INCREASING DYNAMIC RANGE

Where a scene contains a very great range of brightness, sacrificing the shadows may be one option, but it isn't the only one. If the camera is mounted on a tripod, another approach is to take a matching pair of images and marry them later in Photoshop.

EXPOSING TO THE RIGHT

"Exposing to the right" can easily capture an image that, for all its wonderful highlight detail, is unusable because of the problems in the shadows. Once on your computer screen, the blacks may well be indistinguishable from the darkest midtones. You might try boosting the shadow contrast with Curves or Levels, or Photoshop's Shadow/Highlights adjustment, but there would always be a danger of posterization problems. Even if you work in 16-bit mode, you could end up doing all sorts of laborious masking and other work to rescue shadow detail.

Above: This frame was "exposed to the right." Its highlight detail is great, but the standing stones are in deepest shadow.

REGROUPING

Another post processing workaround is to make two differing conversions of the RAW file, and sandwich them together. Alternatively, Adobe Camera Raw and other RAW converters now have sliders for "fill light" which can detect shadow areas and lift their brightness and contrast. So instead of sandwiching two conversions, more can be achieved in the RAW converter itself at a single pass. But you are still working with limited image data about the shadows.

Left: It is often not an option to lift the brightness of shadows in an image that was underexposed to protect highlights—the digital noise can be horrendous.

Left: A second frame is exposed to record shadow detail. This received an additional three stops.
While black and white often lets you get away with blocked shadows, a great solution is to blend bracketed exposures. With the camera on a tripod, meter as usual and shoot a pair of shots of the scene, changing only the exposure between frames. One frame is “exposed to the right,” with the highlights fully captured and the shadows left to look after themselves. The other is usually exposed according to the camera meter, blowing out the highlights. The two can easily be matched up in Photoshop by holding down the Shift key as one image is dragged onto the other (or using the Photomerge tool). The final image contains the highlight elements from one, and the shadows from the other. The dynamic range is at least as great as film, and nor does it challenge too many scruples about manipulation.

Left: The key to the finished image is in the bottom two layers. The sky was masked out of the overexposed frame, allowing the correctly exposed sky to show through.

Below: Sandwiching exposures increases your camera’s dynamic range, and provides the viewer with interesting detail throughout the frame.
COLORED FILTERS: NOT FORGOTTEN

We are only a decade or so into the digital era, and one misconception is that colored lens filters might still be useful to shoot black and white with a digital camera. This is a mistake. For one thing, we’ve already seen that you have a lot more creative choice if you convert the color image to black and white on computer. Even if you shoot in RAW format, a filter will give you an image with a strong color cast that is very likely to restrict what you can do at the black-and-white conversion stage, and will certainly prevent you from making straight color prints from the same frame. And if you are shooting JPEG-only, then there’s no chance at all of making a color version since the camera will only save the black-and-white image. Even if you never actually make color prints, why throw away the versatility that color capture provides?

LENS FILTERS: COLOR CASTS

Newcomers to black-and-white photography are often surprised to learn how integral colored lens filters have been to the art. Made of optical glass or resin, the filter allows light of the same color to pass through the lens, while interrupting other colors. This principle gives the film photographer lots of control. For instance, a red filter blocks green and blue, and so it might be your choice if you wanted to darken how a blue sky appears in black and white. Alternatively you might screw a green filter onto the lens if your intention was to brighten foliage and make more tones apparent in a landscape.

Experienced black-and-white film photographers would typically carry a selection of various filters—reds, oranges, yellow, blues, and so on—and entire books have been written on the subject.

Left: A huge variety of colored filters is available for contrast control with black-and-white film.

Left: An orange filter would darken skies and make clouds stand out on black-and-white film, but in the digital age it removes color, leaving this much information to work with.

