

Photographing Watermarks for Beginners: a “quick and dirty” guide



Watermark photography is one of those technical skills which can seem daunting, and which can generate much frustration, and can be potentially hazardous to the materials photographed if done improperly. Like many skills it is easier than it looks to the uninitiated; it involves a few rather fiddly techniques which can be easily mastered with practice¹.

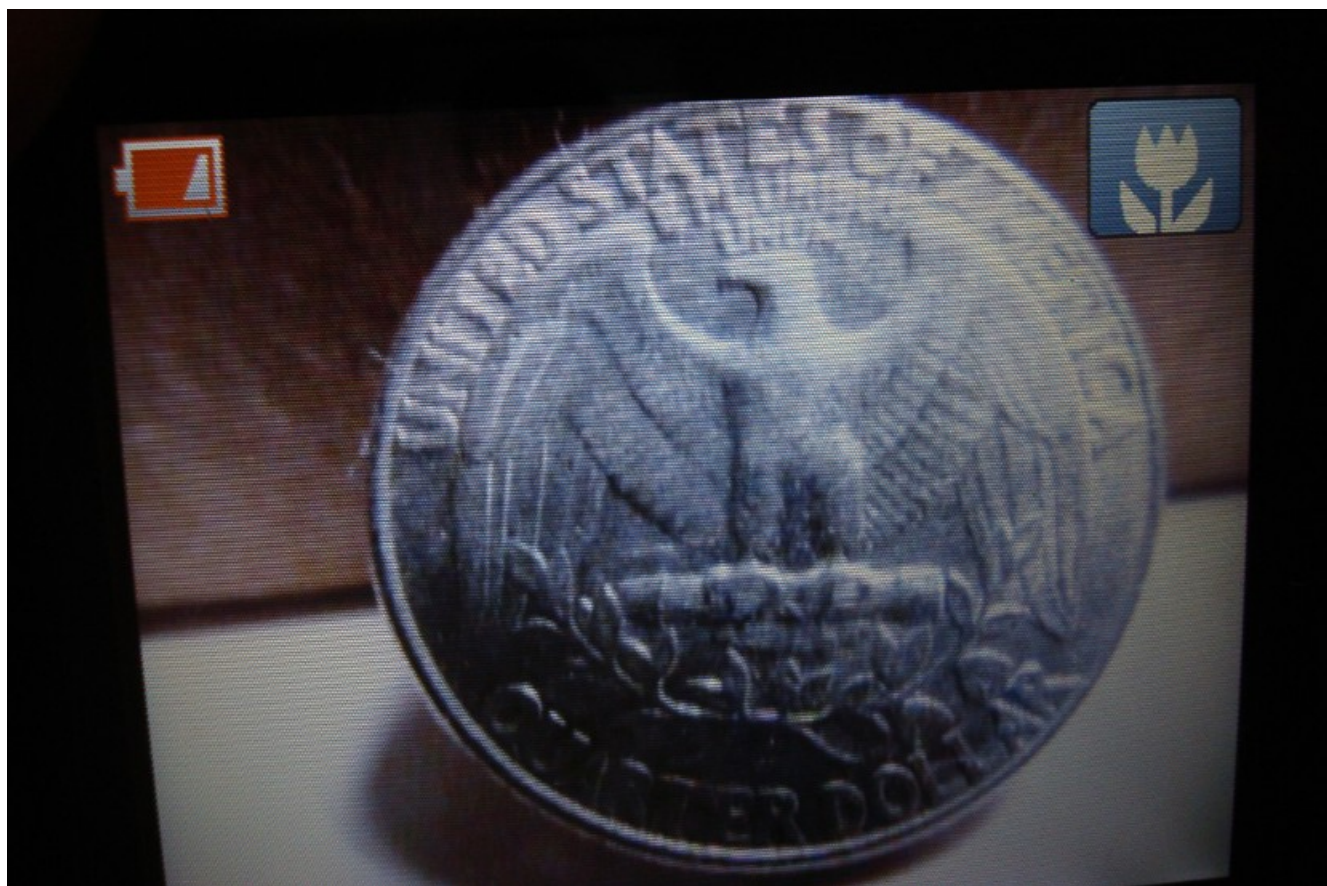
The techniques used consist of two parts: first, taking the photographs; and second, processing the results. Neither of these involves a great deal of expense; a point-and-shoot camera and an ordinary desk lamp will in most cases suffice for taking the photos, and a reasonably powerful desktop computer using an open-source (read: FREE) image processing program will suffice for the processing. For advanced processing a graphics tablet would be useful, but that is a bit beyond the scope of this presentation.



The first thing needed is a camera. For this we really only need three things: first, good macro capability; second, a good image stabilizer; and third, good image quality, whether by exposure or by focus. Any halfway decent point-and-shoot camera has the latter two; the former is at least as important, and not all cameras do well in this regard. As long as closest macro focus is listed as less than an inch it should work, but you need to check the specifications. The camera which I use is an old (10

¹ All photos are by the author, and all objects in the photos are property of the author.

years) Canon PowerShot SX130; it has more up-to-date equivalents. What is important is that it can focus in to 1 cm; and it is better to have the capability, and not need it, than to need it, and not have it. So you should be able to take close-ups which can get this sort of thing:



It is possible to get usable results with less capable equipment, of course, but the results are likely to be less satisfactory, and they are also likely to take a lot more work to get right!

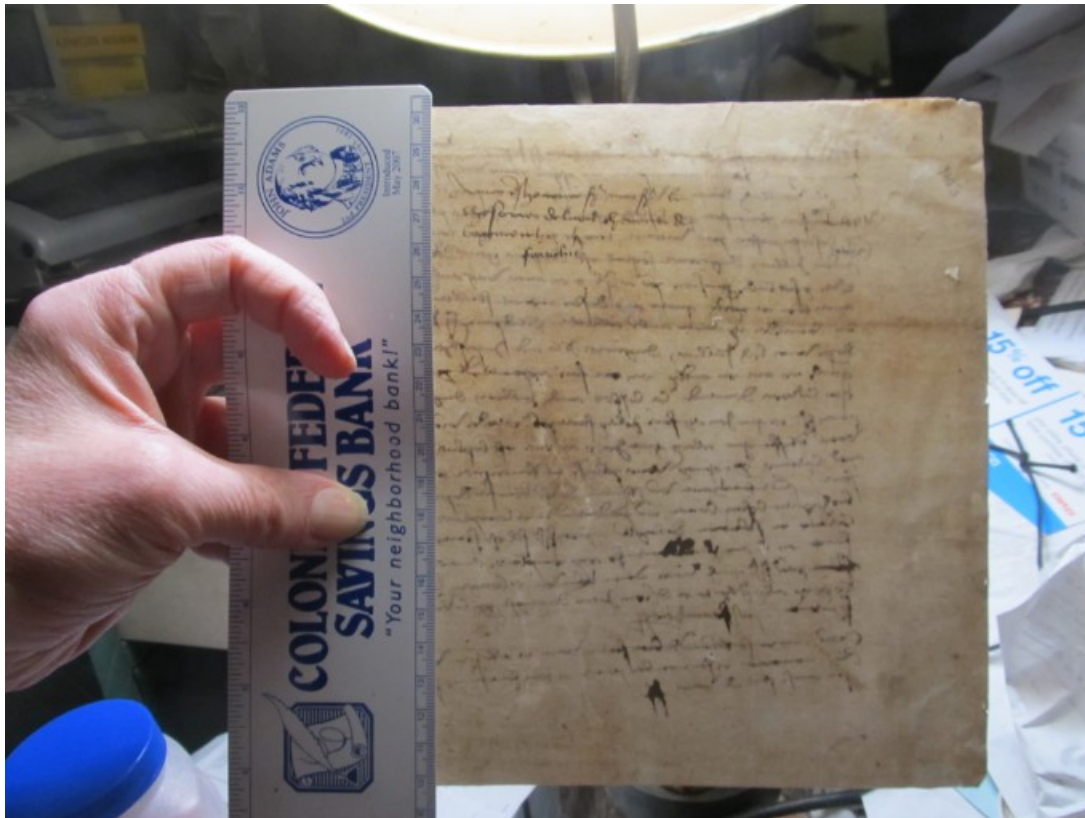
The remaining two items of equipment are less exacting, namely a ruler, in cm if possible, and a light source. Ideally we will have a professional-quality light box; more likely we will have to make do with a desk lamp, such as I use. With reasonable care that will suffice. Something like this:



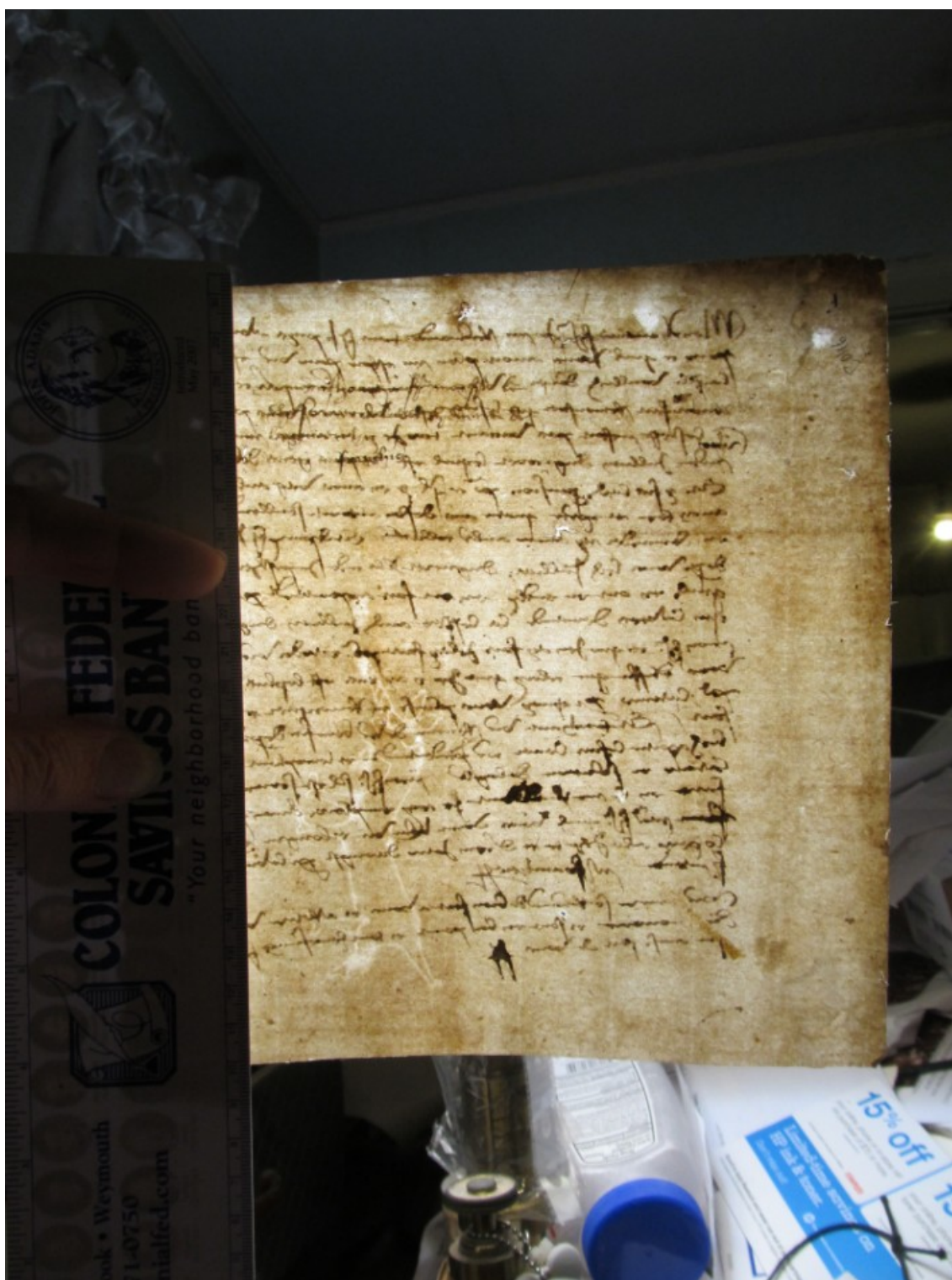
Nothing special about this. An old lamp with a cheap LED bulb. The lampshade can be tilted as required. It works. The paper acts as its own light box.

