



Text and photos  
by Peter Symes

# Photography

**Is it cheating? Once the conversation touches on restoring or manipulating images it seem to on something profound, namely our perception of reality. Can we trust what we see? Is a given image a truthful recording of what happened? And what is reality anyway if it depends on the eye of the beholder?**

What is real and what has been artificially created is a very important discussion as photos and videos are also used as documentation f.inst. in science and in legal matters not to mention something as mundane as the passport photo. On the other hand, inter-

pretations plays a big role too. Just think of the caricaturist with his canny ability to make a couple of casual pen strokes who everyone then instantly recognise as George Bush or Dalai Lama. So it is also quite obviously that by employing some very simple artistic effects can result in recognition and effect just by taking advantage of the way our brains and eyes deal with information.

### Artistic license

We accept artistic expression and interpretations and the pictorial arts from photography, graphics and painting covers the whole spectrum from absolute realism and documentarism to the completely abstract.

So what does all this theoretical babbling got to do with our holiday snapshots and underwater footage? A great deal. As digital



photography is now gradually taking over the whole arena, giving everyone a chance to ..erh.. take a shot at shooting pictures underwater it has also given everyone with a computer access to toy around with manipulating images at home using some

photo editing program of which some come free with the printer or scanner. Nowadays everyone can cut and paste images, move picture elements around like furniture in a room and paint mother-in-law green in her face. This is already yesterday's news.



And what a wonderful toy it is. So let's go back to that opening question. Is this cheating? No it is not. It is options and possibilities. Cheating in this context would be withholding from the audience essential information about how this picture came to be and claiming something else. We know that a drawing, a painting or a collage is an artistic expression and interpretation but we would also like to trust that the documentation is not fake and that the press photo hasn't been manipulated.

Likewise with your holiday snapshots and underwater photos. A pink dolphin with green eyes might be a fun picture – if not just lack of taste. But don't claim that you saw such a creature on your

morning dive unless you really did have a close encounter with a hitherto unknown species of the *Dolphinus* genus and are ready to substantiate your claim. You don't always have to state that your image is manipulated, however – sometimes it goes without saying.

I am a big proponent of image manipulation as it gives me so many possibilities to create impressions and to make use of the whole pallet of options. This doesn't mean that all pictures should be treated. Sometimes the natural picture is best, given or just appropriate. It depends on what we want to achieve and what we want to use the images for.

I discern between three "classes" or levels of treating images digitally.

1. Repairs and retouche.
2. Enhancements
3. Art

### 1.Repairs and Retouche

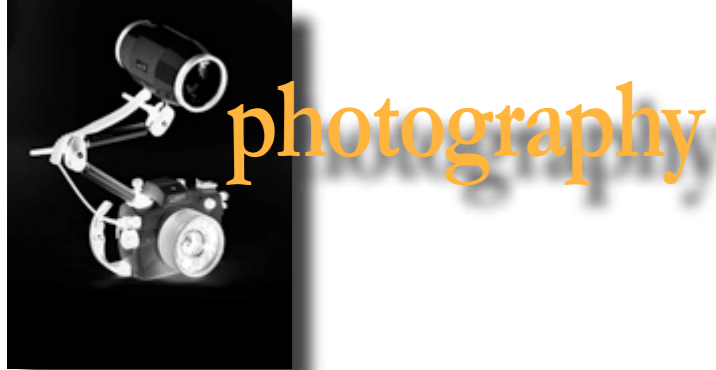
This is a very old discipline, probably as old photography itself. It just got easier, having computers at our disposal. Repairs and retouche is something that you



# Is it Manipulation?

the art of making pictures better





# photography



Figure 4 - The original is dull and grey



Figure 5 - mask



Figure 6 - Gently touched up image

Fig 2 and 3. Using the Rubberstamp tool to blot out blemishes



the scratches and blemishes so they blended into the background. Doing portrait photography one would often also enhance the looks, removing skin blemishes once you were at it anyway. And what do you know

– it seems that we are already enhancing reality and pretending it is something else.

## Cloning

Removing dust and scratches is not bettering reality, however. It is repairing the reproduction. On the computer we can either use a number of software filters, or by "cloning", which is the preferred method, although a bit more laborious. By cloning, we copy from area of the picture without blemishes. The big picture in the previous pages is the original scanning of our sample picture.

There is a lot of dust on it. On fig 2 and 3 are shown how the Rubberstamp is used – this is a tool in many software packages – by which colour is transferred from one area to another. In this case to overlap the dust particles. The main

issue with this technique is finding the right area (colour) to clone from, so the end result doesn't stand out as a dark or light spot.

