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MAY 2004

This month's e-focus cover the watershed. Joe Ramsey summarizes two talks he gave at the April DIPSIG meeting. One introduces the use of Curves, a powerful tool for adjusting lightness, darkness, contrast and more. The other reviews various ways to convert a digital color image into a black & white image, and how to choose the way that yields the most effective result.

Jerry Dupree shows how to clean the insides of a digital SLR camera to remove all the dust and particulates that accrue as a result of changing lenses. This is a "do at your own risk" operation, but one which many digigraphers are undertaking because of the expense and time involved in sending it back to the manufacturer.

Stuart Lynn has more on the subject of shooting RAW. Based on a lead from Marty Fields, he also reviews the findings of a national report on the care and handling of CDs, and why such care is necessary. While on the subject of aging, he also summarizes another report on the care, handling, and lifetime of inkjet prints.

And then, of course, our usual columns. More pointers from Woody Kaplan on bargains and useful links; Dear E-bby; and Tip of the Month. Only "Love Me, Love My DIG" is missing from the usual line-up – Ed

This Month's Feature Article

CAUTION: Curves Ahead! by Joe Ramsey

Just when you thought you were getting a handle on Photoshop adjustments here is another approach to enhancing and/or correcting photos. Of the many ways to adjust images in Photoshop the Curves command is the most powerful and versatile when you need to darken or lighten a photo and intensify or obscure detail.

If you have only used Curves to make cookiecutter adjustments such as "click in the middle and push the curve up" or "make an S-curve" you probably found some images were greatly improved, some were marginally improved and others containing unique problem areas needed further adjustments. With the understanding of Curves adjustments to be gained here you should be able to improve even the most problematic images.

First, let's examine the Curves dialog box. Click on **Image**>*Adjustments*>*Curves*. See Figure 1.



Figure 1: Curves Dialog Box

The *Curves* dialog box always opens with the curve showing as a straight diagonal line. The horizontal axis shows the original intensity values or *Input Levels* of the pixels while the vertical axis shows the new values or *Output Levels*.

For RGB images the default intensity values are shown on a scale of 0 to 255 with black (0)

placed at the bottom left. Thus, the grayscales are a graphic representation of tonal values, i.e., brightness at any given point whatever the color of that point might be. This is also referred to as *Light* mode, i.e., no light for black (=0), maximum light for white (=255).

The grayscales can be reversed by clicking on the double-headed arrow at the center of the Input grayscale. The scales now display percentages from 0% to 100% with highlights at the lower left corner. The percentages relate directly to *Total Ink*, i.e., the amount of black ink required to print each brightness level onto white paper, 0% ink for white up to 100% for max black. This is also the default dialog display for images in CMYK mode (used mostly for commercial printing). See Figure 2.



Figure 2: Reversing the Scale

For our purposes we will use the default RGB (0 to 255) mode. If you prefer Total Ink (0 to 100%) just remember to move curve adjustment points in the opposite direction from our descriptions.

Making Adjustments

Basic adjustments that can be made using the Curves command are lighten, darken, increase contrast and decrease contrast. Refer to Figures 3 through 5 for curve shapes that result in these basic adjustments.



Figure 3: Adjusting Lightness/Darknesss



Contrast trast At first glance that doesn't seem like anything special, however, the advantage of curves is that you can target adjustments to specific areas of an image while leaving other areas relatively unaffected. In addition, you can target multiple areas in the same image using only one curve.

Using an image of your choice open the Curves dialog box. To set a point on the curve *Cmd/ Ctrl-click* the image where you want to make an adjustment. You can now move the fixed point that appeared on the curve by using the up/down arrow keys. One click moves one level, shift-arrow moves 10 levels. Left and right arrow keys work the same way but change the input point. Selected points may also be moved by simply clicking and dragging. Up to 14 points may be set on a curve. I have found 2 to 4 points adequate for adjustments of most photographs. To remove a point from the curve either highlight the point by clicking on it then hit Delete or simply click and drag it off the graph.

Improving Images

Making Images Lighter

Figure 6A shows a picture of Traffic Cones that is too dark. Because it has fairly even lighting

overall I chose the midpoint directly on the curve to make a basic lightening adjustment. See Figures 6B and 6C.



C: After

Making Images Darker

The Race Driver photo in Figure 7A is pretty hot all over that is to say it is too light. A lot more detail would be visible if it were darker. I clicked on the blue suit since it is a good midtone to work



Figures 7A,B: Darkening an Image

with although an arbitrary click on the middle of the curve would probably have served as well. The results seen in Figure 7B now show detail in the white areas of the car hood and improved overall appearance more closely resembling the early morning light when the shot was taken. No highlights are burned out to featureless white and the darkest shadows have at least some detail visible.

Decreasing Contrast

The "before" version of Kickstand Grill, Figure 8A, had deep shadow areas but the highlights were

OK not requiring any adjustment. In determining where to place an anchor point I discovered that the highlights shining in the chromed areas were burned out with no detail but the top area of the sky and the motorcycle fender were nearly the same brightness level thus at the same point on the curve. I decided to anchor the brighter areas of the sky. To lighten the shadows I picked a point on the lower part of the fuel tank that was in shadows but not completely black. See Figure 8B and 8C for the result. Note the fender and sky appear the same in byoth the before and after images because the highlight area was anchored.

hannel: RGB

Input: 244

B: Adjust

Output: 79



Figure 8: Decreasing Contrast

might work. I clicked on the lower right one to place an adjustment point then adjusted the curve downward to increase contrast. The results are in Figure 9B and 9C. Observe how increasing contrast can also make colors pop.



