



Black & White and colouring with GIMP

Alberto García Briz

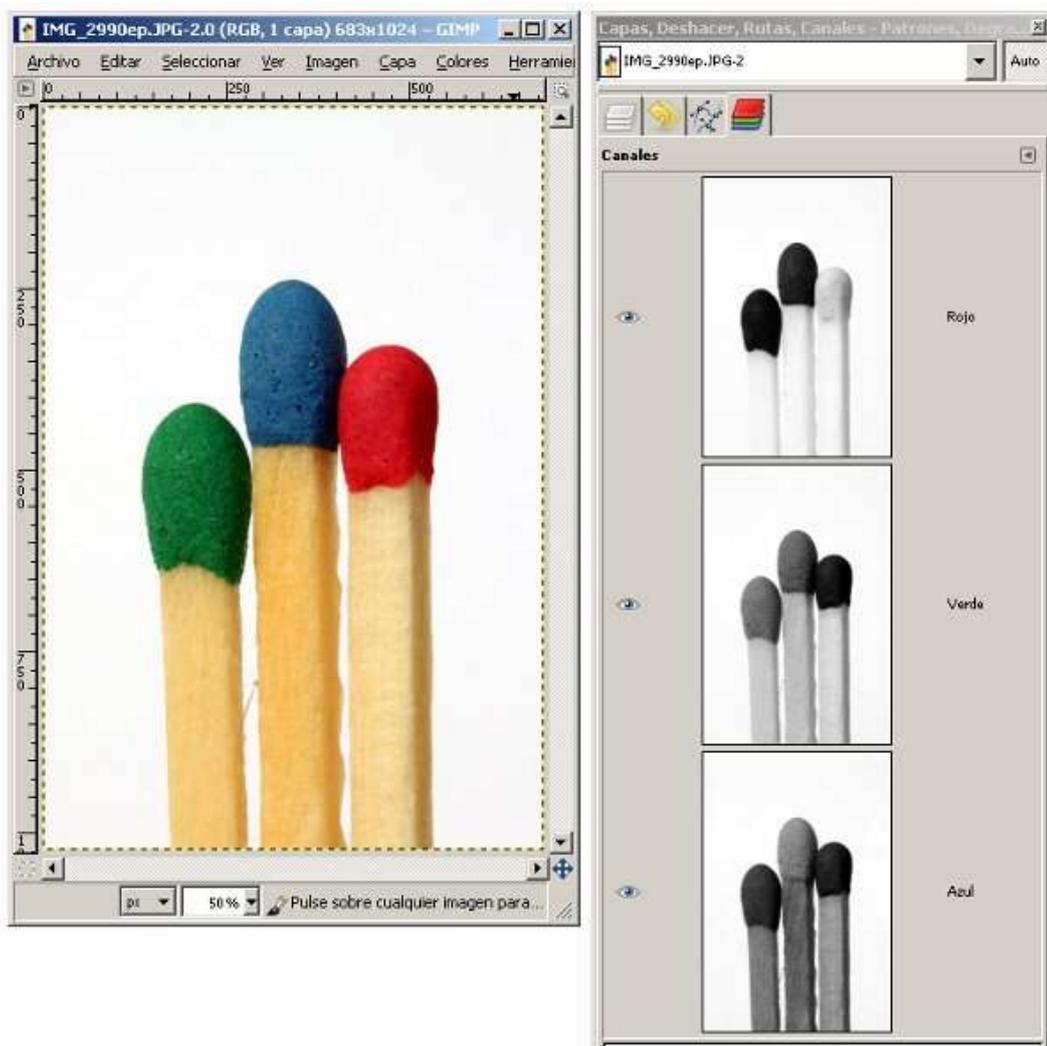
A compilation of articles published at <http://albertog.over-blog.es>

Black and white with channels in GIMP (21/02/2012)

One of the most useful ways to convert a picture to black and white is the channel mix technique. This allows for the decision on the importance of each primary colour channel (red, green, blue) to the "weight" of the final image, this is, their influence to the final gray shade.

