

PHOTOGRAPHING SCIENTIFIC GLASSWARE

By

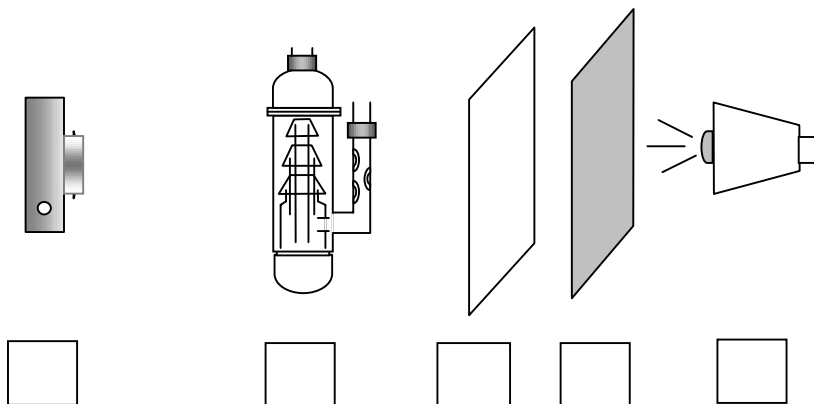
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Introduction

Every glassblower has experienced the satisfaction of completing a difficult glass project and then wished they could photograph the finished product to share with colleagues. Obtaining quality photographs of intricate glassware is difficult – and sometimes costly. The following technique for photographing glassware uses inexpensive cameras and materials for taking high quality photographs of glassware.

The Problem

Complex scientific glassware involves multiple layers of cylindrical tubes, side tubes, and ring seals that all reflect light. If the glassware is exposed to room light or natural light, most of the inner seals become obscured by reflections in the glass. To overcome this problem, backlighting must be used. The photographs should be taken in a darkened room with a single light source behind the glassware. The following schematic shows the basic components of the techniques described in this article.



- A. Camera – 35mm or digital
- B. Glassware subject
- C. Translucent diffuser panel or fabric
- D. Color gels
- E. Photo flood light holder

Figure 1

The Camera

Today's market is flooded with easy to use cameras in all price ranges. Some of my photographs were taken with a 30-year-old Pentax K1000 35mm camera and others with a low priced Agfa ePhoto 1280 digital camera. Each has its own high and low points. The 35mm cameras take great photos, but require film processing which can add days to the project while waiting for film development. Digital cameras allow taking many photos and deleting those that are not what you want. This is important if you take photos at many different camera settings and compare the results. I have also had reasonable results using the "insta-matic" and Advantix 35mm cameras if they allow adjustable settings. Turn the flash off when taking pictures or all you will see in the photos is reflections in the glass. Always use a tripod, otherwise the slow shutter speeds will cause blurring if you move the camera.

The Film

Glass is a stationary object so there is no need for a high-speed film. The slower the speed - the better, and I recommend ASA 100 color film. A wide-open lens and slow shutter speed will allow good color saturation in the photograph. Digital cameras with manual settings should follow the same recommendations.

(Note: If you are using a tungsten photo flood light for back-lighting, you need to have either film that compensates for the yellow tungsten light or a photo flood bulb that has a filter that reduces the yellow. Photos taken with pure tungsten light will cause the glass to look yellow/green and not be very attractive. The bulbs I use are a BCA No. 1 photoflood and are coated with a blue filter. These bulbs are available at your camera store for about \$5 to \$7 and are cheaper than using color compensated film.)

The Glassware

Before photographing, the glassware should be very clean and free of fingerprints. Using this technique, everything shows. (This includes your wavy seals – so be careful!).

The Translucent Diffuser

The purpose of this panel is to distribute the light evenly behind the glassware. A variety of materials work for this purpose. I have used sandblasted glass sheets, an ordinary window blind hung over a doorway, white bed sheets, 2' by 4' ceiling light panels, and white rip-stop nylon stretched on a wood frame. However, my preference is a sheet of white translucent Plexi-glass® about 1/4" thick. A 2' x 3' panel will allow you to photograph all but the largest glass project. If you use a fabric panel, make sure that you select a material that is pure white and has a high thread count so that undiffused light doesn't show through the front of the panel.

