

# Photoshop processing

## Convert colour negatives to positive without sampling the orange mask

Digitising old slides or negatives is a time consuming and sometimes frustrating task. Over the years I have tried to convert my slides and old colour negatives by using different approaches. I used a Nikon Coolscan which was good but slow. When it broke beyond repair and Nikon did not manufacture scanners anymore, I switched to a Canon flatbed scanner and Silverfast software. Silverfast gives nice scanning results but is also slow and has a really horrible user interface.

A year ago I started copying slides with my Nikon D700, a macro lens and a Nikon Film Digitizing adapter. As light-source I use a Nikon flash unit. This works very well, the results are better than those of my scanners. And you get RAW files to start with.

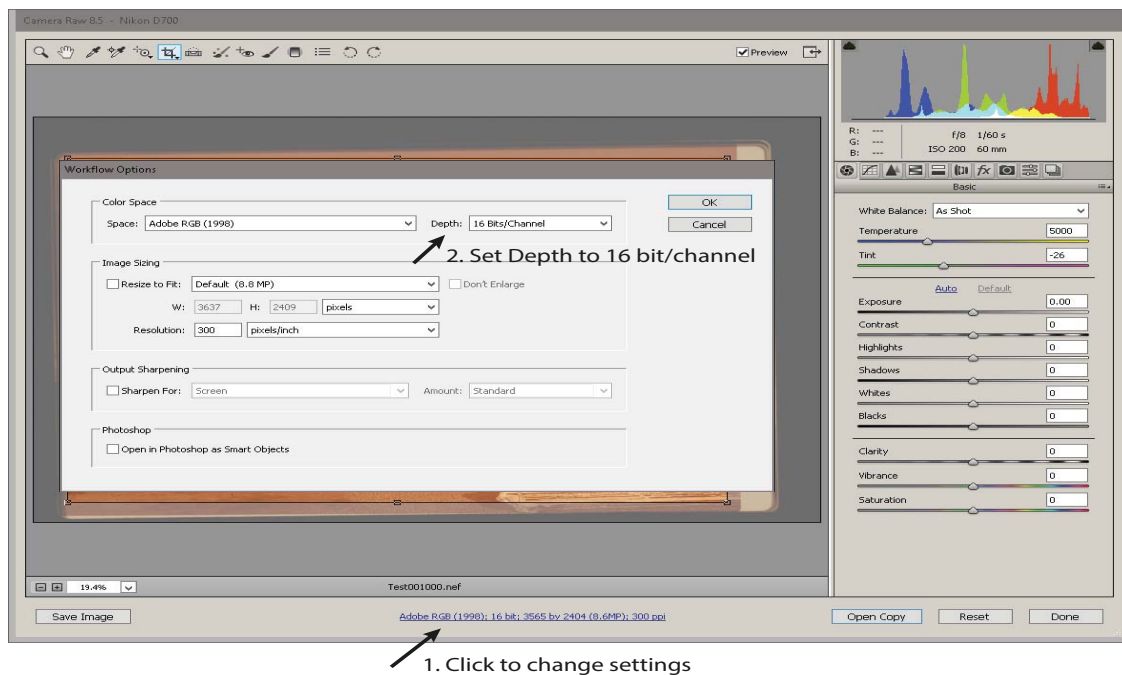
For colour negatives there is an extra problem: you have to do the conversion to positive in Photoshop. I have read a lot about it on the internet but unfortunately many solutions are quite complex and most of them need a sample of the unexposed mask. Given the fact that the Film Digitizer has frames that cover exactly 36 \* 24 mm this is not very practical.

The rest of the text explains how you can get equally good results without sampling the orange mask.

To illustrate the process and have a kind of colour reference I made a number of pictures with two cameras. A Nikon D700 digital camera (with 50mm lens) and my 40 year old Nikon F with Fujicolor C200, also with a 50mm lens. A journey back in time.