Analysis

In GIMP, with your colour picture open, you can see the information on each channel by clicking the three-colour icon in the layers tool window: You will see that "weight" of each ink to the image.



You will have to get used to make an analysis such as follows:

- Red channel has very high values in red (obvious) and yellow colour (wood sticks) - they appear very bright in the channel. Green and Blue appear very dark in this channel.
- Green channel has quite balanced tones over the objects, but there is little difference between green and blue colours. Red match appears a bit too dark.



- Blue channel includes much texturing on the wood, quite interesting. Furthermore, there is a difference between green and blue, indeed. Red is still dark in this channel.

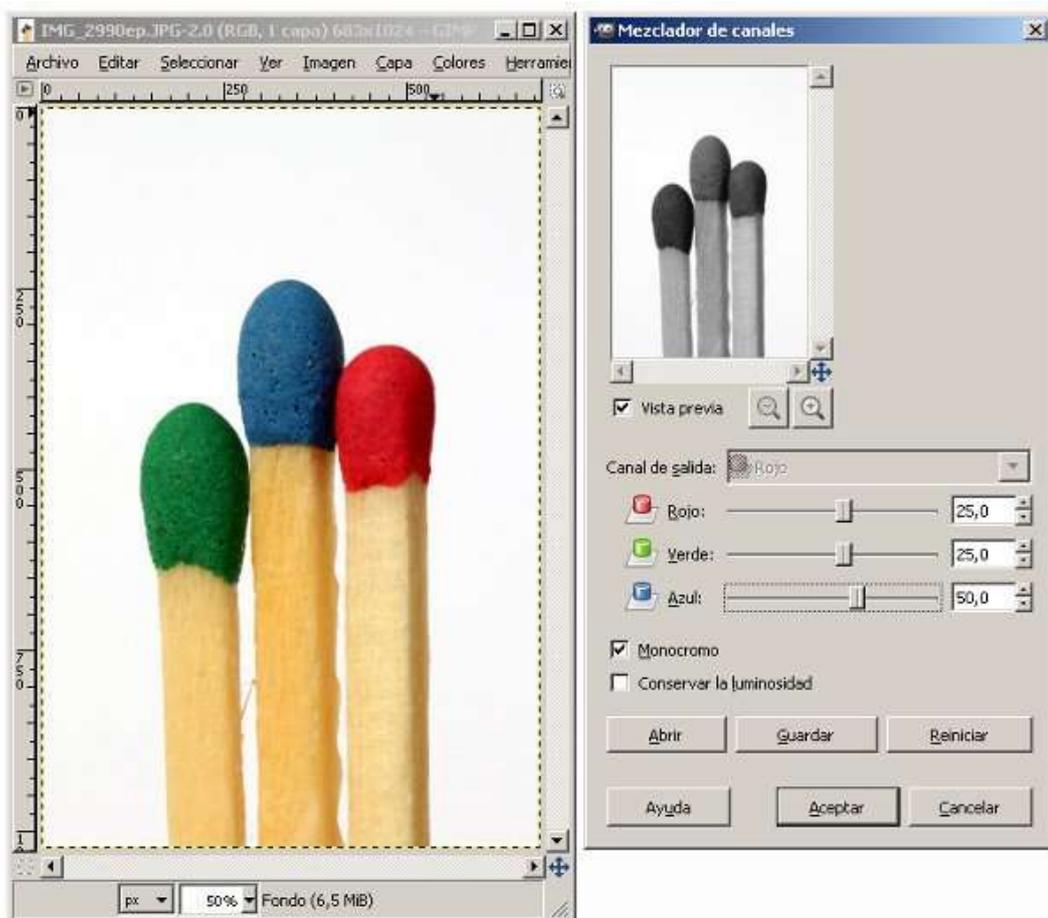
Decision

In pictures like this one, it is usual to use information from all three channels, since each one can bring in some information. In this case, I decide to highlight the blue channel to get the texture in the wood, and keep (in a lower priority) red and green channels.

Method

In GIMP, open the channel mixer. In the version I have, it is under the menu "Colours - Components - Channel mixer", but it might be under "Filters - colour" in your version.

