

PHOTOSHOP CURVES - PART 1

Introduction

Curves are a powerful tool that allows you to adjust the tone of your images i.e. the colour and overall contrast. In this tutorial we will examine how to affect the contrast of the image rather than how to adjust the colour balance.

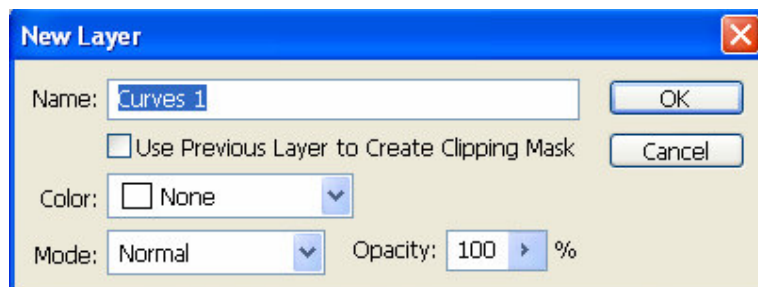
Curves can take a little effort to learn but once you understand the basics and apply some practice and patience you will be rewarded with a great deal of control over your images. Images that lack depth and impact and which might once have been binned, can take on a whole new look with a few tweaks from this tool. Whilst this article will describe the Curves tool found in Photoshop, most image editing packages have a similar curves tool that will function using the same concepts

Adding an Adjustment Layer

Having selected and opened your image for adjustment resist the temptation to select the “Curves...” option from the “Image | Adjustments” menu. Instead we will be adding an adjustment layer to the image. This provides a number of key benefits:

1. The changes we are making will not be destructive to the image and can therefore be refined later.
2. The effect can be modified to make it less intense. You will learn more about this later in the tutorial
3. If you don't like the effect or simply want to view a before and after comparison you can turn the layer on or off by the click of a mouse.

To add the new curves adjustment layer select “Layer | New Adjustment Layer | Curves...” from the Photoshop menu. This will cause the “New Layer” dialog to be displayed as shown below.

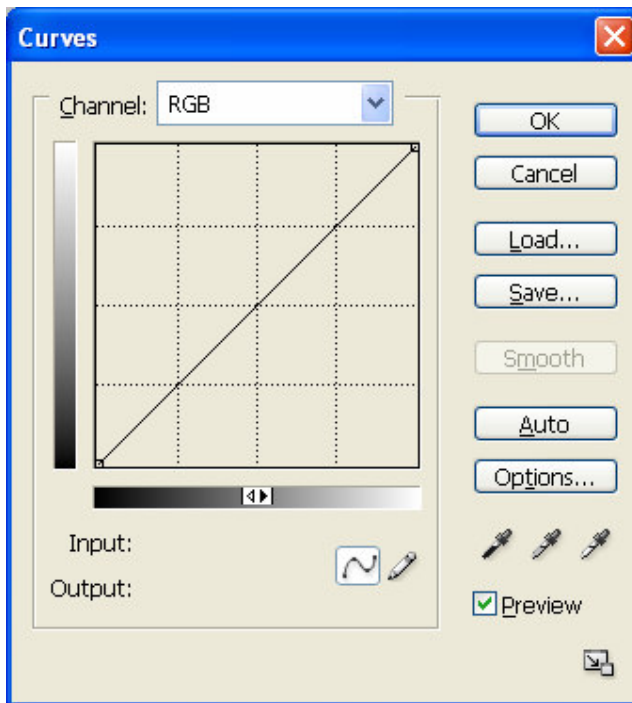


At this time the only change you will need to make in the dialog is to enter the name of the adjustment layer you are creating. I would suggest you create the layer with a descriptive name that will help you recognise it later. An example might be “Curves adjustment to increase contrast”.

Having named your layer click “OK” and the “Curves” dialog will be displayed.

Understanding the Curve Dialog

Shown below is the “Curves” dialog as it will first appear. It's well worth understanding what the various options are because this dialog can hide a lot of power.



At the top of the dialog is a “**Channel**” drop down. This allows you to select which colour channel in your image you would like to affect, Red, Green, Blue or RGB which is all channels simultaneously. The default is RGB and for the purposes of this tutorial you should leave RGB selected.

There are a number of buttons down the right hand side. “**OK**” commits the changes you have made whilst “**Cancel**” closes the dialog without making any changes.