Regarding rulers, it may be best to have one of a light colour, but in practice it is opaque so it needs to be lightened with the processing software anyway; it makes little difference, so long as the marks are reasonably distinguishable from the base. Black on white is probably easiest to process, but it doesn't make much of a difference.

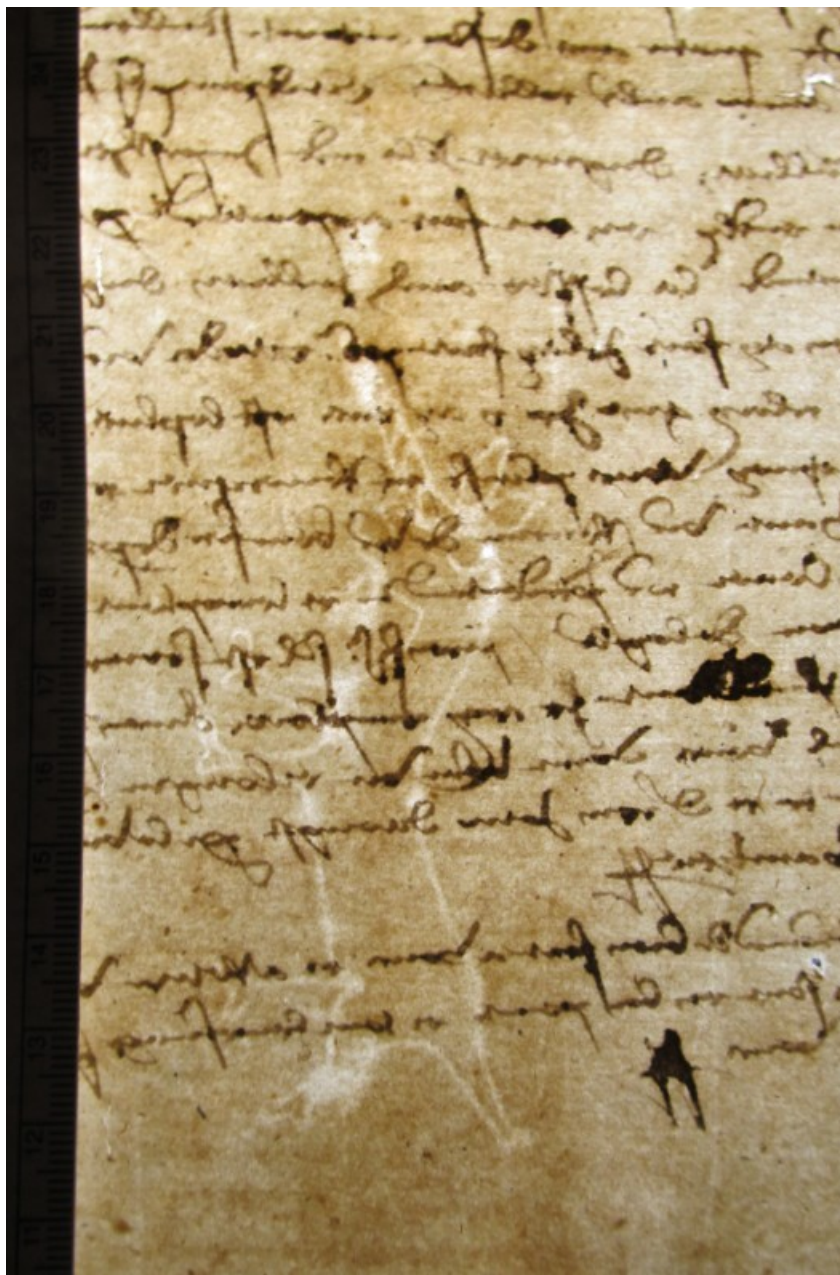
The second stage is taking the raw photos. This can be a bit tricky mainly because of the need to coordinate several different things. If the sheet is blank, and entire, so that the watermark is clear and entire, it is just a matter of holding it, along with the ruler, in front of the light source such that all of the necessary information is contained in the frame. The second stage is taking the raw photos. This can be a bit tricky mainly because of the need to coordinate several different things. If the sheet is blank, and entire, so that the watermark is clear and entire, it is just a matter of holding it, along with the ruler, in front of the light source such that all of the necessary information is contained in the frame. It may seem to be a bit tricky at first, but one acquires the knack after a bit of practice.



Holding it to the light we should see something like this:



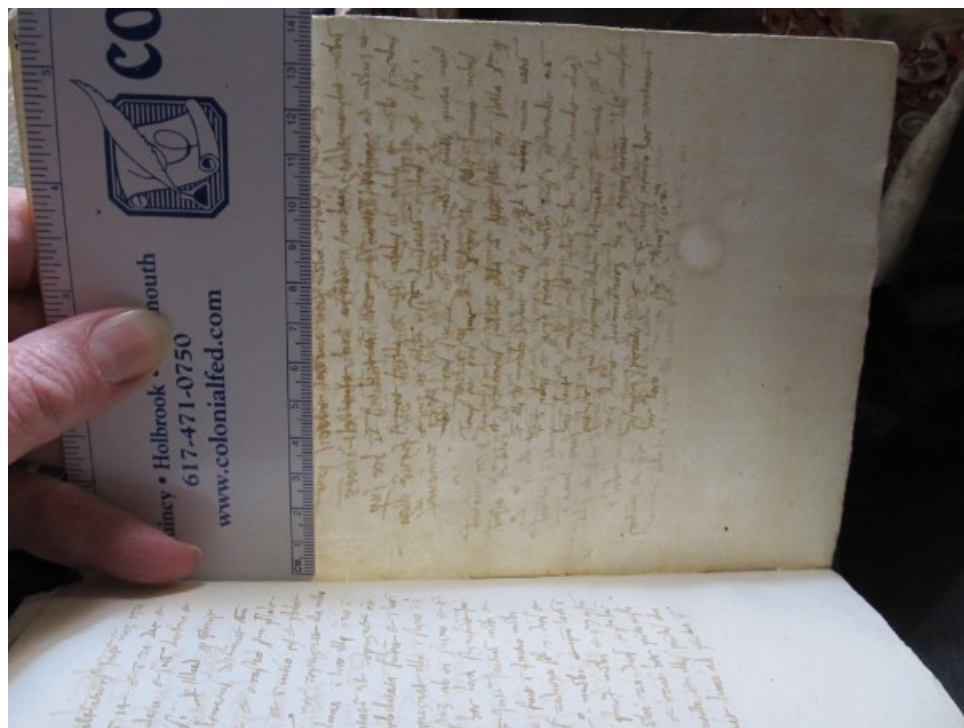
Then, frame the shot so that you get the complete watermark, the edge of the ruler, and preferably the chain lines on both sides of the watermark, taking care to keep the front of the camera lens and the specimen parallel; the resulting photo should then look something like this:



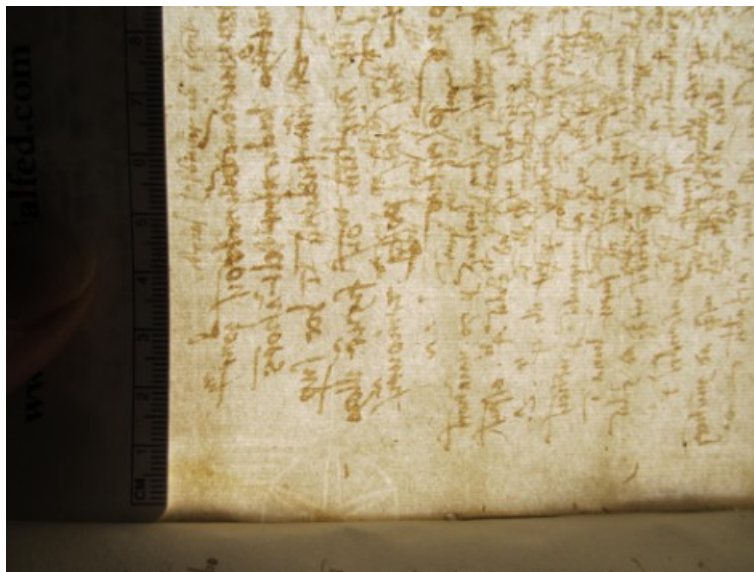
The ruler is too dark, of course, but we'll get to that in the post-processing.

That's an easy one. Time constraints make it difficult to show a lot of examples of more difficult ones; but as one variety is very common, namely one which is split by a binding, we should look at it. In essence we take two photos and stitch them together in the processing software.

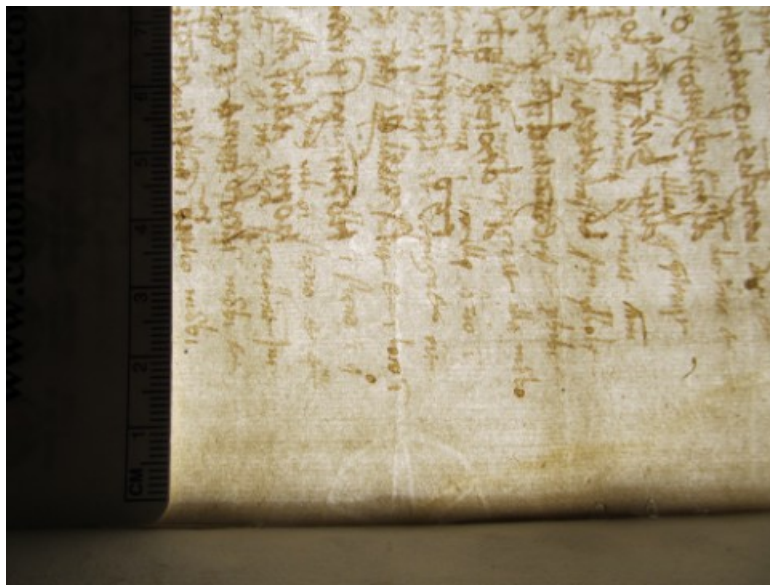
In this case we are looking at a bound volume with a clear watermark in the centres of some of the bifolia. So we take two photos, one of each half of the watermark:



We do this for both halves, and we get this:



and this:



Of course they are different sizes, and one is likely to be reversed. Once again, that's what the software is for.

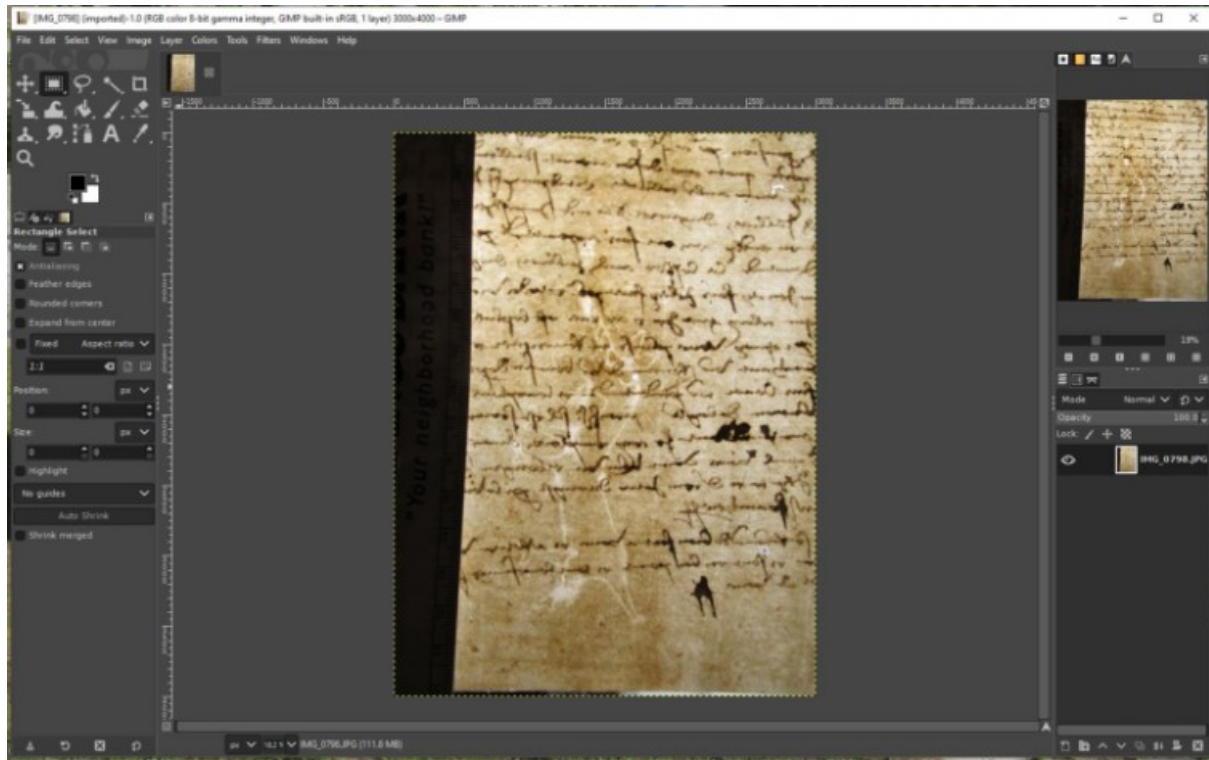
Now for the processing. As noted, the software is free. It's called GIMP, short for GNU Image Manipulation Program, and it's open-source, available as a download at www.gimp.org. It's 229 MB, so you will need a reasonably high speed connection. The download screen is here:



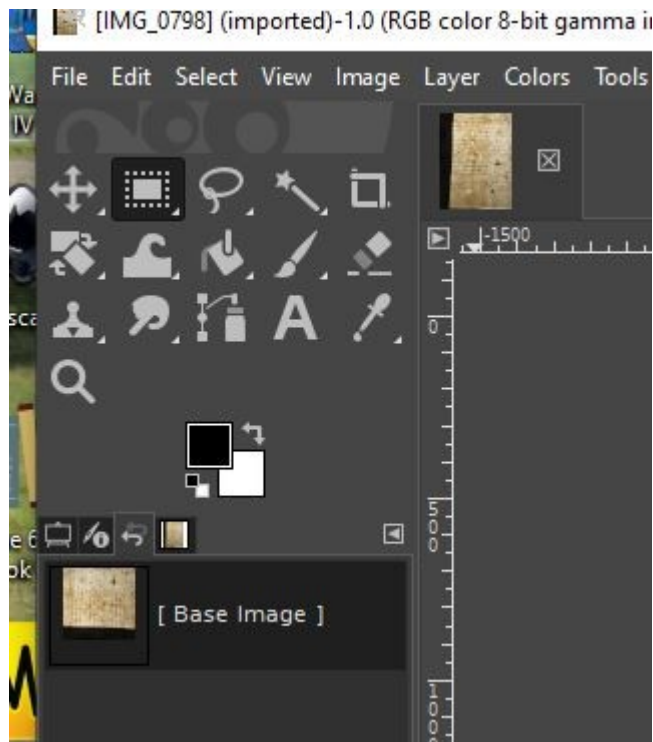
You should download whatever the latest non-development version is, currently 2.10.22. In practice which version you use makes little difference as the sort of basic features we will be using will not change between reasonably recent versions².

Once it is installed, and opened for use, we can process the image.

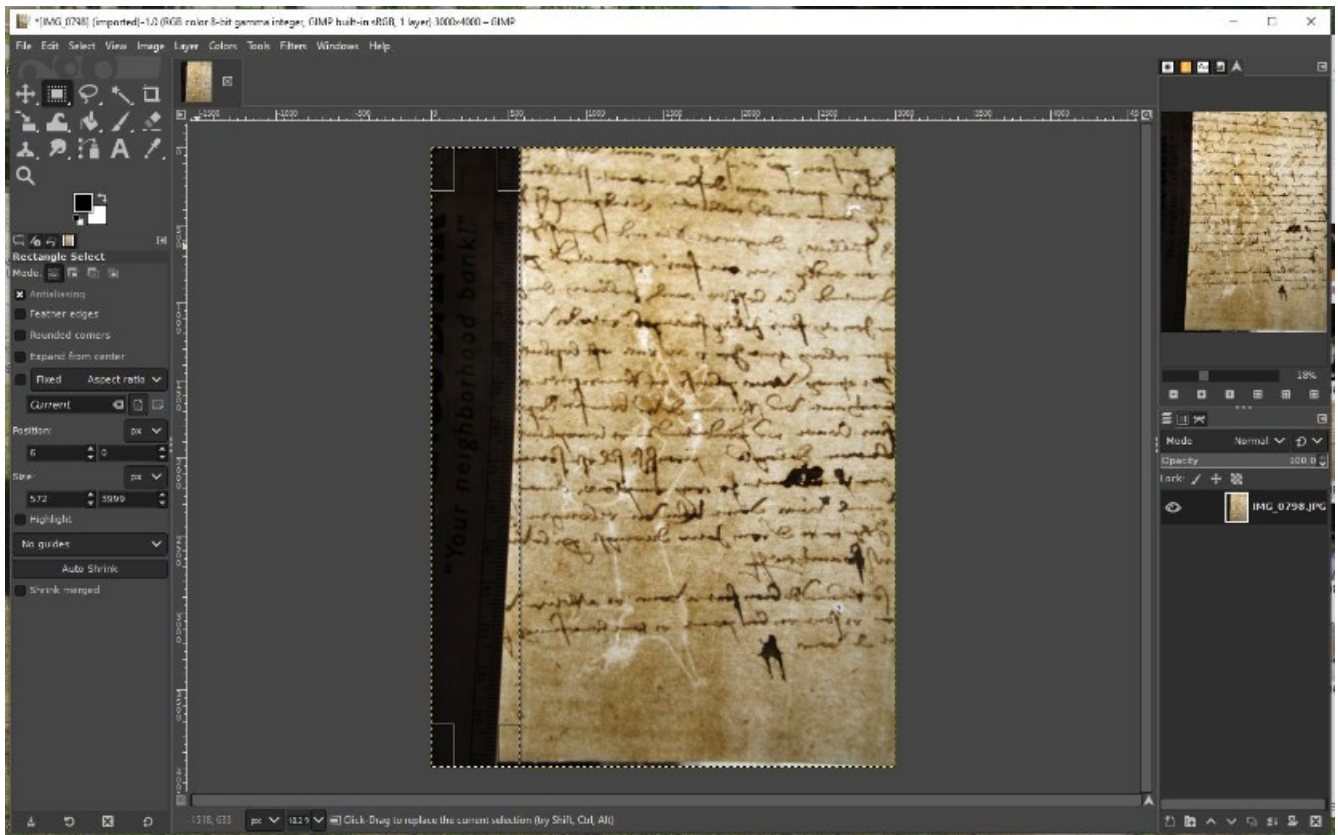
² The user can of course use any program preferred. Adobe Photoshop, for example, works perfectly well. If a program is supplied by an employer for this sort of thing one should use that; the basic principles are the same, however much the individual controls may differ. But not all of us have, or wish to spend, the money on a program like that, when we can get one which does the job for free.



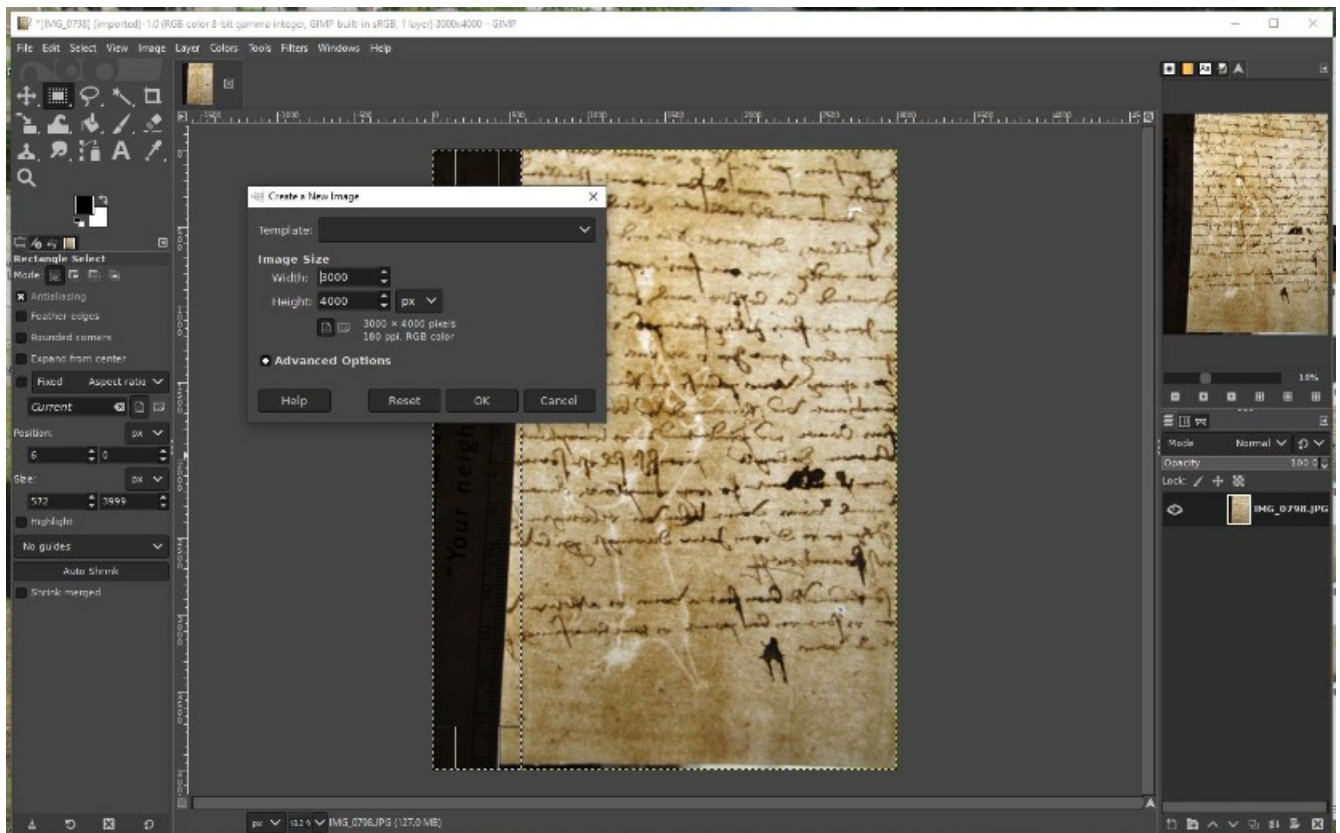
We'll start with the ruler. Using the selection of tools at upper left, we use the rectangular selection tool:



