Digital Restoration from Start to Finish

Ctein

Fixing Color Stains and Development Marks

Sometimes photofinishers misprocess film. Figure 6-52 shows a photo-graph from a 35-mm negative that received improper agitation. There are pink and green bands along the edges where the developer flowed unevenly around the sprocket holes in the film. This ruined an other-wise good-looking photograph. Fortunately, I can fix that digitally.

Often the best way to tackle a color stain problem like this is to convert the photograph from RGB to Lab color. Lab has three channels, like RGB, but they're quite different. The first channel is a Lightness (or Luminosity, L) channel that holds the information about how bright and dark the photograph is (Figure 6-53). The second channel, the "a" channel, represents how green or magenta the color is. The closer the tone is to white in that channel, the more magenta; the closer to black, the more green. Middle gray is neutral. The last channel, the "b" channel, represents how yellow or blue the color is, white being pure yellow and black pure blue.

You can see why Lab space is good for correcting this problem. The surge marks are almost invisible in the Lightness and b channels; the problem is mostly with the a channel. Fix that channel, and the photograph will look much better.

The Brush works well for this. I sampled the color midway between a pink and green band. The circle in Figure 6-54 shows a good sample point. Then I clicked the *a* channel to activate it and turn off the other two channels. I painted over the bands with the airbrush. The bands were almost eliminated, as you can see in the *a* channel and full-color images of Figure 6-55.

The wall didn't come out perfectly. Although the worst of the color banding is eliminated, you'll notice some fainter pink and green splotches caused by the uneven development. It was easy to paint those away by sampling the color midway between them. I dialed back the opacity on the Brush to about 30% so that I could paint over the variations in the *a* channel with more control, blending the "light" and "dark" areas into each other. After I finished cleaning up the color, I switched to the Luminosity channel and used the dodging tool to soften the harsh shadows on the wall (Figure 6-56).

This was easy staining to fix because the wall was pretty uniform. In most photographs the bands and stains cross a variety of tones and colors. To correct those, you have to use more than one color with the airbrush, sampling between each pair of bands to get the right color for that part of the picture. The concept is the same; it just takes more work.

Fig. 6-53 The individual channels of Figure 6-52 in Lab space. Almost all of the development damage is in the *a* channel; it's hardly visible in the *L* or *b* channels. See the main text for an explanation of what Lab space is.

Fig. 6-54 This screenshot shows the appropriate point to sample for the correct average color to repair the development bands—it's midway between the pink and green bands.

Fig. 6-55 The upper figure is the *a* channel after airbrushing; the lower figure is the full-color photograph, showing how much of the developer bands has been removed by this single correction.
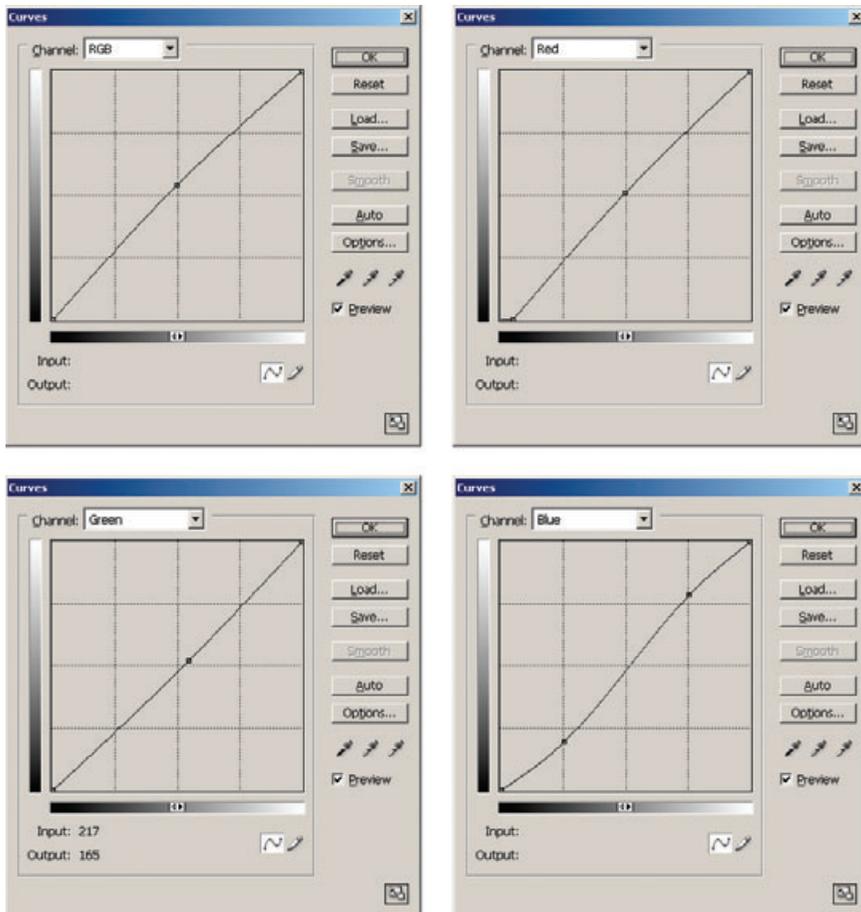
Fig. 6-56 After further airbrushing of the *a* channel and some dodging of the shadows in the *L* channel, the wall in the background looks much smoother, and the distracting shadows are suppressed.

Fig. 6-57 The photograph from Figure 6-56 after applying the Curves adjustment from Figure 6-58. Overall color balance is restored by those curves, and this photograph is now ready for the finishing touches that will make the color perfect.

When you're done cleaning up the *a* channel, you can convert the photograph back to RGB color to continue your restoration. That was what I did to finish up the photograph in Figure 6-57. I blurred the wall to smooth out the distracting shadows and made Curves adjustments to correct the tone and color (Figure 6-58).

Curves

Channel: RGB

OK
Reset
Load...
Save...
Smooth
Auto
Options...

☑ Preview

Input:
Output:

Curves

Channel: Red

OK
Reset
Load...
Save...
Smooth
Auto
Options...

☑ Preview

Input:
Output:

Curves

Channel: Green

OK
Reset
Load...
Save...
Smooth
Auto
Options...

☑ Preview

Input: 217
Output: 165

Curves

Channel: Blue

OK
Reset
Load...
Save...
Smooth
Auto
Options...

☑ Preview

Input:
Output:

Fig. 6-58 These curves correct the color and tonality of Figure 6-57. The RGB curve slightly lightens the photograph. The red curve fixes some minor color crossover, eliminating a cyan cast from the highlights and taking excess red out of the shadows. The green curve makes the photograph overall more neutral by adding magenta (reducing green). The blue curve eliminates a substantial amount of color crossover, making the shadows considerably more yellow and highlights significantly bluer.