“**Load**” and “**Save**” allow you to save specific Curves adjustments for future use and then load them back in. This can be useful if you have say a scanner that always requires

the same adjustment to be made to the image e.g. to correct exposure or remove a colour cast. We won't however be using this functionality in the tutorial.

“**Smooth**” is used to smooth out a curve that has been hand drawn. You will notice that below the graph there are two icons; one shows a curve and the other one a pencil. These are two different ways of altering the curve. When the Pencil is selected it is possible to hand draw the shape of the adjustment curve and selecting this will cause the smooth button to become enabled. Having hand drawn a curve the curve itself will often be very jagged and severe. Clicking smooth will cause the drawn curve to be smoothed out. Having said all that I have never had cause to hand draw a curve but I am sure someone somewhere has a use for it.

The “**Auto**” option is basically the same as selecting “Auto Color” from Photoshop's “Image | Adjustments” menu. Selecting the “Auto” option will cause Photoshop to correct both the Colour and Contrast of the image to what it calculates to be the correct value. This can be useful but again we are not really interested for this tutorial as we are trying to gain greater control over image adjustment and Photoshop's “correct value” might not actually give you what you are looking for. Resist the temptation to click this at least until you understand what is going on.

The “**Options...**” button provides access to a further dialog that provides you with control over how the curves adjustment will be applied. It also sets the defaults to be used with the three eyedropper tools that appear directly below the button.

The **three eye dropper tools** allow you to set the black point, white point and mid point (tone) of the image. This can be very useful for ensuring the image uses the whole range of the tones available to it properly and can also be used to correct colour cast. If you want to know how to use these look out for Part 2 of the curves tutorial appearing on my web site.

Next there is the “**Preview**” option. When this is checked the effect of the curves adjustment can be seen applied to the image and when it is unchecked the changes are hidden. This is quite useful for making a direct before and after comparison and

should be used regularly to check the effect you are having. It's very easy to make gradual adjustments only to find that you have overdone the adjustment.

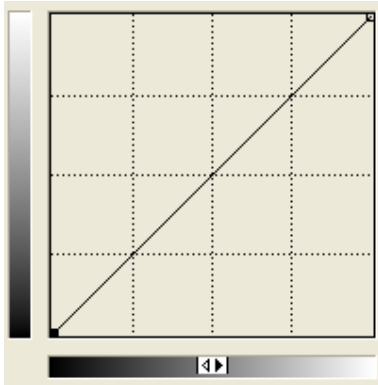
In the bottom right of the dialog is a small icon that allows you to switch between a compact curves dialog or a slightly larger one. Use whichever you feel most comfortable with and change as frequently as you need.

Finally there is the curves section of the dialog. This looks like a graph with a straight diagonal line through the centre. This is where the real power and adjustment is found. The default setting is that bottom left of the line represents dark tones whilst the top left represents the lightest tones.

Adjusting the Curve

Now that you are familiar with the curves dialog box you need to know how to read the curves and therefore be able to adjust them.

