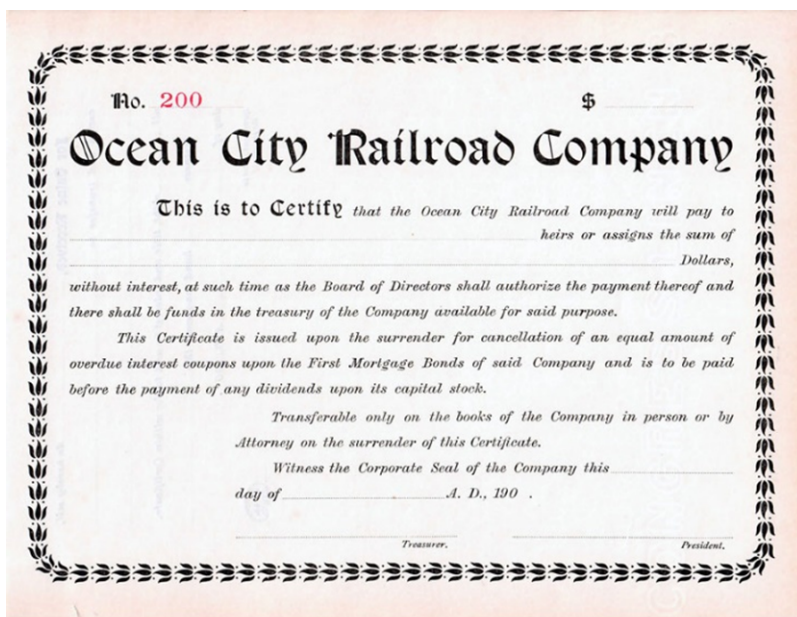


→ IMAGE MANIPULATION ←

Sharpening using GIMP

I'm going to show how to improve under-exposed images of certificates using GIMP, the most powerful FREE image editing software I have seen. If you use a scanner and scan at a sufficiently high resolution (300 dpi or more), you're probably never going to need to sharpen. At least not the vignettes. Conversely, I have seen lots of camera and smartphone images on eBay that could use judicious sharpening.

I am using a certificate for this tutorial with all text, scanned at only 100 dpi. The image looks fine if reduced, but not if viewed at full scale.



Here is a portion of the text scanned at 300 dpi (top) and 100 dpi (bottom.) Notice that the 100 dpi text is "soft." You can read it, but the letters are not "crisp." The edges of the letters are not as distinct as your eye would like. The letters are not "sharp."

