

Fig. 10-7-a Photocopies of photographs can be restored! This memorial photograph from a color snapshot was screened and poorly photocopied onto nonarchival paper. After less than a decade, lots of dark spots have appeared.



Example 7: Fixing a Photocopied Halftone

The photograph in Figure 10-7-a is a clipping from a memorial service pamphlet that was printed in the late 1990s. It was not very good to begin with; the original photograph, presumably a color snapshot, was screened and poorly photocopied for the leaflet. During its short life it's gotten much worse, because the nonarchival paper started developing brown spots and freckles, which are easily seen in the enlargement on the right.

The first restoring step was to get rid of the halftone screen. I turned to the Focus Magic stand-alone program, which includes a Despeckle filter for eliminating halftone dots (see Chapter 9, page 321). Figure 10-7-b, top, shows the Focus Magic control panel. I selected a dot pitch of 17 pixels, which closely matched the spacing between halftone dots. Running the program produced the result shown in Figure 10-7-b, bottom.

The original halftone screen has been replaced by a low-contrast secondary pattern with a spacing of 8 pixels. I ran the program again with the settings shown in Figure 10-7-c and got a nearly dot-free result. The descreened photograph, converted to grayscale, is shown in Figure 10-7-d; compare it to Figure 10-7-a.

Next I went after the horizontal photocopy "scan lines" that are visible throughout the photograph. I created a Curves adjustment layer to use as a burn-in layer (see Chapter 5, page 160) with the curve shown

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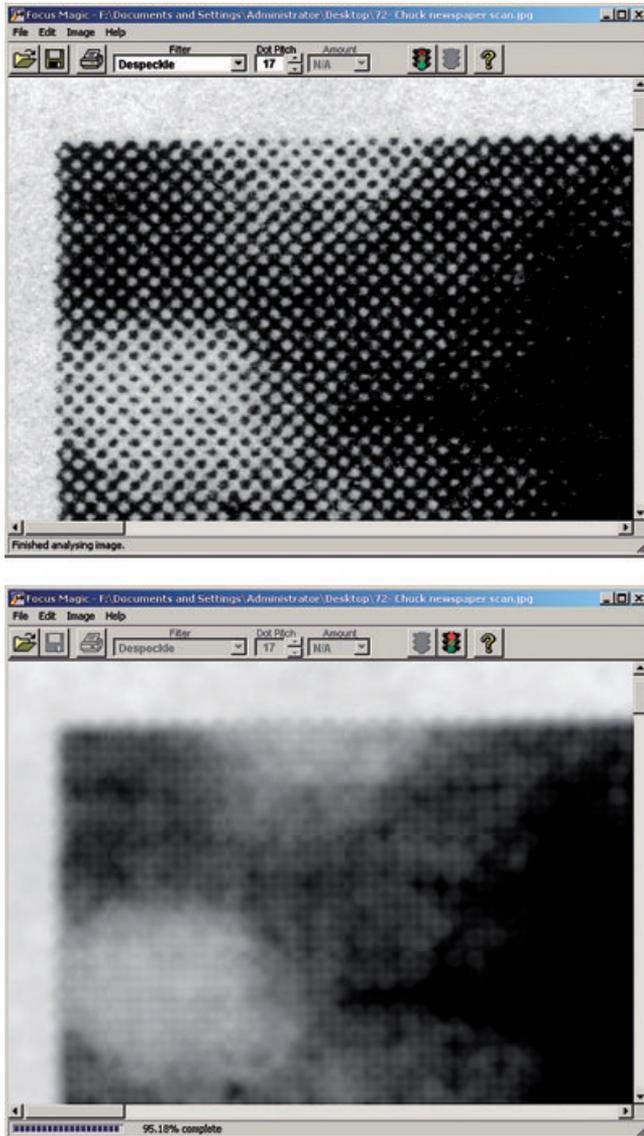


Fig. 10-7-b Focus Magic's stand-alone application is a good tool for eliminating halftone screens. The top figure shows the Focus Magic control panel previewing the upper corner of the photocopy before descreening. The bottom figure shows the photocopy after it's been "despeckled" with a 17-pixel radius. There's still some residual screen pattern.

in Figure 10-7-e. I filled in the mask channel for that layer with black and used a white brush to paint over the scan lines, darkening them until they blended into the surroundings. The finished burn-in mask is on the right in Figure 10-7-e. Figure 10-7-f shows an enlarged section of the photograph before and after burning-in, so you can see in detail how the mask worked to subdue the lines.

Fig. 10-7-c A second pass with Focus Magic, using an 8-pixel radius, completely removes the screen pattern. Figure 10-7-d shows the results.

