

# Jewelery Photography

Copyright © Charles Lewton-Brain 1996  
From: 'Small Scale Photography'

## Basic lighting options for jewelery and small object photography

### Lights (photofloods)

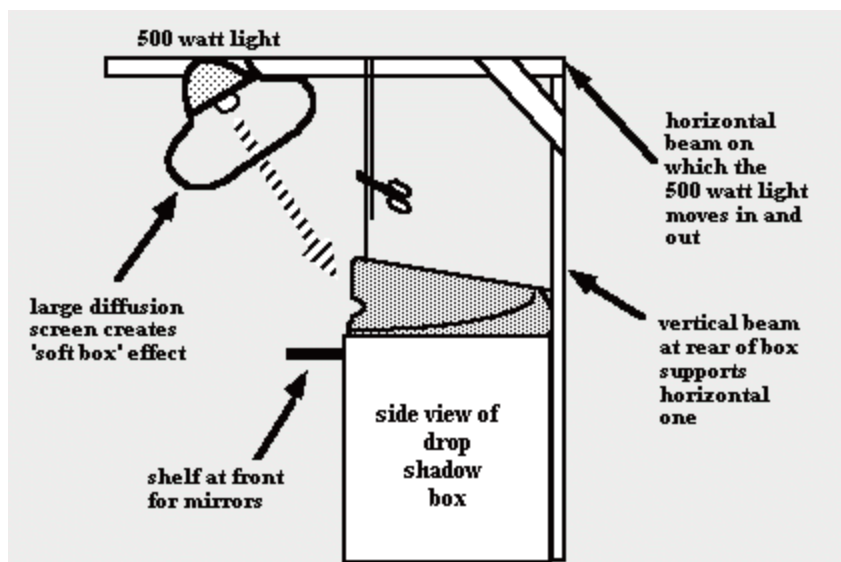
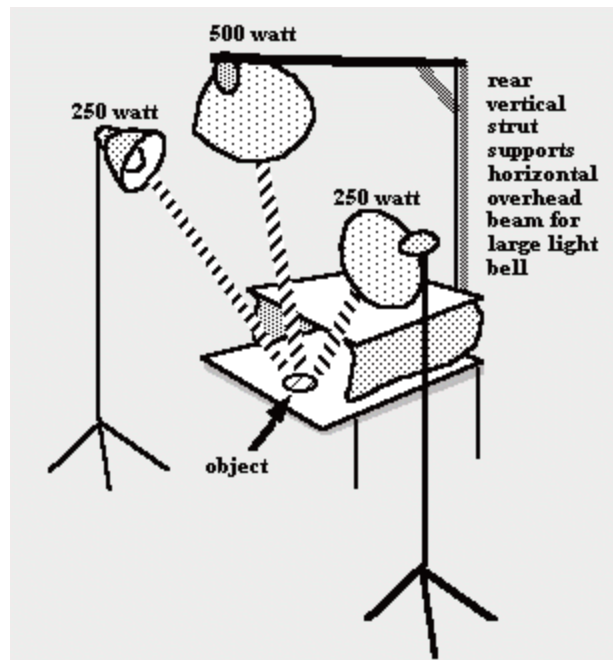
The kind of lights and lighting that I recommend for our drop shadow system are photofloods (type B). You can buy these bulbs at many photo stores but you should shop around: prices vary from 2 dollars to 10 dollars per bulb. They are a pretty standard item in photo stores that sell to professionals. Tell the camera store staff you will be using tungsten film.

They are mounted in clamp - on lights, such as you might find at a hardware store, where there's a spun aluminum bell and a little clamp - on part to the light socket. The best quality ones have ceramic sockets, so you should try and find ones with ceramic sockets if at all possible. The plastic socket kind can overheat, their switches tend to wear out and they are usually not rated for the high wattage used in photoflood bulbs - which makes them both dangerous and probably illegal in the event of a fire.

We will use three main light sources for our system: two 250 watt bulbs and one 500 watt bulb. The 500 watt one is above the shooting surface and the 250 watt ones are above and on the sides. I recommend buying at least four of the 250 watt bulbs and three of the 500 watt bulbs and having that many on hand most of the time. It can be very frustrating to burn out your last bulb in the middle of an important photo shoot and not have a replacement on hand. We will be using three lights for our system and that will serve us very well most of the time. When you handle and change the bulbs use a clean cloth like a handkerchief or cotton gloves like they sell in camera stores. Grease traces on the bulb can apparently sometimes contribute to bulb failure (note that if you ever change halogen slide projector bulbs you should treat them the same way).

Remember to shut off any other sources of light when you are shooting as incandescent bulbs or fluorescent bulbs nearby can affect the colors you get in your photographs. Tungsten films do not react well to other types of lights being on at the same time when you take photographs with them.

The photoflood bulbs in the clamp - on lights are used most of the time with light diffusion screening such as Mylar® between them and the object being photographed. Mirrors are used to collect light from the photofloods and so add light to different parts of the object. Diffusers have been omitted in the following drawing for clarity.



### Light dimmer box: ramping the lights up and down

The light bulbs and your entire lighting system should, if possible, be run through a light dimmer box. You can buy a light dimmer at the hardware store and construct a box, or get an electrician friend to do this for you. Remember that the dimmer box should be rated for the wattage you will run through it to avoid any fire danger. The reason for having a dimmer box is that we want to ramp the lights up and down. In my experience it is when you turn the lights on that you blow the bulbs. One tries not to turn them on suddenly. If you ramp the lights up and down, you'll find they last a lot longer, and it's a lot gentler on them. In addition you want, if possible, to turn the lights on and off from a single place to make life easier. The dimmer box should be wired to plugs for the lights. If you use the on/off switches on the clamp - on lights themselves, they often break after a period of time, so anything you can do to displace that switching as well as the on/off shock to the bulbs is beneficial.

### Log book

A point about photofloods and professionals: professional photographers will keep a logbook of their photoflood use, and they will note every minute of running time, and when that bulb hits 2 hours they scrap the bulbs, even if the bulbs are still functioning. Now after a lot of experience, I don't feel this is necessary. I feel that if you start off with three photoflood bulbs and you just use them, after a little while you have one old, one new, and one medium, there is a blend of light qualities and it all works out. I have yet to see any disturbance in color temperature from not keeping a log book and not trashing my bulbs every few hours. I use the bulbs until they die and then change them. This lowers your overhead. A professional photographer told me once that when bulbs are tested more sensitive films than normal are used and so in real life it doesn't make as much difference as one might think.

While not a log book as such I strongly recommend keeping a note book and pen next to your shooting area to note your observations and experiences in. This will help you better understand what you are doing and help keep you out of trouble when similar problem situations crop up more than once.

### Mirrors

A major part of our system, and what makes it an extremely good one, is the use of mirrors. I like swiveling shaving mirrors which cost two or three dollars each. You can also use the kind of make - up mirror that enlarges things on one side and on the other there is a regular reflection. Make sure that the rim on the mirror is silvery or white as colored rims can reflect in your work. These kinds of mirrors are very useful for our purposes. I have some 15 to 20 mirrors in various sizes around my own set - up. The photofloods and mirrors will be all you need in lighting equipment to obtain good results. Mirrors used should be stable and easy to tilt and position. They should also not move after you position them. The mirrors catch hard light falling from the sides of the clamp - on lights and give us miniature spotlights on the object. It is the mirrors that allow us to model light on the object and obtain results equal to or better than those available with professional photographic lighting equipment costing thousands of dollars.

This is all antique technology. This is how they made the original 1920s The Hunchback of Notre Dame; they used mirrors to shine the light, and it's something that photographers these days have forgotten about to some extent, but it's extremely useful, particularly for the small scale objects that we'll be shooting.

I often use the mirrors in ranked layers, one behind and perhaps above the next so both can be used. I also have mirrors that drop down from the ceiling; I have mirrors everywhere I can put them. I like microscope mirrors too, small ones which I then mount so that they can swivel. You can buy them at a flea market, and these can sit right on the shooting surface to direct light onto your object.

Several additional options that can sometimes be useful follow.

### Projectors

A source of light that I sometimes use for my photo - booth is slide projectors. Slide

projectors have the correct color temperature light for the type of film that we'll be using. If you go to a flea market you can buy a functional older slide projector for 5 or 6 dollars - often they are the type of slide projectors that have the slides organized in a long rectangular tray. They're such a pain to use that people are happy to get rid of them and they're very cheap. When one considers that the bulbs alone used to run about \$25.00 each it is a pretty good deal. So, if you can buy a slide projector inexpensively, mount it onto some kind of tripod, then that too becomes a light for our system. One can mask parts of the lens with dark paper to create 'stripes' of light. Occasionally a slide projector provides a great 'feed' of hard light to a mirror or may be bounced off a white surface onto an object as a 'fill' light to illuminate a dark portion of a piece.

#### Quartz - halogen work lamps

There are now quartz - halogen 'work lamps' available at hardware stores for between fifteen and thirty - five dollars which gives you a photo lamp that several years ago a photographer would pay three or four hundred dollars for. They have more or less the same color temperature as photofloods. They tend to be rather bright though and I don't use them for the small scale system we are talking about, more for larger objects outside of the photo - booth or for shots of rooms. For larger objects however they can be a very cost - effective addition to photographic lighting for tungsten films.

#### Daylight photofloods (blue bulbs)

An option that some people use for photography instead of the tungsten photofloods is daylight balanced photofloods, often called 'blue bulbs'. These are bulbs intended for daylight film types rather than the tungsten film that I recommend. The main advantage here is cost: the tungsten film costs more than daylight film. However, blue bulbs (and blue filters) cut down on the amount of light that reaches the film and this may affect the capabilities of your system. Again, choose a system, learn it and live with it.

#### Blue filters

Instead of using the blue bulbs, it is also possible to use a blue filter on your camera lens, which allows you to use tungsten lighting with daylight film. Some people really like the option of being able to use daylight film. This is a pretty inexpensive way of having the flexibility of both options with your photo system. I don't have one and it is not something that I do because I like to stick to a single film type to avoid surprises, but it may be useful for you to know about at some point. At the photo shop ask for the filter that allows you to shoot daylight film using tungsten photoflood (3200K) bulbs. In the Kodak Wratten system this would be an 80A correction filter. This requires an exposure increase of about two f-stops (*Collins, p 64*).

The reason some people like the daylight film option (besides the ability to use Kodachrome) is because they prefer to shoot color print film of their work which can be processed rapidly almost anywhere and is relatively inexpensive. In practice I personally don't find color prints that useful when compared with slides.

If I need to have color prints then slides can be easily duplicated onto color print film. As well, good prints can be made from slides at most photo shops and there is always the option of having a laser - scanned color photocopy made from a slide. If on the

other hand you do have color prints you want slides of you can get fairly good results by taking slides of the color prints themselves using the principles of a horizontal copy set - up (described later).

#### Fiber - optic lights

If you have an extra couple of hundred dollars around I strongly recommend obtaining one or two fiber optic light sources as well. They can be purchased from gemology suppliers. They provide several settings of a tungsten - halogen intense spotlight on a long gooseneck that can be twisted and positioned fairly close to a small object. The end of the 'light pipe' or gooseneck is about ½" across. They are very pleasant to have around and enable some really accurate spotlighting and elimination of shadows on a piece. I don't have one of my own but I use them whenever I have them available.

#### My Recommended Lighting Pick for Beginners:

Until you have some experience I suggest my recipe for basic success: 3 photoflood bulbs, one large one above, two of less wattage on the sides, diffusion screens on all of them and use 64 ISO tungsten film (don't bother using blue bulbs, daylight film etc. for a bit). This is what I use.

Again, whatever you do, set up a strict system, and live with it, and that way you'll get the best results.

### Basic Photographic Equipment for Jewellery and other Small objects

#### Cameras

We are assuming you have a 35 mm camera. You will need a 'single lens reflex' (SLR) camera with a 'through the lens' metering system (TTL). This type of camera allows you to see through the viewfinder what will be recorded on the film. It also allows you take reflected light meter readings from your object through the camera lens. My favorite is a manual Nikon camera: I have a Nikon F2. There's also an FM2. An F3 is supposed to be good too. I think it is important to have a manual camera, because if you have a camera that's all automatic, a couple of things happen. One is that the camera lies to you (the camera thinks it sees the correct light reading for your photograph, and it is wrong) and you may end up with bad shots, and the second is that I have the impression that automatic cameras may be a little bit easier to break if you drop them, whereas with many manual cameras, you can actually drop them on the floor, and most of the time they survive - not that you want to drop them on the floor, but sometimes such things happen. If getting an automatic camera, make sure it has a manual mode that lets you have full control over the f-stop used, time of exposure and ISO setting (some new automatics set the ISO when you load them by reading the bar code on the film canister).

Manual cameras are getting harder to find, so this means looking in the used market. You can pick up a used F2, F3 or FM2, probably for about 300 to 350 dollars if you look. Other cameras are acceptable as well. I suggest you ask a number of photographers what camera they like and why before making a decision, that is of course if you don't just get a Nikon F2 like I have. Bobby Hanson (a photographer, artist, author and blacksmith) says that many other types of cameras do not center

the image properly when taking vertically-oriented (called portrait orientation) shots. You see the object centered through the viewfinder when you take the picture and when you get it back after developing it is slightly off to one side. He suggests that you look through the viewfinder and draw just inside the visible area on paper with a magic marker, thus making a frame around the edge of the view while looking through the camera. Number each side of the drawn frame (1, 2, 3, 4). When you get the slide back, take the slide mount apart and see which edge was lost. Then mark the camera with tape or an arrow to remind you to compensate by having the object slightly off to one side whenever you want to center it in a vertical shot. I had not known about this problem and Hanson explained that a Nikon F2 centers objects properly and accurately and that was why I had never come across this particular problem.

Viewfinders may also vary in the accuracy of what you see. The Nikon F2 and F3 show you exactly what you will get, other cameras may show you slightly more or less than what you end up with; you will have to test to find out. In addition, the slide mount crops a certain amount of your image area so you will have to be aware of this in evaluating what the differences and similarities were between your experience of the image through the viewfinder and what you actually got projected on a screen at the end.

I also suggest that if you come across a second F2 body or another of the same camera body which you have that you buy it as a backup for parts. As digital cameras come on stream the manual repairs will get rather expensive and if you have a camera body to cannibalize parts from you'll be better off.

The best professional-quality photography of objects is normally done using larger format cameras than our 35 mm (small format) cameras. Large format cameras produce larger transparencies (a standard slide is a 35 mm transparency). Sizes range from a Pentax 2" x 2" (6x6 cm) (pleasant because the camera works similarly to a normal 35 mm camera), 4" x 5" (6 x 7cm) and even larger. Such cameras are expensive and are generally seen as a professional's tool. Their advantage lies in the much greater quality of detail available with them. Magazines, if given a choice, will always choose a larger format transparency to work from although most will work quite happily with a 35 mm slide. If they are particularly sticky they will ask you to have a 4" x 5" transparency made of an object that you sent them a 35 mm slide of. This is pretty rare, however, and usually a 35 mm slide is acceptable for publication.

Digital cameras are coming quickly and offer more flexibility in some ways (if you have the computer to deal with them and currently primarily if you intend the images to be viewed on a computer screen). I believe, however, that slides will be around for a while yet and therefore recommend that you stick with standard film cameras for some time to come (by 2003 the digital route will make more sense). With a digital camera the additional costs of hardware and software or service center overhead are currently higher than a standard film and slide route. If you need digital images in the meantime you can have slides scanned inexpensively and saved on disc. In the system dealt with here I am trying to keep everything as inexpensive as possible and at this point digital and the resulting hardware and software requirements to deal with it are just too darned expensive.

Note that 'wet' photography (what we do now) will become an art form and of higher value with time as it becomes rarer, just as engraving, etching and lithography have

done since being displaced as vehicles for commercial mass-media image production. Keep your camera clean and dust-free. I religiously bag my camera tightly in a plastic bag clipped tight with a clothespin when I am not using it (watch out for condensation issues depending on your humidity - it is dry where I live).

The remote shutter release and the timer

I strongly recommend the use of a remote shutter release cable. The reason for this has to do with avoiding vibration. Pressing the camera's shutter release button with a finger can cause too much vibration on a long exposure. A remote shutter release avoids this problem and only costs a few dollars.

Another way of avoiding vibration which I often use is to engage the time release lever on the camera. One cocks the shutter, pulls the timer lever down and activates it. By the time the shutter is released and the picture is taken, any vibration from handling the camera has settled down and you will be able to take an unblurred photograph.