"Remove dust & scratches" filters does come with many of the image-editing software packages, which offer a temptingly quick click-a-button solution to the problem. But there are no such thing as free lunch here either – these filters are not intelligent enough and will also soften and blur every other fine line and structure in the image. As always, it is the good old fashioned manual methods which give optimal control and hence the best results. It does, however, takes longer time but if the picture is going to be used in some kind of presentation the extra effort is just something that goes with it.

## How to...

Use the inbuilt magnifier function so you can see all the details and scroll through the image in a grid patters, and remove dust and scratches. The bane of all underwater photographers, backscatter and sand particles, can also be removed or reduced this way.

## 2. Enhancements

Moving into the transition zone. From our basic scuba training we know that we lose colour with depth and consequently the resulting pictures often look flat and monotonous – unless

we bring a light source of our own, such as a flash. We often also experience a haze stemming from particles in the water. In these instances a little toning up may be called for. Figures 4 and 6 shows the basic idea. On fig 4 we have the original scanning – and yeah, it is rather dull – and on fig 6 have touched the wee goatfish up to match my memory of the encounter.

## What did I do here?

First, as always, dust etc has been removed to clean up the image as describe above. Then I subdivided the image into three parts I treated differently. The three parts in question is the body of the fish, the eye and the background. To treat these areas separately we have to mask them off – like when we spray paint something, see figure 5. In your image-editing software there is various functions to create such masks. Their function is to delimit whatever controls and filters to a selected area of the image. Tracing the contour of the area with the mouse I outline the mask and save it as separate image layer

I first made a little mask for the eye (not shown). It is important that the eye stands out clearly and sharply. Cloudy areas in the iris was blotted out, the contrast enhanced and the lens made darker by reducing the mid

Figure 7 Channels (Red, Green and Blue) and a mask in Photoshop. Think of these as a stack of slides that can be combined and coupled in various ways



tones. This created a clear gaze. Activating the mask shown in fig 5 I then started working on the body. The yellows and reds were strengthened and the mid tones enhanced to produce better saturation of the most important colours. Inverting the mask to working on the background, by contrast, the blues and greens were enhanced to create depth and pull out the difference between the fish and the background. It is important to apply these adjustments very conservatively. A little too much and the whole scenario will look artificial – like old Technicolour movies

Finally, the whole image was artificially sharpened by applying the strangely named function "unsharp mask". Obviously we can't really make picture sharper



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# photography

Figure 9 - then we colour the details, by dodging or burning in the colour channels



Figure 10 - tinting the background bluish by gently applying the filter Variations



Figure 11 - adding effect filters (lens flare etc) and touching up details.



Figure 12 - A final cropping and Hey presto!

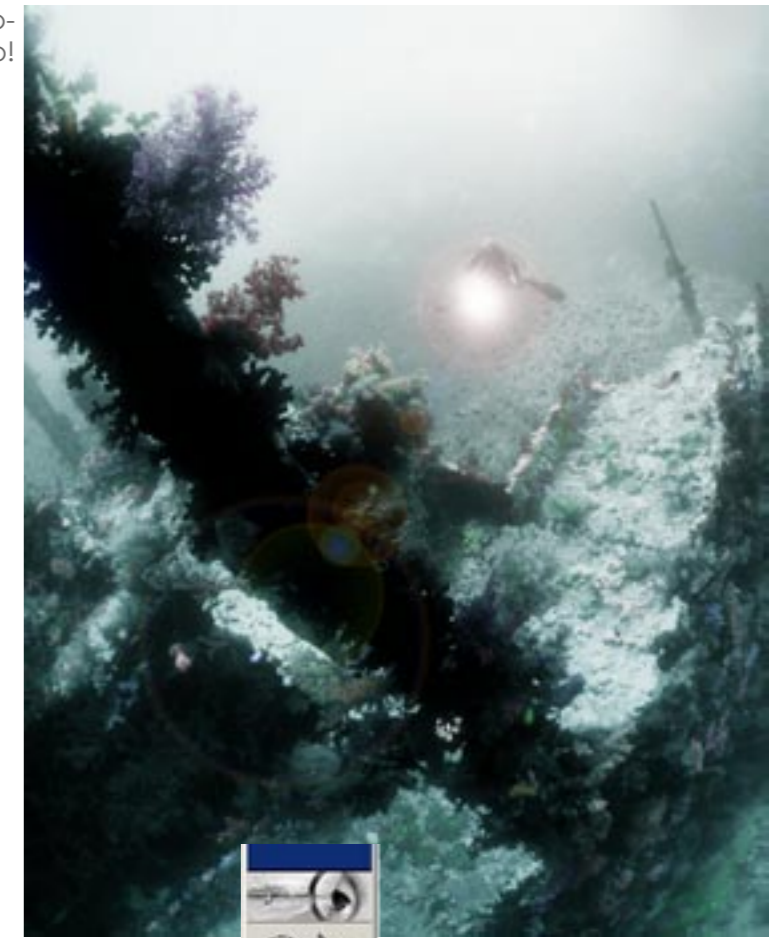
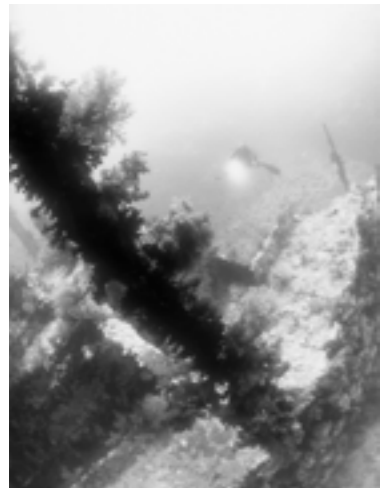