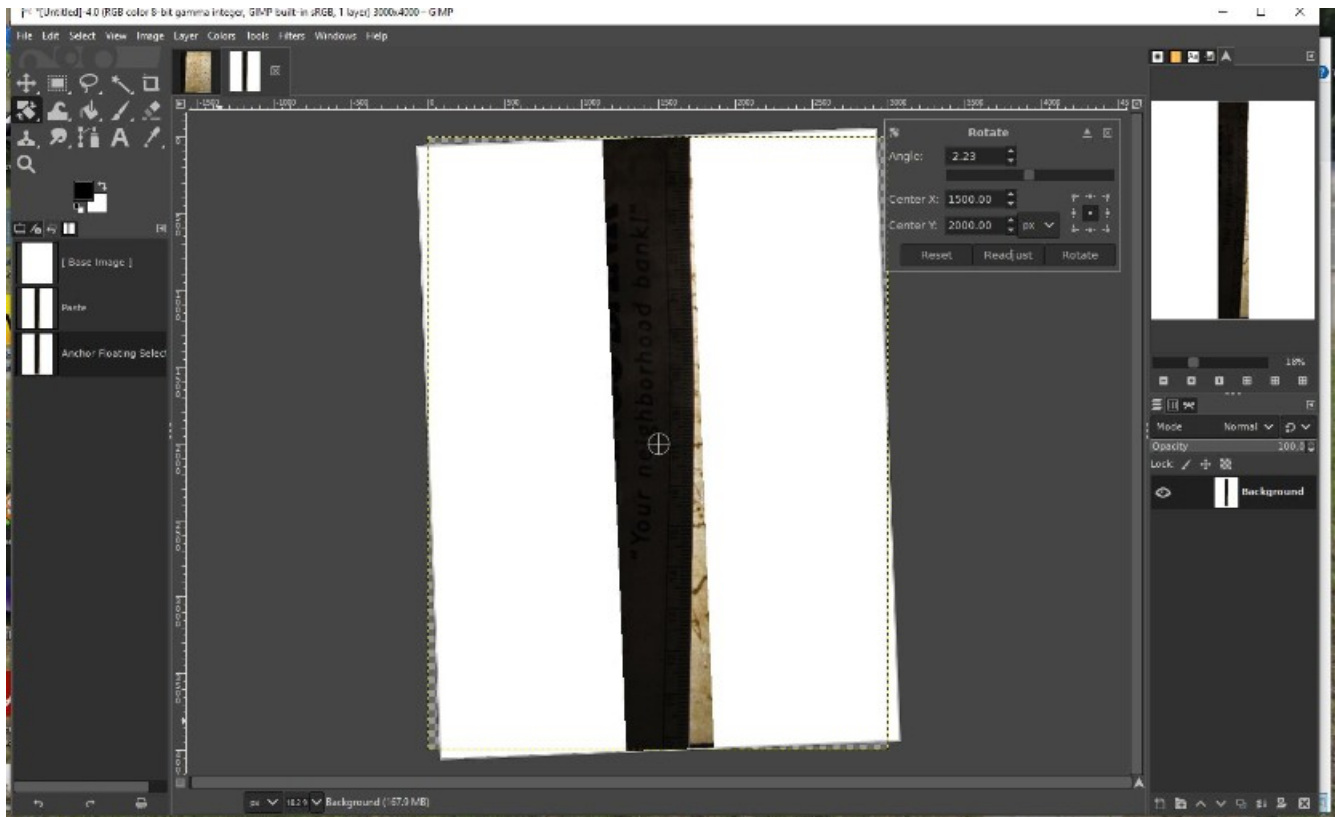
and select the ruler:



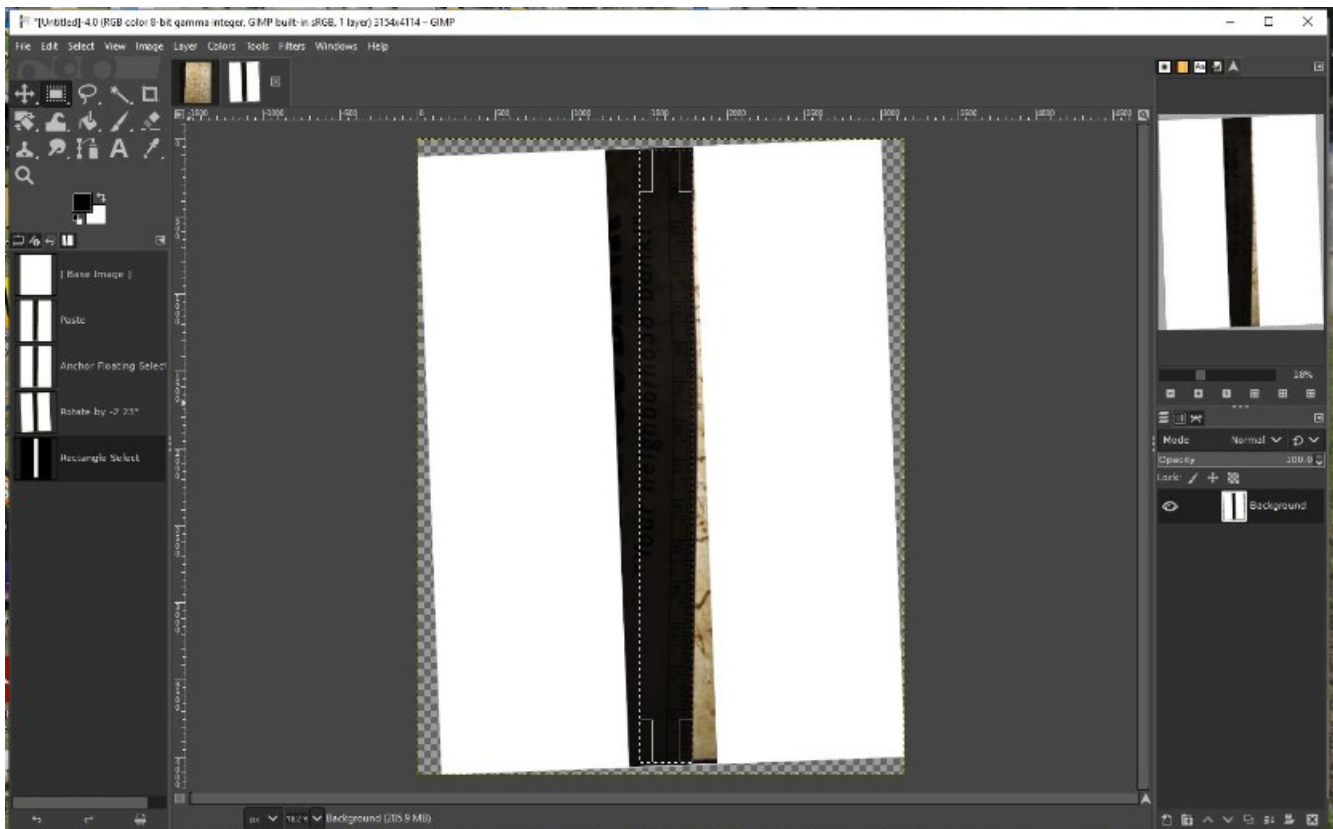
and edit/copy it. Then we create a new blank image:



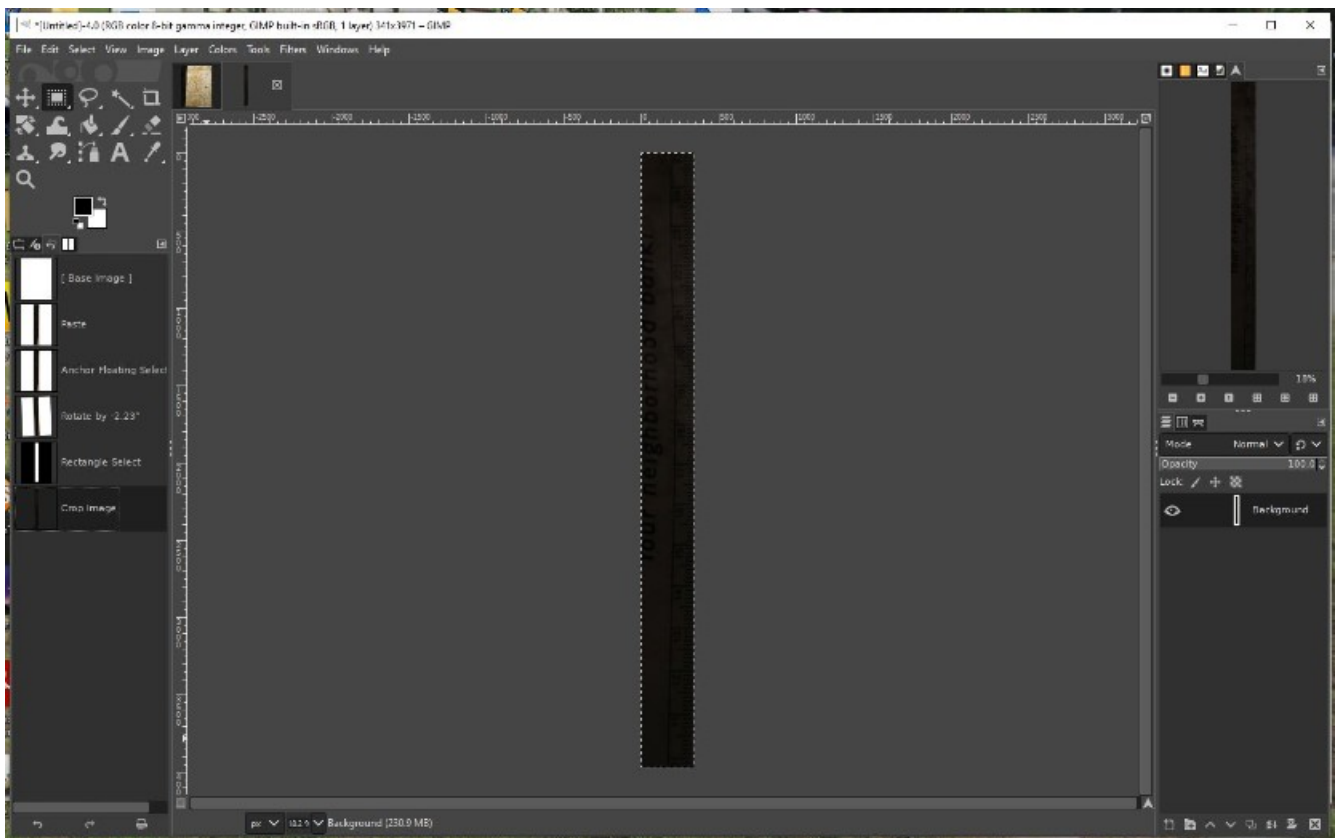
and paste the copied ruler selection into it. We then rotate the image until the part with the scale is upright (not the “view”, which does not help us; use image/transform/arbitrary rotation):



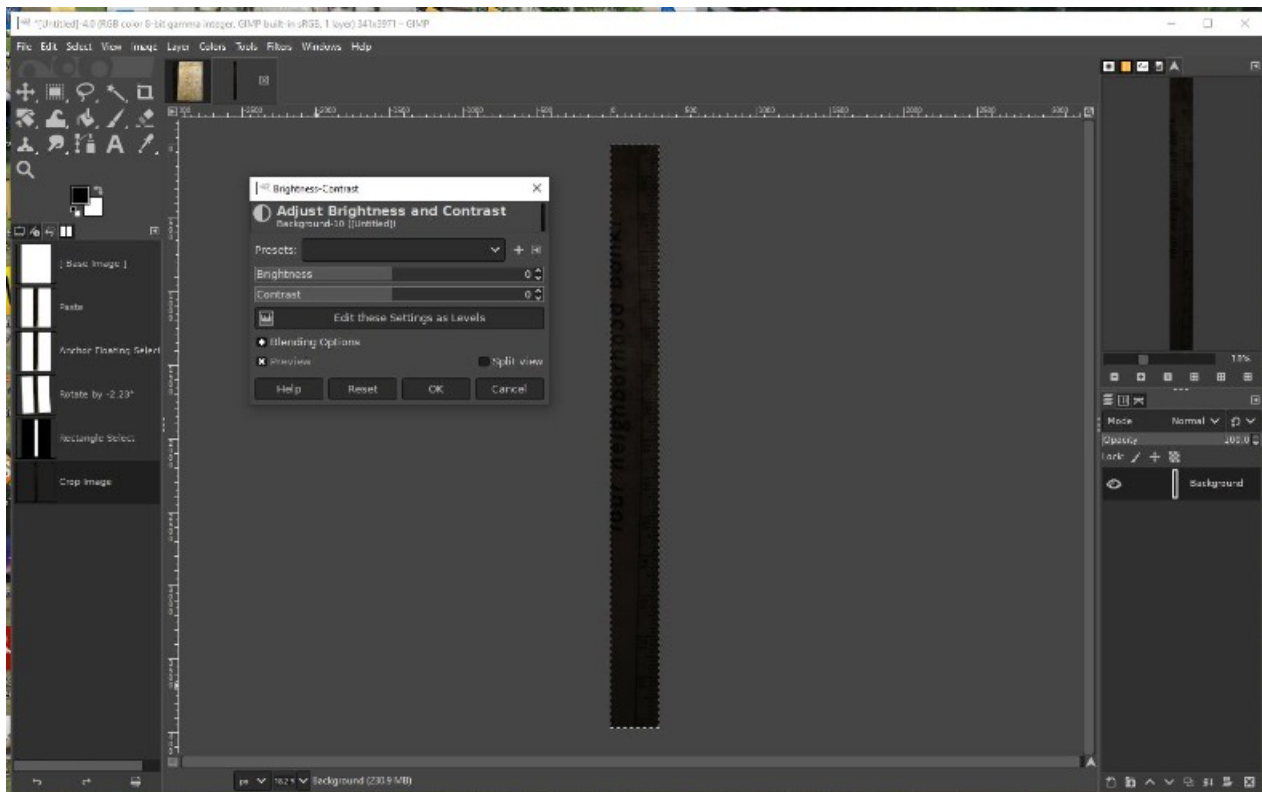
Then we select the part we want:



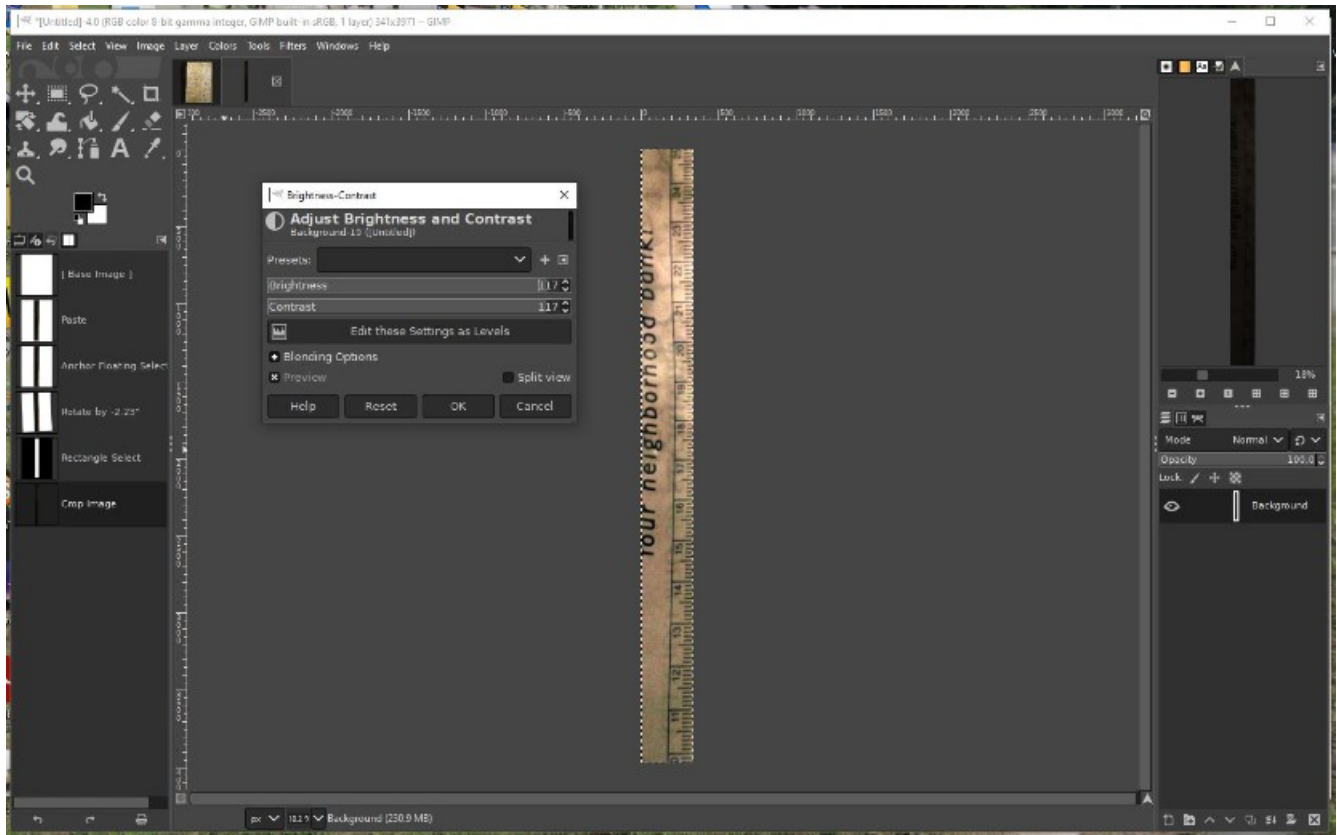
and crop to the selection (image/crop to selection):



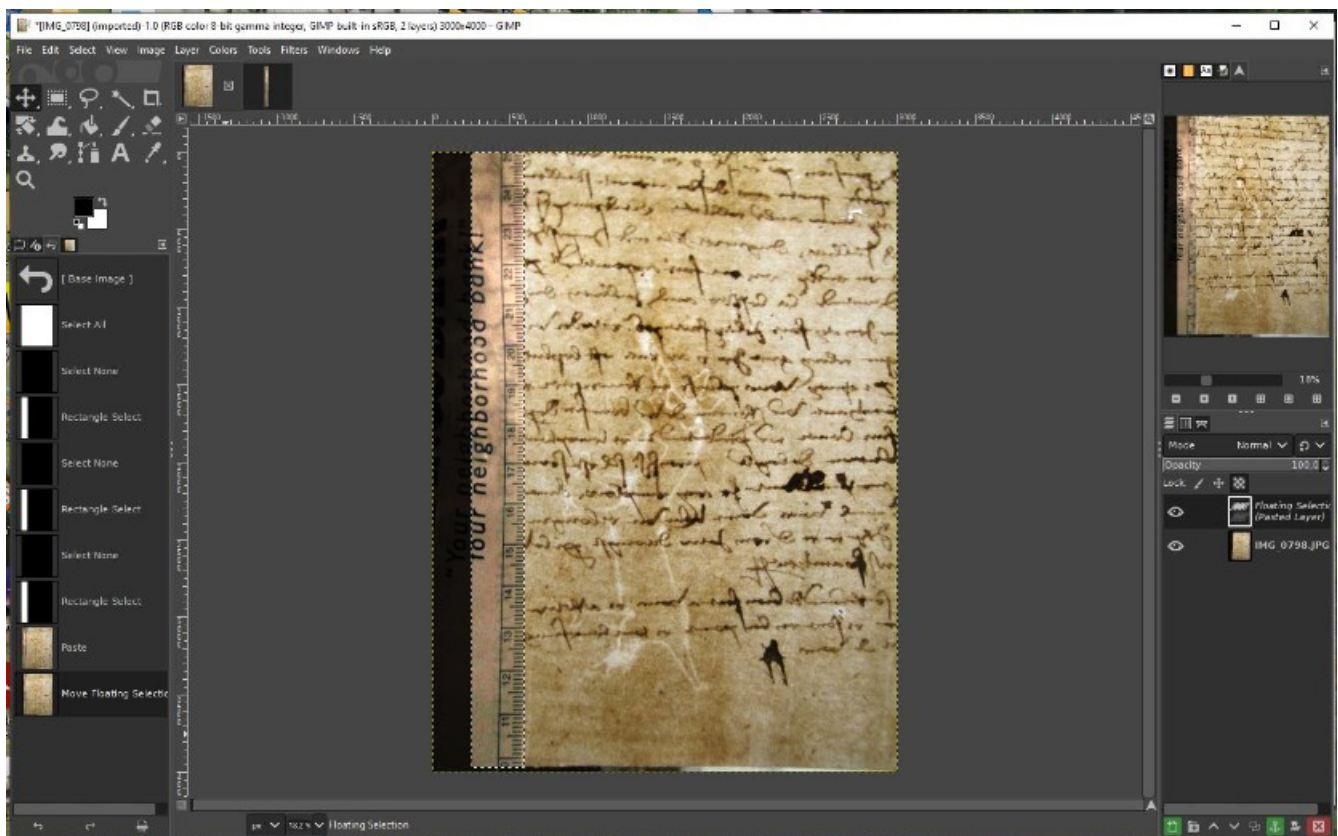
It looks too dark to be useless; but then we play with colors/brightness-contrast:



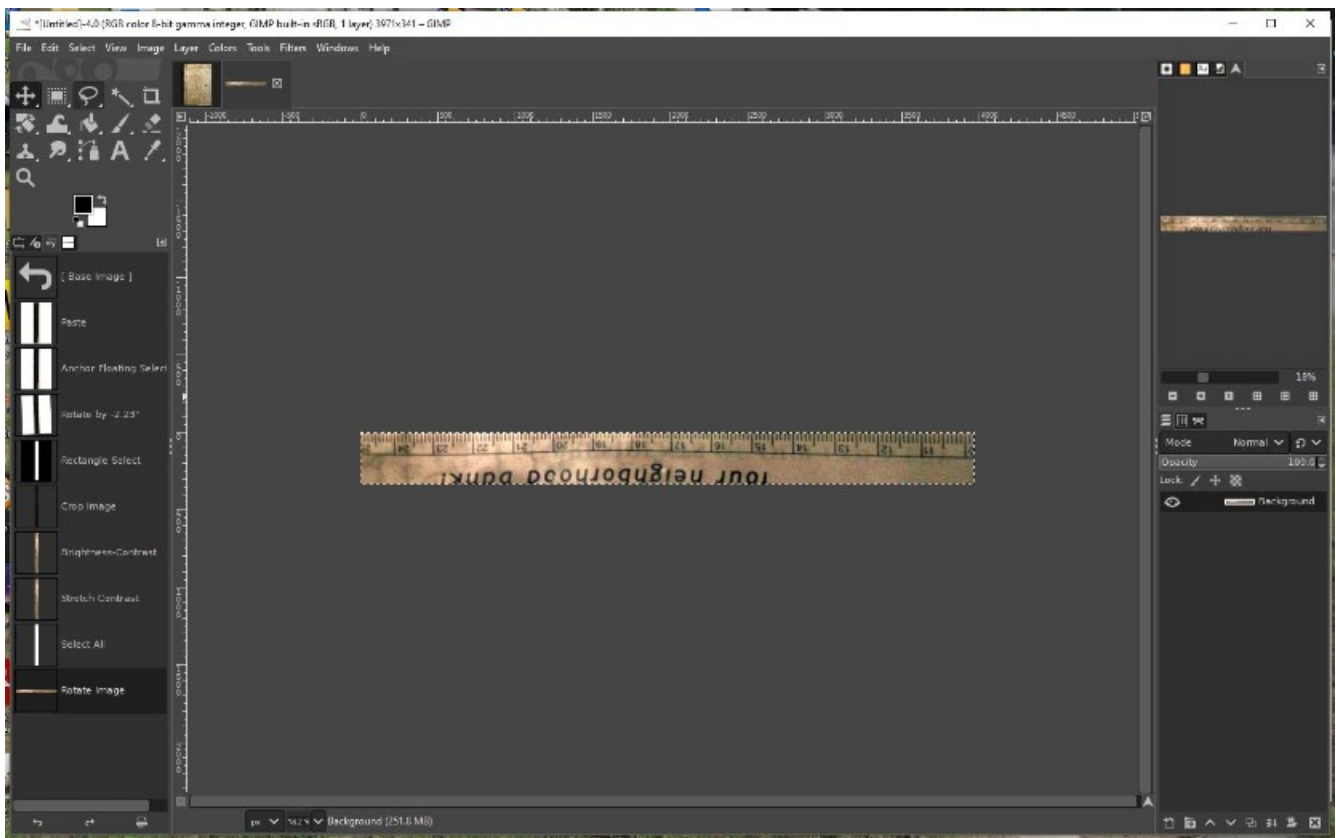
and get this:



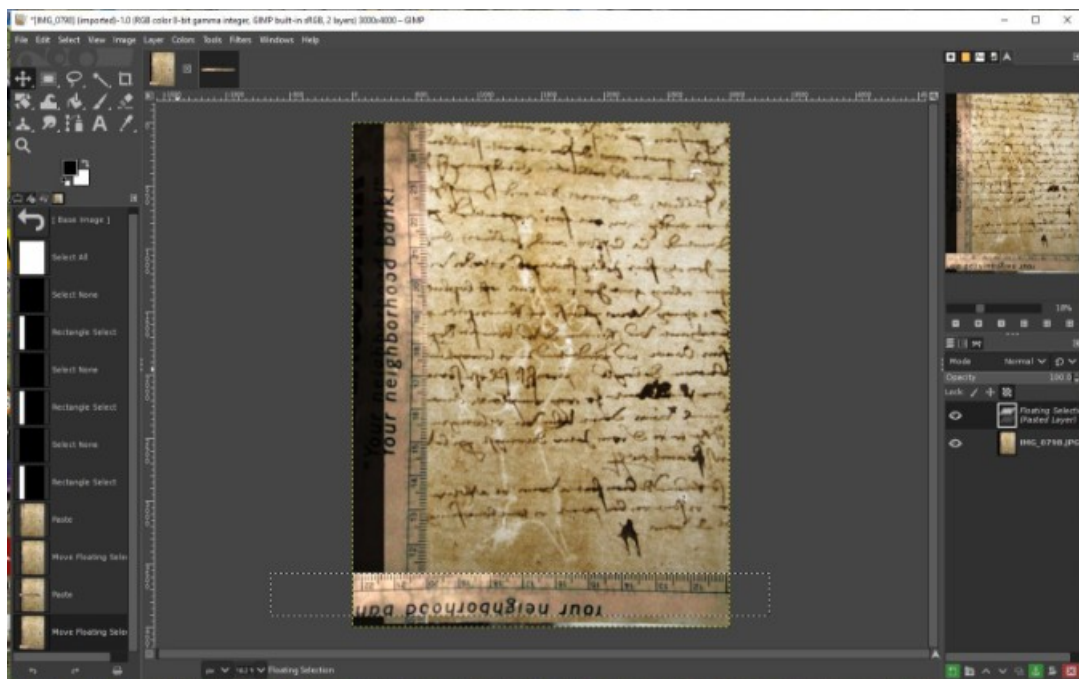
Not elegant, but quite usable. The user can adjust further if desired; this will do for now. So now we can select/select all, copy, and paste it into our main photo:



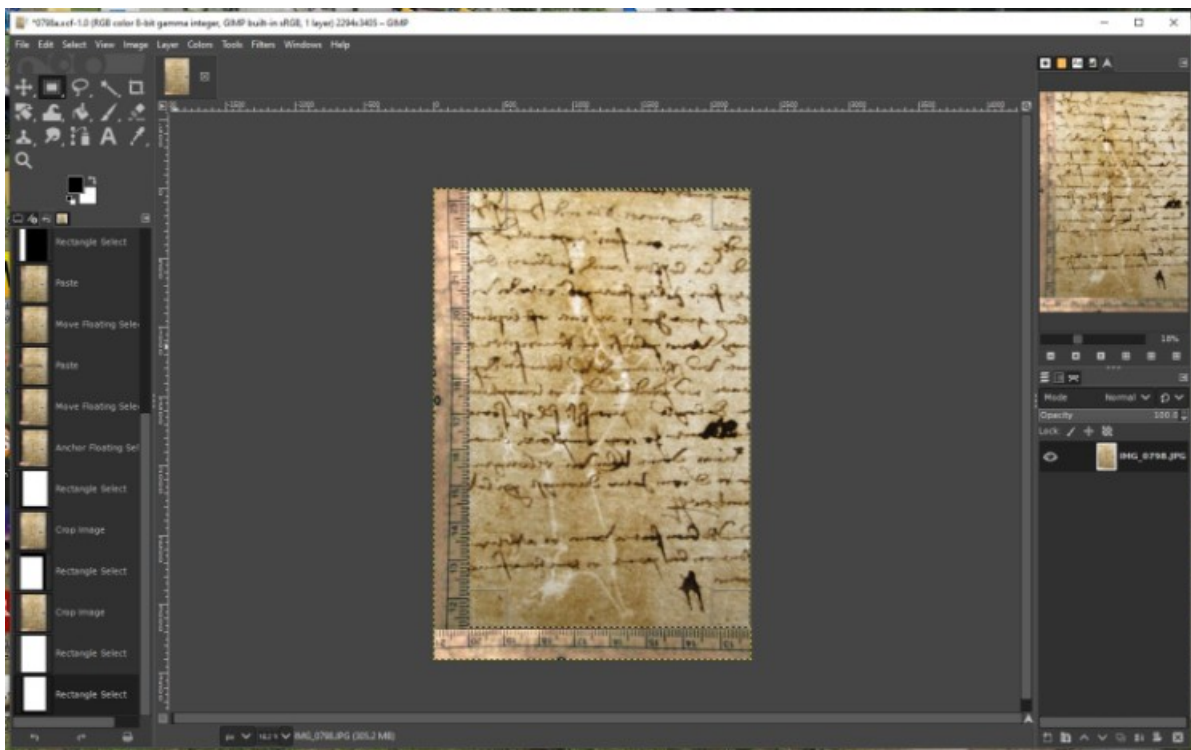
and then, in the original ruler photo, rotate it 90 degrees CCW:



and select, copy, and paste again:

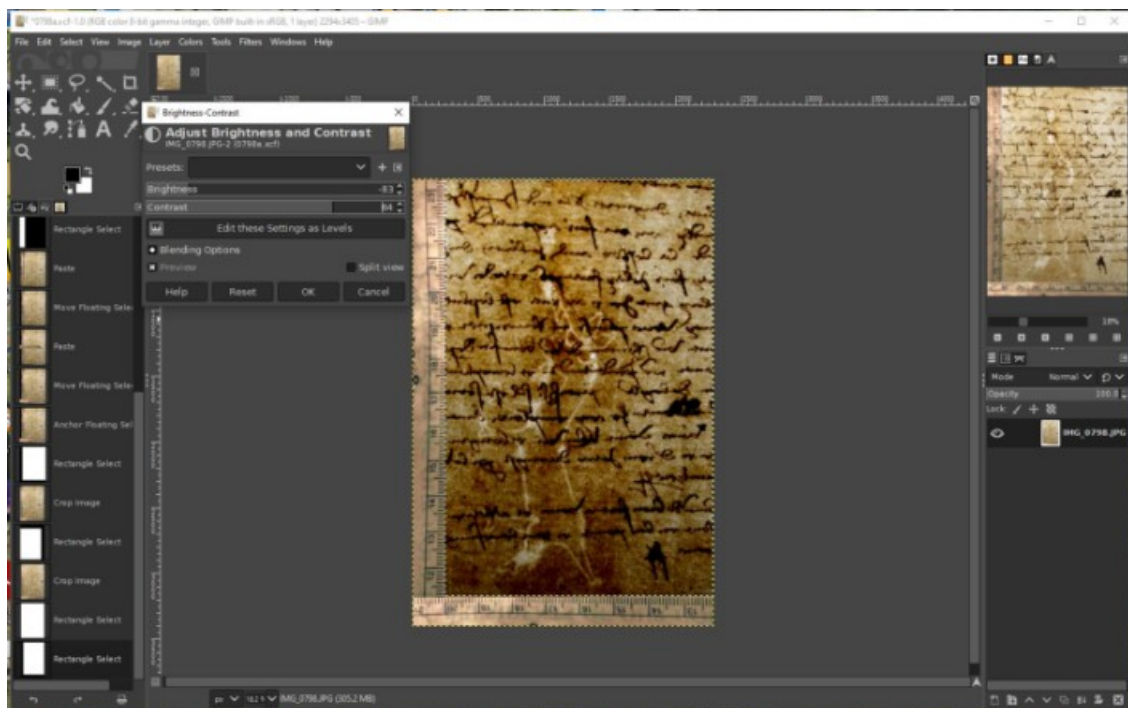


We are now done with the ruler, and can close that image. Now we crop the watermark photo to the desired size and coverage:

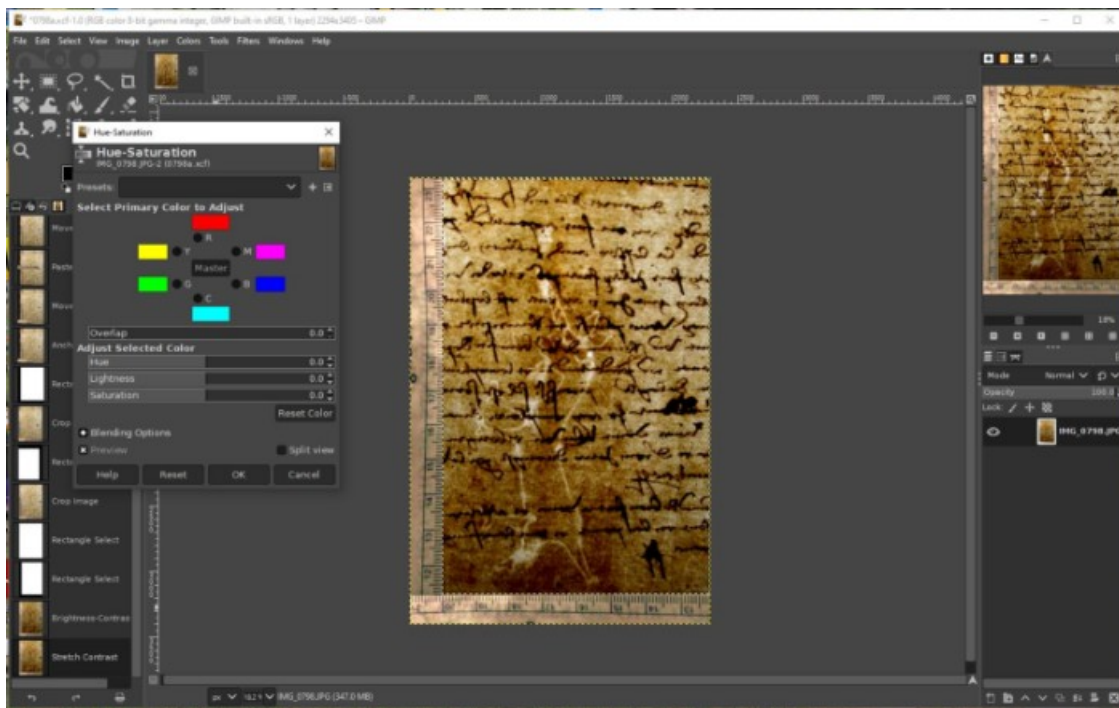


and we are ready to enhance the watermark proper.

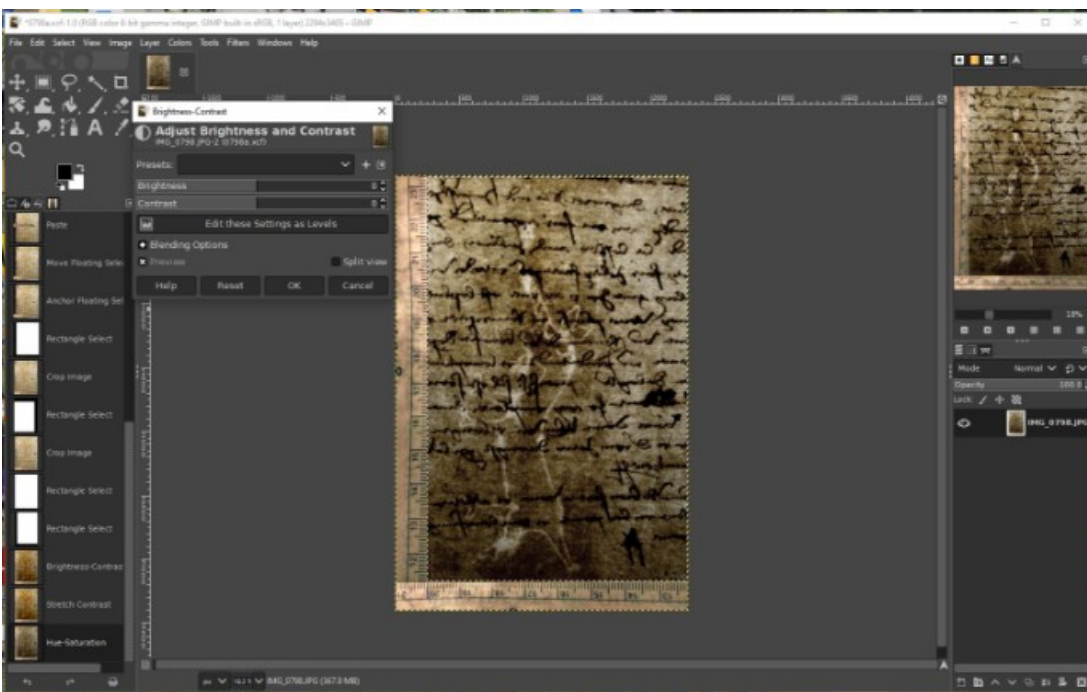
Use the color/brightness - contrast control, remembering to adjust the brightness down and contrast up:



and then cut down on the colour saturation with color/hue-saturation:



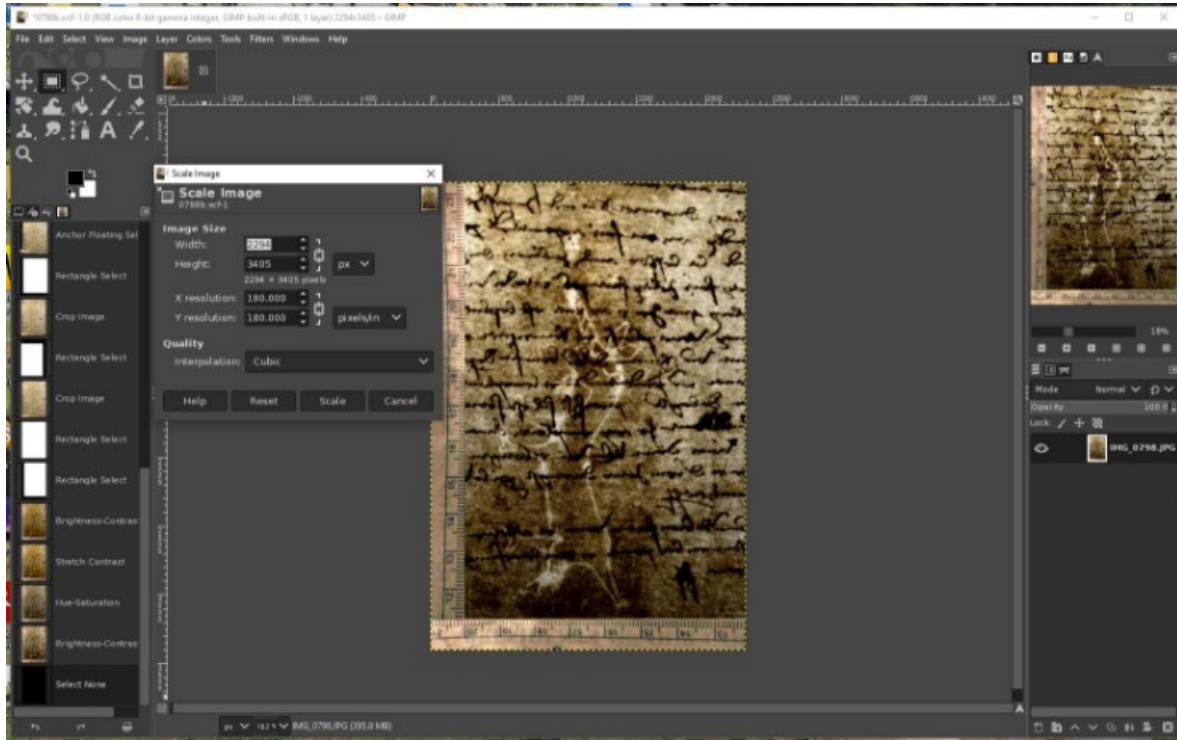
resulting in something like this; we then adjust brightness and contrast again if desired:



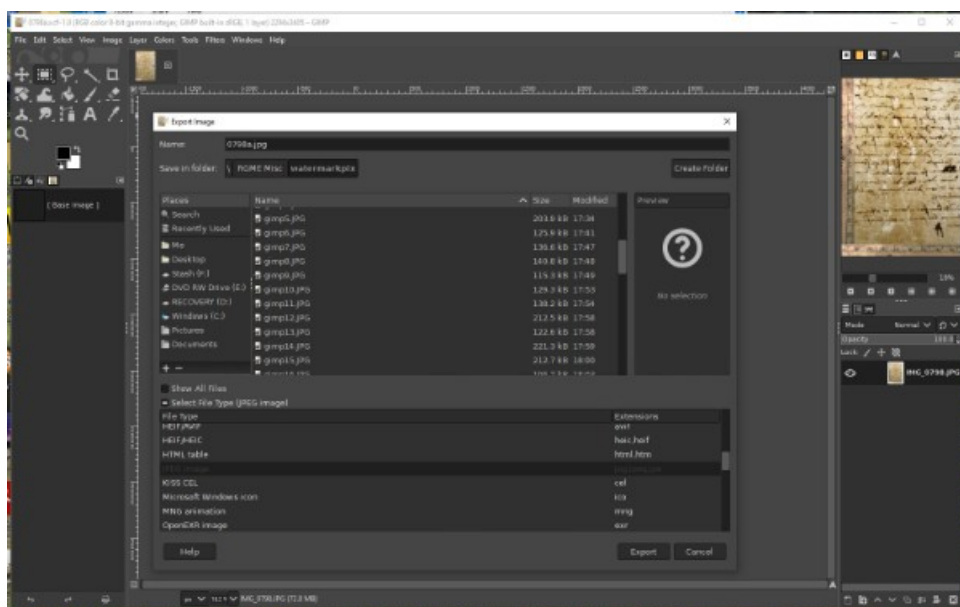
We should save it at this point, if we haven't already been doing so; it's always a good idea

to save frequently, in different copies a various steps along the way.

Now we are ready to resize the image, for posting. I usually resize it to roughly 6" by 8" at 120 DPI; your mileage may vary, of course, but the method is the same. Use image/scale image accordingly:



and save the result. If you want to save in something other than the propriety format, use file/export as and select jpeg (or whatever) in the lower right:

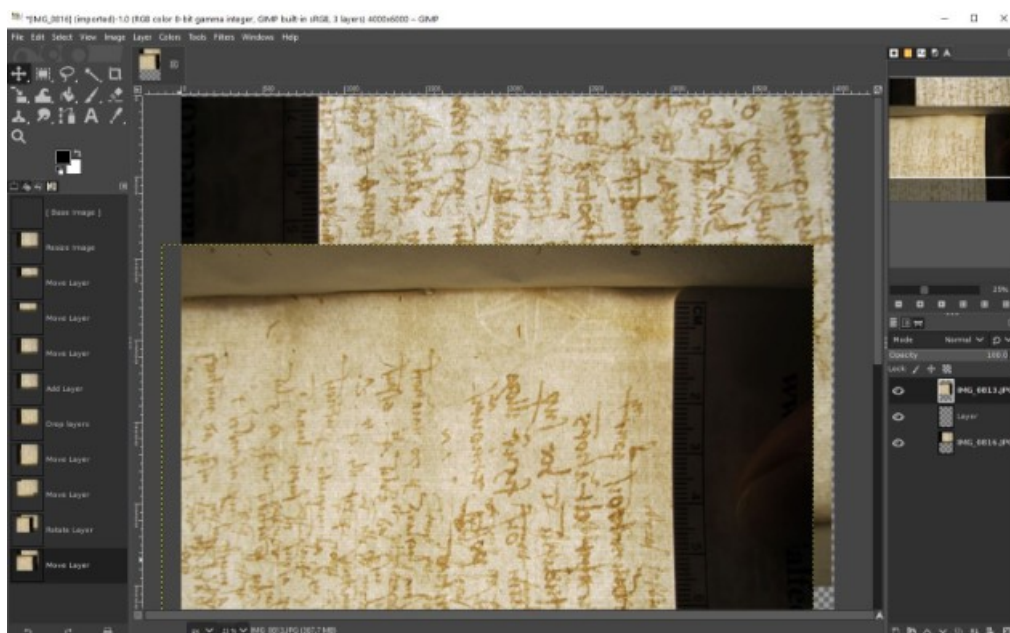


Then it gives you a screen of jpeg options; I usually save as 90%, but that is your option.

The next part is a bit more complicated, as we are going to assemble a watermark image from two parts of the leaf. This is a common enough circumstance; the paper may be bound, or cut, or otherwise visible only in parts. So we are going to look at a relatively simple example, a watermark bisected in a binding. To get it to work we must take the exposures, two of them, as we did for the previous example, then orient, resize, and paste up the two photos to match, then process the result as we did with the previous example. It isn't really as complicated as it sounds.

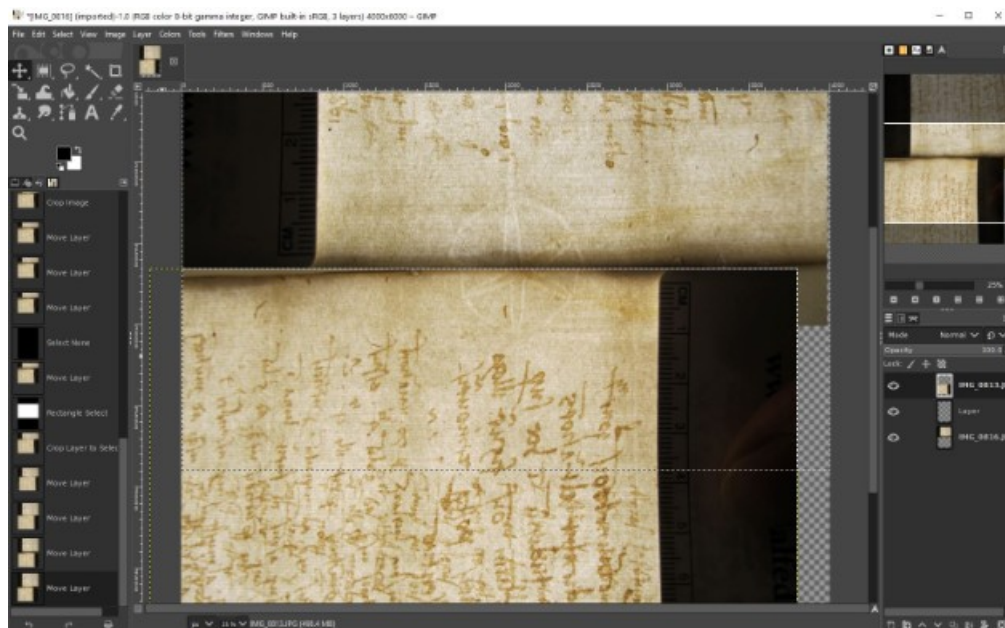
The example used here is a watermark from a Latin copy of the astrological work, Centiloquium, dating to perhaps 1480. The watermark is a six-pointed star in an orb topped by a cross (Br.6079).

First we open the first image normally. Next, we resize the canvas using the image/canvas size menu, we double the vertical size to 6000 pixels, allowing us room to move the second layer around. Then we create the second layer: menu layer/new layer. At first there is nothing there, so we drag and drop the second half of the watermark into this layer.



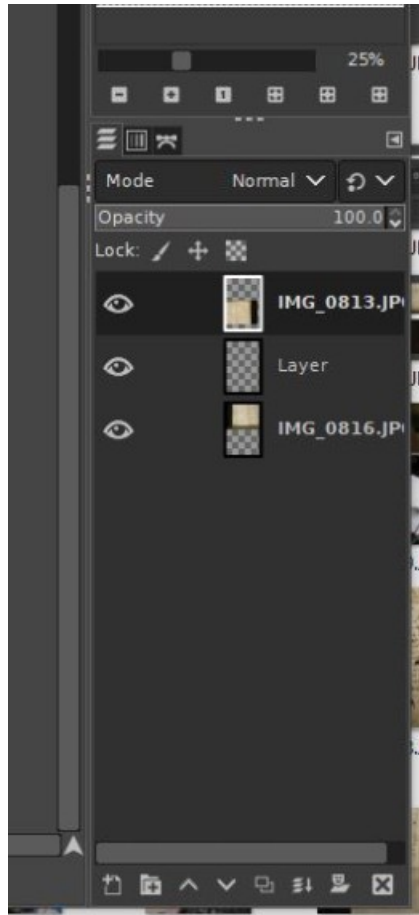
To make the new layer useful, we must modify it in a few ways. Its orientation is mirror-image; it has a top border of crust; and it needs to be slightly resized and moved into place. These things are, however, easy.

First, the crust. Select the area you want to keep, then use menu layer/crop to selection to get rid of the crust. This is easy enough. When we move the two layers we have to see if they fit, we notice that the second layer is both reversed in its text, and the watermark is smaller than the top.