Right: A color image can be easily converted to appear as if shot on black and white with an orange filter.
Another reason why colored filters are not suitable for digital photography relates to how digital cameras capture images. The sensor consists of a grid of light-sensitive cells. These are usually laid out in patterns of four, two of which record green brightness values, and one each for red and blue. In the camera if you are shooting JPEG, or later on computer for RAW files, this capture data is “demosaiced” to a grid where each cell or pixel has red, green, and blue values. Broadly speaking, a colored lens filter would block light from some of the light-sensitive cells, so a red or blue filter would mean that only three-quarters of the cells were being used, while a green filter would cut that to half. This is often enough to degrade the image quality and at worst can cause bitty artifacts in smooth-toned areas.

But most of all, it is simply not necessary for digital. The underlying principles of light filtration are unchanged and still relevant. It’s just that they apply not when the light enters the lens, as with black-and-white film, but later when you convert the picture to black and white and manipulate the red, green, and blue channel values. If you are shooting JPEG-only, this occurs as the camera processes the capture data and creates the JPEG, but if you are shooting in RAW format, the conversion step occurs later in the digital darkroom. Colored lens filters are no longer needed for shooting black and white with a digital camera, but if you can find a copy of Ansel Adams’s classic The Negative, take a look at the use of colored lens filters—the underlying artistic principles remain relevant and translate directly into the language of the digital darkroom.

Above: In Photoshop, make the pictures black and white and zoom right in. The orange-filtered image is much noisier than the raw color version.

Above: Digital sensors consist of a grid of photocells, each sensitive to one color channel.

Above: Shooting in RAW and in color allows much more creative flexibility. For the final image, two channel filtrations were used to make the picture black and white, like using yellow and red lens filters for different parts of the frame.
FILTERS FOR DIGITAL BLACK AND WHITE

A filter is optical-quality material, usually glass or plastic, which is placed over the lens and affects how light reaches the film or sensor. Glass filters tend to be more expensive and screw directly onto the lens, meaning their thread or diameter has to match. Resin or plastic filters slot into standard-size holders which are then attached to the lens using adapters for each thread size, so this is much more flexible if you have a few lenses. Some lenses, like ultra wide-angles, only take gelatin filters which slide into slots at the rear of the lens. There is a wide variety of filters to choose from.

As we’ve seen on pages 30–31, colored lens filters belong to the film era, so that’s a whole lot fewer lens filters to weigh down your camera bag. But what filters remain valuable for the digital black-and-white shooter?

FILTERS: GRADUATED

“Neutral grads” are filters that are graduated from gray to clear. The gray half darkens that part of the subject by 1–3 stops without altering its colors. This is useful when the sky is bright in relation to the landscape and it lets you render detail in all areas without over-exposing or “washing out” the sky. It is perhaps worth having a neutral graduated filter just in case, but if you are using a tripod, it may be as easy to bracket a couple of shots and match them up later in Photoshop.

FILTERS: NEUTRAL DENSITY

Neutral density filters simply cut down all light entering the lens, “neutral” signifying that they affect all wavelengths uniformly. Since less light is reaching the sensor, you need to keep the shutter open longer to achieve a correct exposure, so their biggest use is a creative one. They allow you to use a much slower shutter speed than you would otherwise.

While the neutral density filter remains useful, there’s a limit to the amount you can carry and the polarizing filter can be a fine substitute in many circumstances. It is effectively a 2–2.5-stop neutral density filter. To use it, set the lowest ISO value, stop the lens down to f22, and attach the filter—this can often be enough to produce motion blurring or water and other moving objects.

Below: Use a neutral density filter and a small aperture to blur water—this exposure lasted 2 seconds at f22.
FILTERS: POLARIZING

There's little dispute that, for film or digital, polarizers are by far the most useful filters and it's worth spending a little more for good quality.

The polarizing filter is actually a pair of filters that prevent unpolarized light from passing through the lens. Reflected light is unpolarized, so the filter means the camera captures fewer reflections off surfaces such as water, glass, polished wood, and leaves. As a result, these objects' colors are richer and more saturated. Sunlight also reflects off particles like mist and haze, so the polarizing filter makes skies bluer and makes clouds stand out.

The strength of polarization changes as you rotate the filter's top layer. It is also affected by the type of light and by its direction, being strongest when the filter is at 90 degrees to the sun. Sometimes the color saturation effect is overpowering, or the filter can cut out attractive reflections, so you need to decide for each shot whether it should be used and to what degree.

