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Photographing Your Work - A Tutorial

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INTRODUCTION

For many woodturners photography quickly becomes yet another tool of the craft. We spend hours creating works of beauty so we naturally want to showcase our work at its best. Acceptance to exhibitions or juried events often requires us to be somewhat proficient in photography. For those of us who share our work on the net, images are our primary means of communication. Yet photography can be daunting to those who are new to the subject.

It shouldn't be. Expensive equipment and a Ph.D in optics aren't necessary for taking a good photo. Take a look at the image at the bottom of this page. It was shot with a basic 3.2 megapixel Canon PowerShot A75. The truth is that most cameras on the market today are more than capable of delivering a beautiful image. The limiting factor is often the person behind the lens.

This tutorial is intended for the woodturner and casual photographer whose primary interest is in taking better photos of his or her woodturnings. It assumes the reader has a basic point-and-shoot camera (or better) and will be shooting primarily in "auto" or "macro" mode. It does not attempt to cover technical photographic concepts such as shutter speed, ISO, aperture, etc. Rather, it is a compilation of simple tips and tricks for assisting fellow woodturners in improving their photos.

The tutorial is divided into three sections:

Section One covers ten simple tips for getting the most out of your images with presentation and shooting techniques.

Section Two discusses a few basic photo editing software tips.

Section Three sheds some light on the world of lighting.

For many woodturners, sections one and two may be enough to satisfy their needs. Section three is provided for those who want to take their skills to the next level.

A **Final Thoughts** page provides a few additional resources for those who want more information on the topic.

It is suggested that each of these sections be read in order as each builds upon the other.

Click on the navigation buttons at the top or bottom of each page to move through the tutorial.



Texas Ebony semi-open form. 4-1/2" x 1-3/4".

Image taken with a 3.2MP Canon Powershot A75

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Better Pictures from Neal

Submitted by guest on Fri, 02/13/2009 - 14:00.

Your tutorial will change my photography from something I apologized for to something I will be proud of. Easy to understand and can be done with articles you have in your home. Thank you for passing on your wisdom.
Larry Bourdeau

» [reply](#)

Photo Tutorial

Submitted by guest on Sat, 01/31/2009 - 10:12.

Neal, what a great resource this is!

It was with your assistance I made the transition from taking snapshots of my turnings to actually creating photographs! Thank you for that! It is amazing how a well composed photo can change the subject from something most folks will

only glance at to something that can grab and hold their attention! Your tutorial provides all the basics, and more importantly, the reasons behind the different settings. I appreciate you taking the time to put this tutorial together and as I encounter others who have questions and wish to go beyond mere snapshots - I will send them here!

Thanks again,

Steve Schlumpf

»

[reply](#)

photo tutorial

Submitted by guest on Wed, 01/07/2009 - 14:00.

Thanks Neal. It has helped de-mystify the mystery of decent photos.
Roger Dunn

»

[reply](#)

Photo Tutorial

Submitted by guest on Tue, 01/06/2009 - 14:08.

Mr. Addy, I was a professional photographer for about 16 years. I took several courses overseas, worked some in sports photography, and as a traveling portraitist, and owned my own studio in Texas. I had to give it up due to shaky hands. (Sometimes it just isn't feasible to use a tripod). I've been away from photography for about 15 years.

Your tutorial is an excellent tutorial for all of us. Refreshing some old ideas and techniques, and getting a few pointers about lighting that's available today, is very useful.

Thanks for taking the time to help out newbies and old timers.

Al Neighbors

»

[reply](#)

Photography tutorial

Submitted by guest on Tue, 01/06/2009 - 14:03.

This is an excellent product Neal, and I hope many turners will use it as a learning resource to aid in our visual communications.

Jamie Donaldson

»

[reply](#)

Tutorial

Submitted by guest on Tue, 01/06/2009 - 06:54.

Neal, Thanks very much for this great turning aide. I am just beginning to realize some of the benefits from becoming a better photographer, and this

information will go a long way for me!
Kurt Bird
President, Stateline Woodturners
Northwest Arkansas

»

[reply](#)

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Section 1 - The Basics

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Let's say you've just completed your latest masterpiece. You'd like to shoot some photos and email them to friends and family, or perhaps post them to an on-line forum. Do you simply grab your camera and head for the kitchen counter?

Why not?

Most cameras sold today are more than capable of delivering a perfectly good image regardless of where it was shot. But a few simple tips will help get the most out of each photo.

Let's start with some basics:

1) Eliminate the clutter - The background you choose makes a profound difference to the eye of the viewer. Keep in mind that the purpose of your shot is to show off your newly turned masterpiece, not that stack of magazines in the background! Anything else placed in the frame of your shot only draws attention away from where it belongs: your work!

Let's compare a side-by-side example. The two shots below were taken from the same spot on my kitchen counter. The shot on the right has a simple piece of artist's paper placed under the bowl and curved up the back to isolate the subject.





You can see how eliminating the clutter (and getting a bit closer) creates a much better photo. Unless you are a fan of corn-shaped sugar bowls you probably enjoy looking at the second shot best.

2) Go Macro - In photography terms this means "get close!" Most cameras have a Macro or Close-up mode (usually designated by a flower symbol). Use it!

Macro lets you move in closer (as we did in the second shot above) and does a good job of handling things like **depth-of-field**. Position the camera so that your masterpiece fills at least 50% or more of the viewer. Be careful not to get too close as this can make it difficult for the camera to focus correctly. Back away a bit if you find your auto-focus "hunting".

3) A top-down approach - Don't shoot bowls or larger objects from a straight-on profile view. Whenever possible, compose your shot so that it presents your subject from a just-over-the-top perspective. This doesn't mean shoot down on the piece. Angle your shot so that it just peeks over the top edge.

4) Eliminate the shakes - Always use a tripod. Even a cheap tripod will usually yield better images than hand-held. Any zoom that might be used only results in magnifying the shakes.

Who wants to look at this? Compare it to our shot on the right above.



And yes, I know your camera has "Image Stabilization" or "Vibration Reduction"! That's very nice. Turn it off and use a tripod anyway. Your shots will only be as steady as the platform from which they are taken.