The lens: a 50 mm Macro

The lens I recommend is a fifty millimeter macro lens. A 'macro' lens means that it blows things up (enlarges them), so you can get really close shots. Although you can obtain combination telephoto lenses that are say, 80 macro or so which allows you to use them a bit like a telescope to enlarge far-off objects and also to use them to take close-up pictures, only the 50 millimeter macro allows you to jam your head against the back of the camera body to look through the viewfinder and at the same time touch the object or manipulate the lighting on it. All of the other lenses require you to set up a tripod about three feet or further away from the object, which means that you're continually walking back and forth from the object to the camera, and you can't see what's happening through the lens while you manipulate the object's position or the lighting on it, which wears one down quickly-so, I recommend a fifty millimeter macro. Cost on a used one currently runs about \$125.00 (1997).

50 mm macro lenses come 'one to two,' which means that when you are as close up as is possible with the lens, the object you are taking the picture of will be one half its real (measured) size on the film surface itself. If you have an object which is 1" across then the largest it will be on the actual slide is half an inch. What this means is that for rings and smaller objects the 'one to two' macro is near its functional limit. If you get a one to one converter for the macro lens, then you can have it the same size on the slide as it is in real life which gives you the opportunity to do more close-up work. I don't have a one to one converter, and most of the time - 99 percent of the time-it's not an issue for me. For really tiny objects you might want to invest in one. It is important to maintain your equipment. Always have some lens cleaning tissue and the appropriate lens cleaning fluid from a camera shop around to wipe off smudges and dust. Keep equipment bagged and dust free when not in use.

There are a number of other choices for enlarging objects to obtain a reasonably good close-up of an object on a slide or photograph.

Extension tubes

Extension tubes are tubes that go between the lens and the body of the camera which allow you to obtain close-ups. They extend the lens away from the camera and thus enlarge the image seen through them. Their major advantage is that they are cheap; the drawback is that there's a light drop off. One of the problems that we have in

taking close-up pictures is that we need a lot of light in order to have more of the object in focus (see 'depth of field' later) and so any light that we lose interferes with what we're doing. There's a trade off here - cost versus the best conditions for taking close - up photographs. I had extension tubes for several years when I started taking my own photographs and they served their purpose, but there definitely came a time when they just weren't good enough for what I wanted to do.

#### Close - up rings

Another option is close - up rings, which are like lenses that screw onto the front of the camera lens to allow you to enlarge objects. They come in combinations that allow you to get different degrees of enlargement. Close - up rings are also quite cheap - in fact they're a very inexpensive alternative and they may be a good way to start. Having said that, in general the more you pay for them the better the quality you will get. The problem with close - up rings is that one tends to experience distortion near the edges of the image. This may not matter to you immediately, but it may be something that you want to think about. My recommendation - if you can afford a 50 mm macro you should get one, if not then save up for one while you use your less expensive close - up rings or extension tubes.

#### UV filter

It is wise to have a UV (ultraviolet light) filter screwed onto the front of your camera lens. While it does filter out ultraviolet light, its primary function for our purposes is to keep the actual lens undamaged, so that if you drop the camera, the filter gets broken, but the real lens doesn't. It also keeps dust away from the delicate lens surface inside it and when you smudge it with a greasy finger it is easier to clean than an actual lens. For all intents and purposes it's a protective device for your lens.

#### Polarizing filter

A polarizing filter can be used on a camera to reduce glare from an object. Metals and certain ceramics are among candidates for polarizing filter use. I don't personally use one because I work with light placement to eliminate glare and hot spots on my object but it sounds like a reasonable idea for certain objects. The filter can be turned to various positions to eliminate various degrees of glare. Lights too can be filtered by polarizing films to reduce or even eliminate glare from an object (Collins, p 65). Polarizing filters over the lights may provide more control over specular reflections than just a camera filter (Bomback, pp 164 - 168). However, in my opinion some reflections are often what gives drama and life to the object. Another problem is that polarizing filters cut down on the light reaching the film and thus require longer exposures or larger f-stops which can affect the depth of field (the amount of the object in focus).

#### Lens shade

It can be useful to have a lens shade for some situations to avoid flare and light spots in the lens. Dan Gordon, a photographer and educator in Calgary explains that flare can also mean a loss of contrast and saturation even if the flare is not visible as a hot spot. Because of how our photo - booth is lit flare is not much of a problem.

#### Polaroid camera backs

Most professional photographers have an interchangeable back for the camera which allows them to take Polaroid pictures using the same view they will then record on film. This allows them to check composition, shadow and contrast so that, before they commit to taking the actual picture, they will take a Polaroid shot with the camera,



using the set - up exactly the way they want to do it, look at the Polaroid and make their final decision. Usually they will use black and white Polaroid film for this. There's another photographer I met who not only has a Polaroid camera back but he has a back that digitizes the image which goes over a modem so that his customers in Japan or elsewhere can see what he's doing with the shot at the same time as he is setting it up. They are able to see what the lens does on a TV screen and can make comments during the shoot. I don't currently have a Polaroid camera back - perhaps one of these days.

### Spot meters

Professional photographers use a spot meter (called an incident light meter) to decide on the camera exposure and f-stop settings to use. A spot meter is a hand - held instrument that you place on or just in front of the object that you wish to take the light meter reading of. It measures and records the amount of light falling onto it and it gives the setting combinations that one can use to take the photograph. Then you choose the f-stop on the camera you wish to use (this choice has to do with how much of the object you want in focus) and you set your camera accordingly. I don't feel that a spot meter is useful for very small objects, particularly when one has used a number of mirrors to modulate the surface of the object with small hot - spots and fill reflections. I feel it is just not accurate enough. The through the lens (TTL) metering system on your SLR camera will suffice. You therefore don't need an incident light meter unless you are shooting larger objects. I don't use a spot meter for our photo - booth system. You are probably glad to read that the last few items I've described are all ones I seem to be able to do without.

### Center weighted metering (reflective metering)

Most through the lens metering (TTL) cameras are center weighted, which means that the camera light meter takes its reading from a circular area at the center of what you see through the lens. The meter reads the amount of light reflected back from the surface to the lens. Usually the metering area is somewhat larger than the focusing circle that you can see at the center of the viewfinder. As you swing the camera around to look at the object and shooting surface, the meter reading will change and with some practice you will develop a feel for where the camera is metering from. Try pointing the focusing circle at a bright spot on the object, at a dark area, and so on to get a feel for how the meter responds to lighting conditions on the object. In general you are trying for the most average choice for the lighting conditions on your object. This is why one tries to avoid extremes in lighting on an object.

Check your camera manual to see how your camera meter actually reads, whether it is center weighted, reads across the entire view or from a concentrated spot reading. How it reads will determine how you use it to take light readings from an object.

### Gray cards

Professional photographers often use a gray card to determine a reflective light meter reading. A gray card is theoretically designed to give you the average of the light that's coming back. Gray cards are available at photo stores. One can use a Color - Aid® 18% gray paper instead. You slide the gray card down, just in front of your object, preferably parallel to the plane of the film (the camera back) and take the meter reading from it with the through the lens reflective metering system. Most of the time a gray card reading will be pretty good. Me, personally, I'm not sure how much I trust it. I tend to use the gray card every time as a check, against what I

thought the meter reading should be. I will also turn to a gray card when I am unsure of what the meter reading should be.

When using one realize that if you tilt the card slightly you will change the lighting conditions coming back to the camera so, again, try for average, hold it for the quality of light you think is coming back to the camera from the object itself, generally parallel to the camera back.

Gray cards can be cut to smaller sizes for small objects. They should however fill all of the camera's view when taking a light meter reading off them.

Let's say that we didn't have a gray card around. It turns out that the palm of your hand is about the same tonal range as a gray card, so if you have nothing else, you can place the palm of your hand in front of the object instead of a gray card, and that will give you a reasonable meter reading.

### Tripods

You've got a decent camera of some kind, and now you need a tripod.

A tripod is a piece of equipment that it is worth spending some money on. I recommend getting a used one (let your camera shop know you are looking for a good one). Bogen and Manfrotto are both good brands. I buy mine at auctions and from my local 'bargain finder' newspaper.

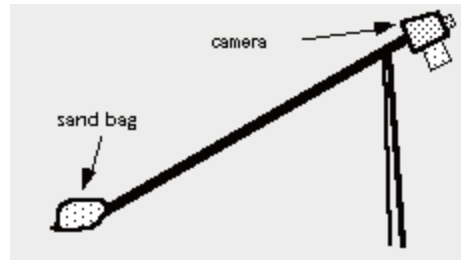
The photo - booth's tripod should be sturdy, heavy and easy to use. Most important: it should be designed so that when you release the legs they drop under their own weight. You do not want to have to do any resetting, fiddling around or any time - consuming messing with it. This is because there are times when your face is jammed against the back of the camera, you are looking for a particular angle and you literally stand up, looking for the angle you want, find it and then release the tripod legs. When they hit the floor you lock them in place, still with your face on the camera back looking through the viewfinder. You should therefore be able to lock and unlock the legs easily without looking at them. Sturdiness, ease of use and speed in resetting parts while in use are all advisable. Don't get too light a tripod; because it is for a studio situation stability is more important than portability.

Note that in practice one rarely tries to use the central vertical pillar of a tripod upon which the camera is mounted. While it may extend upwards with a crank and it seems like an easy way to raise the camera's position it can shake more than if one uses the tripod's legs to do so. Because exposure times tend to be long with close - up work this shake can result in poor images. If your photo system is in a basement on a solid floor this is less of a problem but passing trucks and floor vibration can still cause problems. One might as well minimize it by not extending the central pillar upwards more than necessary.

It is also a good idea to have a tripod that has a central pillar which allows one to mount the camera on the bottom of the pillar as well as the top. This allows you to place the camera on the bottom of the pillar between the tripod's legs, facing down, in order to use the tripod as a copy stand for flat work. Note that I personally do not use this much; it is just an option that it can be nice to have at times.

A ball head design is generally not as accurate to use for positioning as one that hinges and tilts in several directions.

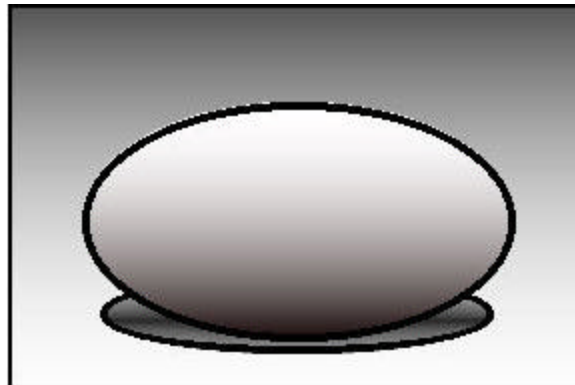
Sometimes one sets a tripod up so that the two legs at the front are fairly short and the third leg is out all the way extended backwards. This is to allow the camera to look down almost vertically for certain shots. To stabilize it you may want a sand bag at the end of the extended leg. I like to buy an old leather hand bag with a zipper for a dollar or so at a thrift store, fill a plastic shopping bag with sand, tie it up and zip it into the hand bag. This gives you a sand bag with handles that you can easily move about and if necessary hang from something to keep it steady. It can be useful to have more than one of these around.



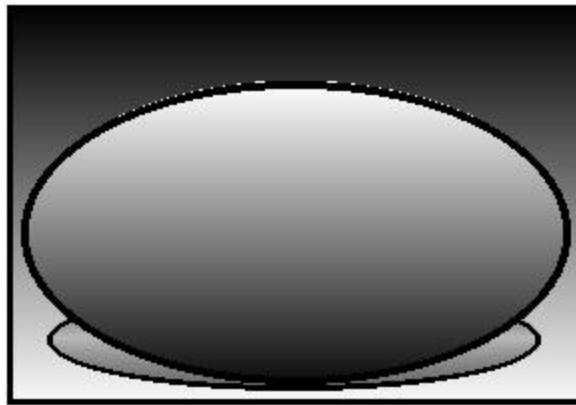
This tip is really important: when you mount the camera onto the tripod head make sure that the rewind release button on the bottom of the camera is exposed, that you can still get at it when the camera is mounted on the head; otherwise you have to move the camera to unload and load film. While it may seem incredibly obvious to some people, this simple camera positioning took me years to figure out.

#### Object size and proportion in image

Now we're going to start talking about taking the picture - actually getting closer to taking the image. There's a couple of things that we need to think about. One of them is the size of the object in proportion to the image area (remember any cropping action your camera will inflict on the image seen through the viewfinder and also that you will lose some of the edge area under the slide mount). It should be just right, no too big and not too small.



**Reasonable Proportions**



Object too large

### Composition

Learning composition is an essential part of taking photographs. It's a bit like doing a painting, or a drawing; you have to deal with all the issues of composition that a painter, or a graphic designer, or somebody drawing something flat does. You are dealing with creating a piece of flat art (the slide or photograph), with two - dimensional composition and within the limits of the 35 mm rectangle (whose proportions as it turns out are based on the Golden Mean).

I suggest taking a 35 mm slide mount and holding it in your hand, looking at the world through it. Move it around and look at the shapes you see, experiment with relationships of line, harmony, balance and weight - that is, visual weight. Slide it around, and every now and again you'll think, "Hey, that's a good balance," or "Oh, that's a pleasant thing," or "That doesn't look good." Take it outside as well as indoors. After a while you will not need the rectangle to look through to see the compositional relationships and you will be able to get a sense of these things just by choosing to look for them. Also, when you see magazine shots, have a look at what kinds of decisions the photographer made. Remember, for documentary studio photography of objects, in general the more neutral the background the better. So composition in our terms usually has to occur within and on the object at hand and concerns how its three - dimensionality, structure and surface qualities can best be portrayed.

### Forget that it is a 3-D object

One of the hardest things about small scale photography of objects, and the one that screws you up most when you're starting, is that you must forget that the object you're looking at is a three - dimensional object, because what you're doing when you take the picture is working with a completely flat plane: the film - and the composition and the work that you're doing - has nothing to do with three dimensions. You're making a flat art object, just like working on a piece of paper. If you get mixed up, and you imagine you are looking at a 3-D object, perhaps because you made it, and your physical experience of it as a three - dimensional object is strong, you can actually lie to yourself about what you see, and you can end up with bad pictures. So it's very important to distance yourself from the object, and when you're looking through that viewfinder, that rectangle is all there is - there's nothing else, and you're working with a flat composition. It's really important to try and remember that, because you'd be surprised how lying to yourself can make you completely miss what's happening right in front of you.

### The best view of the object

As you compose the image, search for and find the best view. But before even starting to take the picture you should decide what the image is for, what it is supposed to convey to the viewer. This means a compromise between the greatest photo, most informative, dramatic, documentary, narrative, process - revealing and other requirements of the image of the object.

Does it have a handle, an interior? What are the qualities that best fulfill the demands of the specific shot? Goals and intentions that are different will demand different considerations in the image. The best view will depend upon the function of the photograph. Usually this has to do with conveying the most textural and form information about the object - which in general means one uses a large overhead diffuse light source, small spotlighting from mirrors and side lighting to emphasize texture. One attempts to avoid overly dramatic lighting effects on the object.

### Front lighting flattens

An important basic principle about lighting your object: light directed from the front onto the object is called front lighting and front lighting flattens things, eliminates textures and relief.

Let's say you've put your object in the drop shadow box - perhaps it's an object of jewelry - you're looking through the lens and all of a sudden you see scratches that you had missed while finishing but you still need to take the picture. If you arrange your lights so they are falling directly onto the object from the front, from the direction the camera's view is from, you can almost eliminate those unwanted textures. All the scratches will disappear and you can take your shot anyway. I sometimes mount a small swiveling mirror with Fun - Tack on top of the camera itself for this purpose.

Side lighting picks up texture A second important principle is that side lighting picks up texture, highlights edges and enriches relief surfaces like cloth or textured ceramic or metal. Usually in taking photographs of three - dimensional objects one is trying to emphasize and intensify the textural effects on the surface of the work. We do this by side lighting, shooting light across the surface from the sides. I usually place mirrors at each side of the object just outside of the frame and angle them to intensify the textures present.

Coins for instance might be lit primarily by side lighting to pick up the detail and subtle rounded reflective surfaces on the object.