The loss of reflections can be particularly important for black and white. Without them, colors may be more saturated but that doesn't necessarily improve the picture's appearance and isn't relevant for mono. There's always a danger that a polarized image will appear dull and lifeless.

Polarization can make the sky look uneven and the make parts of it too dark. This is something to watch out for, especially with wide angle lenses.

Also remember that because the polarizing filter reduces the light reaching the sensor, your exposure needs to be longer. While the camera's metering system will handle this for you, generally you lose 2-2.5 stops and for some shots this will mean you may have to use a tripod. It is effectively a neutral density filter too.

But these are disadvantages are minor by comparison with the polarizing filter's huge value. Many photographers gladly carry one polarizer for each lens thread size.

TIP
Always watch out for dark corners when you shoot with a filter. This may indicate that the filter is vignetting the image and is unsuitable for the lens.

Left: The polarizing filter eliminates reflected light. Clouds stand out more in blue skies, and here different shades have been brought out in the sea.

Above: The polarizing filter remains as useful in digital as it is in film photography.

Right: The polarizing filter captures richer colors and usually makes it easier to render more detail in the black-and-white image.
Digital Infrared Capture

Infrared photography has long been an interesting creative niche in the black-and-white medium. It should not be confused with night vision or thermal imaging, where heat emissions are captured. Instead, the infrared photographer usually works in daylight and uses a lens filter to eliminate the visible wavelengths of light, so the sensor only records light from the infrared part of the spectrum. One of the great things about it is that after the warm early morning light has disappeared, you can switch to shooting infrared and make the most of sun that is directly overhead.

Another important distinction is that here we are talking about capturing infrared light directly with a digital camera, not simulating the effect in Photoshop. A simulation, like the one demonstrated on pages 128-131, starts with a visible-light picture and makes it look like it is infrared—turning the sky near-black, brightening foliage, and so on. Infrared photography, on the other hand, captures light that we cannot see, and so it often records things that would not have been in a regular photograph of the same scene. For instance, infrared light isn’t reflected off water in the atmosphere, so mist is simply not recorded in the infrared capture, which consequently reveals cloud patterns and distant objects that would not have been in the visible-light photograph.

Shooting infrared with film meant loading and unloading the rolls in complete darkness, often with your hands inside a changing bag. By contrast, digital infrared is so easy you can shoot one frame conventionally and the next in infrared. There are essentially two choices: having your digital SLR modified so it captures infrared, or seeing if you can use your existing camera with an infrared lens filter. The first approach permits shutter speeds high enough to hand-hold the camera, but it’s costly and means dedicating the camera body to infrared. The second approach usually means much longer exposure times and forces you to use a tripod. This isn’t a bad thing—it opens up fascinating creative opportunities to blur moving objects like clouds and produce a distinctive digital infrared style very different from film-based infrared photography. Whichever approach you take, it’s faster and much more satisfying to achieve the infrared look in-camera than to fake it in Photoshop.

Below: Infrared captures are fundamentally different from visible-light photographs. Here the infrared exposure was so long it blurred the water and the boats. It also shows the power station over the estuary that wasn’t in the visible-light picture (below left) shot at the same time.
Digital cameras are not all equally good at capturing infrared light. Infrared (IR) degrades the quality of the regular image, so camera makers have good reasons to add anti-IR filters to the digital sensor. Their effectiveness varies, not just between camera makes but between models. For example, Nikon used to have less effective IR filters than Canon, and so were generally better for infrared photography, but more recent models have been trumpeted as having reduced IR sensitivity. One person’s feature is another’s disappointment.

While your camera manual may specify your camera’s infrared capability, it’s easy to work it out for yourself. Set your camera’s exposure mode to Manual and use the Bulb shutter speed so you can hold the shutter open for a few seconds. Then, in darkness, release the shutter and fire an infrared remote control—like the one for your TV—into the lens. Check the LCD and see if the sensor has captured an image.

