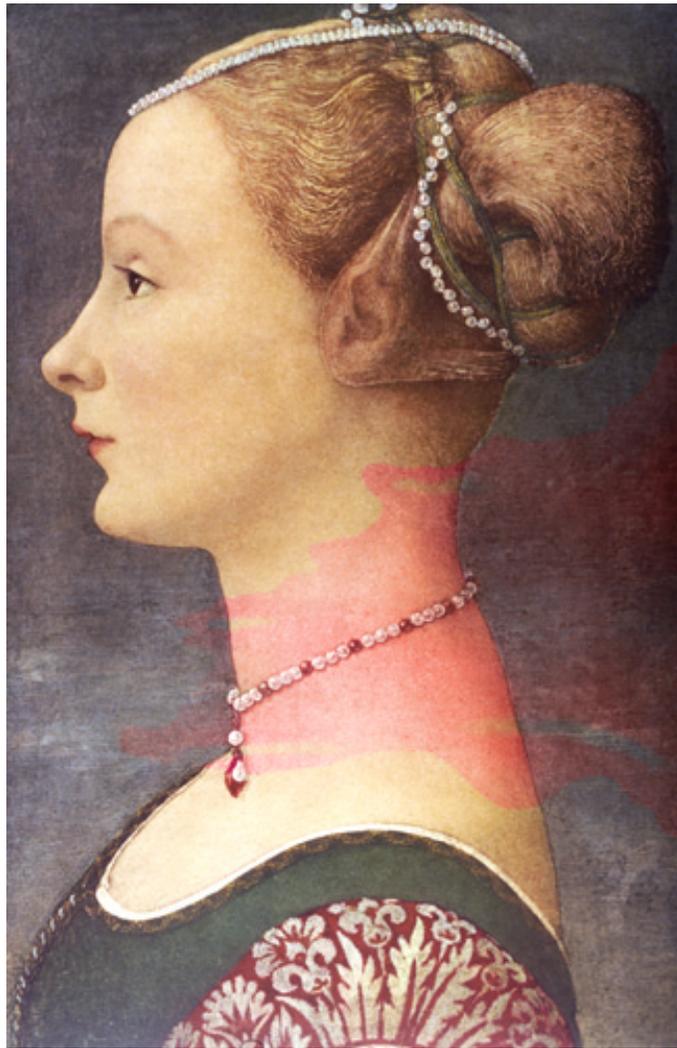


# Digital Stain Remover



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



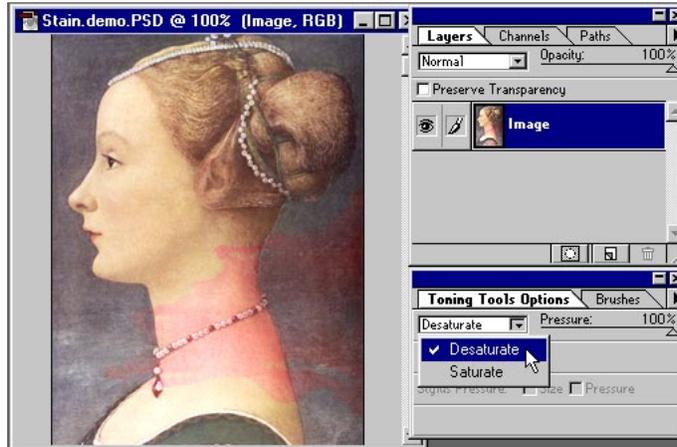
ADVANCED



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.

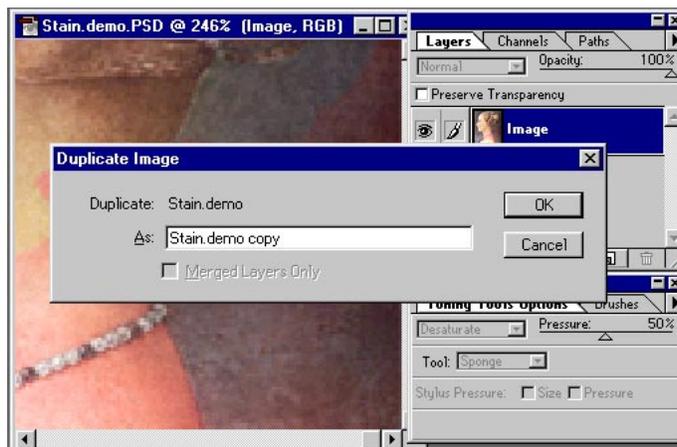
2. Use a combination of pressure settings to gently blend the stained area into the natural background. Also, use a combination of soft- and hard-edged brushes to treat different areas of the image. In this case, I also removed the stain from the pearls around the woman's neck.