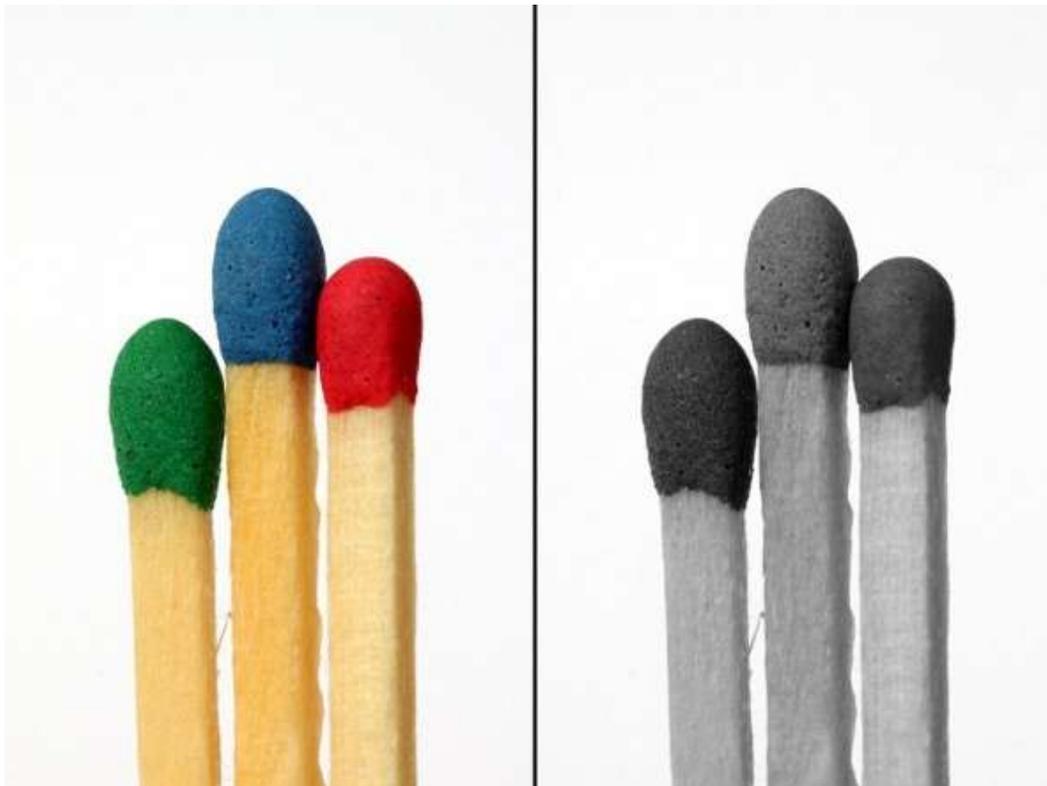
Tick on the "Monochrome" box, to get the final black and white output.



Assign weights to each channel as per the above analysis. I set 25% red, 25% green and 50% blue. Sum should be 100%, and you may even put some negative value (result may be weird, though...)

If you want to try some extreme setting, with very high percentages, you may tick the "Maintain luminosity" check box, that will average the percentages input to avoid "burned" or too dark output.

When you click on "Apply", you will obtain your black and white version of the picture...



Important

Setting decision for the channel mixer is your decision, based on your image and your personal preferences. Remember, all settings are valid, and you are the artist...

Still more?

Once you have your monochrome photography, try to colour it with the "Multiply" option in the layers' fusion tool...

B&W photos colouring with "multiply" in GIMP (06/03/2012)



Black and white photography has still a lot of supporters, in spite of current situation with ultra-modern cameras, automated settings, 3D, HDR... But not everything must be grayscale. There are multiple techniques for the late colouring of black and white pictures. Among them, I want to remark the layer multiplication technique, really easy to apply in Photoshop or other edition programs, like the freeware GIMP.

RGB system

Colour pictures (JPG, GIF, PNG...) typically store image information for each pixel in three 8-bit values, each one responsible for a primary colour (Red, Green and Blue).