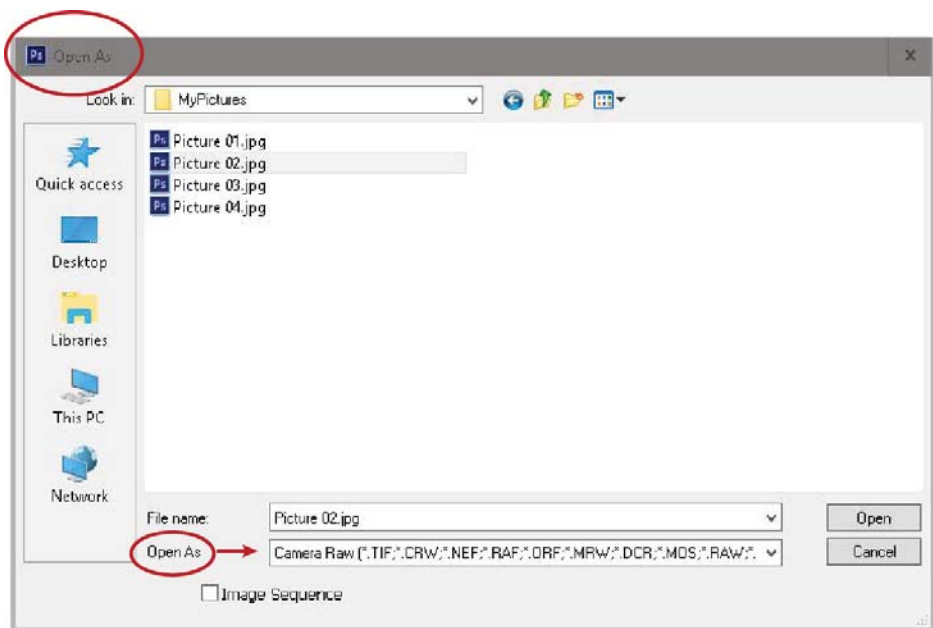


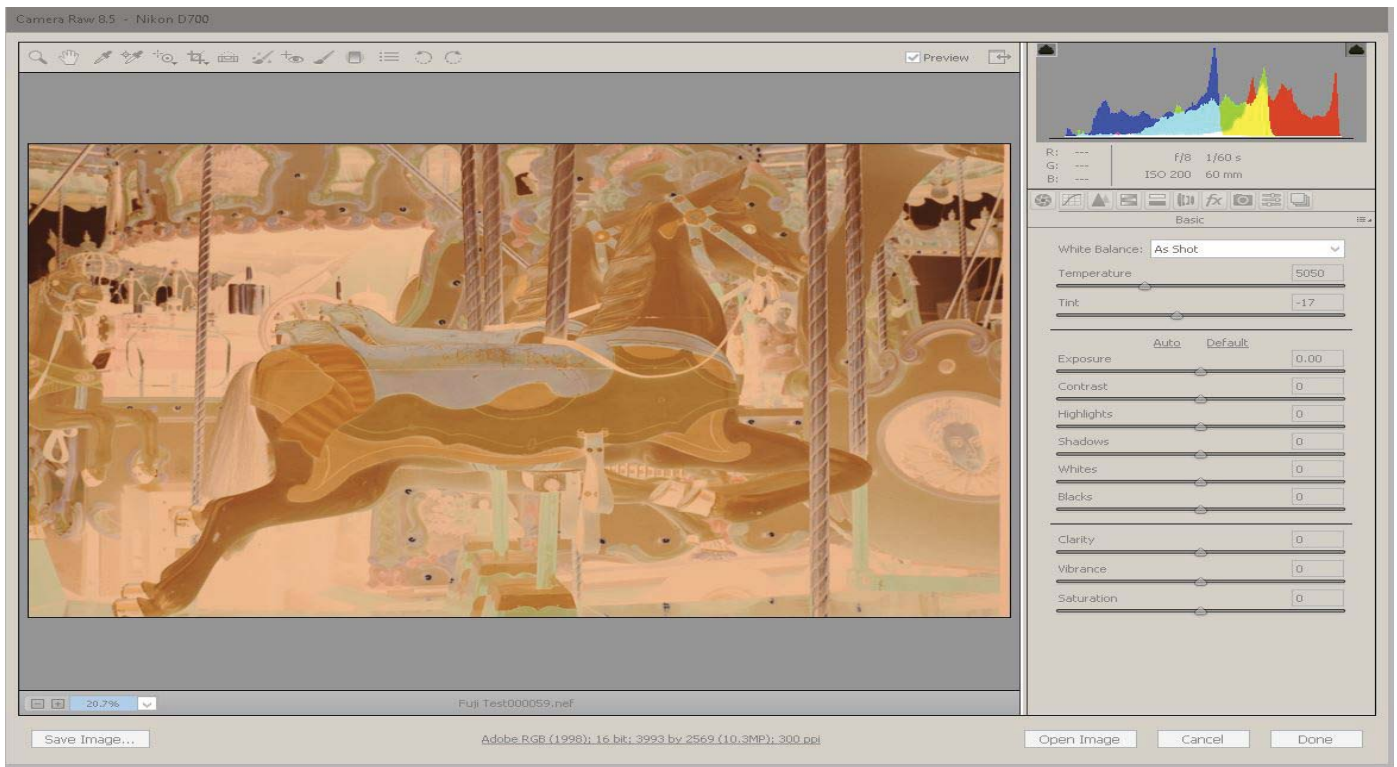
## Before you begin make sure Photoshop Camera RAW is set to 16 bit