C: After

A: Before

C: After

Targeting Specific Areas for Improved Detail

The "before" version of the Monument photo, Figure 10A, had low contrast in midtones as evidenced by the washed out look of the brick structure and grass. In fact, when I first glanced at the photo I didn't realize the monument was made from multitoned bricks. The first step in bringing out detail was to place points on the curve for the lightest and darkest bricks so that contrast could be increased. Note the very short portion of the curve that was affected. After adjusting the curve so that the bricks reached a good contrast level it was found that some corrective adjustments were now needed in other parts of the image. The end of the curve in the highlight area had burned out most of the sky and at the other end deeper shadows caused by the adjusted curve made the panel across the base of the monument and the background trees very dark obscuring detail which had previously been visible.

First, to reduce the brightness of the sky an adjustment point was added by clicking on a gray area of the clouds that was still visible and dragging that point downward. Then to lighten the sculpted panel across the base of the monument

Increasing Contrast

Did vou ever think a green caterpillar would need increased contrast? The problem I saw in Figure 9A was that it had insufficient overall contrast. I clicked on the top of the caterpillar's head just inside where it curves downward because except for the white stripes that was the brightest area on the caterpillar. I wanted to be careful not to make it too light. Fortunately, it fell far enough down the curve that considerable upward, lightening adjustment could be safely made. But, the image still needed more contrast. The caterpillar did not have any good points to choose for shadow adjustments although the background did have some darker areas which I thought

another point was added by clicking on the panel then moving that point upward. This allowed some of the details in the sculpted panel and trees that were the same brightness to be seen.

When you look at the adjustment curve required to improve this image note that the highlight and shadow areas were targeted separately from the midtone contrast adjustment of the bricks. When adjustments were made in any of the three problem areas the remainder of the image was minimally affected.

Final Thoughts



C: After

A point not previously discussed is that Curves will make color changes appear in the adjusted image. It may acceptable in some images but if not you can avoid color shifts by setting the Blending Mode of the Curves layer to Luminosity. Curves adjustments will then affect only brightness levels without changing the color.

Hopefully you may now realize that the adjustments made to the foregoing images are but a limited demonstration of the power of Curves adjustments. After practicing Curves adjustments for a while you will develop a tool that enables you to do much more with image adjustments than with any other single dialog box. It is one of the features that separate Photoshop power users from everyone else.

At Least Six Ways Plus Variations to Convert Color Photos to B&W Using Photoshop by Joe Ramsey

In our club competition coming up this month the Special Project is Color to B&W. In order to further that cause here is a reminder of the conversion techniques covered at our last DIPSIG meeting. As you know Photoshop is the mother of redundancy so there are lots of techniques to choose from. They all yield similar but not exactly the same results. Several allow unique variations that can enrich many images. Which technique to use is more a matter of personal preference as all are eminently usable.

The most direct conversion methods are:

1. With a color image open go to **Image**>*Adjustments*>*Desaturate*. Nearly always requires further adjustments using *Levels* or *Curves* to improve the contrast range. File size remains the same because no pixels are lost.

2. Go **Image**>*Mode*>*Grayscale*. Greens and yellows convert to lighter gray shades and blues convert to darker gray shades if compared to Technique 1. File size is only 1/3 of original because the remaining pixels are shades of gray. May require additional *Levels* or *Curves* adjustments.

2a. For a variation of Grayscale go **Image**>*Mode*>*Grayscale* then immediately go **Image**>*Mode*>*RGB* to convert back to RGB before making any adjustments. The first step converts to grayscale but the resulting file size after the second step is the same as the unconverted image. Part of the reasoning behind converting back to RGB is that there is more control with various adjustments and prints have a more full range of gray tones. In practice the advantages are not as obvious as one would hope.

3) Go **Image**>*Adjust*>*Hue*/*Saturation* or **Layer**>*New Adjustment Layer*>*Hue*/*Saturation*. Adjust the *Saturation* slider to -100. You can target color ranges in the Edit box but there is only limited control with the Lightness slider. This is a quick way to convert to B&W but even though color ranges can be targeted don't expect results to be significantly better than Techniques 1, 2, 4 or 5.

The next two techniques work by choosing either a single color or lightness channel. In most cases both of these techniques require additional *Levels* or *Curves* adjustments for optimum results.



DIPSIG is the Digital Photography Special Interest Group of the Coachella Valley Desert Camera Club. It meets the third Tuesday of each month (except July and August) at 6.30 pm at the Courtyard Marriott at the corner of Cook and Frank Sinatra in Palm Desert

Tuesday, May 18 DIPSIG Meeting:

A Few More Curves Ahead + Using Blending Modes

Our foray into the world of Curves adjustments was very enlightening to many members at our April meeting. Now you can review or, if you missed the meeting, get up to speed on *Curves* by reading our "<u>Caution-Curves Ahead</u>" article in this issue of *e-focus*. Most of the material covered at the meeting is included. Check it out.

At our meeting this month we will finish our discussion of Curves adjustments which includes drawing freehand curves then showing several special case applications of Curves including inverting images, posterizing images and solarization. These are the fun applications sort of like taking your macho 4x4 off-road. If you have questions regarding any Curves applications this will be a good time to ask.

To cap our adventures using Curves we want to see some real world uses of Curves. Bring your images, either as prints or on CD (jpegs are best so we don't have to switch computers), to the May 18 meeting and show us your before and after Curves applications. I expect there will be some interesting results.

Following the break we're going to look at enhancing images using Blending Modes. You are already familiar with many of the Blending modes that appear in the Layers palette and several other places but I'm willing to bet there are a couple of Blending adjustments that you have never looked at. They are in the Layer Styles dialog box and can be very useful in specific situations. We'll show you those plus examine the more familiar Blending Modes to get a better sense of how they work and how to best apply them.

It's not required, but you will get more out of the meeting if you are able to bring your laptops and power cords to follow along. There will be practice CDs available. And, don't forget your Curves images to show how you used Curves to make improvements.