Once you know your camera can capture infrared, you need an infrared filter over the lens. These are made of glass or gel and block light from the visible spectrum so that only infrared wavelengths reach the sensor. Many brands are available, and they vary in strength and the wavelength above which they begin to permit light. Infrared light’s wavelength is over 700 nanometers, and the higher this value, the purer the infrared capture and the less visible light will be recorded.

This infrared filter fits into a filter holder while others are available which screw directly onto the lens.

The infrared filter usually gives photographs a weird red or purple color. You can eliminate this in Photoshop or you may save post-processing time by setting your camera to shoot black and white. If your camera has no black-and-white mode, try setting a custom white balance. How you do so varies, so check your camera manual, but usually it’s a case of shooting a mid-gray subject through the filter. Once you’ve set up the preset, the camera will capture a black-and-white picture, though a slight color cast often remains.
Unless your camera body has been converted for infrared, IR photography usually means using a tripod. This is because most digital cameras need such long exposure times for infrared, often many seconds, and you can’t hold the camera still for that long. Equally important is the fact that the infrared filter is so opaque that you can’t see to compose the picture, even if your camera has an electronic viewfinder. So mount the camera on a tripod, frame the shot and focus, and then attach the lens filter.

It’s also a good idea to stop down the aperture. This is because infrared light focuses at a slightly different point to visible light and a smaller aperture’s greater depth of field will counteract this difference. A second aspect is that there are good creative reasons for setting a slower shutter speed and having greater depth of field. At f/16 or f/22, digital infrared exposures may last 30 seconds or longer, so you can blur water and moving objects and this creates a digital infrared effect very distinct from film infrared. Here the exposure was a minute, giving the clouds time to move across the sky. Notice too how well a Lith effect works with infrared.

If you use an SLR, there is a danger that visible light can reach the sensor through the eyepiece, and this can easily overwhelm the infrared light. Some cameras have a switch to close the viewfinder, or add an eyepiece cover. You won’t have this problem if your camera doesn’t have an optical viewfinder and you use the LCD to compose the picture.

Digital infrared exposure is slightly tricky but it’s easy to follow a “plan-do-review” cycle. For your first infrared captures, use the camera’s automatic setting to determine the exposure, and then review the captures carefully on the LCD—the histogram can quickly tell you how much you need to adjust the exposure. You will probably need to make a few tests before you can decide how it responds to infrared.
Most of the work is done by the time you press the shutter. If you have set a custom white balance, you may just need to desaturate the image in Photoshop and remove any remaining color casts. Also hot pixels may be visible because of the long exposure, but these can be fixed easily with Photoshop’s Spot Healing Brush tool or by using Adobe Camera Raw 4’s spot healing feature.

Here, Adobe Camera Raw picked up my custom white balance but this infrared capture still has a slight color cast. I can drag the Saturation slider to -100% and quickly make it pure black and white.

Digital infrared is so easy you can take one conventional image, adjust the exposure, add the filter, and shoot the next frame in infrared. You can then stack the two images in Photoshop and apply the Color blending mode to the color image. It’s a technique I like to call the “infrared sandwich.”

Below: Classic infrared subjects include various shades of foliage, and interesting skies with broken clouds. Notice that the digital infrared picture doesn’t have the glow or graininess typical of infrared film photography.
THE DIGITAL DARKROOM 1
CONVERTING TO BLACK AND WHITE
Photoshop's black and white functionality has "history." Every year or two, a new version of the program provides tools that make better techniques possible or practical. Layers of tutorials accumulate over time. An outdated method might be recycled in a new-looking web site, or a convincing commentator in an online forum might not mention he uses an old version, or may even be so stuck in an earlier era that he sees no need for today's best practice. You can spend forever working out what belongs in which era of development, what's old and best forgotten, and what's the best way for you to work.

In the following pages, we are going to try to make sense of this accumulated knowledge and examine some of the many techniques for rendering a color image as black and white. The older ways still produce quality results and won't be ignored, but they also have disadvantages in terms of flexibility and creative expression. We will then examine how more modern methods exploit the information in the image's color channels, using adjustment layers and masks, so the final image is the best black-and-white treatment you can achieve.

