

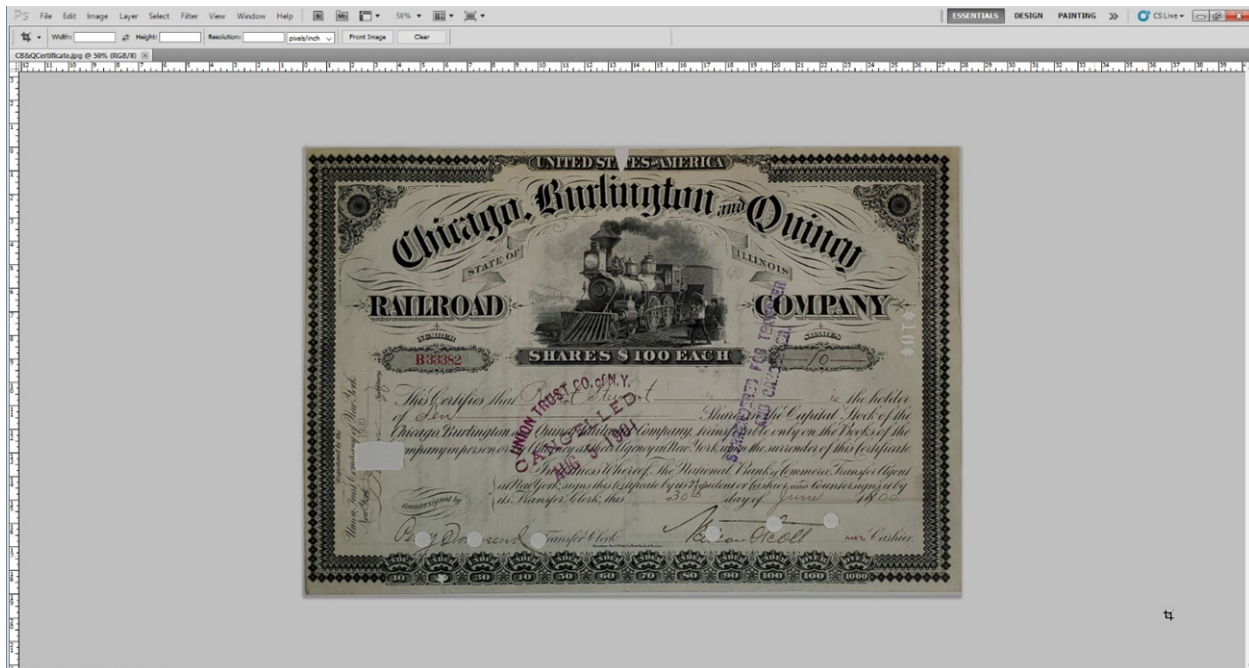
# → IMAGE MANIPULATION ←

## Fix exposure 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. Scanners usually give decent exposures so I am going to assume you are taking pictures of certificates with cameras, or more likely, smartphones. Even with flashes, photographs of certificates tend to be under-exposed.

If photographing certificates, certificates will always look somewhat misshapen. Use this technique to improve exposures, but see my other tutorials for bringing them back into rectangular shapes.

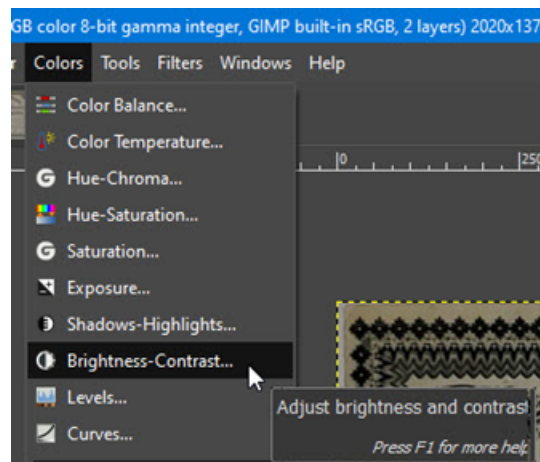
Open an image in GIMP. To make this example, I placed a certificate on my desk and photographed it with my smartphone. Certificates often turn out too dark because cameras, smartphones included, are expecting to see things that are 18% gray. My desk is only a few percent gray, so the camera under-exposed (darkened) everything to its expected range. This leaves the certificate looking darker and dirtier than it really is.



