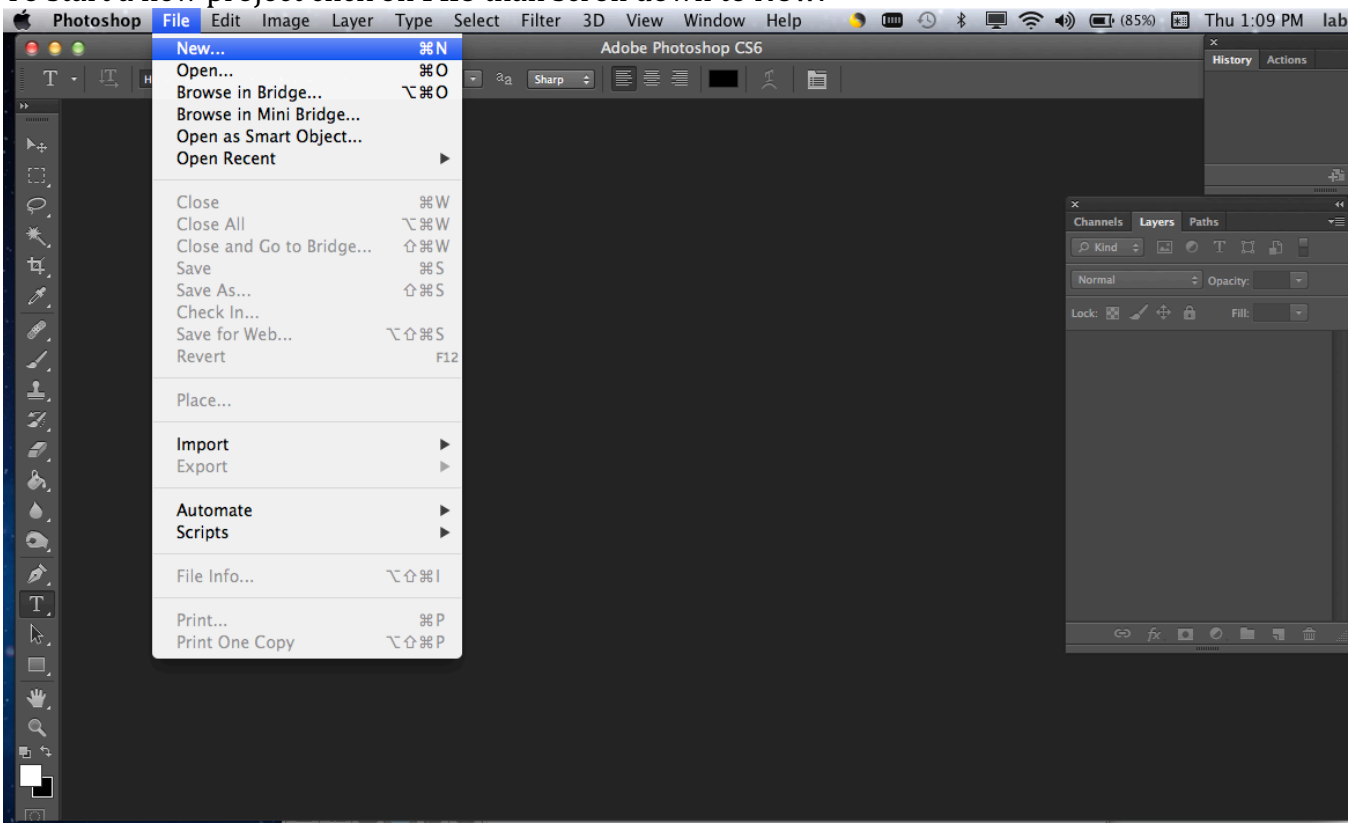
Photoshop

Do most of your commands from the drop down menus at the top of the screen. As you get more use to the program you will find the same commands in other places of the program as well as learning the shortcuts. I'll start with some introductory information about various ways to manipulate your image then we'll go straight into the demonstration.

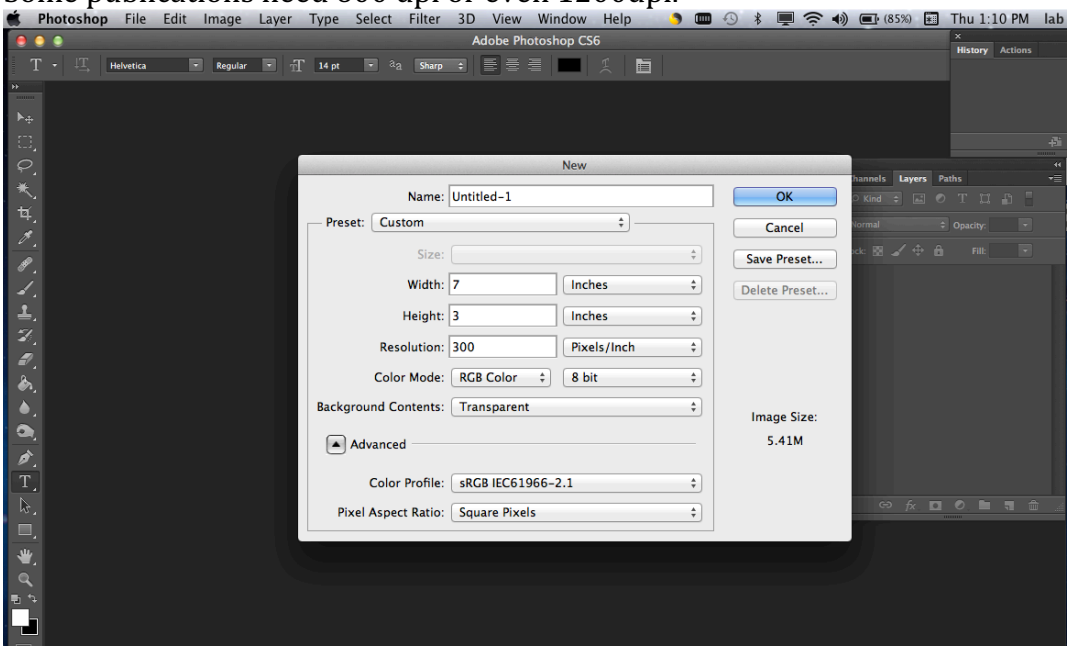
First you will either need to create a file, or start with an existing file.

Working with the file

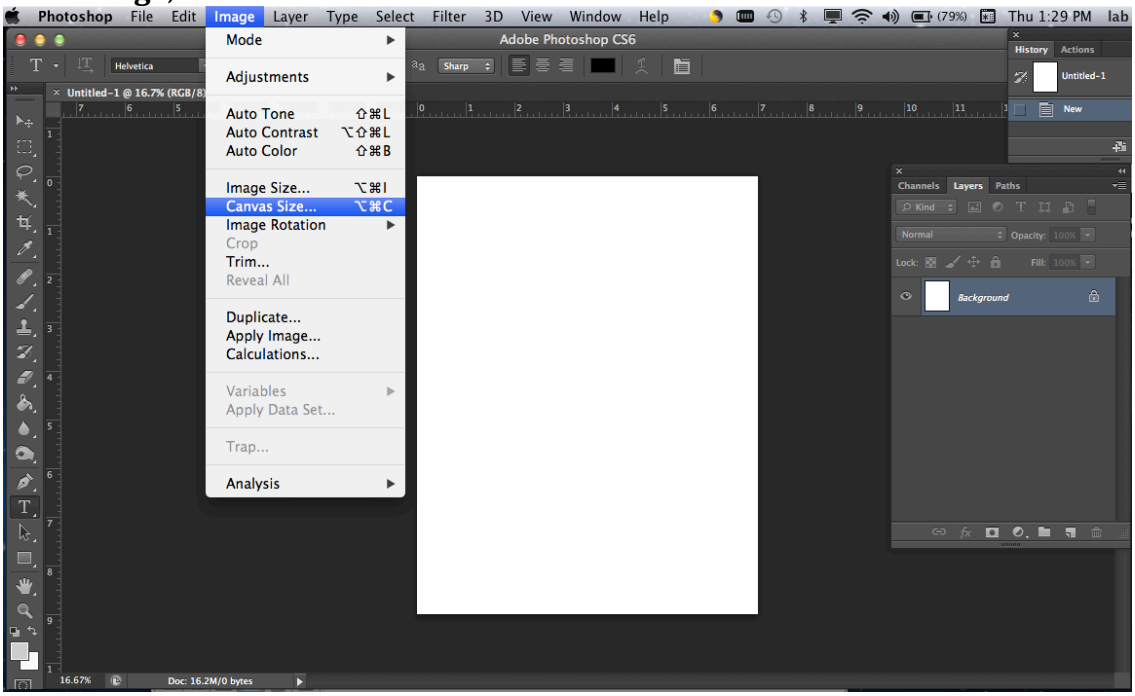
To start a new project click on **File** than scroll down to **New**.



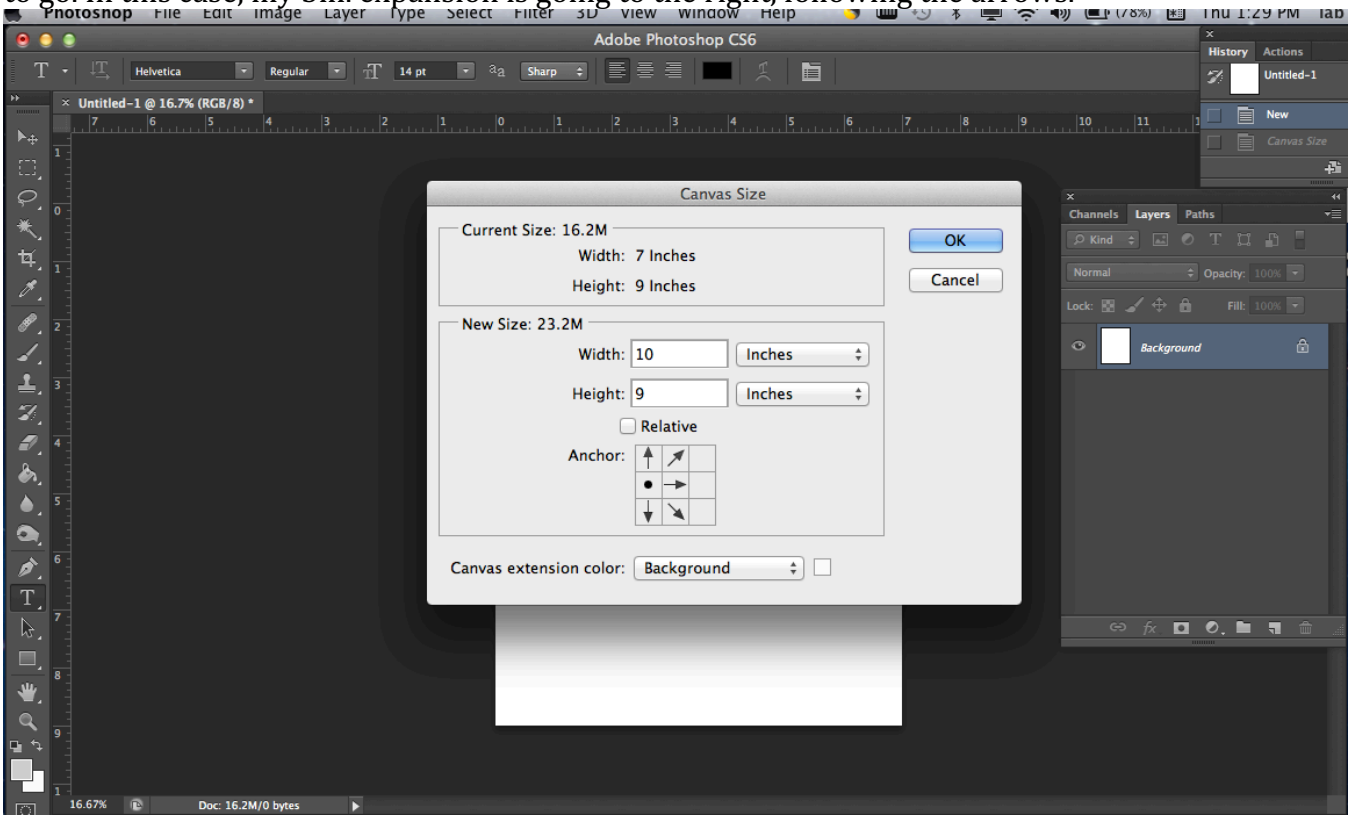
A window will pop up asking for file info. Here you can enter the size, background color, name, etc. Keep resolution 300 or above to start. Or choose the resolution necessary for your intended use. Some publications need 600 dpi or even 1200dpi.



Say for instance you have been working on your project for a while but want to change the canvas size. Changing the canvas size is similar to the image size but you are not changing sizes proportionate to each other rather, you just want to add height or width.
Click **Image**, then scroll down to **Canvas Size.**

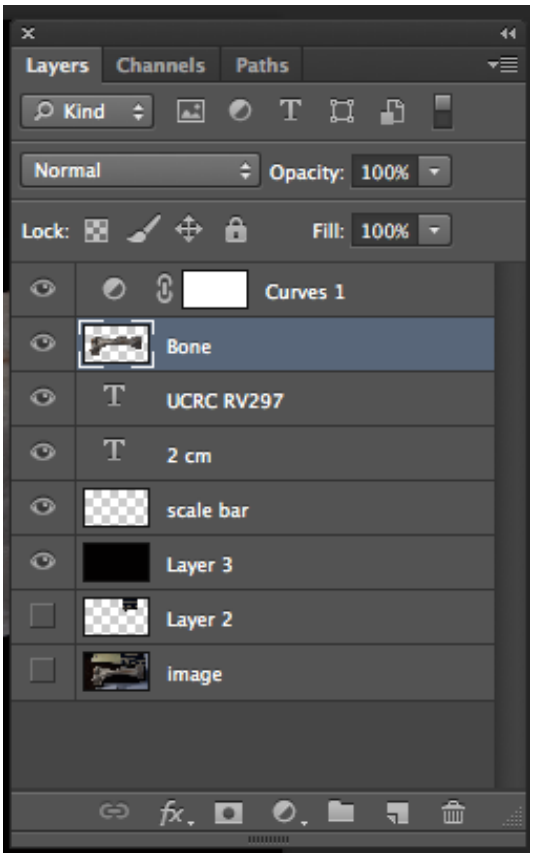


This window will pop up asking for modified info. In my example I want to change the size from 7in. wide to 10in. wide. The Anchor info lets you choose which direction you want your expansion to go. In this case, my 3in. expansion is going to the right, following the arrows.



Using Layers

For what we are doing make sure your layers screen looks like this. Keep Normal and Kind selected, keep Opacity and Fill at 100%.



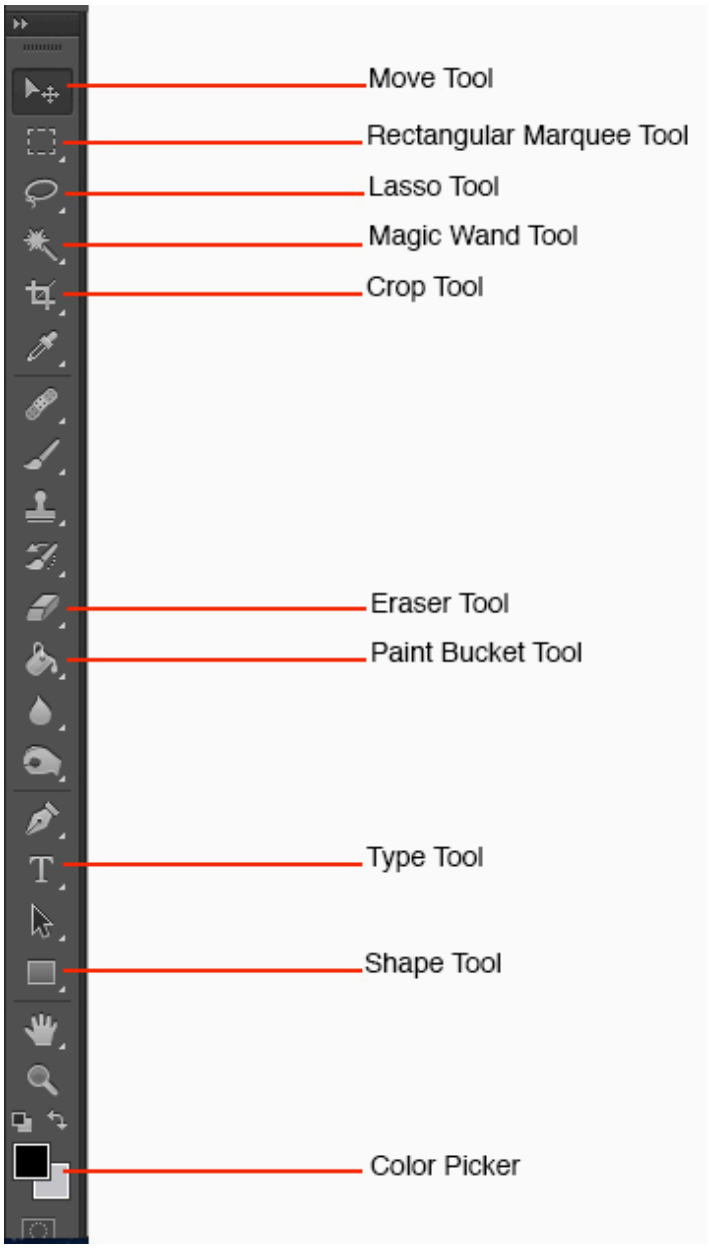
How to use the Layers window:
For every individual object you want in your image put it in a separate layer. We do this in case things need to change, if you need to move your object, transform it, hide layer, etc. This gives you control over the individual object.