Remember that in creating the flat art image of the photograph, one is attempting to create a 'super - real' image so the viewer can understand the object as a three - dimensional object. Because the object is reduced to a flat image by taking a photograph one has to intensify its three - dimensionality in order to convey a sense of its presence to the viewer. As well as letting us see textures and relief details, side lighting is used to create a razor - thin white edge to the sides of the object which defines its edges and makes it stand out from the background of the image. This edge lighting is very important in making a piece stand out from the background, framing it and defining it in space in the photograph.

An interesting way of subtly creating a sense of texture is to move the side lights different distances from the object; this will introduce a hint of shadow to textured

areas such as cloth or cast paper. Some day if you are feeling experimental try turning different lights off one at a time in the system or moving them to different distances from the object, and observe carefully the resulting lighting effects on your object.

A traditional experiment to learn about lighting is to take a roll of photographs of a white object on a white background (an egg for instance) and make notes of different exposures, lighting methods, fill cards etc. While this is used mostly when learning about black and white photography and printing it can also be a useful exercise with color slides.

### Contrast

The issue of contrast is an interesting one (see Collins, p 115). It is difficult to see what the contrast is on an object. Try and see what is in front of you in terms of grays in order to get a sense of the contrast on an object. You can squint and fuzz your eyes to help see this, sunglasses (perhaps those yellowish ones?) might also help. You have to reduce what you are seeing to a simple (black/white/gray) level in order to evaluate the level of contrast on the object. This will take practice and is just something to be aware of when evaluating your shot.

### Shadows

One has to be careful of shadows. Cast from the object they can either give it a sense of gravity and place on the shooting surface or look odd and distort how the viewer understands the object portrayed. Be aware of the role of shadows both on and off the object. Many professionals try and avoid them altogether by cross lighting in such a way as to eliminate them. The diffuse light we use will create soft shadows; hard shadows are caused by non - diffuse light. Although most of our light is diffuse, the mirrors we use feed non - diffuse spotlighting onto the object which can cast hard - edged shadows. I personally like to use some sense of shadow on the shooting surface in an image to 'ground' the object, but I generally like diffuse, fuzzy - edged, not - too - dark shadows.

One can do a lot on purpose using shadows. The main point is to know they are there, to look for them and to consciously choose what part they will play in the flat image you are creating on the film plane.

### Rendering and its conventions

Creating an effective image through the viewfinder leads one to use the conventions of rendering, that is, the 'normal' ways that illustrative drawing and painting are designed to transmit information. Conventions of rendering include things like: there's a strong tendency to have the strongest light source falling from the top left - hand side of the image, edges are defined by extremely thin light streaks or very thin black lines, curving tubes have a light streak that is a line on them (much like on a spool of silk thread), rounded surfaces have a curving light streak, all objects lighten near their edges even in shadowed areas, a hint of blue implies silver or chrome, a hint of brown at the base of something grounds it - and so on. So have a look at drawings and renderings to begin to think about some of the issues that you have to deal with in creating a flat image.

### Creating a super - real image

When you're creating an image like this, it is not a blind documentation of the object -

you could do that with a photocopy machine or a scanner - instead you're almost making a cartoon. You are creating a super - real image. You're taking a three - dimensional object, you're creating a piece of flat art about this object, and you want the person looking at this flat art - at the slide - to have a sense that they're seeing a three - dimensional object, so you have to take what's there and accentuate it, exaggerate it, make it more real than real. One creates an over - emphasis of what is there so that the viewer of the slide image obtains a deeper understanding of the object than would otherwise be the case. If you take a very careful look at excellent advertising photographs, you'll realize that the lighting that you're looking at is not possible in real life. Lights are coming from strange places, there are shadows that can't exist. Remember you are creating a super - real image, and it's flat.

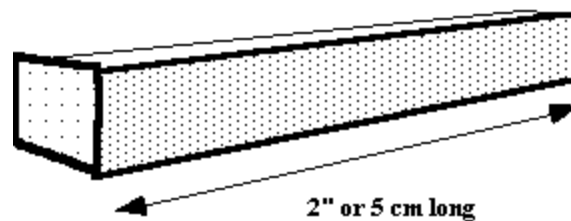
### Holding Objects for Photography

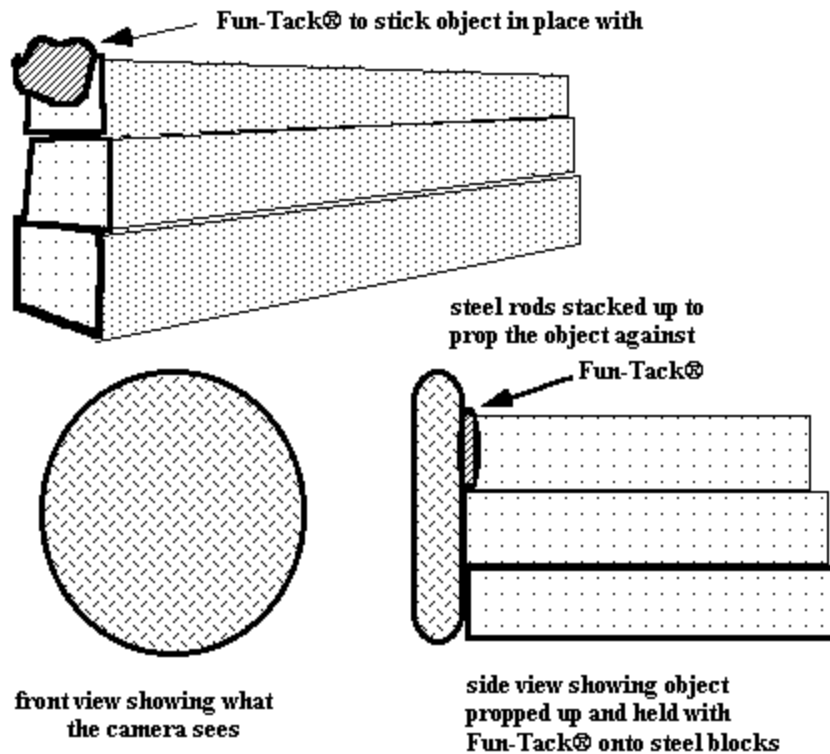
If an object will sit by itself on the shooting surface this is not a problem but often it needs to be propped up in some way. Even objects that will sit well on a flat surface sometimes need tilting slightly towards the camera by placing something under their rear side. Holding objects in place for the photograph is usually fairly easy and fast just by placing a suitable chunk of something heavy behind it against which it can lean. Wedges of wood or other materials can be useful for this. In general keep your holding method as simple, straightforward, rapid and clean as possible.

#### Steel blocks

I use small steel blocks cut from square rod that I can stack on top of each other until I get a stack high enough and heavy enough to keep the object in place by propping it against the stack. The blocks are about  $\frac{1}{2}$ " (1.5 cm) thick and vary in length though most are about 2" (5 cm) long. One can also use large steel nuts from bolts, heavy washers and so on as long as they are clean and don't stain the shooting surface (spray paint cans can serve for medium - sized objects). Square and rectangular pieces of scrap steel are useful. I often put a small blob of Fun - Tack onto the front of the top steel block to ensure the object doesn't move. I have more than one intriguing slide of an object blurring as it falls or swivels just at the moment the picture was taken. You also don't want to see anything that is propping up your object from the front view, and therefore looking for something peeking out from behind it is an important final check before taking a photograph.

square steel rod, about  
 $\frac{1}{2}$ " or 1.5 cm on a side





I use Fun - Tack to help hold objects up. This is a material that you can buy at the stationary store for putting up posters that is not supposed to (but does) damage a painted wall. With a small blob of it against your support even a tippy object is helped to stay put. I often use Fun - Tack just to stick an object onto a chunk of steel, or to stick the object itself onto the shooting surface. Fun - Tack will not damage your shooting surface. You don't want to use beeswax or Plasticine to hold an object up, because these will stain the shooting surface, and may also affect the object. Plasticine, for instance, contains sulfur, which will darken and blacken most metals within a pretty short period of time. A warning about the Fun - Tack: it turns silver black if it's in contact with it for some time, so you have to be careful when using it with jewelry. It is fine in contact with metals for an hour or so - just don't leave it overnight. Hot glue is another method for holding objects up but I don't often use it as it takes time to warm the glue gun, damages the paper if it touches it, works well on metals and smooth objects but can damage others. There is the occasional time, however, when hot glue might be a useful solution to a propping problem.

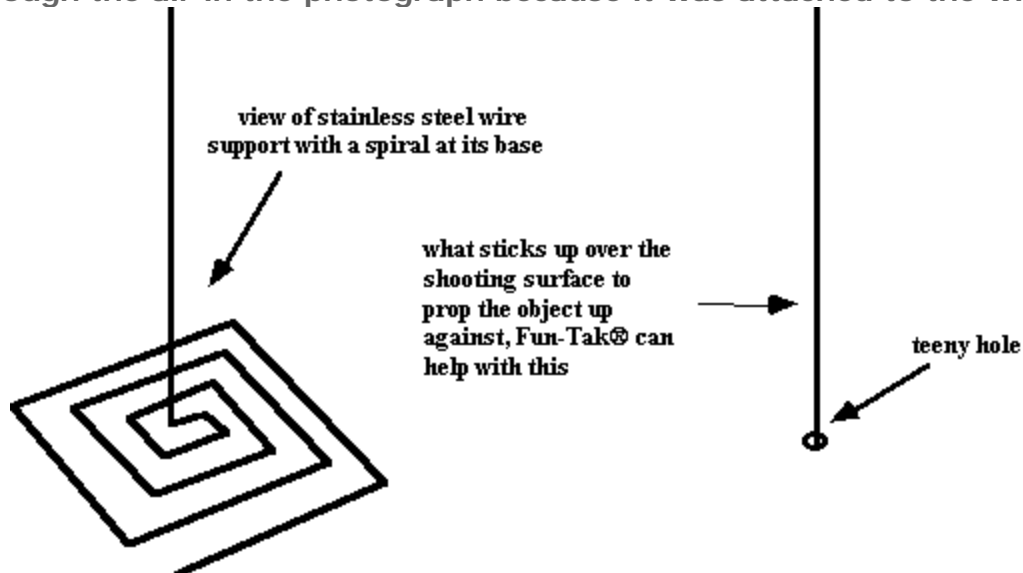
#### Stainless wire

As well as steel blocks, we can use stainless steel wire stands to hold our objects up. We can make a small hole in our nice charcoal gray shooting surface through which we can slide a thin stainless steel wire from below. The base of the wire is bent around with pliers to form a flat spiral which sits under the shooting surface. The paper presses onto the spiral beneath it and keeps the upright wire section stiff and steady. An object (even a thin or awkward one) can be propped against the wire and if necessary a small blob of Fun - Tack can hold the object in place on it. We could use piano wire instead, which you can buy at most hobby stores, but the piano wire rusts and will tend to stain the shooting surface, so I prefer the stainless steel wire. It can be obtained from orthodontists but the least expensive source I have found is Small Parts Inc. (see sources). I use this quite a bit, and one thing that I might recommend would be to place that hole slightly off to one side in your shooting surface, so that



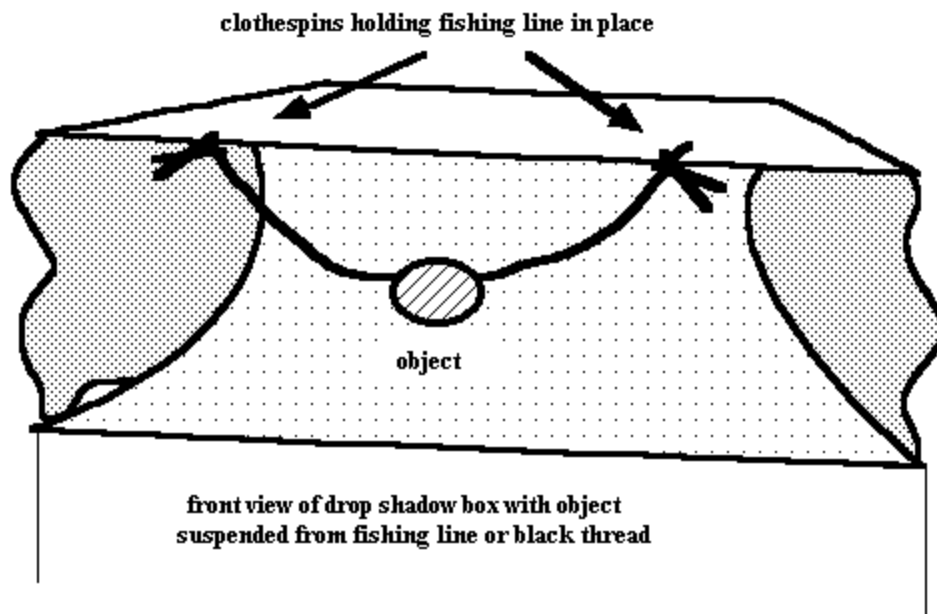
you don't disturb the central area of the shooting surface with a hole. The hole is not very obtrusive, but still, it's there. Make it as small as possible.

It's also possible to curve the stainless steel wire above the shooting surface for specific propping problems - for instance, I once shot a flexible bracelet which was stuck onto a curved wire and this bracelet appeared to be rising from the surface and flying through the air in the photograph because it was attached to the wire.



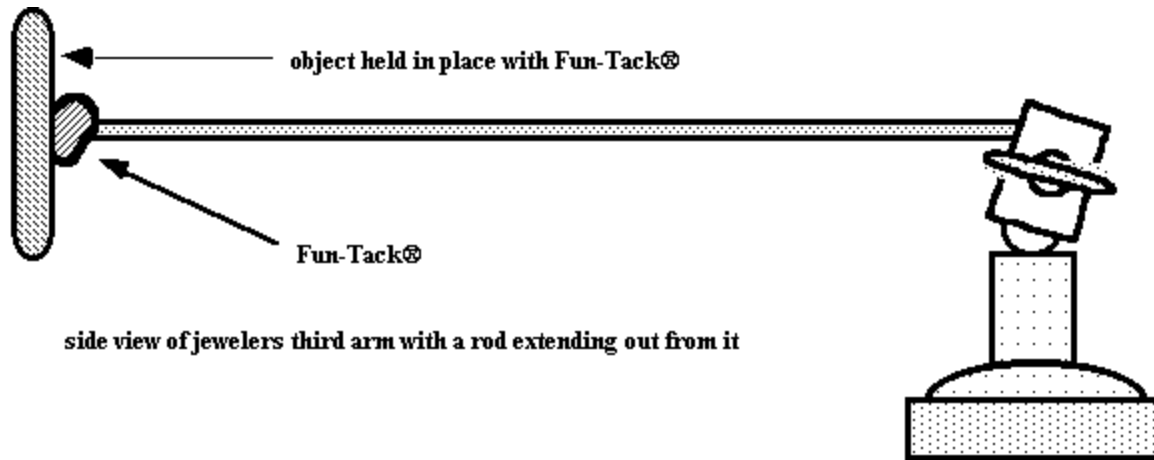
#### Fishing line

Fishing line can sometimes be quite useful. We might use fishing line for suspending earrings or a pendant or something like that. It might be clamped in place with clothespins on each side of the roof of the drop shadow box allowing us to hang the object so it 'floats.' The trouble is that the fishing line tends to show up in the photograph, because it catches the light. If you run a little black magic marker across the fishing line, you can often kill it completely and make it disappear. Fishing line is, however, a little tricky, so I would normally recommend using the stainless steel wire supports or a prop of some kind if at all possible. Black nylon thread could be used instead of fishing line. Certain objects are best photographed using a glass - topped frame as is described near the end of this section.

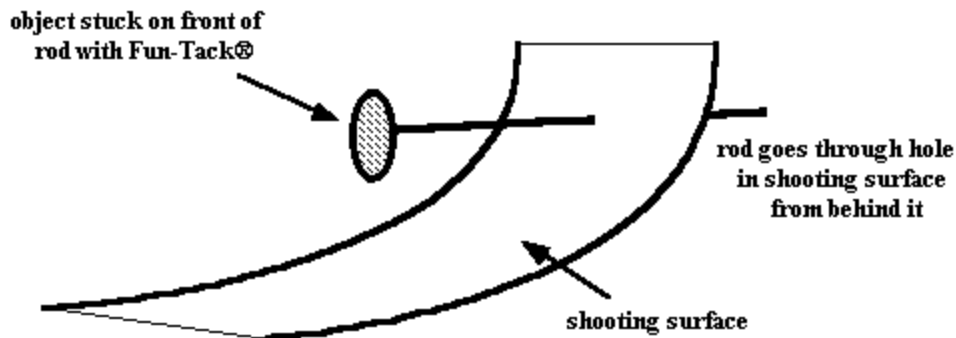


#### Rear supporting rod

Another thing that works quite well is a rear supporting rod. Have different lengths of rod available for different problems. Examples of rod materials include dowel, steel welding rod, brass brazing rod, knitting needles and so on. Useful rod lengths might be 8" (18 cm), 12" (30 cm), 15" (38 cm). This one shown has been made from a jeweler's third arm, which is a clamping device that pivots, and there's a rod been installed in it, so that it projects outwards and can be positioned at different angles. If you put a blob of Fun - Tack on the end of it, you can place an object of jewelry or another small object here, and have the rod projecting from the back of the box forward, so that the object is quite literally floating in the air in our drop shadow situation. If you are careful, you may be able to set things up so that your object completely covers up the stand, and you don't see it at all. If, however, some of the stand is still visible behind the object, then we work with depth of field to eliminate it from the photograph; to make the stand so out of focus no one cannot see it. I usually spray paint such stands with a matte flat black. A third arm stand like this can be purchased at electronics shops such as Radio Shack or at a jeweler's supply store.