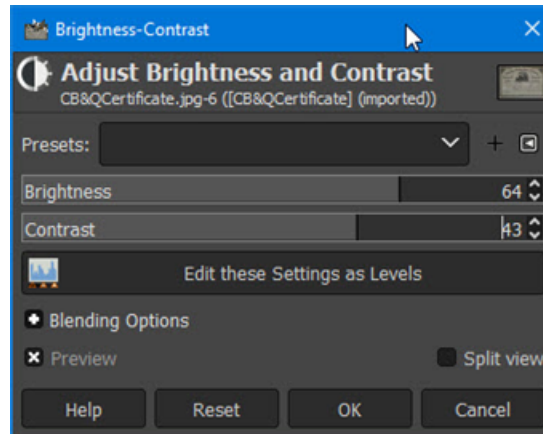
For reference, here is a scanned image of the same certificate. The scanner actually made it look brighter and cleaner than it really is!



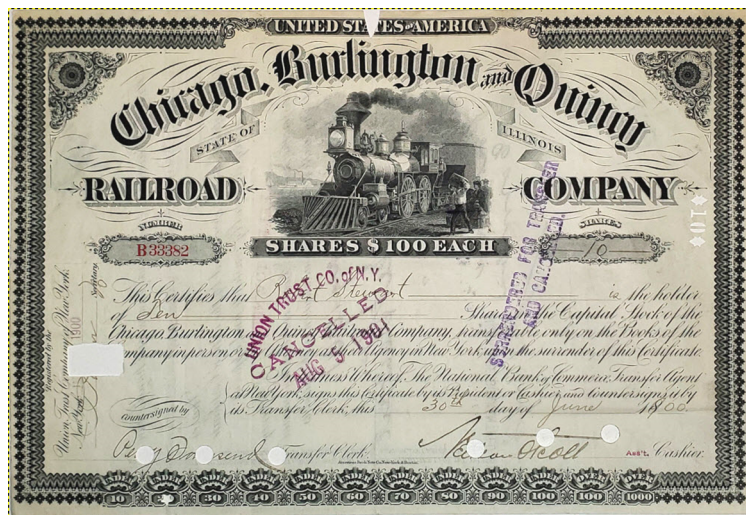
The first step is to brighten the image. Select **Color > Brightness-Contrast** from the top menubar.



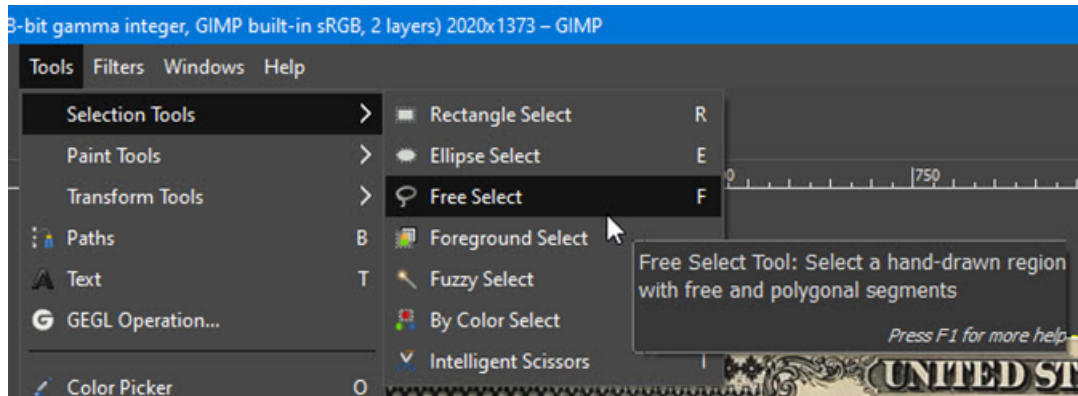
Next, grab the small handles for the Brightness and Contrast control. Adjust both so the image looks more realistic. (Adjusting only the Brightness “washes out” the blacks; increasing Contrast will counteract that.)



This is a dramatic improvement and quite close to the original. It would not be unreasonable to stop here. However, the left side looks somewhat darker than it should be. Parts of the certificate can be lightened a bit more.



