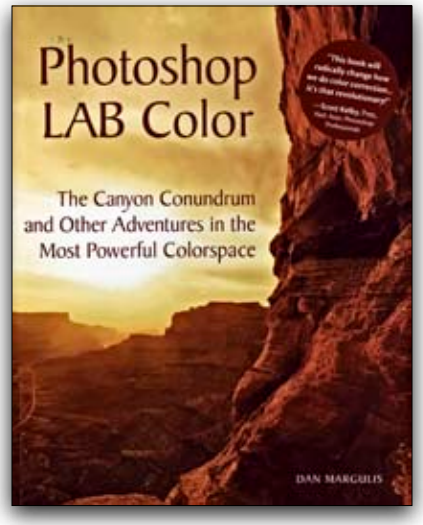
# Using the Lab colorspace

a presentation for
CTAPP
July 17, 2006
by Mike Weis
Live Graphic Services




*Photoshop LAB Color*
*by Dan Margulis*
*Peachpit Press, 2006*
*ISBN 0-321-35678-0*

# Introduction

This presentation is largely comprised of techniques I have learned through reading and working on the exercises in Dan Margulis' book *Photoshop LAB Color: The Canyon Conundrum and Other Adventures in the Most Powerful Colorspace.*

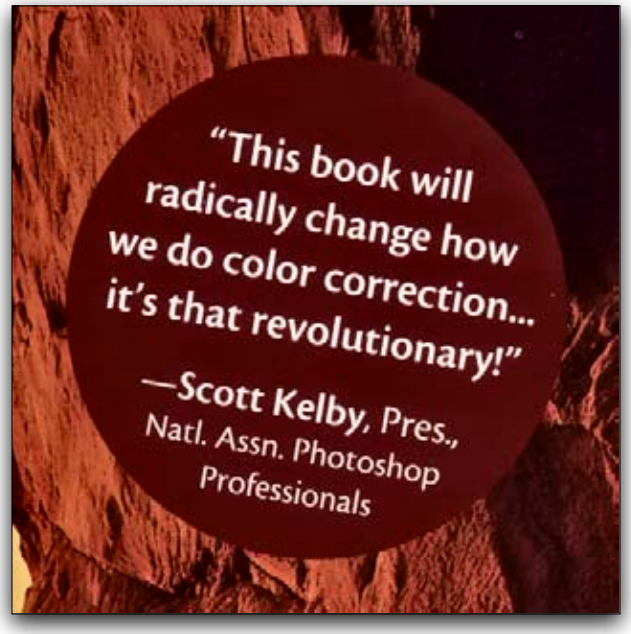
Due to copyright restrictions, some of the examples presented in the CTAPP session cannot be duplicated here since the images used were images from the book's CD-ROM. I have tried to come up with substitute images of my own for those cases, and I have provided references to the file on the CD-ROM and the chapter in the book as appropriate.

I began the CTAPP presentation with a short review of the book. Only two people in attendance besides myself had read the book, both described it as excellent. This is my assessment as well, however, there are a few things you should know before you run out and buy it:

» It is a little expensive (list price $54.99), because it is over 360 large (8x10) pages, most all in full color. Check your favorite discount bookseller for better pricing.

» It is rather technical, recommended for those who consider themselves reasonably advanced with Photoshop, especially channels. Get used to reading lots of numerical channel references.

» Most of the techniques are described in Dan's prose rather than in a recipe or tutorial format. You may need to go thru the procedures a few times to get them to work for you.



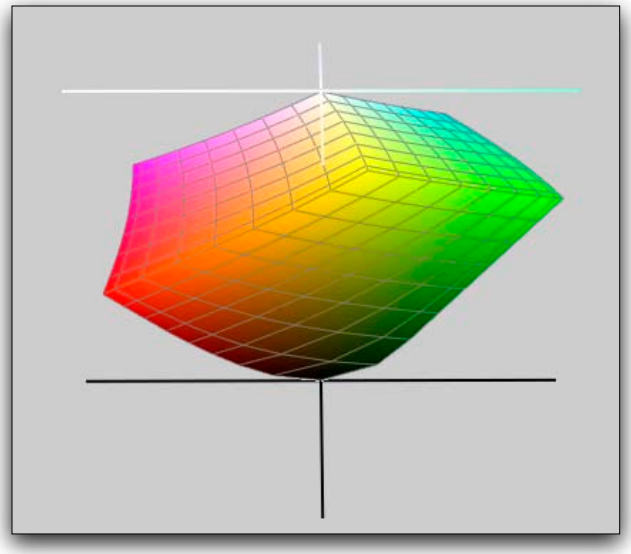

*Fake sticker on the cover of the book.*

Scott Kelby is the president of the National Association of Photoshop Professionals and the editor of *Photoshop User* magazine as well as *Layers* magazine. I believe he has recently attained the distinction of being the best selling computer book author ever. Most of his books are collections of Photoshop tips, tricks and tutorials. It's a fair assumption that he has seen, if not written about, every Photoshop technique known today. Thus, for him to call this book on Lab "revolutionary" is quite a statement.

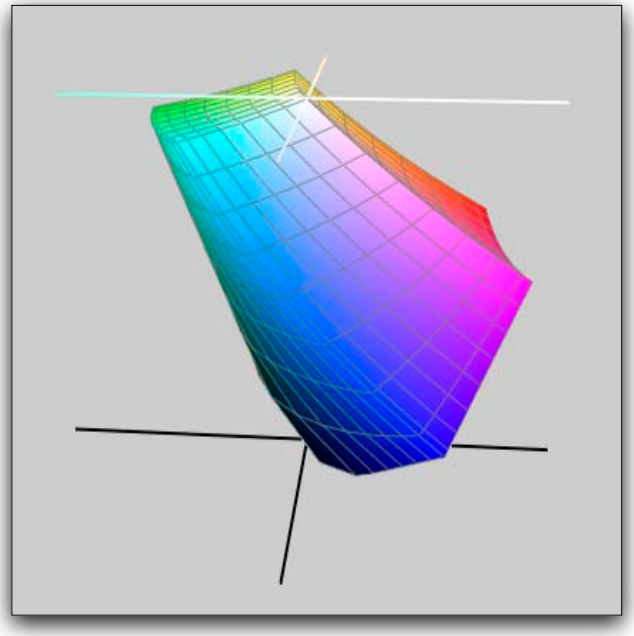
It appears as though he is correct. I attended the MacLive conference hosted by *Layers* magazine held in New York City in May of 2006. I attended at least one session by a noted Photoshop author/educator (David Cross) who now incorporates the basic Lab technique described later in his own color correction routines. In the conference handout book, I noticed several others who now use it too. I've seen it in Scott Kelby's most recent book on Channels.

And I have to say that I have found the basic technique so simple and so reliable at improving the images I shoot with my digital camera, that when I upload the pics to my computer, cull out the ones I think I like, the first thing I do is open them, convert them to Lab, and run this move. Very often that is all I need to do to decide that I really do like that particular picture.

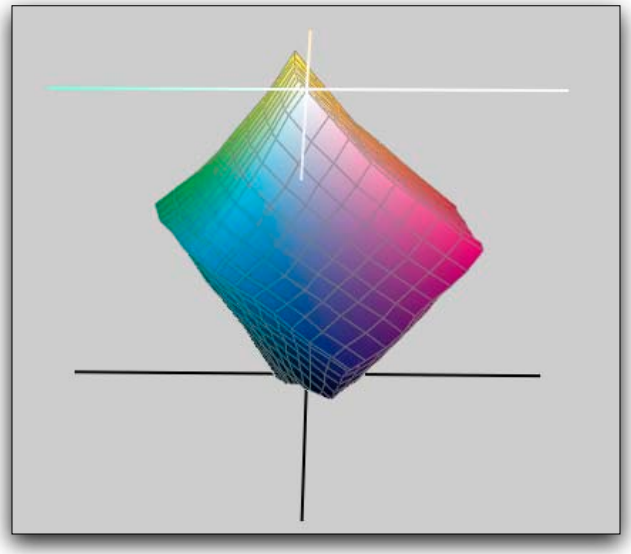
It's that good.