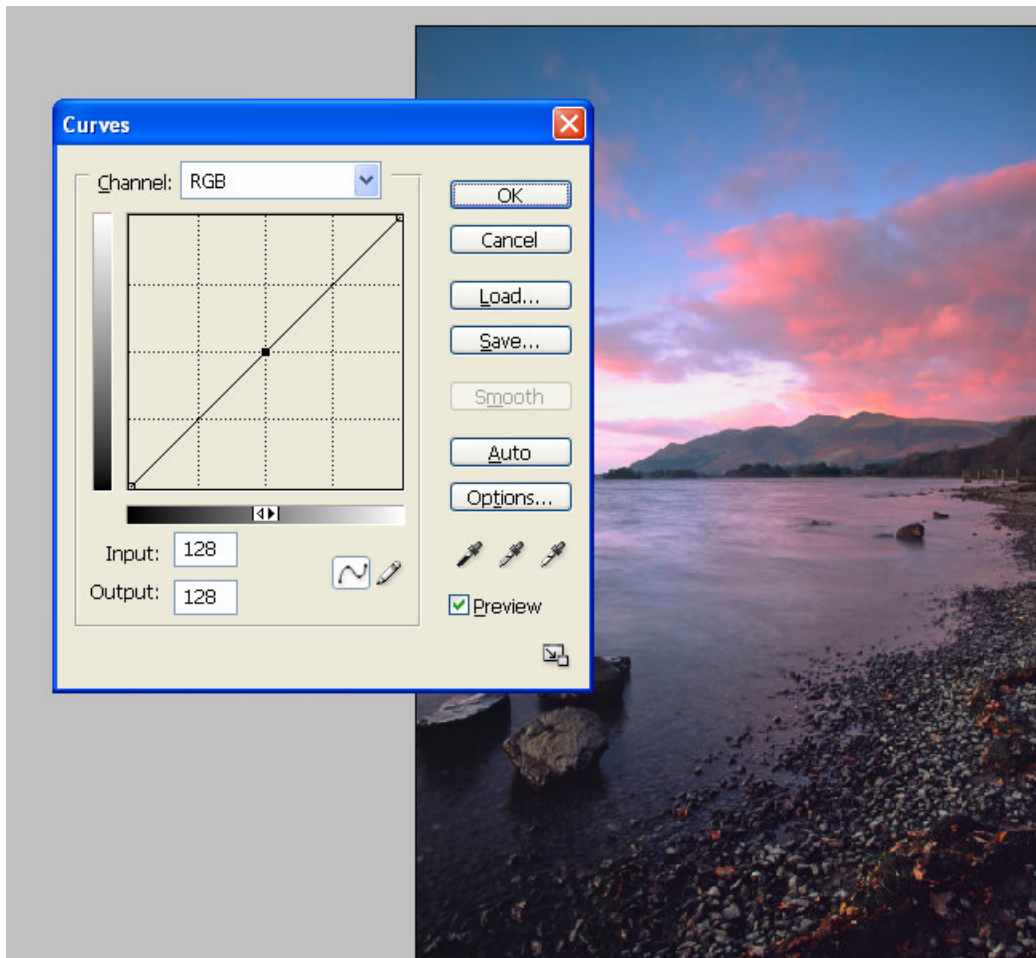
As a default, pure black is represented by a value of 0 in each of the three colour channels (red, green and blue) and can also be written as 0, 0, 0. This would appear as a point on the curve at the very bottom left as shown on the illustration below.



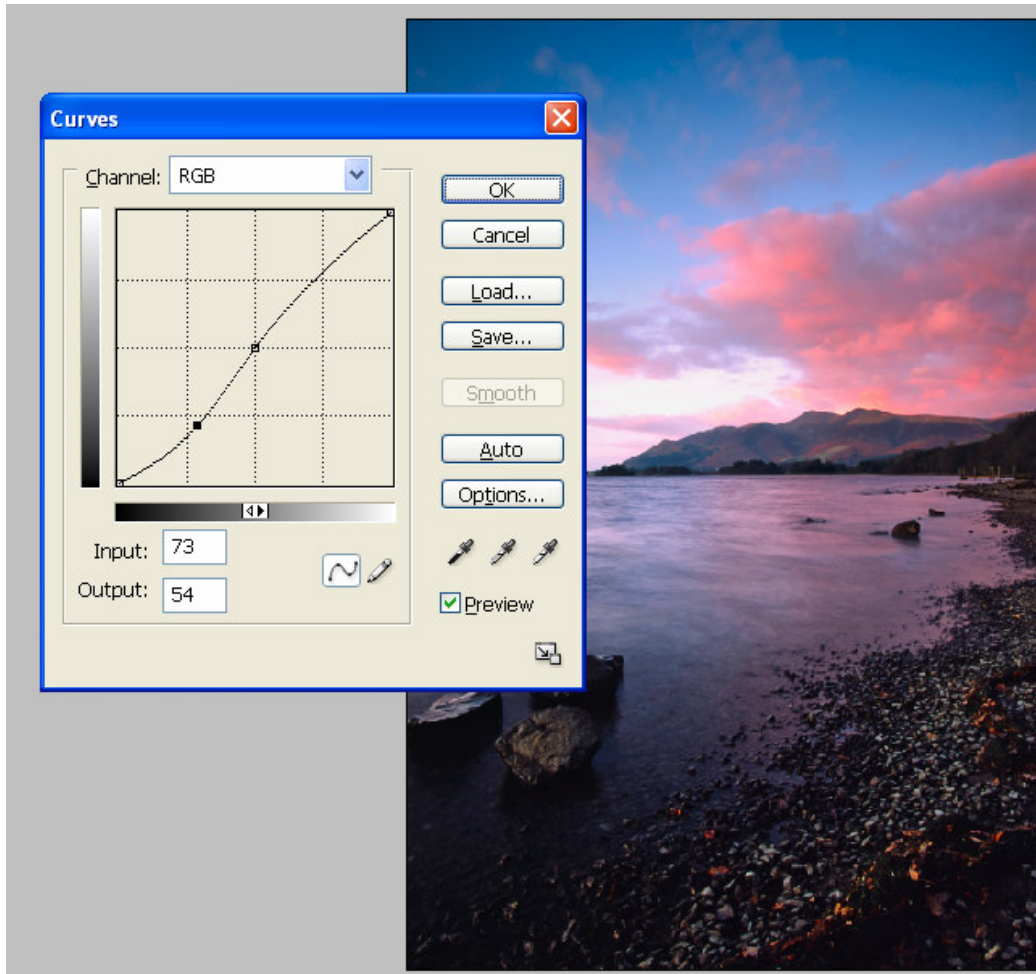
The point at the very top right represents pure white which is a value of 255 in each of the three colour channels, also written as 255, 255, 255.

