

→ IMAGE MANIPULATION ←

Fix shapes using Photoshop©

I'm going to show how to remove distortion from images of certificates photographed with cameras or smartphones. These techniques are meant to be used in conjunction with techniques in other tutorials in this section on Image Manipulation. This tutorial shows you how to re-shape certificates using Photoshop©, the leader in image editing software.

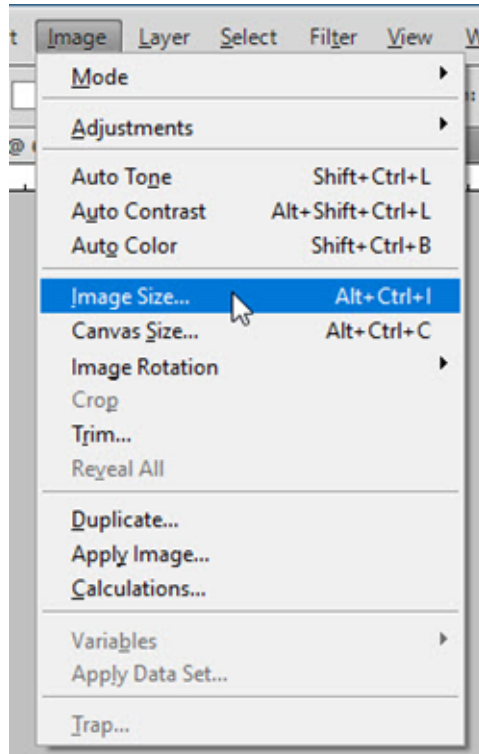
Here is an image similar to one you might photograph with a smartphone or camera. We are going to approximate the appearance of a scanned image by removing the distortion. We are going to assume that we have the certificate in our possession so we can scale the image exactly.

Open the image in Photoshop

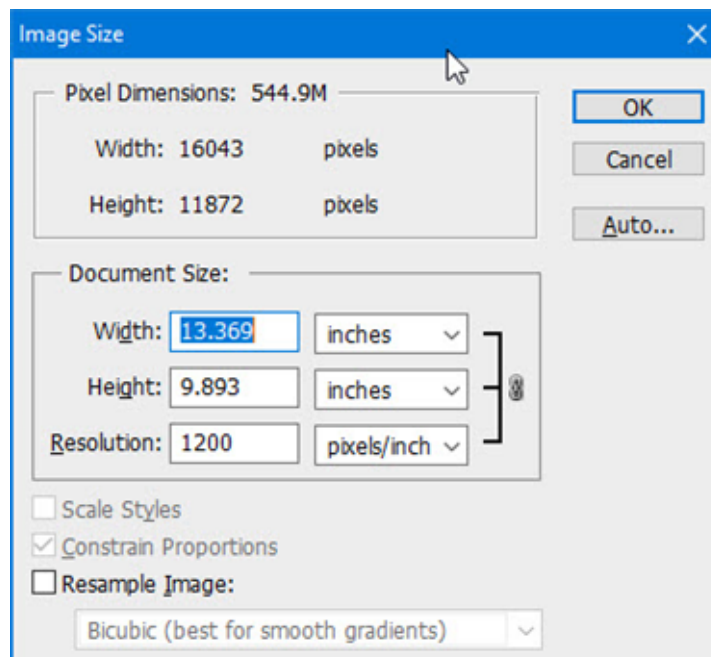


The file size out of the camera is 21.1 megabytes. That size will make it hard to work with unless our computer has a lot of RAM and a really fast chip. Let's assess what we have.

Click **Image > Image size** from the top menubar.

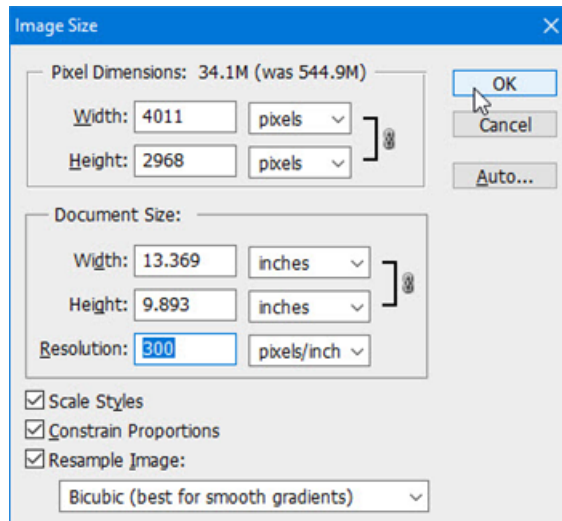


A new panel opens to display size information.