# Colorspaces



*Above, two views of the Generic RGB colorspace as seen in Colorsync. Below, the Generic CMYK colorspace.*

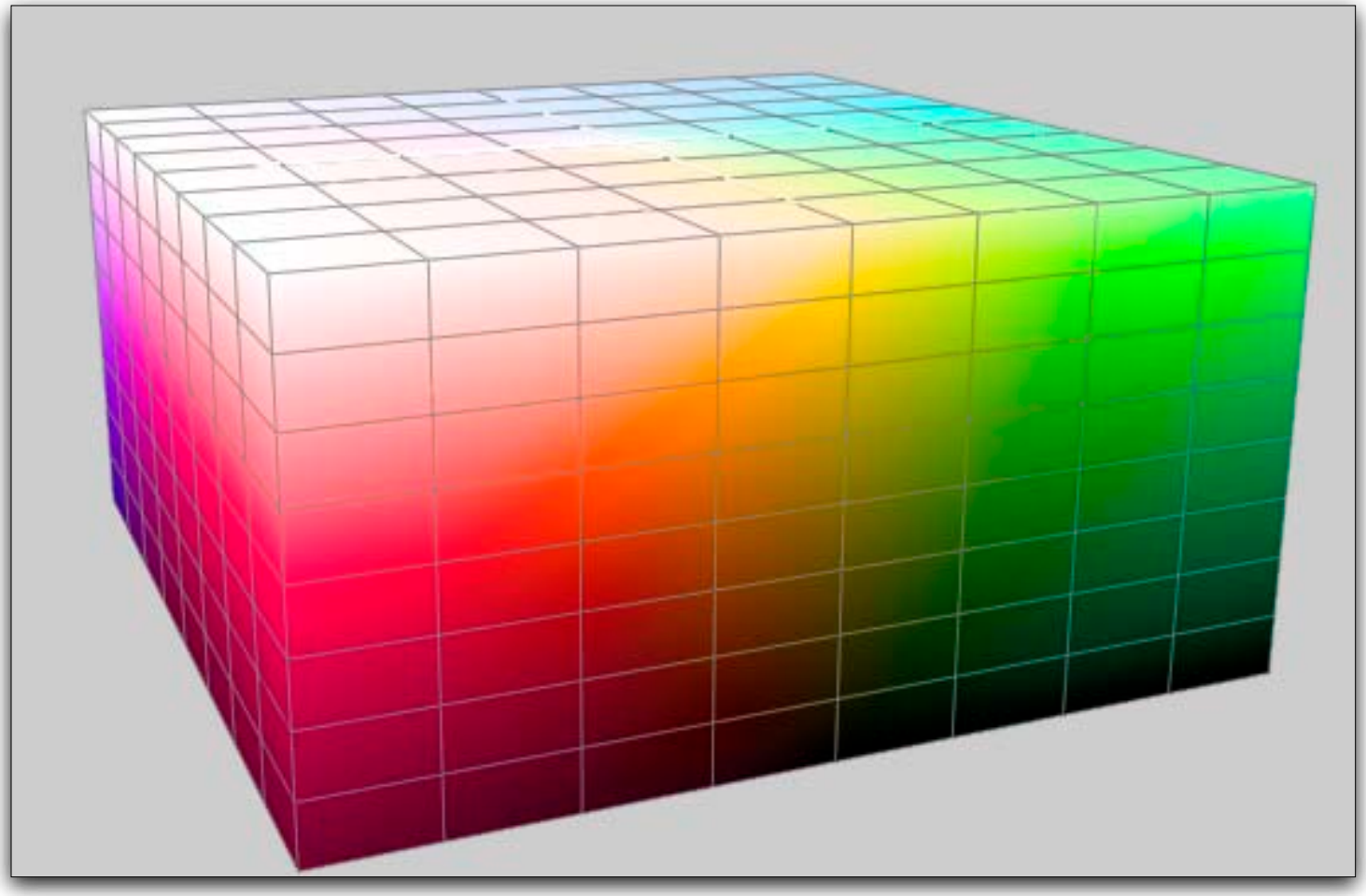


A colorspace is basically the set (or gamut) of colors that a thing can represent. Photoshop supports 3 main colorspaces, RGB (for Red Green Blue), CMYK (for Cyan Magenta Yellow blacK) and Lab (Lightness, a channel, b channel).

Various devices like printers, monitors, scanners etc support subsets of certain colorspaces. These are described by color profiles.

The Mac OS X Colorsync utility can display information about color profiles, including a 3D representation of the profile which you can manipulate to view from any angle. (There is a somewhat similar utility for Windows XP that you can download from the Powertoys section of the Microsoft website. Look for the Color Control Panel Application). The Mac Colorsync utility includes generic profiles for the major colorspaces for our amusement and education.

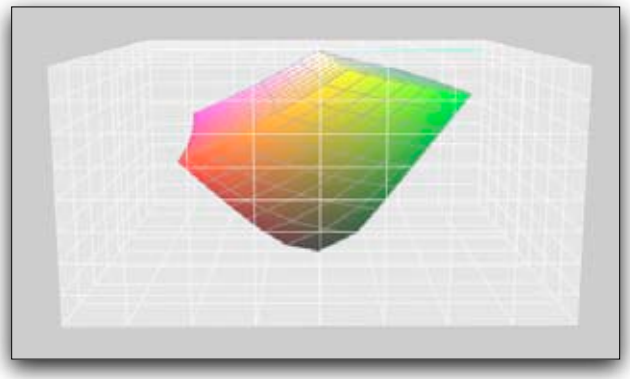
As you can see from these images, the CMYK colorspace is generally smaller than the RGB colorspace. This we already know because in Photoshop, it's easy to choose an RGB color and get a little warning that it is out of gamut in the CMYK space. Plus, if we use proof view with CMYK, or convert an image to a CMYK profile, colors often shift as Photoshop tries to compensate.



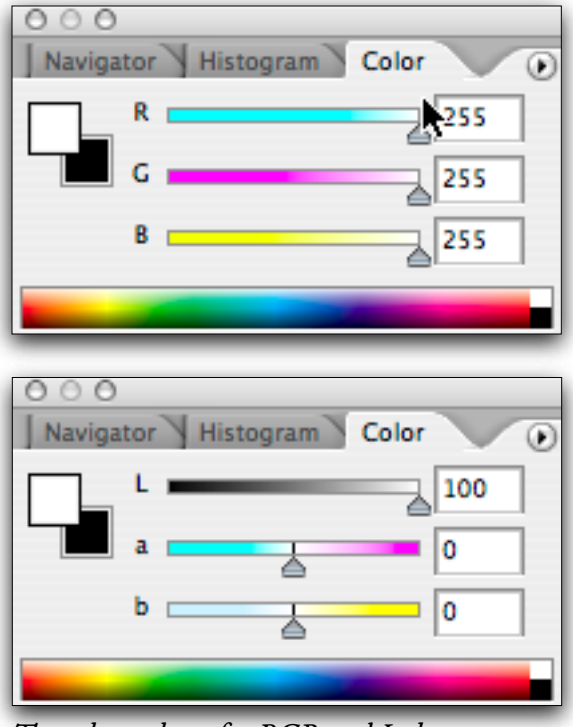
*Above, the Lab colorspace, as viewed in Colorsync. Below, a representation of the RGB colorspace inside the Lab colorspace.*

The Lab colorspace is, as the British might say, thick as a brick. It is vast compared to the RGB space. All RGB colors can be represented in the Lab space. There are many more colors in Lab. In fact, many colors are available mathematically in Lab that are not even perceivable by humans. Dan Margulis refers to these as imaginary colors.