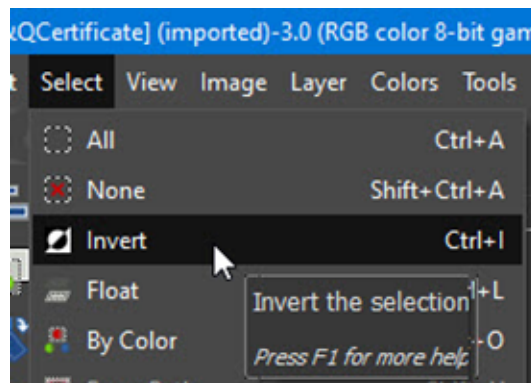
Pick the Free Select Tool by clicking **Tools > Selection Tools > Free Select** from the top menubar. This tool will allow you to select parts of images as opposed to whole photographs.



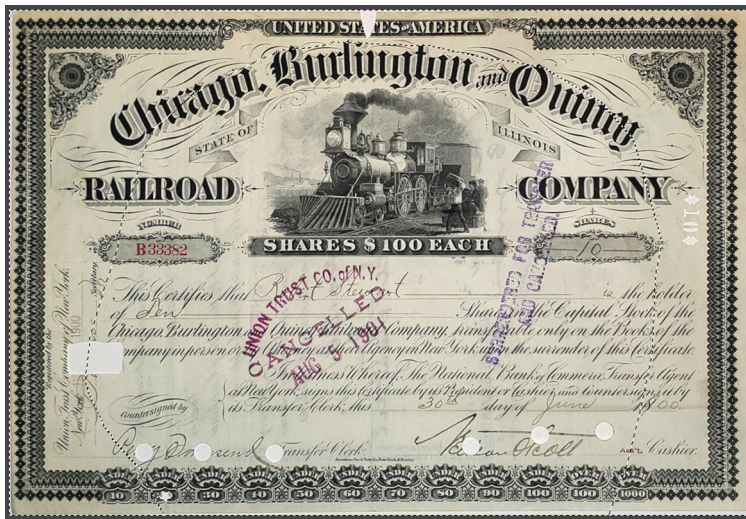
Ideally, we want to select dark areas and lighten them somewhat. However, when lightening specific areas around edges of certificates, it is often easier to first select bright areas instead. Simply click a rough polygon around the brightest part of the certificate and click on the starting point when finished. (You don't need to worry about being precise or making the line nicely curved; the next step will smooth out selected areas perfectly. (Notice the gray line around the selected area.)



Next, select the inverse by clicking **Select > Invert** from the top menu bar.



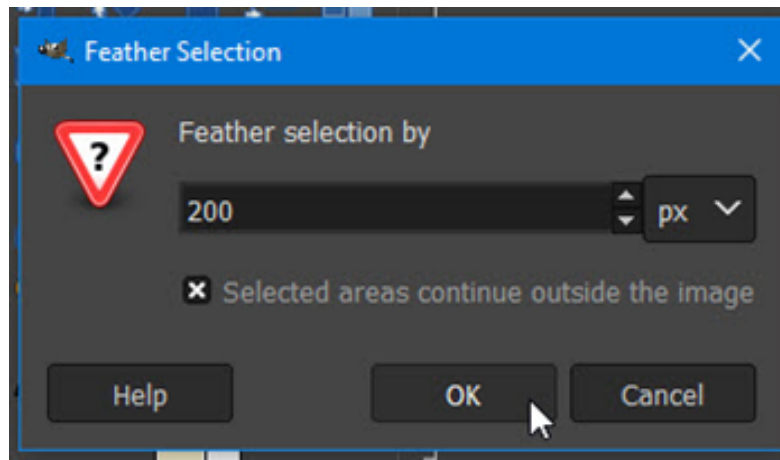
Now only the darker (dirtier) areas are selected.



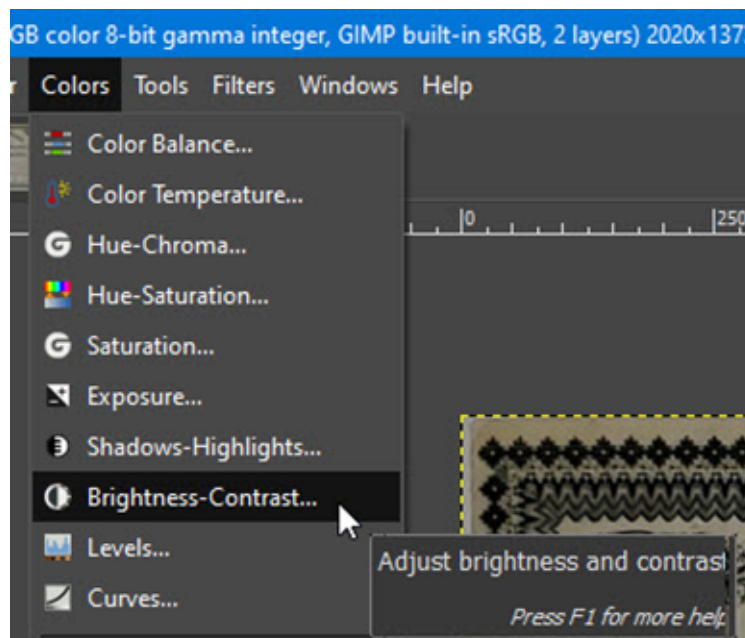
If brightened at this stage, there would be obvious, sharp divisions between light and dark areas. It is better to spread adjustments over a larger area. To modify the existing selection, click **Select > Modify > Feather** from the top menu bar.