The resolution of our image is 1200 dpi. Ideally, we would like that down around 300 dpi to make it easier and faster to work with. Every square inch of the image is composed of 1200 dots (pixels) wide by 1200 dots high. That means there are 1,440,000 dots in a square inch compared to 90,000 per square inch at 300 dpi. Our image has 16 times (!) more information than we need. Additionally, there is a lot of black around the image.

Let's change the resolution to 300 dpi. Click "Resample Image." Make sure "Constrain Proportions" and "Scale Styles" are also checked. Now change 1200 to 300 in the box labeled "Resolution." Click "OK."



The image will shrink to a quarter of its size. Hold down on the "Ctrl" button and tap "0." (zero). You can also click **View > Fit on Screen** in the top menubar.

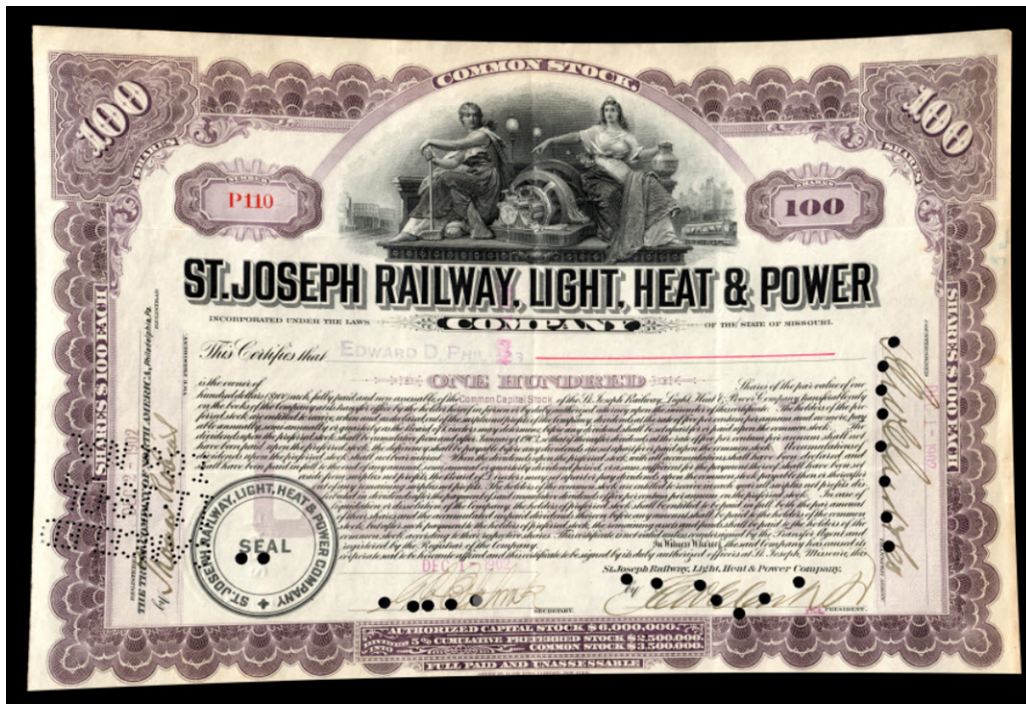
Let's decrease the size a little further by cropping out some of the black border. Select the Crop Tool from the Toolbox.



Draw a crop box around the image, leaving some extra space.



Then click.



As mentioned above, we know the size of the certificate, so we can scale our distorted image to true dimensions. If rulers are not showing at the top and left side, we can turn them on by clicking **View > Rulers** in the top menubar.

Photoshop must measure from somewhere, so it always assumes that 0,0 is the top left corner of the image. That is not particularly handy for users. If we had 0,0 at the bottom left hand corner of the border of our certificate, we could measure easily. Let's move the location from which Photoshop measures.