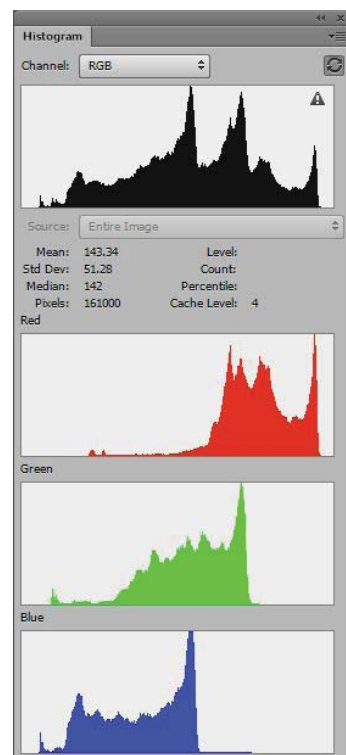
### I. Load the negative into Photoshop Camera RAW

- If the negative is in RAW format (obtained from a scanner or DSLR copy) just drag the file onto Photoshop
- If the negative is in another format ( JPG , PSD,TIF) open it via:  
File > Open As. Browse to the file location.  
In the drop down box next to “Open As” select Camera Raw.  
Click Open





At this point you can see in the histogram that red, green and blue channels are not aligned. This is due to the orange mask.

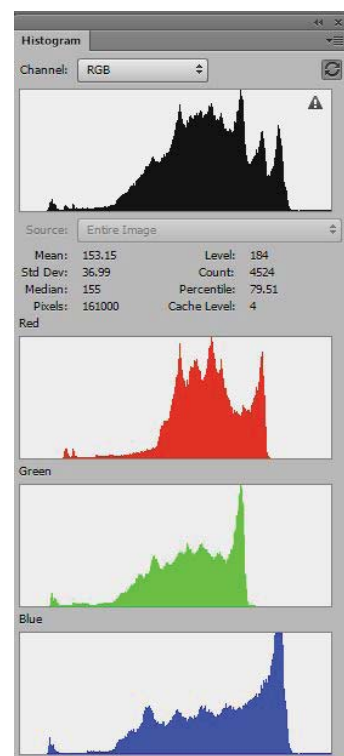


## 2. In Camera RAW: Correct white balance

- Crop the image to remove all borders AND parts of the unexposed orange mask
- Set White Balance to “Auto”
- Click Open Image