5) Fingers off - As implied in number 4 above, anything that jiggles the camera (or tripod) even by a tiny amount should be avoided. This includes your finger pressing the shutter.

"Hmmm, so how am I supposed to take the shot", you ask?

Your camera has a built-in delay feature. Use it! Some cameras refer to this as a "self timer". Check your camera's manual if you are unsure how to use this.

Most cameras have at least a 2 second delay. This is usually enough time for the camera and tripod to settle once you have pressed the shutter. Timed delay should be used anytime you are shooting with a tripod.

6) Don't over-do the color - Background color can have a profound effect on the viewer's color perception of your piece. Compare the three shots below. Notice how the piece loses some color as the background gets darker? Yet highlights (i.e. bright areas) become more pronounced.



As a general rule, white is always a safe color to use (more on this later). Light gray also works well in most situations. Red, greens, blues, etc. should

generally be avoided unless you have a specific reason for choosing them. Colors other than white or gray tend to have the unwanted effect of tinting our color perception of the subject in their favor.

7) Get this straight - Don't make your audience tilt their head! Always be aware of the horizontal alignment of your image and make sure your subject is level.

Unless your subject is sliding downhill it should not look like this.



Many cameras provide a viewscreen grid option to assist you in aligning your shot. If you have such an option available you should leave it turned on as a reminder to check alignment each time you shoot. Most photo editing software has a "rotate" or "straighten" function should you find an image that needs adjusting.

8) It's only electrons - Always use the highest resolution your camera is capable of (more on this later). Unlike the days when film was king, taking a shot in digital costs you nothing but a bit of space on your memory card. Disk is cheap. Your photos are priceless!

9) Train the eye - Learn from each image you shoot. Take a critical look at each photo and evaluate what you did well and what needs improvement. This can (and should) be done at the on-camera LCD after each shot and again after uploading the images to your PC.

10) Spice it up - Learning a few basic tricks with your photo editing software can make the difference between a drab photo and a great photo. If this step intimidates you don't worry; there's no reason for it. Photo editing software has come a long way in the past few years. Anyone with a few tricks up his or her sleeve can edit like a pro with a few simple clicks of the mouse.

How much difference can software make, you ask? Let's compare an "unprocessed" photo (taken directly from the camera) with its spiced up counterpart. Remember our kitchen counter shot? Here it is before and after a bit of software processing.



So how did this magic happen? Let's move to the [next section](#) and find out!

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It's time for a bit of truth... unless you are VERY skilled in photography (and/or very lucky) it is rare for a perfect shot to come directly from the camera with little or no software processing needed. This rule applies to amateurs and pros alike. But the good news is that most images can be spiced up with a few simple clicks of the mouse.

It is beyond the scope of this tutorial (and my own expertise) to delve into all of the intricacies of photo editing, let alone attempt to cover the various software packages that are available. Most digital cameras come bundled with their own photo editing software. Check yours to see what, if anything, was included.

I personally use Nikon Capture NX2 and Photoshop. For those who don't want to mortgage the house there are several excellent free packages available. One I highly recommend is [The GIMP](#), an open-source (free) image tool with lots of useful features. In this tutorial we'll use GIMP for demonstration purposes but your photo editing software will more than likely have similar functions and screens for each of the features discussed.

Before we dive into editing functionality we need to take a moment and discuss a few important points.

RESOLUTION, IMAGE SIZE, AND IMAGE QUALITY

You may recall that in the [Basics](#) section of this tutorial I recommended using the highest resolution available to you. (If not, re-read [tip #8](#).) Your camera most likely has several "image quality" settings. These settings directly determine the image size and resolution of your images.

As with a television or computer monitor, a photographic image is nothing more than a grid of dots (or [pixels](#) as they are referred to in geek-speak). Higher resolutions contain more pixels across each row and down each column of this grid. Lower resolutions contain fewer pixels. Image quality and resolution are directly related. Higher resolution means better image quality.

What does this have to do with photo editing software?

You should always be aware of an editing function's impact on the resolution of your image. Cropping and resizing (as discussed on the next page) can have a negative impact on your resolution, and therefore, image quality. We'll cover this in more depth as we discuss each function but here's a quick example to illustrate the "Dark Side" of over-manipulating our images.

Let's take a shot using the camera's lowest resolution setting, zoom (or crop) in on the subject, and then enlarge it using the resize function thereby

increasing the resolution of our cropped image. Here's our before and after shots:



Downright ugly, isn't it? This is an extreme example but you can see the effect these functions have on image quality when carried to the extreme. Notice the graininess and jagged edges in the second image? These are referred to as "artifacts" - a photo editor's worst sin (well, at least one of the top five). Aside from reverting to your original image there's not much you can do to save this puppy no matter how much photo editing magic you use.

Keep resolution in mind as you read the remainder of this section. We'll discuss the effect of editing functions on resolution where applicable.

PRESERVING ORIGINALS

One last important note before we dig into software features...

Always preserve your original images in their original state! Should I repeat that?

Before you begin editing an image you should always perform a "Save As" and make a copy using a different file name. The new image will then become your working copy. Never change an original! You never know when you may need to go back to it at a future time.

OK, enough of the preliminaries. It's time to **dig in!**

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Regardless of which photo editing software you use, a few features are common to any software package worth its salt. Let's discuss five basic tools that every woodturner should have on their workbench: crop, resize, levels, unsharp mask, and curves.

The first two may already be familiar to you.

CROP

Did you ever include something in your image that didn't belong (such as a stack of magazines)? Cropping may be the answer. Cropping simply involves cutting a section out of your image to create a new image.

Here's an example:



This shot should obviously have been taken closer to the subject. No problem. Using the crop tool you simply select the area of the image you want to keep (photo on the left below) and then double-click that selected section to cut it out of the original. (NOTE: These steps are true for many software packages; check your software's "HELP" feature if this isn't the case for you).



If you like the newly cropped image you simply save it (hopefully you remembered to use a copy and not the original). If not you just "undo" (or close the image window and start over).

Crop is a handy tool but it should be used with caution.