Anytime you want to work in a certain layer, that layer needs to be selected by just clicking on it in the layers window. As you can see here the **Bone** layer is the one I am working with at the moment. You will also notice that 7 of the 9 layers have eyes next to them, this means you can see them. The other two are present but are hidden. They are hidden from sight now and will stay hidden upon saving and printing. Just click the box to hide or see your object. You will also notice that one of the layers labeled Curves 1, this is a contrast manipulation layer. At the bottom of the Layers window you will see the same icon. Click this icon for a dropdown menu of contrast options. In my case, I used Curves. Whenever making manipulations to a certain object, I always keep them as separate layers until I'm ready to merge.

Also note the order of layers. Layers near the top are "on top" on the image. Layers below each other are "below each other" on the image. You can shuffle these layers around by left click and drag.

Tools Window

The Tools window is used to select which tool you want to use that will manipulate your objects, or other various commands within the image itself. Every time you click on a specific tool a new selection of tool specific choices appear at the top.



Move Tool – Click this tool to move your object around the page.

Rectangular Marquee Tool – Click this tool to create a customizable rectangular shape. All the space within that highlighted dotted line shape can be copied and pasted elsewhere. It's basically a tool for a rectangular shaped selection box. To activate. left click and hold down and drag mouse.

Lasso Tool – Click this tool to do the same thing as the rectangular marquee except this is a customizable shape. To activate, left click and hold down and drag mouse.

Magic Wand Tool – Click this tool to select an area of the same color. You can use this tool to delete, fill or manipulate a large amount of space at one time.

Crop Tool – Click this tool to crop an image.

Eraser Tool – Click this tool to erase. You can change the size and shape of your eraser size at the top.

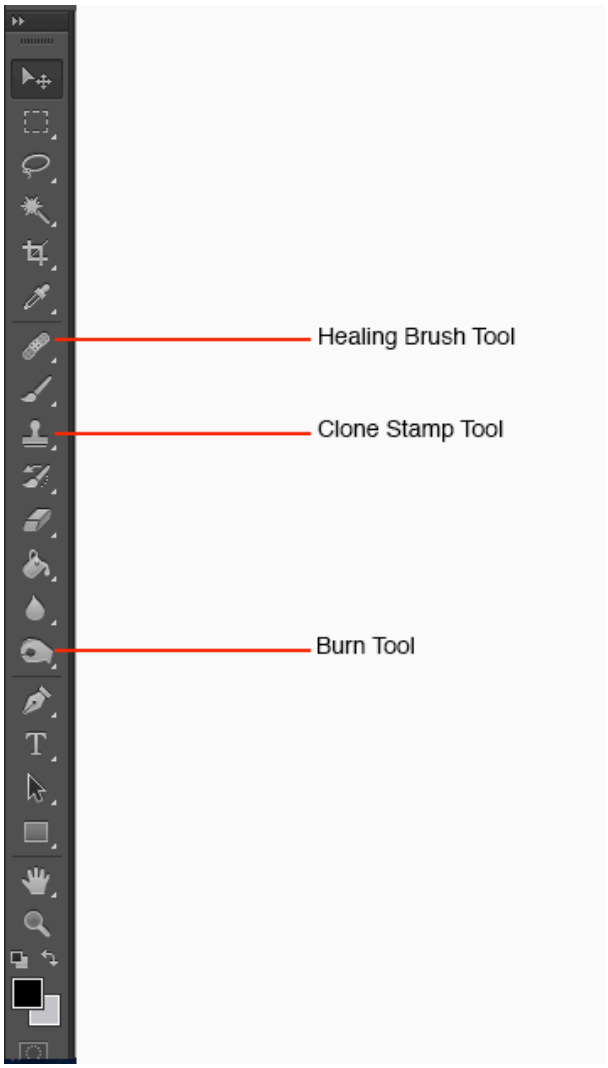
Paint Bucket Tool – Click this tool to fill in color of an object. This tool only fills in space of the exact same color at a time, or selected area. You can change the color of your paint with the Color Picker.

Type Tool – Click this tool to add text. Text options are at the top.

Shape Tool – Click this tool to add filled in shapes. Shape fills and stroke options are at the top.

Color Picker– Not exactly a tool but is within the window. Click this selector to change colors of something, fill, type, etc.

Other tools that you may want to use but ones we will not use for our demonstration.



Healing Brush Tool – Click this tool to heal an area. This tool is very similar to **Clone Stamp Tool** but rather than an exact clone, it brushes in similar shade values as the area you selected. Select area by holding down the Option key.

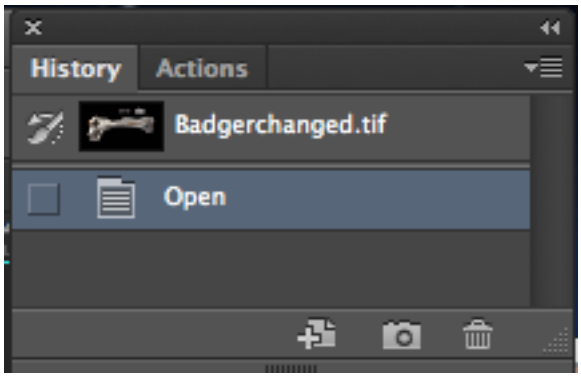
Clone Stamp Tool – Click this tool cover an area with "like" selected area. Similar to Healing brush but this makes an exact clone rather than similar values. Hold down the Option key in an area you want to clone. Then move to the area where you want to reproduce that area. Click to add the stamp.

Burn/Dodge Tool – Click this tool to darken or lighten an area with a brush. Burn is to darken an area, Dodge is to lighten an area. The Dodge icon is within this series of tools.

A note about all tools:
If you click on a tool, you will notice several other tools drop down. This is a way of organizing the tools that are similar to each other in one little group. You can scroll over to choose a different tool.

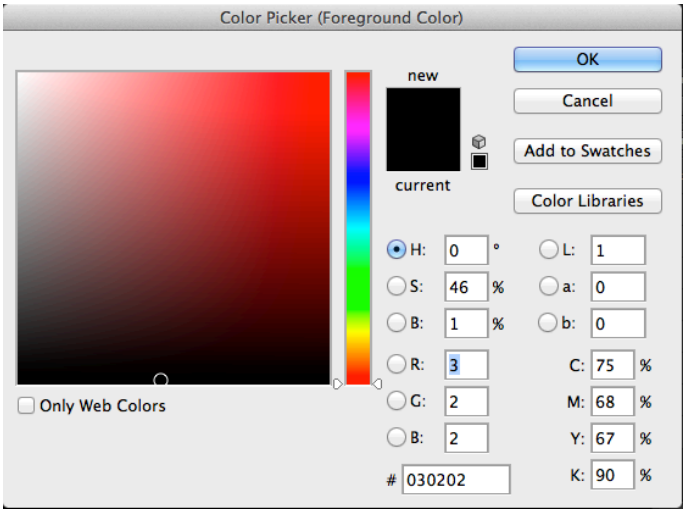
History Window (undo/redo commands)

The History window is a blessing. This window shows you your history of commands up to a certain point back. You can go through the list and click on any past command which would take your work back to that point. Say you make a mistake 5 commands back, this is the window where you can go back to that point. Your future commands are still shown but unselected so you can go back to your future commands as well. However, if you go back to a certain command then make a new command it now resets your future commands. So make sure you are certain about going back and changing before restarting again.



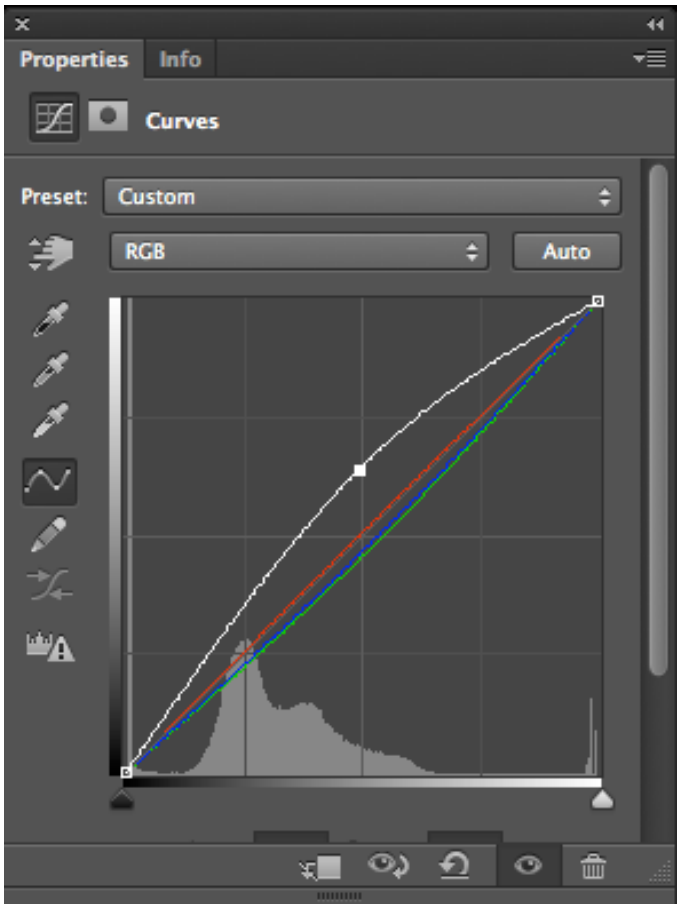
Photoshop allows you to undo/redo commands from your top dropdown windows, but it only does one command deep.

Color selection

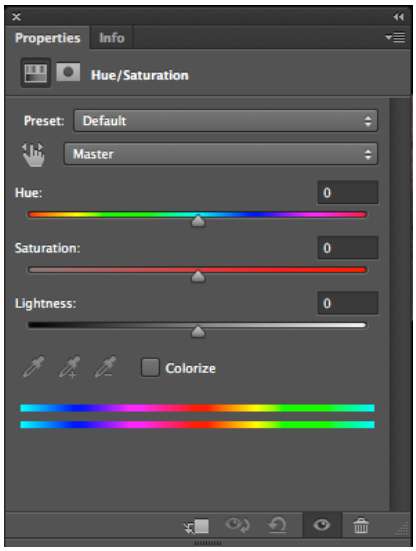


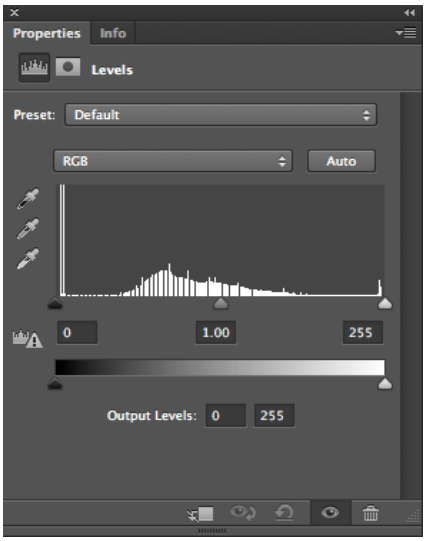
When you click on **Color Picker** in the **Tools** window, this window opens. You can click on any color along this spectrum then change it's tint as you like. If you have a custom color you want you can plug in the CMYK or RBG numbers and your color will come up for you. Select ok to keep the color.

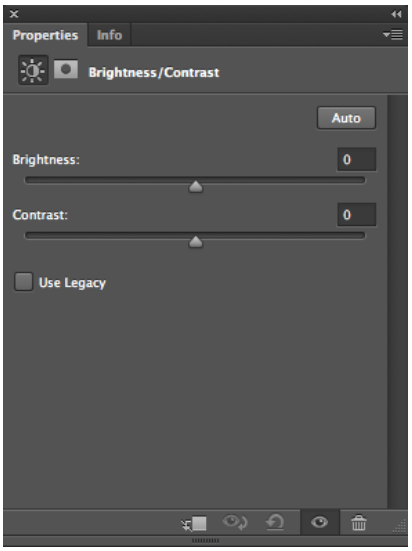
Contrast/Color manipulations



Say you need to make some contrast/color adjustments. I find that my go to is a **Curves** window. In your **Layers** window you will see this icon at the bottom  . Click this and scroll down to **Curves**. A window like the one on the left will pop up. You can add dots to that line to create a custom curve that changes the contrast among the highlights/shadows. I like it better than the contrast slider because it's more customizable. You see the RBG drop down? That's where you can work on your color balancing post processing. Rather than just putting a cast of corrected color over the whole image, you can customize where those color changes happen, in either the highlights, midtones, or shadows.
I encourage you to play around with this tool.

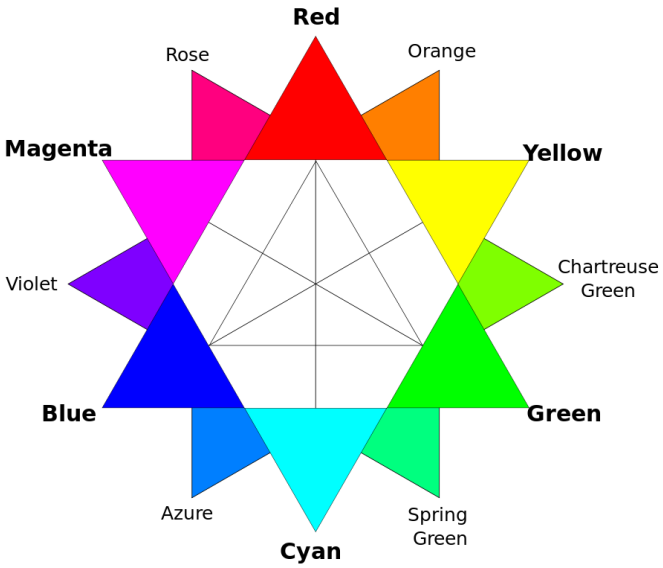






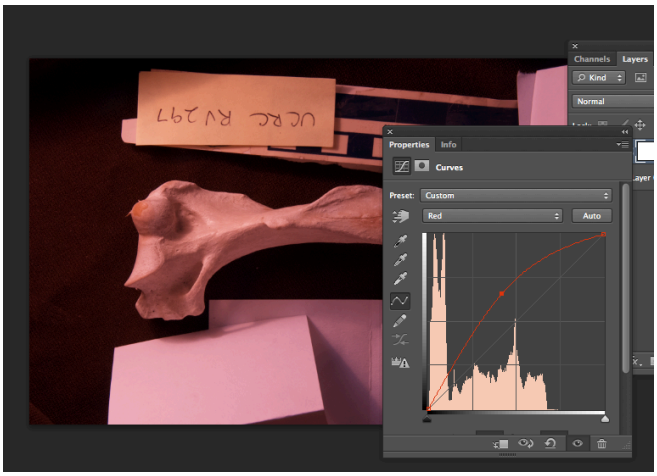
Hue/Saturation, Levels, Brightness/Contrast are 3 other windows you can play with.

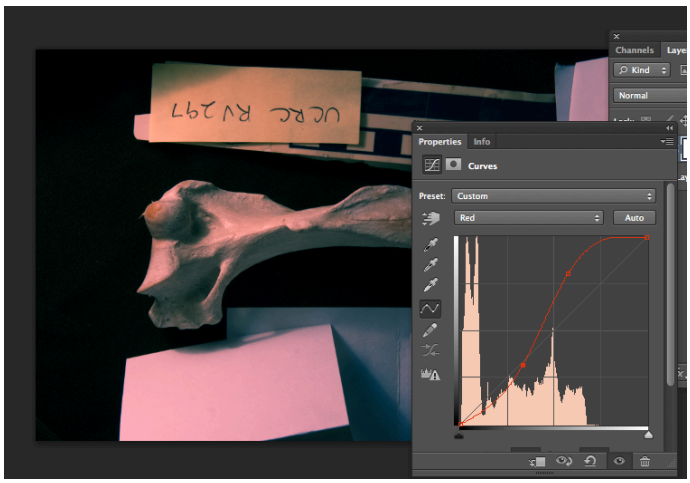
Color balancing



Let's touch back on the **Curves** layer.