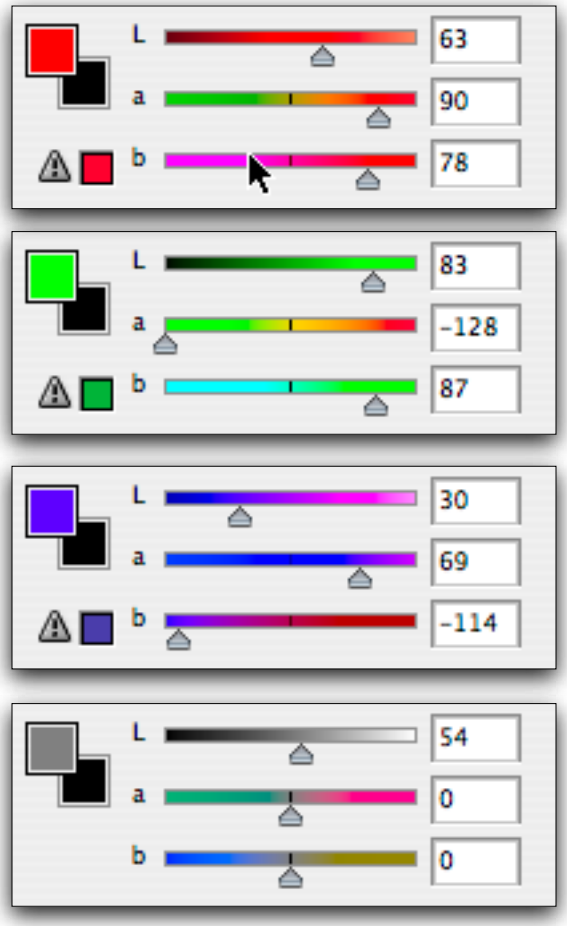
Remember that our monitors are limited to display of RGB colors, so what we see in Colorsync is only an approximation of what the color would actually look like if we could see it. Photoshop uses Lab internally for its calculations, and the display engine converts any out of gamut colors to its best approximation. It turns out that this approximation is pretty good, and useful, as we'll see.



*Dan Margulis is rumored to be a stickler for pronouncing Lab as "ell-ay-bee" rather than the word we know as short for laboratory. His rationale is allegedly that we don't say "riggib" or "smyke" for RGB or CMYK. I try to follow this when speaking, but I often slip up. Hey, we all know what we're talking about, right?*




*The color palette for RGB and Lab.*




*Lab slider settings for the pure RGB colors red, green, blue, and 50% grey.*

# Lab numbers

We're all familiar with the RGB sliders in the Photoshop color palette (I hope!) where 0R0G0B is black, 255R255G255B is white, pure red is 255R0G0B, yellow is 255R255G0B, etc. Greys are represented by all 3 values being the same, e.g. a 50% grey is 127R127G127B. These numbers run from 0 to 255 because 256 is one of those typical computer numbers (8 binary bits can represent 256 values).

CMYK numbers run from 0% to 100%, white to black, because they represent the coverage of ink on a printed page.

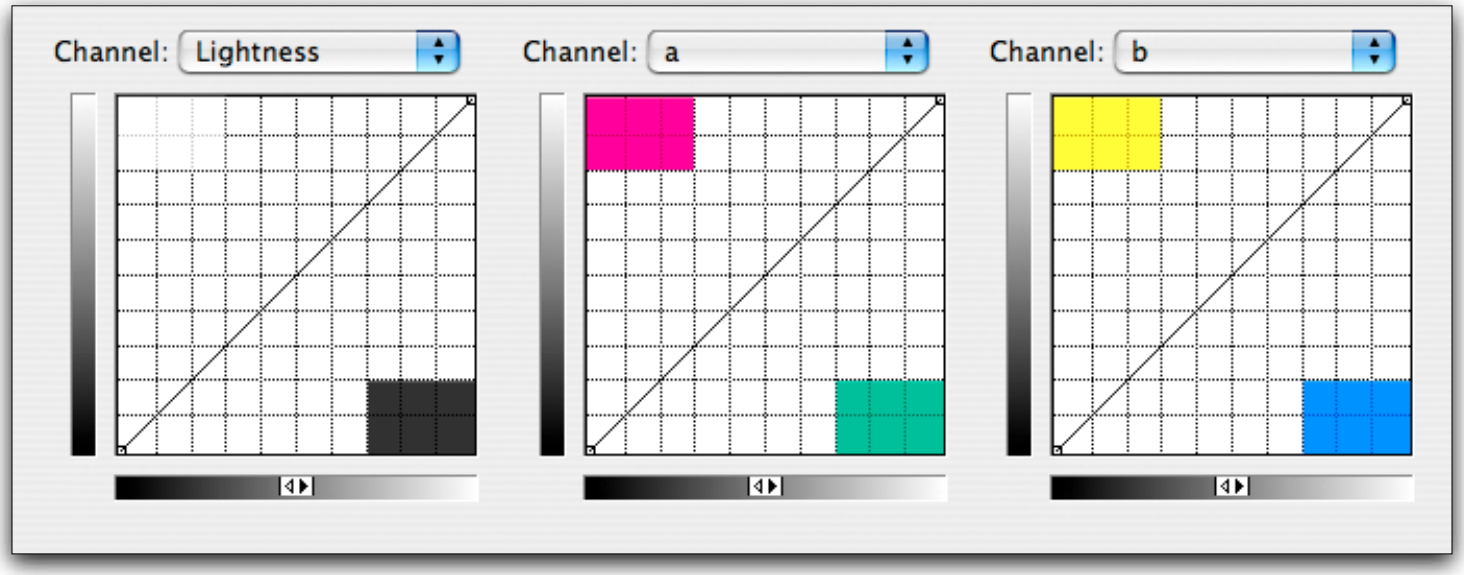
Lab numbers are a little different. First, the L (Lightness) channel represents tonality, i.e. how light or dark the image is. It runs from 0 to 100, like a percentage. It's almost like the inverse of the CMYK blacK channel in that 0 is black and 100 is white.

The a and b channels are the color information, and they have 256 values like RGB channels, except they run from negative 128 to positive 127. Negative a values represent green, positive are magenta. Negative b values represent blue, positive yellow. These 4 colors are all it needs.

Note that a value with 0A0B in it is always a grey. How light or dark a grey it is, of course, controlled by the L channel.

To avoid using minus signs in printing Lab numbers, the Margulis book uses values in parenthesis like on a ledger for negative. Thus 0R255G0B converts to 83L(128)A87B.

# Lab curves

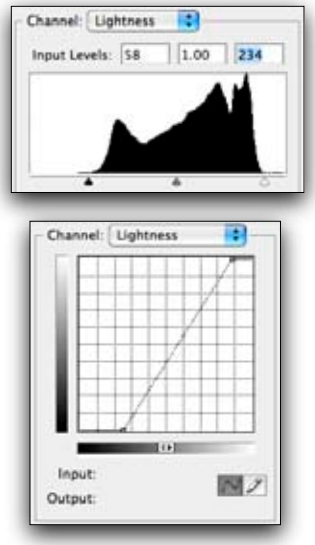



The adjustments we will make in Lab will be done using the curves command. The above image shows the 3 Lab channels in separate curves with swatches overlaid to illustrate the results of moving the curve. Move the L curve towards the upper left and the image becomes lighter; move it towards the lower right and it gets darker. This is true regardless of what part of the curve you move, that will only determine what range of the image goes toward light or dark.

Similarly, moving the a curve towards upper right pushes the image towards magenta, moving it towards the lower right moves it toward green. Likewise for b, upper left tends to yellow, lower right tends to blue.

Note: in the Margulis book, he orients his curves the opposite of the ones I show here. I suspect he's more experienced with CMYK curves and prefers white on the lower left and black on the top and right. My curves are oriented like RGB curves. You need to remember to rotate the curve plot 180˚ to switch between the two.