Cropping, in itself, does not change the number of pixels used in the cropped area. If I cut a 600x400 pixel section from a larger image I have not affected the "resolution" of the cropped area, I've simply changed the overall image size. I still have the same 600x400 pixels as in the original.

The impact to image quality occurs when I resize the image (see below) to offset the change to the new image size. How much of an impact depends on how tightly I cropped and/or how much I have had to increase the size of the new image.

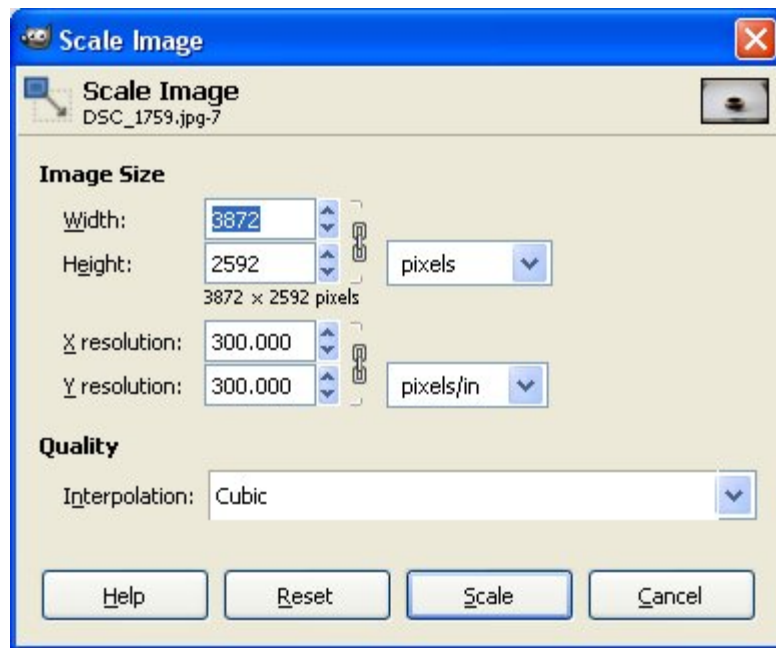
Which leads us to the next topic:

RESIZE

Resizing, or "scaling", an image is possibly the most commonly used editing function. Anyone who has ever posted images on-line should be familiar with it.

Resize does exactly what it sounds like: it allows you to change the size of your image. A typical resize dialog (GIMP calls it "Scale") looks like the

following:



The image associated with this dialog (not shown) currently has a resolution of 3872 pixels wide by 2592 pixels high. To change the resolution you would simply change one or both of the "Width" or "Height" values.

Note that the chain symbols (shown to the right of the "Image Size" values) means that those values are currently "linked" together, meaning if you change one the other will automatically change. This ensures that the aspect ratio (or ratio of width to height) is maintained. You could (if you chose) unlink the two values by clicking the chain symbol, thus making it possible to only change one value without the other being affected. Doing so, of course, would stretch your image in one direction or the other. (Have you ever wished that bowl was a bit taller? OK, just joking there. Don't do this!)

Once again, the resize feature has a direct impact on image quality. Quality is typically not degraded when resolution is decreased (i.e. the image is resized smaller). But when increasing resolution one should be aware that image quality could be degraded.

IMAGE SIZE AND THE WEB

How do you best preserve image quality? Compose your shots at the camera so that heavy cropping isn't necessary. For web photos the only resizing you should need to do is to scale down an image so it fits within the guidelines of your favorite photo hosting site or turning forum.

What size should web images be? That typically depends on the site you intend to post them to but here are a few thoughts to keep in mind:

- 1) Image size and resolution directly affect the amount of disk space needed to store an image. Many websites have image size restrictions to help them conserve storage space.
- 2) Image size and resolution also affect a potential viewer's download time. Larger images take longer to download, particularly for those folks with slower internet connection speeds.
- 3) If you plan to post your image on a woodturning forum a good rule-of-thumb is to resize your image to no larger than 800x600 and no

smaller than 600x400. This range ensures the image will be visible on most computer monitors and makes downloading time quicker for those with slower connection speeds.

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Now let's go a bit deeper and discuss a few very useful editing features which far too many folks ignore.

Remember our before and after shots from [section 1](#)?



The shot on the left was taken directly from the camera with no processing involved. (Note that it has been deliberately under-exposed for demonstration purposes.) The shot on the right has had just two minor adjustments: "Levels" and "Unsharp Mask". Let's briefly discuss each.

LEVELS

Although they may look intimidating, LEVELS ARE YOUR FRIEND!

Levels exist to correct various "tones" in your image's colors and light levels.

For our purposes we are going to put them to their simplest use.

Remember what I said in [section 1](#) about the use of a white background? The background in the unprocessed photo above doesn't look very white, does it? Let's fix that.

In your photo editing software of choice locate the "Levels" or "Levels and Curves" function (again, use "HELP" if necessary). Normally a dialog panel similar to the following will be presented. (Remember that I'm using "GIMP". Your dialog panel will differ depending on the software you use.)



Notice the eyedropper icons just above the [OK] button? Look for something similar in your dialog panel. We want to use the "white" eyedropper shown on the right. Click on that dropper icon and then click on the lightest area of your white background.

Voila! A much better photo.



In effect, what we've done is tell the software what the color white in our image should be. The software then adjusts its color calculations based on that reference point. Notice how the other colors of the new photo are better balanced? Doesn't get much simpler, huh?

Of course, the white eyedropper only works if you have pure white available

somewhere in your image (such as our background). You'll notice that we also have a black and gray eyedropper available. These perform the same function for their respective colors but are not always reliable in a single click operation and may require additional tweaking. After all, there are many shades of gray. The software assumes that you are referencing a (roughly) 18% shade of gray which may or may not be the case.

Does this simple trick always work? Sadly, no. There may be times that your colors are incorrectly adjusted. This could be caused by using a reference point that is not pure white. Or, perhaps the camera is using the wrong settings. Most likely the culprit is your "White Balance" setting. Don't worry about that for now. We'll deal with white balance in the next section.