Use this chart to understand which colors cancel out one another. In light the primary colors are **R**ed, **B**lue, **G**reen. The secondary colors are **C**yan, **M**agenta, **Y**ellow. When changing a color, remember that you need to change it's opposite color. For example, if a photo is too red, you would need to raise the Cyan. Or in other words, when you take out red, you add in Cyan. What these opposites do is neutralize each other to white.



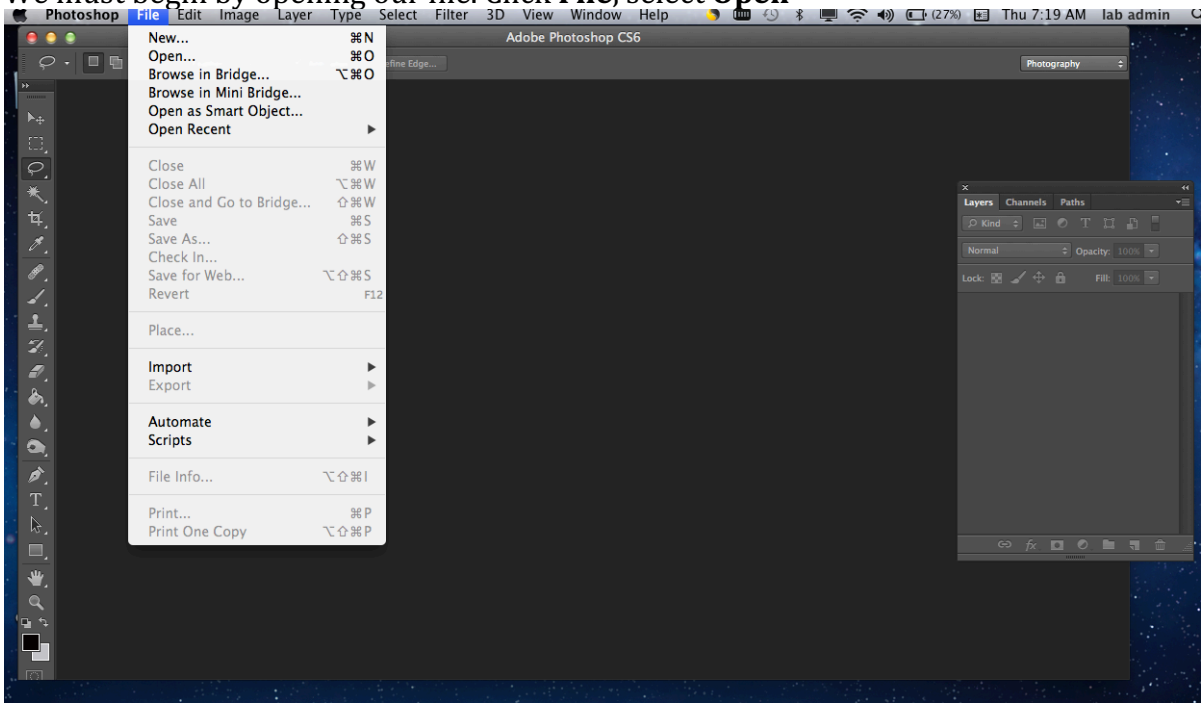


Here is an example of using the red color as an over all curve in the image. Then the second image shows the **Curves** layer used with Red in the highlights and more Cyan in the shadows. Notice the difference? Of course this is an exrteme example. If you have an image that is too much of one color, you may only need slight adjustments. Again though, this is preferable to have done in the camera before the image is taken.

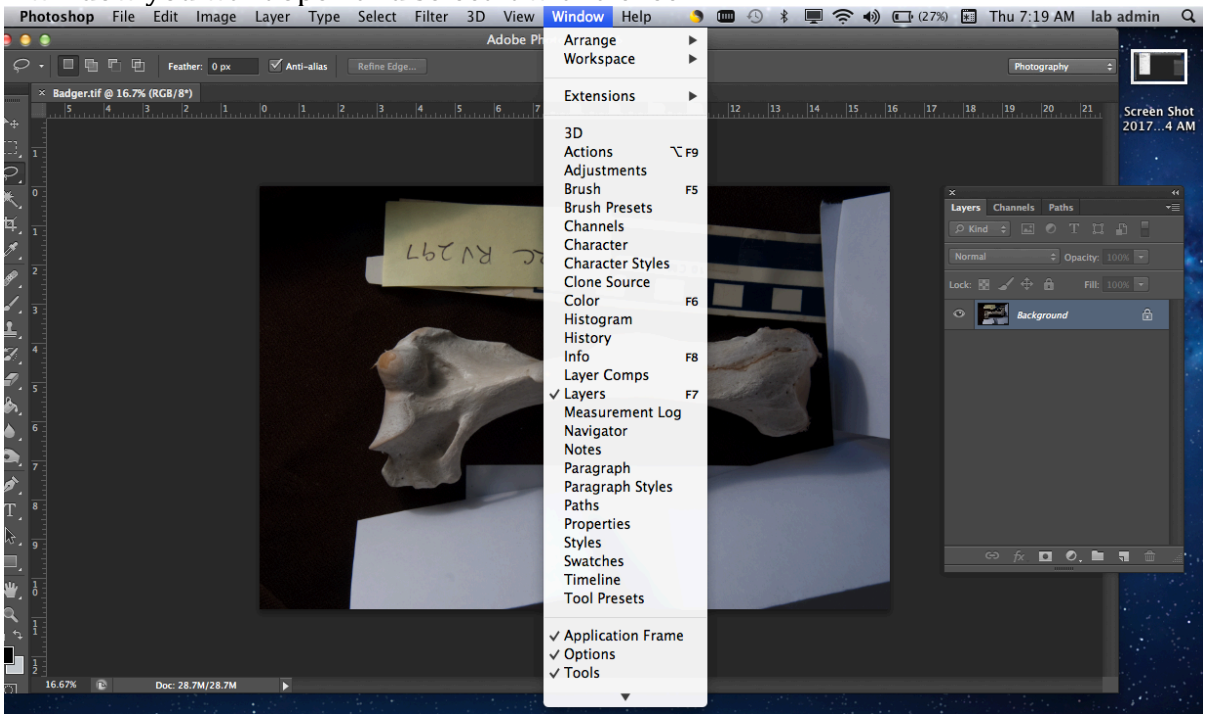
Let’s begin our process

There are three main windows we will be using. **Layers, Tools**, and **History**. In most cases some of these windows are already open upon opening the program. To access, go to the top drop down menus and click **Window**, scroll to the desired window you want open and click it so there is a check next to it.

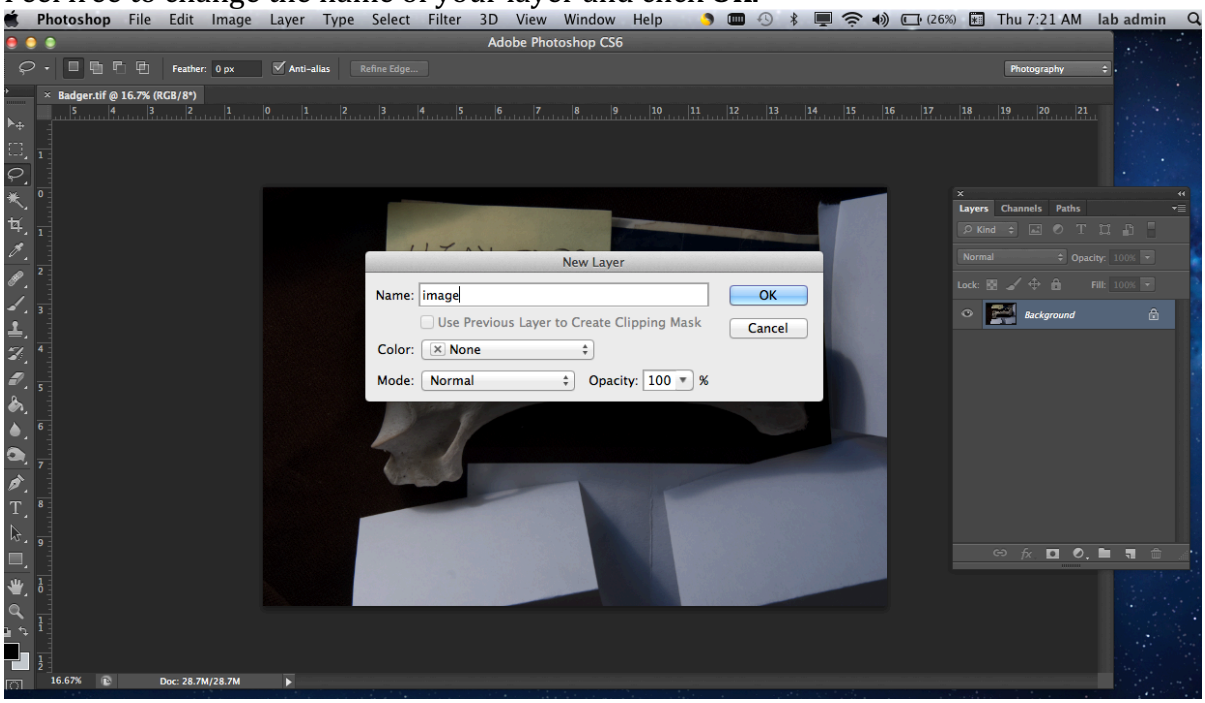
We must begin by opening our file. Click **File**, select **Open**



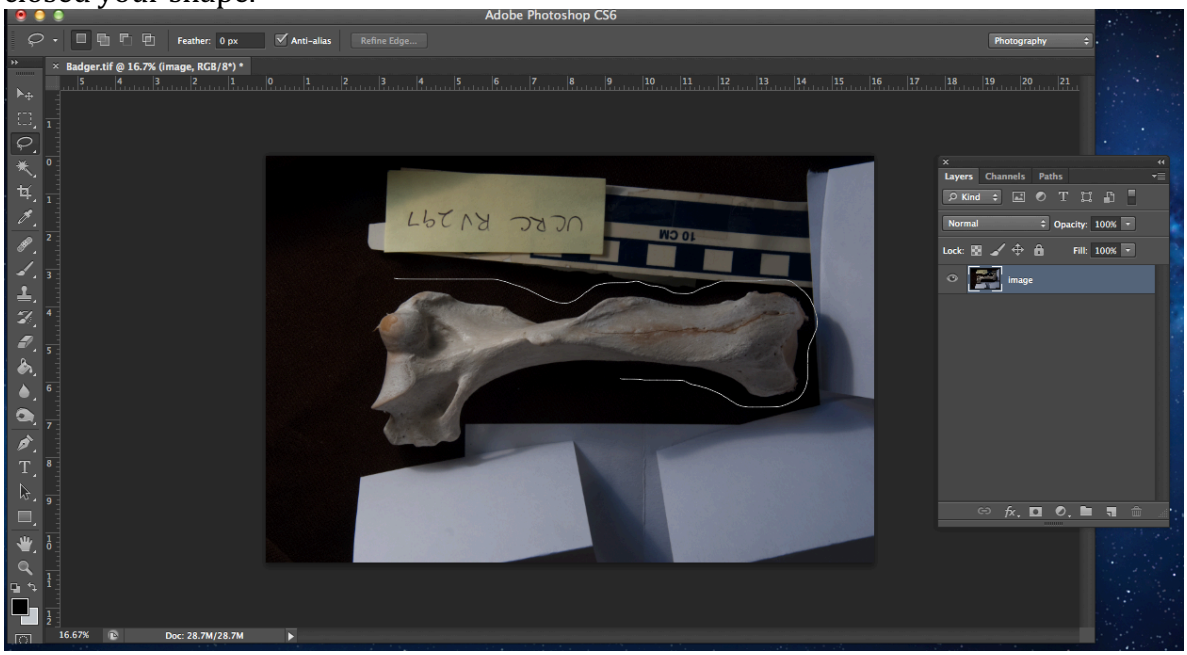
Make sure your 2 of the 3 windows are open, **Tools** and **Layers**. Click **Window**, scroll down to the window you want open and select it with a check.



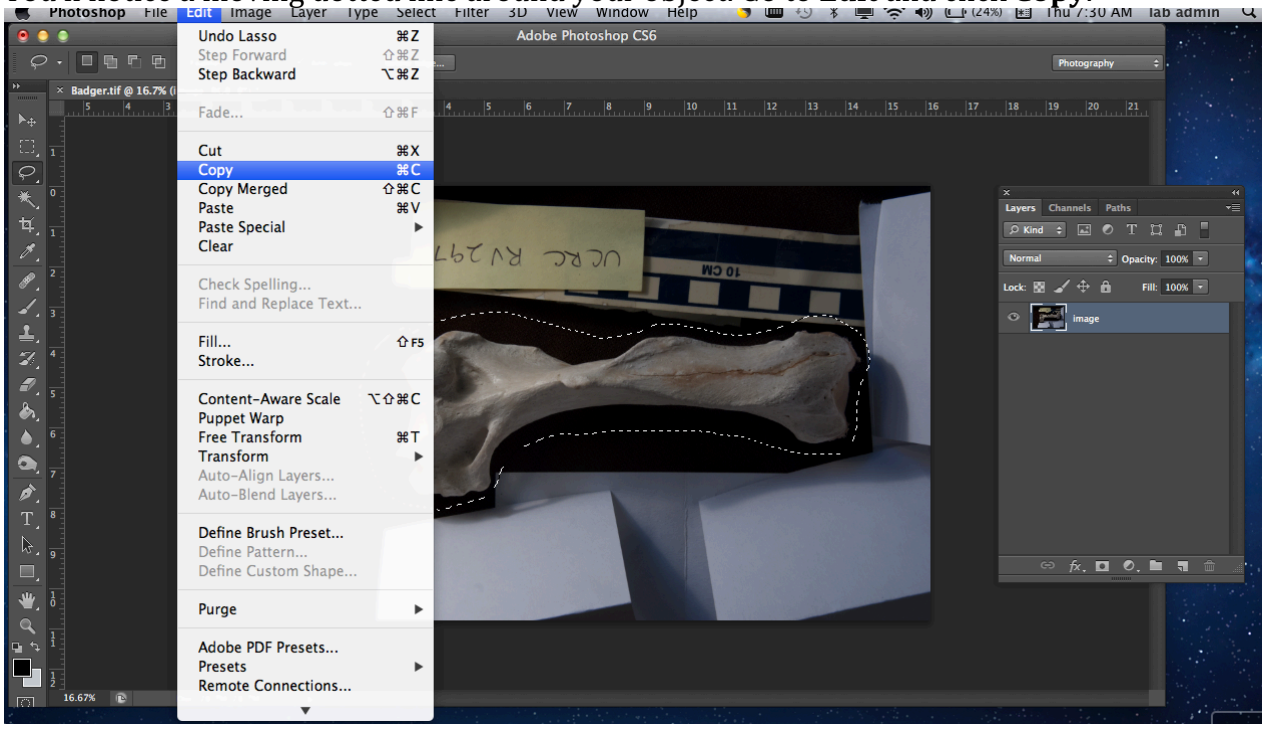
You'll notice that your image is in one layer and it has a lock icon next to it. This means locked. You need to unlock it to manipulate it. Do this by double left clicking the layer. This window will pop up. Feel free to change the name of your layer and click **Ok.**



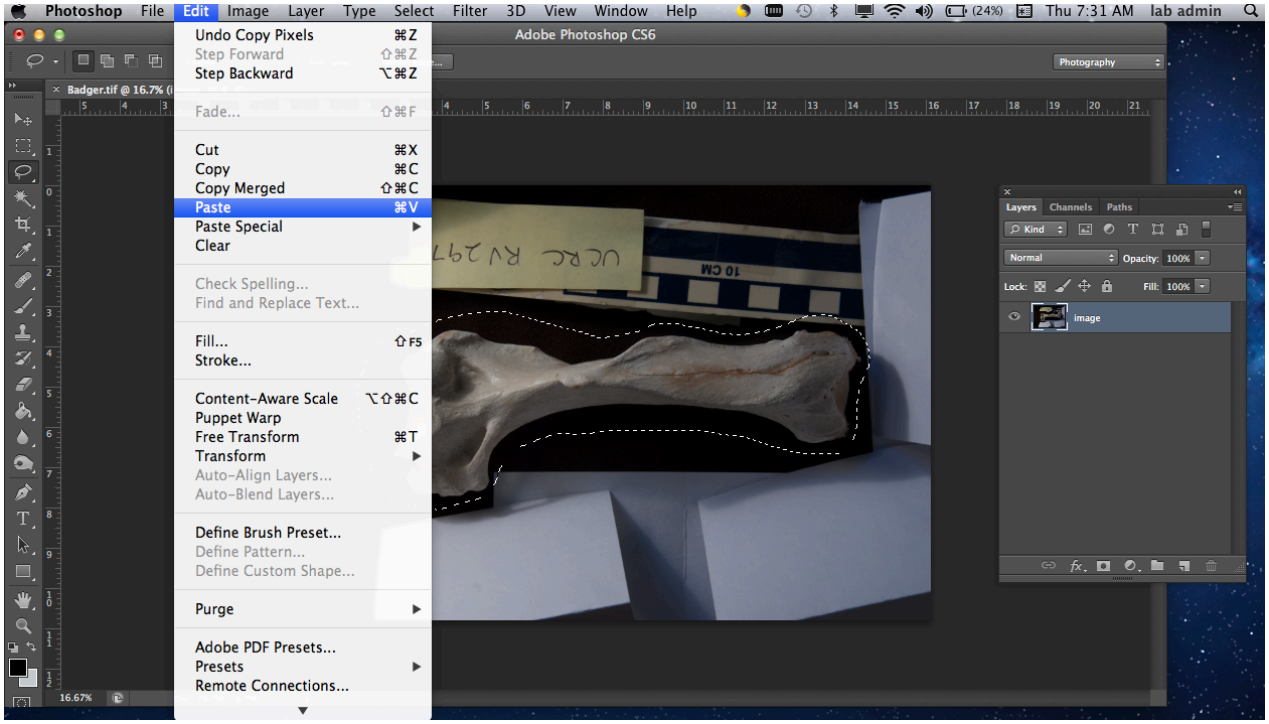
Now you want to start pulling your image apart and putting objects in different layers. Click on your **Lasso Tool**. Hold down your left click and drag until you have completely enclosed your object and closed your shape.