Another way to obtain a similar effect is to stick a rod through the shooting surface from behind and stick the object onto the front of it with Fun - Tack or hot glue. I don't often use this method however as I hate damaging my shooting surface in the drop shadow box. If you damage it you may need to change it and the whole idea is to have to change as little as possible while you are shooting. Changing things takes time.



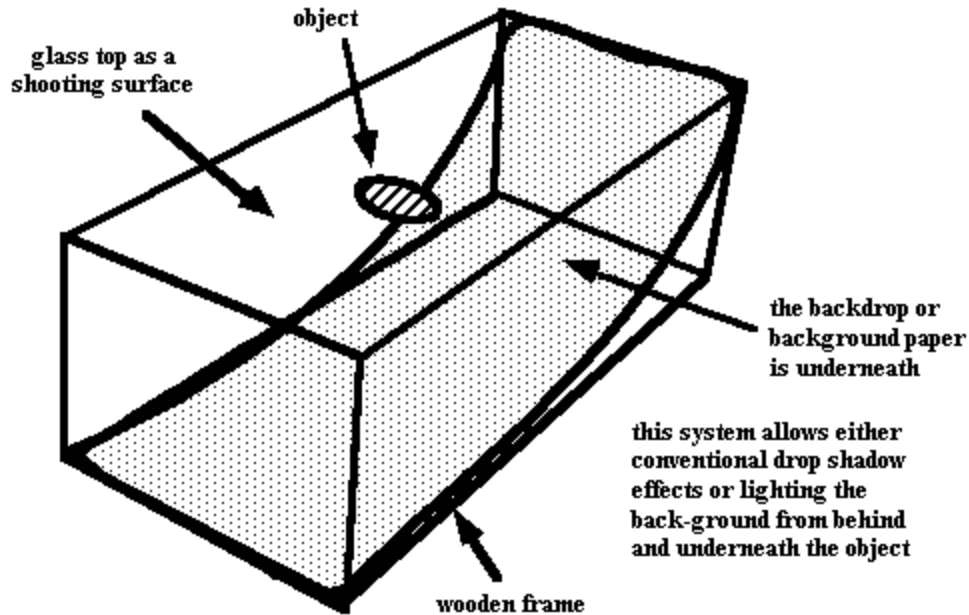
Again, we can set things up with our camera using depth of field so that only a very short band or thickness of the object is in focus and if we do that carefully, we can make it so that the stand behind completely disappears, just goes completely out of focus and the only thing in focus is our object that's floating in the air. We would set the f-stop on the lens to f-8 or so to do this (see the section Depth of Field).

#### Shooting on glass in a frame

Objects like pendants, earrings and other hard - to - prop - up - or - support items can be shot on a glass - topped shooting surface: on a piece of glare - free glass. Glare - free glass can be obtained from photo suppliers but one can use ordinary glass if one is careful. One can also use frosted glasses and plastic translucent materials of various kinds.

One takes a piece of very clear, very clean glass and sets it up on top of a frame of some kind. A quick one can be done with the glass supported on two chairs or boxes on each side. A permanent one is constructed from wood. One places the backdrop paper underneath the glass. One can experiment with all kinds of interesting lighting effects behind the object on the backdrop paper (back lighting) such as giving the object a 'halo' by shining the lights in underneath the object from the sides. The object is placed in the center of the glass and you take the picture with the camera

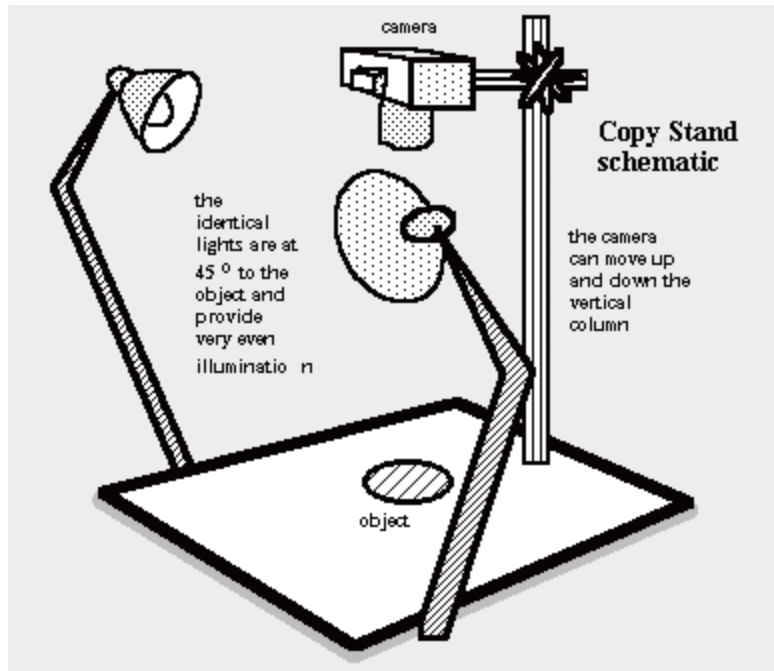
facing down at the object. The object itself is lit from above with a 'soft box' (large diffuse light source) and otherwise conventionally lit so as to stand out against the background, which may be lit as described above or be darkened to produce a drop shadow effect behind the lit object which then magically floats over the drop shadow background. This approach gives extremely good results, and you don't see the glass at all if you angle the camera and lights correctly. There's often a little bit of messing around to make sure that there's no reflection or glare off the glass to the camera (possibly a time for a polarizing filter). Dust and things that land on the glass can be an irritant in this approach. It can however give you very lovely results and it's a pretty easy set - up.



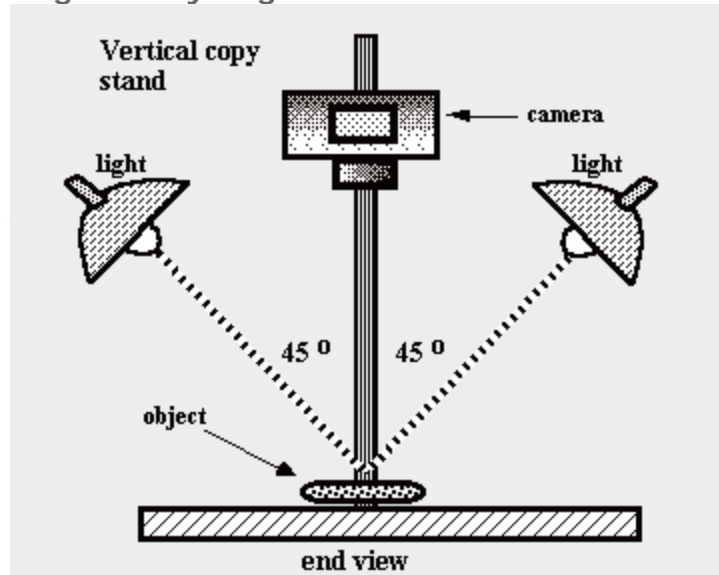
### Photo - Booth Systems: basic set ups for jewelry and product photography

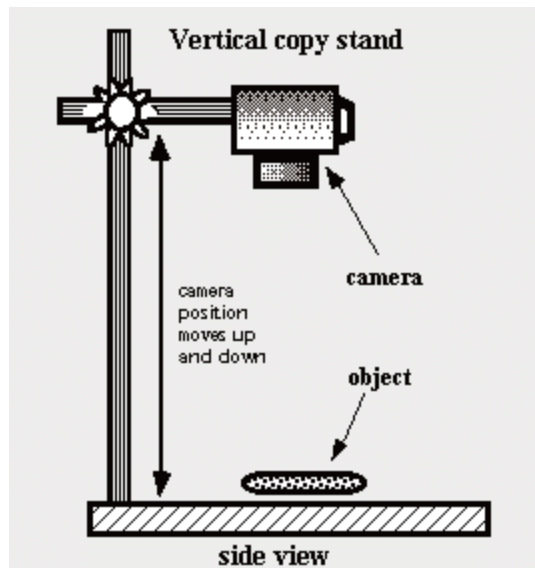
#### Using a copy stand

A vertical copy stand is sometimes used for shooting prints, drawings, jewelry and other fairly flat objects. A copy stand is designed so that one has vertical movement of the camera while it faces down. There are usually fixed lights at 45 degree angles to the shooting surface. The vertical column that the camera is mounted on keeps the plane of the film parallel to the shooting surface which gives good results for very flat objects like prints, drawings and documents. A small bubble level to place on the back of the camera is useful to ensure that your film plane is in the same plane as the flat art being copied. If using a copy stand for low - relief and three - dimensional work remember that diffuse light is important in object photography and consider using diffusion screens over your lights.



While a copy stand can be useful, the drop shadow system we're building is more flexible as it allows us to take photographs of both flat things and three - dimensional objects. However, if you have a lot of work or objects that are really flat, perhaps a copy stand would be a good way to go.

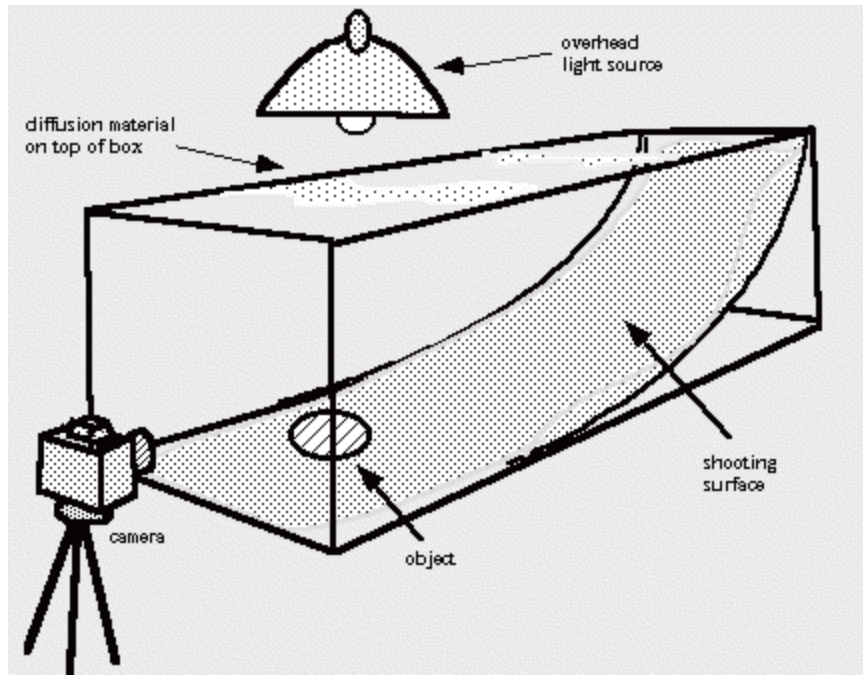




Horizontal copy sets are used for flat art that can hang on a wall. This basically consists of hanging the flat art on a wall and positioning camera and lights carefully to provide very even lighting with the camera exactly centered, level and its back parallel to the flat artwork. Often one lays out tape on the wall and floor to define a central axis line for the camera and artwork. The camera is also centered vertically on the artwork (it's as close to the middle of the artwork as possible). Collins suggests painting the surrounding wall gray or black to help reduce glare in the image. Very even lighting with the pool of uniform light about 20% larger than the artwork is beneficial (Collins, pp 139, 140). Be aware of glare, surface texture, edges and brightness as you check your image before taking the shot. A level can be useful for both camera and artwork.

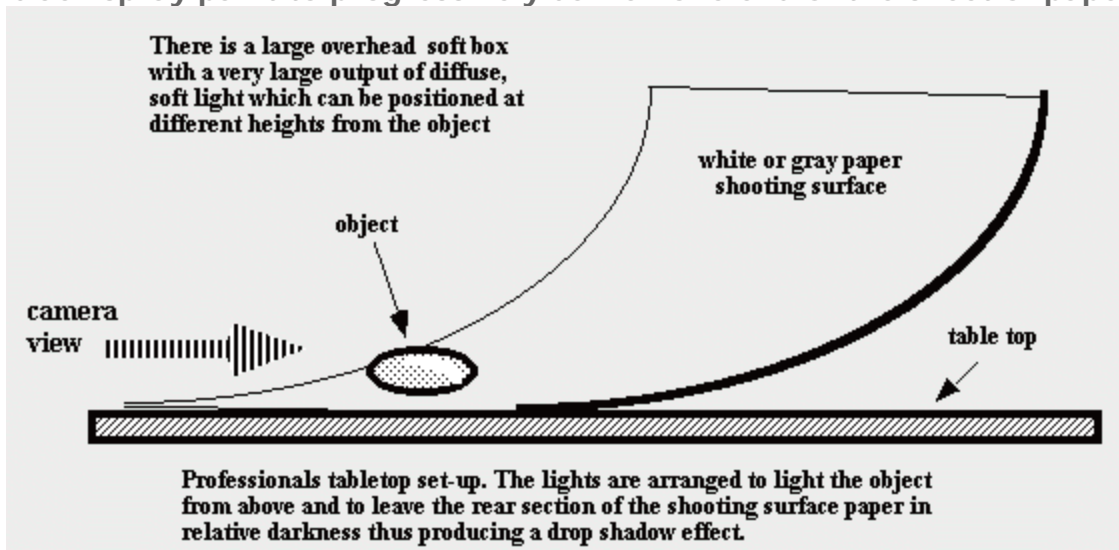
#### A professional's drop shadow box

To produce a drop shadow effect, a professional photographer might use a very long wooden framework like a long rectangular crate frame, perhaps 8 to 12 feet long, and they would place the object at the front of this construction. Inside this, they might have a long piece of seamless paper that rises very gently from the front of this long rectangular space all the way to the back. The top would be covered by a diffusion Mylar® or its equivalent. It produces a wonderful drop shadow effect, but if you're like me, you don't have a lot of room in your studio, so such a construction is out of the question. Our compromise photo - booth system is designed to operate in a much smaller space.



Another version professionals use on a table top is to have a seamless paper background, often white or light gray, and they obtain the drop shadow effect by having the lights directed onto the object at the front of the shooting surface, leaving the upper rear portions of the seamless paper in darkness while the camera light meter reading is correctly set for the well - lit object at the front (see figure 8). Professionals also use 'gobos,' that is, black cardboard shapes cut and held by stands in such a way as to block and subtract light falling behind the object, thus enhancing the drop shadow effect.

A method which I like is to use a piece of seamless shooting surface paper which actually darkens smoothly from white or a light gray at the front to a dark, almost black at the top. This does a pretty good job of producing a drop shadow effect behind an object placed at the front of the shooting surface. Such paper shooting surfaces can be bought commercially or, as I do, made by using a very light, fine spatter of gray or black spray paint to progressively darken one end of the sheet of paper.



A large overhead diffuser (a soft box) is a very important lighting option for many objects, (ceramics is an example) and with appropriate use of fill cards (white reflectors to lighten areas too dark on the object) it can be an excellent solution for documentary studio photography.

#### Choose neutral backgrounds

The point of most documentary studio photography is to emphasize the object. Therefore leave out velvets, props, rocks, old boots, burlap, scenery and so on. Some professionals overdo an image, insisting it be a great 'photograph.' We, however, want to concentrate on the object and so in general stick to white or neutral gray backgrounds. Colored backgrounds can lead to poor images and I recommend that you stay simple for a bit before experimenting with colors, textures, scenery or reflective shooting surfaces next to your work.