Most software also has an "Auto Level" function. By simply choosing this function (usually a menu option, or button on the "Levels" dialog) the software attempts to calculate what values of color leveling should be used based on the lighting and camera settings. This feature works fairly well most of the time provided you (or your camera) have done a good job of exposing the shot. If not, the different color levels (red, blue, or green) may be over-calculated causing your image to be tinted in their favor. This can easily be corrected by adjusting the values for those specific color tones. We won't attempt to cover the details here but you should be aware that it is available.

Levels are an extremely powerful tool and one you are encouraged to experiment with and learn. A wealth of reference information is available on-line and in book form.

UNSHARP MASK

Let's briefly talk about sharpening. Sharpening does exactly what it sounds like if used correctly. It adds crispness to edges and texture. This is a common feature available in any photo editing software worth its salt.

Your editing software probably has two (or more) sharpening functions. One is usually called "Sharpen" and the other is referred to as "Unsharp Mask". Obviously, to sharpen your photo you want to use "Sharpen", right?

Wrong (I used to think that too). Although the name sounds contrary to its purpose, "Unsharp Mask" is where you want to start. (Check [here](#) for a bit of history on the name.)

Locate the "Unsharp Mask" function in your editing software (again, use "HELP" if necessary). Here is what GIMP's looks like.



It should be noted that value scales for the "Unsharp Mask" function could vary from one software package to another. Don't expect your default values to look like those above unless you are using GIMP.

If your software has a "Preview" button be sure to use it. Also make sure that the window view of your image is zoomed to actual size (100%) in order to fully see the effects of "Unsharp Mask".

The two main values you want to experiment with are "Amount" and "Radius" ("Threshold" should normally be set to a relatively low value). Finding the right balance between the two values is your goal. Play around with these values and have some fun! You'll quickly get a feel for the effect each value has on the photo. The "Unsharp Mask" function is fairly intuitive (once you get a feel for the sliders) and should give you good results with some simple experimentation. And, if things go too wrong you can always "Undo" (or just not save the photo).

Sharpening techniques, such as Unsharp Mask, should typically be the last operation you perform in your software processing (prior to your final save). This allows the process to act on any resolution changes you may have made in prior steps.

One final note, be careful about using too much sharpening. An over-sharpened photo causes unwelcome artifacts (jagged edges, graininess, etc) in your image. Over-sharpening can be worse on image quality than no sharpening at all. Here's a rather extreme example.



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So what do we do when our images appear darker than they should and our levels trick from the previous page doesn't work? Perhaps there is no white available in the shot. Or maybe there wasn't enough light in our shooting environment for the camera to register "white as white", thus causing our simple levels trick to over- or under-adjust.

One technique to brighten our world is "Curves".

CURVES

Curves are a wonderful tool. One of their many uses is to adjust the "apparent" amount of lighting in our image, similar to the "Brightness" tool but with better tonal results. And the good news is, they couldn't be simpler to use!

Let's look at an example.

The image on the left is our old friend, the "direct from the camera" shot. The image on the right has been adjusted using only the curves feature.





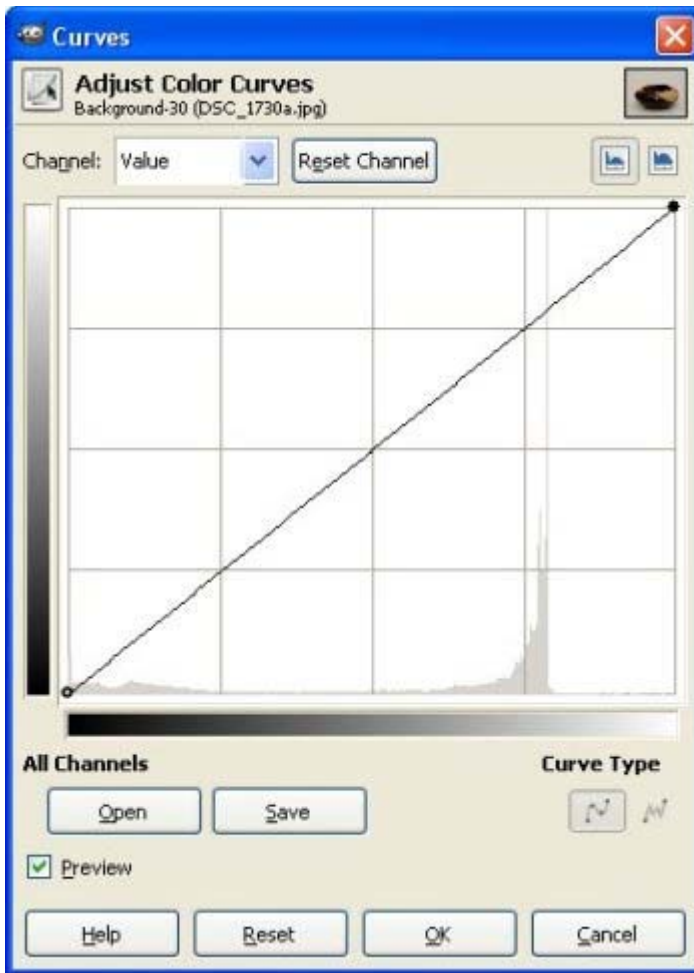
How was this done? It's so easy you'll wonder how you ever got along without it.