Seeing Double! Making Double Exposures in Photoshop (Elements) by Stuart Lynn

Have you ever taken double exposures with your film camera? And wondered why you could not do the same with your digital camera, but wished you could? And you used to create some really exciting images with those double exposures. You even went so far as to combine different pieces of slide film into the same slide holder for the same reason – montages as they are called.

Think about it. What would happen if your digital camera were able to take double exposures? You would record one exposure into a file in your camera's memory. And then somehow you would add the second exposure on top of it in the same file instead of making a new file. Even if it were possible to program the camera to do that, why bother? It would be so much simpler to combine the two image files later in Photoshop (Elements) or any other image processing program. And you would have so much more control.

How's it done? First, open the two images you want to combine. Let's call them *Image A* and *Image B*. It's a good idea to save *Image A* first into another file with a different name so you do not lose your original image.

Make sure they are about the same resolution and of comparable size. Use **Image**>*Image Size* to reduce the higher resolution image to the lower resolution of the other, and adjust the image dimensions. Don't worry if they are not exactly the same size – you can adjust later the way you want it.

Drag *Image B* on top of *Image A*, holding down your mouse button until you have really moved *Image B* all the way over. Release your mouse button. Note that *Image B* appears as a new layer in the *Image A Layers* palette.....only it will be called "Layer 1": you can always change its name to something else (say "Image B") by just clicking on the name and entering your new name. If you don't like dragging, you can always *Copy* and *Paste Image B* into *Image A*....it will also automatically place *Image B* on a new layer.

With this new layer selected in the *Layers* palette in the Image A window, move the *Opacity* slider to about 50% so that you can see *Image A* showing through *Image B*. Using your *Move* tool (shortcut: just press the letter "v") move *Image B* until it is positioned where you want it. You may want to adjust the size and rotation angle of *Image B* using **Edit**>*Free Transform* (shortcut: *Ctl-t* on a PC or *Cmd-t* on a Mac). It's your choice.....you're in total charge of image creation!

Crop as you wish. Adjust the *Opacity* slider so that you get the right degree of transparency. You now have your double exposure. Adjusting the *Opacity* slider is equivalent to adjusting the relative exposures of the two images in your film camera. Only there's no guesswork or rule of thumb formulas to worry about. You just get it right in Photoshop (Elements)!

But there's more. Try experimenting with the different *Blending* modes from the pulldown menu in the *Layers* palette to get different effects (you may have to adjust the *Opacity* slider for each different choice of blending mode). *Difference*, in particular, can cause some eye-dazzling effects! You couldn't do that with your film camera!

And, of course, you can pile on as many images as you want for the equivalent of triple, quadruple exposures and more.

Keeping Up With The RAWeses by Stuart Lynn

In other articles (see March, 2004 *e-focus*) I have advocated using the RAW format wherever possible, particularly because of the new built-in capability offered by the plug-in included with Photoshop CS for managing RAW formats and 16-bit images. The reason for doing so is to bypass the automatic tools built in to digital cameras so that you can perform any corrections directly at your leisure in Photoshop (note: Photoshop *Elements* does not have any capability itself for handling RAW images). Why guess at the time of shooting?

But there is a potential problem. RAW formats vary from camera to camera, as do the automatic built-in controls. The Photoshop CS plug-in, therefore, does not handle RAW formats from every camera on the market today. But it does try to keep up.

Until recently, for example, Photoshop CS would not handle the RAW formats from the SONY DSC-F828, a camera owned by several Club members. But there is now an update to Photoshop CS that can be downloaded for free that provides support for many new cameras, including the DSC-F828. It can be downloaded from <u>http://www.adobe.com/</u> <u>products/photoshop/cameraraw.html</u>. The page also contains a complete list of currently supported cameras.

How to install the new plug-in? First, close Adobe Photoshop. Second, download from the above address the updated plug-in folder called *Camera Raw 2.2 Update* (it should decompress itself). Finally, move the new *Camera Raw*¹ plug-in (contained in the downloaded folder) into the *Plug-Ins/File Formats* folder contained in your Photoshop CS folder² to replace the existing *Camera Raw* plug-in. If you want to be safe, move the old one to your desktop first as back-up. Restart Photoshop CS and you are on your way.

Presumably newly purchased versions of Photoshop CS will already contain the updated plug-in, but it does no harm to check. And even new purchasers will need to update their plug-ins for future releases.

Adobe keeps the list pretty well up to date. Even the new Nikon D-70 camera is already supported in the new 2.2 update!

The new plug-in, incidentally, also contains a few minor changes that may be of value even if your camera is already supported with the original plug-in. So it pays to keep up with the RAWeses!

(Footnotes)

¹ In Windows, the plug-in is called *Camera Raw.8bi*. ² For Windows the location is *Program File/Adobe/ Photoshop CS/Plug-Ins/File Formats;* and for Mac OSX the location is *Applications/Adobe Photoshop CS/Plug-Ins/File Formats.*

Shooting RAW may reduce the need for bracketing!

There's another compelling reason to shoot RAW. It may reduce the need for bracketing your shots when you are shooting in Aperture Priority mode.

Why is this? It is because you can apply Exposure Compensation (EC) adjustments after the fact with the Photoshop CS Raw Plug-In (users of Photoshop Elements, please see below). There's an obvious slider that gives you the control.

Is this the same as using Exposure Compensation in the camera? No, not quite. If you use it in the camera you actually do change the exposure and the amount of light allowed into the camera. This is not quite the same as simulating a change with software after the fact. But it is darned close.