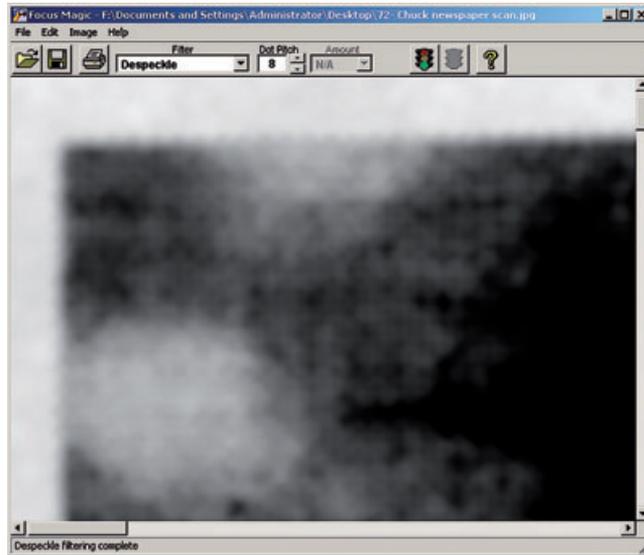


Fig. 10-7-d This is what Figure 10-7-a looks like after being despeckled with Focus Magic and converted to grayscale. The photograph is almost as sharp as the original photocopy, but that annoying screen pattern is entirely gone. Copier "scan lines" mar the photograph, though.



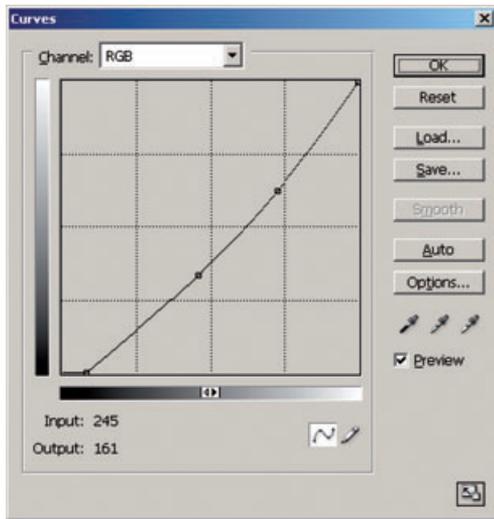


Fig. 10-7-e A burn-in Curves adjustment layer can get rid of scan lines like those in Figure 10-7-d. The burn-in curve that I used is shown on the left. After I brushed out all the scan lines, the finished mask for that adjustment layer looked like the right figure.

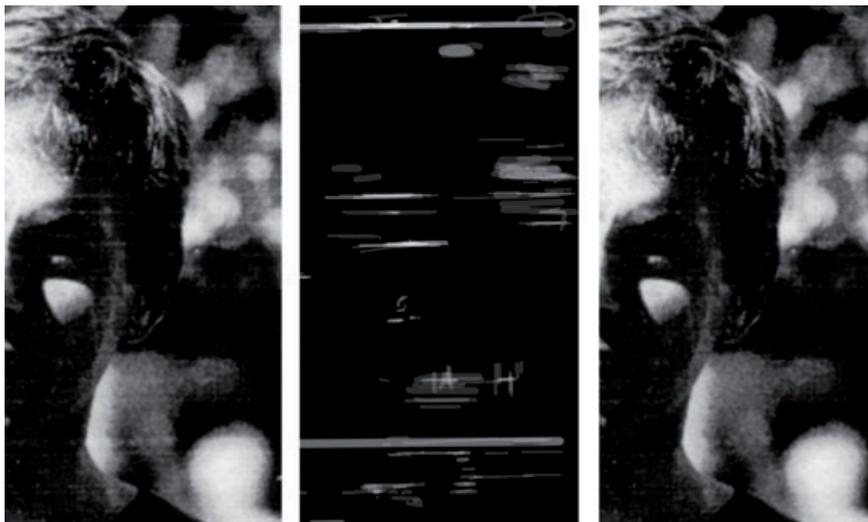


Fig. 10-7-f This enlargement shows how well the burn-in adjustment layer in Figure 10-7-b cleaned up the photograph in Figure 10-7-d. On the left is a section of that photograph before burning-in. In the center is the corresponding section of burn-in mask from the adjustment layer. On the right is the cleaned-up photograph.

I added another Curves adjustment layer to reduce the contrast of the spots in the photograph. The Color Range selection tool created a mask that selected only the light areas of the photograph (Figure 10-7-g, right). That layer's curve lightens and reduces the contrast in the middle-light tones to almost nothing. If there were any middle-light detail in the photograph, it would be completely suppressed by this curve. Since there isn't, it has almost no effect on the photograph proper, but it substantially subdued the spots.

Fig. 10-7-g This Curves adjustment layer suppresses the dark “freckles” marring the paper by dropping the contrast in the middle highlights to nearly zero. The mask on the right, created with the Color Range selection tool, limits the effect of this curve to the highlight areas of the photograph.