A Feather Selection dialog box will open. Enter 200 px (pixels) to define the area over which the new brightness and contrast will be spread. Click "OK."



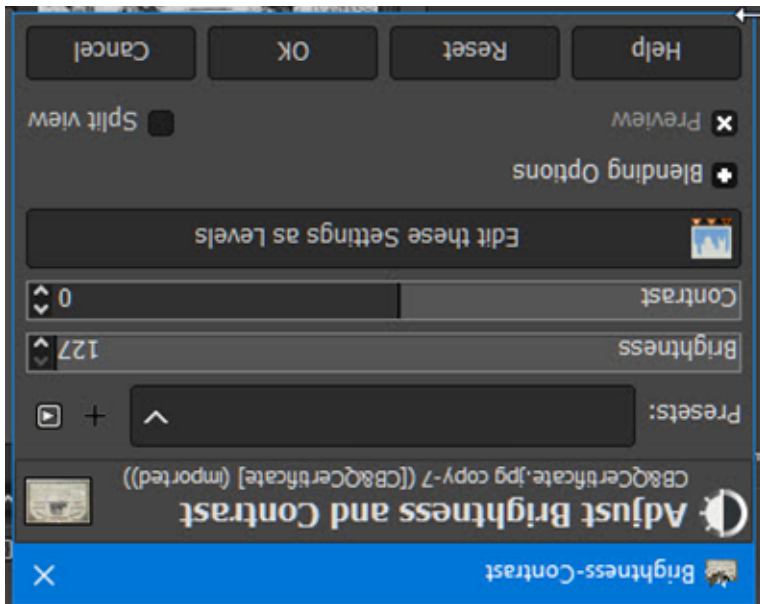
Open the Brightness/Contrast dialog box again (**Colors > Brightness-Contrast** from the top menubar.)



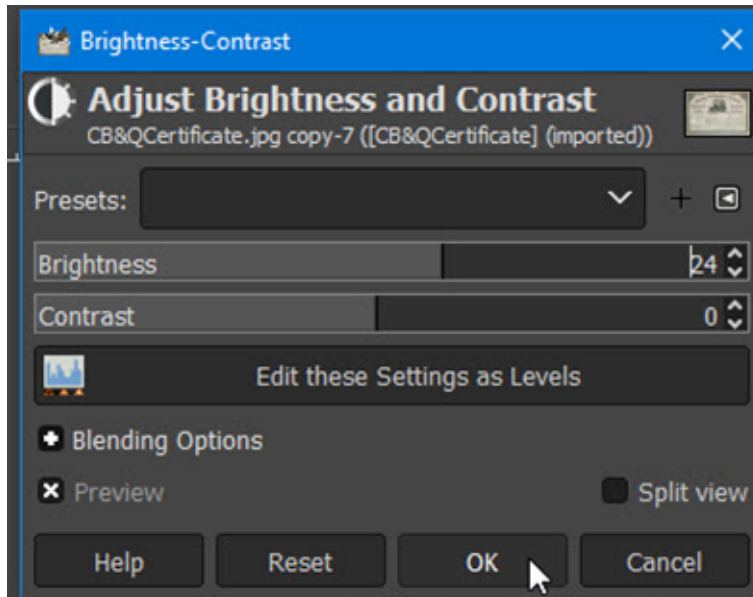
I know it sounds silly, but I have found that it is usually more difficult to *increase* brightness to match pre-existing levels than it is to start with an overly bright area and *decrease*. To see how this works, run the Brightness slider all the way to the right.



