

Classic Posters - Photo Archiving of Concert Music Posters

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by Michael Erlewine

Archival Photos Need a Vacuum Frame

I then decided to design and build a vacuum frame: a large board upon which posters could be placed (like on a wall), held in place by the suction of a vacuum. My first attempt at building a vacuum board was not too successful, but I kept on trying until we got it right. Thanks to the engineering skills of my friend Bill Schriver, what we have at this point is a large flat and hollow board, capable of holding even the largest posters. It has a perforated surface, with small holes evenly spaced, beneath which is a hollow chamber connected to a ShopVac (6 HP peak load), located in an adjacent room (the noise is otherwise deafening) and connected by a series of 2.5-inch hoses hooked together. The surface of the vacuum frame has been painted a neutral gray. The net effect is that this board can hold anything from a postcard to the largest poster, with ease. The overall suction can be adjusted to tenderly handle decaying newsprint or force the most obstinate curl to flatten out.



Vacuum board in operation

Tripod Heads for Suitable for Poster Photo Documentation

Using the vacuum frame, posters can be displayed for documentation without anything near or on their edges -- a decided advantage for photo documentation.

With the vacuum frame, we are back to using a standard tripod and it should be as solid and stable as possible. The granddaddy of the stable tripod is the German Linhof, which often appears on Ebay. Tripods with a central column that moves vertically (which are very handy for this kind of work) are to be avoided, unless they are very stable. Attention also has to be paid to the question of how do you level the camera on the tripod.

If you get serious about this, one of the most attractive features of a tripod for this kind of work should be to have a ball-mounted tripod head.



Ball-mounted head

A ball-mounted head has a handle underneath the top of the tripod (as shown here), which can be tightened. The value of a ball-mounted tripod head is that, by loosening and tightening the handle under the top of the tripod, one can level the whole head and camera. Most of the better tripod heads have a build-in bubble level. A bubble level and an adjustable ball-mount mean that you can absolutely level the camera, which is essential for photo-documenting posters.



Bubble level as part of the tripod head

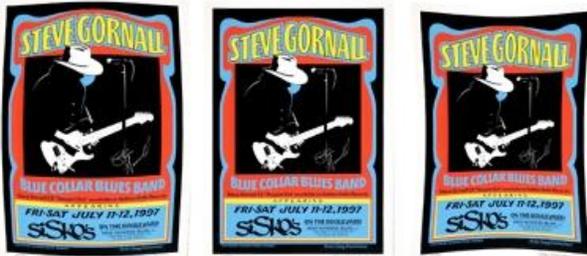
Lens Distortion Problems

Next, we need to discuss camera lenses. If we set out to deliberately frustrate camera optics, we could probably do no better than to offer up the poster -- essentially a 2-dimensional surface that requires precise focusing at the center as well as at all points extending out from that center. And to test us in this, a poster also offers precise straight-line edges in all four directions. In a word, it is physically impossible to optically serve all the masters here. But that is the task.

For those of us who have tried to shoot full-sized posters with small digital cameras, we soon discover the problems I alluded to above. A quick refresher trip to Ebay poster images can make this point. Technically, the problem is called barrel distortion and pincushion distortion. These forms of distortion cause the corners of a photographed poster to stray from where we might like them to be and the four connecting sides to either bow

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outward (Barrel distortion) or bent inward (Pincushion distortion). In either case, the image of a perfectly ordinary rectangular poster becomes distorted to a greater or lesser degree. Frustrating.



Barrel

Normal

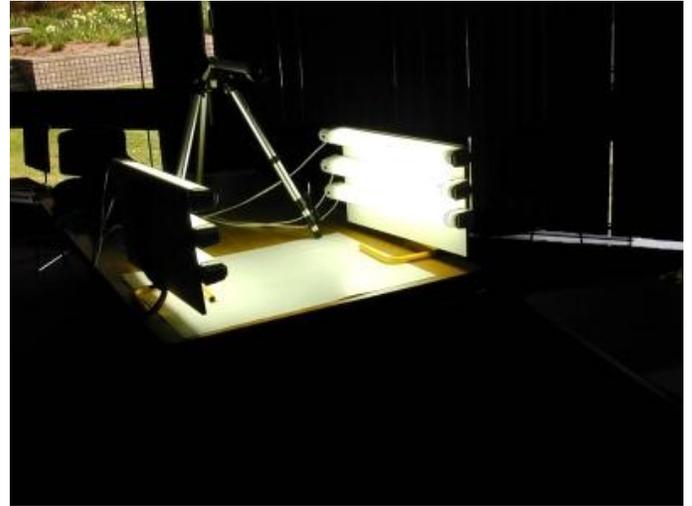
Pincushion

Lens distortion -- barrel and pincushion

And the problem with the inexpensive digital cameras is that their small lenses, while fine for photographing just about any old thing, are frustrated when faced with the impossible task presented by a poster. This is a fact. Even their big brothers, the 35 mm single-lens reflex and medium format cameras struggle with these kinds of distortion.

