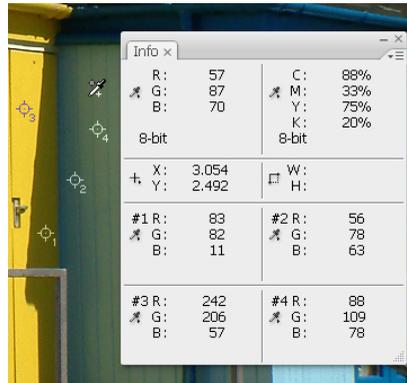




Part # 1

# Rotate Straighten & Crop!



*Here we see the Color Sampler tool with four markers placed on different colors in the image. The color values for each marker are displayed in the Info palette.*

Colour sampler markers can be moved around simply by dragging them with the mouse. To delete a marker, point to it with the mouse and hold down the Alt/Option key. The cursor will change to the scissors icon at which time you click the mouse to remove the marker. The other colour sampler markers will automatically renumber to reflect the change.

We will be using these tools extensively in future lessons but for now it is important for you to understand them and know how they work.

## Histograms

The tools discussed in the previous section allow you to analyse an image in terms of its colour and tonal values. Now we will explore the tools needed to analyse an image in terms of the contrast and quality of digital data contained in the image. For this we need to understand and use *histograms*!

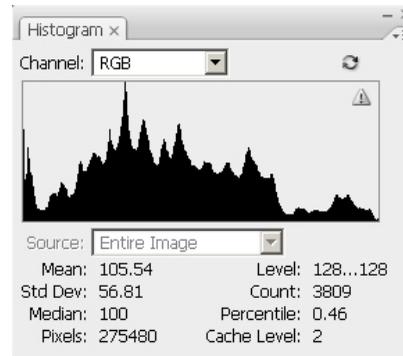
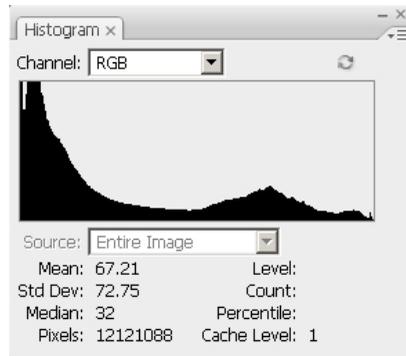
### What is it?

For many people, learning about histograms is like delving into the ‘black arts’ of alchemy and ‘geeky’ stuff. You have to trust me when I say they are actually very simple to understand but also very useful in the information they provide. So grasp the nettle with me and let’s do histograms!...

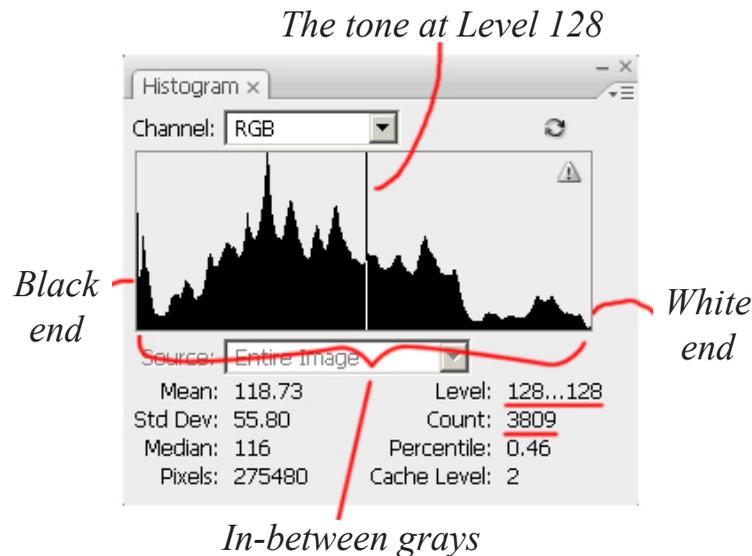
What is a Histogram? Quite simply, a histogram is a visual display of the *number of different tones* in an image and *how many pixels* have each tone. Let’s break that down into the two parts:

- The number of different tones in the image
- How many pixels have a particular tonal value

A typical histogram will look like a mountain range; it goes up and down like these...



Note the completely different shapes of the mountain ranges indicating two very different looking images. Let's dissect the Histogram palette and chart display.