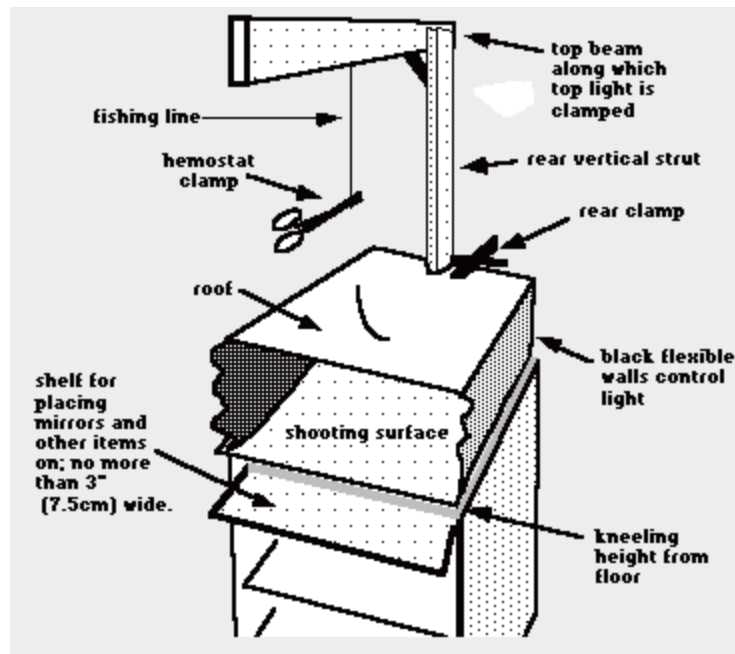
#### The drop shadow box

At this point I'd like to discuss how we can go about building a drop shadow box. The point of having one is to be able to control the light falling onto the object by a combination of a moveable roof and flaps and to have the upper rear of the shooting surface actually in shadow rather than relying on light metering to produce the drop shadow effect.

For a start, it's good to do this in a basement (this is where I have mine), simply because you have rafters (actually floor joists) in a basement, and you can clamp lights to them above the shooting area and hang things off them and this makes life a lot easier. However, let's say you didn't have a basement beam above available to clamp lights onto. Then you have to build a central beam above the shooting area, which projects forwards from over the shooting surface and drop shadow box. This overhead beam is supported by a vertical one at the rear of the drop shadow box.

To reiterate: the main parts of a drop shadow box are a vertical beam at the rear of the box and a horizontal beam projecting forwards from the top of the vertical beam (onto which lights get clamped). There is a table or surface on which the object is placed. Above this shooting surface there is a flat square of stiff material which can move up and down and tilt back and forth: a roof. From three sides of this roof hang opaque cloth - like flaps. At the sides of the booth are two photofloods on light stands. Above is a third, stronger light source. All these things control the light falling onto the object from the front and the sides.





How to make the drop shadow box. We begin by taking a strut of wood for the back vertical beam, say a beam that is an inch to an inch and a half square, and we attach it, if possible, to a wall. This is at the rear of the shooting surface. We will be using this vertical beam to clamp the rear of the roof to at different heights.

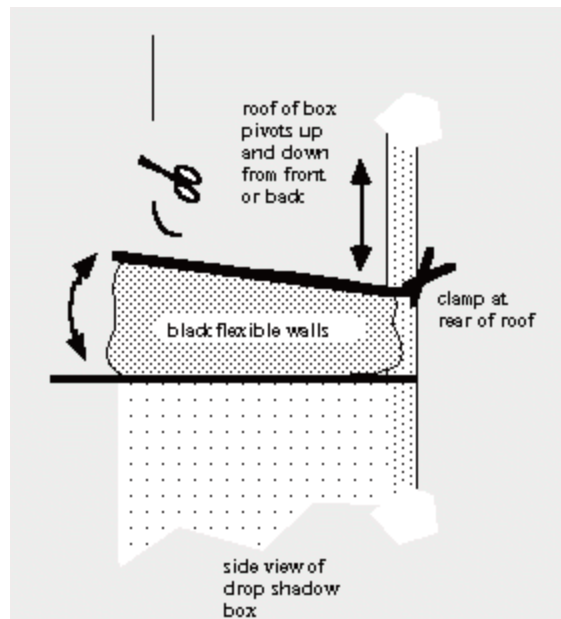
If we're not in a basement, we will also have at the very top of the vertical beam another beam, a plank of wood that extends outward over the shooting surface high enough not to get in our way as we work, and this allows us to clamp lights onto it above the shooting surface and at varying distances from the object by moving the clamp - on lights back and forth along the beam. To make the roof we take a piece of stiff material - I like Coroplast®, which is the material that real estate people use for their signs, but you can use Foam - Core® or stiff cardboard or something like that as well. I would make mine about three feet square. This is designed so that if you create two slits into the Coroplast® at the back so as to fit onto the vertical beam, you get a small flap, and the Coroplast® can now be clamped onto the vertical beam with one of those spring clamps that you get in hardware stores that have orange plastic on the handle. The square roof sheet can now move up and down the beam very smoothly, be fixed in place, and because it's on a flap at the back it works like a hinge and the front end can pivot up and down as well. We can now take some fishing line or string and attach it to the front of our square roof, run this fishing line or string over the horizontal beam above and back down again. The string is clamped with a hemostat (a hemostat is what they use in operations to quickly clamp blood vessels with. When they use them they're only good for one use, so if you know anyone who works in a hospital or in an operating room, they can usually get you hemostats fairly easily). Shops like Radio Shack also stock them. The advantage of using the hemostat is that it's a quick clamping device, so that in an instant, I can pull on the cord, raise the front of the roof sheet up or let it down to allow more or less light in, and reclamp the cord rapidly in order to keep the roof sheet in place. We now have a roof, which can move easily up and down, which can pivot up and down from the back allowing the front or the back to tilt. This allows light to fall in and past the roof onto the shooting surface beneath it. I like to have the inside of the roof white as a reflector above the object on the shooting surface.

We now take black plastic garbage bags or black cloth and cut them with scissors to create three flaps that hang off the back and the two sides of the roof sheet. These are probably attached with duct tape or gaffer tape - the photographer's friend (duct tape is a poor imitation of the photo professional's gaffer tape). Each flap is independent and separate from the others: there's one hanging from the back, and there's one on each side of the roof sheet. Because they're a flexible fabric - like material, they can be lifted up, tucked over out of the way to let light in from the sides, or they can hang down. Most of the time all three of them hang down in place. What we are beginning to construct is ways of letting light in or keeping it out from under the roof sheet. Our construction now: the whole roof can move up and down to let more or less light in, the roof can be tilted up or down at the front easily for the same reason and the sides can be lifted up or down, again to control the light.

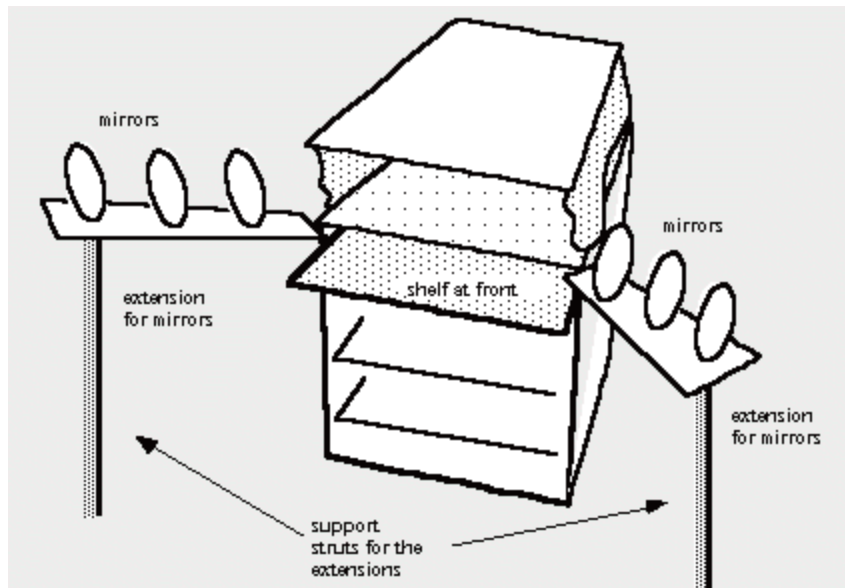
Now, we need some sort of a base that we're going to be placing objects on. You can use a small table (one can sometimes use a cardboard box) and this sits underneath the roof. This 'table' is similar in size to the roof but comes out a little in front of it. I suggest a shelf just below the level of the shooting surface at the front. This shelf is a place, among other things, for mirrors to be positioned. The shelf should not be wider than about 3" (7.5 cm) because then it can interfere with camera positioning for very close - up shots of pieces on the shooting surface.

### Kneeling height

The height of the shooting surface is interesting, because I like to make it at kneeling height, that is, when I am kneeling the camera viewfinder is at a comfortable height for me to look through at the object on the shooting surface. I put a foam hiking pad on the floor, and when I kneel on it that gives me a good height to work at. The reason for this is that there are times when you wish to have a very high vertical view of an object, and if your drop shadow system is any higher than kneeling height you can't extend the tripod high enough to get the shot you need, whereas if you start at kneeling height, you have a lot more leeway in your angles and how far off the surface you can come to take pictures, thus the fairly low height from the floor. Because your kneeling height will be different than mine I won't give an exact measurement for this.



I might suggest extenders of some kind at each side of the shooting surface. These extenders come out diagonally on each side of you as you take the photograph. Ones like these are part of my own photo - booth and are inclined upwards slightly so that the mirrors can sit on them in ranked heights so as to better modulate the light that is happening inside the box.



### The shooting surface

At this point, we now need a shooting surface. I like to use charcoal gray paper which can be purchased at most art supply stores. This is relatively inexpensive and it's a nice neutral tone. This is attached at the far interior side of the roof with duct tape, and it falls down towards the front in a smooth, even swoop. I often take black spray paint, and I will spray paint the far end of that charcoal gray paper from a distance so the paint lands in light speckles and it physically, actually gets darker towards the top inside the box. One can buy seamless paper at a photo shop fairly inexpensively in various widths and all kinds of colors. I suggest sticking with gray until you have some experience. It is simplest, easiest and works well. Our object will sit near the front of it on the shooting surface formed by the paper.

### Other types of shooting surfaces

Once you have some experience you may wish to consider other materials for your backdrop. Many photographers use plain white paper, and they modulate what you see by observing very carefully what's happening with the light, metering and setting the exposure for a strong lighting level on the object and thus controlling it, so that you might at the first glance at a slide of an object on white think you were actually seeing it on a light gray surface.

We can get Color - Aid® paper which is an extremely expensive clay - coated paper that comes in five hundred different colors and full tonal bleeds across a sheet - from dark to light in a single shade of color. They are clay - coated - that is if you breathe on them wrongly they scratch and you've just lost thirty dollars - but they're really nice papers for a shooting surface.

Some professionals will use linoleum, because linoleum can easily be repainted rapidly to produce different colors. Again, for our compromise box, we don't want to have to do any work; we just want to walk in and put items in and take a picture. Again, I like charcoal gray paper, and that's what I recommend. You can experiment with different shooting surfaces: tile, plastic surfaces of different kinds such as black Plexiglas (Perspex). This can be particularly good because of its black reflections. Formica - type kitchen counter materials can also be used.

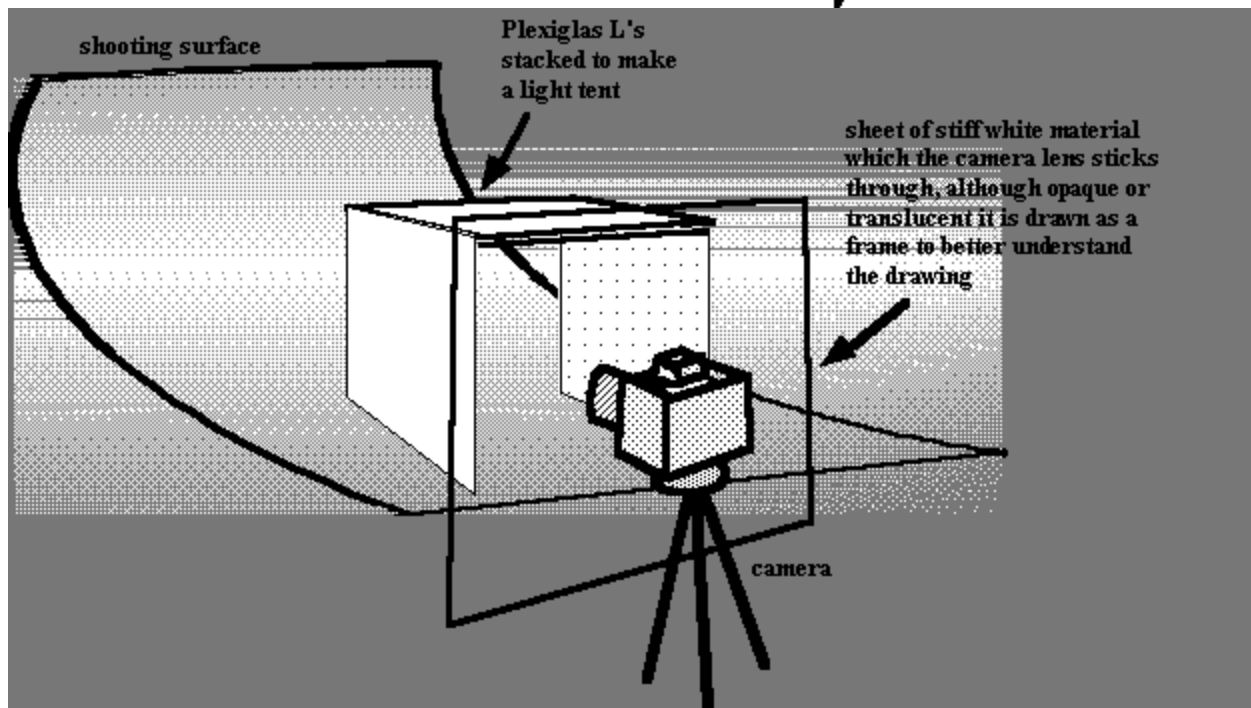
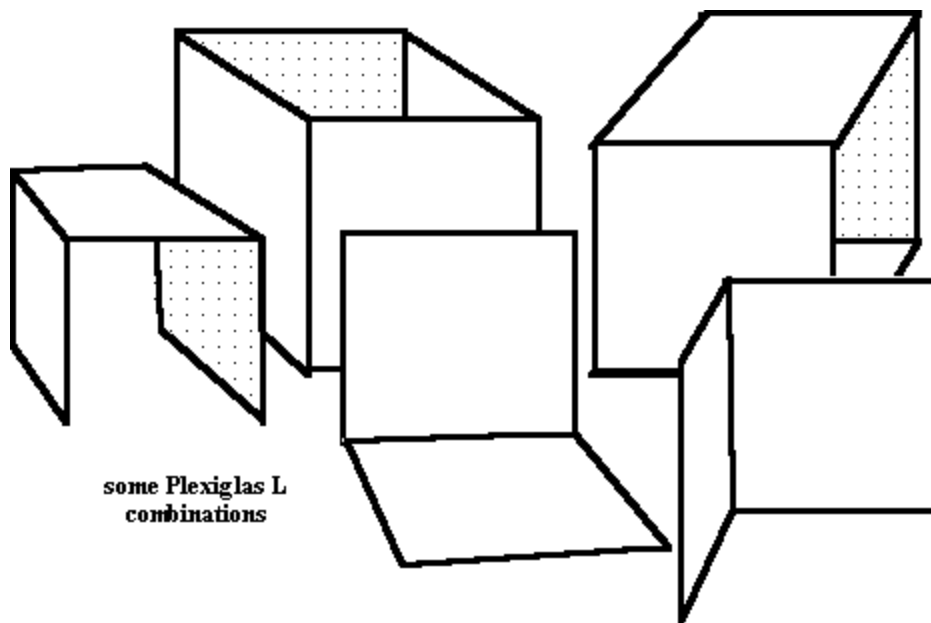
When I started out I took photographs on black velvet (ooh - dust shows up) inside a light tent on a vertical copy stand which does make the colors of the object stand out in a very dramatic, lovely manner. However some photographers and magazine editors hate shots on black velvet because they feel the object is floating in space and has no connection to the earth. Basically I think it is now seen as a little old - fashioned and the drop shadow effect we are trying for in this book has superseded black velvet as a 'standard' shot type for reproduction. Because it is now a rare type of background this means that there is a place for black velvet and you might want to try it sometime and see what you think. Meltzer really likes it and uses black flocked background paper from photo stores. He does not recommend it for dark colored objects, instead for lighter objects and bright colors. To get the proper light reading lean the camera forwards to take the reading with the object filling the viewfinder or use a gray card (Meltzer, p 54 - 55).

