

Using Colored Filters

One key to great black-and-white photos

Would you believe us if we told you that black-and-white film has more control over color than color film? We didn't think so, but it's true. Most photographers don't even think about color when they shoot black-and-white film. The truth is that panchromatic black-and-white film actually sees the same colors as color film, but converts them to various shades of gray. How the film was manufactured determines the spectral response.

Each of the black-and-white film manufacturers includes a spectral response chart in each film's technical data sheet. These charts generally cover the visual spectrum from the short bluish end around 400nm to the long reddish end around 700nm. As the spectral data line becomes higher on the chart, it indicates that the black-and-white film emulsion is more sensitive to that color portion of the spectrum. Most film manufacturers try to maintain even sensitivity throughout the visible part of the spectrum, and then have the film taper off at the ultraviolet (shorter than 400nm) and infrared (beyond 700nm) parts of the spectrum.

If you look at speciality black-and-white films, such as the

orthochromatic Kodalith film, you will see that the emulsion is not sensitive to the red part of the spectrum at all. This means that you can process this film under a red safelight, without fogging the emulsion.

We kind of wandered off the subject a bit, so that you'd see that black-and-white films are indeed affected by colors. Now, let's venture into the world of using color filters with black-and-white films. We're not talking about color correction, neutral density, or polarizing filters that commonly used with color negative and slide films. Let's reach into our camera bag and pull out the deep red, orange, yellow, green, and blue filters that are specifically designed for black-and-white photography.

You are probably still asking yourself why you would want to use colored filters for black-and-white films. The answer is simple. Filters are some of the best ways to control the different tonal values produced by colored objects in a scene. These filters would create extremely off-color pictures if used with color film, but they work great with black-and-white.



Opposite page: Colored filters for black-and-white photography? Yes, indeed. See text for details!

This page: Red tulips and green leaves reflect about the same amount of light, so they appear as about the same shade of gray in a black-and-white photo made without a filter (far left). A red filter lightens the tulips and darkens the leaves, for a more dramatic image (left).

with B&W Film

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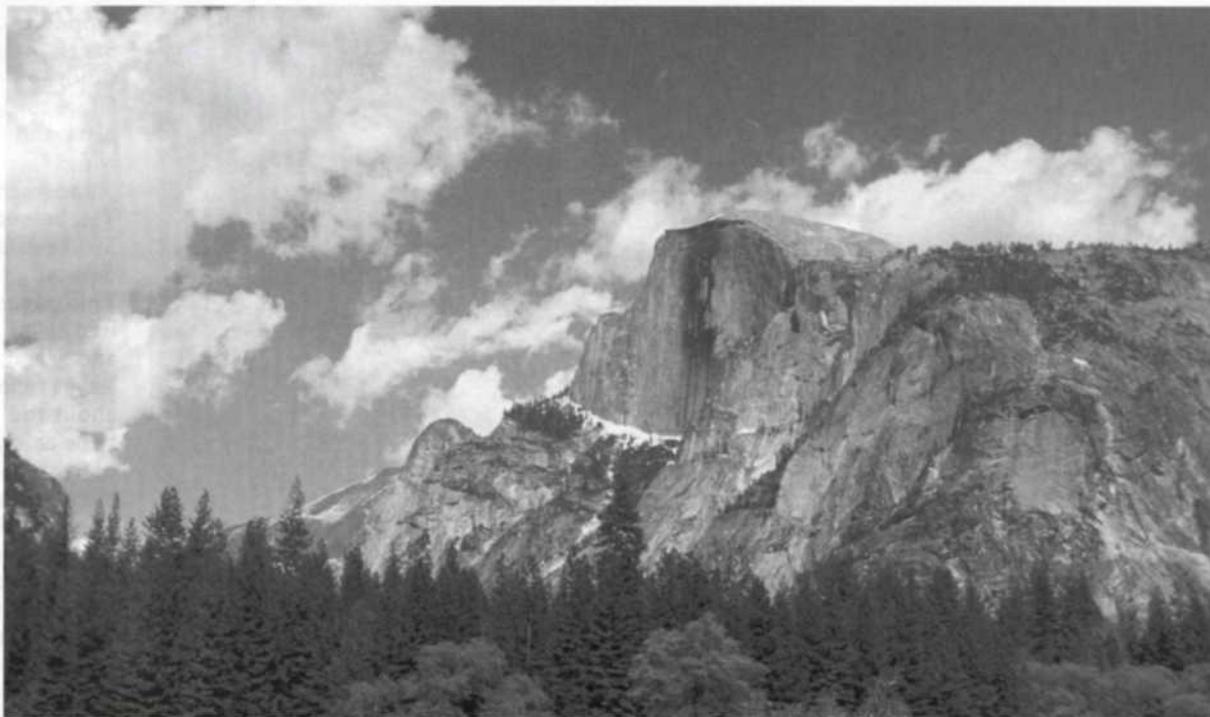
Here's how they work. When you take an image on black-and-white film without using a color filter, all colors will record on the film according to the spectral response of the film. Medium-intensity red, green, and blue objects will all have the same gray tonal values, because they reflect the same amount of light. If you place a red filter over the camera lens, the blue and green light is blocked by the filter, leaving only (or mostly, depending on the filter) the red light to pass through the filter. The tonal values of the red object will then be much lighter than the green and blue objects in the final image. In effect, you have adjusted the exposure ratio of the different colors striking the film by merely placing a filter over your camera lens.