### 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.

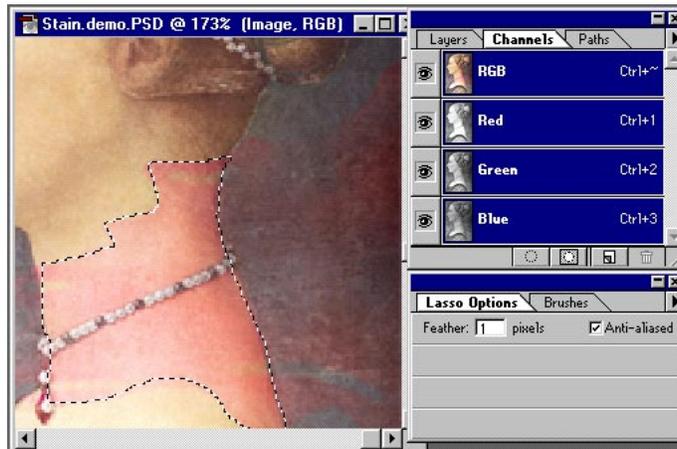
6. Notice that the Blue channel is unaffected by the red wine stain. This channel is not a problem, and we do not need to correct it in any way. The Blue channel also contains a significant portion of the detail in the image, and if we do not have to change it, we can maintain the integrity of the brush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



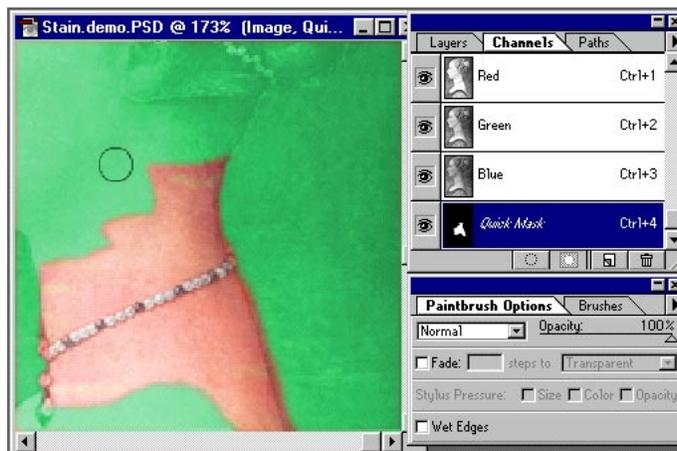
**Note:** Earlier we corrected the background of this image. We should not see any major difference in values between the different channels shown on this page.

## 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.

## STAGE 4: NEUTRALIZING THE STAIN

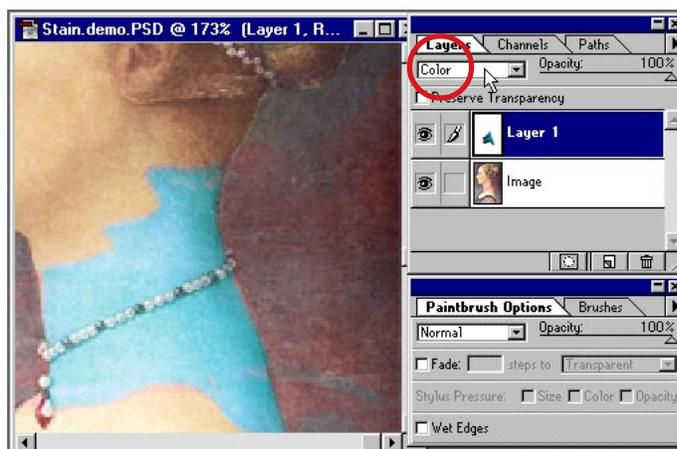
10. Return to Selection mode by pressing the Q key. Choose Layer > New > Layer Via Copy (Ctrl/Command+J) to copy the selected area to a new layer.



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.