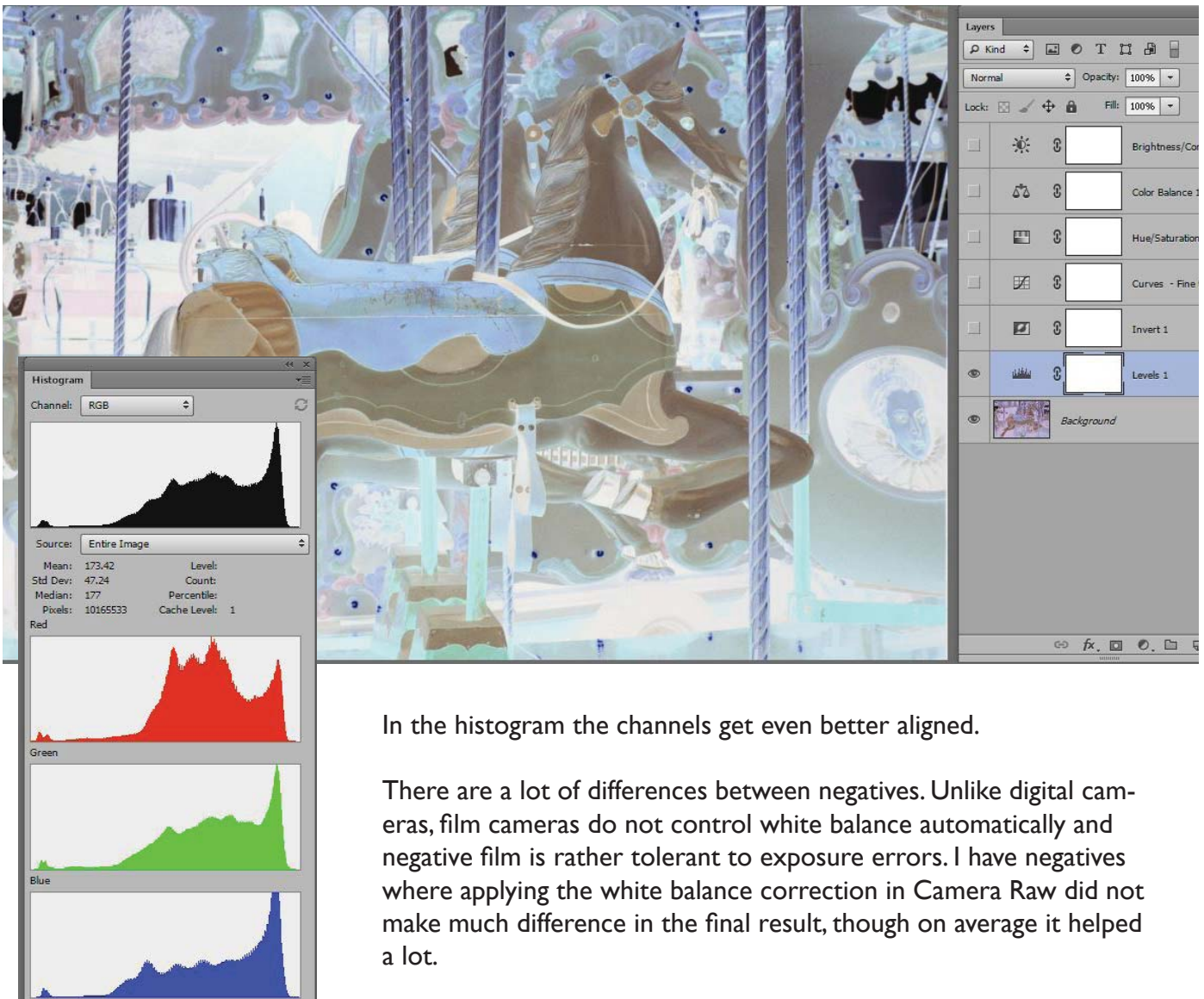
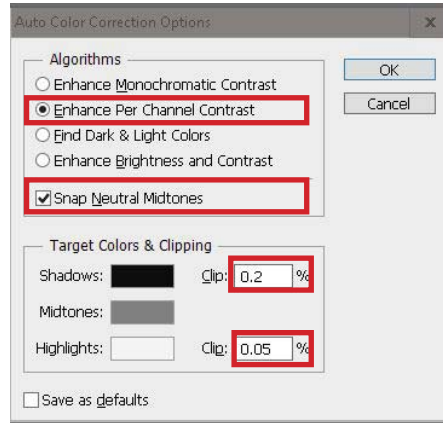
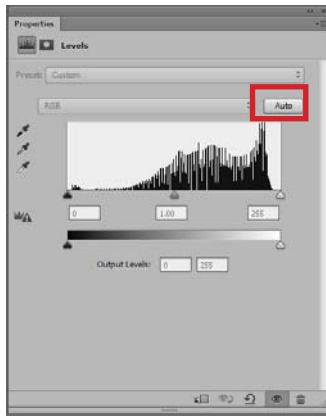


After applying a white balance correction (yes on the negative!) we see that the histograms of the different colours get aligned. Part of the orange colour is removed.



### 3. In Photoshop: Adjust levels

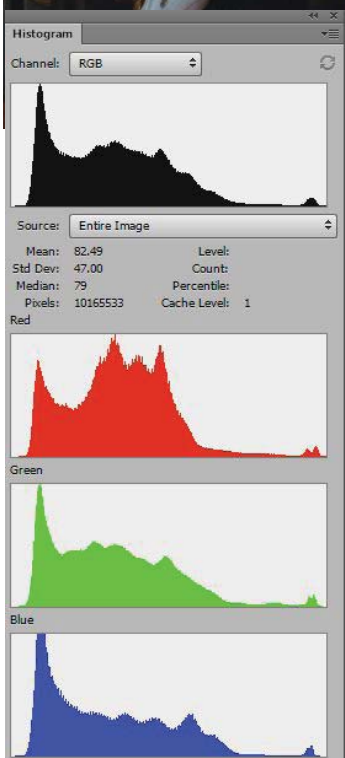
- Layer > New Adjustment Layer > Levels
- Open the Levels dialogue
- Alt Click the Auto button to open the Auto Color Correction Options
- Set the options as shown below and click OK



In the histogram the channels get even better aligned.