This would be easier to understand if black-and-white filters were only in red, green, and blue variations. Each filter would then pass its own color and block its complementary color. In real life, though, objects in the scenes we photograph come in all colors, and filters come in a variety of colors and densities, so predicting exactly what will happen when you use a colored filter to make a black-and-white photograph is a bit tricky. Essentially, when you use a colored filter, objects of the filter's color and similar colors

will appear lighter than usual in the filtered photo, while objects of the filter's complementary color will appear darker.

The best way to understand how these filters work is to test them with your favorite black-and-white film. When looking for photo props, we have found that the best solution is a visit to the local grocery store. Here you can find a wide selection of colorful fruits and vegetables, that are edible when you are done with the test. Oranges, red peppers, yellow peppers, green peppers, strawberries, red/purple onions, and apples are just a few items that will help put your film and filters through the paces.

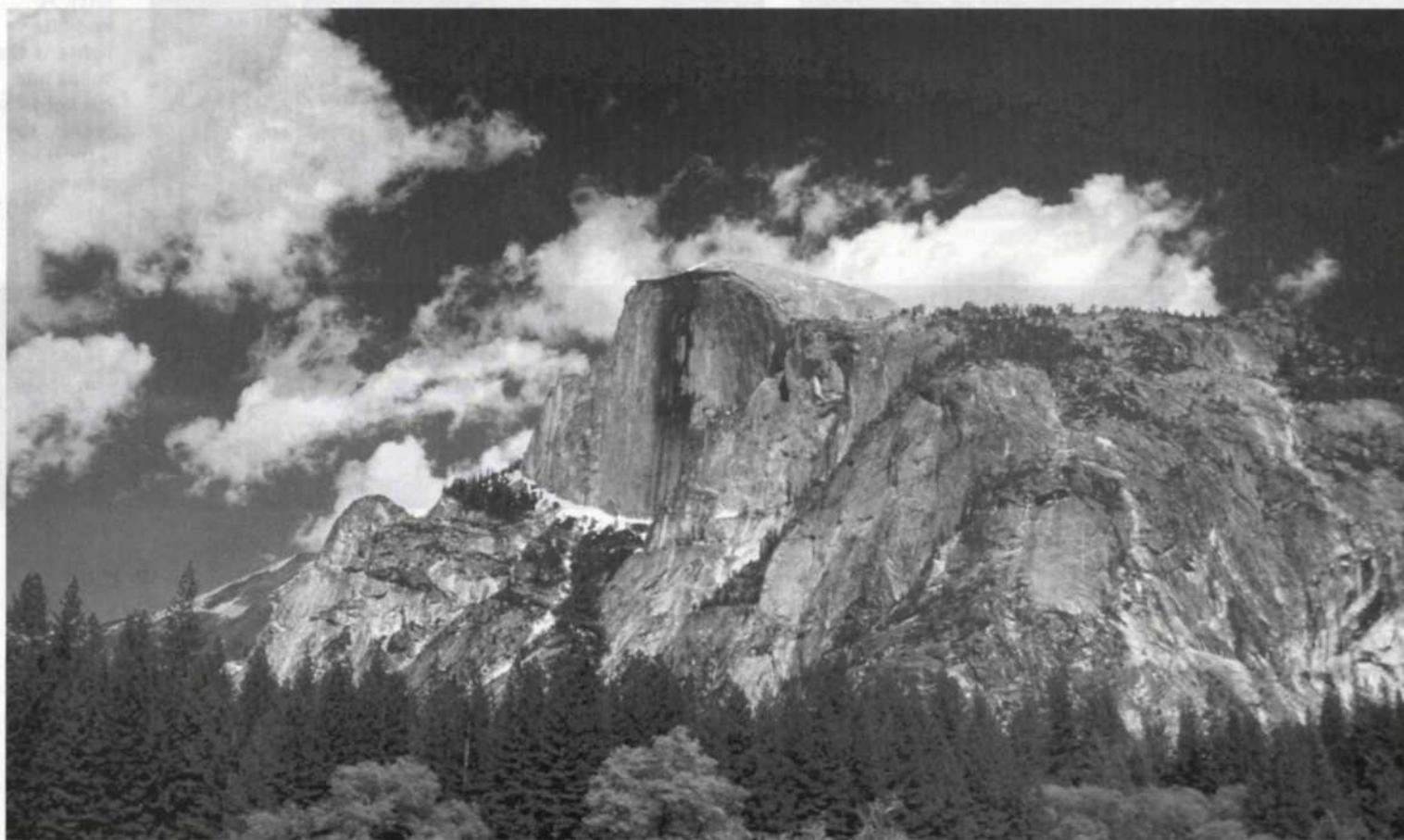