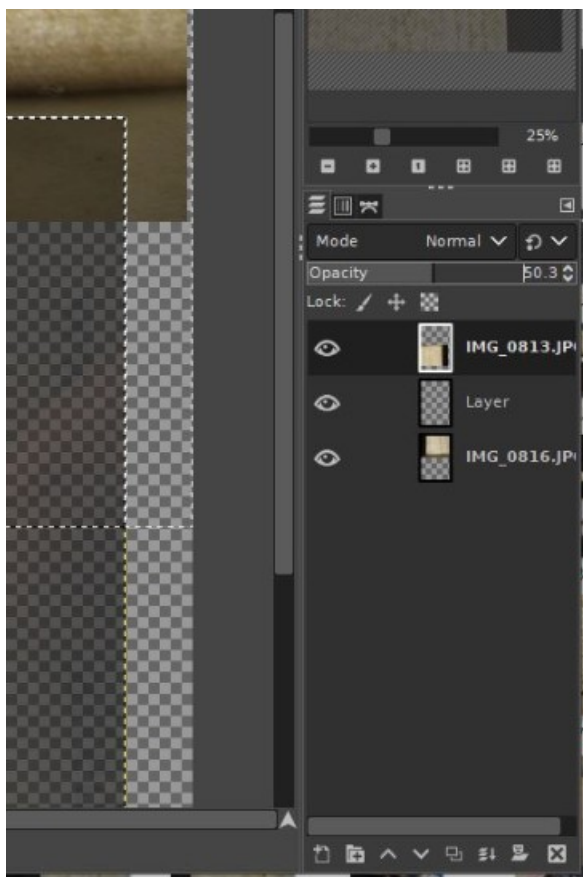
The first is easily dealt with. Menu: layer/transform/rotate 180* will deal with that. The size is a little more complicated.

First we need to make the layer somewhat transparent, so we can see what we are adjusting. On the right side a bit below centre there is a control marked “opacity” which we can adjust to deal with this:



The control is a slide bar, which we can slide left to about 50-60%, so we can see what is underneath.

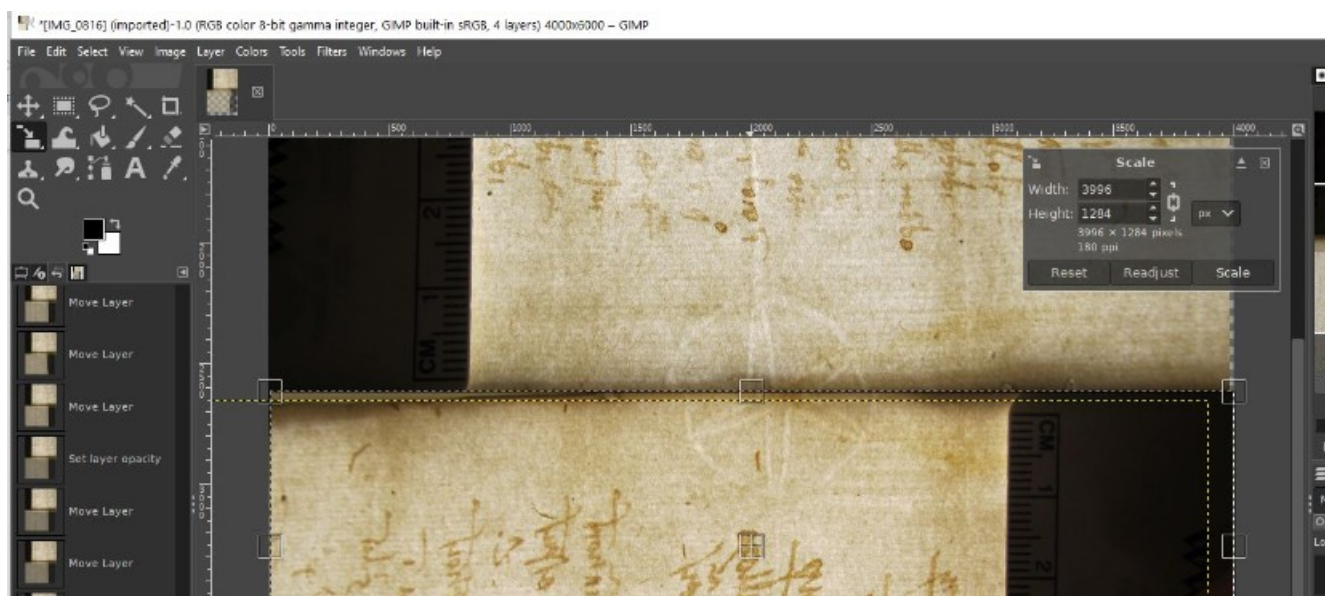
That way when we adjust the size we can do it “on the fly” and see the results.



Now we can adjust the size to fit the two halves together. The menu here is layer/scale layer, with a pair of numbers which you can play around with until the match between image halves is satisfactory.

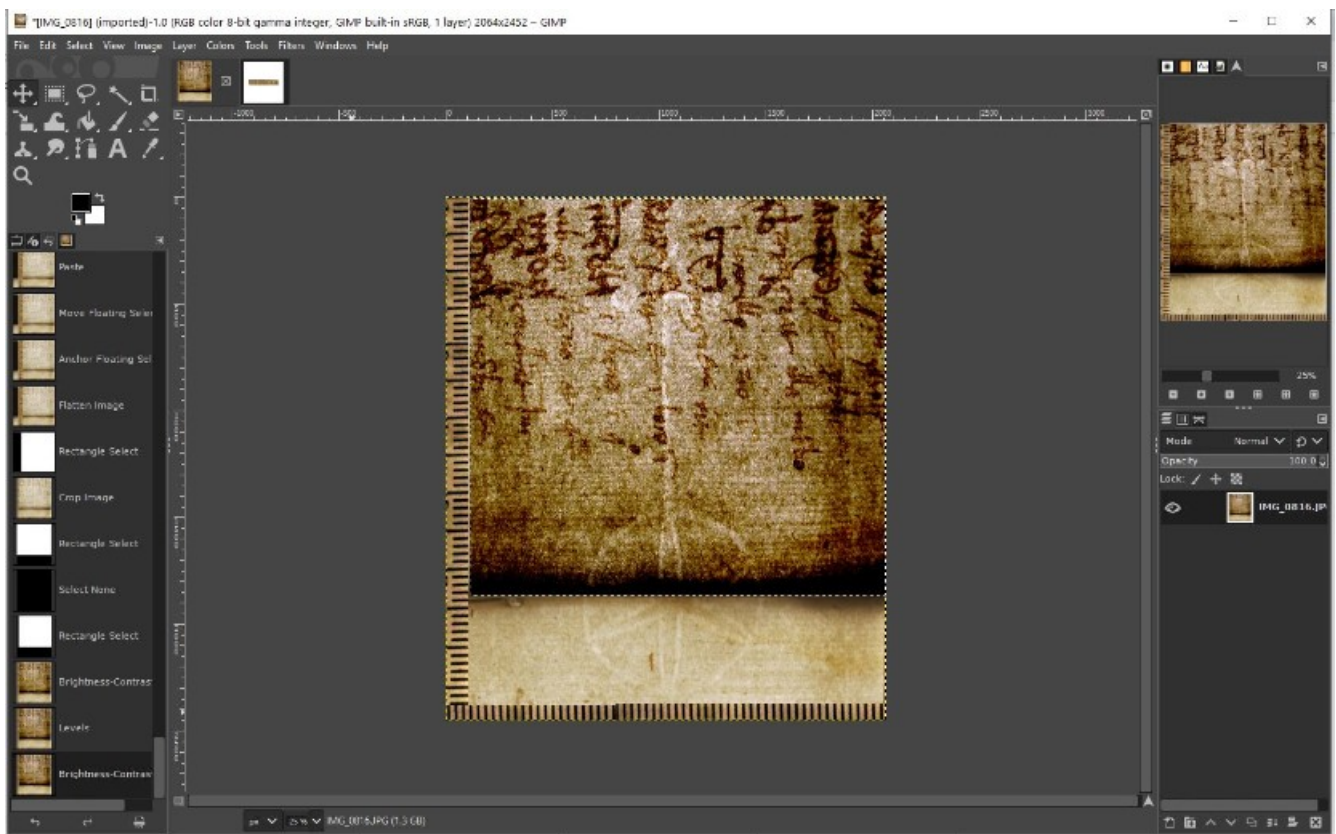
Alternatively we can set the rulers next to each other and adjust them until they are equally sized, then move,, readjust transparency (i. e., set the top laser to 100% opacity) and merge the layers down.

Adjusting by eye does the same thing, more or less. It involves adjusting the scale of the top layer to match that of the bottom layer. Since we want to do it visually, rather than guess at numbers, we use the scale button in the tools at upper right, and drag the corner of the layer until it looks correct:

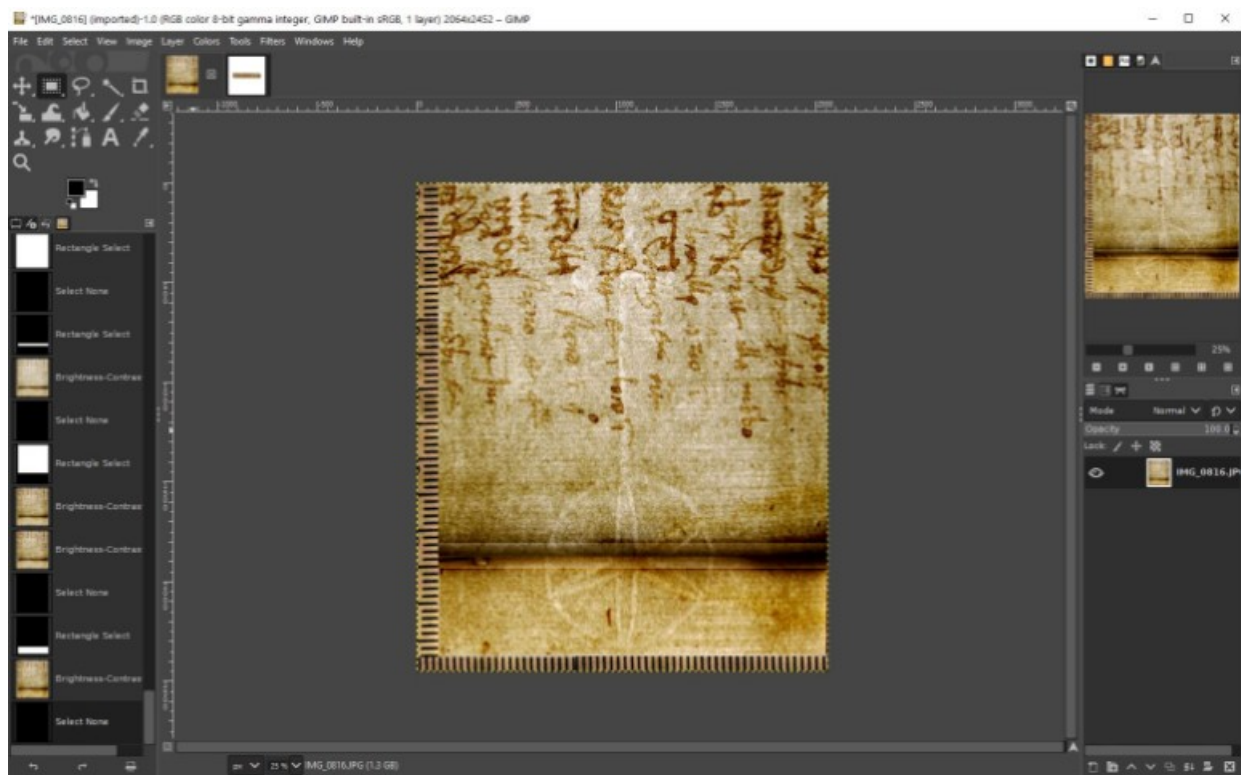


We can tweak it by scaling and moving the layer until it looks correct. Then we set opacity to 100%, and flatten it (image/flatten image). We then crop it to get the image and size we want, then process it like a single image of a watermark, which it now is.

As an aside, the usual result gives a nearly opaque band where the image was split. You can with the techniques described, adjust areas down to the pixel level, so you can settle for this:



or something a bit better adjusted:



It isn't elegant, perhaps, although it could have been adjusted in smaller layers; but it shows the detail, which is what counts. So to end up, we save it as our desired format, and then can use it as we like:



Simple enough, or we can complicate it further with additional adjustments. It is not very difficult, and the program is free, so it is within the budget of those who have gone more-or-less broke buying our paper samples.