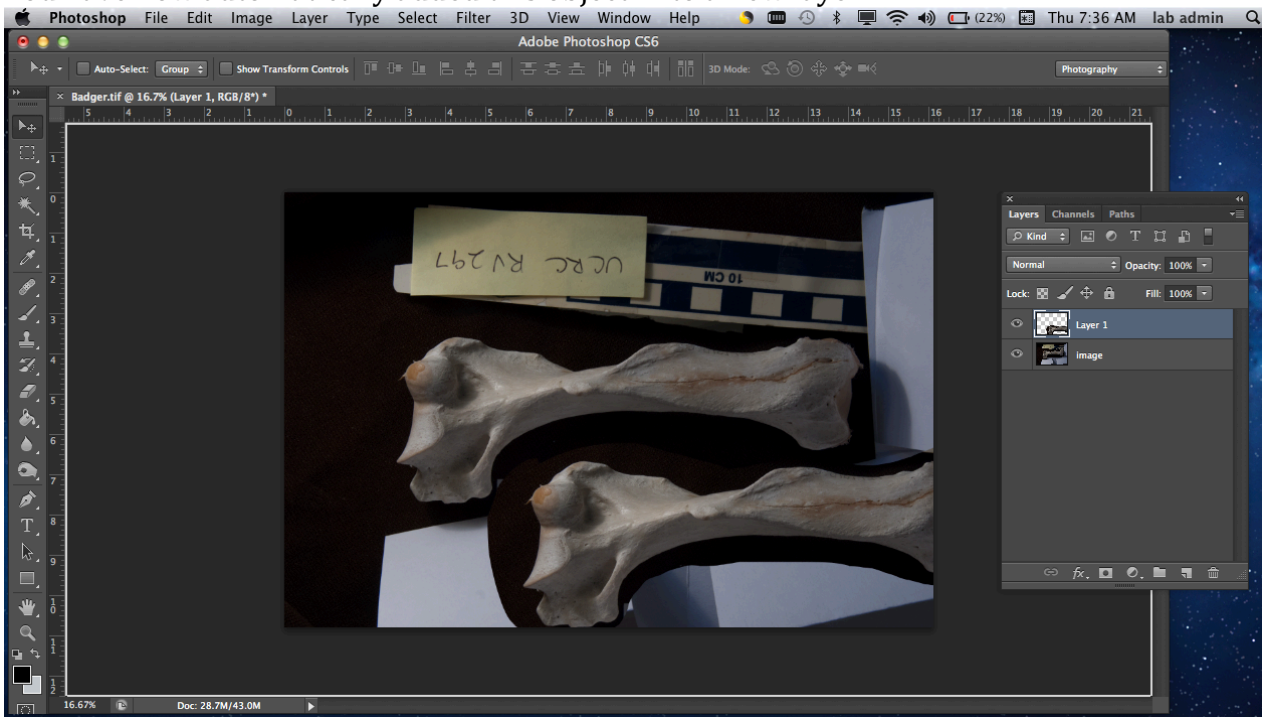
You'll notice a moving dotted line around your object. Go to **Edit** and click **Copy**.



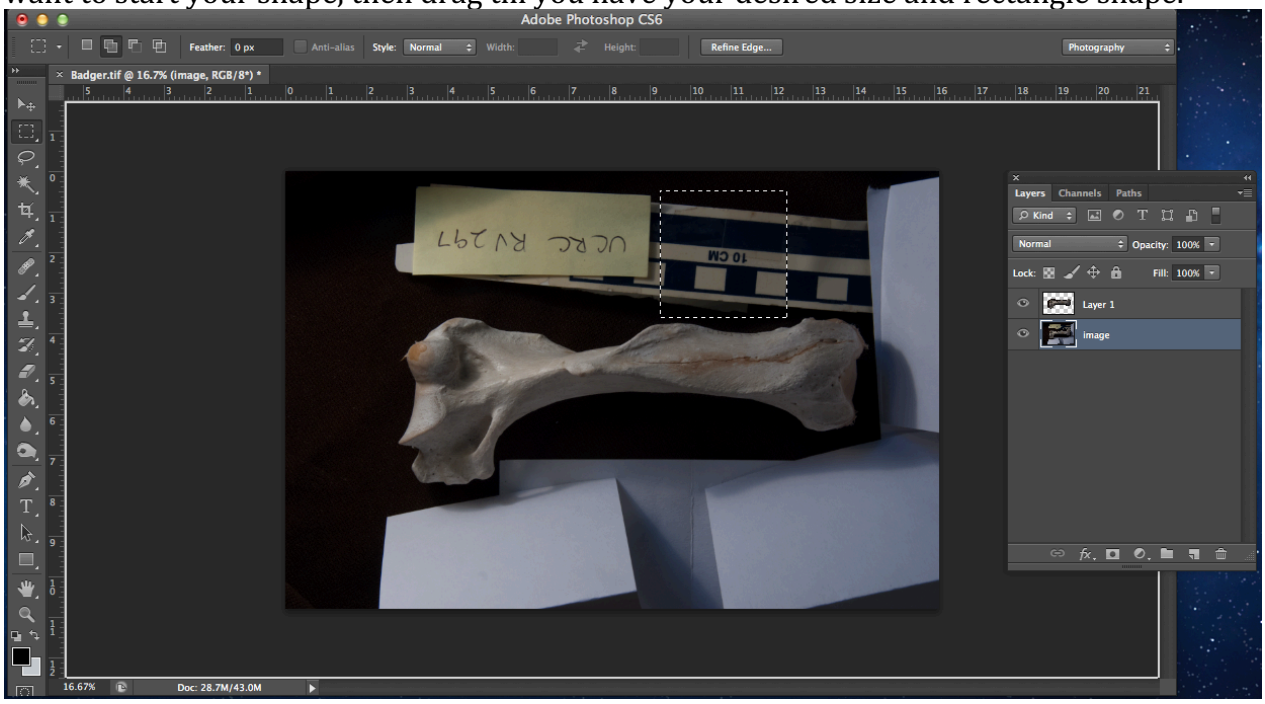
Then click **Edit** and then **Paste**.



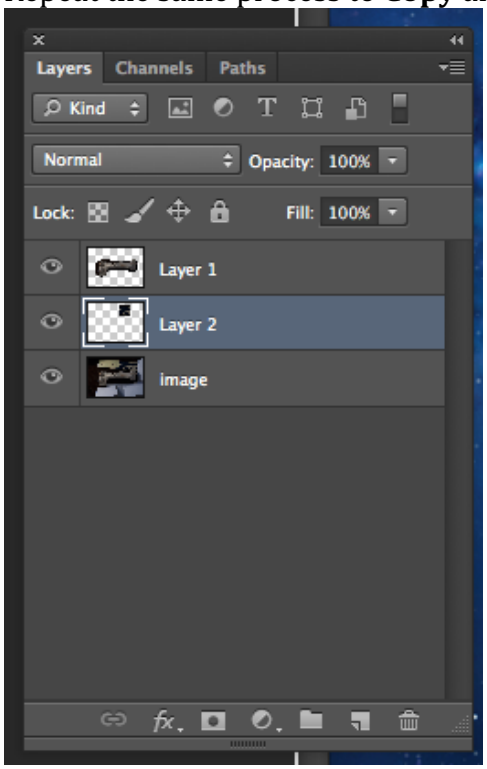
You have now automatically added this object in to a new layer.



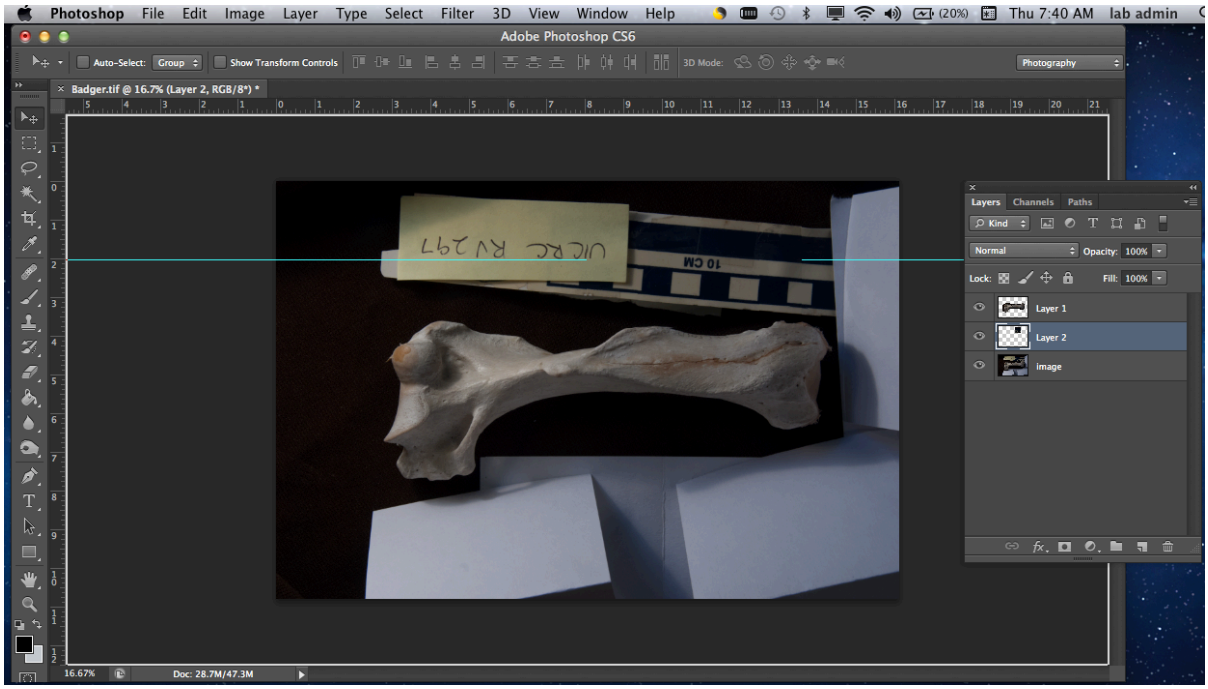
Now we want to create the scale bar. Click the **Rectangular Marquee Tool**, left click where you want to start your shape, then drag till you have your desired size and rectangle shape.



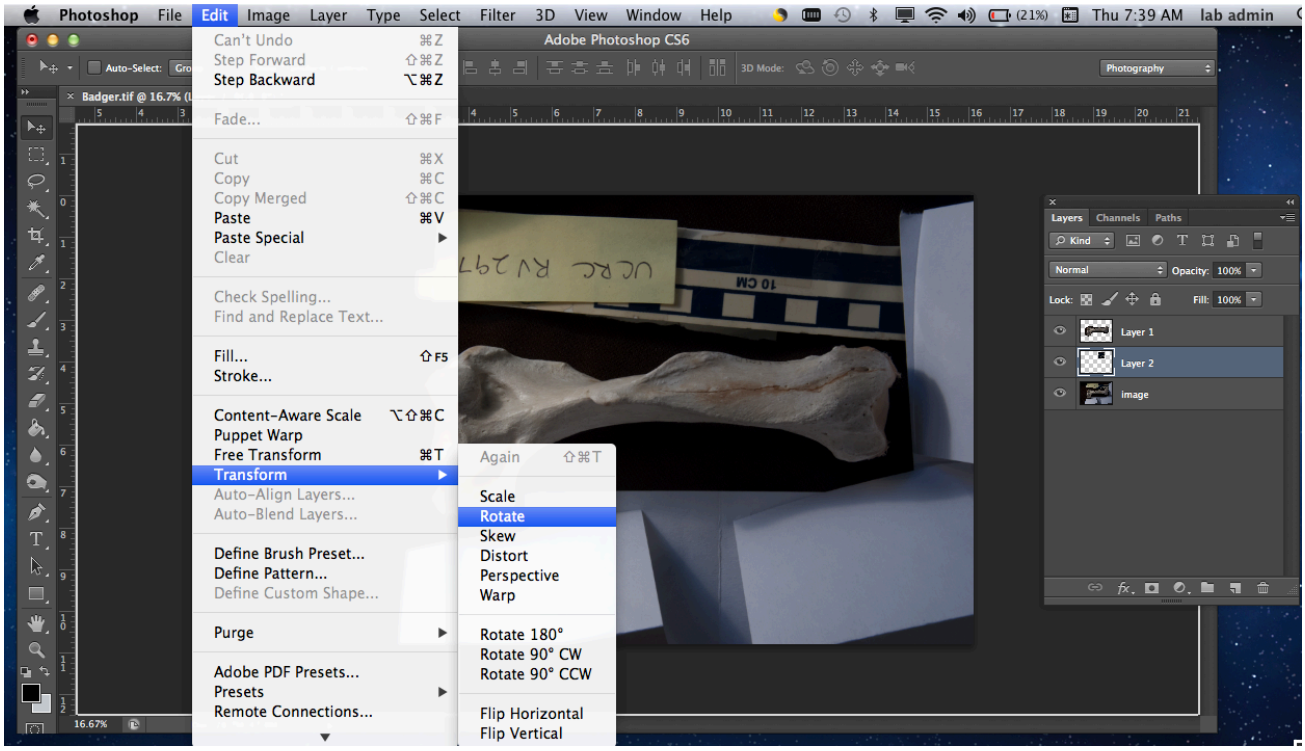
Repeat the same process to **Copy** and **Paste**. Notice your selected area is in a new layer as well.



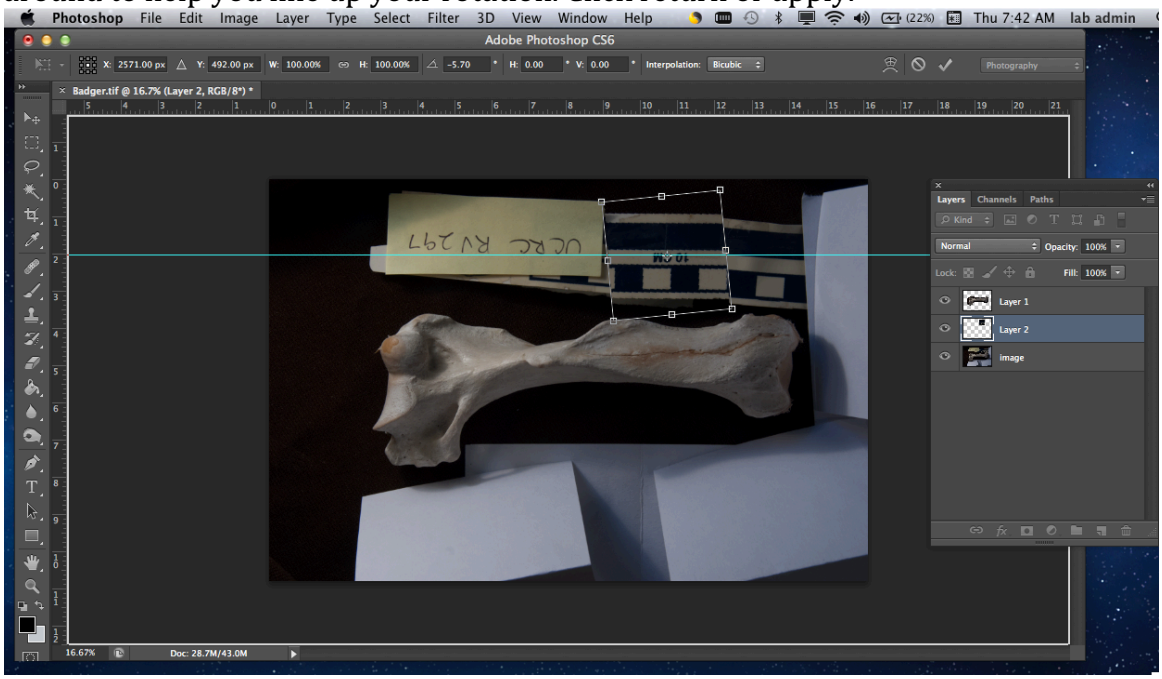
We will now bring down a guide line to make a straight scale bar. Click in your ruler area, left click and drag. A line will drag down with you. Don't worry too much where that lands, you'll discard it later.