*To change the grid of the curves dialog between 4-square and 10-square, alt- or option-click the grid.*
*To enlarge the curve dialog, click the icon in its lower right corner.*
*To change the orientation of the curve, click the double triangle indicator at the bottom of the grid.*
*To select a curve point using the keyboard, press Ctrl-Tab or Shift-Ctrl-Tab (Mac and PC). Then you can nudge the point around using the arrow keys.*



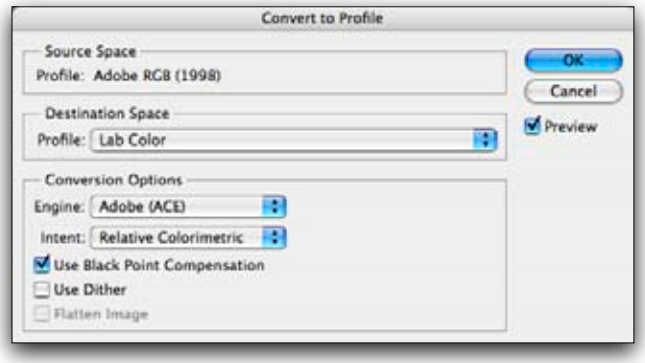

*Moving the black/white end-points in Levels is like moving the endpoints in Curves.*

If you're not familiar with curves, they can pretty much do anything levels can do, plus more. Whereas levels can adjust the black and white points of an image and make a single contrast adjustment over the entire image (using its middle slider), curves will let you adjust the values up or down at many points over the entire range.

When the curve goes straight from the lower left to the upper right at a 45˚ angle, the image has no adjustment. When you add or move points so that part or all of the curve becomes steeper than the default, you are increasing contrast over that range of the image. When you make the curve flatter than the default, you are reducing contrast.

The beauty of the Lab colorspace is that by definition, tonal contrast is separated from color contrast. You adjust the former using the L channel. You adjust the latter in the a and b channels. Once you play around with this and see it in action, it becomes very intuitive, and extremely powerful.

The basic procedure, then, for improving images is simply this:



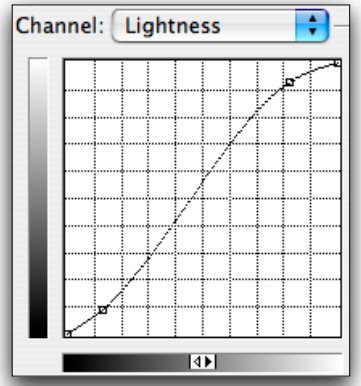

1) Convert the image to Lab using Edit -> Convert to Profile, then choose Lab Color. Make sure the Engine is Adobe (ACE), Intent is Relative Colorimetric, and Use Black Point Compensation is selected; deselect Use Dither and Flatten Image. You may be prompted again to flatten the imatge. For now, try it without flattening. If strange things happen you will need to undo the conversion and retry it using flattening. Many layer features will not convert well without flattening.

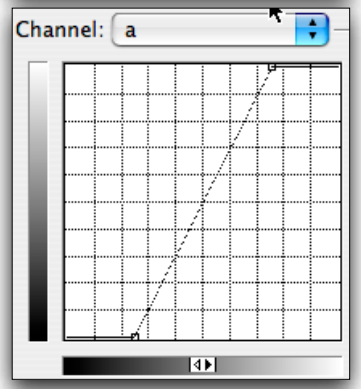
2) Adjust tonal contrast by steepening the L channel. You can do this overall by moving the end points in, or adjust the contrast over certain ranges of the image by adding points to the curve around the range of interest and then steepening the curve using those two new points

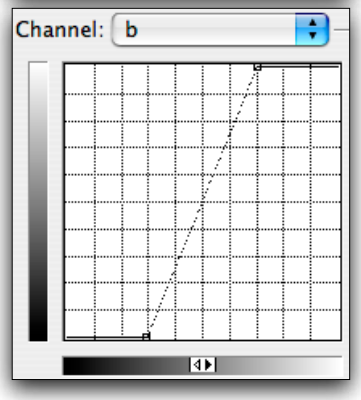
3) Adjust color contrast by moving the end points of the curve for both the a and b channels. You will want to move the 2 points the same amount, otherwise you will introduce a color cast. Use the grid markings to make sure the movement is the same on the top and bottom.

At this point in the presentation I demonstrated this technique using a couple of examples from the Margulis book: Chapter_01/Anza-Borrego_badlands.psd and Chapter_01/Artists_Palette.psd. Both of these are desert canyon landcapes. Due to copyright restrictions I cannot reproduce them here.

*The "Canyon Conundrum" in the book title comes from the fact that pcitures of western U.S. canyons are common pictures that people take where the camera never seems to capture the drama that compelled the shooter to take the picture in the first place. These are the kinds of pictures that this procedure can greatly improve. Another type of picture that it works especially well on is woods and fields. Since I haven't been out west lately, I'll use some of my Connecticut woods and field pictures.*




The above is an example of this technique. The curves were applied to the topmost photo to produce the lower image. It has more contrast overall, thanks to the L curve, and the greens and yellows stand out more, thanks to the a and b curves.

This basic routine is always the first, and often the only, correction I now apply to all of my digital images, right after culling the keepers using Adobe Bridge.

**Variations on the basic Lab retouch**

**Using the Shadow/Highlight adjustment:** I don't know about you, but I have always had trouble with Shadow/Highlight (in RGB), it always seems to do weird things to the colors. But once you realize that it is mainly for grayscale images, then it becomes much tamer, and perfect for applying to the L channel. You probably want to duplicate the layer to apply it, since it can not be applied non-destructively like adjustment layers.

**Sharpening:** Again, this filter works much better when it's applied to the L channel. Many people use Unsharp Mask in RGB, then use Edit -> Fade and change to Luminosity mode to avoid affecting color. However, if your sharpening happens to form a white highlight halo (as may happen over a yellow background), you will find that even the Luminosity mode trick won't avoid the haloing. However, in Lab on the L channel, it will. I demonstrated this briefly at the meeting. The issue is discussed in the book in Chapter 5, especially beginning on p.95 using the yellow_sign_to_sharpen.psd file from the book's CD-ROM.

At the last Photoshop World I attended (Sept 2005 in Boston) there was a session called "Unsharp Mask is Dead". How can they say that, many asked, USM is usually every retouchers final step. The answer is that there are two other ways to sharpen that many find superior. One is the new Smart Sharpen filter in CS2. That has some extra controls to limit its effect on shadows and/or highlights.

The other alternative has been one of my favorites for quite awhile now, and I showed a way to utilize it in Lab. This is not in the Margulis book, although he does mention the RGB procedure in passing. The basic routine is this (skip steps 3 and 4 if you are in RGB mode)

1) Duplicate the layer; or if you have many layers, do a stamp visible (aka the Vulcan Death Grip) hold down the entire left side of your keyboard... kidding, hold down Cmd, Option and Shift (PC: Ctrl, Alt and Shift) and press the letter E. This will create a new layer with a merged copy of everything. It's like flattening into a new layer while keeping all of your original layers underneath. Note that if you have a version prior to CS2 you must create an empty layer yourself, and have that layer selected before you do this.

2) Change the layer blend mode to Hard Light.

3) If you are in Lab mode, double click on the layer to the right of the layer name to bring up the Blending Options dialog. Under Advanced Blending, turn OFF the a and b channel switches, leaving only the L on.

4) Again assuming Lab mode, switch to the channels palette and select

the L channel. You can then click the eyeball on the Lab composite layer so that you get the full color preview back.

5) Run Filter -> Other -> High Pass. Start with about a radius of 10. Adjust + or - until the little preview shows a mostly grey image with good edge contrast. You should see the actual image become much sharper if you have the Preview checkbox checked.

6) Adjust opacity of this layer to taste. 100% is usually too harshly sharpened. 50% or lower usually looks good on the screen; you may want it higher for prints.

This is a neat nondesctructive way to sharpen that allows you to change the strength of the sharpening later, i.e. even after saving the file. You probably still want to do it late in the retouching session since the stamp visible freezes your image in the duplicate layer. But since you still have all your original layers, it isn't too hard to delete the stamp visible layer, make further changes in the original layer stack, then redo the procedure.