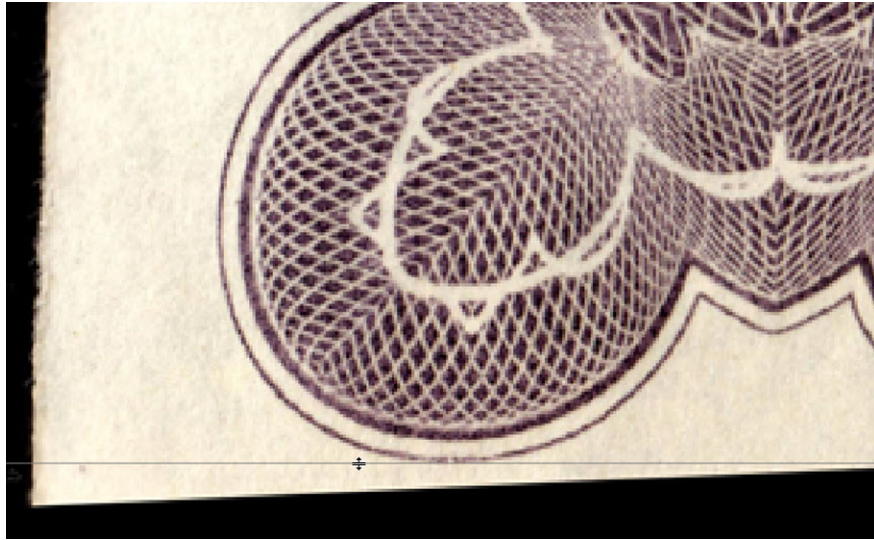
Zoom into the bottom left hand corner of the border. ("Z" on our keyboard or click the magnifying glass in the Toolbox.)



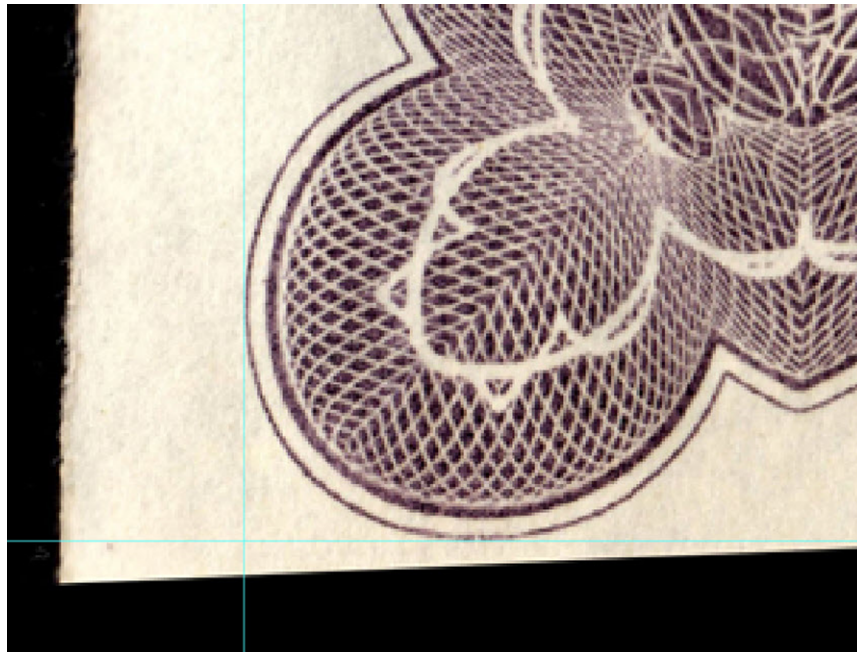
Pick the "Move" tool from the top right of the Toolbox.