I worked for a couple of years trying to get around this fact. I played with the tripod. I measured and re-measured the angle from lens to poster. I bought and tried out all kinds of lights. I built special light stands. While everything helped a little, the total amount of help did not add up to an image that could be used (seriously speaking) for a book like "The Art of Rock" -- a permanent archive.

I built a small setup with banks of fluorescent lights that would fit in a car, and traveled to different libraries and collectors, to photo-document collections. In the long run, the images from this kind of setup were just not good enough.



Portable photo-documenting setup

Larger Digital Cameras

In the end, I abandoned the small camera and launched out on the sea of larger cameras. However, I had in the meantime become spoiled by the ease of use of the digital medium and was loath to return to the world of film and processing fees, not to mention scanning the resulting prints or negatives.

And it was not a question of just buying a digital camera a couple of clicks higher up on the dollar scale. They did not exist. Even the very expensive digital cameras were not all that interesting for our purposes. And then Nikon released the D1x.



Nikon D1x and portrait lens

The Nikon D1x is essentially a single-lens reflex camera (like the 35mm varieties), but with much greater resolution than most of the other digital cameras on the market, some 5.4 megapixels. What this means for us is that the D1x is capable of capturing and storing an image that will reproduce as a 6x10-inch full-color photo at 300 dpi. In other words, it produces an excellent image the size of about the largest image in a book like "The Art of Rock." The fact that most posters are much less complex than, for example, nature photos suggests that poster images could probably be expanding to an even larger size, with no visible loss. Certainly that is all that we need.

Since it is not our goal to produce something equivalent to the original poster (which even these hi-res digital images cannot do), an 8x10 glossy is more than enough for the purposes of creating publications and examining images for flaws, details, marks -- archival information purposes.

A word of caution: in all cases, should you decide to write a book or article about an artist, no large images can be used without the artist's expressed

permission. Small thumbnail images can be used for cataloging purposes, and come under the fair-use umbrella.

The Nikon D1x, at highest resolution, produces the equivalent of a 40-megabyte TIFF file, which can be compressed (without any loss) to a file slightly less than 8 megabytes. If you are photographing many posters, be sure to have a lot of hard-drive space, because it fills up fast.

For each poster to be documented, I archive the following files: An 8 MB lossless file, a 1 MG JPG (lossy) file, and a thumbnail file. The 8 MB file is stored in what is called Nikon Native Format (NEF) files, which means that the raw pixels are stored in one section of the file, with any camera settings, etc. stored separately at the bottom of the file. The advantage of this is that years from now these raw images can be processed in ways that we can't imagine now, to pull the very most from the initial shot.

As for backup, I am storing them on CD-ROMs and on DVD, using a DVD authoring system that I just got running. When you archive images, you need to keep at least two copies, each stored at a separate location.

Camera Lenses for Photo Documentation

The Nikon DX1 uses the standard 35mm-style Nikkor-mount lenses. However, for documenting posters, all lenses are not created equal. Lenses used for documenting work like this have to have an extremely flat focal plane. As mentioned above, it is very difficult for any lens to cope with posters and artwork.

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Interchangeable lenses for the Nikon D1x

In fact only a few of the finest lenses are fit to be used for this kind of work. These are typically called Macro lenses and are generally of a fixed focal length. In other words: no zoom lenses. I experimented with a number of lenses, some fixed and some zoom. In every case, the fixed focal-length lens beat out the zoom for absolute clarity. What this meant for the photographer (which in this case was me) is that posters of a different size meant moving and leveling the camera and tripod each time a different sized poster was encountered - a major pain. But I went to the trouble, because the end result dictated that this was the way to go.

Note: I should add that those of you looking to do this be aware that digital single-lens reflex cameras behave differently than standard 35mm film cameras. This is due to the fact that the CCD sensor in the back of the digital cameras is smaller than a 35mm film frame. Therefore, if you buy a given lens for use on a digital camera (the D1x in this case), you multiply the lens by 1.5 to find out its size on the digital. For example, if I purchase a 90mm portrait

lens, it will behave as a 135mm lens on the digital camera, and so forth.