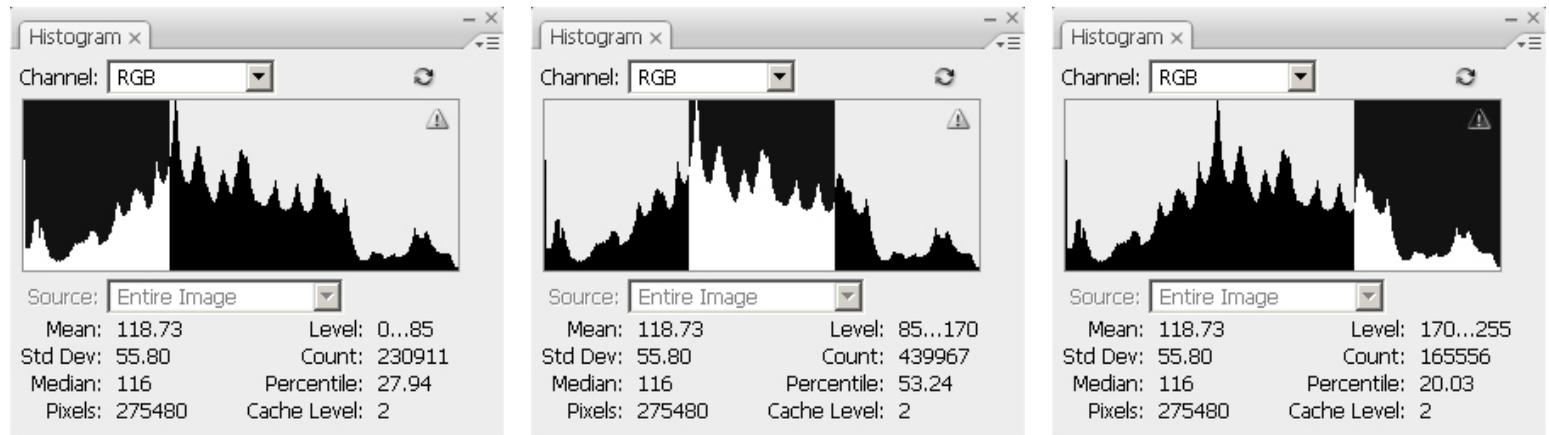
*If you click on the graph a temporary line appears at that point; the tone value at that point, and the number of pixels that have that tone are shown in the dialog (underlined in red).*

The left edge of the graph is the *black point*; the right edge is the *white point*. The rest of the 'mountains' are the gray tonal values. In this histogram you can see that the graph occupies all the space between black and white indicating that the image contains a full range of gray values

The height of the individual tone positions tells us how many pixels have the tone at that position of the tone scale. The higher the 'mountain' the more pixels contain that tone. In this example, it is clear that there are fewer pixels with light tones than there are with mid to dark tones since our mountains

are not very high towards the right (white) end.

When you want to know exactly how many pixels have a particular tone simply move your mouse over the graph, the tone and quantity values will be displayed next to the *Level* and *Count* labels as you move the mouse.



In the example histogram above, I have dragged the mouse along the graph to highlight three sections; the dark (left), middle (centre) and light (right) tones respectively. This should help you to remember which section of the chart deals with which tonal ranges.

To sum up: the histogram gives us a visual display of the tones that an image actually contains and the height of the graph tells us the number of pixels with a certain tonal value.

### **Analysing images with the Histogram**

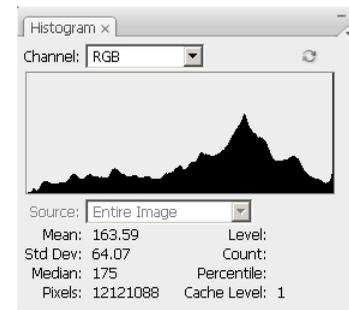
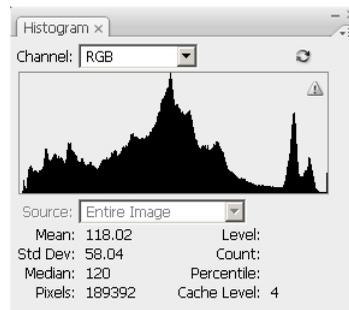
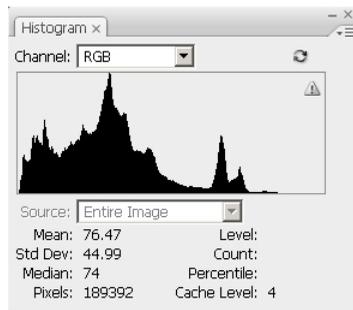
What can the histogram actually tell us besides how many pixels have a particular tone; which lets face it isn't going to be that useful to most people! The histogram can help us:

- Assess the exposure of an image
- Assess the overall contrast and 'mood' of a picture
- Check for lost tones or posterisation

### **Assessing Exposure**

Let's now use the histogram to assess an image and determine if there are any problems. When you have a photograph open in Photoshop one of the first steps is to assess the brightness (exposure) of the image. In the example on the next page we see the same scene but the camera exposure was varied for each version. If we look at the corresponding histograms for each image we can see how the tonal values have been recorded. The left image is clearly quite dark and this is indicated in the histogram

since most of the tonal values are to the left. You can clearly see that there are in fact no light tones in the image since the right side is virtually empty. The histogram confirms that this image was *underexposed* in the camera.



The centre image looks more natural, and correct; checking the histogram shows that there is a full range of tones in the image. The graph shows the tones well distributed throughout the full range indicating a ‘normal’ photograph. This histogram actually shows this picture received very slightly more exposure than optimum. If you look closely at the black end of the chart you can see that, in fact, there are no fully black tones. Also, looking at the white end of the chart you see that there are some pixels that are pure white indicating they will not contain any detail at all (when tones are pushed into either the white or black end it is known as ‘clipping’). This fault is so slight in this example that a minor correction later would do not harm. The histogram shows the image is *correctly exposed*.

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