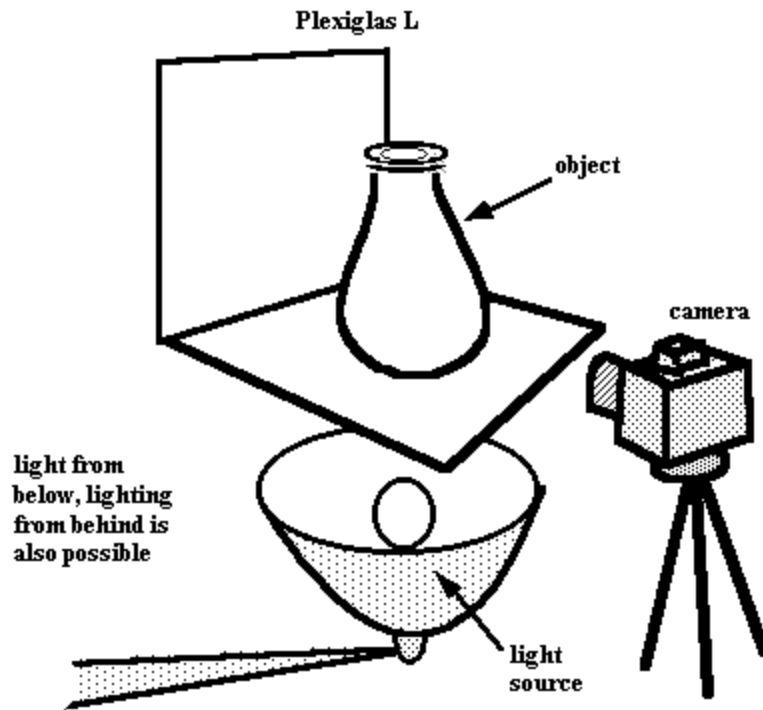
Sometimes I will have to photograph a person's torso and head wearing a necklace or a hat. I will buy old movie projection screens at the flea market, spray paint them with a light gray speckle and use them as a background surface for this. They cost about \$5.00 and if they break the tripod portion can still serve as a light stand.

## Further Photography Set - up Options

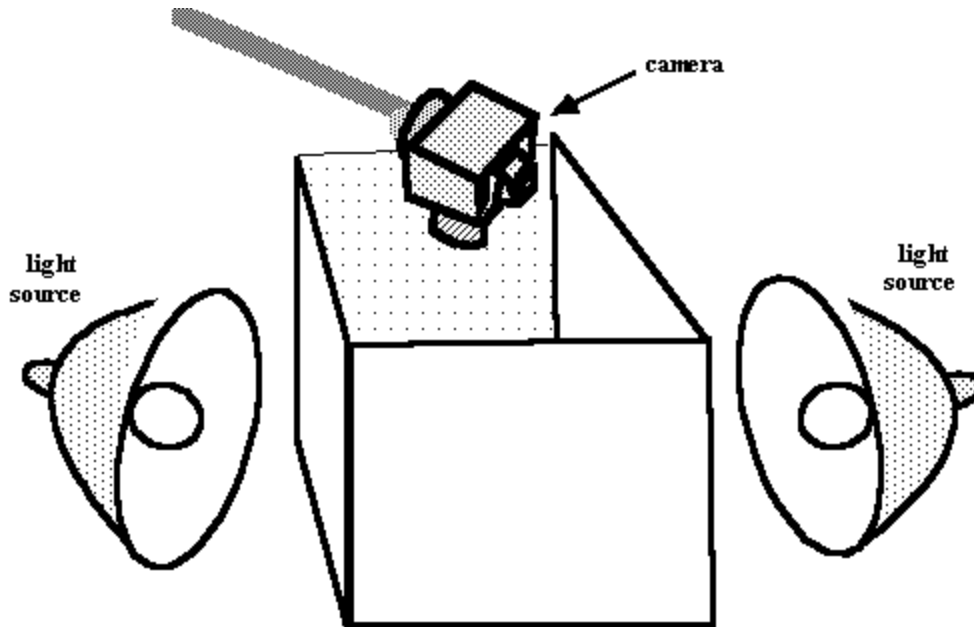
### Plexiglas L's

The use of 'Plexiglas L's' is an extremely effective small scale lighting system. You take white, translucent Plexiglas, and you make squares approximately two feet (60 cm) on each side. Then you make two L - shaped constructions by gluing the edges together. In a pinch duct tape on the outside to hold parts temporarily may be helpful. Having the L shape allows you to stack them in different ways, so that they can be instantly positioned one on another forming a top and two sides to create a perfect light tent. The object goes inside, and a white reflective card that the camera pokes through gives you a great light tent. The lights would be brought fairly close in to the translucent Plexiglas. A four - sided box can easily be made for placing an object inside and then shooting down at it. It would be lit from the sides through the Plexiglas. They can also be positioned so that the light comes up from under the object - this style of shot is used a lot with glass objects. So these Plexiglas 'Ls' give you a great deal of freedom in how you use them.





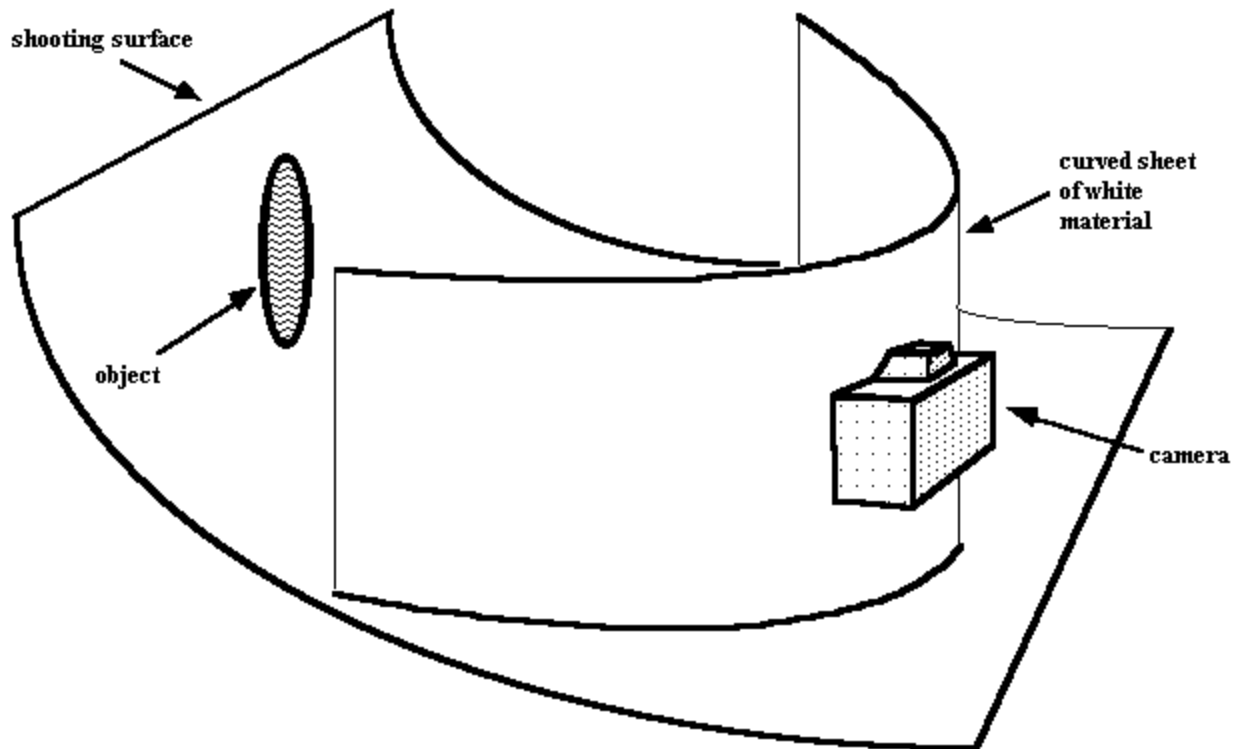
An advantage of using the L as in the above diagram is that shadows cast from any overhead lighting present are eliminated because of the lighting from below.



Plexiglas L's lit from each side, object is in the middle

### Curving reflector card

A method that I have not used but that looks quick and easy is to take a large white curving card and stick the camera lens through it to look at the object (Bomback, p 164). If your object was particularly reflective I suspect that you would want a Mylar? 'roof' over the top of the curve to make it into more of a 'tent.' Because the curving white card fixes the camera in place you would have problems eliminating the lens reflection, but there are times I can see this as a good solution to a specific problem.



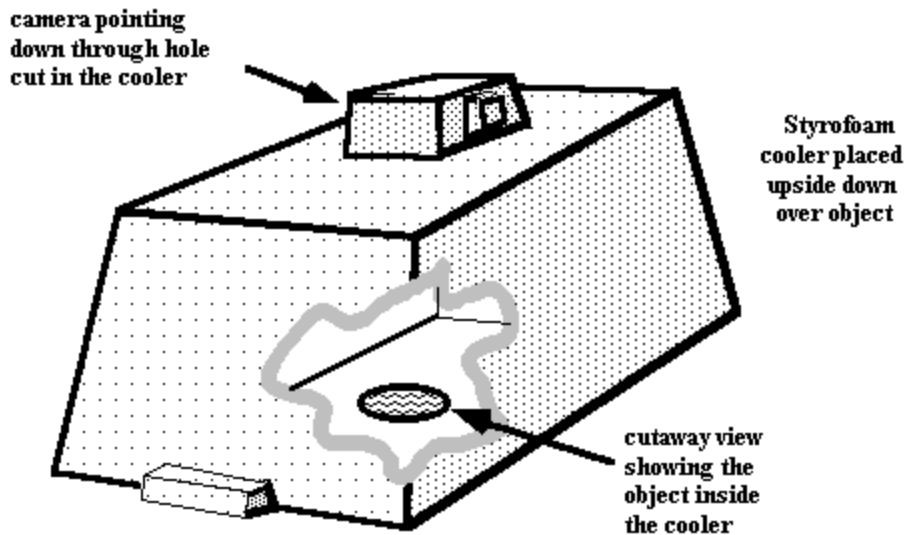
### Milk jugs

Another inexpensive approach for obtaining a tent is a trick using a translucent gallon (4 liter) plastic milk jug from the supermarket. Take a milk jug and cut a hole in it at the neck to receive the camera. Then cut the bottom off. Arrange the height for the correct focal distance from the lens to where you cut the bottom off, which means perhaps you have several milk jugs cut to different heights for different sizes of object. The lights are placed fairly close to the jug, or you can use daylight film and put your reflective object inside the jug outdoors to photograph it.

### Styrofoam

Cooler

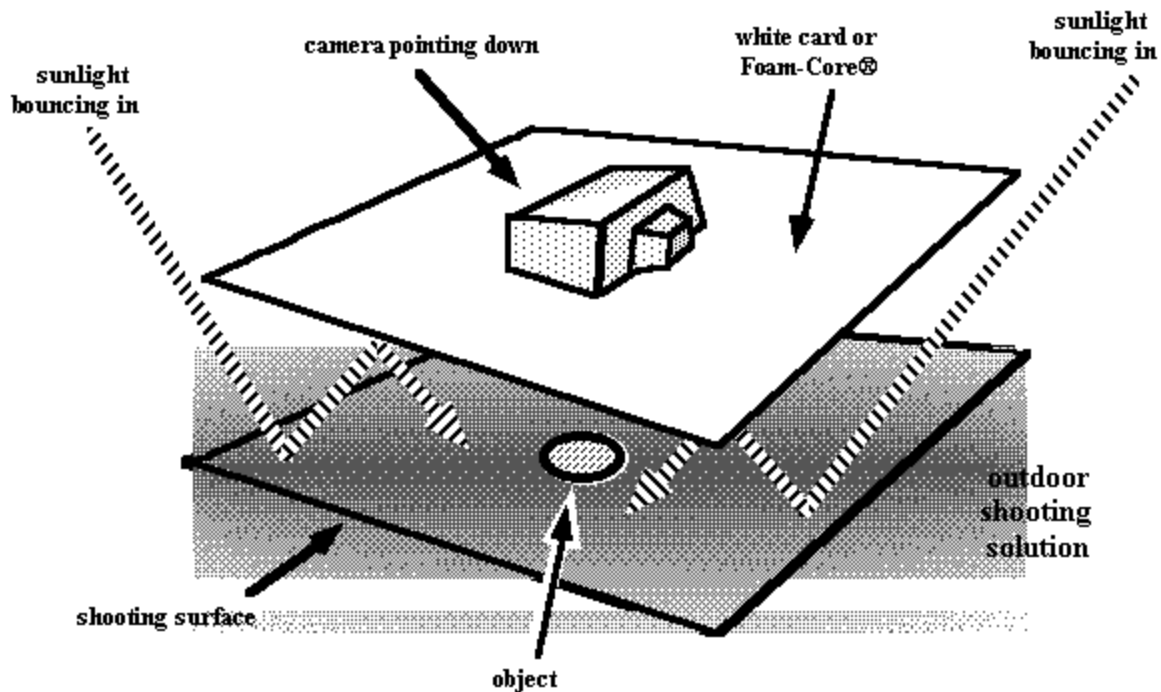
I've heard of people using a Styrofoam cooler from the grocery store as a kind of tent; you can buy them for a couple of dollars, and they work in a similar way to the milk jug, only now you've got a larger object that you stick your camera lens through. Make a round hole in the middle that is a little small for the lens (so the cooler doesn't fall off the lens if you lift it). Styrofoam coolers cut off a lot more light than a milk jug and one has to adjust for this. They're also, like all plastics, susceptible to heat so if you're using photofloods for a light source that's a potential fire hazard. Be careful of melting plastics and fumes!



#### White card on camera - shooting on the ground

David LaPlantz once described to me a very easy solution for shooting good quality photographs of flatter objects outdoors using daylight film. You take a big white card or Foam - Core? (about 2 - 3 feet square) with the camera lens stuck through a hole in the middle of it and place your shooting surface on the ground outside. You stand leaning over the object which is in the middle of the shooting surface. The light comes in from the sides, bounces back off the ground and the edges of the shooting surface, hits the white underside of the sheet the camera is stuck through, and then bounces back down to the object providing front and side lighting for it with a very smooth and even, nice, white light. I've seen some photographs done like this that you would swear had to have been done on a more complex system. It is best for flatter objects. You have to have good sunlight, and you have to be bouncing the light off surfaces before it reaches your object. This is a good place for shooting surfaces like Color - Aid? paper - papers that are graduated, so they go from one tone to another. Pantone? is another maker of background papers. I've seen a slide done on this set - up where the object was just sitting on a very beautiful, graduated - tone, colored paper surface, and it looked like it was sitting on a piece of invisible glass and magically floating some distance in front of a drop shadow background.





### Some Check lists for photography of small objects

These are some check lists to use when preparing to photograph objects.

#### Setting up the Camera Check list

1. Mounted so you can get at the film rewind button
2. Film installed and wound on correctly
3. Film type box top inserted in back of camera
4. Battery checked
5. ISO checked
6. Lens front checked for cleaning requirements

#### Taking the Photo Check list

1. Review what the photo is supposed to do for you, what it is supposed to reveal about the object to the intended viewer.
2. Object is a good proportion to frame.
3. Composition is good.
4. Object is shown to its best (most informative for the purpose) advantage (turn it around and check it at different angles and heights of camera angle through the viewfinder). Does the image do what you need it to?
5. Model the lighting to best suit the object (and the degree of your dramatic intent).
6. Re - check for poor composition.
7. Check for odd lighting in background, holding stand parts visible, edges of shot for all the things you don't want there in the final image.
8. Check for deep shadows and hot spots and adjust the lighting accordingly.
9. Make the primary depth of field focus and f-stop decision.

10. Accept the composition and lighting decisions.
11. Take light meter reading off the center of the object.
12. Swing the viewfinder around the object to check for hot spots and deep shadow metering variations, fix any problems in lighting if it is necessary.
13. Take light meter reading half on the object and half on the shooting surface as a cross check.
14. Make a light metering decision.
15. Possibly check the metering decision with a gray card. Correct it if it feels appropriate.
16. Shoot. (make a decision to bracket or not and by how much).