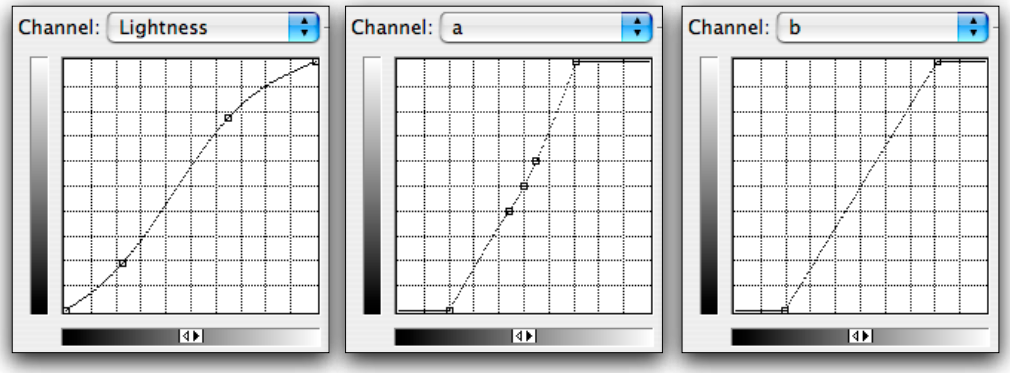
The next page shows an example using all the above variations.

Blur the a and b channels: This can be useful to reduce color noise, especially in low light/high sensitivity images. As it turns out the a and b channels, despite their apparent limited range, can take an awful lot of abuse before they drastically affect your image. A quick demonstration of this: take an RGB image, go to the channels palette, select any of the channels, do a select all, then use the move tool to shift it 10 or 20 pixels down and to the right. Repeat with one of the other channels, but shift it in a different direction. Now view the composite. It's a mess, right? Now try the same thing with a Lab image, shifting the a and b channels. There is some color shift, but the picture is generally still recognizable.

*Left, the original image. Middle, the result of shifting the red channel down and to the left and the green channel down and to the right. Right, the result of shifting the a channel down and to the left and the b channel down and to the right. The point is you can mess with the a and b channels a lot more than you can the RGB channels.*

*The original image.*

*Shadow/Highlight adjustment applied to the L channel. The amount and tonal range was turned down from the default to make the adjustment more subtle, then raising the radius filled in the foreground tower shadow nicely.*


*Curves adjustment layers. I liked the way the 3-square a channel adjustment brought out the red of the brickwork, but it made the grass too green. To adjust parts of the graph, first lock in the center point to prevent overall color cast. Then add points and adjust the part of the curve where you want to adjust color.*

Blurring the a and b channels can be useful for removing color noise from low light high sensitivity images. This can be demonstrated by taking an RGB file, converting to Lab, blurring the a & b channels, and converting back.

*Original image (RGB)*

*Below, the red, green and blue channels, respectively. Typical for these types of images, the blue channel shows a fair amount of noise..*

*The original image was converted to Lab. Then a Gaussian Blur was applied to the a channel (at about a 5 pixel radius) and the b channel (at about a 7 pixel radius). Then the image was converted back to RGB. The resulting blue channel appears at left. The composite image didn't look much different; the effect of this on this image can only be seen at very high magnification.*

This is demonstrated even more dramatically in the Margulis book in Chapter 5, using his Flite_Ops_ Director.psd image.

# Imaginary Colors

The Lab colorspace allows for colors that do not exist in the RGB colorspace. As a matter of fact, you can call for colors that don't even exist in human perception. For example, a very pure yellow is 255R255G0B. Convert this to Lab and you get 98L(16)A104B. This means two things: First, Lab can produce a color that is even more yellow than that by setting the B value to 127. Secondly, it can create a lighter yellow by increasing L to 100. This essentially means that the color is nearly 20% more yellow than that pure yellow, AND it's as bright as white. It's generally impossible to imagine such a color, but Lab can call for it. So we call these imaginary colors.

What good are they? Well, your first thought is not very much, since we can't display them on our monitors and we certainly can't print them. But the magic lies within Photoshop and its RGB display engine. Where you might try to make an adjustment that drives a color to pure white (thus rendering it fairly useless), you can make a similar adjustment in Lab and it will look like what you want—perhaps a very bright pale yellow—and it can carry through a conversion to RGB and even print decently in CMYK.

A little experiment shows the power of this. Start with an image with blown out highlights. I used a photo taken during a living room concert, where a musician plays in someone's living room for a small (10-25) people. They normally don't mind people taking pictures, or even recording, as long as it doesn't interfere with others enjoyment. Naturally, this means no flash.

The picture on the next page is one such picture, and the halogen torchieres cause blown out highlights. Wouldn't it be nice to tone them down, maybe to a shade of reddish yellow to match the tone of the rest of the picture?

*1. Original image, RGB mode. The color at the cursor is chosen as the foreground color.*

*2. The blwon out areas are selected using the Magic Wand with a high threshold (128), non-contiguous.*

*3. A new layer is created and filled with the foreground color chosen above.*

*4. The layer is changed to color mode to try to make it blend better. Oops! The underlying white highlights overpower the color layer.*

*5. The image is converted to Lab mode without flattening to preserve the color layer. What's this? Now the layer, still in color blending mode, shows a nice yellow that is pretty close to what was wanted in the first place.*

If you convert it back to RGB now without flattening, you will get right back to the 4th image. If you want this to survive the conversion, you will have to flatten it—that's just how the color blending mode works.

That is also why, in general, you should flatten images when you convert between the spaces. Adjustment layers, in particular, will practically never convert correctly.

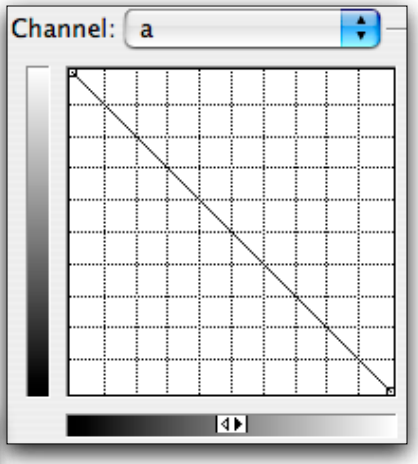
# Selecting & Changing Colors

At the meeting, the topic of selectively changing colors appeared to have been a popular one. I guess a lot of you wind up with image situations where someone or something shows up with the wrong color.

There are many ways to change colors in Photoshop, most of them involve making selections of the areas containing the color you want to change. You have to be careful with these, since highlighting and shadows affect colors, and you usually have to work at the selection to get it all convincingly.

Since Lab separates color from tonal information inherently, you will often find that the color areas you are lookiing to isolate are fairly well defined regardless of highlighting or shadowing. In very many cases, assuming you use layers (adjustment or otherwise), there is a very powerful alternative to making selections: you adjust how much of your images gets blended in depending on the color.

Let's start with a rather contrived example. Say you wind up with the following photo of a red car. Your client, for whatever reason, cannot use a red car in this case. The client needs a green car.

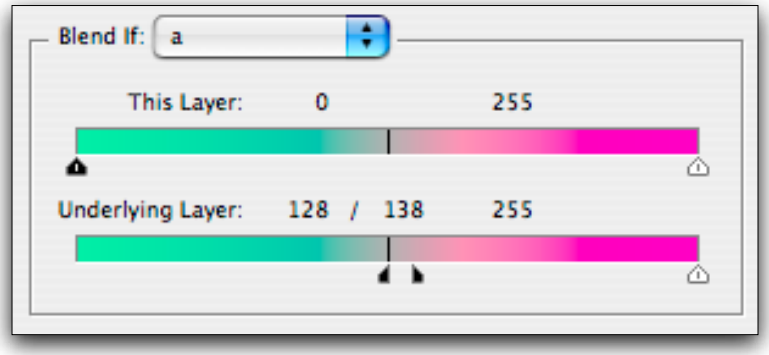



Okay... well, let's try this. Convert the image to Lab. Create a curves adjustment layer. Apply the curve shown at right to the a channel. (Drag the point on the lower left to the top, then drag the point on the upper right to the bottom, thus inverting the curve).