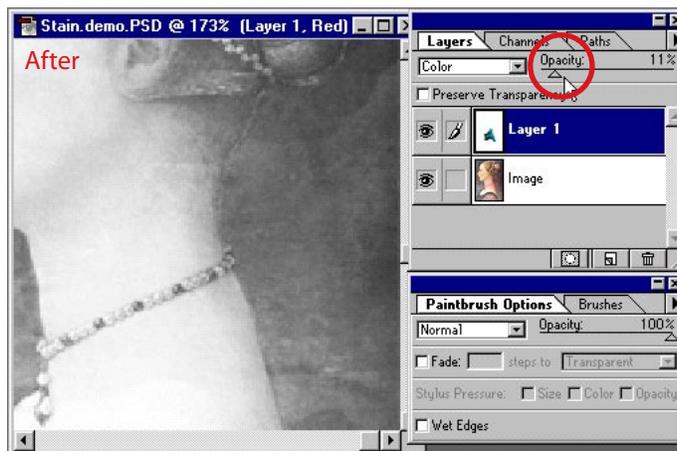
*In the next few steps, we will correct the individual Red and Green channels of this image. Then we will copy the corrected results and place them into the second image. A little complex, but it works!*

## 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.

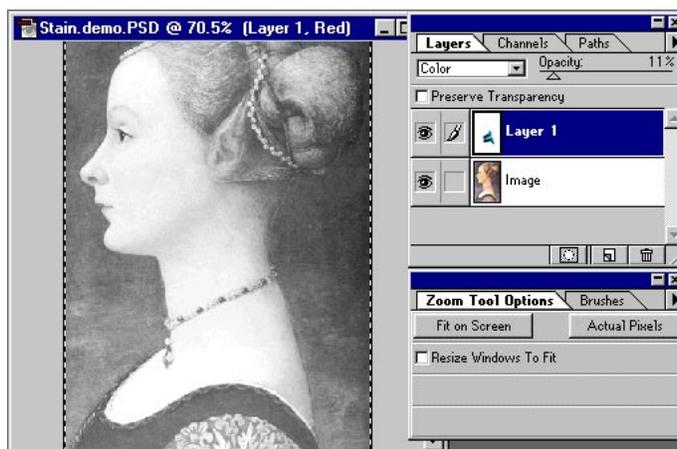


14. Here is where the magic starts! Adjust the opacity of the second layer until the gray values in the Red channel match the surrounding image. It's magic! It's amazing! Your friends and relatives will be thrilled! Here you see that, by adjusting the opacity of the inverted layer, we can neutralize 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.

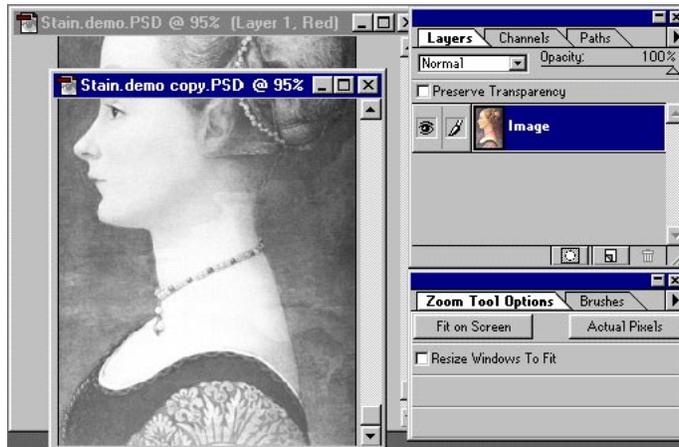


**Define Pattern**  
Define Pattern is one of the few ways to make a copy of a composite image. The Copy command will not copy information on other layers.

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

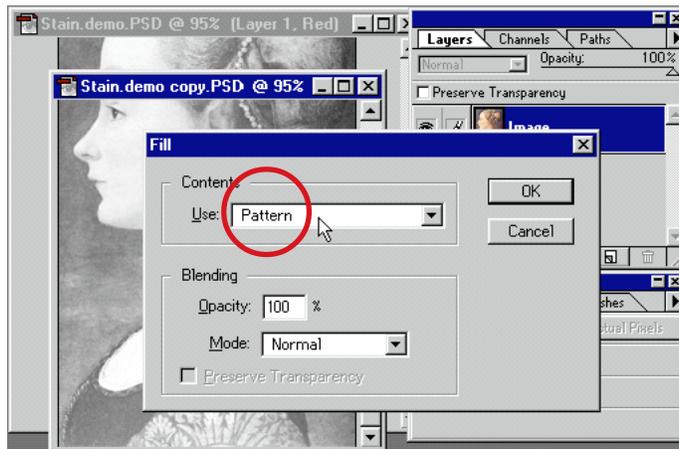
## STAGE 5: DIGITAL MAGIC

16. After you define the pattern, bring the second copied image to the foreground. Press Ctrl/Command+1 on the keyboard. This displays the Red channel only.