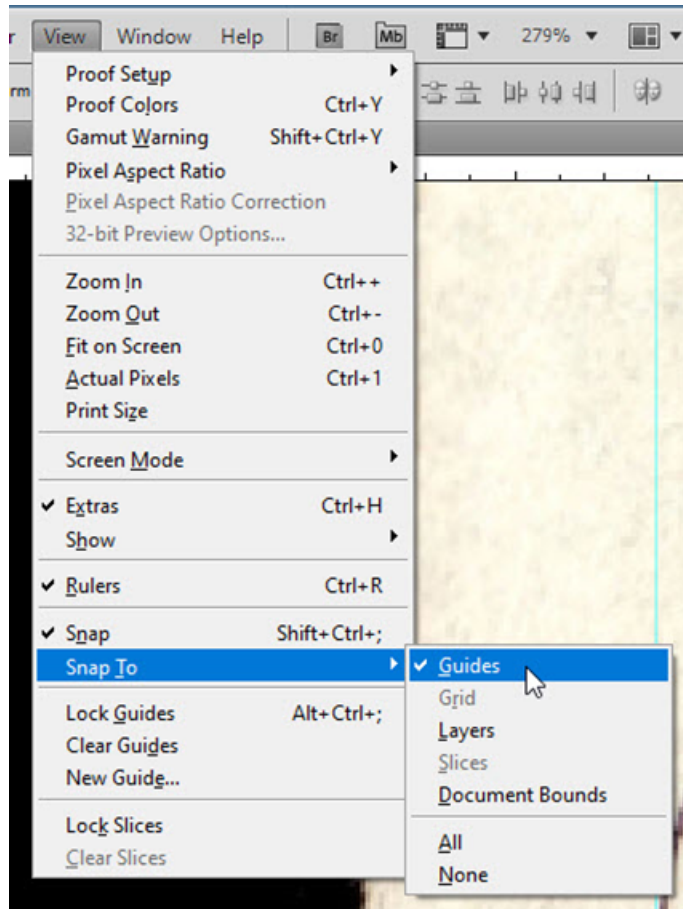
Now, "pull" down a guide line by clicking in the top border with the left mouse button. While holding down on the button, drag a guideline down to the bottom of the leftmost "scallop."



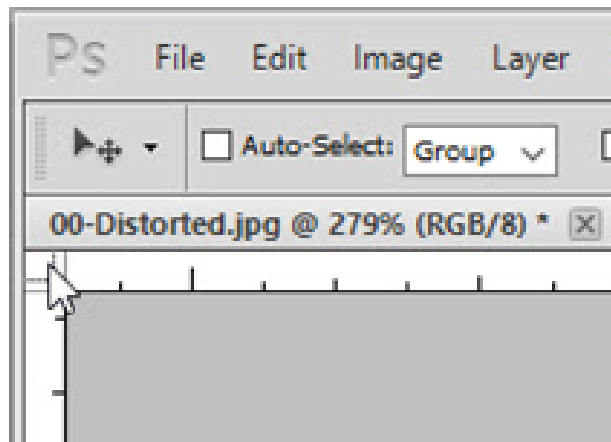
Pull in another guide from the left ruler and place it on the left edge of the scallop.



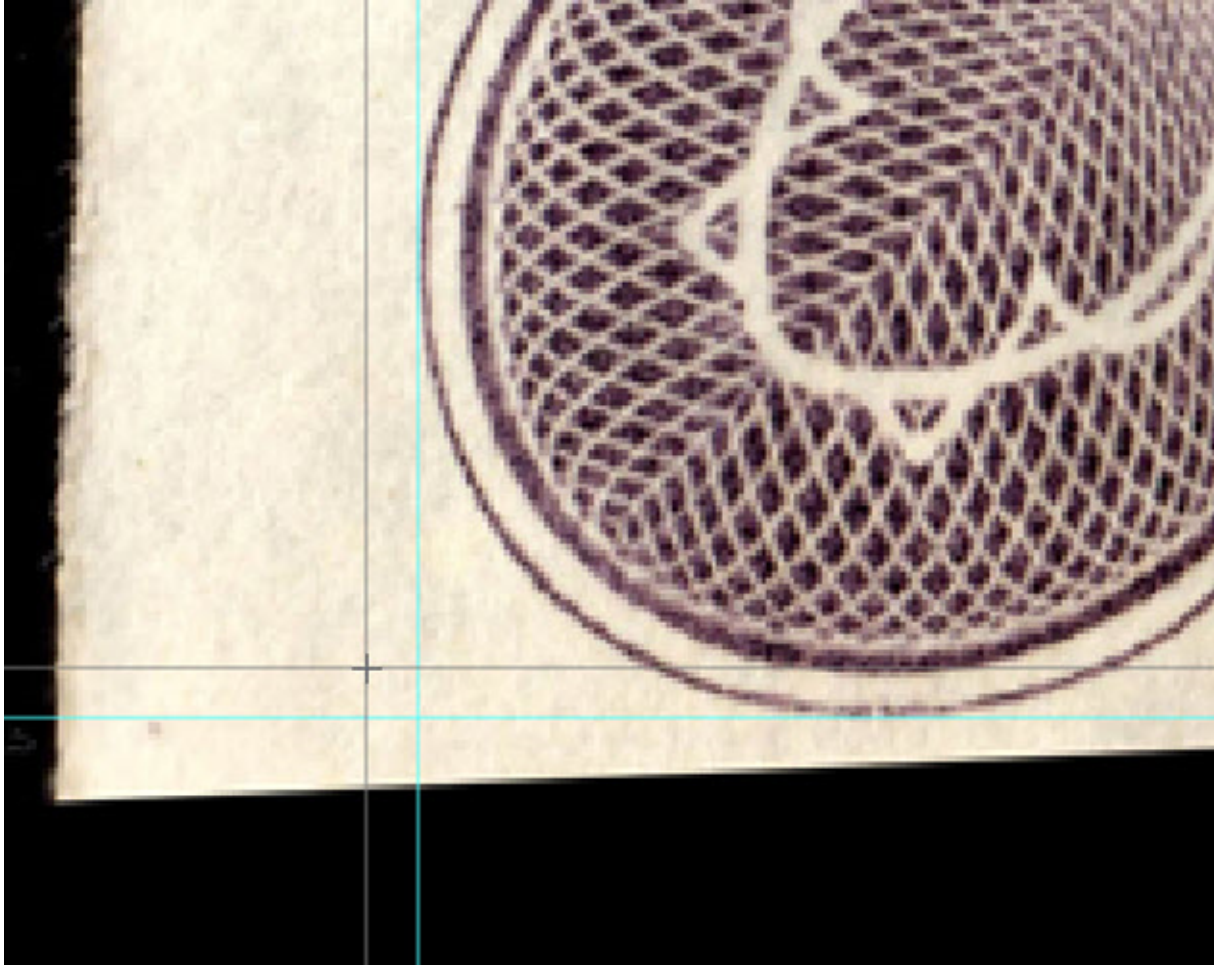
Now click **View > Snap To > Guides** in the top menubar.