However, relying on the plug-in is a more "dangerous" approach if you are shooting Shutter Priority. In the camera, you will be changing *f*-stops when you bracket, with resultant changes in the depth of field as well as the amount of light allowed into the camera. When you adjust Exposure Compensation with the RAW plug-in, you are simulating the effect of changing exposure not f-stops, so the depth of field does not change. Thus, the results are not the same.

By the way, users of Photoshop Elements can get the same "benefit" if they use some third party plug-in that works for their camera's images (such as the Nikon plug-in for Nikon cameras) and convert to 8-bit images.

Tip of the Month:

Using AutoColor Intelligently

In both Photoshop and Photoshop Elements, *AutoColor* is an excellent tool for correcting color casts in digital images in addition to performing other useful functions – such as making lightness and darkness corrections separately to each color channel (red, green, and blue). It is one of the most powerful automatic tools in Photoshop (Elements).

AutoColor is invoked from **Image**>*Adjustments*> *AutoColor* (or, in Photoshop, a handy shortcut is *Shift+Ctl/Cmd-b*).

But like all automatic tools, whether in Photoshop or Photoshop Elements, *AutoColor* can lead you astray. As such, it should not be used indiscriminately. In the first place, not all color casts are bad: early morning shots correctly have a golden cast and are part of the atmosphere, just as late afternoon/evening shots should have a pinkish/mauve cast to them.

And *AutoColor* can play havoc with skin tones since the underlying mechanism averages over the entire image area and does not discriminate among the various components of the image. Skin tones just get lumped into everything else. Often *AutoColor* just goes too far.

Here is a trick that I have found useful in using AutoColor, one that I now employ automatically. Duplicate your background layer onto another layer (*Ctl/Cmd-j* in Photoshop; *Ctl/Cmd-a* followed by *Copy* and *Paste* in Photoshop Elements). Now use your *Opacity* slider in your *Layers* palette, sliding it back until the amount of correction looks just right. You are in fact mixing the original and the corrected layer to get just the right mix.



Not too little, not too much, but just right. The Goldilocks principle that I advocate with just about everything in image correction.

You should probably flatten your image at this point – from the dropdown menu invoked by the little arrow at the top right of your *Layers* palette. But be sure to save into another file (you should probably have done that first) so that you do not lose your original image.

It is a good idea to check your *Levels* palette (*Ctl/Cmd-l* or **Image**>*Adjustments/Levels*) since these may need some re-adjustment. Move the right and left arrows under the histogram towards the center until they just bracket the histogram content – MSL

Digital SLR Camera Maintenance: **The Perils of Dust Particles** by Jerry Dupree

The latest generation of consumer-priced digital cameras are digital SLR (DLSR) cameras which use interchangeable lenses, so you can use all of those expensive lenses from your 35mm film days. The biggest benefit is that you can use for digital photography all these specialized lenses – and extensions, filters and other accessories. There are a few downsides to all these benefits. We will focus on one of these in this article, in particular the problem of dust that can creep into the camera and what to do about it.

It wasn't long ago when a DSLR camera cost over \$5,000 and was out of reach for most of us. The print media quickly adopted the DSLR for transmitting images, editing, and making them press ready in minutes instead of hours. Professional photographers were able to enhance quality and produce effects into their images with Photoshop and other software tools. Prices came down and *presto*, they are appearing everywhere as they become ever less expensive. So more of us are having to learn how to maintain one of these beasts.

Downside to DSLR, or is there?

The manual that comes with a new DSLR camera has specific warnings about touching the delicate CCD (Charged Coupled Device), or CSMO (Complementary Metal Oxide Semiconductor) sensor that is inside a DSLR camera. In lowerpriced DLSRs, Canon uses a CMOS sensor, while Nikon and others use CCDs. These sensors are light sensitive surfaces that sweep across an image during capture and, when exposed to light, generate a series of digital signals that are converted into the various "pixel" values.. They are analogous to film, but not exactly. Actually, the part which is most likely to attract foreign particles like dust is the filter in front of the CCD / CMOS. It is a "low pass" filter designed to prevent "moiré" patterns. Moirés are ring-like patterns created when light falls on two transparent surfaces that don't exactly line up. Just know they exist and are undesirable, which is the reason for the filter

When the camera is turned on, a static charge is created which attracts particles in the environment. How did those pesky little things get inside the camera in the first place? They sneak in when we change lenses, no matter how careful we are. They collect on the filter in front of the CCD/CMOS.

Budget-priced DSLR's haven't been available to consumers for long, so in effect, we are pioneers in the industry. Therefore, the manufacturers are very careful when it comes to warranties, recalls, class action suits, and the like when they release a new product to the masses. We can't really blame them for their *"don't you ever never touch that thing"* or you will go to wherever, just like the *"do not remove under penalty of law"* labels on pillows and mattresses. Trust me, I tore one off a pillow once and nothing happened, ... yet! It's about that serious really. The guys upstairs in Tokyo are worried that the average DSLR camera owner will stick about anything inside his camera, so they just say, *"don't go there or we will void your warranty."*

In time, as dust creeps in, spots large and small will begin to appear in your pictures. The easiest way to test if there are particles on the CCD filter in a DSLR camera is to take a picture of the sky. When it is on your computer monitor and you see spots that are not birds or airplanes, you have dust particles inside your camera. Don't panic yet: the cure isn't brain surgery. Anyone can clean the filter, but it must be done carefully and properly.

Got specks?

Let's consider for a moment what the manufacturers recommend. I can only speak about the Nikon D100 because I own one and nobody will let me practice gouging out the insides of their Canon or Fuji! Page 187 of the Nikon manual says to buy an AC adapter for \$79 and connect it to the camera; then scroll through the menu until it comes to "mirror lock". With "mirror lock" selected, when the lens is removed the mirror locks up out of the way and a little curtain is drawn, revealing the CCD and its little glass filter: the guts of the camera. The instructions then tell you to use a squeeze bulb to puff out any dust from the CCD surface while holding it upside down in a well-lighted environment. It also says, "don't ever touch that thing with anything, not no way, not no how", or

something to that effect. If this does not solve the problem (it probably won't because of the static charge on the particles) the manual tells you to send your camera to a factory service center. I have read that this can take several weeks and often with not all that satisfactory of results.