There are a lot of differences between negatives. Unlike digital cameras, film cameras do not control white balance automatically and negative film is rather tolerant to exposure errors. I have negatives where applying the white balance correction in Camera Raw did not make much difference in the final result, though on average it helped a lot.

## 4. In Photoshop: Invert the image



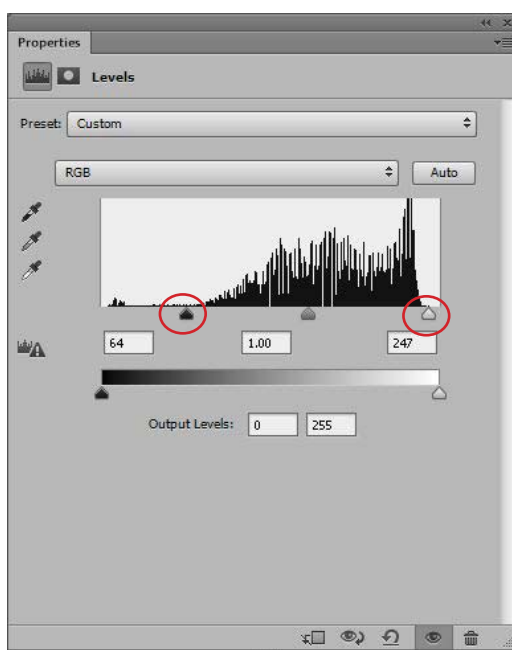
In most cases we get already a decent conversion after inverting the image.

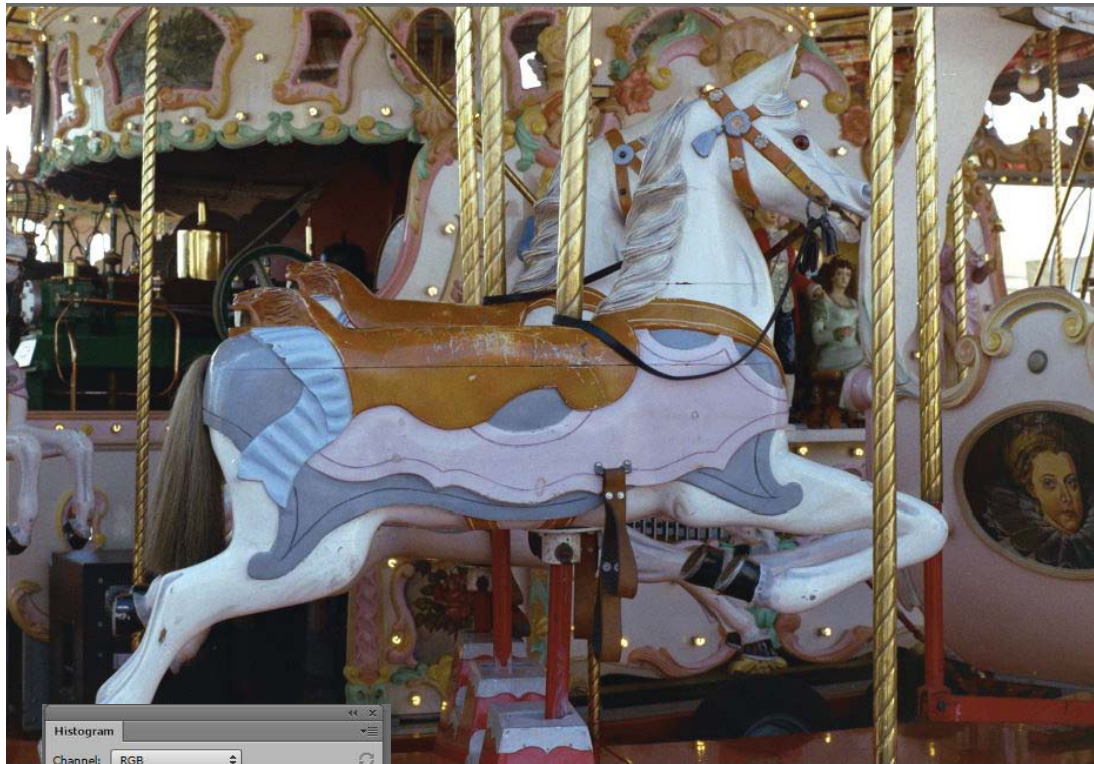
In this case the picture looks a bit dull. It is easy to see why if you look at the top (RGB) histogram

Click again on the levels layer and adjust the white and black sliders to increase the contrast.

