SIMULATING A POLARIZING FILTER

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The Polarizing Filter is the landscape photographer's not-so-secret weapon. Because of the way it filters out unpolarized light it cuts through atmospheric haze, sees through reflections on glass or water (but not metal), and appears to saturate colors. It is really not so much that it does ANYthing to the colors but by filtering our any diffusion in the atmosphere between the object and the lens and by eliminating surface reflection, it allows you to actually see the color that is there.

Because it is both an optical and physical result, it cannot truly be duplicated in post production. Some of the effects of the polarizer rely totally for their effect on the physics of polarized light. No after-effect will see through reflective surfaces, for example. But usually, the reason a photographer uses the polarizing filter is for a much less exotic result: the darkening of the skies and the general enrichment of the colors. So why not simply use a polarizing filter and be done with it?

In the digital world, flat filters have a huge drawback: they reflect light back into the lens that was bounced back up from the sensor. That never happened with film; the antihalation dye on the film absorbed the light after it had passed through the emulsion. But with a digital sensor, some of the light that hits between the photo sites is bounced back up through the lens. Lens coatings, originally designed simply to help focus the various lengths of light waves, now also serve to curb reflections. Asymmetrical lenses send this out of the lens or trap it in internal baffles.

But the flat glass of the polarizer — or any filter — defeats this purpose. Additionally the thickness of the glass or plastic in the filter refracts light off angle based on the thickness (so thinner is better but any thickness has an effect). Many photographers including myself who had extensive filter kits in the film days have learned to our dismay that putting a filter over a lens on a digital camera will soften the final image… Period. Maybe a little, maybe a lot depending on the quality of the filter, but all soften to some degree. A new

generation of coated filters designed to minimize this reflection and refraction are coming on the scene which will hopefully bring this image degradation into reasonable control. But until then, I'll keep filters off of my cameras unless absolutely necessary to get the shot at all.

And that brings us to the attempt to simulate the effects as best we can.

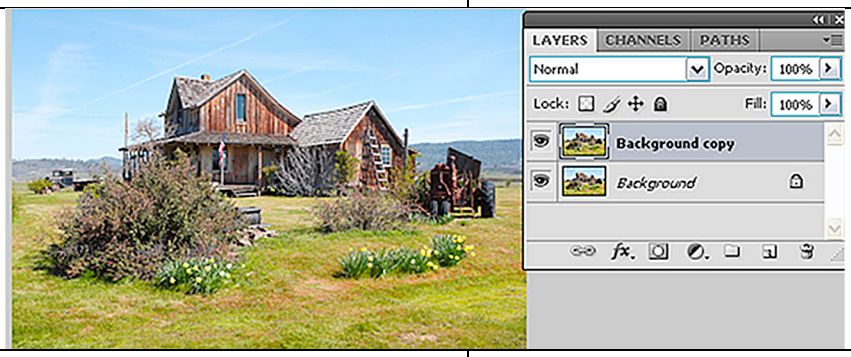
There are some Photoshop Plug-ins that also attempt to simulate a Polarizer. NIK™ makes one that is part of their color effects set of filters that works pretty well and is both fast and easy to use. It has a WYSIWYG dialog window and you just dial in the level of effect you want. Slick!

But if you have not shot with a polarizing filter and do not have any aftermarket plug-ins or filters to use, here are some steps you can take to really make your landscape pictures come to life. This is easier in Photoshop CS3 and newer because of their "Black and White" function in the Adjustments Menu. It can be done in earlier versions but to be able to work with multiple colors might take several layers of individually converted versions then merged into a final. This datasheet is written using CS4.

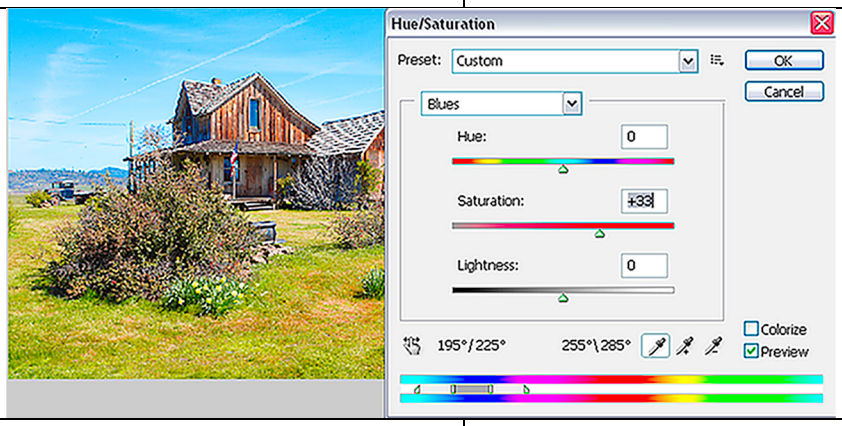
Here is a good candidate for this technique. Shot as a single frame and processed as a simulated HDR via 3 versions of the initial file, it is better but still does not convey the richness of an image made with a polarizing filter. To enhance the image take the following steps.