You can do it

If I bought this camera twelve weeks ago and it caught the dreaded dust disease, and it takes six weeks turn around to fix it, then why did I buy it? It's because you are in fact so much of an expert that you can also perform the dust cleaning procedure *yourself* – instead of the kid in the back room at the Nikon service center who is probably the boss's son and will drop his lunch crumbs into it. Now who is going to take better care of your pride and joy? You or the Nikon kid?

Help is on the way

There are sites appearing on the Internet that give instructions on how to do your own cleaning, and that sell the stuff you need. If the simple instructions are followed and the right equipment is used, the CCD filter can be cleaned as often as necessary with just some practice and a few minutes of your time. The main precaution is to use your head. If you are smart enough to own a DLSR, you are smart enough to clean one. Don't try Q tips, Kleenex, or other products. You will end up with more dust and lint than you had when you started. And you could damage the filter.

Let's look at two methods for cleaning:

Method A: Try the simplest method first. Follow what it says to do in the manual. Lock the mirror up (requires an AC adapter with the Nikon D100), and gently blow out the little culprits with a squeeze bulb, and *not* canned compressed air. Canned air can have way too much pressure that can cause a miniature hurricane inside the camera and damage other delicate parts. Canned air also has a liquid propellant, which, if it hits the CCD filter, may not come off. It can leave a sticky residue that can cloud the filter. Do not blow inside the camera, you might introduce moisture that could condense and cause a variety of trauma. After doing what the manual suggests with a squeeze bulb, test your camera for dust: take a picture of the sky and see if any spots appear. You might be lucky enough to not need *Method B* at this time – but you will eventually.

Method B: You may have lucked out and Method A fixed it, but just wait until next time. It's good to prepare yourself and plan for the need (which will surely arise) to clean the CCD in a hotel room or in the field, somewhere far from a camera shop or service center where they would charge you way too much to clean a little piece of glass.

The equipment needed is a sort of a spatula device like the ones being sold on the Internet by an early entrepreneur in the CCD cleaning field. See <u>http://pbase.com/copperhill/ccd_cleaning</u>. You will also need some very specialized lint free swabs available from photographic equipment suppliers known as "PecPads" which have been used in darkrooms for cleaning dust particles off of negatives for years, and some "Eclipse" cleaning fluid. Eclipse cleaning fluid is very refined ethanol that leaves no residue. Don't even think about using rubbing alcohol, lacguer thinner, contact lens solution, or other magic stuff. PecPads and Eclipse have been around photography, darkrooms, clean rooms, and other places a whole lot longer than digital cameras have, so trust it. You can order these supplies from Fargo Enterprises: http://www.micro-tools. com/Merchant2/psi.htm

Don't touch anything with your bare hands or with any object except the PecPad swab. Wrap the PecPad around the spatula and Scotch tape it into place like the picture shows in the above link. Use a few drops of Eclipse solution on the PecPad swab and start cleaning the CCD filter in a back and forth motion, first one way, then the other. The website shows you how. The object is to pick up and remove the dust particles, not scour the glass. Sound simple? It is. Keep your cleaning kit in a ziplock baggie, and take it wherever the camera goes.

The final test

Now go outside and take a picture of the sky to check it. It's all black now? Maybe that's because it's nighttime. (The manual may be right after all;-))

(continued from page 5: Converting to Black & White)

4. Open the *Channels* palette and look at each color channel individually. If the channels appear in color go to **Photoshop**>*Preferences*>*Display&Colors* and deselect *Color Channels* in *Color*. To observe each channel individually click on the channel name. Pick the one with the best tonality and detail, usually the green channel. Click the small arrow at upper right of Channels palette to open menu. Click *Duplicate Channel* then in the pop-up window select *Destination*>*Document*>*New*. You now have a new document with one Alpha channel, no color. *Levels* or *Curves* adjustments can be made normally as in any Grayscale image.

5. Go **Image**>*Mode*>*Lab Color*. In the *Channels* palette highlight the *Lightness* channel then open the *Channels* palette pop-up menu and select *Duplicate Channel*. In the new pop-up window select *Destination*>*Document* >*New*. This is basically the same as Technique 3 except that the *Lightness* channel is retained instead of a *Color* channel.

The foregoing techniques can be used to obtain better than acceptable results with many images. However, if you have an image in which you want to adjust the grayscale levels of specific "color" areas, for example the reds or greens of the original color image, you will find that it is difficult to isolate those areas for adjustments using any of the techniques discussed thus far.

The next two techniques although slightly more intricate give better control over the final appearance of an image being converted from color to B&W.

6. To use *Calculations* for B&W conversions go **Image**>*Calculations*. This technique combines your choice of two of the color layers. It also permits the use of *Blending Modes* and *Opacity* of the second layer to further modify images. *Calculations* can result in very good B&W conversions with just a little experimentation.

7. The *Channel Mixer* can be used for color images as well as converting color to B&W images. Go **Image**> *Adjustments*>*Channel Mixer* or **Layer**>*New Adjustment Layer*>*Channel Mixer* to open the *Channel Mixer* dialog box. To get B&W images click *Monochrome* at lower left. The *Output Channel* changes to Gray but the source channels of Red, Green and Blue remain. Make adjustments with the sliders to get the appearance you want. Click OK. This one targets specific color areas and is very easy to use. There are two additional techniques that are essentially variations and/or combinations of techniques just discussed. Both permit excellent control of the final image appearance.