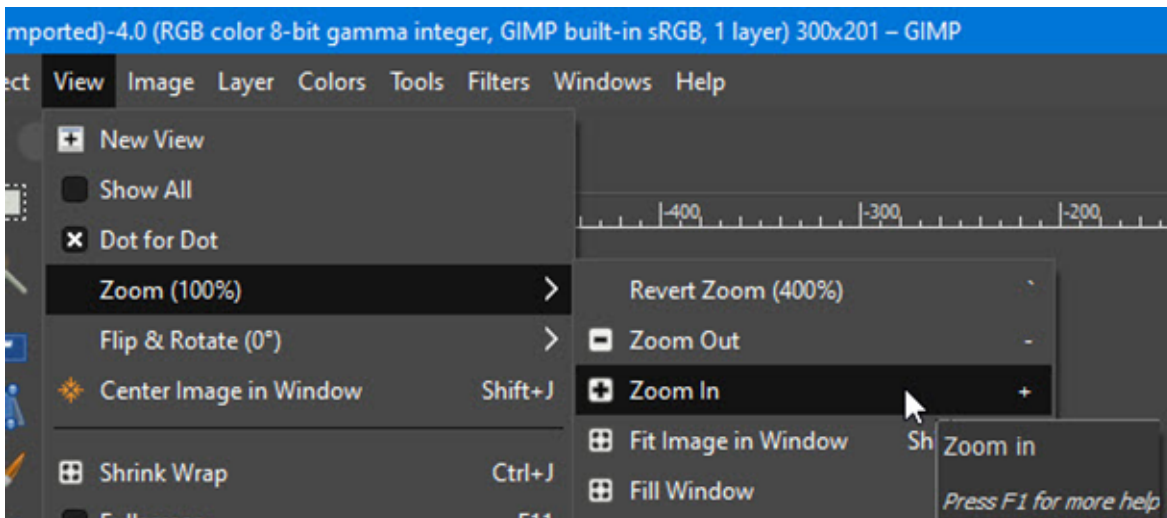
funds in the treasury of the Company

funds in the treasury of the Company

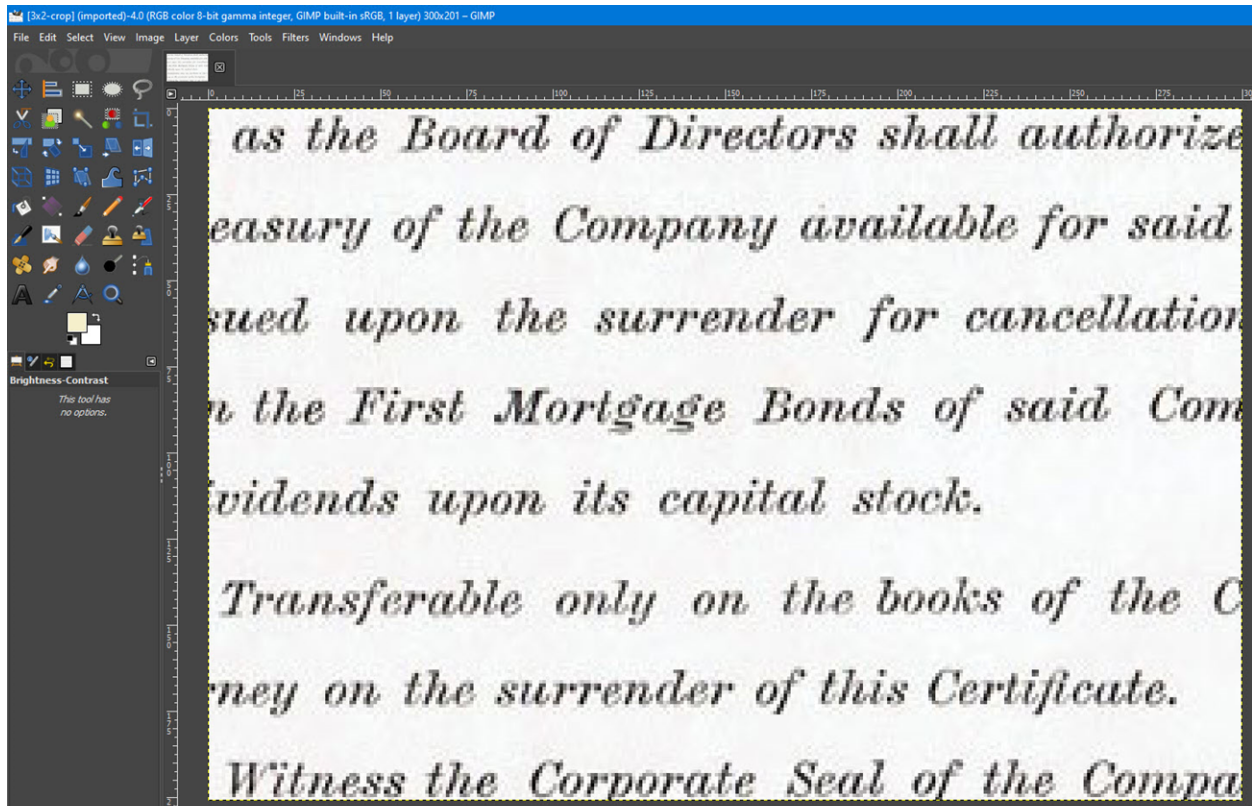
Let's use a larger block of text to demonstrate sharpening.