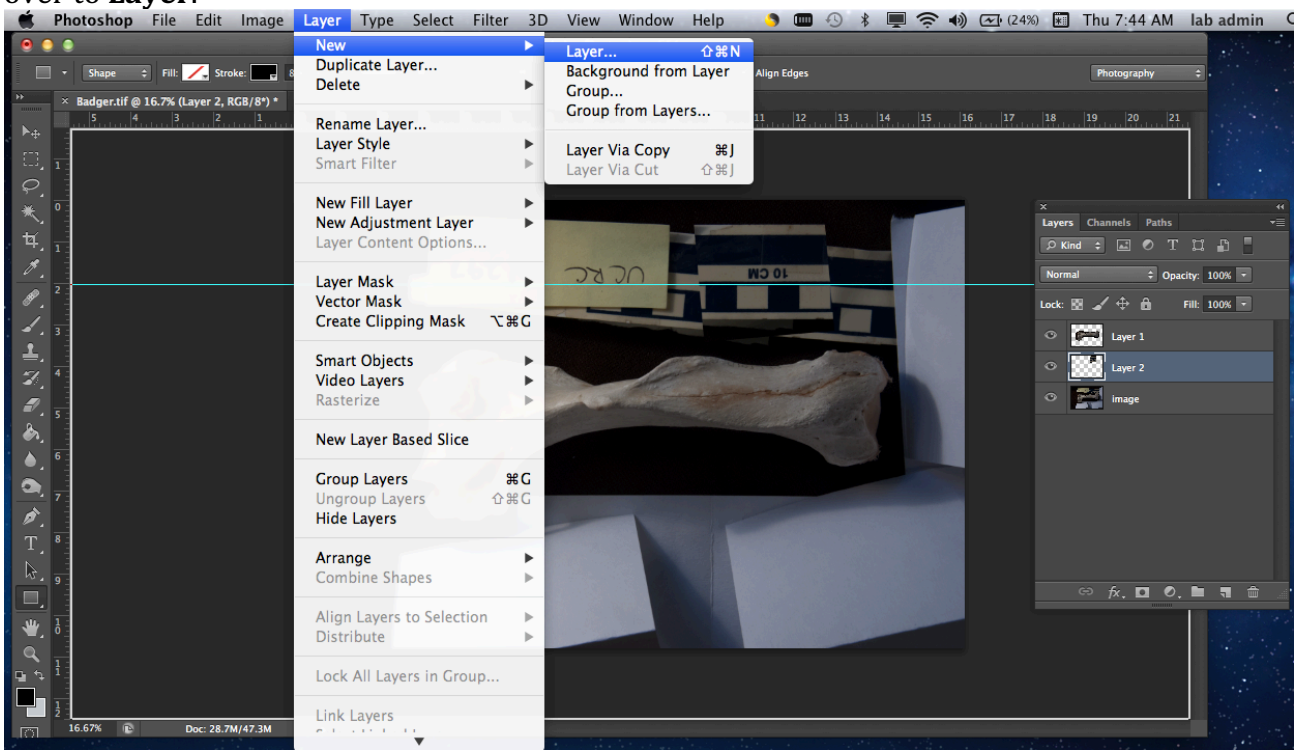
Now we want to rotate that selected scale bar so it matches up with our guide line so we can make it straight. Make sure your scale bar layer is selected. Click **Edit**, than scroll down to **Transform**, then select over to **Rotate**.



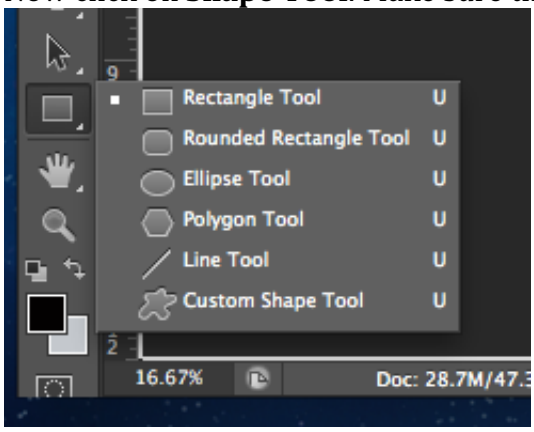
Your selection arrow now changes to a curved line with 2 arrows, just turn this shape around till you get the desired amount of rotation. Use any line in your object to line up with your guide line. If you hover back over the selected box you will get your selection arrow back. You can move your box around to help you line up your rotation. Click return or apply.



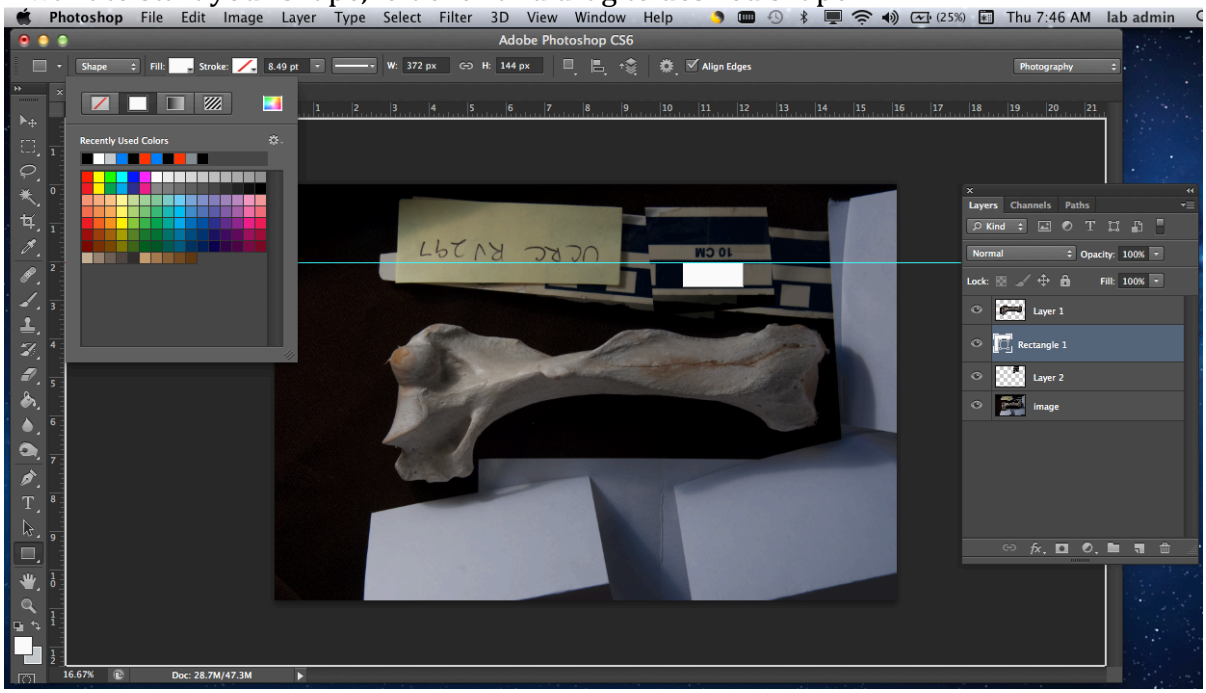
Now we can make our nice scale bar by making a new layer. Click **Layer**, scroll to **New**, then scroll over to **Layer**.



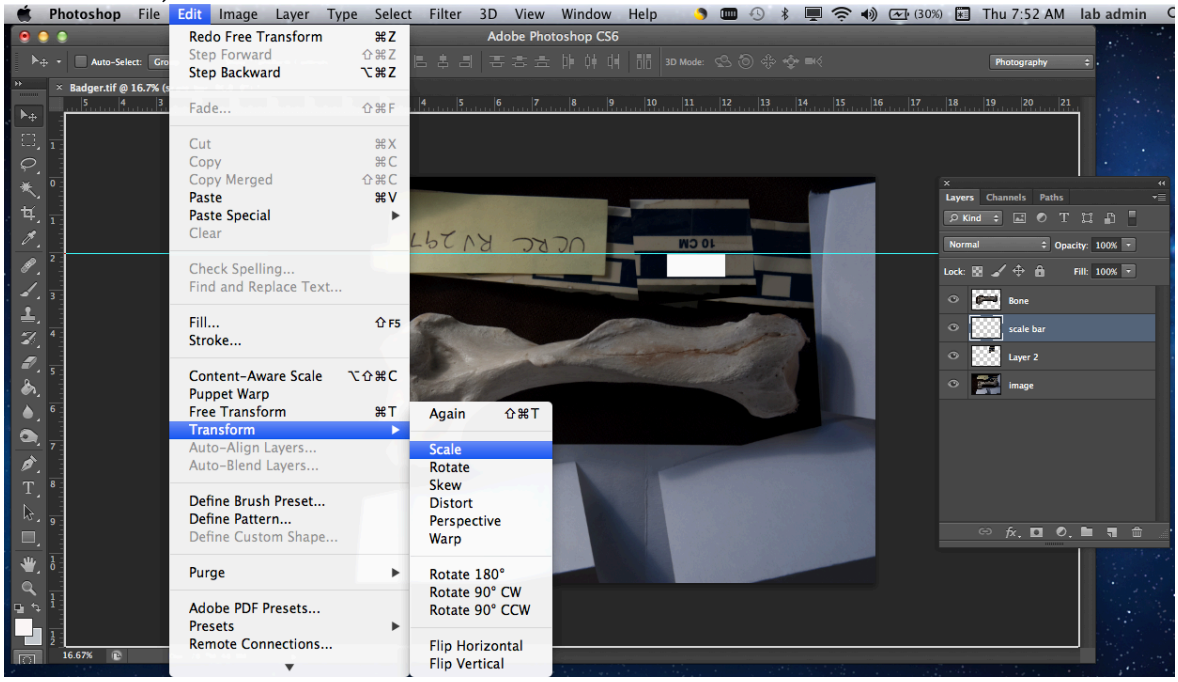
Now click on **Shape Tool**. Make sure the **Rectangle Tool** is selected.



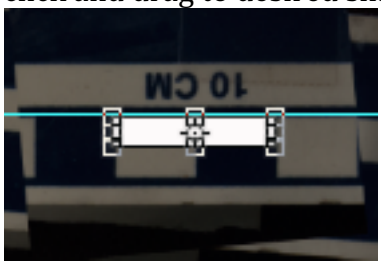
With the **Shape Tool** selected you will see options appear at the top of the screen. You want to make sure **Fill** is your desired color, in this case we are going to use white. Then make sure your **Stroke** is empty. Icon for clear/empty is white with a red diagonal line. Then left click where you want to start your shape, left click and drag to desired shape.



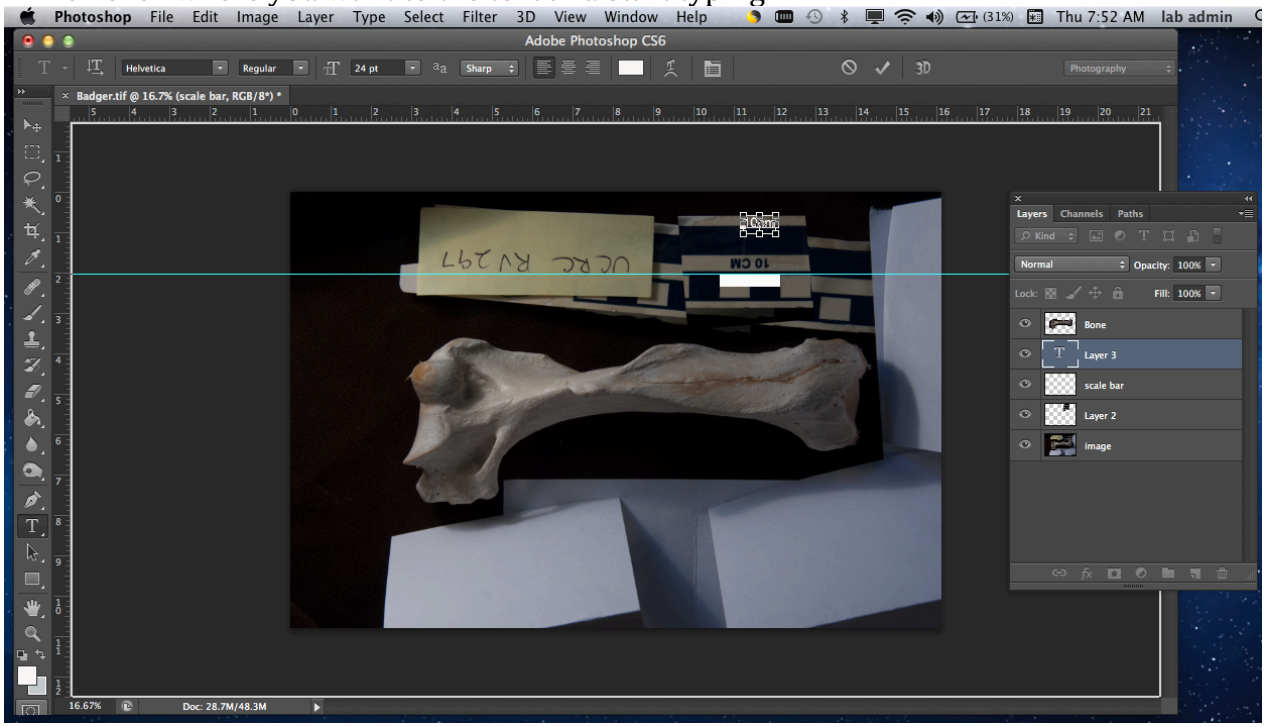
To manipulate this shape, for us we want to make it thinner. Just click **Edit** at the top, scroll down to **Transform**, then scroll over to **Scale**.



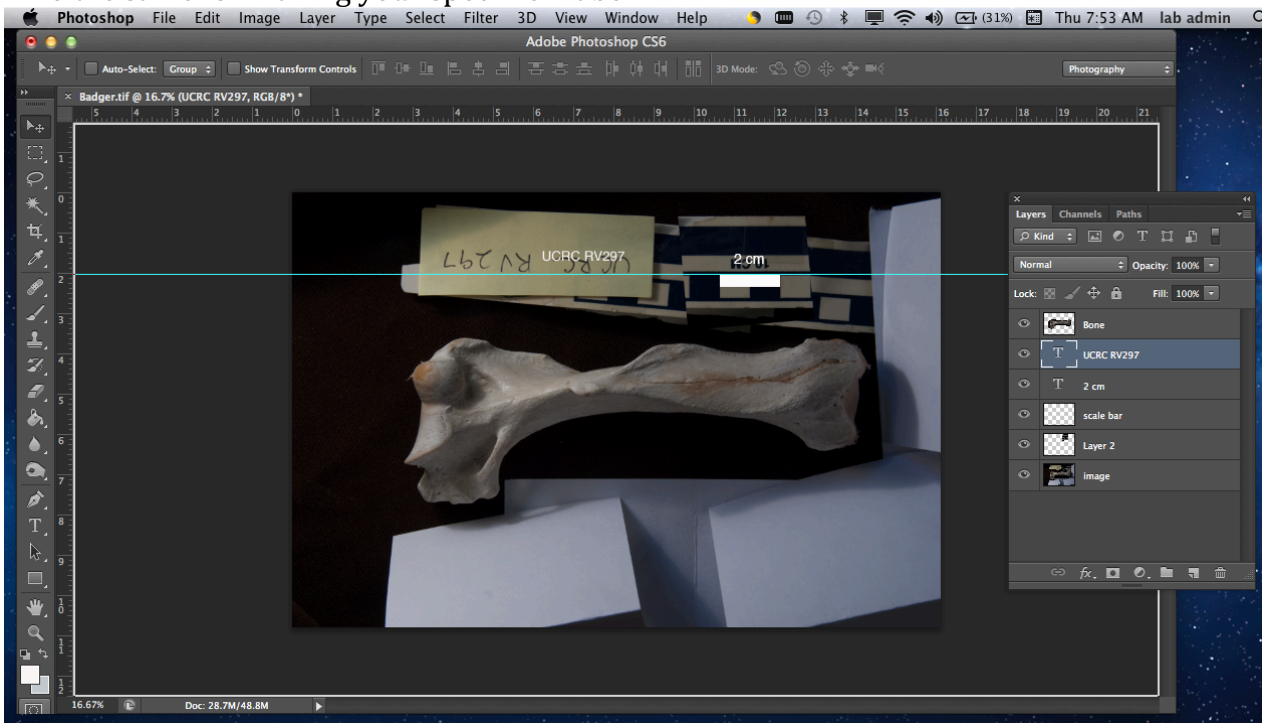
Click on the empty box in the side you want to move, for this shape, I moved the bottom up. Left click and drag to desired shape.