8. The first of these techniques uses *Channel Mixer* but combines a grayscale step wedge added into the image to monitor adjustments.

NOTE: Make your own step wedge by opening a New Document window measuring 1 inch high x width of the image you are converting. Set resolution the same as in the image. Fill this new document with a pure black to pure white gradient. Go Image>Adjustments>Posterize. In the pop-up window change Levels to 11. Some pros use as many as 20 levels. Click OK.

To apply this technique open the image to be converted. Go **Image**>*Canvas Size*. Check *Relative* and enter 1 in the Height window. Be sure to anchor the image position so that 1 inch is added only at the bottom of your canvas. Click OK. Drag the step wedge to the newly added space at the bottom of the color image. Add a *Channel Mixer* adjustment layer described in Technique 6 above. Watch the step wedge to be sure that a full range of grayscale levels is maintained while you adjust the image. *Crop* or resize the canvas to delete the step wedge when adjustments are complete.

9. The other combo technique uses two *Hue/Saturation* layers. Go Layer>New Adjustment Layer>Hue/ *Saturation*. Click OK without making any adjustments. Repeat these steps to make a second adjustment layer. Go Layer>New Adjustment Layer>Hue/Saturation. Set *Saturation* of this second (top) layer to -100. Click OK. Highlight the first Hue/Saturation layer and set the *Blending Mode* to *Color*. On this same layer open the dialog box and select the color range you want to adjust. Move the *Hue* slider to make larger range adjustments and the Saturation slider to make more limited adjustments. Target specific color ranges by selecting the target colors in the *Edit* window. You can also use Channel Mixer with this two adjustment layer technique, however, the target color ranges are limited to RGB whereas using *Hue/Saturation* layers you can select not only RGB but CMYK color ranges as well. Either way spectacular conversions can be made with this combo technique.

May all your conversions have a full range of grayscale levels!

Woody's Corner by Woody Kaplan

AROUND THE e-BLOCK



Still looking for portable storage on long trips? Neat little 40gb drive but no preview screen. http://www.adorama.com/ICDSDB40.html

From Stuart comes interesting "CompactFlash Performance Database" All cards are not created equal. http://www.robgalbraith.com/bins/multi_page.asp?cid=6007

So many cameras, so little time to research all in one place. Give this site a look for that just perfect SLR for your needs.

http://www.ultimateslr.com/

Save time and get more enjoyment from your digital pictures. Try Free Trial (Windows only) from ACD. See <u>http://www.acdsystems.com/English/Products/ACDSee/index.htm?CMP=KAC-googleawacdsee&CRA=USA</u>

Belong to CostCo? Looking for inexpensive 6.3mp with 19.2x total zoom? On sale until June 30 is this "Fuji FinePix S7000" that also takes new xD memory card. Only \$499 after \$100 rebate. http://www.costco.com/frameset.asp?trg=product%2Easp&catid=79&subid=83&hierid=2929&prdid=10042938

Another report on new "Extreme 1gb CF card from SanDisk. Sounds like they have a winner in speed race. <u>http://www.bjorn3d.com/ preview.php?articleID=422</u>

Amazon.com not only has good prices but offers lots of information. Take this for a test spin. http://www.amazon.com/exec/obidos/tg/guides/guide-display/-/8JYKBBXKMVOA/ref=cm_bg_dp_1_1/102-6739038-3282548

Still looking for "Storage?" Memory cards are not the only storage needs for your home. Need place to store CD/DVD/video/audio cassettes?

http://store.yahoo.com/organizeeverything1/cddvdvhsstor.html

The secret is out! Buy a MuVO MP3 music player for under \$200 and perform a "diskectomy"! Inside is a 4gb (that's right: 4gb!) Hitachi microdrive (normally retails for over \$350) that you can use in place of your compact flash (Type II) card in most recent digital cameras. Store thousands of jpegs or several hundred RAW images. See http://www.steves-digicams.com/microdrive.html. Watch for more details next month as the fearless duo (Woody, Stuart) test out the theory. Stay tuned also for information on how to replace the 4gb microdrive by your old 1gb drive so that you still have a working MP3 player! In a hurry and can't wait? Save by registering at:

http://us.creative.com/shop/shopcategory.asp?category=84#

Woody's Corner Cotinued On Next Page

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What will they think of next? Now you can have your Binoculars and pictures too.				
http://www.overstock.com/cgi-bin/d2.cgi?PAGE=PROFRAME&PROD ID=622745				
If you haven't found this "super low price" site before, take look at "Overstock" New prices every				
day.				
www.overstock.com				
Everybody can use an extra camera or two or three right? Little 4mb from Mustey also				
on Overstock com				
http://www.overstock.com/cgi-bin/d2.cgi?PAGE=PROFRAME&PROD_ID=616370				
If your looking for deal on Apple laptop like Joe uses at DIPSIG for less then \$740 with printer, don't				
pass this up				
http://www.ecost.com/ecost/shop/detail.asp?dpno=156611&action=rap&promo_id=5938				
2.2gb Microdrive if you don't really need 4gb from above link or don't want to perform the				
"diskectomy", this is deal hard to pass.				
http://www.memorysuppliers.com/ibmmicrodrives.html				
80X 40X 16X 12X 4X speed? Find right compact flash for your budget				
http://www.memorysuppliers.com/lexar1.html				
For those of us who would like to learn more about "Pin-Up" photography. Bel Air Camera in Los				
Angeles has a FREE class on May 15, 10/3pm sponsored by Leica.				
http://belaircamera.com/photoclasses772_1.php				
One touch back ups for your "RAW" photos could not be easier then 160gb Firewire/USB2 from				
Maxtor.				
http://www.maxstore.com/product.asp?sku=2320117				
(CostCo price \$169, Amazon same price, no tax or snipping cost)				
While at Maxtor view Flash Demo on "OneTouch " Even "little me" can back-up				
www.maxstor.com				
In closing, you will notice that the theme this month went in direction of <i>Storage</i> . It wasn't to long				
ago when I bought my first "bargain." Fry's had a 1gb internal hard drive marked down from \$900				
to special new low price of \$499. In today's world you can get 1gb for less then \$1.00. Don't take any				
chances of that perfect picture getting lost, always back-up (twice if you're using CDs - see article				
How long do your CDs last?", this issue). With new cameras shooting in KAW, 20mb files per picture				
"Procumors" 10/12mb compres hit the street. Plan new for the				
future				
Add the second s				



Your questions answered! *e*-focus has assembled a team of international inexperts to help you with your digital problems. Please send your questions to *e*-focus@cvdcc.org.

