

And at the end...

PHOTOGRAPHING TURNINGS – Digital Techniques

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There are lots of reasons to photograph your work, like keeping a record of the dozens (hundreds?) of pieces you've sold. Maybe for magazine article consideration or to show gallery owners the breadth of your work. Or, to send a few shots to your deadbeat cousin, Charles, to suggest to him that if he got off his lazy butt and learned a skill he might be able to earn a living and quit living at his mom's. You'd think that by age 43... (Oops! Sorry. I need to get a new family.)

I'm going to discuss the most critical type of image – a studio quality portrait of your work that is suitable for submission to juried shows, gallery consideration, or publication. And I'll show you how to produce professional quality images using a modest “point-

and-shoot” camera and a homemade lighting rig.

So what is a studio quality photograph of a woodturning? You want the turning to fill the image area. You don't want glare or harsh shadows. You want the contours of your piece to be clear and the details apparent. There should be good tonal separation between the turning and the background, and the background color should complement your piece. Your photo should enhance your turning.

And by the way, the methods shown here work equally well in photographing any modest sized object such as other wood working projects and carvings, and in fact, also work quite well when photographing shiny objects like jewelry. If you scale up the size of the background and lighting, these techniques apply to photographing big subjects, as well.

Basics

All of the methods described here use four basic concepts: (1) a diffused light source, (2) uneven lighting, (3) minimization of reflections, (4) accurate color rendition, and (5) an attractive uncluttered background.

1. A diffused light source provides soft shadows and reduces reflections
2. Uneven lighting emphasizes the form and texture of the turning.
3. A polarizing filter over your lens further reduces reflections.
4. The 'manual' (also called 'custom') white balance feature of your camera adjusts the camera so that it records colors accurately.
5. The background should not draw attention to itself, and should enhance the appearance of your turning.

Let's talk about equipment first, and then I'll describe the method of taking the pictures.

Equipment

Camera

Most inexpensive digital cameras are sufficiently adaptable to the methods discussed here, but particularly desirable features are:

- "Aperture Priority" exposure control. Aperture Priority exposure controls are desirable to maximize depth of field (range of image area that is in focus), but if your camera doesn't have an Aperture Priority mode, it'll still work.
- A camera that accommodates a remote release. Pushing the shutter release button with your finger will cause camera shake. An alternative to a remote release is a the camera's self timer feature (it provides a shutter delay of several seconds after pressing the shutter release). One or the other is essential.
- A tripod socket on the camera. Most have this and it is essential.
- A camera that allows you to attach filters. If it doesn't have this feature you can rig something.
- A camera that has 'manual' (also called 'custom') white balance. This feature is essential (OK, maybe you can get away with the "Incandescent" white balance setting; maybe not).

Tripod and remote release

To avoid camera shake which results in image quality degradation, a tripod and remote release (or a self timer) are necessary. No kidding; a tripod isn't enough. When you push the shutter release, no matter how careful you are, you will jiggle the camera enough to visibly degrade your photo. Although less convenient, the self timer feature (delay in actual shutter release after pressing the shutter button) will be an adequate alternative to a remote release. This allows vibrations caused by pressing the shutter release to die down before the picture is actually taken.

Filter

Using a polarizing filter is a good idea to reduce undesirable glare on the surface of your turning. Of the two types of polarizers – 'circular' and 'linear' - circular polarizers are required for most modern cameras; don't dig through your camera bag for some polarizer you used before autofocus days; it's almost certainly a linear polarizer - buy the circular type. 'Linear' and 'circular' do not refer to the shape of the polarizers – they look the same. Polarizing filters are mounted in front of the lens in a way that allows the filter to be rotated. The effect provided by the polarizer changes as you rotate it; rotate it to get the most pleasing results. Many small digital cameras don't have threads on their lenses to mount filters. But as clever turners, I'll bet you can turn a ring that fits on the end of the lens (loose friction fit) on one end and accommodates a filter (glued in) the other.

Lights, reflectors, and stands

You can buy a couple of cheap clamp-on light fixture/reflectors at hardware stores that will be adequate for our needs. You'll need some sort of stand or holder for each light.