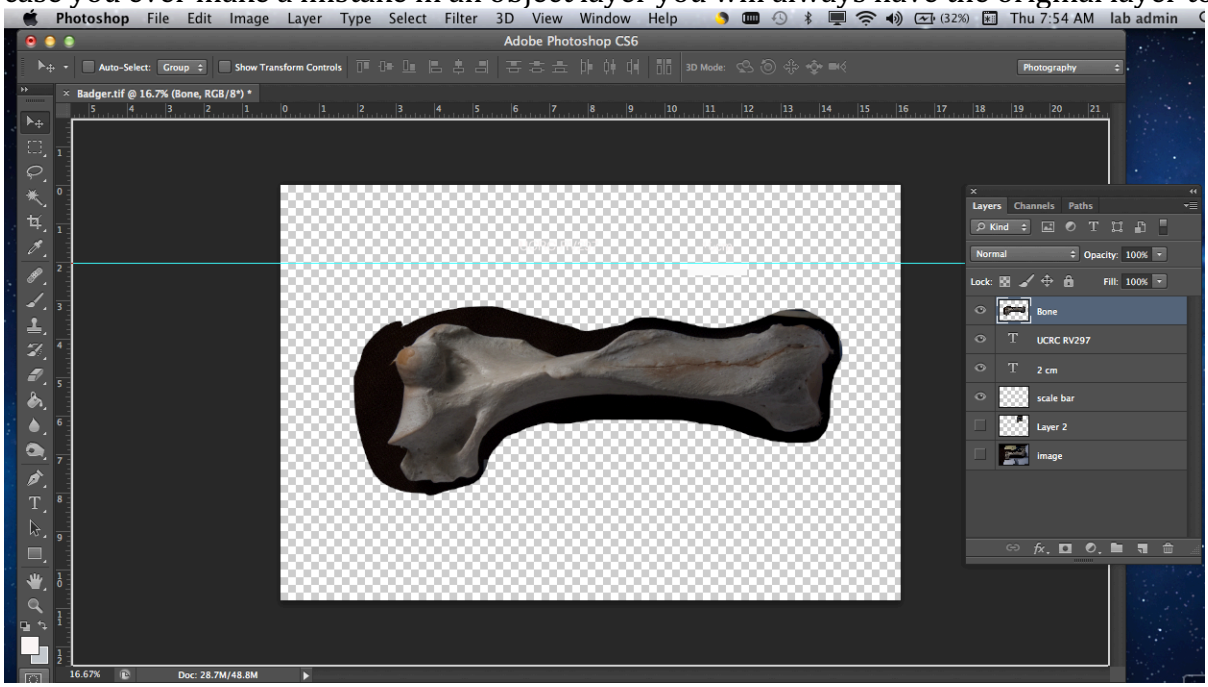
Now we will add text. Click on **Text Tool** and change your text font, size, and color up at the top. Then click where you want to the text and start typing.



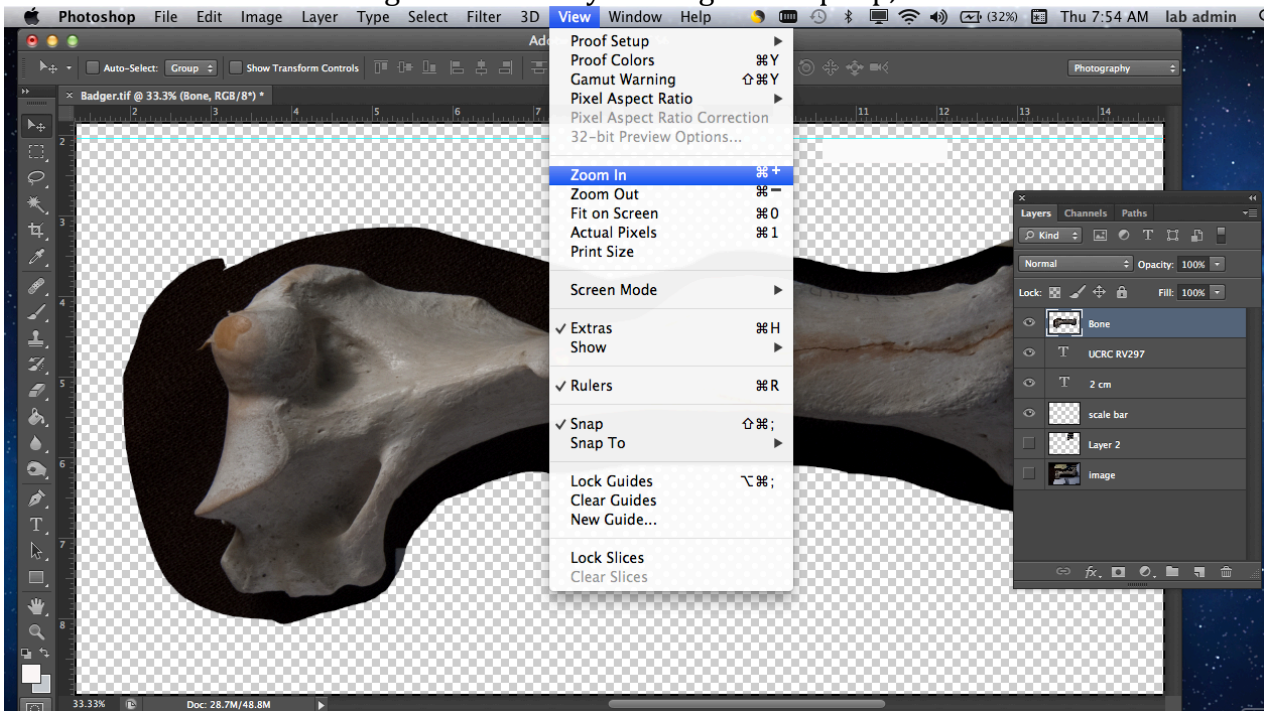
Do the same for making your specimen label.



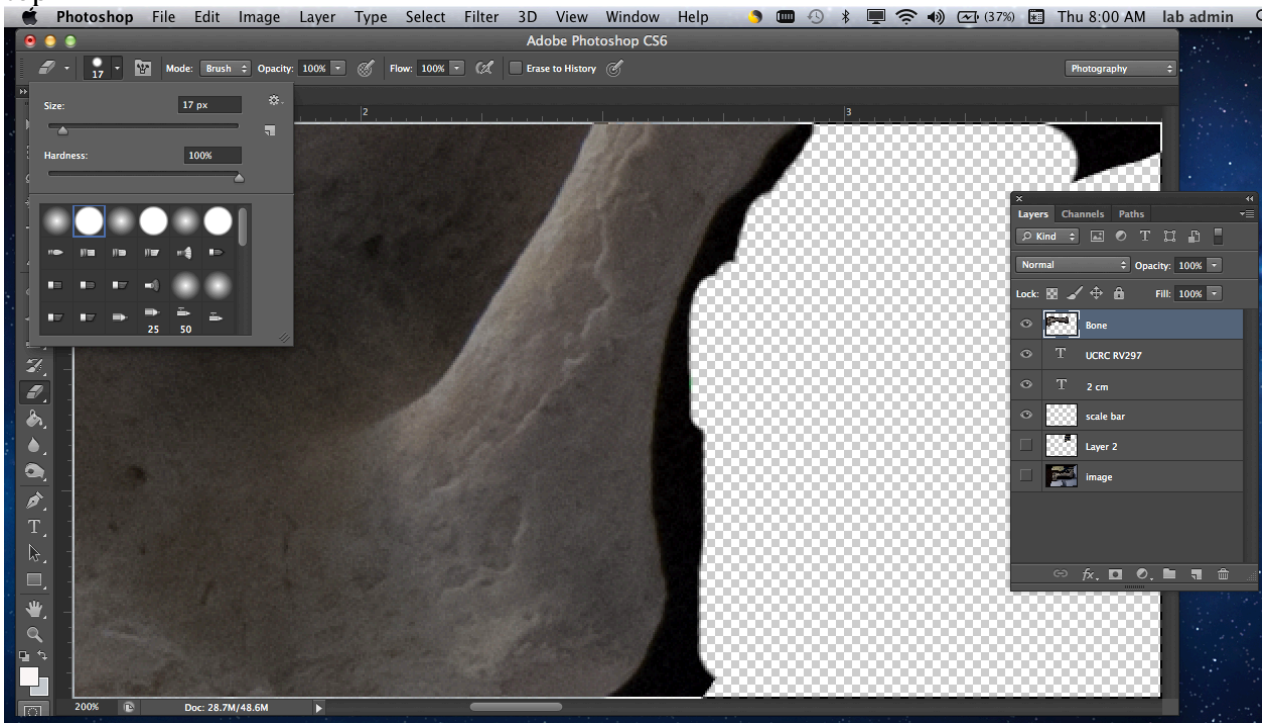
Now that you have added in all your desired elements, in our case we just want the object, scale bar, scale bar text, and specimen label, we can go ahead and hide the layers we no longer want to see. I ALWAYS keep the original image in it's own layer and never delete it even if I want to hide it. Just in case you ever make a mistake in an object layer you will always have the original layer to go back to.



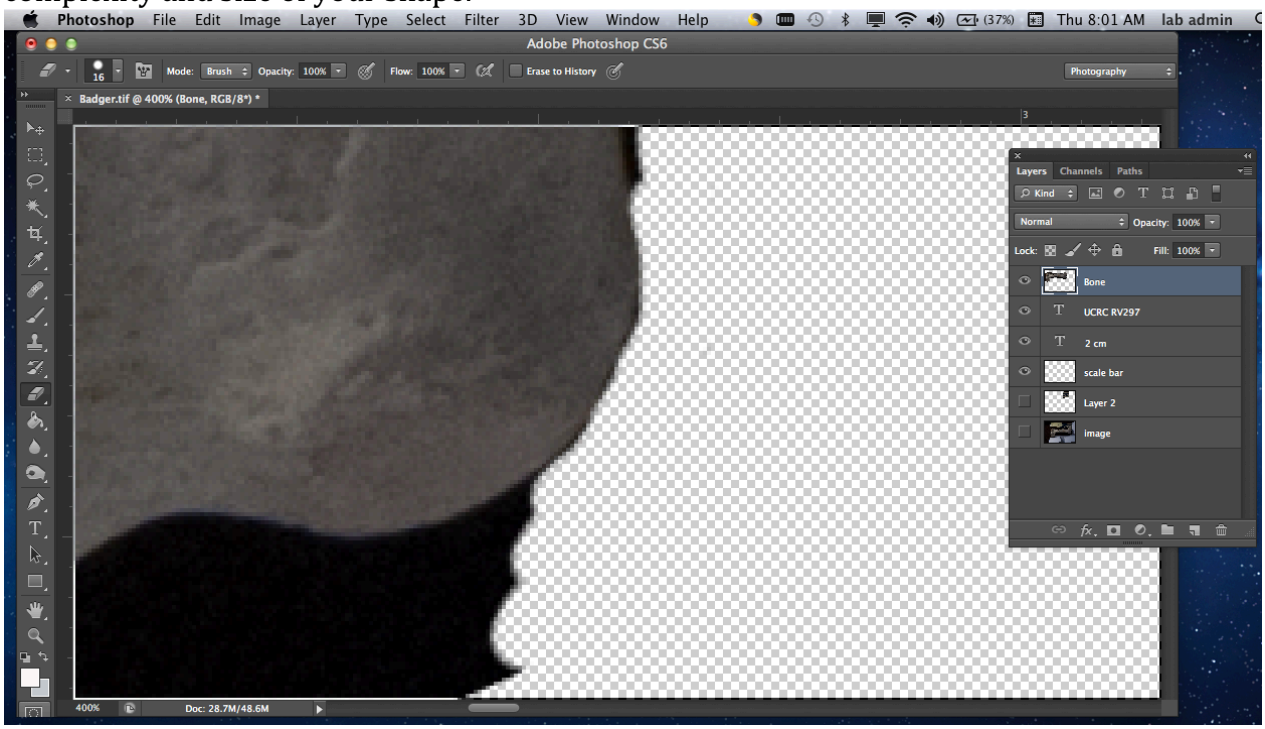
Now let's fine-tune those edges. Zoom in by clicking **View** up top, then scroll down to **Zoom in**.



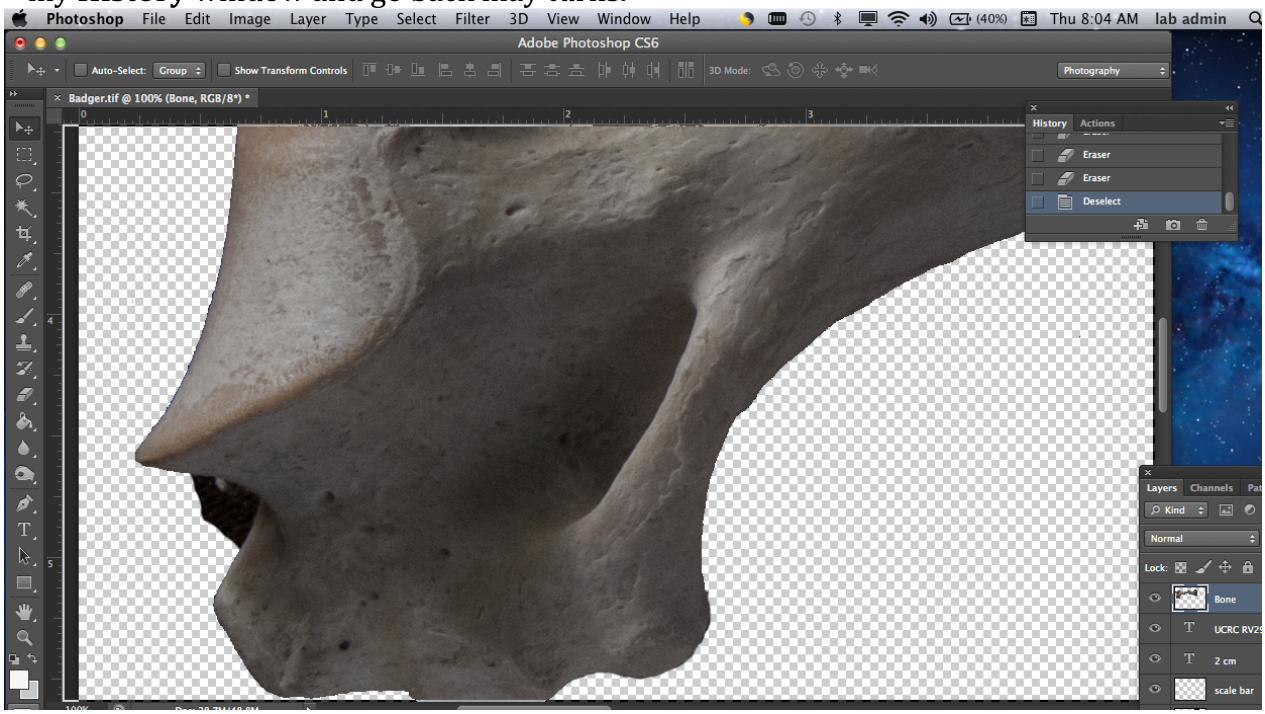
Click **Eraser Tool**. You can change the size of your brush as needed by clicking the brush tool at the top.

