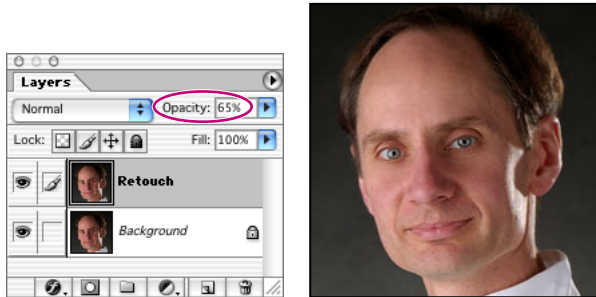
- 1 In the toolbox, select the patch tool () , hidden under the healing brush tool (). Then drag a marquee around the wrinkles under one of the man's eyes.



- 2 Move the patch tool inside the selected area and drag it to a smooth area on the man's forehead. Then use the same technique to erase the wrinkles under the other eye.
- 3 Continue to touchup the man's face with the patch tool until most of the wrinkles are hidden or at least softened.

It is especially important that cosmetic touchups on the human face look as natural as possible. There's an easy way to make sure that your corrections aren't too smooth or plastic looking. You'll do that now.

4 In the Layers palette, change the Opacity value of the Retouch layer to **65%**. Now hints of the heaviest skin creases appear in the image, giving the enhanced image a convincing realism.



5 Click the eye icon (👁) for the Retouch layer off and on to see the difference between the original image and the corrected one.

6 When you are satisfied with your results, open the Layers palette menu and choose Flatten Image.

Flattening the image reduces the file size, making the file more efficient. However, after you flatten the image, you cannot separate the two layers again.

7 Choose File > Save.

Now the image has just one layer, combining the unaltered original background and the partly transparent retouched layer.

Congratulations, you've finished your work on this lesson. Close any open files.

Review questions

- 1 Describe the similarities and differences of the clone stamp tool, the pattern stamp tool, the healing brush tool, the patch tool, and the history brush tool.
- 2 What is a snapshot and how is it useful?
- 3 What difference does it make if you select or don't select the Aligned option for a retouching tool?
- 4 Can you use patterns and snapshots in later work sessions or other image files?

Review answers

- 1 The retouching tools have the following similarities and differences:
 - Clone stamp tool: As you paint, the tool duplicates the pixels from another area of the image. You set the sample area by holding down Alt (Windows) or Option (Mac OS) and clicking the clone stamp tool.
 - Pattern stamp tool (Photoshop only): As you paint, the tool lays down pixels based on a pattern that you designate. You can create this pattern from an area of the current image, from another image file, or from the default set provided with Adobe Photoshop 7.0.
 - Healing brush tool (Photoshop only): This tool works like the clone stamp tool except that Photoshop calculates a blending of the sample pixels and the painting area, so that the restoration is especially subtle yet effective.
 - Patch tool (Photoshop only): This tool works like the healing brush tool except that instead of using brush strokes to paint from a designated area, you drag a marquee around the area and then drag the marquee over another area to mend the flawed area.
 - History brush tool: This tool works like the clone stamp tool except that it paints pixels from a designated previous state or snapshot that you select in the History palette.
- 2 A snapshot is a temporary record of a specific stage in your work session. The History palette saves only a limited number of steps. After that, each new step you perform removes the earliest step from the History palette. However, if you take a snapshot of your work at any available step and then continue working, you can revert to that phase later by selecting the snapshot in the History palette, regardless of how many steps you've done in the meantime. You can save multiple snapshots, as needed.

3 The Aligned option governs the relationship between the sample site and the brush. The difference between selecting or not selecting the Aligned option is significant only if you use multiple strokes as you retouch—that is, if you change the position of the pointer between brush strokes.

- If Aligned is selected, then the sampling crosshairs go back to the original sample site each time you start a new brush stroke.
- If Aligned is not selected, then the sampling crosshairs maintain the same relative position to the brush as when you started the first brush stroke, so that an imaginary line between the brush and the crosshairs would always have the same length and direction.

4 The patterns you create and save in the Photoshop Pattern Maker dialog box are saved with the application. Even if you close the current file, switch to another project, quit Photoshop, or reset your Photoshop preferences, that pattern will still be available in the pattern picker. (However, you can actively remove patterns, which deletes the pattern permanently.) Snapshots are deleted when you close the image file and cannot be recovered in later work sessions on that file. Snapshots are available only in the image file in which you created them.