**GRAYSCALE**

There are some very simple ways to make an image black and white, and none is simpler than Image > Mode > Grayscale. This changes all pixel values in the file to grayscale values. Photoshop examines each pixel and takes 59% of its Green channel value, 30% of its Red and 11% of the Blue, so a dark bluish pixel which has an RGB value of 35:35:82 will become 58. This ratio comes from an assessment of the average color responsiveness of the human eye, so the results are pretty average too.

It is quick, and the resulting file will take up less disk space since all the color information is discarded. On the other hand, once you save and close the file, the image's color values are gone forever, so you can never adjust the black-and-white conversion. In other words, this method isn't very flexible and gives you no creative control over the black-and-white conversion.
Another easy method is to use Image > Adjustments > Desaturate or Ctrl/Cmd+Shift+U, which simply discards the image's saturation value. You can produce the same results by adding a Hue/Saturation adjustment layer and dragging the Saturation slider all the way to the left.

Like the Grayscale method, it's a "one size fits all" approach, but it also ignores how the eye responds to colors. Again, the absence of creative input means this is one to avoid.

The Gradient Map method maps a monochrome gradient to the image's luminosity values. First reset Photoshop's colors (D) and then add a Gradient Map adjustment layer. Adjusting the Smoothness slider controls how the gradient relates to image luminosity, while other sliders change the gradient's brightness range. In effect, the Gradient Map method lets the user adjust image contrast while also making the image black and white, and perhaps that is behind its cult status on the forums that is otherwise hard to explain. While you can get decent results, you're also ignoring the color channels and losing their creative potential.

Above: The destructive methods can all produce good results but their "one size fits all" approach means there is no scope for creativity. They are best avoided.
DESTRUCTIVE TECHNIQUES

MATCH COLOR

Although this tool is really designed for matching colors, like skin tones, across a number of images, it can be repurposed for an unusual destructive monochrome conversion. There are two ways the tool can be taken advantage of, depending on the outcome you’re looking for. The simplest, for example, is to use it only in reference to the image you’re working on, and dial down the color intensity. That might sound identical to desaturation, but instead of removing all the color a duotone-like effect is created, using the image’s predominant color to create the tone. The result is dependant on the image you start with, but it can be quite pleasing.

The second way of working with Match Color, at least for our purposes, is to take advantage of its ability to work from other source images. If, for example, you’ve found an image with color tones that you like, then simply select it and perform the same reduction of the Color Intensity setting. This trick can be applied to more than one image, giving them matching duotone-style conversions.

1 Select Image > Adjustment > Match Color. A dialog will appear with two distinct sections, Image Options at the top and Image Statistics at the bottom. To use the existing color from the image, simply slide the Color Intensity slider to the lowest possible value and click OK.

Alternatively, if you’re interested in using the color from another image, then before you click OK choose it from the Source drop-down. It’s also possible to save your favorite statistics.

Left: The original image, which has a high concentration of red.

Left: The resulting image from the simple Color Intensity reduction method.

Left: An alternative treatment, using the color tones from the lake image.

Left: The lake image has a more subtle blue/green feel, but that still has an effect if converted using the one-step method.
The Lightness method involves switching the image’s color mode from RGB to Lab, which records the brightness and the color values separately. The color information is then thrown away, leaving just black and white. Like the other basic methods, Lightness is a destructive technique, changing pixel values permanently. The color information remains in the History palette, but is lost when you close the file. If you want to fine-tune the conversion, you have to go back to your original photograph. Lightness also applies to the file as a whole, and offers no opportunities to use the individual color channel values to control how individual tones and areas are converted.

Select Image > Mode > Lab Color.

Another quick conversion technique involves adding a Color Fill adjustment layer and selecting a shade of white through to black. Then change the layer’s blending mode to Color. This means its only effect is to render the image black and white. It doesn’t have any real virtue and I include it only for completeness.

Activate the Channels palette, delete either the a or the b channel, and you’re done. Alternatively, select the Lightness channel and then choose Image > Mode > Grayscale.