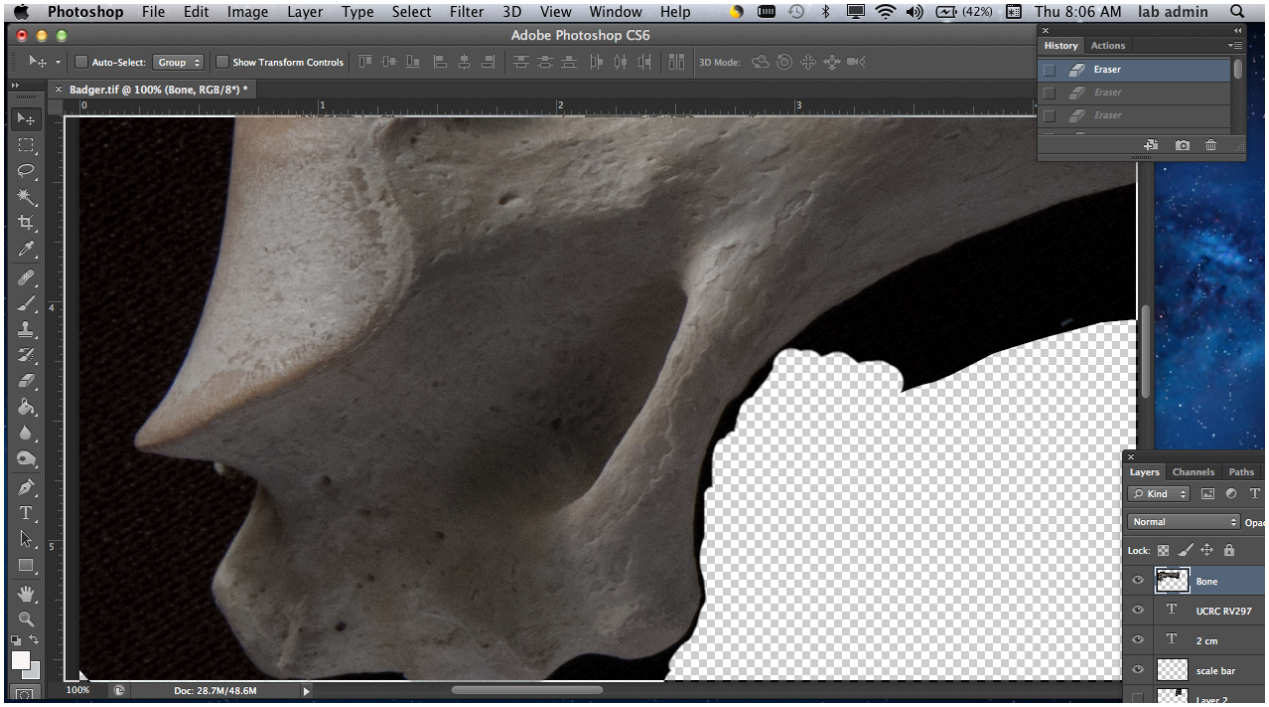


Slow and with precision, drag the **Eraser Tool** around your object. Left click and drag to move your tool. If you mess up, just undo. You can change the size of your eraser as needed depending on the complexity and size of your shape.

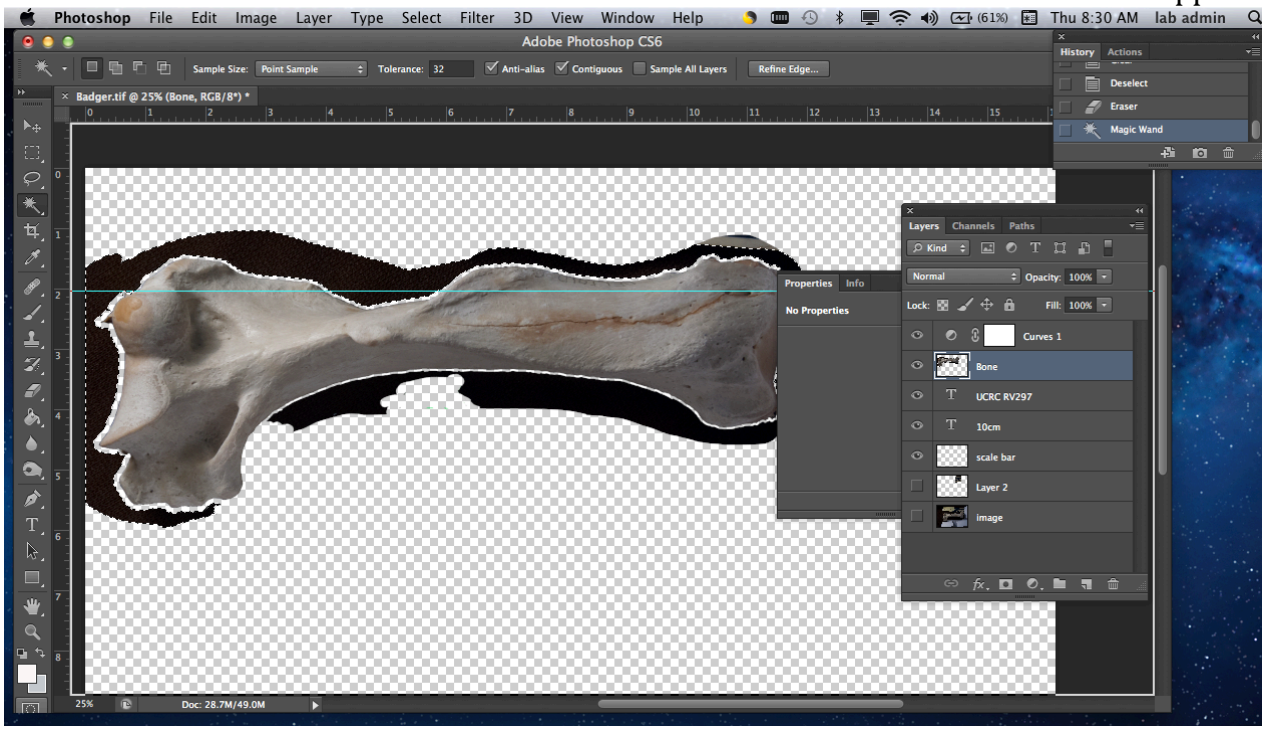


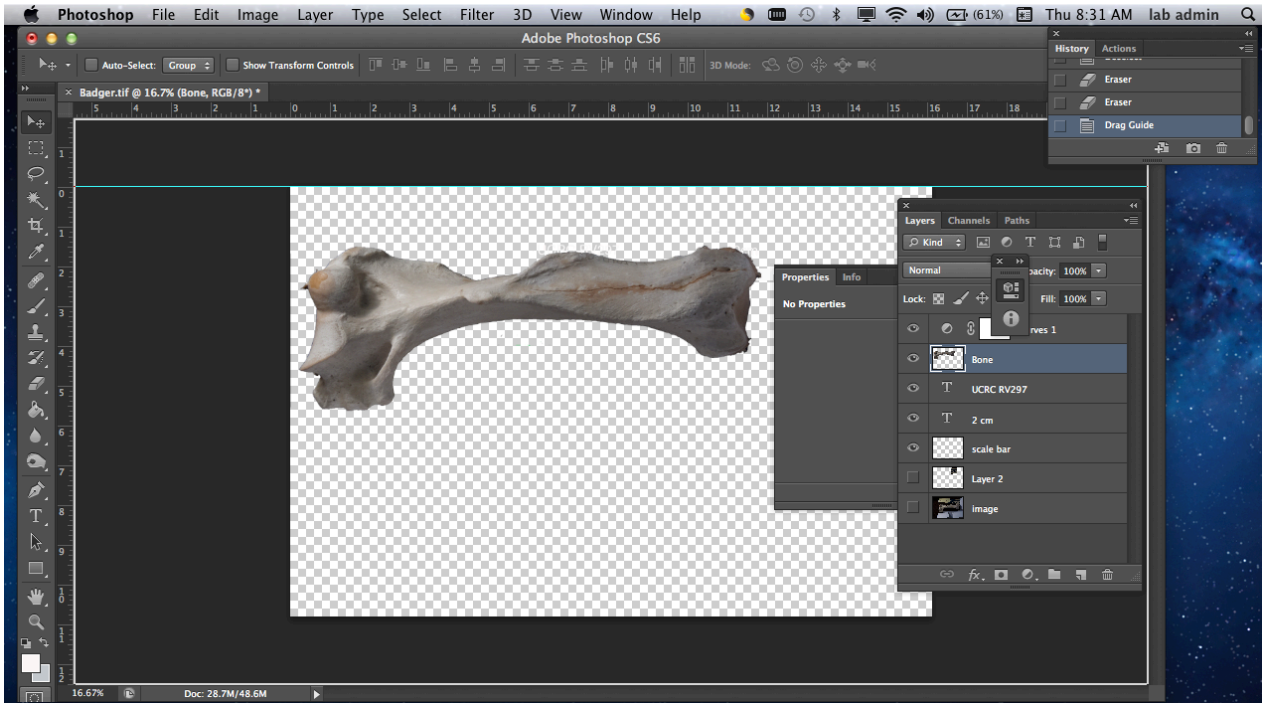
So maybe I realized I made a mistake many commands back. Here is where I may choose to open my **History** window and go back may turns.



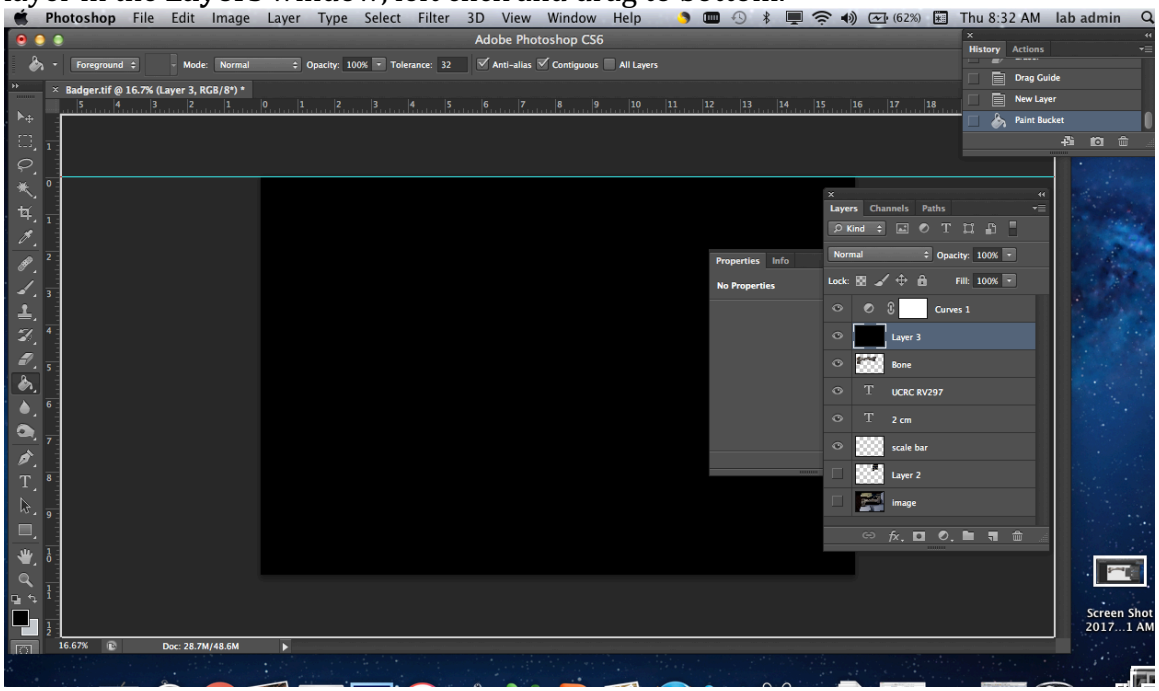


Once I am all the way around my object. I can now use my **Magic Wand Tool.** Click on the **Magic Wand Tool** and click into the black area. Once it is selected hit delete and it will disappear.

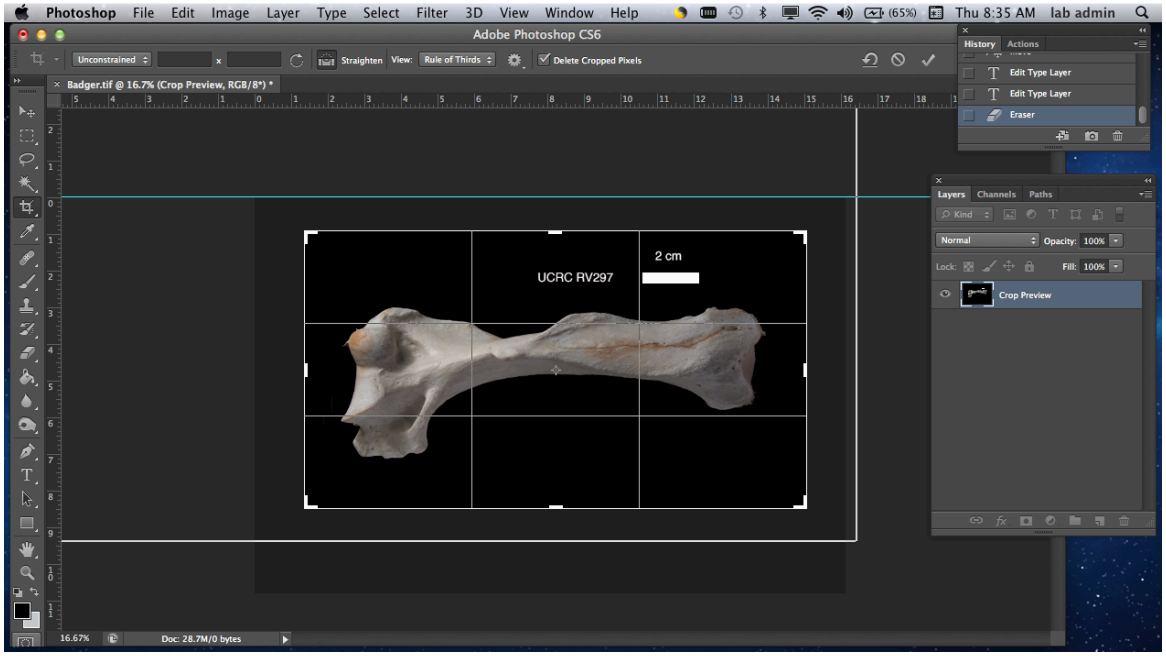




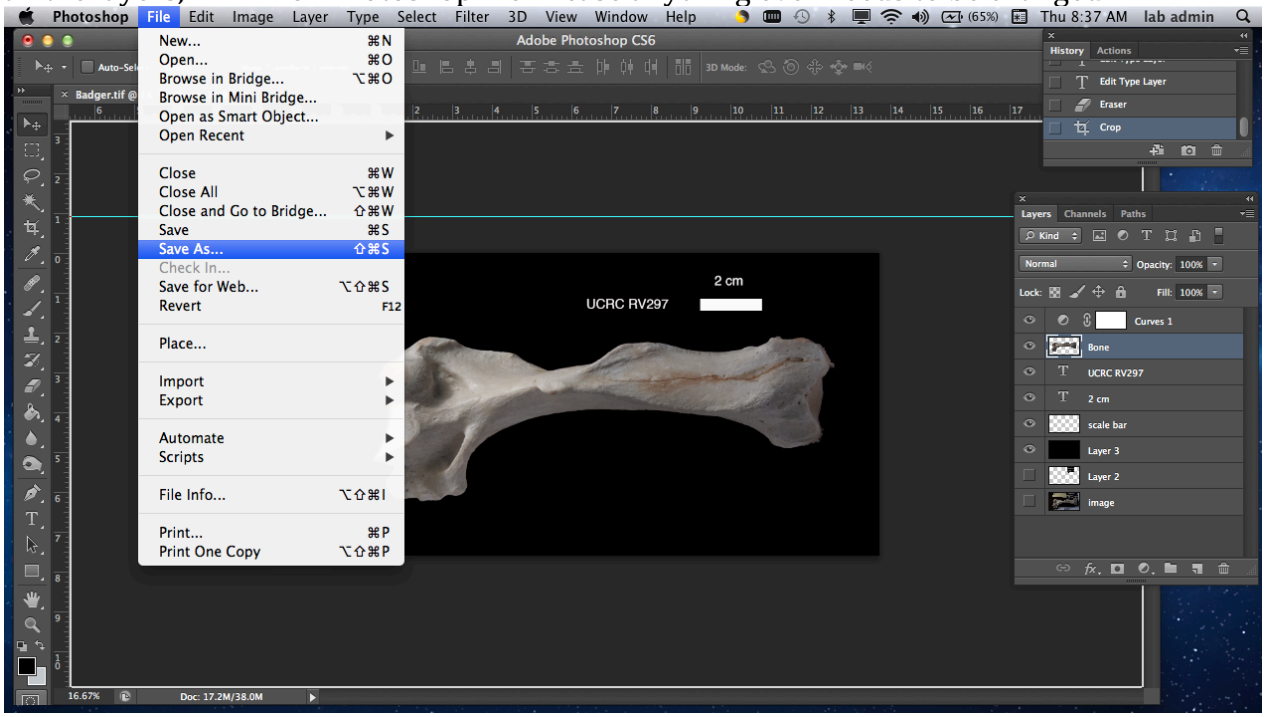
Now we can add the solid color background. Create a new layer. Click on the **Color Picker** and choose your desired color, in our case I chose black. Click **Paint Bucket Tool** then click anywhere on your image and the whole image should turn your color. You'll notice that it goes all black because the layer is on top. Go ahead and move it down under all the other layers by clicking the layer in the **Layers** window, left click and drag to bottom.