This system of photographing glassware can be set-up in either a vertical or a horizontal plane. Some glass projects are best photographed by standing them up in front of the panel and others can be laid directly on the horizontal diffuser panel.

The Color Gels

Adding colored transparent sheets behind the diffuser panel will really add impact to your photos. Theatrical supply houses sell transparent gels (plastic sheets) in hundreds of different colors for about \$8 per 12" X 18" sheet. The thin gels used in theatrical lighting to cover the ends of spotlights work very well in this application. (I have also used transparent report covers from the office supply stores as well as colored film from the craft stores with reasonable success).

The gels can be taped directly to the back of the diffuser panel or placed several inches away for a softer look. Gels can be combined, overlapped, or shapes cut from their surface to add variation to the overall color scheme.

The Photoflood Light

You can purchase the photoflood light holder at your local home improvement store. The type with a ceramic bulb holder, 12" aluminum reflector, and spring clip works well in this application. Use caution, the photoflood bulbs generate a great deal of heat and can cause burns and start fires if left unattended.

The Complete Set-up

Set-up the glassware as described in the instructions. Darken the room, turn on the photoflood, and turn off the flash on your camera. Use your camera's light meter (if it has one) to set the exposure and start taking pictures. Take pictures at different aperture settings and shutter speeds. Keep a log of the camera settings for each picture, if something works well, you can return for more pictures.

The Photographs

The photos in Figure 2 were taken using the same set-up and camera settings. Figure 2 A was taken with the photoflood backlighting only. Figure 2 B uses a blue and red gel strip. As you can see, the detail inside the glassware is plainly visible and has good resolution on all surfaces. The "sparkle" light that is visible as highlights around the inner ring seals in Figure 2 B were added using what is known as a "snoop light". A snoop light is a photoflood holder that is fitted with a tapered snorkel 8" long that focuses the light to a small opening. A home made snoop can be made by fashioning an aluminum foil cone and taping the cone to a flood lamp holder. Form an opening about the size of a quarter in the end of the snorkel and have an assistant direct the snoop light at the areas you would like to highlight. Because of the slow shutter speeds involved, quick movement of the snoop light will highlight several areas at once in the photograph. The snoop light adds sparkle to the glassware without adding excessive reflections in the glass.

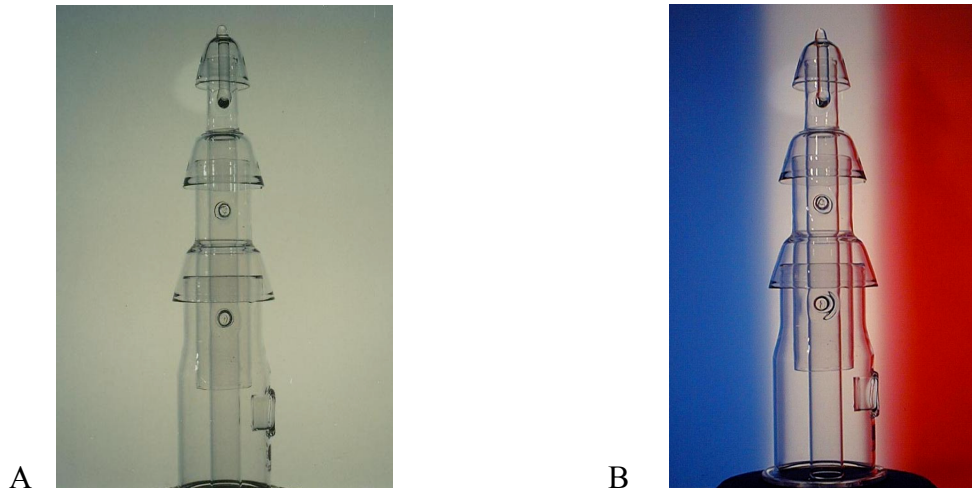


Figure 2

Conclusion

Using this technique and low end equipment, I have taken photographs that show the subject matter well. The materials used in this set-up are readily available, inexpensive, and can be pulled out easily when I need to photograph a glass project.

As scientific glassblowers, many of our most satisfying glass projects are buried within the halls of academia or a research lab and are rarely seen by more than a handful of people. The next time you finish a complicated glass project, take some time to photograph your work and share the project with others.