First, here is the original:

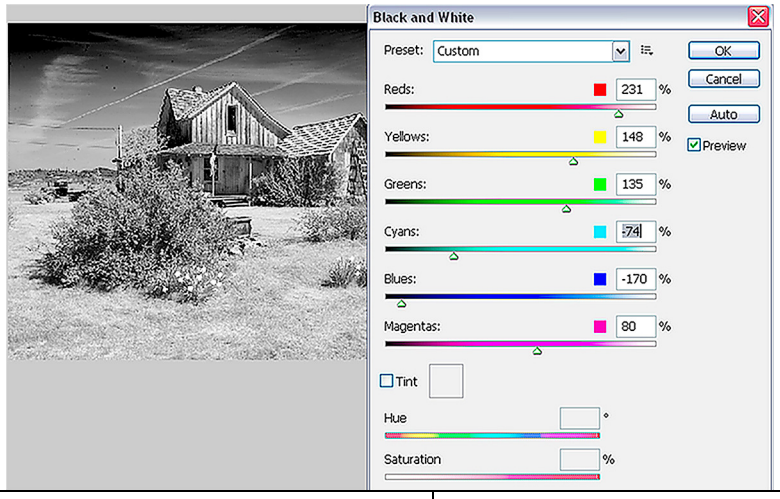
Step	Action	Result/Notes
1	Make a duplicate layer of the file.	You can do this by using the menu selection **Layer→Duplicate Layer** or by dragging the Background Layer to the New Layer Icon at the bottom of the Layers Pallet..



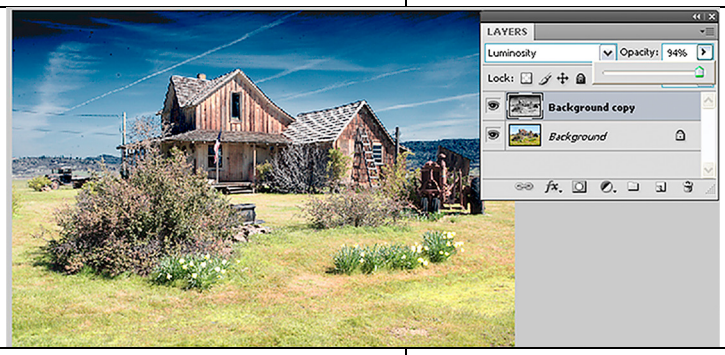
2	Working on the top layer, add saturation (**Image→Adjustments→Hue/ Saturation**) to any color you really want to be effected by the process.	In the example, we really wanted to make the sky look polarized so the blue and cyan channels were saturated more than normal.



3	Working on the top layer, launch the black and white dialog using: **Image→Adjustments→Black & White**	The image will turn into a grey scale version.
4	Use the color sliders to darken areas you will want to be darker and lighten areas you want to lighter. In effect, use these sliders to create a dramatic B&W shot.	The Black & White function was added to Photoshop in version CS3. if you have an older version you will have to use the **Channel Mixer** to accomplish the same result. It may take some B&W layering to have the flexibility in this new function.



5.	Now comes the magic part… In the **Layer Mode** field of the Layers Pallet, change the Mode from "**Normal**" to "**Luminosity**."	This will impose the tonalities from the top (B&W) layer onto the bottom color layer and you will now see the result on the top layer. You can moderate the effect by lowering the opacity of the top layer.



6.	Flatten the image using: **Layer→Flatten Image**	If you actually want a GREATER effect, repeat the process…
7.	To complete the simulation. Now add some saturation to selected areas or to the overall file to taste using **Image→Adjustments→Hue/ Saturation**	I also burned in the edges to add a little depth to the image.