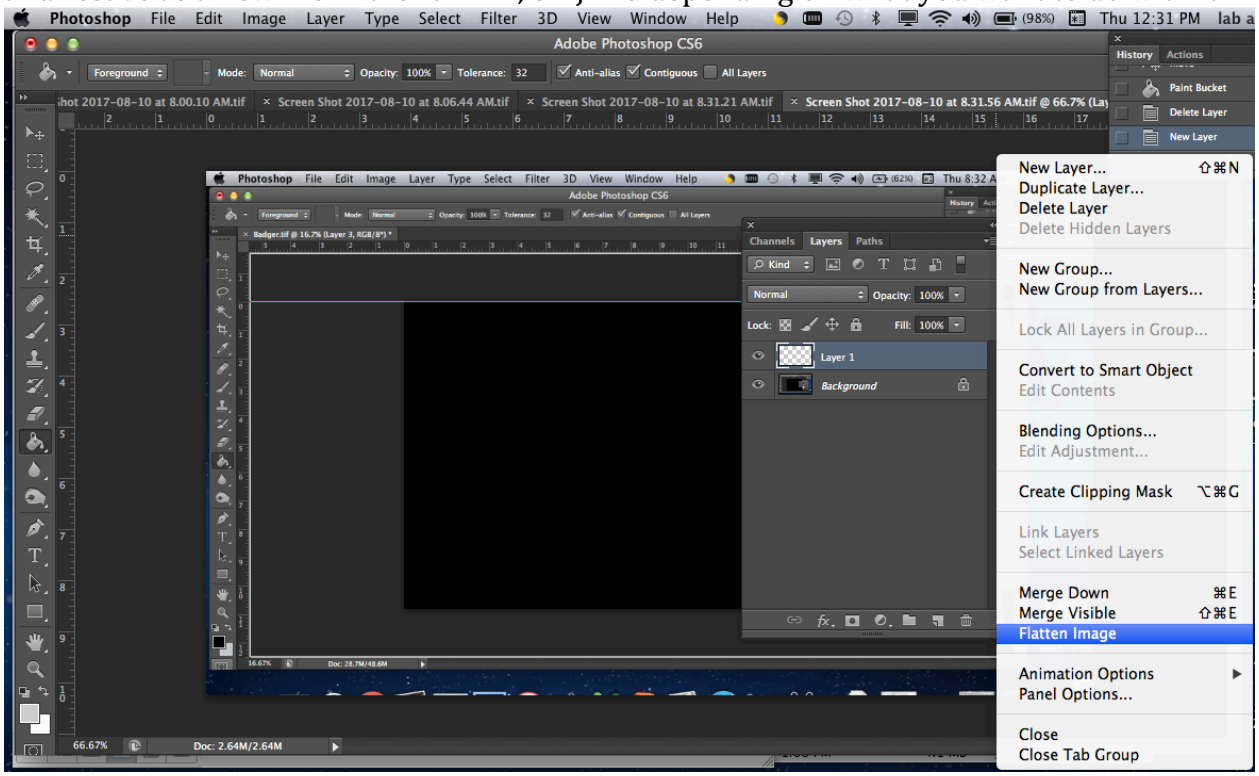
Now you want to crop your image. Click Crop Tool and move the outside limits till you have a desired size.



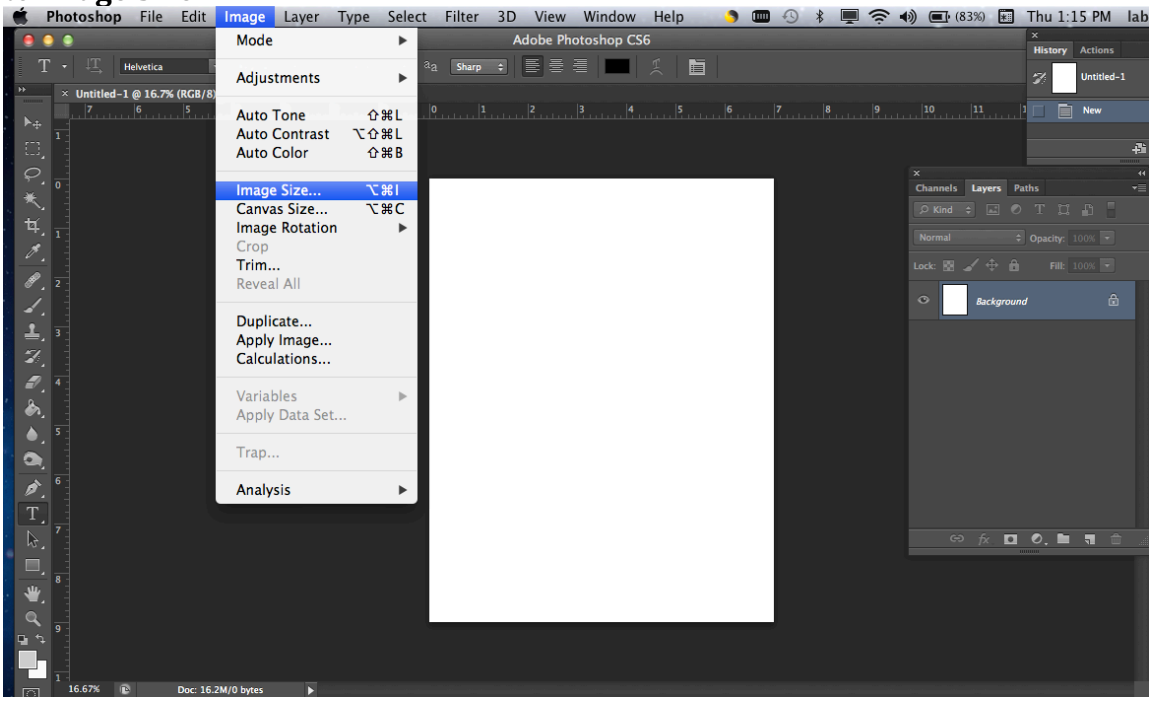
Now we are ready to Save File. Click **File**, then scroll down to **Save As**. Always save a version with all the layers, A TIFF or Photoshop file in case anything ever needs to be changed.



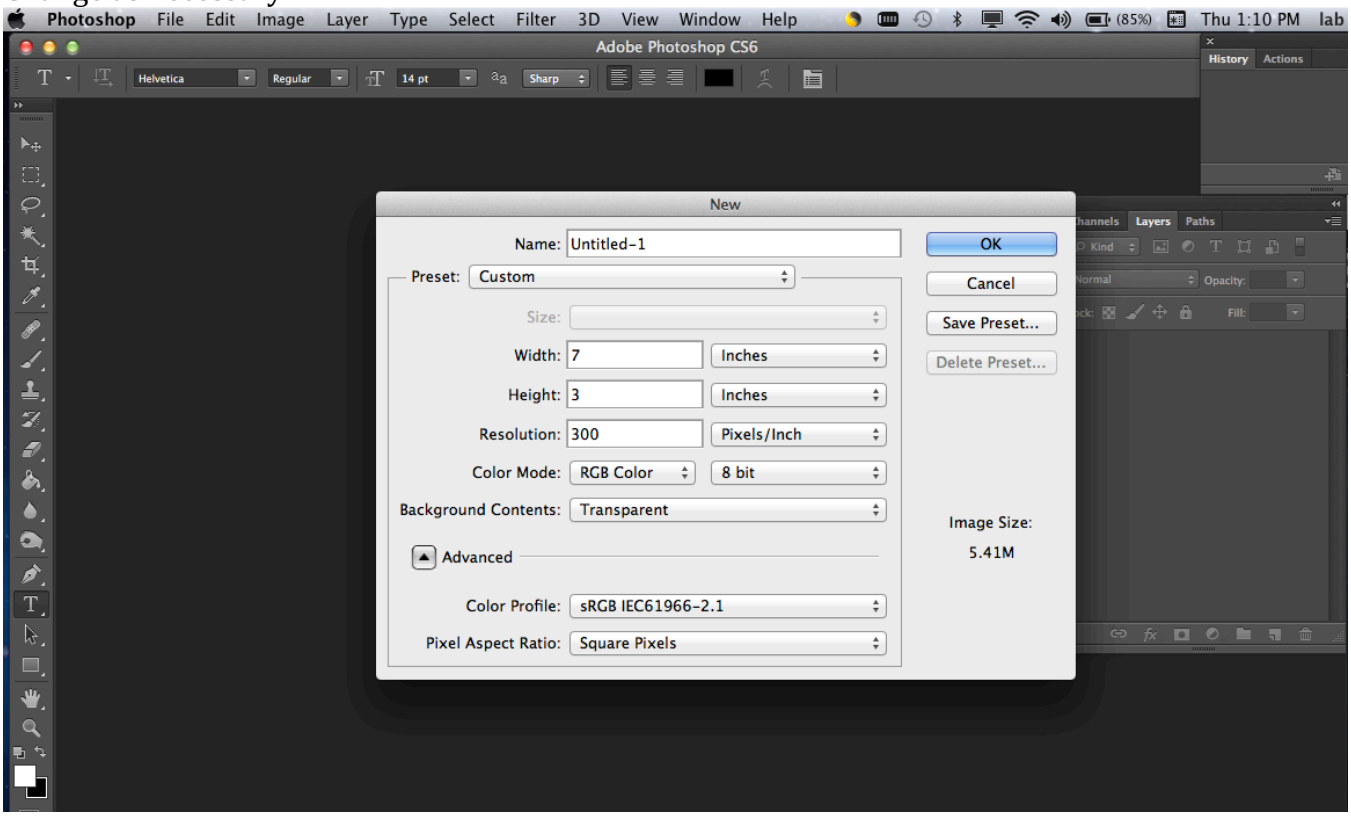
To reduce the size of the file for publishing, you can merge all the layers by selecting **Flatten Image** and resave as a new file. Either a TIFF, or JPEG depending on what you want to do with it.



Say at some point you change your mind about the size of your file. Click **Image**, then scroll down to **Image Size**.



Change as necessary.

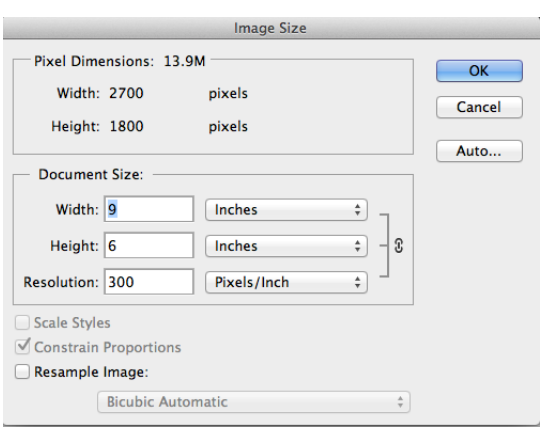


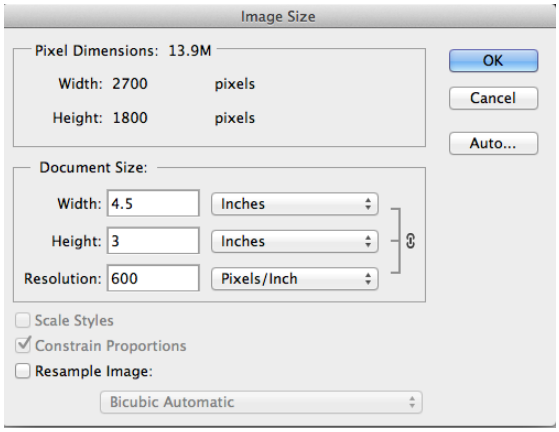
Very important Note about file size changes

There are rules to changing file sizes with pixel based programs. It's best to start with high res images and making them smaller rather than starting with smaller images and making the bigger. The problem with going from small to big is that in order to add pixels the program has to guess what the data should be to fill in the gaps. So never size down then size back up. Always size down only.

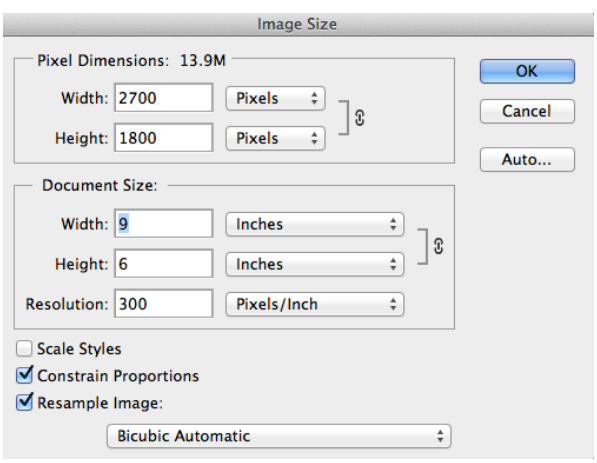
Also, never ever save a file smaller then scrap your original large file. If you ever need to make changes, make them from the original file not the smaller file. Especially if you need to go bigger.

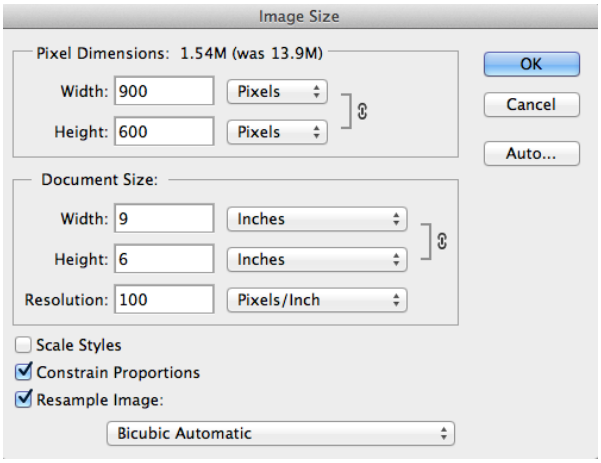
Resizing and resampling are very different thing.
You can do two things in the **Image Size** window. Change the Pixel Dimensions and/or change the Document Size. Document Size is resizing. You will notice that Resample Image is not clicked at the bottom, and also notice that the Pixel Dimensions area is not highlighted. All you are able to do is change the width and height and resolution of your document. However, your pixel dimensions stay the same. Note in the first image the W/H and resolution. In the second image I have changed the Height from 6 to 3. The resolution and the Width changed as a result. This is because the Pixel Dimensions stay the same. All you are doing is redistributing the pixels among the Document Size. You will also notice that the file has not changed in size. It's because it's the same size. All you changed was the image is visualized, the document size changed but you have not changed any data of the image.



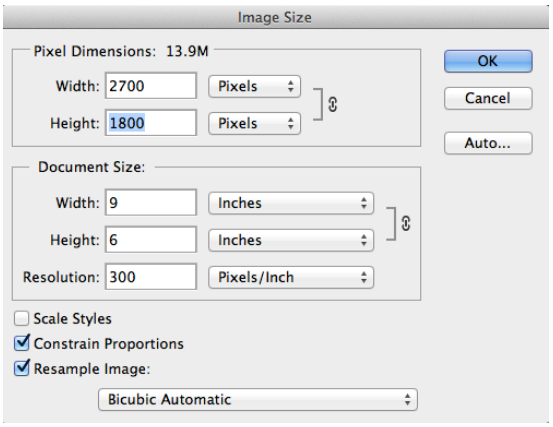


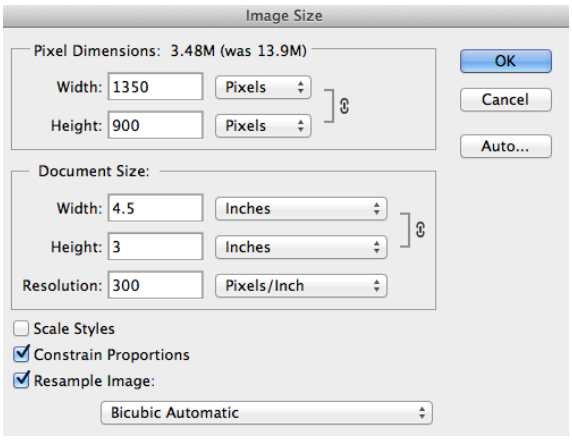
Say you need to make the file smaller, then you would be resampling. Resampling is changing the data. You either add data or remove data, this will change the file size.
Click Resampling at the bottom. Notice the Pixel Dimensions are not editable.





Say I want this photo for the internet at a low resolution of 100 ppi. My Document Size did not change but my Pixel Dimensions did. They decreased. Basically I'm saying, I want this 6 x 9 to be only 100 ppi. In order to do that, the file deletes 200ppi of data from the document and thus resulting in a smaller file size.





You can change the Pixel Dimensions as well, you will notice that the width and length change but the resolution does not.

This can be very confusing, if you're having trouble, I encourage you to research this more.

A rule I like to live by:
Photograph everything at the largest size. Store those. Choose an image file to manipulate. Resave as new file that image at its current highest file size with its layers intact. Then change the file size smaller if you need. This way you have your original file, a large file with all the manipulations, and then the smaller version. 3 files for one image. Or more if you choose.

Storage

It's best to organize all your photos in a way that you know works for you. Images can be manipulated many times and when you need then, where to look and finding them is key.