Make sure to point out the all the variations in shades of red and green in the images, how difficult it was to get them all right, and charge the client accordingly.

Of course this is a highly contrived example. And if you look closely, you will see that the original image looks like it was taken in summer, but the modified image looks like it was taken in fall: the trees and grass are reddish, including the ones reflected in the windshield. Plus, there's an amber turn signal light that has gone green as well.

Rather than running for the quick mask, take advantage of the use of the adjustment layer and double click on the layer itself (not the icon, not the name, but to the right of that). This brings up the layer blending options (it's actually the layer style dialog box, but the topmost option in that dialog is the blending options we want). At the bottom of this dialog is the Blend If section. We select the a channel and move the green side slider of the Underlying layer control over to the middle. Then we hold the Option key (PC:Alt) and move the right side of the slider over a little to soften the transition.




The result is on the next page.

That does a nice job of changing the background foliage back to summer green. It doesn't help with the amber signal light. In this case, the amber is so close to the red of the original that it is virtually impossible to isolate this way. Now you can get out your masking tools. Just paint a little black on the mask of the curves adjustment layer and that will do it.

This example is very similar to one from the book that I showed during the presentation, from Chapter 10, using the image red_car.psd from the book's CD-ROM. Also in that chapter are some more involved examples of changing a given color to a very specific color, for instance a particular color from the Pantone set. The overall procedure is fairly straightforward:

1) Convert to Lab and determine the equivalent numbers for the target color, and also select a spot on the image that best represents that color, because highlights or shadows will shift the color reading. For example, in the preceding car example, a good spot might be just above the headlight nearest us.

2) Using Lab curve adjustment layers, force that spot to the target color. There are cases where this is more difficult than others, i.e. trying to drive a value of a = 2 to a=75. This will result in an unmanageable nearly vertical curve. There are tricks to get around this, including replacing the a channel with a copy of the b! (on a duplicate layer, of course, to preserve an original channel copy)

3) Restore all the collateral damage to the other colors, using mainly the Blend If sliders, and layer masks.

There was some interest in demonstrating a more involved version of this procedure at a future meeting, or perhaps as a "two minute drill". Stay tuned for future updates.

A related topic discussed was on using channels as selection masks. The ideal here is that for creating selections or layer masks, rather than fussing with the lasso tools or the pen or even the marquees or color range selections, use the information in your channels to build the mask. Since most images start in RGB mode, and you should now want to convert them (at least a copy for experimentation) to Lab mode, that means you have 7 channels of information to look at to help build your mask. The a and b channels of Lab turn out to be particularly valuable since they only contain color information (which is often the major identifying factor of the object we wish to isolate). Plus, they actually contain 4 colors worth of information if we know what to look for.

A mask is a greyscale image that covers the object/area of interest in white and all the other areas in black. When we want to isolate magenta or yellow objects, we look for areas in the a or b channels that are lighter than the rest of the image. When we want to isolate green or blue objects, we look for areas that are darker in the a or b channels and then invert it to make them the light areas. Since the a and b channels are rather constrained in range compared to RGB channels, we need to force that range to white and black. This is like what you can do with Image -> Adjustment -> Threshold; however a better way is to use Image -> Adjustment -> Levels and move the black and white sliders until they are almost on top of each other. This automatically gives you a little grey transition area between black and white. I refer to this procedure as 'choking the mask' or 'choking the levels'.

Let's look at a non-trivial example.

Suppose we want to isolate the flowers and the greens from this image so that we can put our own background in it, perhaps for a greeting card. This is probably something that would not be a lot of fun to have to do with a lasso or pen or quick mask. The color and tone variety is wide enough that selecting by color is not going to help a lot. Let's start by looking at our channels.

*Red channel*

*Green channel*

*Blue channel*

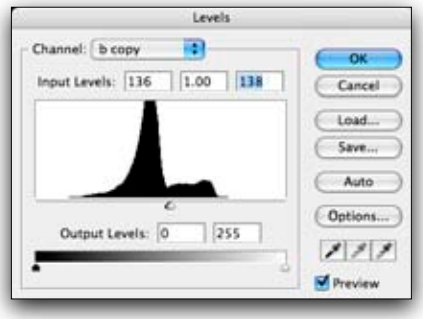
The blue channel shows some promise for selection the flowers, but there's still a lot of ground noise showing up light in the lower right. Let's convert it to Lab but we'll do it in a duplicate image, just in case we want to use any of these RGB channels later.

*L channel*

*a channel*

*b channel*

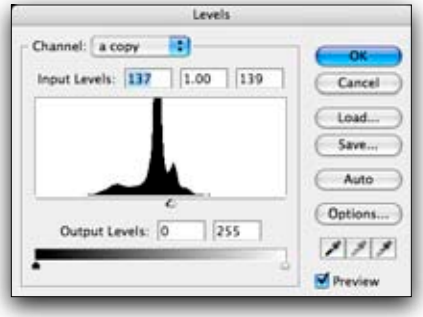
The a channel and the b channel both have potential because the flowers contrast with the rest of the channel, and they don't show much ground clutter. Let's try the b channel: we duplicate the channel, Image -> Adjustments -> Invert, then Image -> Adjustments -> Levels. Choke the mask as shown.




*b copy inverted and choked*

That's not bad for the flowers. The main thing here is to get the edges, the pistils or stamens of the flowers (or whatever they're called) can be painted in easily. It's the outside edges that are tricky to paint.

If all you want are the flowers, that's probably all you need to do. But suppose we want the greens too. For that we need to work on another channel, and combine them later. Let's try inverting the a and choking it.




*a copy inverted and choked*

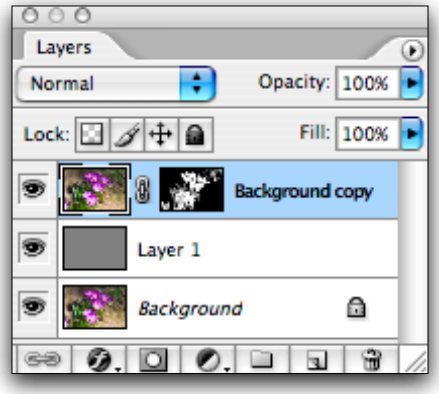
That's not bad, it would be nice if we could get the center stems of the long leaves, although they too are inside the outline we're trying to achieve, so perhaps its best to just move on. (Hint: you could try going back to the RGB copy and duplicating the Blue channel into this Lab document, then choking that down to try picking up the stems... but you'll wind up picking up a lot of ground noise in the process. For some images and masks, that may be worth doing. But probably not this one).

There are a couple ways to put these masks together. One is, of course, to load one as a selection, then load the other as a selection adding to the first. But there's a more flexible and visual way of doing it, by using Apply Image.

To set up Apply Image, you must select the target layer and channel that you want to combine the channel masks into. For this, just so we have something to fall back to in case we need it, we will duplicate one of the two channels we just created, the "b copy" channel. We can do this by simply dragging "b copy" down to the new channel icon at the bottom of the palette. At this point we might want to rename it from the given "b copy 2" so we don't get confused later: rename it to "mask". Then we do an Image -> Apply Image selecting the "a copy" channel as the source, mode Lighten:


*after apply image of a copy into b copy (aka "mask") using Lighten*

It's a good ideal to blur these things before you actually use them, so we run a Filter -> Gaussian Blur at a radius of about 3.5. Then we duplicate our background layer and insert a layer in between the two. Fill this middle layer with grey as our new background. Then load the mask channel as a selection and create a layer mask on the top copy.




