Layer Magic

It was in 1994 when Adobe introduced layers into Photoshop 3.0 - and a whole new world of artistic freedom and design possibilities has opened up. Today, ten years later, it is difficult to imagine working in Photoshop without layers.

The concept is simple, so simple indeed that it is covered in any beginner's course. It is like having a stack of papers, each sheet with its own image. We look at the top sheet, but we can make individual layers invisible, change the order or reduce the opacity, making the layer more or less transparent.

However, there is a lot more we can do with layers. For example we have control over the way the individual layers interact with each other - the Blending Modes. These controls are often puzzling, even to the experienced Photoshop user. This article will describe the various blending modes and illustrate them with a few important applications.

Blending Layers

What are these blending modes? They simply tell Photoshop how the pixels in one layer interact with the pixels in the layer underneath. Before we dive into the various modes I want to clear up the difference between 'Opacity' and 'Fill', to be found on the top right of the layer palette:

- **Opacity** sets the opacity for the image on the layer, plus the layer styles
- **Fill** only affects the layer pixels, leaving the layer effects unchanged.

The blending modes are also part of many tools, e.g. the Paintbrush. In fact, it makes sense to become familiar with the various modes by doing some painting. For instance, if you paint with a red colour in 'Darken' mode, only the underlying image pixels that are lighter than the paintbrush colour will be darkened with the red colour. On the other hand, in 'Lighten' mode, only pixels darker than red will be lightened by the red colour.

For a brief description of all blending modes we go back to the layer palette.

The Blending Options

For better illustration I use an example of a blue sphere blending with a red gradient background. The limited space only allows us to show a few examples.
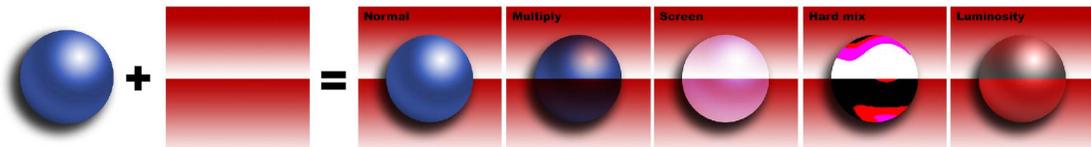
Independent Modes - these will replace the underlying pixels with the overlying pixels, at 100 % opacity.

'Normal' (the default mode) will blend the two layers according to opacity.

'Dissolve' will randomly replace underlying pixels with the pixels of the top layer. This can produce anything from a speckled paint to a sandpaper effect.

Darken Modes - As the name implies, this group will in general give you a darker blend. White will disappear from the top layer and anything darker than white has the potential of darkening the image underneath.

The 'Darken' mode compares the active (top) layer to the underlying image, only allowing the areas that are darker than the underlying image to show up.

The 'Multiply' mode multiplies colour values, which is similar to printing an image on top of another. In fact, blending the primary additive colours (cyan, magenta and yellow) will give us the primary subtractive colours (red, green and blue).

'Linear burn' and 'Colour burn' work similarly to Multiply, but have a stronger effect. The effect can be similar to applying the burn tool. The 'Colour burn' not only darkens, but will also increase the colour saturation of the underlying image.

The **Lighten Modes** will do right the opposite of the previous lot. Any black on the top layer will disappear from the top layer and will leave the underlying pixels unchanged. Anything lighter than black has the potential of lightening the layer below.

The 'Lighten' mode looks at the colour information in every channel and selects the colour of the top or bottom layer (whichever is lighter) as the result colour.

The 'Screen' mode is like projecting two images onto the same screen.

'Linear Dodge' works in much the same way, only more forcefully, making it easier to end up with solid white, while 'Colour Dodge' not only lightens, but also increases the saturation.

The **Contrast Modes** combine corresponding Darken and Lighten modes. In all these modes 50% gray on the top layer will leave the bottom layer unchanged. Lighter areas will lighten, darker areas will darken the result. The changes depend on the particular blend mode and the opacity setting.