Lighting is Crucial by Michael Erlewine

Lighting is perhaps the most difficult part of the whole equation. It is not easy to light posters and artwork, without getting what are called "hot spots" -- little areas of glare in the image. I must thank two professional photographers, Stanley Livingston and Thomas Erlewine, for answering my many questions and taking the time to help me find a suitable solution. It took weeks for me to learn to get proper lighting. In this short introduction, I can only go over the high points of what I have learned, but they should be useful.

First, you will need some space. It proved much more helpful to pull the lights farther back than to work with them up close. The goal is to get even lighting across the poster, with no hot spots. This is not as easy as you might think. In fact, it is just plain difficult. For my work, I used halogen lamps on stands with umbrella reflectors. In other words, the lights face away from the art into small photo umbrellas and the reflected light from the umbrellas is what plays upon the artwork. There can be no guesswork here. You have to measure the exact distance of each light from the center of the artwork. The angle of the light to the plane of the board on which the artwork is mounted must also be calculated. For example, each light might be seven feet from the center of the art work and at a 40-degree angle to the plane of the artwork. I used two Lowel Tota-Lights with 500 Watt (3200K) halogen lamps.

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Halogen light on stand, with umbrella

In addition, the lights must be mounted on their stands to the same height as the center of the artwork. Much experimenting must take place. This is how it is done:

Position the lights by eye and then measure the distance at a 40-degree angle from the plane of the poster, one on each side of the artwork, until they look even. Dangle a paperclip or something from above the artwork and out from the board so that a shadow can be seen. There should be two shadows, one from each of the lights or from each bank of lights. Adjust the lights until the shadows appear by eye to be identical in degree.

Next, shoot an image, not of a poster, but of a white or gray sheet of paper. Take this image into Adobe Photoshop and perform one of the following tests:

Use Photoshop's Eyedropper Tool and watch it's info palette, which shows changes in image density as the tool moves over the image. It may help to

convert the image to grayscale, so that you need only watch one number, the black level, rather than all three (RGB). By moving the tool around the image from the center to all four corners, you will quickly see how balanced is your lighting. If the levels are not balanced, then repeat the whole process: rearrange the lights, take another photo, bring it into Photoshop, check the numbers, and so forth.

Another (easier, but less accurate) method is to go into Photoshop's Levels Menu and adjust the slider arrows (back and forth) to force contrast in the image, deliberately making it look awful in order to emphasize variations. In this way, hotspots are easier to spot.

This whole process takes time, but it is essential. When you have roughly even measurement in the center and at all four corners of the area of your photographed image, your lights are balanced. Don't move them!. Lock the room when you leave.

Camera Placement Tips

The camera must be precisely in front of the center of the artwork. To achieve this, it is best to draw a coordinate grid across the background board (vacuum frame) upon which you will be placing the posters. From the center of the floor in front of the vacuum frame, place a strip of tape from the exact center out to and beyond where you will be placing the camera. This strip is at a right angle to the poster. The camera tripod will then move up and down (closer and farther) that line, depending on the size of the poster being documented.

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Keep the camera in line with the board

The camera also needs to be leveled on the tripod, both from right to left and from forward to back. In my case, I purchased a special eyepiece lens that had a grid engraved on it, which allowed me to better balance the camera, from right to left. As for front and back, I used a small (8 inch) carpenter's level, which I placed vertically against the front of the camera lens hood. The plane of the camera and the plane upon which the poster is placed must be parallel.

Some tripods have built in levels that take care of the right to left leveling, the handiest being the kind that lets you adjust the entire tripod head, from underneath, using a built-in level. You will still need to level the camera lens, forward and backward, using the small level, as I described above. This will make sure the lens is parallel to the board on which the poster is placed.

In addition, it is recommended to use a remote-device cord to trigger the camera.

Camera Settings Count by Michael Erlewine

As for camera settings, you will have to experiment. The rule of thumb for getting the most out of your lens is to open it up as wide as you can and take shots of some detailed pattern, type, or poster. Then gradually close the aperture, taking shots as you step it down. The idea is to try different apertures with different lens speeds. Take notes for each photo of what aperture and speed the lens is set at. Then take these shots into Photoshop and examine them. You will quickly see what combination of aperture and lens-speed produces the greatest clarity. Look for the fine print. Depending on the type of camera you use, some attention must be paid to the matter of White Balance, using a white or gray sheet of paper.



Vacuum board, camera, and lights

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