I use two 200 watt incandescent lamps. You can probably find 200 or 300 watt bulbs at your home improvement store, but if not, a lighting supplier like Light Bulbs Unlimited should have them. Both bulbs should be the same brand and wattage because different brands/wattages may have different color profiles. I like incandescent bulbs rather than strobe lights because I can see exactly how the lighting will look before I take the picture. The bulb wattage isn't all that important; brighter lamps allow you to use faster shutter speeds, thus reducing the possibility of blur caused by camera vibrations. The lamps don't need to be incandescent – they can be fluorescent or LED – but they must be identical to each other.

Room lighting should be dim so that the lighting you apply is the primary light source. Make sure your camera's flash is turned off.

Backdrop system

You'll need one of the two systems described here or something similar. There are a variety of ways of doing this, but I've limited this discussion to two similar approaches, one home built and the other a commercially made product. Either requires a table to set it on.

Exposure, Lighting, and White Balance

Depth of field is controlled by the lens aperture (diaphragm opening or f-stop). The smaller the aperture, the greater the depth (note that as the aperture size decreases, the f-numbers increases). Since we want the turning to be in focus from front to back, a small aperture is desirable. Set your camera in the "Aperture Priority" mode if it has it and use the smallest aperture (largest f-number) your camera has. If aperture priority is not available on your camera, just put your camera in the program mode.

It's important to have unequal lighting to accentuate form and texture. Light your turning from one side and from the top.

White balance tells your camera the color of the light shining on your scene. For example, incandescent bulbs have a red cast. We may not see it because our brains correct for it. But the camera needs to be told. To remove the color cast of the light source you'll need to use what's usually called either "manual" or "custom" white balance. You'll have to look at your camera manual to determine how to do this. In manual white balance you show your camera what white looks like. When it gets white right, everything else comes out right. This is the most accurate way to get correct color.

Camera setup

There are several things in your camera's menu that should be set up to optimize image quality. Most cameras have the following features in some form, but perhaps not exactly as described here. You might have to dig through your junk drawer for your instruction manual. (Can't find it? Most manuals are available on the internet.)

ISO sensitivity

Use the lowest ISO number available on your camera. It's probably around ISO 100. Image quality degrades as the ISO (light amplification) is increased. This is probably the biggest disadvantage of small digital cameras in comparison to their larger brethren. Larger cameras have bigger sensors requiring less image degrading amplification. However, at low ISO settings, modest point-and-shoot cameras produce images comparable to DSLRs (digital single lens reflex) cameras.

Quality

There are sometimes two quality settings on your camera, often called "quality" (file compression) and "picture size" (number of pixels). Set both to their highest settings. This will create images of the largest size (using the most memory). Memory cards are cheap and of large capacity – there's no good reason to conserve. There are situations where you may want smaller file sizes; you can make your large files smaller with photo editing software.

Photo Tent Methods

You can make a tent as described here, or buy one of the many commercial ones available. For lots of ideas, Google "photo light tents".

Method 1 – Home built

This rig is inexpensive and easy to make, yet very versatile.

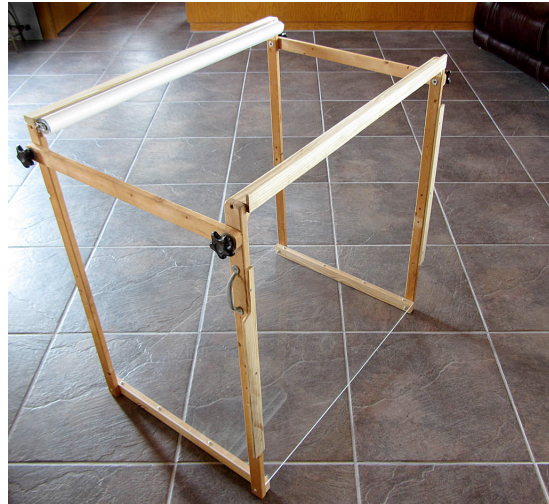
This simple rig consists of a wooden frame with a ¼ inch plywood or Plexiglas floor. It can be made to whatever size suits your needs. Mine has an opening of about 34 x 34 inches and is 24 inches deep. My rig has a transparent Plexiglas floor to allow me to use it for subjects that I want to illuminate from the bottom, but ¼ inch plywood is lighter and cheaper, and will work fine for the technique described here. The rig is draped with a thin white cloth covering the top and both sides. Two lights are used: one on the side, and the other on the top. The lights should be forward of the position of the turning. Adjust the position of the lights to provide the most pleasing lighting.