There is a small box in the extreme top left corner where the top and left rulers meet.



Click in that box and drag 0,0 to the intersection of the two new guidelines. The cursor will snap into place when it gets close to the guideline intersection.



Now measure the certificate as closely as possible using decimal inches. If you do not have a ruler scaled in decimal inches, you will need to convert. An easy way is to go to:

<https://www.inchcalculator.com/inch-fraction-calculator/>

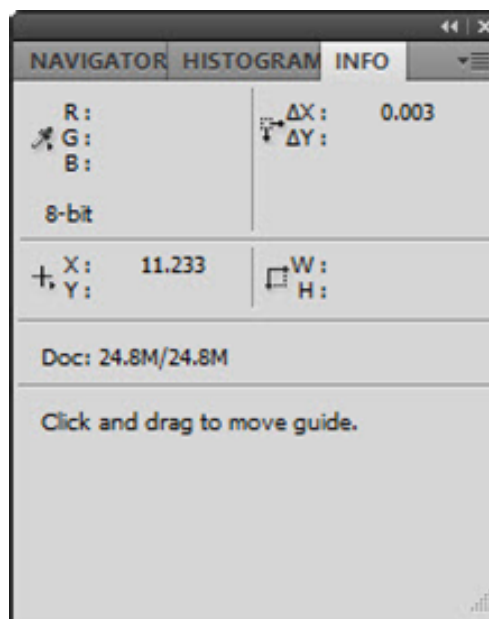
and put in a measurement like this: $7 \frac{29}{64}$." Click the "=" sign and the website will display 7.45."

The outside borders of our certificate measures 7.45" x 11.23." We can use the border for alignment, even though it is composed of engraved scallop-like features. In some cases, you might need to measure lines on the insides of borders or even on other features.