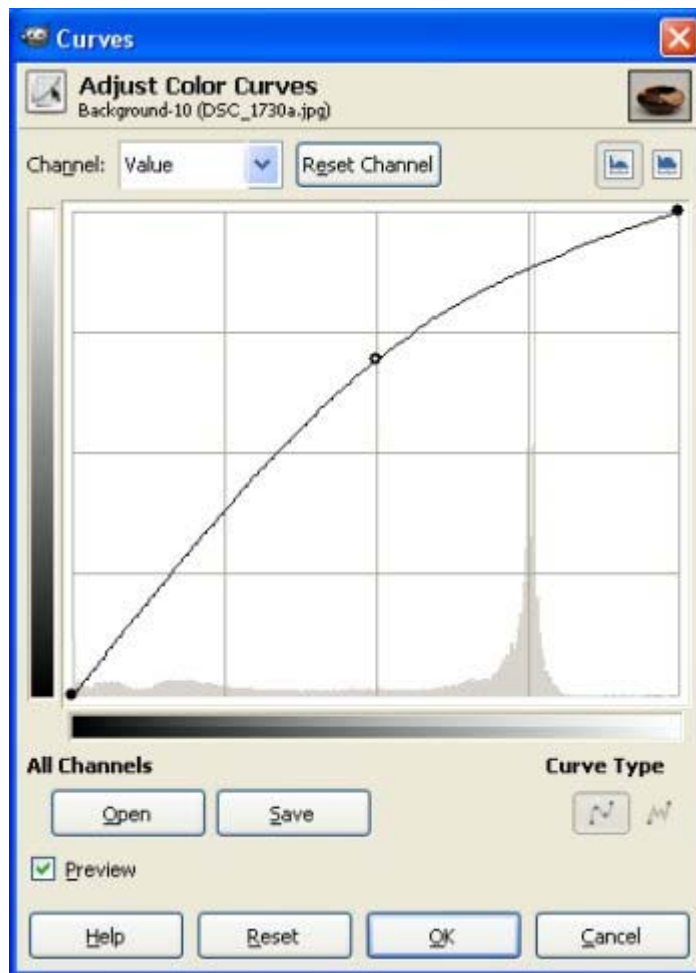
Locate the "Curves" tool in your software. See the images below for an example of GIMP's dialog panel.

Note that this feature may not be available to some of the more "scaled-down" editing packages. Also note that in some software it may be called "Levels and Curves".

When you first open the tool you will see something similar to the dialog panel on the left. Simply use your mouse to grab a point midway along the straight diagonal line and drag it upwards (as shown on right) to brighten the image.

Voila!





Like I said, it doesn't get much simpler. But the effect can be just what we need for those images that are slightly under-exposed for whatever reason.

It should be noted that curves can also be used on other color channels (red, green, or blue) to adjust the tonality of their respective colors. This can be very useful in some circumstances. Simple experimentation will demonstrate how they work but for our purposes we would mostly be using the primary (i.e. "light" or "all colors") channel.

WHAT'S MISSING?

Software editing packages include a lot of other useful (and sometimes intimidating) features but those covered in the last few pages will probably be all you need to spice up your images. One tool you may have noticed that was not included here is "Brightness/Contrast" (usually combined into a single tool). This was intentional. As we have seen, these effects can usually be achieved with better results using the techniques described in this section. Occasionally I am tempted to bump up contrast a notch or two but for the most part it is seldom necessary.

Don't be afraid to experiment and learn to use the tools described in this section. With a bit of practice you'll quickly discover that they can be extremely powerful and beneficial.

SO, ARE WE DONE YET?

So far we've touched on improving the presentation and image quality of our photos with a few simple steps. For many woodturners these steps may be enough to satisfy their needs. For those who want to take it to the next

level... **keep reading!**

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So far we've discussed various ways to improve our images through simple presentation techniques and software adjustments. So, where do we go from here?

Let's start by taking a critical look at our results so far. Looks pretty good, huh?



Not bad at all. But there is still room for improvement for those who want to go further.

One area for improvement is that "hot spot" from our flash. Looks pretty ugly in the middle of our piece, huh? Another "improvement opportunity" is that jumbled-up mix of shadows under the piece. Hmmm... too much light in one area and not enough in another.

Before we take a look at fixing those issues, a brief digression into the properties of light would be worth our time.

After all, photography is the art of "painting with light".

The topic of lighting and its application to photography is extensive. Hundreds, if not thousands, of books have been written on the subject. Dozens of training courses have been developed. A full discussion of the topic is beyond the scope of this tutorial (and my own knowledge) but we can attempt to touch on enough of the basics for our purposes.

For photographic purposes light can be broken down into two important aspects: color and brightness. Let's briefly discuss each in sequence.

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LIGHTING - COLOR TEMPERATURE AND WHITE BALANCE

OK, we're going a bit deeper here but stick with me. I promise it won't hurt much and you'll be glad you followed along!

Let's say you've taken a shot and the image comes out a funny color. Perhaps it has a yellowish or bluish tint?

Now why did that happen?

All forms of light have a specific "color temperature". The human eye, however, only detects a very narrow range of these color variations. Even within that range we seldom pay attention to the slight color differences we are able to see.

Have you ever noticed the warm, yellowish tint given off by the light of a sunrise or sunset? These times of the day are referred to as the "Golden Hours" and are highly prized by landscape photographers. Submit a landscape photo to National Geographic and it would be rejected without a glance if not shot during one of these periods. On the other hand, high noon on a bright cloudless day has a completely different color. It's whiter with a slightly bluish tint, or what photographers refer to as "cooler".

So, what does this have to do with our kitchen counter shot?

Even though our eye doesn't easily detect these color variations the camera's film or sensor is much more sensitive to them.

Color temperature is very important in understanding how to balance your camera's settings with your shooting environment in order to achieve an **accurate color representation** of your subject.

Your camera uses a function known as "White Balance" (WB) for dealing with the color temperature of light in your shooting environment. If the white balance closely matches the color temperature of your lights you'll get a more color-accurate photo. If not it will look off-color. Simple as that.

Most cameras on the market today have several preset white balance settings available. Your ideal goal is to match (as closely as possible) your camera's white balance setting to the color temperature of your environment. A basic understanding of color temperature will help make this easier.

Compare these examples:

- The mid-day sun on a cloudless day produces light in roughly the 5200 Kelvin (K) range.
- A cloudy day might produce light in the 7000K or 8000K range.
- Pure halogen and/or incandescent lights measure in the 3000K range or lower.

As you can see, there is a wide swing in the color temperature of various types of lighting. More than likely your camera has a setting for each of these ranges. Check your camera's manual to find out how to locate them and what settings are available to you.

Let's do a quick experiment. Shooting under daylight conditions let's take four shots using a different white balance setting in each to show the effect that incorrect white balance can have on your photos.



Flash (5400K)

Daylight (5200K)

Fluorescent (4200K)

Incandescent (3000K)

The white balance used in these shots has been simulated (via software) for demonstration purposes but you get the point. Matching our white balance to our lighting makes a huge difference. By using the correct setting (i.e. "Daylight" in this example) we can probably achieve a relatively color-accurate image, especially after a bit of software processing.

