Colorizing Black and White Photos

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Introduction

There are a number of different ways to colorize black and white photos using Picture Window. This document describes several of these and discusses their relative advantages and tips for using them effectively.

Method 1—Using the Tint Transformation

Using the Tint Transformation is one easy way to apply color to a black and white image. While especially useful for tinting an entire image, you can also use it to apply color to just a specific region of the image. The Tint Transformation works by assigning different colors to different gray levels in the input image. By varying the sequence of colors, you can do straightforward tinting such as sepia toning or create subtle or wild false coloring effects.

Original Image

Simulated Sepia Tone

False Colored Versions

Using the Tint Transformation

To use the Tint Transformation, first open the black and white image in a window of its own and then click on it once to make sure it is the current window. Then select Transformation/Gray/Tint from the main menu. This brings up the Tint dialog box.

The key to using the tint transformation is the *color line* control at the bottom of the dialog box. A color line is simply a graduated sequence of colors. The color at the left edge of the color line is assigned to black pixels in the input image; the color at the right end of the color line is assigned to the white pixels in the input image; intermediate colors on the color line are assigned to intermediate gray levels.

Initially, the color line has two numbered control points, one at each end. The left control point is assigned the color black and the right control point is set to white, so applying the tint transformation in this configuration simply creates an identical copy of the input image.

To alter the color associated with a control point, double click on the color line right at the location of the control point. This brings up a color picker window you can use to specify the color of the control point. You can leave this window open or close it, whichever is more convenient. For example, if you make the left control point yellow and the right control point red, the color line will look like this:

Applying this color line to the input image (by clicking the Preview button) causes the shadow areas to become yellow, the midtones orange, and the highlights red:

You can insert additional points along the color line by shift-clicking on the color line at the point where you want the new control point to be located. (To shift-click, hold down either shift key while clicking the left mouse button once -- then release the shift key). To delete a control point, control-click on it (hold down the Ctrl key while clicking with the left mouse button). The first and last control points are locked in their positions at either end of the color line, but intermediate control points can be moved left or right by clicking and dragging them. To continue with the example, let's create a new control point and assign it the color blue:
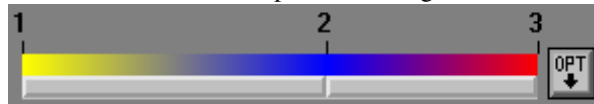

Clicking on the Preview button will then create an image like this:

You can add as many control points to the color line as you like and assign different colors and locations to each one to create a wide range of different effects.

In addition to being able to modify the color and location of each control point, you can control the transition between any pair of control points. To do this, click on the rectangular button displayed just below the colored band, inbetween the pair of points whose transition you want to alter. This pops up a list of option choices which let you specify how the intermediate colors between the two control points should be computed. By default, the transition curve is set to **Line** and the transition color space is set to **RGB.** This creates intermediate colors that are linearly interpolated between the two endpoint colors in the RGB color space. To create an abrupt transition between the two colors, you can set the interpolation curve to **Step Left**, **Step Center**, or **Step Right**. Using these settings creates a sudden transition from one color to the next at the left control point, halfway between the two control points, or at the right control point. For example, changing both of the transition

curves in the example above to Step Center yields the following color line and preview image:
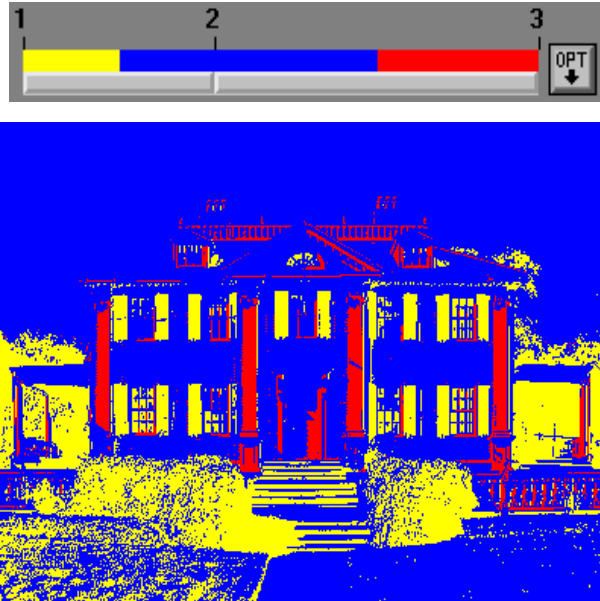
As you can see, abrupt transitions in the color line create a posterized effect as it produces large areas of solid color. By selecting a different color space such as HSV or HSL, you can also create some interesting rainbow effects.

You can also click on the options button at the right end of the color line to reset the entire color line to its initial state, to save a color line in a file for later reuse or reload a saved color line. Picture Window comes with several saved color line files, including one that creates a sepia toned effect, SEPIA.CLN. Once you load a saved color line, you can use it as a starting point and apply all sorts of variations.

Finally, to tint just a selected part of the input image, first create a mask that isolates the region you want to modify and select it using the Amount control in the Tint dialog box. For more details on using masks, please see the Picture Window manual or help file.

Method 2—Using the Paint Tool

The painting method lets you colorize parts of a black and white image using a free-hand brush, similar to hand tinting. Effective use of this technique requires careful color selection and some degree of manual dexterity.

There are two tricks to colorizing a black and white photo using the paint tool:

First, since you cannot paint color over an 8-bit black and white image, you must first convert the image to 24-bit color. The quickest way to do this is to use the Convert Transformation. By converting the image to color, you are creating a color image that looks exactly like the original black and white image but now has 24-bits for each pixel instead of 8, thus allowing new color information to be applied.

Second, select the Paint tool by clicking on the ✐ icon on the main tool bar and then click on the ⬇ icon in the lower left of the Paint dialog box and select the **HSV Hue and Saturation Only** option. This tells the paint tool that you want to apply only the hue and saturation of the color you are painting with and you want to leave the brightness of the underlying image unchanged. If you don't select this option, the paint tool will apply opaque or semitransparent color directly over the image; with the option selected, the underlying brightness variations of the image are preserved while applying the selected color.

Now all you have to do is to click on the color control in the Paint dialog box and select the color you want to tint the image with and set the brush radius, transparency, and softness. Then zoom in on the image so you can get a close look at the area you want to tint and start painting over the image. For more precise control when using the freehand painting tool, you can use a mask to protect certain areas of the image from accidental modification. For more information on creating and using masks, please see the Picture Window manual or help file.

And remember, if the effect isn't quite what you wanted, you can always use the Undo feature, adjust the color or other settings, and try again.

A hastily hand-tinted version of the original image.

Other Tinting Methods

While the Tint transformation and the Paint tool are usually the best ways to tint part or all of a black and image, there are other features of Picture Window you can use to get similar effects. The following three methods also let you tint images and they work with color and well as with black and white images.

The Filter Transformation can create effects like placing a colored filter over all or part of an image. The colored filter can be all one color or can be a color image (of the same size in pixels as the input image) that varies is color from place to place. The Gradient Transformation is one common way to produce color images of this type. Applying the Filter Transformation leaves black as black and changes white to the filter color.

The Composite Transformation can blend a color overlay with an image. As with the Filter Transformation above, the overlay can be a solid color or a color image. Using a mask, you can vary the transparency of the overlay making it opaque is some areas and transparent in others. Finally, you can obtain additional effects by experimenting with the Operation control in the Composite dialog box.

Finally, you can use the Color Balance Transformation to apply tints to an image. By setting colors to add for shadows, midtones, and highlights you can obtain effects similar to those you get with the Tint Transformation and setting three control points on the color line.