Because they block some of the light, filters require exposure compensation. Filter manufacturers provide filter factors for each of their filters that tell you how much to increase exposure when using the filter. But it's a good idea to shoot bracketed tests, and take accurate notes so you can evaluate your results. You can print or scan your processed negatives and compare each filter and how it affects the different colored objects. Once you have zeroed in on your exposure and filter choice, you can then go out into the field and try the various filters on landscapes with blue skies, foliage, flowers, and even flesh tones. These four areas are where most black-and-white photographers



Left and below:

Another good use for a red filter is to darken the blue sky so that white clouds stand out dramatically.

Opposite page: This diagram can help you predict the results you'll get when you use colored filters for black-and-white photography. Just draw a line on the diagram perpendicular to the line representing the filter's color (as we have done for a red or cyan filter here). Colors on the same side of the line you drew as the filter's color will be lightened in the photo; colors on the opposite side of the line will be darkened.



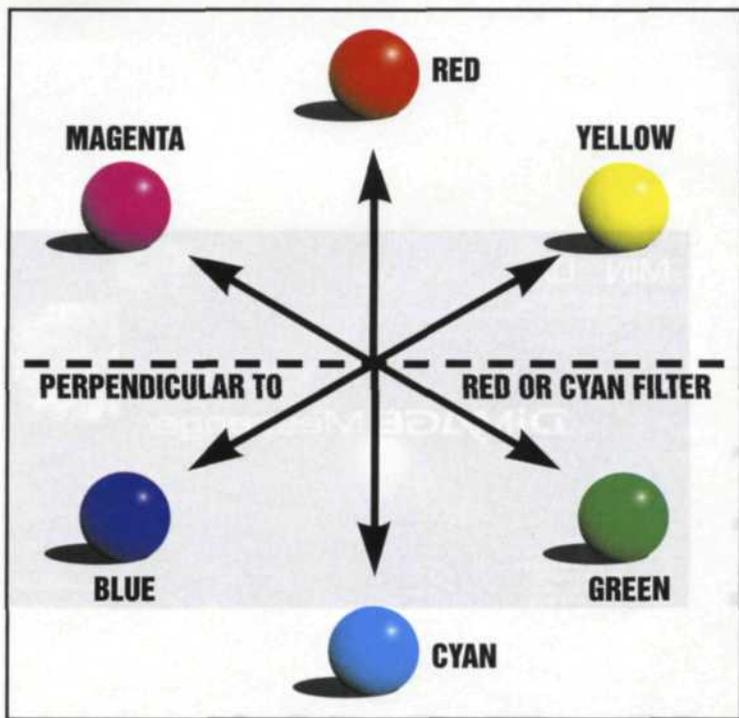
will need the added control that color filters provide.