Between these two points are the various tones within the image. Not all images will contain both pure white and pure black and this can result in the image looking flat and lacking in contrast. Adding or increasing the contrast of an image is a common adjustment made using the curves tool.

To add contrast using the curves tool the first step is to add a point to the curves line. It might be helpful to think of points as being like pins you place in the line to hold it in place. Click on the centre of the curve with your mouse to add the first point. This will hold the mid tones of your image in place as the lighter and darker tones are adjusted. This can be seen in the illustration below.

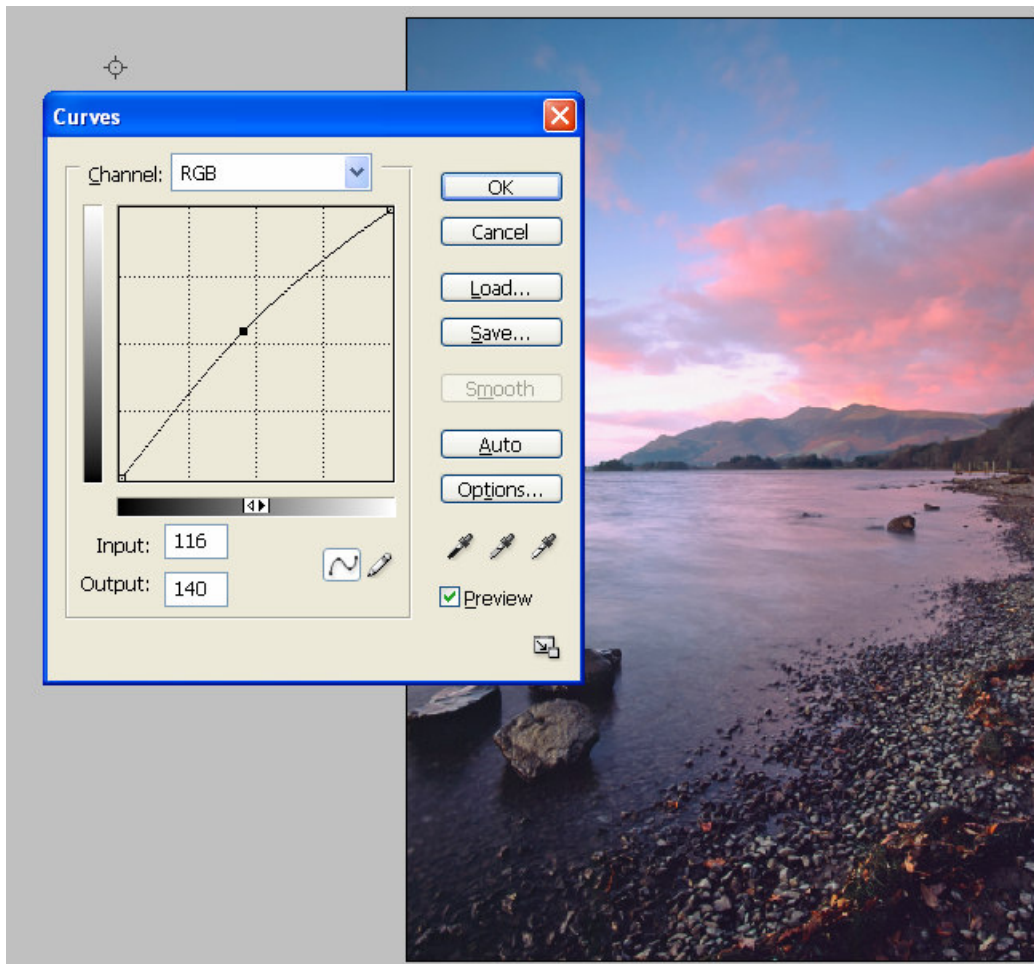


Next add a point on the bottom quarter of the curve and drag it down slightly. As you do this you will notice that the top half of the curve moves up causing the curve to take on an “S” shaped appearance. This S shape causes the contrast of the image to increase as the darker shades in the image are made darker and the lighter shades made lighter. You will notice that the pure black, pure white and mid tones remain unchanged. This is shown in the next illustration below.