So, does this mean we should always use a specific type of lighting such as "daylight" bulbs?

Not at all. As long as you can match your white balance to your lights, what does it matter? Some photographers prefer halogen, others like tungsten, and still others use fluorescent. As long as your camera's WB is set correctly you should be able to produce a color-accurate image.

Experiment with your camera's white balance settings and learn to use them. Often you will find that "daylight" or "auto" settings work just fine for many situations. But when things look "funny" it never hurts to understand what's going on "under the hood".

Side Note: So, you may ask, why does the "daylight" photo above still look slightly tinted if my white balance was set to daylight? Because like green wood, lighting conditions are rarely perfect. The use of flash (as was used here), under-exposure (also used here for demo purposes), ambient (existing) lighting from windows or other rooms, etc. all combine to clutter our lighting environment. Many folks prefer to shoot in a dark room with only one specific type of light. This allows them better control over their lighting environment thus making white balance easier to achieve.

One other tip for those who want to be VERY accurate with their white balance:

Many cameras come with a "custom" setting which allows you to "preset" your white balance to your specific lighting conditions. This is normally done by taking a shot of a piece of white paper (or in the case of some cameras, a "**gray card**") with the camera in "WB Preset" mode. The camera then uses this value to determine the exact white balance setting to be used. This setting remains good for as long as your lighting conditions stay constant. Check your camera's manual to see if such a function is available to you. Gray cards, if needed, are available on-line or in most retail camera stores.

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CONTROLLING LIGHT

Many folks think of light as having only two states: "on" and "off". As photographers we need a bit more control than that, don't we?

Again, photography is the art of "painting with light". This means learning to control light. So what is there to control? Two properties come to mind: intensity and direction.

Intensity sounds easy: just use a specific wattage of light bulb, right?

Well, sort of. Adjusting the wattage of your light source is one method but there are other more important tools available in your arsenal: **reflection** and **diffusion**.

Reflection is just what it sounds like: bouncing light off of an object such as a wall, photo umbrella, cardboard panel, the cat, etc. Diffusion is the passing of light through a material such as fabric or paper. Both are simply ways to disperse and distribute light more evenly. And both will assist us with controlling intensity and direction.

Which brings us back to those hot spots and shadows.

Our first question to ask is: Should we eliminate hot spots and shadows altogether?

Not really.

Hot spots and shadows give our subject a sense of depth and dimension. Our goal shouldn't be to eliminate but control and use them to our advantage. Without *some* shadows our subject would look flat and lifeless. Without some hot spots how would we know that our beautiful finish, which we worked so hard to produce, is glossy and reflective?

So, how do we control our hot spots and shadows?

The first step is to **turn off that flash!**

Yes, you read that right. You have absolutely no control over the intensity or direction of your on-camera flash so get rid of it. Let's replace it with another type of (off-camera) light source. As discussed on the previous page, we can choose whatever type of light bulbs we like. My personal preference is a 5100K "daylight" compact fluorescent bulb in a simple 8" aluminum worklight reflector from my local hardware store. Aside from being easily white balanced, these bulbs stay cool and last forever (well, it seems like forever). The bulbs I typically use are fairly low wattage (40 or 60 watt). A 40-watt

equivalent will do for our demonstration.

So, let's see what our image looks like with our new light source.

We'll place our masterpiece on that same piece of artist's paper and position our light source on the left, slightly above the piece, and at a distance of three feet (or so).



OK, it's not great. But we can already see that the flexibility of an off-camera light source makes controlling our lighting much easier. The hot spot is no longer dead center but rather off to one side (showing off the glossiness of our piece's finish). The directed shadow, although still dark, gives the piece a sense of depth. After all, we want our round objects to look round (or square objects to look square, etc). This helps the viewer get a three-dimensional feel for the object.

So, how can we best use our new light source? Let's start with **reflection**.

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REFLECTION

We still need to soften that shadow so let's put reflection to use. We'll do this by using a simple "reflection panel".

A reflection panel can be as simple as a piece of paper stood behind the subject, or as elaborate as your imagination can conceive. You can configure reflection panels an infinite number of ways. The idea is to bounce light off of the panel, thus illuminating the piece from more than one side.

For our purposes I've set up a rather crude (but still effective) panel. See the photo below.



For a lack of other materials I've taken a standard cardboard "project board" (like those found at your local hobby store) and placed it next to my dining room table. Our masterpiece is sitting on the same artist's paper we have been using. For this example the panel has been tilted to overhang the subject slightly, thus reflecting light down on to our piece. A light source (as described on the previous page) has been positioned on each side and aimed at the panel.

Using just one light source (we'll use the one on the left) let's take a test shot and compare our before and after images.



The first image was taken with direct lighting and the second using our reflection panel. I've pulled the view back in the second shot so you can see the full shadow. As you can see, our shadow has been considerably tamed. By moving our light source, reflection panel, or subject around we have more control over the shadow's direction and length. We can make it shorter, longer, darker, lighter, etc. all by making simple adjustments to the position of our light(s) or panel(s).

It should be noted that multiple lights can be used to provide more even lighting. Obviously this can increase the number of shadows thrown but you can come up with some interesting results.

Reflection panels can be effective tools for controlling light. Try experimenting with a few different configurations and see what you can accomplish. Remember, photography is all about trial-and-error. Experiment and learn from each image you shoot. In this digital age, it doesn't cost you a thing; merely a touch of the delete key if it doesn't work.

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DIFFUSION

Another method for controlling light is diffusion. Diffusion is simply the passing of light through a material such as fabric or paper in order to disperse and distribute light more evenly.

Diffusion is employed in a variety of photographic devices including diffusion caps for strobes (a common type of lighting) and flashes, diffusion panels, soft boxes for flashes, and photo tents.

Photo tents are commonly used in product photography (such as our turnings). Although they have limitations they can be particularly useful for our application. A number of pre-made tents are commercially available or you can easily build your own.