Red, orange, and yellow filters will darken the sky like a polarizer, but will also have some added effect on foliage and other green objects. Keep in mind that the red filter will give the most dramatic results, while the orange and yellow filters will darken the blue sky areas to a lesser degree. If you want to create lighter tones in green or grassy areas, pop on the green filter and you have manipulated those specific gray tone areas.

Colored filters can really make a difference in black-and-white photos of flowers. In an unfiltered photo, red flowers and green leaves will reproduce as about the same shade of gray. Shoot with a red filter over the lens, and the red flowers will be rendered lighter and the green leaves darker. Use a green filter,

and the red flowers will be rendered darker and the green leaves lighter. Remember that, when exposed as per the filter factor, a colored filter will render subjects of its own and similar color lighter than they'd appear in an unfiltered properly exposed black-and-white photograph, subjects of its complementary color darker, and colorless subjects the same as they'd appear in a properly exposed unfiltered black-and-white photograph.

The filter choice for portraits and flesh tones will depend on the tonal value of the person's skin. You will have to decide if the skin is light or dark and if you want to increase the facial tonal values or decrease them. Keep in mind that many variables, like hair color, lip color, freckles, and skin tones all have to be balanced so that the portrait is pleasing to the eye.



Left and below: The nik Black and White Conversion plug-in for Photoshop lets you see how a specific colored filter will affect an image in black-and-white (and lets you produce these effects after-the-fact with your existing photos, once they're in digital form).

Bottom: Panchromatic black-and-white films are sensitive to light of all colors. Colored filters transmit light of their own colors and block light of other colors, thus they do have an effect on black-and-white photos.

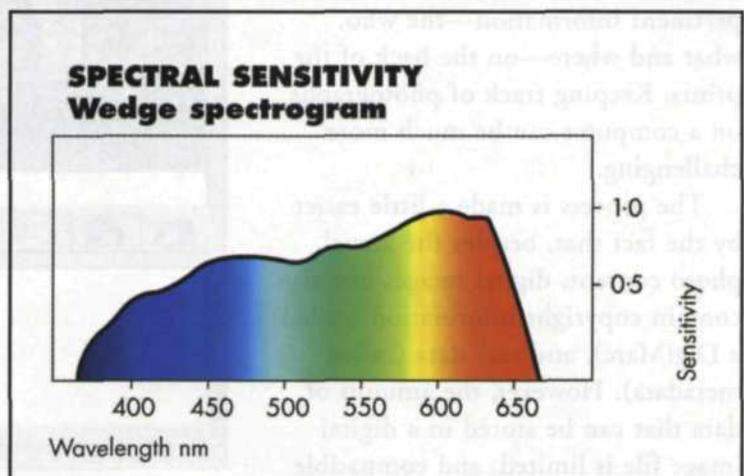


Generally speaking, the red and blue filters do not work well with portraits (although a light-red filter can hide red skin blemishes), so you should concentrate your tests with the yellow, orange, and green filters to see which works best for you.

The computer offers another way to help understand just how color filters work with black-and-white film. A special Adobe Photoshop plug-in filter from nik Multimedia called Black and White Conversion is designed to show you how a specific color filter will adjust the tonal densities in a black-and-white image.

To see how it works, you load in a sample color image that represents the type of images you want to photograph with black-and-white film. Then select the type of color filter you want to use and the strength or density of the filter. The preview thumbnail image will show you how that filter will affect your black-and-white film.

Keep in mind that these computer results are approximate, since each film will have a slightly different spectral response. It will however narrow down your testing so you can perform a more concentrated test with a specific shooting situation and color filtration. We tested this software program against several color filters and black-and-white film and found the results to be very accurate.



Black-and-white photography is making a comeback. More and more photographers are discovering the artistic possibilities of capturing the world in shades of black, gray and white. New films and advancements in technology have provided higher-quality black-and-white printing papers for both the conventional darkroom and inkjet printers. Maybe it's time you gave black-and-white film another try. Remember though, to include those filters in your camera bag, as they help maximize your creative potential. ■