With eight bits per channel, each colour will provide up to 256 different intensity levels or colours. Between all three channels, an image can include more than 16,7 different million colours.

The "multiply" function

In edition programs with layer handling capabilities, the multiply function does just that: To multiply the values of two specific layers, per pixel and channel. The result is then divided by 255, to reach a final value in the valid range (0 - 255).

Since 255 is the maximum possible value, the result will be usually darker than the original layers. In RGB images, final colour will depend on the reference colours from both top and bottom layers.

In the case of black and white images, the original (set in bottom) will have exactly the same information on all three channels, so the colour information will be provided by "the other" (top) layer.

Methodology

- Convert the black and white image to RGB, if it is in grayscale. Use the command "Image - Mode - RGB"
- Add a new layer, by clicking the right button over the image miniature in the auxiliary layers window and choosing "New layer..."
- Fill this new **top** layer with the desired colour (you may pick it from the tools window, or with the colour picker from another picture). In this step, you will not see the lower layer anymore.
- Choose **fusion mode** to be "multiply" from the drop-down menu in the layers window. It is important to have the top, coloured layer as active for this step.

Main advantage for this method is that it is not a destructive one; you can always recall the original black and white image just by hiding (or removing) the top layer.

Furthermore, you may produce different versions of a same image, just by changing fill colour: sepia, blue, magenta... any colour can do.



Traditional B&W colouring with GIMP (16/03/2012)

In some occasions, I tried to do some direct [colouring of a black-and-white photography with multiply](#) option, a really easy technique, as you could read in some previous post.

However, sometimes the result in the screen is not matching the desired effect upon printing. Sometimes, it becomes yellowish, or rather quite reddish.



Of course, this is produced by the (lack of) equipment calibration - in fact, I use to work with an USB portable GIMP version over different computers and printers.

A solution: at least, to fix some parameters in my workflow, so that results will be uniform. In this case, I propose the following values' table, which can be useful to produce image collections with a same colour finish between all of them:

Colour	R value	G value	B value
Sepia	112	66	20
Palladium	96	85	69
Cyanotype	78	121	154
Silver gelatin	130	118	105
Silver	119	122	123
Selenium	132	124	128
Platinum	124	121	115

The proposed colours match the traditional chemical processes used to colour photographs.

NOTE: those proposed colours are relatively dark; depending on your photography, you may get a better result when selection the fusion mode "**Soft Lighten**" instead of "**Multiply**"...

Important

This is a quick technique, enough for most cases; however, it does not simulate the original chemical processes properly.



As a fact, depending on the amount of chemicals (in paper or any other support), reaction is slightly different, so that highlights and shadows get different colour shades, too. We will need to work on curves adjustment per channel.

In a few days, I intend to post a new article on image colouring with a "professional" finishing with GIMP...

Traditional colouring with GIMP (18/03/2012)

As I commented in [previous posts](#), the way photographic paper reacted to traditional colouring techniques depended on the amount of chemicals remaining after processing.

Thus light areas took slightly different colours from mid tones and dark ones.

In GIMP, we can mimic this behaviour by adjusting curves per each RGB channel separately. This way, each lighting zone will have a slight difference in colour balance.



Above: Original, Sepia, Platinum, Palladium, Cyanotype - five different versions of a same image...