Right: But of the basic methods, Lightness is probably the best. The resulting black-and-white picture is usually the most natural or neutral rendition of the original scene’s brightness. If that is what you want, don’t rule out the Lightness method.
CALCULATIONS

Under Photoshop's Image menu lurks the mysterious Calculations command. Its main role is in retouching and compositing, where it is used to make sophisticated selection masks, so Calculations is not something most photographers would ever need to use. Nonetheless Calculations can merge the values from up to two color channels and output a new, black-and-white Photoshop document.

Because you can control the mixing of color channel values, Calculations permits more creative control than other basic methods over how tones are rendered in black and white. Historically, it also made the most of limited computing power and disk space, and predates Photoshop layers.

Such limitations are now behind us, and Calculations is neither as convenient nor versatile as modern layer-based techniques. The new black-and-white document the command creates contains no color information, so changing your mind about the color-to-mono rendition means starting all over again. Since such fine-tuning is so much easier now using other techniques, it isn’t immediately appealing. Calculations can produce great results, but its awkwardness can limit your creative experimentation.

So why is it covered here?
First, Calculations is still touted often enough that it needs to be put in its historical context. The second reason is more important, and that is to introduce the role of channels and creative black-and-white conversion.

Above: When you are experimenting with mono conversion techniques, select images with a variety of colors, such as the strong greens and reds in this rally.

Left: Although it can be awkward to use, Calculations does offer a degree creative control. Using the blue channel darkens the skin tones on this man’s face, so the photographer can convey that he is a heavily tanned man. It also tones down the background and changes the emphasis of the composition.
CALCULATIONS METHOD

1. Choose Image > Calculations and go directly to the Result section at the bottom of the dialog box. You need to set this to New Document, because while Calculations may be previewed in the working image, it can only make selections of channels there. Also, the Layer drop-down boxes should in general be set to Merged, so any retouching layers are included in the process. Use the Background Layer if there are no other layers.

The most important controls are two Channel drop-down boxes which enable you to choose the channels that Calculations merges into its black-and-white output document. For instance, pick Red in one drop-down box, and Calculations' output will show lighter skin tones, because the red channel values of skin are quite high. Choose Blue, and for the same reason Calculations' mono output will render skin tones darker. To bring out more tones in green, such as in the striped flag here, you'd pick Green in one or both Channel drop-down boxes.

2. Experiment with the Blending drop-down box and its accompanying Opacity box, where you can vary the ratio of each channel's value that goes into the output document.

When the preview shows a mono image that you like, click OK, and Photoshop sends the combined mono image to a brand new document. You’re no longer just switching off the color—you’re manipulating and controlling how it is rendered in black and white. Once you start using the channel values, mono conversion starts to become a creative process.

Left: Calculations lets you control how Photoshop blends the color channel values into a new black-and-white document. Here, Red channel values lighten and soften the subject's face, but they also make the mostly red background so blown out that it distracts from the subject.
THE TOOLS OF THE TRADE

We have discussed many of the older methods of converting a color image to black and white. These techniques can do the job, and often well, but they all date from earlier eras in the history of Photoshop black and white, and limit your creative choices while being difficult to control. Worse still, color channel data is lost so you can’t come back and fine-tune your work at a later date.

Today’s best conversion techniques let you creatively exploit the image’s color channel information and fine-tune the mono conversion. You can make the conversion separate the colors, so greens and reds might be distinguished by differing shades of gray. In Calculations, we saw one example of how channel manipulation could vary the background’s brightness relative to the picture’s subject. Modern methods give you an enormous degree of control over the tonal balance and scope for choosing how the composition should work in black and white. And they all use adjustment layers, so you can revisit, improve, or completely reverse the conversion any time you want.

INDIVIDUAL CHANNELS

On the following pages we are going to examine the main techniques that are applicable today. But whichever method you prefer, the first step is to assess the color image.

Even if you only do black-and-white work occasionally, it is worth changing Photoshop’s Preferences so the color channels are displayed as grayscale. Go to Edit > Preferences > Interface and uncheck the option to Show Channels in Color. This switches off the red, green, or blue overlay that makes it difficult to assess the information that is in each channel.