Figure 8. First, we crop



but we can create an effectful illusion by enhancing contrast along lines and edges, which makes the image stand out more crisply. Needless to say this is also something that can be overdone, and the filter needs to be applied gently.

### 3. Art

The category where everything goes. Let's continue with our black and white photograph. On fig 8, the picture has been

cropped a bit to improve the composition, by getting rid of a lot of empty water. But let us also take the fun a step further by applying some colours. One of my favourite techniques is to recreate the ambience from the early hand coloured paper prints. Taste is, needless to say, a subjective matter, so just take this as but one example of what is possible. As with many other techniques it has taken a while to hone, so the key is to

perform your own experiments and take inspiration from other sources.

First, the image is converted from greyscale to RGB colour. This doesn't make the picture a colour image to look at, but out of the one original greyscale channel, it creates three identical colour channels ("colour layers")—one for the Red, Green and Blue composite of a (RGB) colour picture. So far, each one is identical to the original grey

one but once we start making them differ the composite image also changes. See figure 7 for how the three channels look - the resulting composite picture on the top makes up the image.

### The trick

The trick is *not* to work in the composite image - as we usually do with our image-editors - but in the individual colour channels. By darkening or light-

ening areas in a colour channel, for example an object in the image, it changes colour in the composite image. That is how the colours on image 9 appear. The tools we use for this are *dodge, burn and sponge*. See figure 13 and 14)

Select an appropriate diameter for the tool and start carefully dabbing the area or object you wish to colour. Applying dodge, burn and sponge will respective-

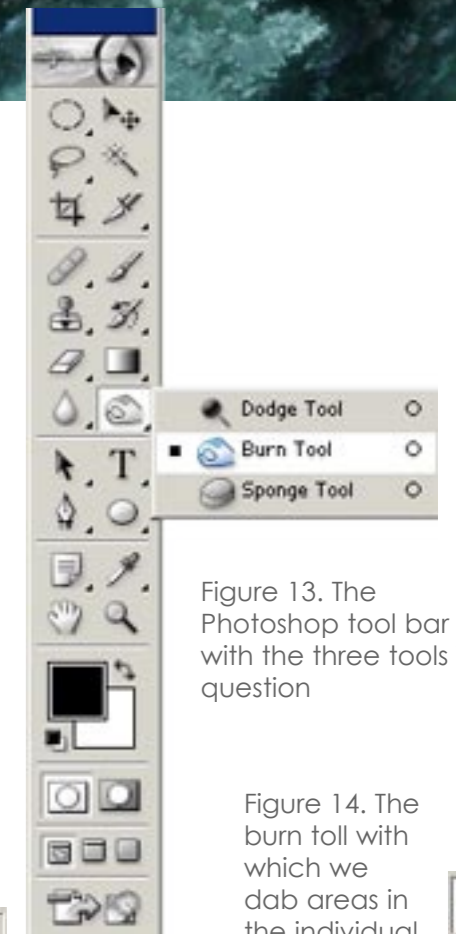


Figure 13. The Photoshop tool bar with the three tools in question

### Why not use Auto Contrast Auto Colour and Auto Levels?

Why bother correcting images manually when there are a number of automated functions that seems to do the trick? Because they often degrade the image in the proces. Below is greyscale. It is actually

not the entirely smooth gradual transition it looks like but 256 tones of grey. A greyscale image is represented by 256 tones and a (RGB) colour image is likewise composed of 256\*256\*256 - once for each colour giving ~1.7 million possible colour combinations. In a way, in Photoshopm a picture is nothing but a huge table in which each pixel is represented by these 256\*256\*256 values.

### The histogram

A histogram (see figure 15b) shows which values are represented in the greyscale image or, in the case of colour images, which values are reprinted in the Red, Green and Blue channels respectively.