Tents are typically constructed from a wire (or tube) frame cube with nylon or fabric covering five of the six walls. In theory, light is both diffused through the walls and reflects off of the opposite wall(s), thus filling the tent with even lighting. Again, "in theory".

Let's take a look at a typical photo tent set-up. In keeping with our kitchen motif we'll use the dining room table as our shooting platform. (Permission from my better half has been granted for clamping lights to the chair backs. Consultation with your significant other is advised!)



The number and position of our light sources plays an important role in tent photography. I've chosen to position two lights close to the tent walls for purposes of this photo but in reality they can be placed anywhere. You can achieve a wide variety of effects by simply adding or repositioning your lights. With the glass-top table used in this example I could even position a light source under the table and remove any shadow effect (if desired).

Side Note: You'll also notice the use of a graduated background (fading from gray to white) inside the tent. In my opinion these present a more elegant backdrop than pure white.

The tent pictured above is a 30" tent. You might be curious whether such a large tent is necessary for our purpose. After all, that bowl looks awfully small in there, doesn't it?

My personal opinion is yes, it is. When shooting larger objects, say a 12" hollow form with pedestal and finial, you'll want plenty of space around the subject to compose your shot. A small tent does not provide adequate space. Several commercial tents are available in the 16" range. These are fine for jewelry and small items but are much too small for our purposes. You can shoot small objects in a large tent but you can't shoot large objects in a small tent.

And finally, after applying all of our tips and tricks (and using a 3.2 megapixel point-and-shoot camera), here is our finished product.



That'll do.

Side Note: For those who are curious, the photo tent shown above is a 30" collapsible tent from [Steve Kaeser Backgrounds](#). The backdrop is a graduated background (#39) from [Photo Tech, Inc](#). I am not affiliated with either entity, just a satisfied customer.

Finally, want to make your own photo tent? There are numerous How-To's on the web but here's a quick and dirty "tent/box" that costs next to nothing.

DIY \$10 Macro Photo Studio

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As stated in the introduction, this tutorial is only intended as an aid for woodturners who simply want to improve their images. I intentionally did not delve into typical photographic topics such as **shutter speed**, **aperture**, **ISO**, etc. For those who are interested in these topics I can think of no better resource than Bryan Peterson's **excellent book**, "Understanding Exposure: How to Shoot Great Photographs with a Film or Digital Camera". I highly recommend it.

Or, perhaps after reading this you've been bitten by the photo bug and feel a need to upgrade that camera? I wouldn't presume to advise you on your choice but I will offer a couple of excellent resources to aid you in your research.

Digital Photography Review is an extensive website offering a wealth of information for those in the market for a new camera.

Digital Photography School is a good blog site offering tips, advice, and resources for photographers of all skill levels.

And finally, for those who want to dive deeper into the fascinating world of lighting I give you the **Strobist**, possibly the best resource for lighting tips and techniques on the planet. But be warned... you may never look at light the same way again!

For those who have made it through this entire tutorial (congratulations, by the way!) I encourage you to pursue your own further study of the subject. The topics presented here are only intended to get you started on your journey.

In closing, I hope you have enjoyed this tutorial as much as I've enjoyed presenting it. Please feel free to leave a comment or feedback (a link is provided on the introduction page of the tutorial - note that all comments are moderated). I do not profess to be an expert in the subject of photography but I do enjoy sharing the knowledge that has been shared with me over the years. Hopefully it has been of some benefit to you.

Regards,

Neal Addy

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Controlling Reflections from the Background

By John Lucas

When you are shooting with a bright white background it will often reflect in the top of the subject. In this case it takes away the color. The trick is to simply put something else outside the photo area for it to reflect. In the series of photos below the first one is a straight shot with one light lighting the piece and one shining on the background. This gives an even lighting although it's kind of flat looking but for our purposes it will work. You see how there is glare on the top and on the right side. In the second photo I put a black cloth over the background just barely out of the picture area. That made the top darker. For the photo on the right I simply took a black card and put it back to the side so the side picked up the reflection of the card and gave me some color there.



If black is too much, then use gray or simply take a card and cast a shadow on the back ground out of the picture area. To figure out where the problem is coming from think of the reflection like a pool shot. The camera is the pool cue and the top is the rail. Where the ball would hit the background is where the black card needs to be.



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The Phrugal Photo Studio way to shoot woodturnings

This tutorial is aimed at average "Joe Woodturner" who has some basic photo skills and a digital camera, but not a studio full of lighting equipment. Photographing woodturnings is no more complicated than learning the turning process, but some specialized lighting techniques are necessary in order to accurately present the work. An image of a turning often represents the visual language by which we communicate, and that image must be a literal rendering, with accurate color, dimension, and a sense of reality. In order to convey the message without distraction, keep things simple- we are not selling a "candlelight halo" of a product in a simulated environment.

Let's start with the Phrugal Photo Studio principle of maximum image quality with minimum cost and equipment. A box frame made with PVC pipe and sides of foamcore panels provides the means to contain and control light, in this example a regular \$10 Q/H 500w work light fixture. The light is aimed up, not directly toward the subject turning, as in photo 1 below.



Photo 1. Frame is 1/2" PVC pipe, sides measure 34"x34" and top is 44" wide. Backdrop is white vinyl roll-up window shade. I often plug camera video into this monitor for enhanced view of camera image.

Photo 2. Add R front panel between light and camera to reduce lens flare and contain light. Move bounce card on L to aim light into base shadow area of turning.

Thus the light is bounced off the sides and top of the enclosure, creating a diffused, softer light without distinct hard shadows. The shadow on the L side of the turning opposite the light source on R is filled with a moveable bounce card- white on one side and optional aluminum foil on the other. This bounce card allows aiming of the bounced light into the base area, filling the deep shadows with some visible detail rather than darkness, as in photo 2 above. This entire set-up can be made for less than \$50!

The backdrop should not compete with the subject for your attention. Neutral colors of white or gray work best, and with light colored woods a black background can be used with caution. The light reflective characteristics of the backdrop can significantly alter exposure calculations, especially if your camera doesn't allow manual exposure control. For optimum results, both exposure and color balance can be determined by reading the light reflected from an 18% gray card placed at the subject position. With zoom lens equipped cameras, use the longer focal lengths to avoid "fat lady"(barrel) distortion caused by wide angle lenses. Maximum depth of field is achieved by selectively focusing on a point on the subject that is 1/3 from the front and 2/3 from the back. And of course the camera should always be mounted on a sturdy tripod to avoid the shakes!