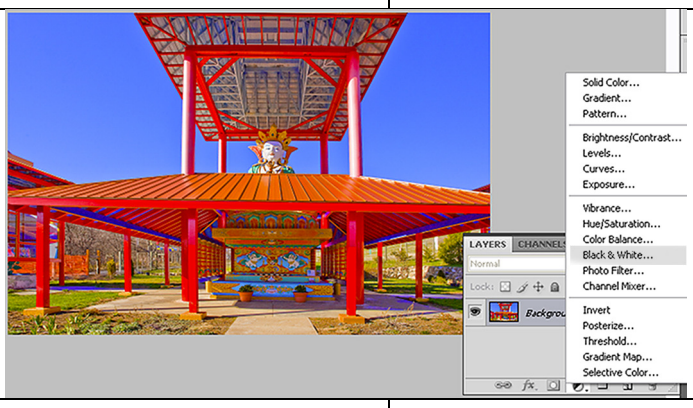
And that's all there is to it… But slick as that is, if you have the CS4 version of Photoshop with the new adjustments functions, you can actually watch the effects as you are creating them. So here is a new shot to illustrate how to do it. This shot is selected because of the brilliant colors in the actual scene that did not quite translate into the file.

Here is the original…

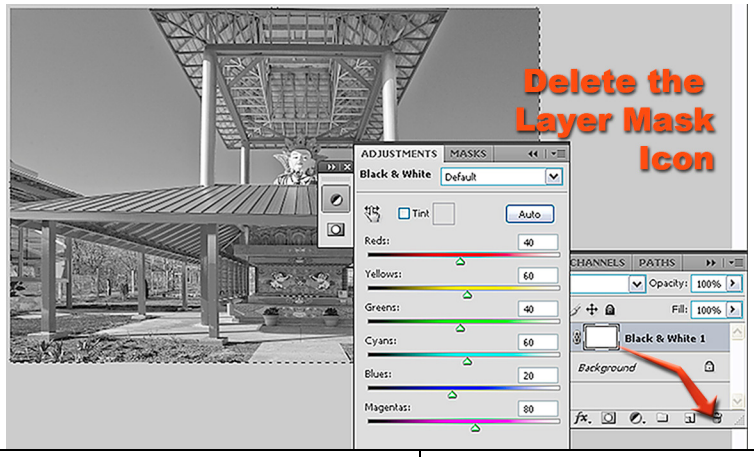
It is nice but the original just leapt out at you in space. So what can we do to recreate that sensation? Here is an option.

Step	Action	Result/Notes
1	Make a duplicate layer of the file and add some saturation to give the B&W conversion something to work with (just like in the last example.).	I made the dupe layer as insurance against disaster. You could do this on the background or, if you have made the dupe layer, now flatten it.

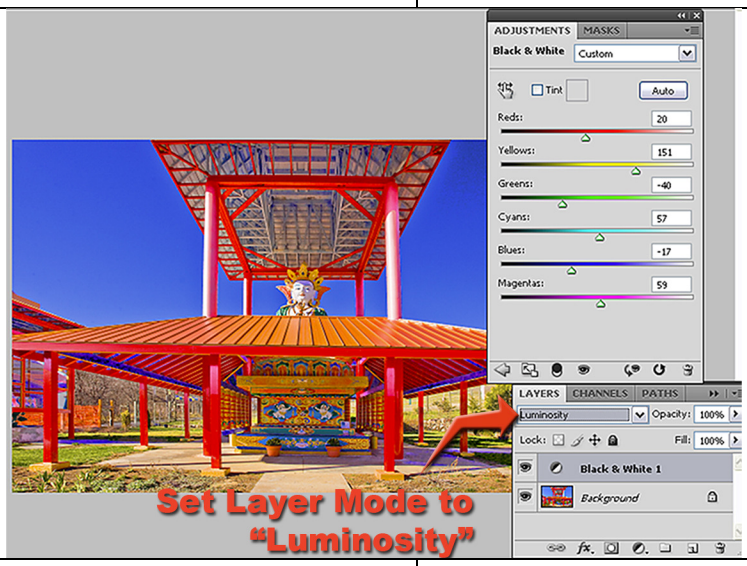
2	Click on the Adjustment Layer Icon and select Black & White as the adjustment	



3	This will open the Black and White dialog panel. But it also creates the adjustment layer as a layer mask which you need to delete. So drag the icon for the layer mask to the trash icon and drop it in the trash.	



4	Set the Layer Mode to Luminosity.	This will show the image in full color.



5	Now adjust the color sliders and watch the various colors in the image go lighter or darker.	Here to bring out the rich yellows and golds in the shadow under the canopy, yellow was lightened. Blue and green were darkened to darken the sky and the grass.
6	You can adjust these sliders to taste and actually watch the changes being made to your image.	

The final version is on the next page…