Now, on a picture that is correctly exposed or scanned, most values should be represented along the scale, the values to

the left are the shadows and those on the right are the highlights. If the values are missing at the end it means that either the motif lacks shadows and/or highlights - or, more commonly, the reproduction does and it looks dull. What the

Auto levels or Auto contrast function do is just to stretch the histogram. Thereby all the values shift in a somewhat degrading process that does not ad any new info to the image. The result is the characteristic jagged histogram below. ▶

Figure 15a. Greyscale

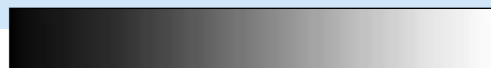


Figure 15b +c. Histograms

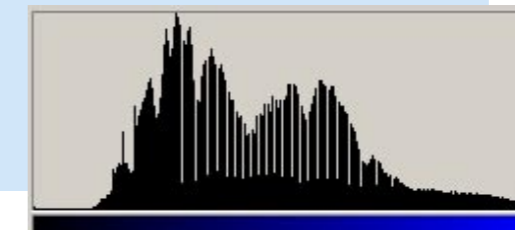
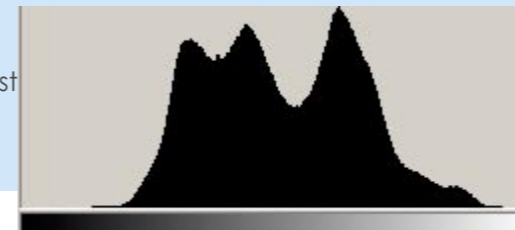


Figure 14. The burn toll with which we dab areas in the individual channels to produce the above effects



(By the way, the blue bar, under figure 15c shows that this histogram represents the Blue channel in a colour image)

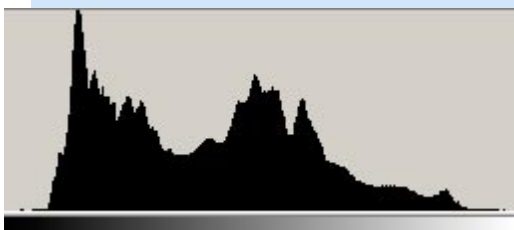


Figure 15e. A "healthy" histogram showing values across almost of the greyscale, typical of a correctly exposed picture of most "real-life" subjects.

### What to use instead

There are a number of options available, which all have that in common that they enhance what is already there or add something.

One good tool is *Curves* which can be used to enhance the spectrum in selected areas, yet in a smooth way. This method is non-destructive and, in principle, reversible.

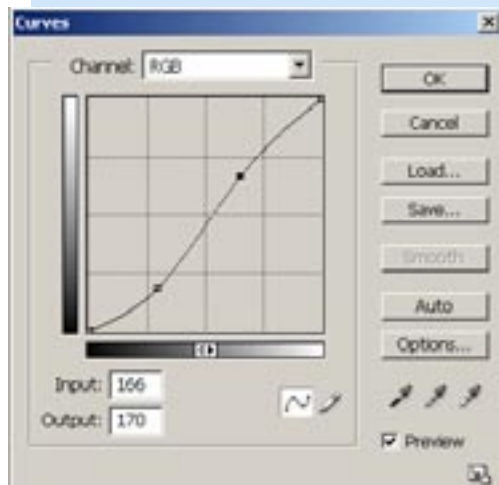


Figure 15d. The *Curves* menu. Drag the curve in the middle and see how certain parts of your image gets stronger or attenuated

Another good, and easy, tool to experiment with is *Variations* which tint the whole image gently—see the transition from figure 9 to 10.

Figure 16. RGB colours revealed. This is a close-up photo of a computer monitor. See how every colour is blend of Red, Green and Blue pixels lighting up at various intensities (256 for each colour)



ly lighten, darken or weaken the colour. Experiment! If you activate the little eye symbol at the composite channel you can follow the overall result while working in just one channel. Find another object, choose another channel and another tool and see what happens then. By applying this dabbing technique I turned the black and white picture on fig 8 into fig 9. So far, so good. But isn't the background a little dull too?

### Doing the background

To get to figure 10, I darkened the lower left corner by enhancing the midtones here but only in the blue channel whereby the overall ambience turned more blue and sea-like. On figure 11, I applied the "lens flare" filter to enhance the diver's torch. And finally, to get to the end result in figure 12, I cropped some more of the top to get rid of some light water. Voila!

The motif, by the way, is the wreck on Brothers Island (Red Sea) taken on Agfa Scala 200, the black and white slide film.

### And the conclusion is...

Image manipulation is definitely ok—as long as we honestly declared that we have done so and are not deceptive. It can often make an image much more exciting, though chasing effects for effects own sake is meaningless. Do it with a purpose. Use effects and style to convey a certain interpretation of reality. In essence say "try and look at this situation, subject or scenario this way". Think of what Vincent van Gogh did. His images are not realistic in a photographic-naturalistic sense. But what a punch they pack!



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