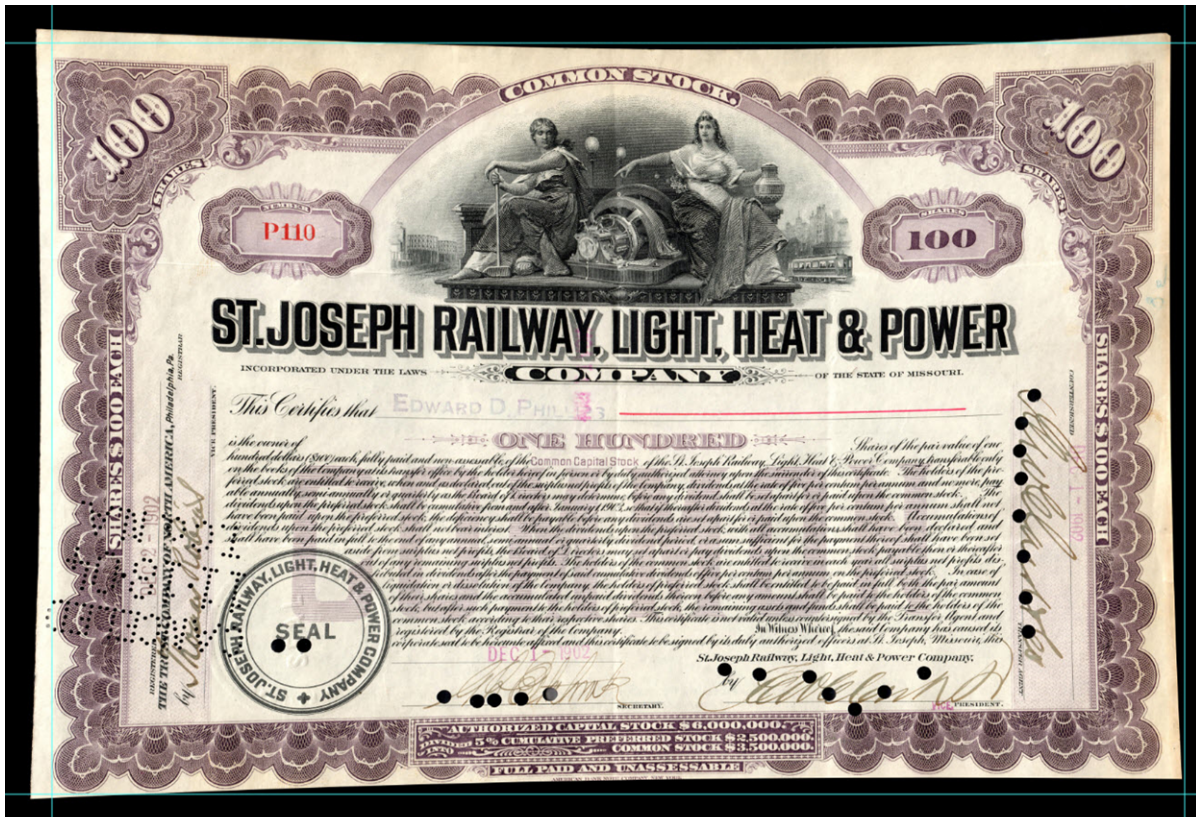
We already have two guides, so we just need to add two more. Make sure the "Info" panel is open. If not, click **Window > Info** in the top menubar or tap the "F8" function key.



Zoom in relatively close to the top right corner of the certificate. While watching the "Info" panel closely, drag in a new guideline from the left ruler and watch the "X" values increase. Get as close to the certificate width measurement as you can and then let up on the mouse. Do not fret over a couple thousandths of an inch if you can't get the exact value.



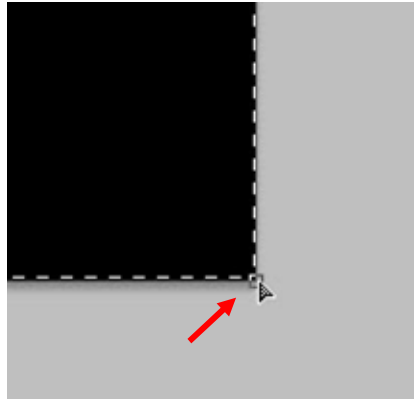
Do the same thing to locate a horizontal guideline by dragging down another guide from the top ruler. The guidelines around our certificate now look like this. (Note the thin cyan-colored lines near the corners. Yes, they are hard to see onscreen.)