*Left, the image masked using channel operations; above, the layers palette.*

No, it's not perfect as it stands, but this is just a start towards a final mask. You'd probably want to crop it some, maybe make it square with the central bouquet the focal point. Then of course the missing innards need to be painted in. But that is much easier than painting the whole thing from scratch. And once you get used to what to look for, you can get rather decent ballpark masks fairly quickly using these methods.

# Portrait Retouching

Finally, let's touch on the topic of retouching portraits, a topic covered near the end of Dan Margulis' book. This is one of the rare cases where he gives a fairly straightforward recipe, and therefore I'll go thru it rather quickly.

The basic Lab move described early can certainly be used to retouch portraits, but this will usually result in a tendency toward color saturation which most people don't find flattering in portraits. Increasing color contrast in people's faces often brings out skin blemishes that most people would rather have diminished rather than enhanced. This procedure is tailored to increase the overall color contrast, yet in a more gentle way, and always allowing complete flexibility by using opacity sliders and the like.

This procedure can work for any portrait, whether it's professionally lit and shot, or just a snapshot. For this example I will use this picture of yours truly, apparently taking the oath of office of president of my living room, bad lighting, cropping, and all.

We start this procedure in RGB mode. We'll convert to Lab later, but there is a preliminary step we'll want to do in RGB mode.

First, examine your RGB channels and pick the one the shows the most contrast, but without overly darkening certain desirable features, i.e. blond hair. In a portrait, this is normally the green channel, and that is the channel we will use here.

*Red channel*

*Green channel*

*Blue channel*


Now we duplicate the background layer of this RGB image and apply the green channel to the new layer, which makes the image greyscale momentarily, until we change the blending mode to Luminosity (unfortunately Luminosity is not one of the blending modes offered in the Apply Image dialog directly). This will increase the overall image contrast slightly.

*Original*

*After Apply Image of green channel; Luminosity mode.*

Something to watch out for at this step: if the original image contained any very dark reds or purples, this step may make them too intense. Use the Blend If sliders for the Green channel, underlying layer to reduce them.

Next, convert the image to Lab mode. When it prompts you to flatten the image, do not do so. However, once converted, do flatten the image yourself, using Layer -> Flatten Image or Merge Down from the Layers palette. A very slight additional contrast change results when you do it this way (compare them in the history palette).

Now that we're in Lab mode, create a duplicate layer here. In this duplicate layer, we are going to do two things:

1) Apply the a channel to itself in Overlay mode

2) Apply the b channel to itself in Overlay mode

In general, you will be doing these at 100% opacity (in the Apply Image dialog), but there are some things to consider:

» For caucasian skin tones, you probably want to favor the b channel in the weighting of these two steps, since this will give a slight emphasis to yellow tones, and that is pretty much accepted as a good skin tone for such people: use a at around 70% opacity, b at 100% opacity

» For dark skin tones, e.g. those of African descent, you probably want to favor the a channel in the mix, since that skin tone looks better tending towards magenta than yellow: a at 100%, b at 70 or 80%.

» For all the other skin tones between these extremes, you can probably go 100% to both.

Here's what it does to my European Caucasian mug:

*After Apply Image of a channel to itself in Overlay mode.*

*After Apply Image of b channel to itself in Overlay mode.*

At this point the color is obvioously too intense, but we are on a separate layer so we can and will lower the opacity of this layer quite a bit to taste.

Depending on the picture you may want to add a curves adjustment layer and apply a slight S-curve to the L channel to enhance overall contrast.

Sharpening can also be done on the L channel at this time, either using Unsharp Mask, Smart Sharpen, or the High Pass filter method shown earlier.

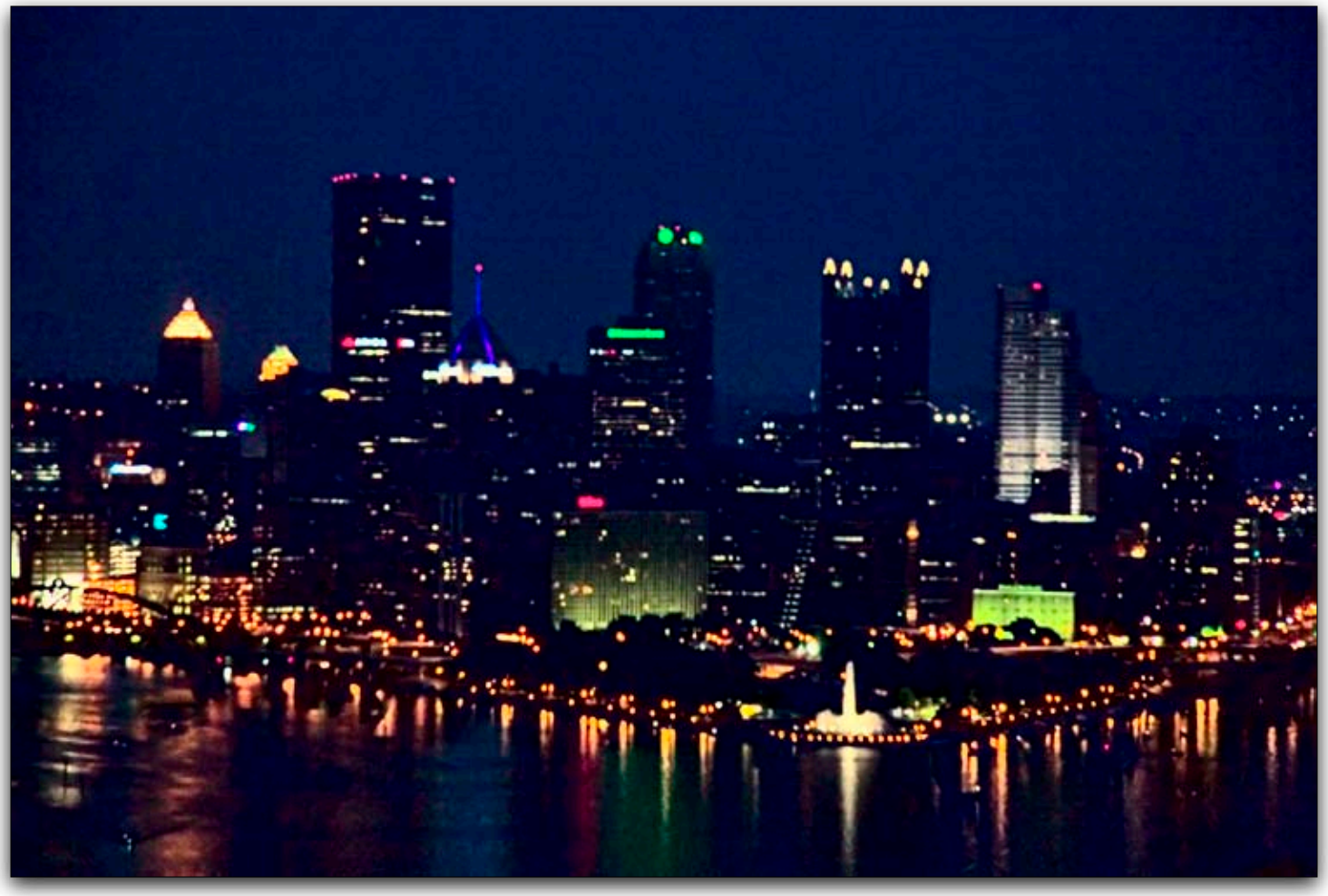
Before and after are shown on the following page for comparison. I used about a 40% opacity on the color modification layer.

That's pretty much it. Whether it has improved this particular image is debatable, but trust me, it does do nice things to a good portrait of an attractive person.