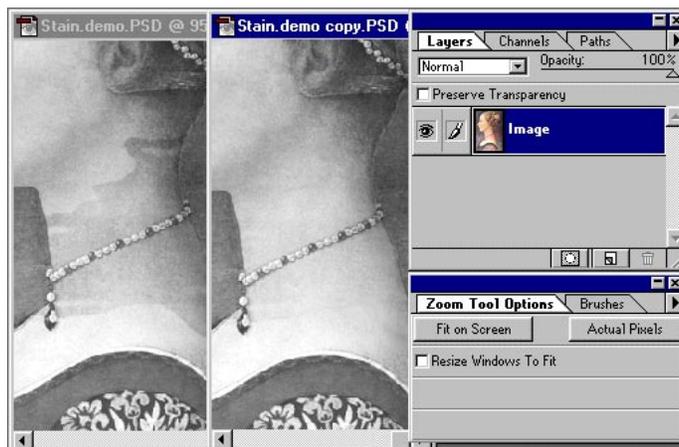
**Note:** Copying corrections directly into the original will not work! The corrected channels must be integrated with a copy of the image to make this technique work.

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.



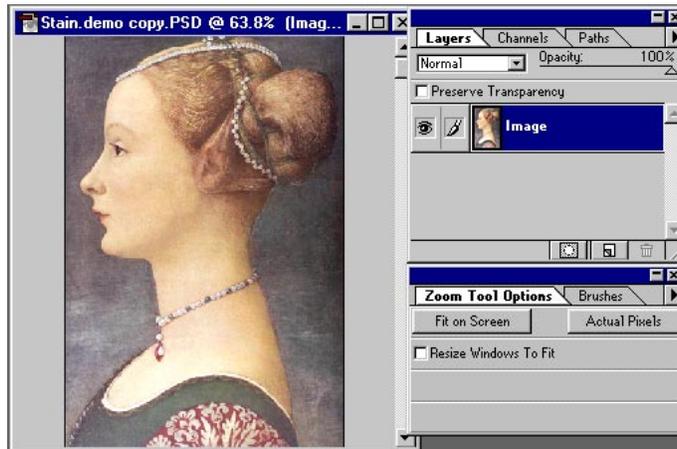
**Pattern Fill**  
Remember, filling with a pattern is the only technique that works. In this case, only the Red and Green channels must be replaced.

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!

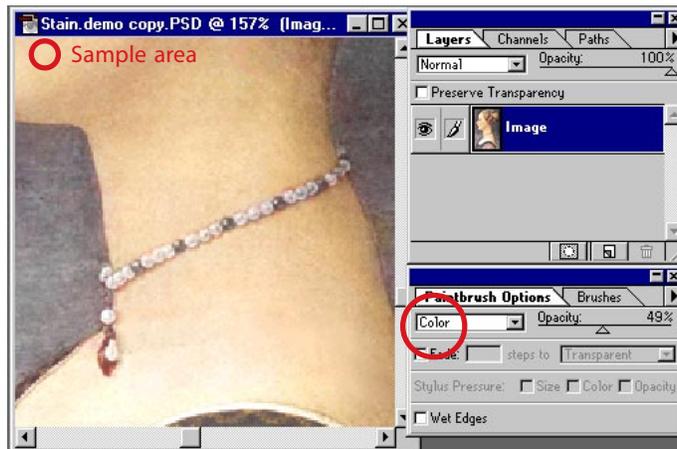


## STAGE 5: DIGITAL MAGIC

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.



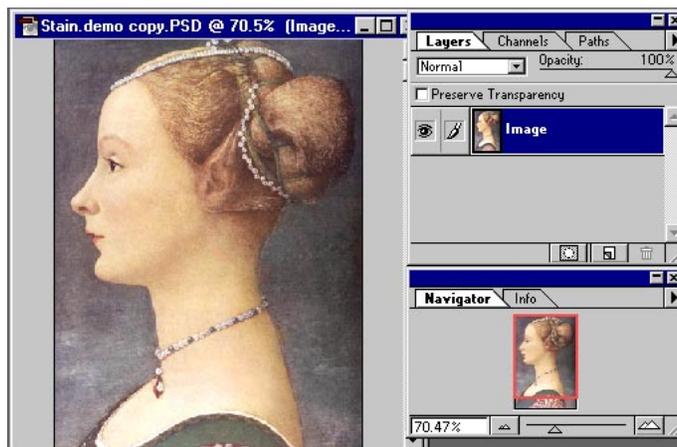
20. We can easily fix this with a soft-edged brush set to Color mode and opacity of 50% or less. Press the Alt/Option key to sample the color you want to use in that area (a Sample Size of 3 by 3 Average is best), and then paint over it with the new color.



### 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!



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Photography: Classic PIO Partners, Doug Menez and PhotoDisc

Special thanks to Russ Sparkman