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vidends upon its capital stock.
Transferable only on the books of the C
ney on the surrender of this Certificate.
Witness the Corporate Seal of the Compa*

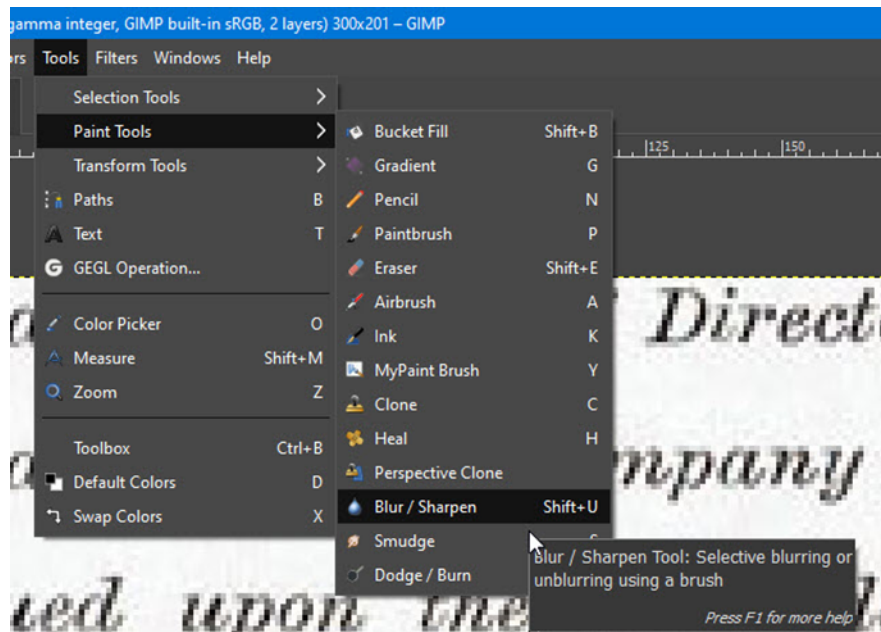
We will open the file in GIMP and enlarge it so we can see the effects better. Zoom in by holding down the "Ctrl" key while rolling the mouse wheel forward. If not using a wheel mouse, click **View > Zoom > Zoom in** several times.



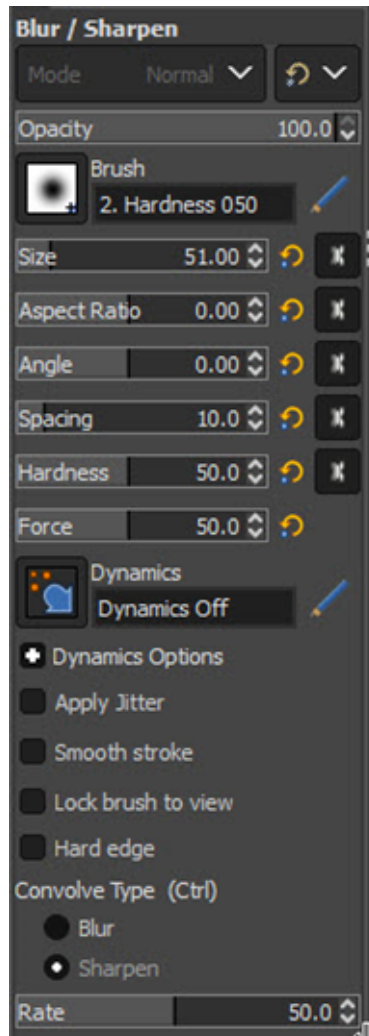
The result below:



There are two methods to sharpen images in GIMP. The first is to sharpen small areas by using a “brush.” This method is good for sharpening the areas around eyes in photos of people. Eyes are the first things humans look at in photographs, so “people” photos can be enhanced quickly with this method. Select **Tools > Paint Tools > Blur / Sharpen**.



A Blur / Sharpen panel will open at the left side. There are LOTS of adjustments you can make that you can explore on your own. For this example, I will use a No. 2 brush sized to 51 pixels. At the bottom, select "Sharpen."