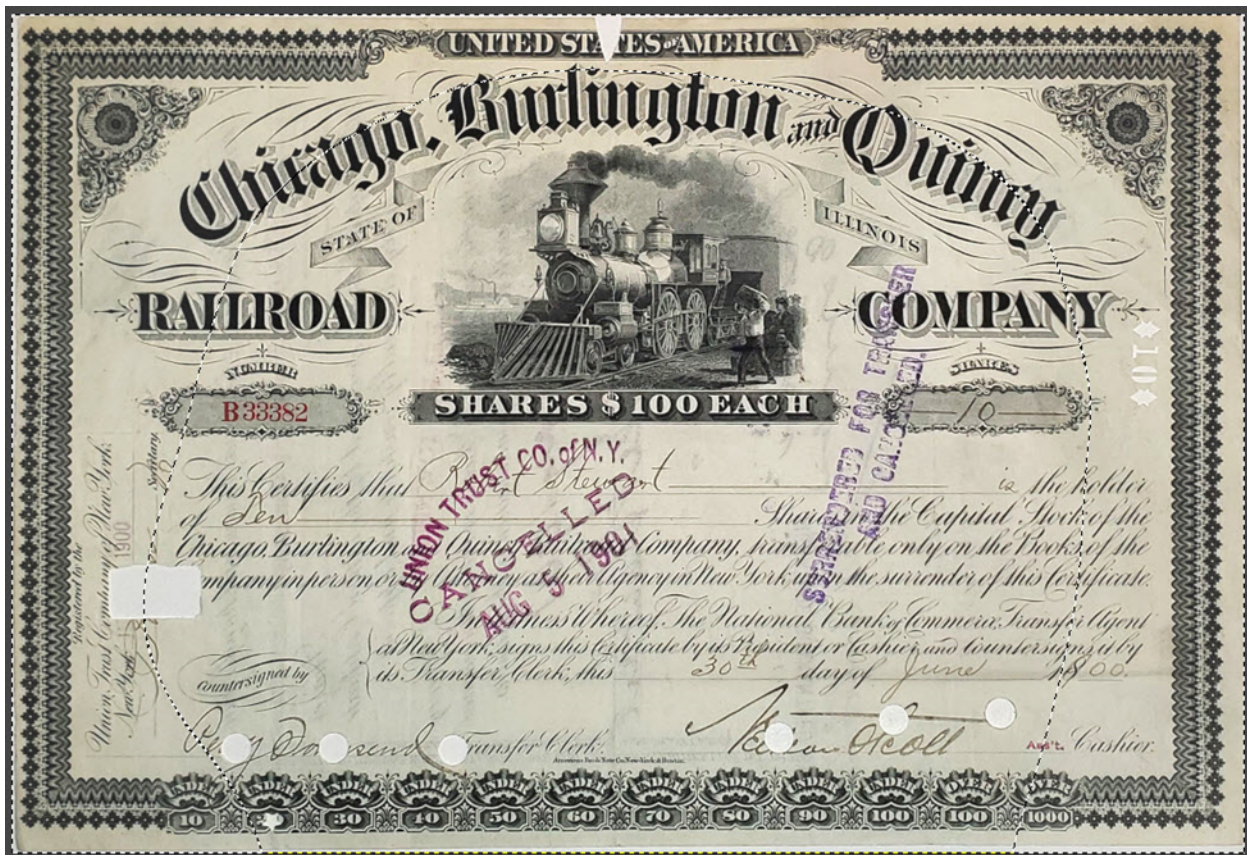
This leaves areas around edges too bright.



Now, start decreasing the brightness until the brightening is barely evident when compared to the rest of the certificate.

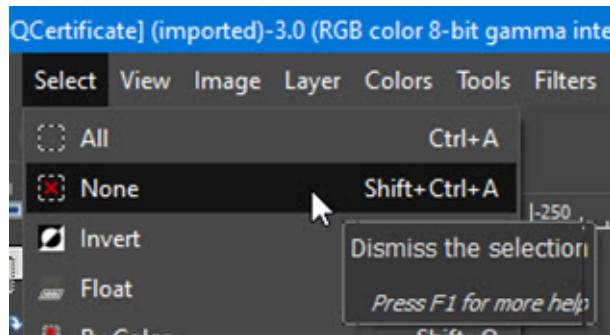


The result is not great, but the certificate is simply not worth messing with too much.





If satisfied with the product, abandon the feathered outline by clicking **Select > Deselect** from the top menubar.



The next page compares the finished product with the initial photograph.