'Hard Light' is a combination of Multiply and Screen with 'Soft Light' being is a somewhat mellower version.

'Linear Light' is a combination of Linear Dodge and Linear Burn, whereas 'Vivid Light' is a composite of Colour Dodge and Colour Burn. 'Pin Light' combines Lighten with Darken.

'Hard Mix' is new to Photoshop CS and is the odd man out. It will posterise the underlying layer into only 8 colours, depending on the opacity setting.

The **Comparative Modes** compare the two layers and highlight any differences. Areas which are identical in both layers will turn black. 'Difference' and 'Exclusion' are very similar, but the latter will maintain areas of 50% gray in the active layer as 50% gray.

The **HSL Modes** will break up the colours in the active layer into three parts: Hue (the basic colour), Saturation (colour intensity) and Luminosity (brightness).

'Hue' will apply the basic colour of the active layer to the underlying image, without changing saturation and brightness. 'Saturation' and 'Luminosity' work similarly.

'Colour' applies the colour of the active layer to the brightness of the underlying image.

Layer Blending in Practice

Don't worry if you haven't got your head around all the blending modes by reading this far. The best way of exploring them is to experiment.

The important points to remember are: 'Multiply' builds up density, 'Screen' reduces it, 'Soft Light' increases the contrast, 'Colour' changes the colour balance without affecting luminosity and 'Luminosity' allows you to sharpen images without the dreaded colour fringes.

Blending modes can also be applied to an adjustment layer - any adjustment layer - with no adjustments. This is equivalent to duplicating the image layer and applying a blending to the duplicate image. For example, take an image that lacks in contrast, apply any adjustment layer and click OK. Nothing happens, as expected, but changing the blending mode to 'Overlay' or 'Soft light' will make the dark areas darker and the light areas darker, thereby extending the tonal range on both ends. If the effect is too harsh then simply reduce the opacity.

Using an adjustment layer instead of duplicating the image layer has the obvious advantage of keeping the memory requirements to a minimum.

Example 1 - The original image of Bird Island does not convey the striking contrast of the approaching storm and the almost white sand. Applying a 'Multiply' blend at 40% opacity restores the dramatic effect of the original scene.

Example 2 - The African bride looks washed out, but trying to fix this with levels alone would drown out some important details in the dark skin tones. A 'Soft light' blend brings a marked improvement, adding life to this lovely portrait.

Example 3 - Here I shot a couple of apples in a very boring light setting. Let's see if we can improve this by accentuating the highlights. First I took the green channel, which had the most details, and copied it to a new layer on top of the original image. Then I increased the contrast of the new layer with levels and applied a 'Pin light' blend!
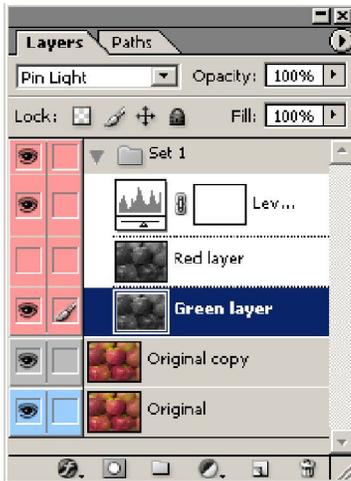
The 'Difference' blend mode comes handy when stitching panoramas or multiple scans of one image. Hopefully there is a sufficiently wide overlap between the individual images. By putting them on separate layers and changing the blend mode to 'Difference' the matching areas will show up in black, making the exact alignment a lot easier.

Another important application was already mentioned as a sharpening technique without using the Unsharp Mask filter (The Photographer's Mail Vol 13 no.3): Duplicate the image layer, Select Filter > Other > High-pass (radius 2-10) and change the blending mode to 'Overlay' or 'Soft light'. This technique is ideal for those images with no sharp edges, where the USM filter would only highlight the film grain and camera noise.

Needless to say, the possibilities are endless, especially when we start to bring in the various filters. I hope that this brief introduction will have wetted your appetite sufficiently to pull out some of those forgotten images and add some layer magic!