When I start a black-and-white conversion, I almost always begin by cycling quickly through the channels. In the Channels palette, you can click each channel’s eye icon in turn, but the keyboard shortcuts always seem easier. First press Ctrl/O+1 to see the red channel, Ctrl/O+2 for the green, Ctrl/O+3 for the blue, and Ctrl/O+~ (tilde) to return to a normal RGB image. This is a very quick operation—you may want to repeat it a couple of times—and has two main purposes.

At a basic level, it tells you the characteristics of the three channels...
which make up the color image. Each image is different. Looking at the examples below, the Blue channel picture shows the man's face is very dark in that channel, while the background and his vest are very bright. That would be their appearance in the final black-and-white image if you stressed the Blue channel in your conversion. During this process you are looking at specific details within the photograph. Pressing Ctrl/0+2 for Green makes the vest look dark, making the lettering stand out, and tones down the background, while Ctrl/0+1 for Red produces the brightest facial detail.

My initial diagnosis of this picture is that the Green channel produces the best overall conversion, but the face works better with the Red channel, so I need a second adjustment layer. In other words, before you add an adjustment layer to make the image black and white, the Ctrl/0+1-3 cycle tells you which sliders you may want to adjust, and whether you might need to make some selective mono conversions with extra adjustment layers.

The second reason for this cycle is far less tangible. Seeing the three channels' individual black-and-white representations is a really quick way to see three alternative interpretations of the photograph. There are times when this completely changes how you initially intended to compose your black-and-white image. I don't pretend looping through the channels is a magic bullet, but try it and see if your results improve.
THE CHANNEL MIXER

The Channel Mixer method has long been a popular way of converting an image to black and white and gives you creative control over the proportions of each channel's value in the mono image. Since the technique uses adjustment layers, you can always return to the file and change the settings, and layer masks let you apply local conversions too. One disadvantage is that, if you are not careful, Channel Mixer can clip the highlights and shadow tones, but on the other hand it functions in a way that is very natural for photographers with experience of colored lens filters and black-and-white film. If that includes you, it can be a big plus.

USING THE CHANNEL MIXER

Above: It's early one winter morning, the sky is a rich blue, and the fortress, Castel Sant'Angelo in Rome, is resplendent in warm colors. A black-and-white film enthusiast would probably have used an orange or red filter for this scene.

Evaluate the color image by cycling through the channels with Ctrl/Ô + 1, 2, 3 and -. Think in terms of details or subjects, and compositional regions like the top or the edges. In this image, the key areas are the fortress, which is the main subject, and the cloud pattern.

Left: The Red channel (Ctrl/Ô +1). The top of the picture is dark, the clouds are well-defined against the sky, and the fortress is very bright.

Below Left: The Green channel (Ctrl/Ô +2). Similar to the Red channel, though the sky is slightly less dark. The fortress is much less bright.

Below: The Blue channel (Ctrl/Ô +3) This version is obviously unacceptable—the sky is far too pale, which makes the clouds pale, and also lets the viewer's eye drift up and away from the picture's subject. Black-and-white film shooters would never have used a blue filter for this scene.
A variation on the Channel Mixer technique is to split the channels and reassemble them as pixel layers. Go to the Channels palette, and select Split Channels from the palette menu. This produces three grayscale documents. Shift and drag each of the new images back into one document, and use masks or vary the layer opacities. Also include a layer created by converting a duplicate using the Lightness method. Adjustment layers are more convenient, and in principle there are no differences in final output quality.

2 Once you have assessed the image, and hopefully gained an idea of how you want to render it, add a Channel Mixer adjustment layer and tick the Monochrome checkbox. Photoshop previews the resulting image in black and white, though initially with a rather uninteresting mix of channel values.

There is also a Channel Mixer command in the Image > Adjustments menu, but this changes pixel values directly so you can’t revise your work after you close the file. For versatility, always use adjustment layers—notice from the Layers palette how the color information is preserved, so you can always revise the mono conversion.