You can also see from the dialog above that “Input” and “Output” values appear. This provides information about the adjustment that is taking place. The “Input” value is the value of the point selected on the curve, in this case 73 and the “Output” value shows how this is now being mapped to a value of 54, which is darker.

Another common function of the curves adjustment is to add a little impact to images by making them brighter around the mid tone. This can help where the original image is a little under exposed. It doesn't really help make sunsets look better but you can see the effect in the illustration below.



At this point in the tutorial it might be worth stopping to experiment with a few different images and curves to see how you can affect their appearance.

Finding a Point

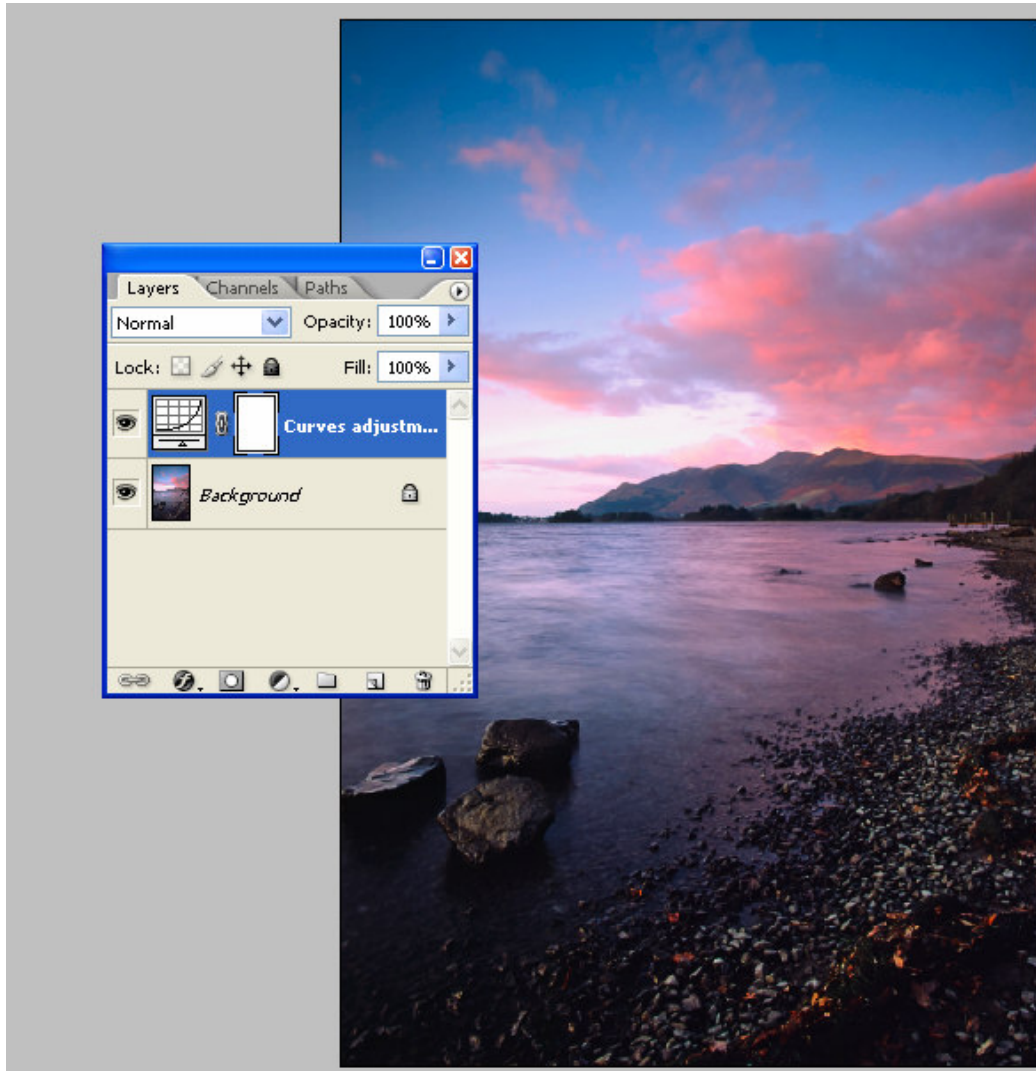
Once you are more familiar with curves you may find yourself wanting to affect certain tones in your image a little more selectively. It's remarkably easy using the curves control to identify where on the curve a certain part of your image lies. Simply pass your mouse pointer over the area of the image you would like to measure and then right click. This causes a point to appear on the curve and the value to be displayed in the "Input" and "Output".