### Copy Set - Up Check List

1. select a set
2. estimate size of art
3. position the lights
4. balance the illumination
5. place the art under the light
6. set the camera back parallel to the art
7. center the camera
8. frame the art and focus
9. check for problems
10. calculate the exposure
11. make the exposure
12. re-check the alignment of the camera

### Suggested Film Types for Jewelry Photography

#### 64 ISO tungsten film

The film that I'm going to recommend, and that I use myself, is 64 ISO Tungsten Ektachrome film. It only comes in 36 - shot rolls. It is used with photoflood bulbs. Even though it says 64 ISO on the box, in actual practice you set the ISO on the camera to 50 (check the instructions that come with the film). You can happily use Tungsten Fujichrome film, and other brands as well, but I tend to prefer the Kodak, simply because it's what I'm used to. Fujichrome is however quite acceptable, works great, and seems to be similar. You should find the letter 'T' next to the film ISO on tungsten film. It is worth checking for this as I've seen more than one person blow a roll of film of their objects by getting daylight film because they didn't check for the 'T' on the box of film they bought. Always buy more than one roll of film - you don't want to be stuck needing one at a critical moment.

Professional films come out of a refrigerator at the photo shop and are stored in one before and after use. I always buy in bulk packs of twenty and get a hefty discount because of it. If you buy film with the same emulsion batch number (usually the case when buying twenty at once) you can be assured of consistency in color amongst them as there are slight differences in color in every emulsion batch produced. As long as it is in a refrigerator the film can be stored almost indefinitely. Some photographers store film in the freezer compartment of their refrigerator.

With the Tungsten Ektachrome film that I recommend, there is a tendency to render blues and greens quite well and reds come out pretty well. The Fuji films tend to have a little bit more of a bias towards the blue and the green, so if your work has a lot of blue and green in it, perhaps you wish to consider Fuji. Again, choose a film type and try and live with it. If they are having slides reproduced in a magazine some photographers will take a slide of a Kodak Color Patch Strip (available from photo suppliers) at the same time as they shoot the objects. This slide is sent in with the slides for reproduction and can help the printer (if they bother) to better match the actual colors of the work (Meltzer, p 48).

**Important: set your camera to 50 ISO with the 64T ISO film and photofloods**

#### **Kodachrome slide film**

Some professionals use Kodachrome film. Kodachrome is a daylight film, and it has to be processed by Kodak approved labs, which means that you can't shoot a roll of Kodachrome film and have it this afternoon like you can with the other slide films: it must be mailed off for processing. With Kodachrome the advantage is that it gives you warmer tones in the reds and in the pinks, so some professionals prefer Kodachrome, particularly for the flesh tones in shooting people, which in my case, because I'm shooting jewelry and craft objects, is not an issue. If the objects you are shooting have a lot of reds and yellows in them you might try it out. If you use Kodachrome film for the drop shadow photo system you will have to use the daylight balanced photofloods (blue bulbs) or the appropriate filter to modify the tungsten lighting.

According to Collins, Kodachrome also has the best dye stability of any film (as long as it is stored in the dark) but fades faster than any of them upon projection, requiring duplicates for actual projection use. Meltzer prefers Kodachrome 25 or 64 over other film types for shooting craft objects (Meltzer, p 25).

### **160 ISO tungsten film**

Many professionals will use 160 ISO Tungsten Ektachrome film for studio work. The reason that they do this is because they're shooting people, and people move and breathe and walk around, so they need to have a faster shutter speed in order not to have blurred pictures, but with our system we're shooting immobile jewelry, ceramics or other small objects so we don't have to worry about having to use a fast shutter speed. I also believe that we get better results, better grain and better control over our depth of field by choosing a lower ISO film, such as the ISO 64 film, than we'd ever get with the ISO 160 film. I have had troubles when using the ISO 160 - a result I think of being used to the ISO 64 because I've seen great results from professionals who only use the ISO 160 even when shooting craft objects. Again, a chosen fixed film type lets you learn it and control the results. If you want to learn with the ISO 160T it is in general slightly more available than the ISO 64T.

### **Let the film warm up for 15 minutes**

The films we use (for example the 64 ISO Tungsten Ektachrome) should be stored in a refrigerator until use. Take it out a good fifteen minutes before use so it warms up slowly; this avoids condensation problems. After you have shot the roll put it back into a fridge until you get around to having it processed. I keep all my films in a refrigerator to avoid them 'maturing.' Watch out for putting film onto a radiator or allowing it to get hot by accident - heat can really wreck film.

### **Black and White film**

Black and white film is another thing to consider and at this point I would recommend TMax ISO 400 film, just for your general purpose black and white photographs. I've also used Kodak Plus - X. Kodak Technical Pan film is recommended by Collins. Another film that I've used a fair bit recently is Ilford XP2. The main advantage of Ilford XP2 is that it can be processed in any one - hour photo machine, using what's called the C 41 color print process, and this means that you can shoot a roll of black and white film and have the negatives back very quickly, which is an advantage when compared with having standard black and white done commercially. If you want prints done on a standard one - hour color printing machine this is not a problem, but you have to tell the photo shop to use the correct black and white paper to print on, as otherwise you will get a yellowish or bluish toned image - which may have a certain charm but is usually not useful for PR purposes which is generally the point of making black and white prints.

Many quick - print photo shops send out to do the black and white printing even on a color printing machine so you may have to ask around a bit to find a place whose service suits your needs in terms of time and cost. If a shop has the special black and white paper on hand it can be anywhere from hours to several days to get the black and white prints back.

I believe the best route for black and white printing is to print it yourself. It is not that hard to do, is the least costly option and offers the most control of your results. You can learn how to do adequate black and white prints in an afternoon from a photographer with a darkroom. Essentials include a good enlarger, the use of test strips and probably RC (rapid) photo paper, not too contrasty. Once the XP2 negatives have been processed they can be printed like any normal black and white film negative. It is usually possible to find a darkroom to borrow once or twice a year and then print like mad (at least 8 of each print is useful for PR reasons). If you can't borrow access most cities have a darkroom rental service for a reasonable cost if you are going in with a plan to test strip and batch print rapidly. The ability to manipulate things in the darkroom can to some extent compensate for errors in image making and allow some flexibility in contrast control.

For printing for reproduction I like Polycontrast glossy RC paper, printed at a contrast level of 2 or 3. A batch printing procedure for beginners is described in the appendices.

Magazines do not, in my experience, print color shots of one's work unless one is quite famous; they print black and white, so it's really important to know how to do black and white photography. The nice thing about taking black and white photographs is you don't have to use any fancy lighting; anything counts, anything at all - desk lamps, it doesn't matter, anything. The hard part is that it's really hard to see tone, contrast and so on in terms of black and white when what your eyes are used to seeing is color. Being able to do this is a matter of practice and is tricky. You've got to watch contrast when you're shooting black and white; you have to make sure the lighting is very, very even, and tonally average, of course with some slight amount of deep blacks and white whites. As always watch out for hot spots (too bright an area on the object).

Black and white film can be used to copy from slides to obtain black and white prints of color slides that you like. You can project a slide onto a white wall or card, set up the camera as close a possible to parallel and centered on the projected image and take the shot. If the red areas come out too light and the blue too dark consider experimenting with a filter like a Wratten 82A (Meltzer, p 100). One can shoot black and white film on a slide duplicator for a similar effect. Jeff Wilkins, a Calgary artist suggests using a new black and white transparency film called Scala 200 for black and white slides for magazines to work from.

### **Color print film**

**Some people will use the daylight filter, or daylight bulbs, and shoot daylight film prints of their objects: color prints. The reason for this is so that they can have them in a portfolio, so they can get reprints made and pass them out and send them on. Are they useful? Magazines aren't going to use them, but if you have a color print, you can then use a copy stand and make a slide off that. So for some people that's their route; they do all color prints, and if they need slides, they shoot slides of the prints. Note that color print negatives are apparently even less stable than color transparency (slide) films over the long haul. Color prints can be a positive part of a presentation to a client or a gallery but unless larger than 4" x 6" they feel a little like a 'snapshot' (not a high - status reference), so if using them in presentations change the context and references for the viewer and print them at 8" x 10" which is definitely more impressive.**

**You can also buy special films from Los Angeles which are often advertised in the backs of photography magazines which are actually movie film. It is 35 millimeter film; it's very high - detail and is interesting because the same film can be used to make prints or slides, both, and that has advantages for some people. I didn't like it personally when I tried it; but some people swear by it.**

**One of the other things about color prints is that, providing you either know how to print them yourself or are willing to pay someone, there is some possible flexibility and control of the final image available.**

**I don't personally use color prints much; I stick to color slides and if I need a print then I have one made from the slide. Ilfochrome (Cibachrome) (a direct print from the slide) gave me my best results but it is getting harder to find this process now. Your camera shop may just shoot an internegative of your slide onto color print film and then print it (that is, they take a color print photo of your slide). Ask them what your best route for quality is and what options are available to you. Very good laser photocopies from slides are available and quality can go from reasonable for the cost to an expensive almost perfect reproduction of the image. There tends to be an increase in image contrast in most reproduction and printing methods.**

**Where color prints make sense is in portfolios. Crys Harse reports that when she approached German galleries for an exhibition she had to have her slides made into color prints before they would deal with her.**

## Taking Photos of Reflective Objects

### Reflective objects

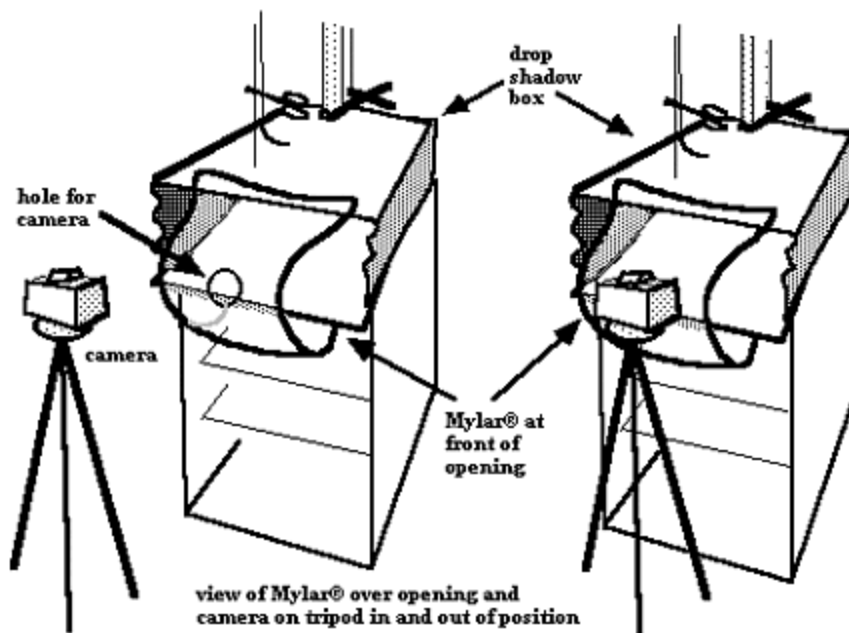
Reflective surfaces are a special case. I remember seeing an Art in America magazine once, and on the cover was a picture of some really famous sculptor's work in a Washington, DC gallery. It was a large, bulbous, bronze casting. It was highly polished, and what was really funny was that there on the cover of Art in America magazine was a picture of the sculpture, and on its surface was the photographer, the tripod, the lights, the man lying on the floor holding a large white fill card: everything in the gallery. My first thought was "These people missed this. The photographer missed it, the editors missed it, the picture selector missed it, and here it is." Reflective surfaces give you yourself back in the picture and bring the world onto the object, bring the surroundings into the image taken, which can be a real problem - it usually doesn't look good at all. Reflective surfaces tend to bring in the colors around them, which in the photo - booth as I've described it means that you get a lot of black reflections, so it looks really bad. One generally arranges to have white fill cards placed everywhere that is reflecting black to the camera until the object appears white through the viewfinder. You subtract the black reflections by using judiciously placed white reflectors until the image looks good.

One professional photographer I met, when asked by a jeweller, "So how should I make pieces best for good photographs?" said "Don't polish them." Well, real life is that we have to deal with polished objects. There are several ways of approaching this.

If you have a reflective silvery surface and it has black reflections in it you end up with a very muddy picture which has a low tonal contrast between object and background, and it really doesn't work. Hanson suggests that, instead of getting upset with the black reflections as a negative problem, you view them as a positive solution and, as described above, replace them with reflections that you actually want (usually white; rarely colored cloth or paper etc.) which to my mind is a nice way of looking at the problem.

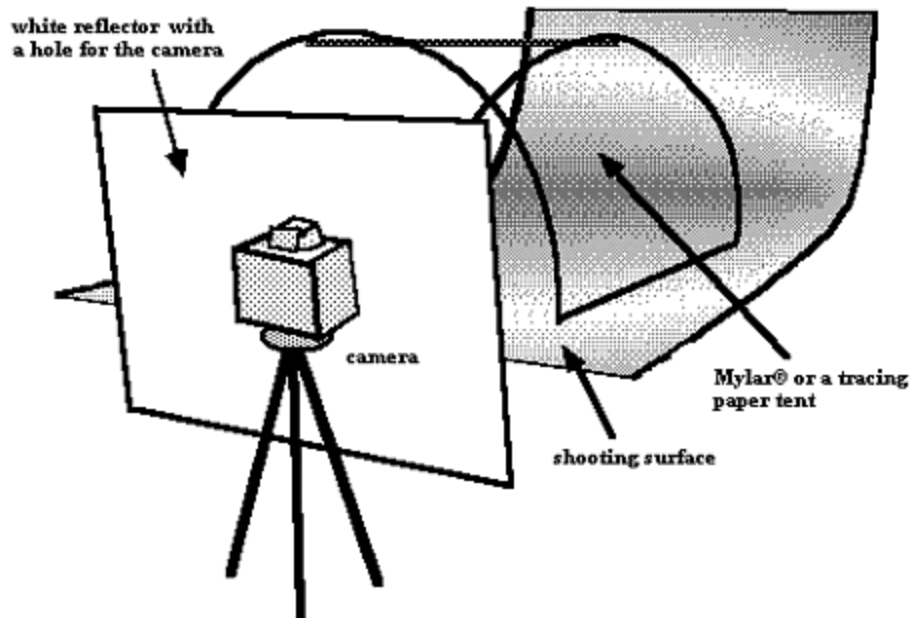
### Tents

The usual way of dealing with reflective objects is to shoot the object inside a translucent tent. If you have a copy stand (which is how I used to photograph most of my work when I started out) you can use it to create a vertically - oriented tent. Otherwise one constructs a situation where the object is surrounded by translucent diffusing material (Mylar®) so that no surface facing the camera is able to reflect anything except translucent or white material. One may put a large sheet of translucent material clothespinned in place over the front of the photo - booth with the camera stuck through a hole in it or a large stiff piece of white paper, card or Foam - Core® which works in the same way. The whole point is that the camera cannot see any reflections on the object from the world outside the tent. This means that we don't care about the back half of the reflective piece: only what the camera sees counts.



Another way is to take a large piece of Mylar®, and hang it over a fishing line, rod or bar and place the object inside. The more transparent the supporting part is the better: best of all is to support the Mylar® from its center with a fishing line slung over the horizontal strut above the shooting surface. Then from all sides there will be nice diffuse light, lovely white surfaces. From the front, I will still be getting the camera, and me, and all of the front of the room that the object can reflect from, and so what we do is take a large piece of white cardboard or Foam - Core®, cut a hole in the middle to stick the camera lens through so that the camera's on the back of the white card with the hole and then take the picture. In this way there will be no reflections on the object that you don't want. You want, if possible, all of the reflections on the object to be from white, translucent, or very diffusely lit surfaces. Fill cards of various shapes and pieces of translucent Mylar® all serve to replace reflections you don't want with white, neutral ones. Sometimes when shooting silver reflective geometric objects in a good light tent it can be difficult to discern the edges and corners of the object. Meltzer takes thin black paper strips and tapes them to the inside of the light tent so that they line up perfectly at the edges of the object thus defining the objects corners in a 'natural' manner for the shot. A curving black strip reflection in a rounded object may also be useful sometimes (Meltzer, p 62).