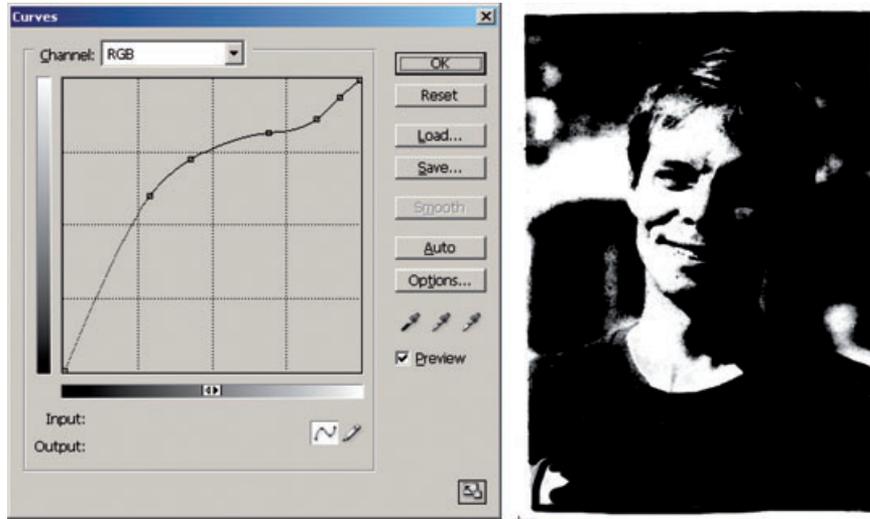


Fig. 10-7-h The photocopy after I've eliminated the scan lines and suppressed the freckles. The Curves 1 layer in the layer stack holds the burning-in that gets rid of the scan lines (see Figure 10-7-d). The highlights layer reduces the appearance of the freckles (see Figure 10-7-g).



Figure 10-7-h shows the result, with the layer stack on the right. Freckles are only visible in the light, featureless parts of the photograph, so I attacked them aggressively. I ran the Dust & Scratches filter with a zero-threshold and a 30-pixel radius. I assigned that filter to the History Brush, reverted to the previous history state, and painted over the blank, light parts of the photograph with the brush to erase the freckles.



Fig. 10-7-i In Figure 10-7-h, I used the Dust & Scratches filter with the History Brush to eliminate the freckles from the highlights. Then I used a 35-pixel Gaussian Blur filter with the History Brush to smooth out the background and make it less distracting. Just a bit more cleanup and a little tone correction, and this restoration will be complete.

I didn't like the distracting background, so I ran the Gaussian Blur filter with a 35-pixel radius, assigned it to the History Brush, and painted over the background. Those two operations got me to Figure 10-7-i, which looks pretty nice!

The last major thing I did to finish up the photograph was to enhance the detail and contrast to the highlights. I created another Curves adjustment layer with the curve in Figure 10-7-j. That curve leaves everything but the lightest tones untouched (see Chapter 5, Restoring Tone, page 148). It drastically increases the contrast in the tones with values above 200, darkening the lower values, lightening the higher values, and taking the lightest values up to almost pure white.

As a finishing touch, I lightly burned in the line of the jaw and curve of the cheek to define the face better. The final result is shown in Figure 10-7-k. I don't claim that this is a gorgeous photograph, but it is astonishingly better than what I started with. It should come as no surprise that it made the owner of the clipping incredibly happy.

Fig. 10-7-j This Curves adjustment boosts the contrast in the highlights, helping to emphasize what little detail is present there. It also cleans up the whites, making them close to pure white instead of dingy gray, as shown in Figure 10-7-k.

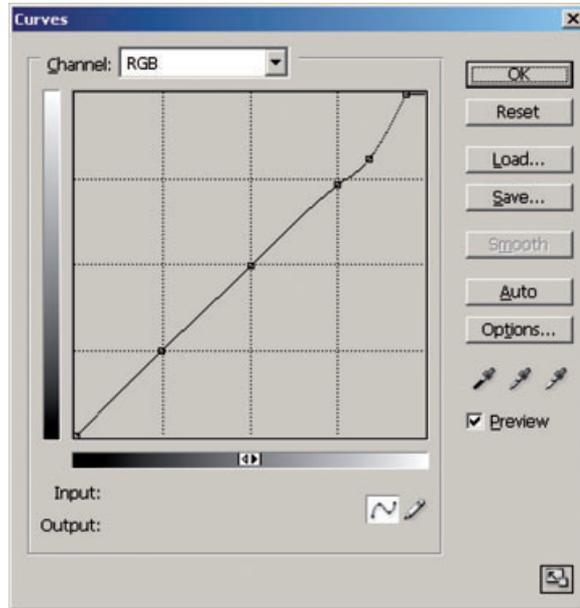


Fig. 10-7-k The finished restoration. After applying the curve from Figure 10-7-j, I did a little bit of burning-in along the jaw line and the cheek to bring out some modeling in the face. Compare this to the original in Figure 10-7-a; it's an immense improvement!