Keep in mind that you are looking at a positive image but the sliders work on the negative so black and white are reversed.

See the result on next page.





Layers

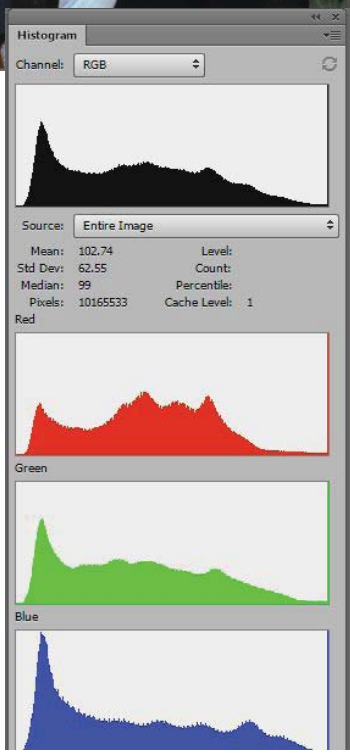
Kind: [icon] [icon] [icon] [icon] [icon]

Normal Opacity: 100%

Lock: [icon] [icon] [icon] [icon] Fill: 100%

- [icon] [icon] [icon] Brightness/Contrast
- [icon] [icon] [icon] Color Balance 1
- [icon] [icon] [icon] Hue/Saturation
- [icon] [icon] [icon] Curves - Fine Tune
- [icon] [icon] [icon] Invert 1
- [icon] [icon] [icon] Levels 1
- [icon] [icon] Background

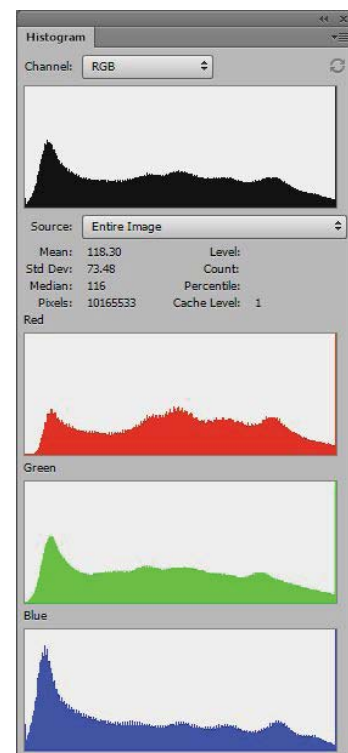
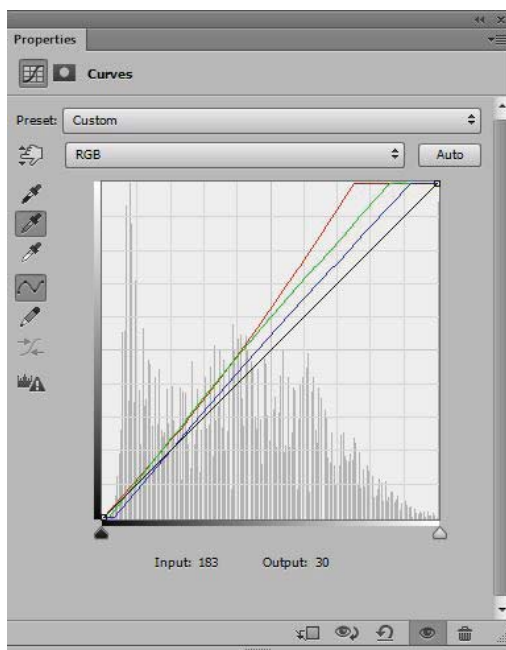
[fx] [icon] [icon] [icon] [icon]



## 4. In Photoshop: Fine tune using a Curves layer

If the picture still has a colour cast, which is more likely to occur when you start from jpeg images, then:

- Add a Curves layer
- Open the Curves dialogue and use the eyedroppers to set Black, White and Gray points manually





## 5. Results

On this and following pages you can compare the results of the conversion with a digital image that was taken approximately at the same time. There are small colour differences but the two pictures were made with completely different cameras. In the digital D700 you can select several “Picture Control” settings (Vivid, Neutral, Standard etc). The colour differences you get by selecting any of these are in the same order of magnitude as the differences you see here between the pictures.

I made a Photoshop action that automates the process to a great extent. Usually the conversion takes less than a minute.



Standard v4 profile





Standard v4 profile





Standard v4 profile