Manipulation of the captured image with software is a whole nother subject, and it is these capabilities that separate film from digital image making. I do most of my shooting with the camera set to the highest resolution that I might ever need, and JPEG compression low (HIGH or FINE on some cameras). When making software changes, always work on a copy of the original file, and convert to a TIFF or other format that doesn't cause further loss of image quality. But having optimal image capture up front really reduces the necessity of making major software changes to the image, and image workflow and output will be better in the end.

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SUNDAY, JULY 09, 2006

How To: DIY \$10 Macro Photo Studio



OK, before we even get started, I should say that the "\$10" is a bit of a stretch. Can I help it if I just like to impress people with my expensive photo gear?

Ten dollars assumes you cannot scrounge a cardboard box and some white tissue paper you have saved in the gift-wrap supplies box. You can get this stuff at an office supply store, but it is more fun to scrounge. Besides, we are all about re-use and recycle here at Strobist. (I can proudly report that 98% of my bad jokes are recycled!)

If you have this stuff, the only thing you will need to buy is two sheets of posterboard - black and white. Total damage would be less than \$2. Don't blow the rent money.

And now, back to our regularly scheduled programming.

Small flash gear is especially well suited for shooting macro shots and other small-object still life and product shots. And this little studio in a box does not even technically need a flash to work its

wonders. Any bright lamp will do if you are shooting digital, because it is very easy to balance for tungsten light and get the color balance spot on.

This is basically a light tent, albeit a very controllable one. It pretty much creates beautiful light by default. Frankly, it's very difficult to get it wrong.

This is one of the most useful DIY gadgets you could make - especially when you consider the single-digit price tag.

What can you use it for? That's pretty much up to you, and will be limited only by the size of the box you use. Shots of small objects in the studio, on location, items you are selling on eBay, flowers (even still in-the-ground-and-growing ones,) Absolute Vodka bottles for \$50,000 ad campaigns, catalog stuff - whatever.

This little thingie does it all in spades - and with a lot of control, too.

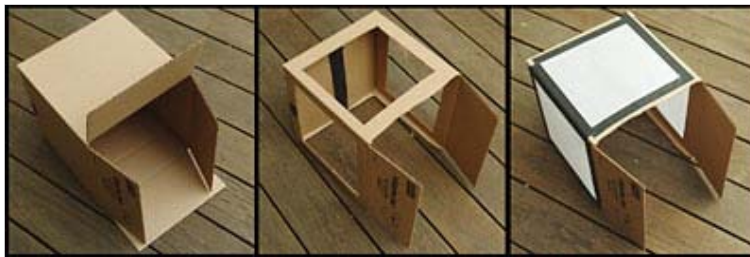
The secret is being able to have nice, soft, even light coming from either side or the top - or any combination of the three.

The black and white poster boards serve triple duty as light blockers, reflectors or sweep backgrounds. Not bad for 49 cents, huh?

Here's how to make it.

I used a 12" x12" x12" box, but let your subject needs define your size. I would not go smaller than 12x12x12, tho.

Basically we are gonna cut windows in three sides of the box and totally take out one side. (That last part is optional - see below.) You'll want to tape the original bottom of the box securely into place before making your cuts. Leave two of the top flaps on for light control as shown, and remove the other two. The three-shot sequence just below shows it better than I could explain.



I used a razor to slice the boxes. Try not to amputate anything, okay? Besides, the arterial bleeding will saturate and weaken the cardboard.

The last photo of the three-shot sequence shows the box with the tracing paper taped over the windows. You can choose to leave the "side" of the original box that will form the bottom of your studio attached to make it stronger, but it will preclude your ability to place the box down over an object (like a plant) outside and retain the surrounding ground environment. Your choice. I'll sleep well either way.

The thing could not be easier to use. You'll need at least one light source. A flash works great, as long as you can manually control the output and get it off of the camera.

But you could also use a bright lamp or work light. Just be sure to balance your camera for tungsten and put the camera on a tripod to keep it still during the exposure.

You could even use the sun, making it come from whatever direction you need by rotating the box.

The beauty of this thing is the lighting control you get. You have the ability to almost completely wrap your subject in high quality light. But if you use only one light, the tissue paper acts as a fill reflector all around your subject.

If you want to kill the reflection on the darker side, stick a square of black posterboard on that side (on the inside.) Ditto on the top.



My favorite thing about this box is the "infinity sweep" effect you can get for a seamless bottom-to-background look. It's just a strip of posterboard.



White and black (especially white) both work fine, but you could also use any color you wanted. You'll just have to pony up another 49 cents.

You want more lighting control? You got it. The two remaining flaps act as gobo's to block your camera from seeing the side light sources. Bingo - no flare, and very saturated colors. Simply adjust the flaps for best blocking effect.

You want the light to come from closer to a 45-degree angle? Rotate the box around a little and shoot from closer to a corner.

You want more definition on each side? Use a light source on each side. This setup puts the old "Big Tupperware Light Tent" to shame.



The phone and radio were shot just because they happened to be sitting around the kitchen. I used another light on the camera left side of the radio for better left-side definition.

When using two light sources, you can change the relative light intensity by dialing down one of the flashes on manual, or by moving one of your lamps further away or closer. Simple as that.



The flower you see at top of the post (a "Black-Eyed Susan") was shot with just one small flash (on 1/16th power) positioned on the camera right side of the box, with no fill other than the tissue paper. (I actually used tracing paper.)

IMO, that's some smooth overall light for just one small light source.

Lest you still think this is complicated, here's a quick video by reader "justsomekid2," to give you an idea of just how easy this is to make:



So, think this small-flash lighting stuff is cool? So do we. If you want to learn how to do this stuff up right, click here to learn what this site is all about.

Or click here to learn how to do an even more sophisticated shot with this macro box.

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BY DAVID, AT 10:33 PM. 



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