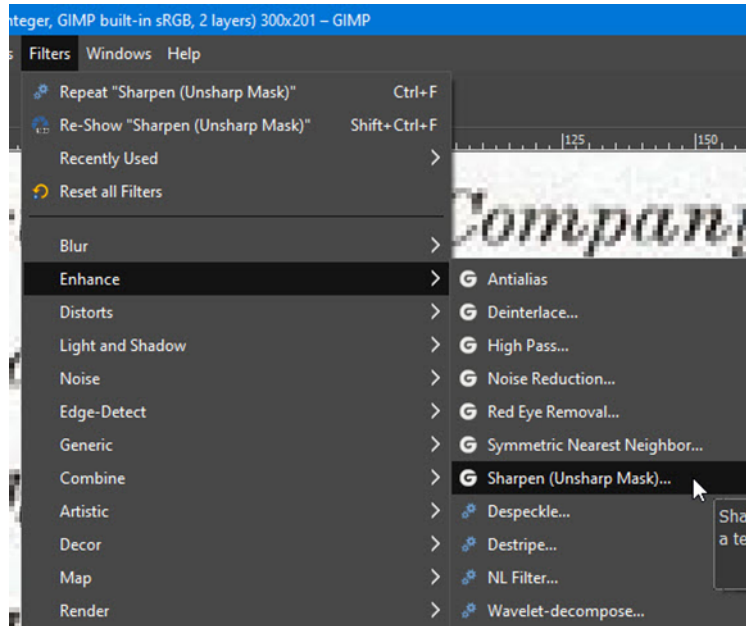
A circular "brush" will appear within the image work area. Push down and hold on the left mouse button to "paint" the left half of text.

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ney on the surrender of this Certificate.
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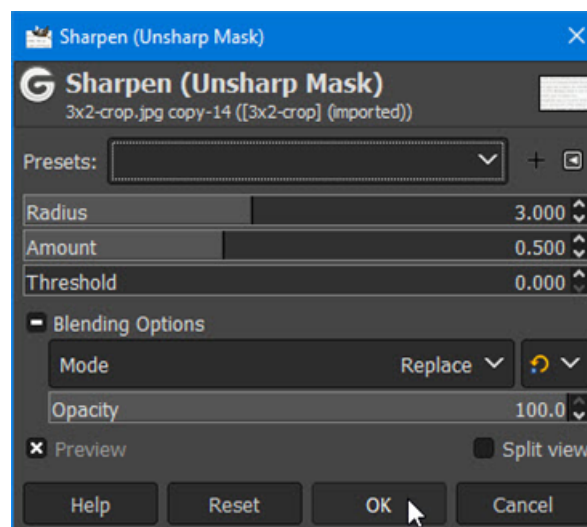
The text now “looks” somewhat sharper. This is accomplished by increasing the contrast of the text relative to the surrounding white area.

The second method works in a more advanced manner and gives much greater control over the degree and appearance of sharpening.

Select **Filters > Enhance > Sharpen (Unsharp Mask)** from the top menubar.



A new panel will open, offering three key adjustments. For its apparent simplicity, the actual work is substantial and the subject is not easy to explain. If you want to learn more, search for “Unsharp masking” on the web, but be prepared to go back to school. **Radius** is the radius (in pixels) of a circular area in which pixels will be sharpened if an “edge” is detected. **Amount** is how much sharpening to do. **Threshold** is a measure of how much contrast to add.



Sharpening should rarely be applied to a whole image and even then, "less is more." Sharpening should never be evident. But, to illustrate, I will show the unaltered 100 dpi text, then the same text with *some* sharpening and then an example with a LOT.

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casury of the Company available for said
sued upon the surrender for cancellation
n the First Mortgage Bonds of said Com
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Witness the Corporate Seal of the Compa

In the latter case, I cranked up the **Amount** of sharpening and decreased the **Radius**. Since the radius was small, the algorithm tried as hard as it could to find something to "sharpen," even if that was only microscopic color differences in the paper. These kinds of hazy outlines around letters AND vignettes is a sure sign someone got hold of the sharpening tool and wouldn't let go.

This page shows a raw 300 dpi vignette at top and the same image with *some* sharpening below. The source vignette is excellent, but engraved images suffer when rendered by pixels on computer screens. Sharpening helped this vignette/ Note especially shadow in the light-toned dresses and the ground. The original size on certificate 2.84 inches wide (7.2 cm). Engraved vignettes suffer greatly with heavy-handed sharpening. The vignette was etched and engraved by American Bank Note Company.