You will notice if you try the above that once you release the mouse button the point disappears. If you take note of the value that was displayed you can find it again by clicking on the curve but there is a much easier way. If you want to add a point on the curve by selecting a location on your image to sample, simply hold down the "Ctrl" key whilst you right click with the mouse (apologies to Mac users, I don't know what the equivalent of the "Ctrl" key is). You will find that you have added a point that can then be used to adjust the tone of the selected area making it either brighter or darker.

Having made your adjustment select the OK button to commit the changes to the image.

Adjusting the Strength

If you have been following the tutorial to this point you should have added an adjustment layer to your image. If you have not already done so you should display the “Layers” window so that you can select and work with the layer you created. You can display the Layers window by selecting it from the “Window | Layers” menu or by pressing “F7” on your keyboard. You should then see something similar to the illustration below.



The original image is labelled as the “Background” layer in the window and the new adjustment layer appears above it. To the left of the adjustment layer is a small icon showing an eye. If you click on this the eye will disappear and the effect of the adjustment is disabled. Click it again and the eye icon appears and the layer adjustment is applied. This is very handy for doing before and after comparisons to see if your edit is too severe and looks unnatural.

If you want to modify the curves adjustment you created, double click on the next icon along which shows a line drawing of a curve. This will cause the curve you created to be redisplayed with the selected points still in place. You can then adjust these to fine tune the effect.

Another interesting and useful adjustment you can make in the Layers window is to set the “Fill” and/or “Opacity” of the layer. By default this is set at 100% but by reducing either of these values you can fade the effect of the adjustment layer to make it less severe. This is useful if you find later that your changes are really too harsh and you would like to tone them down.

The Layers window also provides access to the blending mode. This appears in the drop down at the top of the Window and is usually set as the default “Normal”. You can select a different blending mode when you set up the adjustment layer but it’s much easier to do this later in the Layers window. Besides, “Normal” is great for most adjustments. Blending modes could easily occupy a very large tutorial so I will leave you to play with this if you have a desire.

Finally

Once you are happy with the results of your adjustment you can save your file (actually you should have been doing this regularly as you are making adjustments so you don’t lose your work). When you save your file you will find that not all file formats support layers e.g. JPG and Photoshop will automatically remove the layer losing all your settings. The TIFF format does support layers but it can result in some very large file sizes. I would suggest that if you want to leave your layers in place (lets face it peoples tastes change so you might want to tweak your adjustments at a later date) use Photoshop’s native PSD format. This will store the layer information and the image information in a non-destructive way so that you can always revert to your original image.

From time to time you might want to produce a file in another format e.g. TIFF or JPG with your adjustments applied. To do this simply flatten all the layers in the image using the “Layers | Flatten Image” option from the Photoshop menu. Then select “Save As” to create a new file, taking care not to overwrite your original image.

There is still a lot to the Curves tool that we have yet to explore but this will be covered in a separate tutorial which I will imaginatively name “Photoshop Curves – Part 2”. If you can’t find it on my web site I haven’t yet written in so you might need to visit again.