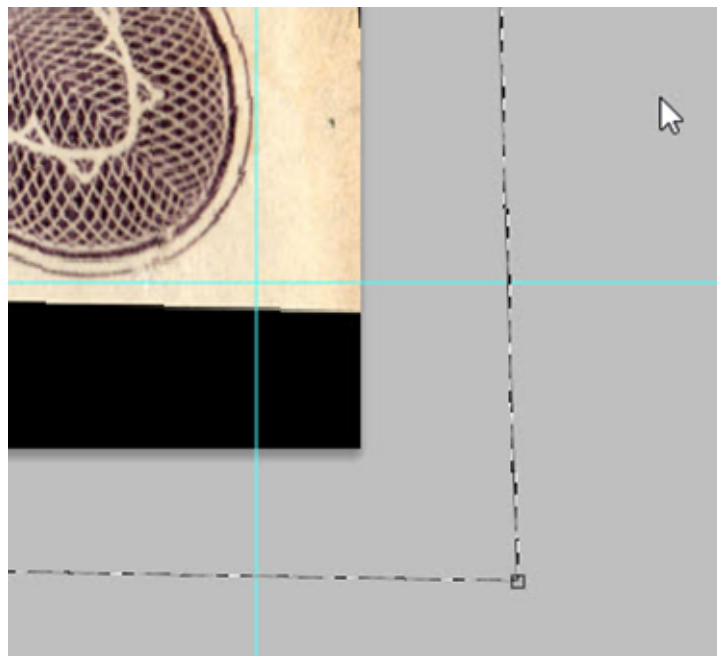
We're finally ready to do some real work. Zoom into the bottom righthand corner, making sure you can see the furthest part of your image.



Click on **Select > All** in the top menubar. "Marching ants" (the dashed line that looks like ants moving around the edges of the image) will appear. Then click on **Edit > Transform > Distort** in the top menubar. A small square "grip" will appear where the vertical and horizontal "ants" meet. Click that grip and hold.



Drag the grip down and right and the image will stretch. Keep dragging and adjusting until the bottom and right edges of the certificate border touch the guidelines. When satisfied, let up on the mouse button.

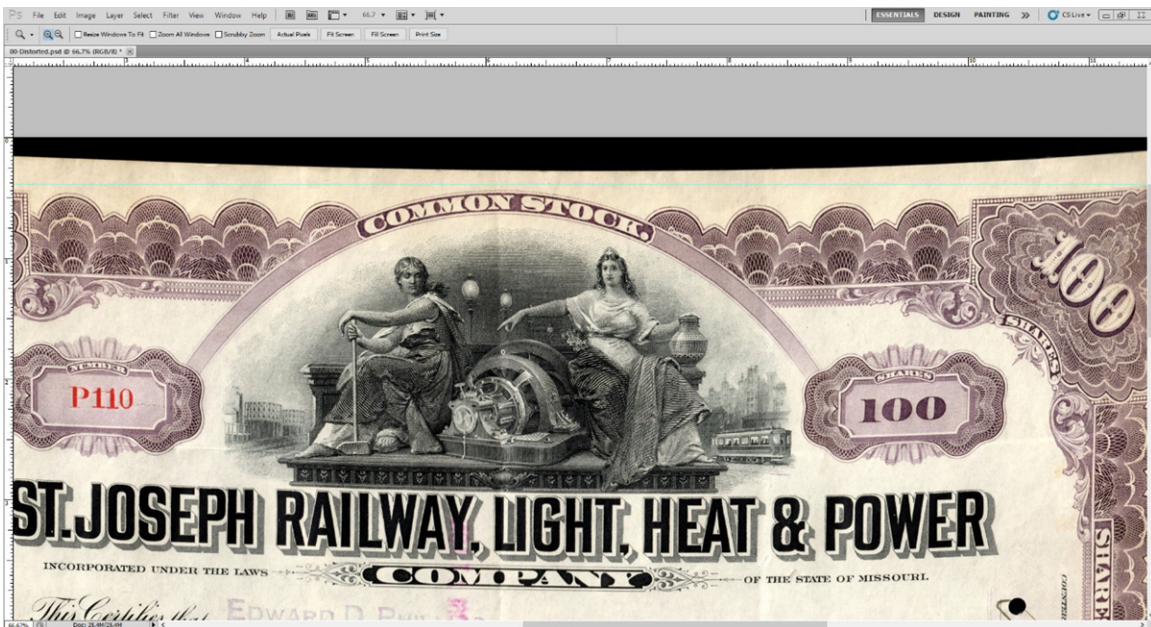


Move to the top right and top left corners and do the same. Hit "Enter" to finalize. Go back and check the two bottom corners to see if they are still touching the guidelines. If they have pulled off because of all the image stretching, repeat the process one more time. When finished, the image looks like this.



The image now shows all sides pulled in toward the center. Before going forward, we will save the file in case something happens to Photoshop. Remember the motto: "Save early. Save often."