System set up with lights in place



Folded flat for storage



Unfolded



Background in place

A seamless background of white or light gray cardboard clipped into place, or a roller blind, as I use, provides a great background. It's best not to use a colored background. Background colors can reflect onto your turning. I use a light gray or white, and add color digitally if I want, after the photo is taken. It's not difficult (details later), and has advantages. It simplifies life – you don't have to have a bunch of different colored backgrounds, and you can experiment with different colors. The material I usually use is 2-ply gray museum board - #81483 at Texas Art Supply, or Lenox 100 white - #465 4520 at Texas Art Supply. For larger backdrop systems I use a white cut-to-order (in the store) roller blind such as Home Depot sells for about \$23 in their window covering department.

With the camera on the tripod and polarizer installed, perform a manual (custom) white balance procedure on a white sheet of paper positioned where your turning will be photographed. Then fill the frame with your turning and adjust the polarizer for the most pleasing look. Using a remote release or the time delay feature of the camera (two seconds is sufficient) take the picture.

Method 2 – EZcube or similar product



An EZcube (www.ezcube.com) is used just like the previous method. It can be lighted from any side, including the bottom (if your table is transparent); it folds into a small package, and is very lightweight. I use the 30" EZcube which goes for about \$75, and it is also available in smaller and larger sizes.



All packed up in its pouch

Post-processing

The truth

Here's a digital photography truth: **To get the best possible pictures from a digital file, you must use image editing software to optimize the image.** This is true for all digital cameras, no matter how good. In many cameras you can set the camera up to enhance the image in a variety of ways, but you are better off doing as much of this as possible afterwards with software instead. What software? There's lots of it out there that will work just fine. The industry standard, however, is Adobe Photoshop, which is unfortunately, very expensive. Adobe's Photoshop Elements has most of the features that photographers need, and is reasonably priced. I'm going to give the steps I use in Photoshop Elements in the following sections, but I don't go into a lot of detail. You may have to Google some of the steps like **Levels**, **Sharpen**, **Crop**, and others to learn details in using these processes.

Basic processing workflow

Here's the stuff you should do to a photograph as a minimum to optimize it:

1. Down-load the images into your computer and label the folder something like, "Originals (and any further description you want)".
2. Make a copy of any images that you expect to use, and put them in a separate folder named, "Masters...". Work only on these – never modify the originals.
3. **Crop** (the **Crop** tool is in the **Tool Palette**) – crop out what is unimportant.
4. **Levels: Enhance > Auto Levels** or for more precise control **Layer > New Adjustment Layer > Levels** (then adjust the sliders) – this adjust tonal range and contrast issues.

5. After you do these three things, **Save (File > Save)** the image. Do not resize or sharpen the image prior to saving.

When you want to print your picture:

1. **Resize** the image: **Image > Resize > Image Size**
 - a. Check the **Constrain Proportions** and **Resample Image** boxes.
 - b. Change the **Document Size** to the print size you want.
 - c. Change the **Resolution** to 360 pixels/inch.
 - d. Click **OK**.
2. **Unsharp Mask: Enhance > Unsharp Mask** (make sure the Background Layer is selected). All digital images need to be sharpened, and should always be done at the final size. You might try initial settings of **Amount** = 150 %, **Radius** = 1.5 pixels, and **Threshold** = 4 levels, but you'll have to do a little research to learn how to do this optimally – Google “unsharp mask”.
3. **Print** your image – for the best quality you must use a photo quality paper, usually the same brand as your printer. Printer manufacturers design their printers, inks, and papers to work in concert to produce optimal results. Nevertheless, I've found that Ilford's Galerie Smooth Gloss Paper works great in my Epson printer and is much cheaper than the Epson equivalent paper.
4. Do not **Save** the file. This would overwrite your previously saved native size and unsharpened image. Any time you print a different size picture you should always start with your Master image. If you expect to make future prints at the same size, **Flatten (Layer > Flatten Image)** the image (remove the layers to make the file size smaller), then perform a **Save As (File > Save As)** using a new file name.