3 Drag the three Channel Mixer sliders and review how they affect the black-and-white output. In general, try to keep the contrast at 100%, but concentrate less on overall image contrast—which can be fixed later—and more on key details and the overall compositional balance of the image. Here the Red is high, darkening the sky. Increasing it further would burn out detail in the fortress, so the Green value was increased instead, and Blue reduced to keep the overall brightness in balance.

Right: The Channel Mixer is a technique that comes naturally to black-and-white film photographers. To darken the sky, use more Red filtration.
The "film and filter" method is also known as "twin hue and saturation" because it relies on a pair of Hue/Saturation adjustment layers. Made popular by Adobe's Russell Brown, you add one Hue/Saturation adjustment layer that represents how black-and-white film records the scene in monochrome, and another that filters the overall image color.

Film and Filter is less intuitive for film enthusiasts than the Channel Mixer, and produces an image that is lower in contrast, so it is more likely that you will need another adjustment layer to fine-tune brightness and contrast. This isn't a problem, though, because it mentally separates overall contrast issues from the more creative thought processes required to make the various grayscale blocks work well together in the black-and-white composition. The example on these pages shows how that happens in practice.

**USING THE "FILM AND FILTER" METHOD**

1. Add a Hue/Saturation adjustment layer and drag the Saturation slider all the way to the left. Since this layer's purpose is simply to make the image grayscale, name it "Film."

2. Activate the Background layer and add a second Hue/Saturation adjustment layer, which should be below Film in the layer stack. Like the film user's colored lens filters, this layer's purpose is to control the colors that the Film layer will capture. Name the new layer "Filter" and change its blending mode to Color.

3. Double-click the Filter layer's Hue/Saturation icon and adjust the Hue slider until the image looks right. You can also alter the Saturation and Lightness sliders if you wish.

Left: The final mono print needs to be realistic but that's not necessarily the same as being faithful to the original. In the black-and-white conversion, you are able to control how you interpret the scene.
Left: This Hue setting makes this image a black-and-white photograph of a well-tanned man. Notice how his skin tones are darker than the sky. It's realistic and believable.

Left: With all channel-based conversion techniques, you interpret the scene for the viewer. In this version, simply by changing the Hue, the eye is drawn to the man because his skin is much lighter and is set against a darkened sky.
Photoshop CS3 introduced a new tool for the mono enthusiast; the Black and White adjustment. It shares all the main characteristics of other modern techniques, with creative channel-based control via six color-specific sliders and availability as an adjustment layer, and it also integrates toning or tint in the same dialog box.

But what really marks CS3 Black and White apart—and the reason it is used throughout this book—is its "targeted adjustment tool." This makes the cursor into a sort of brush which you use to stroke the image and control your mono conversion interactively. Even better if your use a tablet and pen, it's as though you are painting your black-and-white rendition.
Using a Black and White Adjustment Layer

Add a new Black and White adjustment layer, and Photoshop applies a default conversion and displays a preview. To lighten how an individual color is rendered in grayscale, drag the corresponding slider to the right. Dragging it left has the opposite effect. So, in this example, moving the Yellow and Red sliders to the right would brighten up the arches.

Black and White is all about controlling the conversion process interactively, so I’m not so fond of the Auto button, but notice the Preset drop-down box which contains a selection of slider value combinations. They are equivalent to colored lens filters and even if you’ve got no black-and-white film experience, Presets is often a great starting point.

The true glory of Black and White is the targeted adjustment tool. Sliders are all well and good, but the image preview is in monochrome and you can very quickly forget what the picture looked like in color.

So, instead of dragging sliders, move the cursor over a part of the picture that you would like to brighten, such as the arches in this night photo. Hold down the mouse button and drag to the right in a painting-like motion.

Photoshop detects the colors in that area and makes the grayscale rendition lighter, moving the dialog box’s sliders for you.

To darken an image area, like the sky here, drag the cursor across that area in a leftward motion. Use a number of short strokes to build up the effect gradually, or use a single longer action. It’ll soon start to feel like a very natural, creative process.