The top edge looks the most badly warped, so let's start with that one. Zoom in so we can see approximately two thirds the width of the certificate along the top edge. If you want to pan around the certificate while zoomed in, hold down the "Space bar" and then click and drag the screen to where you want it. To zoom in more, hold the "Ctrl" key and tap the "+" sign. To zoom out, hold down the "Ctrl" key and tap the "-" (aka dash, hyphen or minus) sign. Here is what the screen should look like.



Click **Select > All** in the top menubar. The "marching ants" will appear. Now click **Edit > Transform > Warp** in the top menubar. Two vertical lines will appear. (Actually there are two vertical lines and two horizontal lines that divide the images into thirds, like shown below. We're zoomed in, so we don't need to see the whole certificate. If we did, it would look like this.)



We need to pull up the top border where it is drooped down. The cursor will look like a small arrowhead. Click in the image, roughly where the scalloped border would be if the vignette were gone and a little to the right (because it looks like the scallops on the right side are down a little from the left scallops.)



Now click and hold with the left mouse button and drag the image upward until the scallops just touch the guideline.

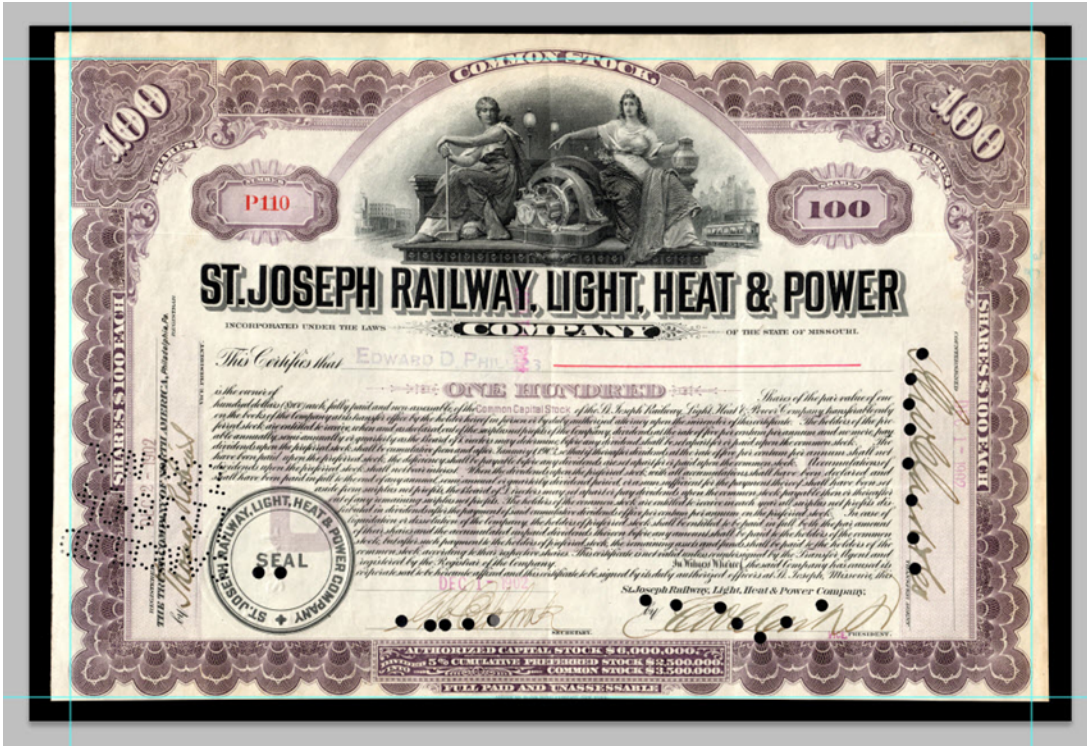


We can either tap "Enter" to finalize or use the slider along the right side to move to the bottom. Either way is fine. If we finalize, we simply need to **Select > All** again. We will repeat the process at the bottom by stretching the image down toward the guideline. Finalize with "Enter" or continue. We can do all four sides without re-selecting, but I like to do two sides at a time to keep from getting ahead of myself and forgetting what I've already done.



Zoom out and then zoom into one of the vertical sides and repeat. (You can also pan with "Space bar" and dragging the image with the mouse if you want.)

When finished, the image should almost look like it was scanned.



Now it is time to get rid of the guidelines by clicking **View > Clear Guides** on the top menubar. Finally crop to get rid of the black border.