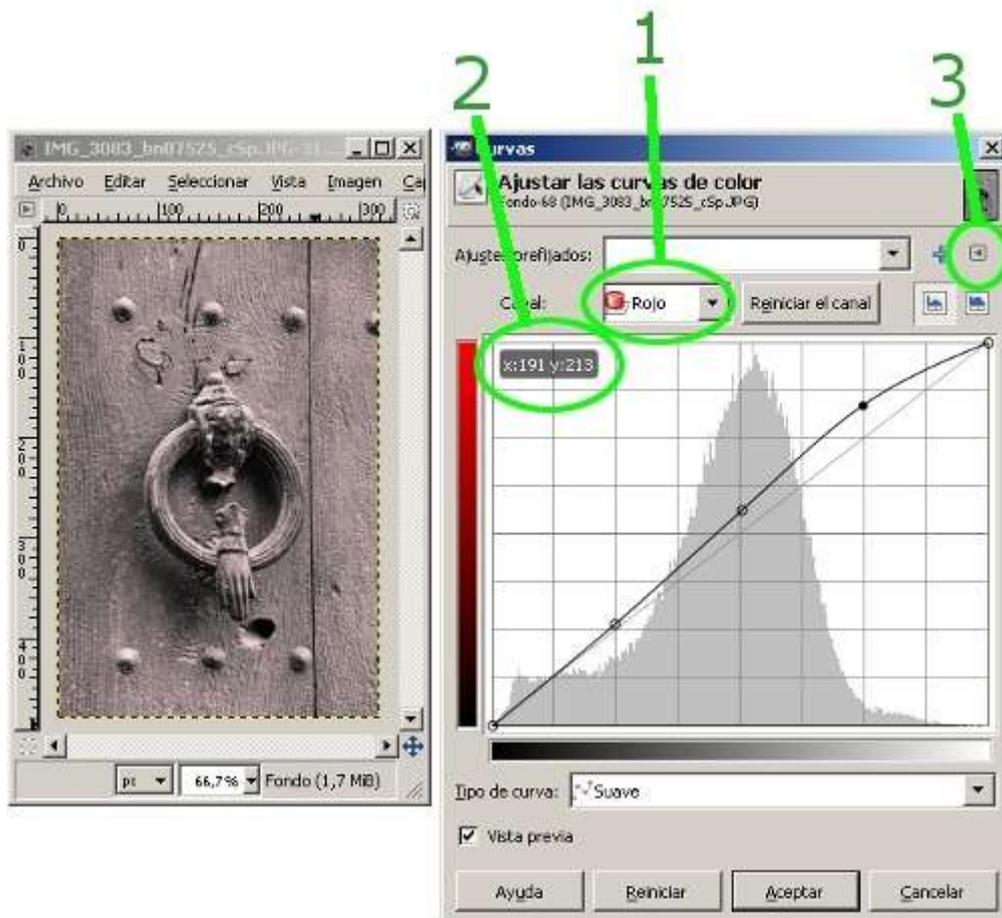
In internet, you will find multiple table proposals for the different traditional processing techniques. As a proposal, please check the following table:

	Red Channel	Green Channel	Blue channel
Palladium	63/67	63/62	63/47
	127/143	127/121	127/103
	191/213	191/191	191/170
Platinum	63/74	63/63	63/50
	127/127	127/127	127/112
	191/191	191/191	191/175
Selenium	63/77	63/60	63/61
	127/140	127/125	127/129
	191/197	191/190	191/195
Silver	63/59	63/67	63/67
	127/119	127/131	127/129
	191/187	191/191	191/191
Silver gelatine	63/79	63/59	63/33
	127/149	127/123	127/93
	193/213	191/188	191/156
Sepia	63/100	63/55	63/20
	127/165	127/115	127/83
	191/214	191/187	193/172
Cyanotype	127/24	127/137	127/220
	191/117	191/203	191/250

The difference in the tables that you may find in Internet is really small - maybe five points at some value.

Selection of the specific channel

When opening the auxiliary curves window (Colours -> Curves), you will see a drop-down menu (1), where you can pick Red, Green or Blue channel.



How to read the above table...

In each cell you will find two or three pairs of values. Those refer to input and output values, respectively.

On the curve, we can create a point just by clicking over it, then dragging the mouse until you get to the desired values (2)

For a given setting, you need to introduce all needed values for all three channels.

Save it...

Luckily, GIMP includes the option of exporting the fixed settings, giving them a name ("sepia...") to recall them in a later pic edition - same photo, or a different one.



Save option is in another drop-down menu, in this case from a small triangle on top-right of the auxiliary window (3).

You must save the setting before applying it with the "Apply" button.

Still more?

The above described method applies for a generic black and white picture (in RGB-grayscale, all three RGB channels with same information) to reach the desired tint result.

But, what if the original picture is not black and white? Try to apply those curves to (for example) your portraits - you might find interesting output effects!