Dear E-bby: I no longer own a film camera. Can make slides with my digital camera?

Ahah...you have been caught not reading your e-focus carefully! See: "From Digital to Slides: New Horizons" in the February, 2004 issue. It compares two services: one commercial, and the second a private service by a noted PSA photographer who gives more customized results. Two out of three members who have used the commercial service compain that they darken or over-saturate the slides. But they are more efficient in that you can use the network to send your digital files; you have to mail them to the other service.

Dear E-bby: I have a setting to determine white balance on my digital camera. I notice that the "cloudy" setting has a great deal of pink in it. Is there anything I can do to change that?

These automatic settings on digital cameras are just approximate to average over a set of conditions. They can easily give false results. The white balance settings are used to approximate the color "temperature" when it is cloudy or whatever. I do not know of a digital *camera that allows you to adjust the parameters for* these automatic white balance settings (readers?), but many digital cameras allow you to make custom settings (you shoot a white card under the set of conditions of interest, and use this shot to calibrate the custom setting). Also, many cameras allow for autobracketing of white balance, which might help. Personally, I much prefer to shoot RAW (see articles in this and previous issues). Then I can adjust my white balance <u>after</u> downloading my images, and not fuss with these automatic settings. I rarely find them to be satisfactory across a wide spectrum of situations.

Dear E-bby: I've been looking for new camera in photo magazines and on the Web. Why is there such a big difference in price for the same camera from different stores?

Apart from normal competitive differences, the biggest price gap is between "official" sales and "grey market" cameras. Camera manufacturers often wholesale to overseas dealers for less than they wholesale to U.S. dealers (just like the pharmaceutical companies?). Many U.S. dealers take advantage of this, purchasing their inventory abroad and directly importing the cameras into the U.S.. Even with the extra shipping costs, this significantly lowers their bottom line cost of goods, so they can afford to resell them to U.S. buyers at lower prices than they can sell "officially" *purchased cameras. The snag? Grey market cameras* come without a manufacturer warranty. You entirely *depend on the dealer's warranty – and occasionally the* dealer has disappeared when you need them the most or there are extra repair costs hidden in the fine print. *Whereas there are few, if any, problems in buying grey* market filters, or even lenses, E-bby believes there is some significant risk in buying a grey market digital camera. Caveat emptor!

A question from Thelma and Louis on the road: Louise would like to know why, when she had her camera set for flash in the same casino, the image was dark. I, Thelma, was using my Nikon because it was easier to carry in my purse? When I didn't use the flash, some of the shots, like Thelma's had a yellow tint others did notl. I'm thinking the type of lights that were emitting from the machines had something to do with it. When I took shots of the machines they turned out fine. When I took shots of the decorations in the Casino they had the yellow cast. I haven't changed the white balance, guess that's the problem, huh?

You got it! See the answer to the earlier question o white balance. You poor little camera is just getting confused among all your artificial light sources. Shoot RAW, and you can figure out the right setting after you download the images. Re the dark flash images: did Louise have a polarizing filter on? If so, it can fool the camera into giving the wrong exposure if it's not using TTL flash. Besides, what are two innocent gals like you doing shooting photos in a casino – the security police are likely to have you arrested!

How Long Do Your CD's Last? – Or Do They?

by Stuart Lynn

So your CD's will last forever. Right?

Wrong?

It is not known exactly how long a CD-R (that is, one you create yourself) will last. What is known is that it will not be terribly long, perhaps a matter of years if you are lucky. What is also known is how long they last is a function of many factors: the initial quality of the CD-R, how you treat them, and how you store them.

I have created several CD-Rs that failed. That is why I always make two backups of anything I care about. It's unwise to assume that one backup will do the job – and even two can fail eventually.

The federal government's National Institute of Standards and Technology (NIST), in collaboration with the Council for Library Resources, has recently completed an extensive study on the "<u>Care and Handling of CDs and</u> <u>DVD</u>s". This is a detailed document that is well worth reading for those who care about the life of their CDs. Its findings are far from encouraging.

Only look after the CDs you want to keep! You may as well throw the rest away!

Did you know, for example, that the layer of a CD-R used for recording data is actually made of an *organic* dye, sandwiched between a polycarbonate layer and a metal layer? And that this layer is vulnerable to many external effects, including extreme environmental conditions?

CD-Rs, CD-RWs (not designed, by the way, for long-term storage), CD-ROMs, DVDs and other optical media are all made differently and present different longevity issues. But they all require careful handling and storage if they are to be readable for some time. For example, using a pen, pencil, or solvent marker to write on the "label" side of a CD-R is a bad idea and could easily damage the data layer....use a non-solvent felt tip permanent marker. And don't leave your CD-Rs in the hot rooms of your unattended home over a desert summer: they will be data toast by the time you return! In fact, any temperature above 68° Fahrenheit is potentially destructive (or below 39° Fahrenheit). Wow!