Making the file size smaller

So now what are you going to do with your pictures? Email them to someone, upload to Facebook, share them using an image sharing site, make a PowerPoint presentation? The image files you've created using the methods described here are pretty large. For some applications, like emailing them to someone, you'll want to make them much smaller. You can do that with your image editing software.

To reduce the size of an image to the right size for PowerPoint presentations or to email:

1. Open the master image.
2. **Resize** the image: **Image > Resize > Image Size**
 - a. Make sure the **Constrain Proportions** box is checked.
 - b. Change whatever is in the largest **Pixel Dimensions** box (Width or Height) to 1024 pixels (make sure that pixels are the units selected).
 - c. Click **“OK”**.
3. **Sharpen** the image: **Enhance > Auto Sharpen** (Note: I suggested using **“Unsharp Mask”** for sharpening when making prints because it provides more critical sharpening than **“Auto Sharpen”**. **Auto Sharpen** is good enough for a picture that's going to be viewed on a monitor or projected with a digital projector.)
4. **Save** the image: **File > Save As**
 - a. Change the file name (I put an “s” in front of it indicating “small”).

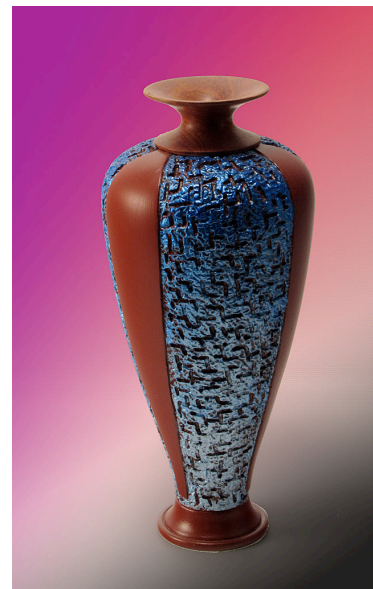
- b. The format selected should be JPEG (jpg file extension) at a quality level of around 7 (for a file size between 175K and 250K).

Develop some conventions for naming your images. For instance, if your original image file (as it came from the camera) was “100102.jpg”, the file to which you applied levels, cropping, and any retouching, etc. is your ‘master’ file and could be named “m100102.jpg”. The sized and sharpened file ready for printing could be “pm100102-8x10.jpg” for a file you sized and sharpened to print 8”x10”. This way, if you need another print, to print (initial letter in the file name is ‘p’) and that it is optimized for 8”x10”. If you want to print a different size, make a new copy of the Master file, then size, sharpen, and rename again.

Adding a gradient background and coloring your background digitally

To color the neutral background in your digital image any color you like, follow these steps:

1. Open the Master image.
2. Make a copy: **Save As** using a new file name such as m[original file name]-grad.
3. Using the **Magic Wand (Tool Palette)** select the background (start with the “Tolerance” set at 50; you may need more, or less).
4. Touch up the selection with the **Selection Brush**. Also select **Mask** from the **Selection/Mask** box.
5. Select **Gradient Tool**. Use the **Foreground to Transparent** option.
6. Click on **Foreground Color**.
7. Select the color you want to use from the **Color Picker**.
8. Use **Opacity** to get the intensity of color you want and allow shadows to be visible.
9. Draw a line (left click your mouse, hold, and drag, then release) from top to bottom or across a diagonal to get the effect you want.
10. Don’t like what you did? Click “**Edit > Undo**” or use the **Undo History** window to backup to an earlier step in the process.



The gradients are additive; you can add more on top of previous gradients, as I did on the example shown here.