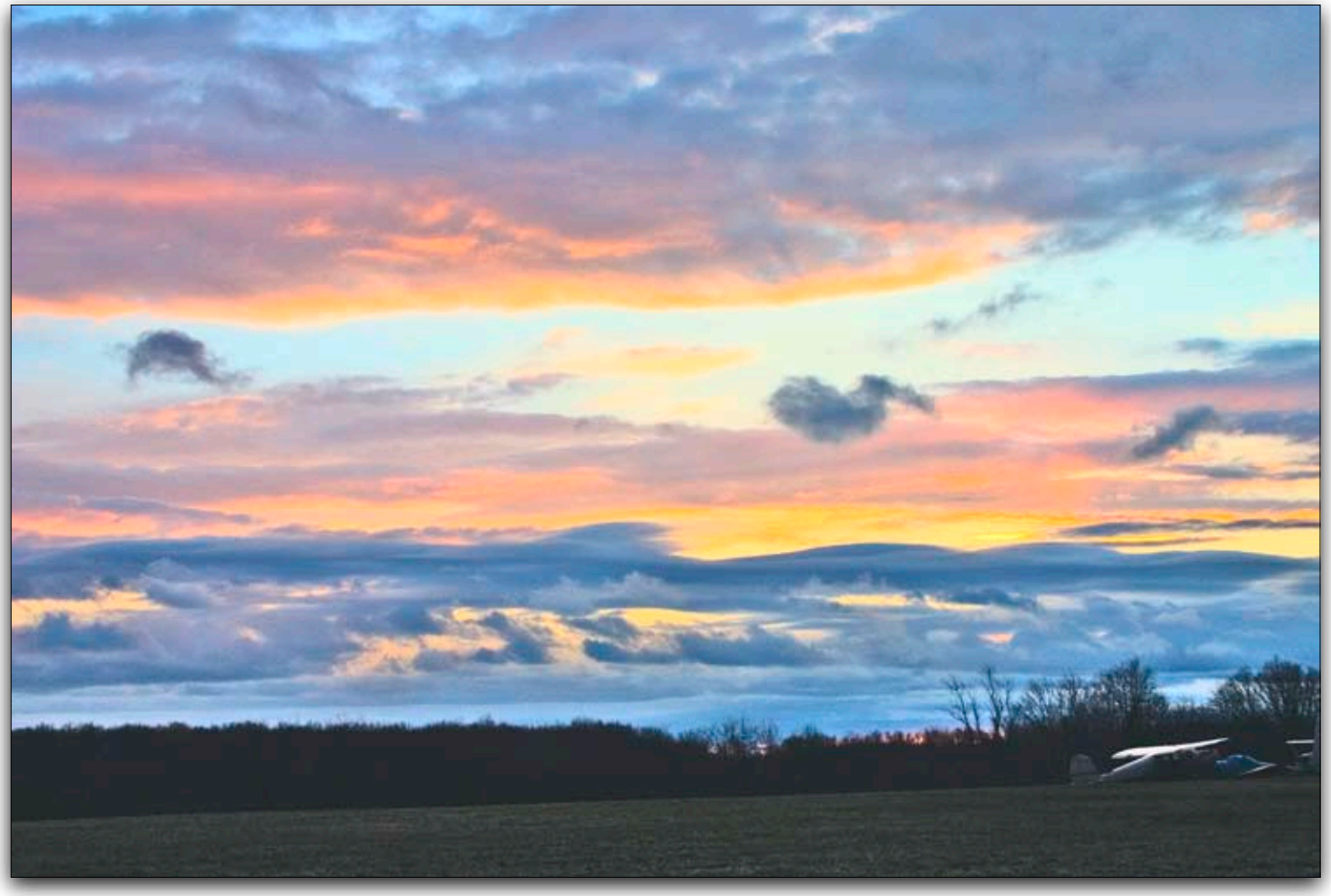
This also pretty much covers what I talked about at the CTAPP meeting of July 17th, 2006. It certainly doesn't begin to cover all the concepts from Dan Margulis' book *Photoshop Lab Color,* but it does touch on some of the concepts I found easily and immediately useful. I hope it helps you in your journey.

# Gallery

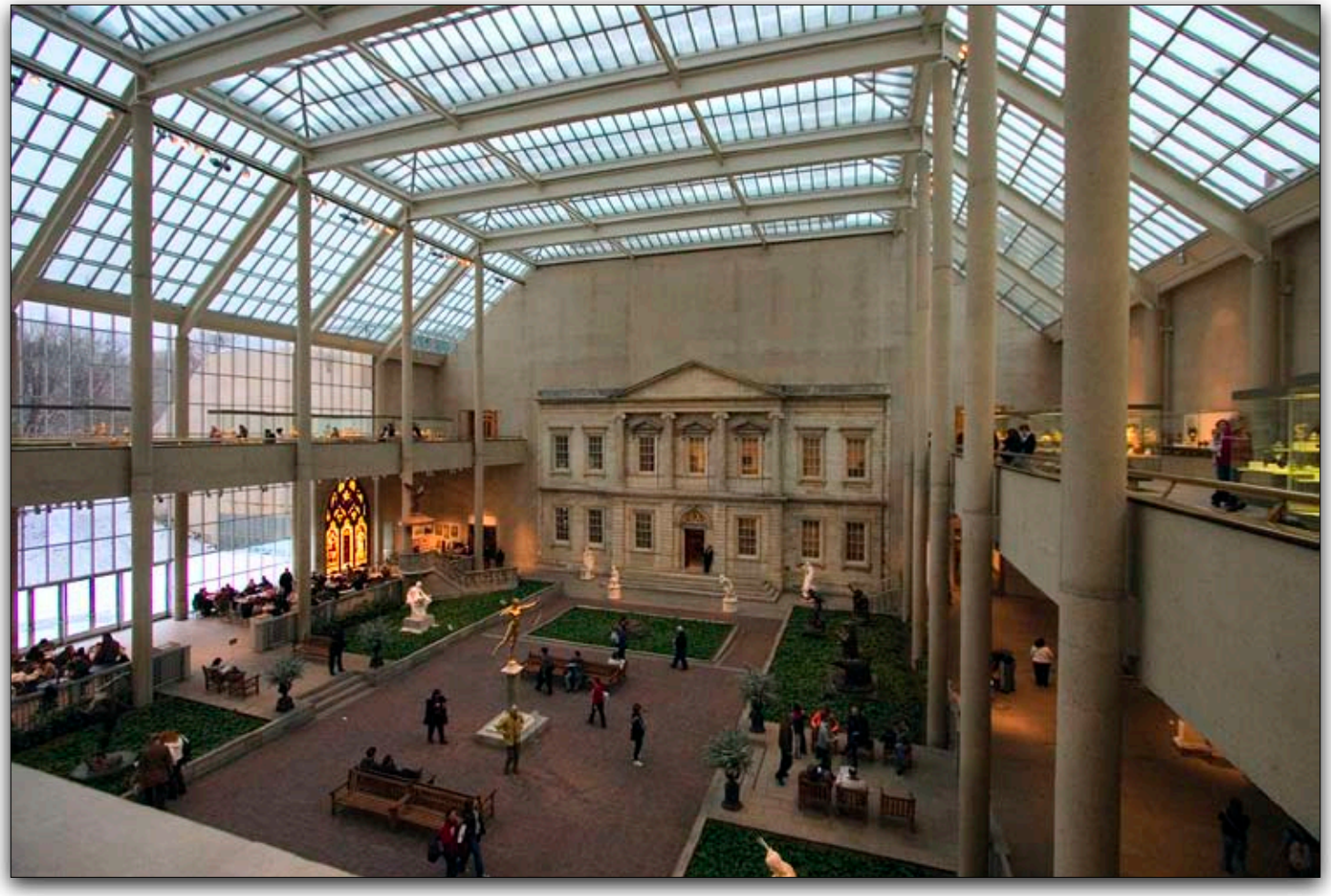
*Pittsburgh at Night from West End Park, July 2006*



*Good Hill Sunset 4-5-04*



*Metropolitan Museum of Art, 12-5-05*



# Colophon

The document layout was done in Adobe InDesign CS2. The text font is Adobe Garamond Premier Pro, and the display font is Papyrus.

All Lab images were placed into InDesign natively—one of the advantages of working within the Adobe suite: you don't have to convert them all to RGB first, as you do with, say, Quark XPress.



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