Those of you who always opt for the cheapest CD-Rs might want to think again and dig deeper into your pocketbook (although higher price does not necessarily mean higher quality). Gold discs are the best, but even silver will generally outlast the vulnerable organic dye layer that holds the data. See also an interesting article in the U.K.s Independent Newspaper on this subject: <u>http://news.independent.co.uk/world/science_technology/story.jsp?story=513486</u> (you have to pay for it!).

In the attached table, NIST summarizes the "do's and don'ts" of the care and handling of CDs and DVDs. It is worth a study. It can also be found at <u>http://www.itl.nist.gov/div895/carefordisc/disccare.html</u>. The full report also recommends storing CDs upright and in jewel cases.

After all, only look after the CDs that you want to keep! You may as well throw the rest away!

Thanks to Marty Fields for putting me in touch with this study! – MSL

Digital Data Preservation Program CD and DVD Archiving Quick Reference Guide for Care and Handling

Do:

- 1. Handle discs by the outer edge or the center hole.
- 2. Use a non solvent-based felt-tip permanent marker to mark the label side of the disc.
- 3. Keep dirt or other foreign matter from the disc.
- 4. Store discs upright (book style) in plastic cases specified for CDs and DVDs.
- 5. Return discs to storage cases immediately after use.
- 6. Leave discs in their packaging (or cases) to minimize the effects of environmental changes.
- 7. Open a recordable disc package only when you are ready to record data on that disc.
- 8. Store in a cool, dry, dark environment in which the air is clean.
- 9. Remove dirt, foreign material, fingerprints, smudges, and liquids by wiping with a clean cotton fabric in a straight line from the center of the disc toward the outer edge.
- 10. Use CD/DVD cleaning detergent, isopropyl alcohol or methanol to remove stubborn dirt or material.
- 11. Check the disc surface before recording.

Do not:

- 1. Touch the surface of the disc.
- 2. Bend the disc
- 3. Use adhesive labels.
- 4. Store discs horizontally for a long time (years)
- 5. Open a recordable optical disc package if you are not ready to record.
- 6 Expose discs to extreme heat or high humidity.
- 7 Expose discs to extreme rapid temperature or humidity changes.
- 8. Expose recordable discs to prolonged sunlight or other sources of UV light.
- 9. Write or mark in the data area of the disc (area where the laser "reads").
- 10. Clean in a circular direction around the disc.

For CDs especially do not:

- 1. Scratch the label side of a CD.
- 2. Use a pen, pencil, or fine tip marker to write on the disc.
- 3. Write on the disc with markers that contain solvents.
- 4. Try to peel off or re-position a label.

General recommendations for long-term storage conditions

For archiving recordable (R) discs, it is recommended to use discs that have a gold metal reflective layer.

Archival Storage Facility - Recommendation for storing CDs and DVDs together

Media	Temperature	Relative Humidity (RH)
CD, DVD	Less than 20°C (68°F)	20% to 50% RH
	Greater than 4°C (39°F)	

A temperature of 18°C and 40% RH would be considered suitable for long-term storage. A lower temperature and RH is recommended for extended-term storage.

Taken from National Institute of Standards and Technology (NIST): "Care and Handling of CDs and DVDs". See http://www.itl.nist.gov/div895/carefordisc/disccare.html.

And Your Prints Won't Last Forever Either....

by Stuart Lynn

Not just your CDs (see previous article), but also your prints have a relatively short life. But your initial choice of inks and papers, and how you look after them will have everything to do with how long they last.

For an excellent summary of the good and the bad, see "A Consumer Guide to Traditional and Digital Print Stability" (<u>http://www.rit.edu/~661www1/sub_pages/8contents.htm</u>). This 8-page document is a gem. A 5-minute read will pay great dividends. This publication, by the way, is produced by the Image Permanence Institute of the Rochester Institute of Technology (<u>http://www.rit.edu/ipi</u>), a site that is well worth a visit.

When it comes to inkjet printers, take the predictions of manufacturers on print life with a huge grain of salt. Their predictions are usually only based on the effects of light exposure, and ignore all the many other factors that affect life expectancy, including high temperatures, humidity, and air pollution.

.....take the predictions of manufacturers on print life with a huge grain of salt

Prints from pigment inkjet printers will far outlast those from dye-based inkjet printers. Some authors, including yours truly, believe that transparent dyes produce greater sparkle and subtlety of colors than pigments, but the difference – if any – might not be worth the penalty paid in print life.

Photographic papers for inkjet printers come in two basic flavors: "swellable" and "porous". Without going into detail, the swellable papers are generally slow-drying while porous papers dry instantly. But porous papers have no protective polymer coating, so they are very susceptible to air pollution, particularly ozone (don't take your prints to Los Angeles!). On the other hand, swellable papers fare worse in humid conditions because the inks tend to spread.

How do you tell them apart. Drying time is a clue, porous papers having a short drying time. Swellable papers generally have a higher gloss. Most porous papers feel slightly sticky, swellable papers feel smooth. Another way is the "rub" test: a drop of water rubbed across the surface of swellable paper will "melt" the surface layer and form a slippery film; it will simply be absorbed by the porous paper.

Storage is key to print longevity. Avoid exposure to direct light. If you hang your prints on the wall, protect them with glass, Plexiglass® or Lucite®. Or keep them in albums that meet International Standards Organization (ISO) standards that pass the Photographic Activity (PAT) Test and are acid-free and lignin-free.

Or you can just print it again when your print fades. That is, if your CD is still readable (see previous article)! And guess what: carefully produced and stored inkjet prints will probably outlast your CDs!

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(contact efocus@cvdcc.org)



E-FOCUS IS ISSUED AS AN ELECTRONIC SUPPLEMENT TO IN FOCUS, THE NEWSLETTER OF THE COACHELLA VALLEY DESERT CAMERA CLUB

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