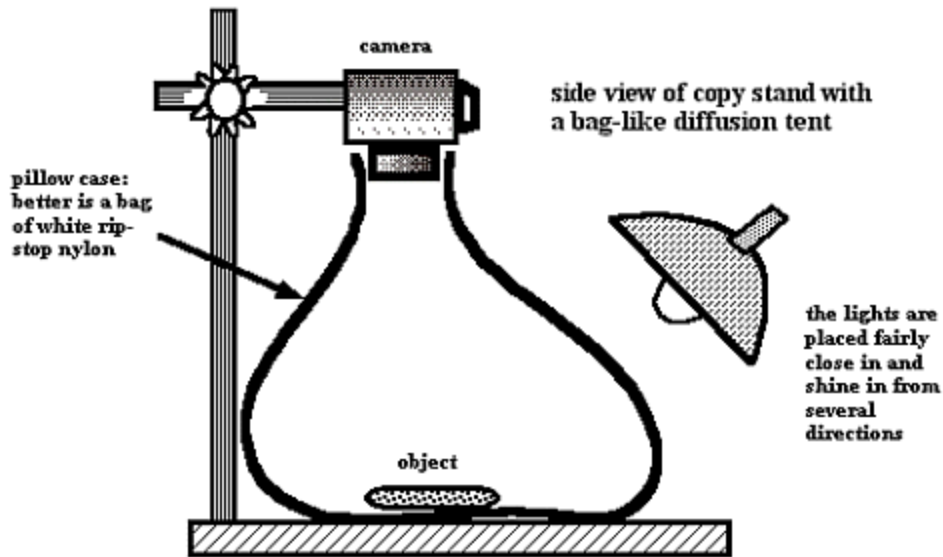


Sometimes when using a tent and a white card on the front of the camera you will see the camera lens itself as a round or oval black reflection in the object. In that case slowly raise the camera on its central cranking column. Look through the lens as you do this and at a certain point the black reflection will slide out of view. At that point tighten the camera into position and take the shot.

Copy stands also provide a way of dealing with reflective objects. They offer a very controllable (and hence repeatable) system for taking slides of your work. For flatter items, coins and much jewelry a copy stand is a good solution as a photo-booth system. As described before there are horizontal and vertical systems. What follows deals with a vertical system.

You can mount the camera looking straight down and create a bag around the object suspended from the camera itself so that the entire interior space is within a tent. Make sure that you fold the bag so that by releasing a single clamp (clothespin) you can quickly get a hole that is big enough to reach into and arrange the object for the shot. Note if you use a vertical set-up with a dark background cloth (black velvet) under the work that dust and any dandruff can become a real issue. When I first started out I used a pillow case; I would have the camera inside the bag, and I would point it straight down and take a picture. I would have the lights fairly close in, but I no longer recommend this approach with a pillow case, because regular cloth is laundered, and commercial laundry soaps have what's called bluing in them. Bluing is a material that fluoresces blue under normal lighting conditions. If you have a surface that is emitting a blue light, then that eliminates any yellow light that you would otherwise see. What this means is that your sheets are actually yellowish, but the bluing in them fluorescing blue eliminates the yellow, and so they appear white to us - but perhaps not to the film and camera. Instead, use white, ripstop nylon which you can buy at climbing and camping stores. This is a neutral material, it can easily be made into a bag for a vertical copy stand or stretched over frames to produce diffusion screens, and professionals really like it. It's easy to work with, inexpensive and apparently doesn't adversely affect the colors that the film records.

It is possible to make your own copy stand. I did at one point. I think my recommendation is to buy one; shop at auctions, call up print shops, printmakers, anyone who records flat items photographically and ask them if they know of any used ones. They come up regularly in my local government surplus auction center.



#### Dusting (dulling) sprays

Sometimes professional photographers will use dusting sprays (also called dulling sprays) as a way of dealing with reflective objects. I don't use them myself but it might be a solution to a problem you have at some point. Dusting sprays are fine, light - colored powders in a spray can and can be bought at professional camera suppliers. I've heard of people using Arid Extra Dry® Deodorant powder in a spray can the same way. You take a highly reflective object and give it a very light coating of a fine dust, almost like the misted effect of breathing on a metal surface when it is cool and your breath condenses on it. This eliminates reflections. Then you can take the picture. Note that you don't want to make a mess or damage an object with a dulling spray so you should proceed with caution when using them. Collins only uses them on silver - colored reflective fill cards to alter the degree of reflected fill light and does not use them on objects (Collins, p 187).

When people are working with a reflective object using a dusting spray, quite often they will put the dusting spray onto the object, and then add a white 'reflection' where they think light streaks should be to describe the object to the viewer ("okay, to describe this thing, we need a white spot here and a white stripe here and a white stripe there"). One takes one's finger and wipes the dust away in a swipe where the 'reflection' should be. Then a white card is placed such that it reflects in the wiped areas, and now there are white light streaks 'where they should be' to describe the form on this less than reflective surface.

Some photographers will 'paint with light' by choosing a long exposure and hand - holding a suitable tungsten light source (I think one might be able to use a halogen flashlight - I'll have to try that sometime) while moving it rapidly back and forth or up and down to create a light streak line that follows the form of the object thus describing it in space better. I've done this once or twice but think it would work best on exposures longer than a second. Therefore, because most of the exposure times in our photo - booth are close to that, this method may not be immediately useful to you. Remember it though: it may sometime be a correct solution to a problem for you.

## Working with 35 mm Slides

### Getting slides developed

A note on slide developing: you want your slides to be developed for the best quality possible. If you want to impress your local photo shop, you go in and you ask "do you do dip and dunk E-6 photo processing?" Dip and dunk means that it's not touched by human hands or rollers or anything, and it's supposed to be a much better quality of developing. E-6, which is the standard slide processing used for the films we've been discussing, can normally be done in a one - hour photo shop, but in a one - hour photo shop you may run into old chemicals (I've seen this), you may run into scratches from dirt on the rollers (I've seen this), so one - hour photo shops are not generally great unless you have developed a relationship with the owner where you can say "Are the chemicals fresh? Is the machine operating well?" and if you've done that, they're usually fine. Ask where your top local art college or university photography students take their slides for E-6 processing and you will usually find a good processor at a reasonable cost.

The other way to guarantee that you'll get good results in the developing of your slides is to connect with somebody who has their own film in the same tank, because then they've got their own stuff on the line. This means finding a local studio photographer who does magazine shots and so on, who does E-6 regularly, and asking if you can pay to have your film developed along with theirs. They have a commitment to their film, and they'll take good care of yours too.

Another good source is teaching hospitals, and dental faculties, because medical people like top - quality results, and they do E-6 processing of pathology slides all the time, so if you can connect with a hospital or a teaching faculty, and have your things developed along with them, that's usually a good way to go as well.

Then there are the professional labs you can find in the yellow pages of the phone book. Best is to get recommendations from several photographers until you hear the same lab mentioned a couple of times. You will pay a little more but it should be 'dip and dunk' processing and should be good quality. That said, I've had scratches and bad chemicals from professional labs as well.

### Glass mounts

It is very important to consider having glass mounts for your slides. At the very least for your permanent slide set (two such sets is better). The mounts I like are called Gepe® mounts, and they can be bought at any standard photo shop for about 50 cents each. Note: that permanent set never leaves you.

A couple of words on glass mounts: if you are like me, when you start taking pictures you don't bother with glass mounting them, and after awhile, you end up with thousands of slides, and it's just such a horrendous job to even imagine going and glass mounting them that you don't do it. So go one better on me and glass mount them like mad right away when you start producing good slides.

#### Permanent slide set

I recommend that, as you begin taking pictures, you glass mount at least one permanent set of slides. You keep your permanent set well organized, labeled and stored. Only duplicate slides leave you. Any time that you send a slide out - count on not getting it back. If you get it back, life is good, but just count that it's a goner. If you're really fanatic, you have a second permanent set, and this permanent set is sent to a slide archiving place. At this slide archiving company the temperature and humidity are controlled and the slides are stored in the dark because any exposure to light will alter your slides: all in order to keep them stable.

#### Slide longevity

What occurs with slides is that they have a color life span of about 15 years - 15 to 20 years depending upon what you do - and every time you put them in a projector they die a little more. So, if you are developing a career in the arts, and you're going to be at this for 30 or 40 years, you know that your slides aren't going to last. Some people will then archive their slides, and as their current slides begin to die, they go back to the archiving place, they pull them out, make dupes from them and continue. It is very important to have some slide sets around that you can use for your posterity as an artist or craftsperson.

Collins says Kodachrome has the best longevity, but fades fastest on projection. He also says that Fujichrome has superior stability for projection but only average dye stability and tends to stain formation (yellowish staining which forms with time). Ektachrome tends to stain formation even when stored in the dark (Collins, p 62). One interesting storage alternative available now is to get a very high - resolution digitized image made of a slide - then it can't change unless you lose your computer storage media and it can be output as a 35 mm slide for projection again at a quality near that of the original. It is quite inexpensive to have your slides scanned to a photo CD.

#### Handling Slides

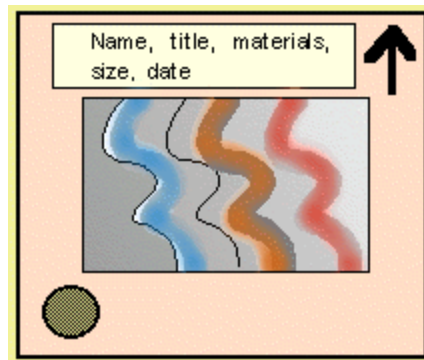
If your slides are not glass mounted avoid touching the film, only hold them by the edges. Dust can be removed with a canned dry air spray from a photo store (use from a distance) or gentle brushing with a sable watercolor brush. A rapid flick with a fingernail on the outside edge of a slide mount can dislodge dust pretty effectively - just watch out for flicking your slide across the room. If you have fingerprints on the film side (the shiny side) you can wipe them off gently with Kodak film cleaner or ether (danger!!). If fingerprints are on the emulsion side Meltzer suggests unmounting the slide, then a soak in diluted Photo - Flo® for a time, a rinsing and remounting. Use cotton gloves when touching negatives (Meltzer, p 108).

## Labeling slides

I prefer glass mounts first, then plastic mounts, lastly cardboard. When you have a slide duplicated specify whether you want plastic or cardboard mounts. Don't ask a lab to glass mount slides for you; it is far cheaper to do it yourself and is not difficult to do. I've seen at least one competition that specified slides in cardboard mounts but it is very easy to unmount a slide from a plastic mount and install it into a cardboard one from a photography supplier.

A slide should have a little red dot on the lower left - hand corner. The red dot is on the front of the slide, that is, on the side of the slide where text is legible or the image is the right way around. When the slides are loaded in a carousel the red dot will be upwards and show from the back of the projector so the presenter knows they have the slide upside down and thus oriented correctly for viewing. If I have a slide presentation with left and right carousels then I number every slide and use a permanent marker dot (red for left, green for right) on the slide next to the number. I also run a red or green magic marker along the bottoms of the slides when they are mounted in the carousel so that I know if all the rights and lefts are together when I look at the loaded carousel.

Using a black permanent marker, draw a little arrow in the top right hand corner of the slide to show which way is up for people who will be looking at the slide in a slide sheet or not projected. Put labels on each slide listing your name, title, materials, size, date of the work.

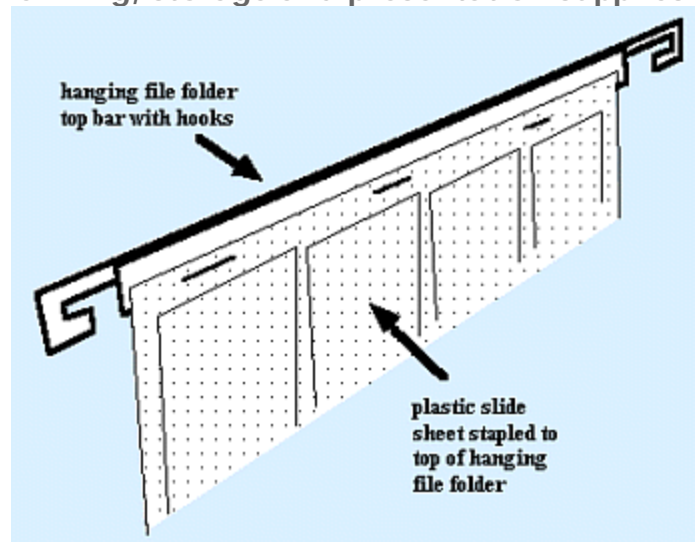


I use a laser printer to print slide labels at a very small point size onto peel - and - stick sheet label material, then cut the labels out and stick them on. This is rapid and easy. I have heard of people using those inexpensive peel - and - stick address labels that one often gets coupons for in junk mail. One has the slide label text done instead of an address and then has 250 labels for the same slide. This approach is obviously best if you are doing a lot of the same image.

## Storing

slides

Do not use PVC slide pages, use polypropylene or Kimac®. Do not stack slide pages on top of one another in a horizontal pile as it damages the slides, use vertical binders instead. They should be in a cool, dark place with air circulation (Meltzer, p 109). Try and avoid regular cardboard boxes or paper in the same cupboard as the slides because they outgas acid (a result of how most papers are made). An option I like is to use a metal filing cabinet and hanging files for storage. You buy the hanging files, cut almost all of the paper folder portion off and discard it leaving a thin strip with the hooks intact. The plastic slide page gets stapled to this and then the slides hang vertically in their slide pages. Each hanging file folder then makes two hanging slide pages. Mostly, though, I store my slides in the dark in their original plastic boxes and label the ends of the boxes by subject so I can pull slides of certain objects out quickly. Several companies are mentioned later in regard to professional slide archiving, storage and presentation supplies.



**Projecting slides** Here are several hints for projecting slides. We are assuming you are doing a presentation with them. Don't project originals unless you have to: use duplicates. Always have on hand a back - up projector, 2 extra bulbs, an extension cord and an extra carousel (voice of experience). Use 80 - slide carousels (the 140's often tend to jam, wrecking your slide in the process). If a carousel jams there is a quick release lever at the center; you will have to use a coin (a quarter) to open older carousels. Always check the retaining ring to see if it is tight. Always run through the slides in the space where you are going to show them beforehand several times so you have a sense of the space and can pick out any backwards slides, upside down ones and so on. Never apologize for a bad slide, just keep on going.

Don't use cardboard mounts in British slide projectors (they have a stronger spring than North American ones and destroy your slides by slamming them up against the retaining ring - they are built for glass mounts and heavier mounts than are common in North America). Try not to hold a slide on the screen too long (as light kills your slides).

Laser pointers are great and can be had for less than \$40.00 at this point. Don't overuse them but careful use adds a great deal to a slide presentation. If you ever want to really impress people at large academic conferences take along a small, good pair of opera glasses to look at the details on slides projected at the front of the room - this proves you know what you are doing.

## Digital Work

Digital photography is really cool and to get usable quality in 1997 - really expensive. If you need digital images have them scanned in from slides at a service bureau or professional photo lab (they all do digital work now). A less expensive option is to have a regular photo store put them on a Kodak photo CD for you. This runs between \$1.50 and \$2.00 per image at this point and you can fit somewhere between 60 and 100 images onto one CD. A dedicated slide scanner is quite expensive at the moment but you can get a high DPI resolution flatbed scanner with a transparency adapter which allows you to scan in slides, print photos and large format transparencies as well.

It is possible to scan a fairly flat or low - relief object right on a standard flatbed scanner and, in the case of jewelry at least, get very nice results which can be used to create on - screen slide shows (Lyn Strelau, a Calgary goldsmith, does this to good effect to show his customers his work). Architectural scanners work as well and one can successfully scan surprisingly three - dimensional objects on one.

Once the image is digitized it can be manipulated in a program like Photoshop. This has interesting implications for jurying of objects by using slides. There is already a long history of preparing objects just for a photograph or of retouching a photograph to 'improve' an image. I remember a teacher of mine who I questioned about his use of a delicate sandblasted finish on a piece of gold jewelry (which I felt would not last five minutes when worn by a customer). At the time I was shocked when he said "It only has to hold up for the photograph." A couple of years ago there were rumors among jewelers doing the large US craft fairs that some people had been juried into shows based on slides of non - existent work, that is, jewelry that was literally glued together for the shot, was made in precious materials but was not actually a functional piece of jewelry except for the purposes of photography. Digitized images are eminently manipulatable. Juries and arts and crafts organizations have not yet faced up to the implications of being able to easily output a slide of an enhanced piece or to 'repair' problems on the slide that the object itself has.

There are various standard formats used for digitized images: EPS and TIF are common ones. JPEG is a compression format that is used extensively on the World Wide Web (internet) because image memory requirements can be really tiny and still give an acceptable image on a computer screen (approximately 72 DPI resolution). Try and print it out, however, and you will see what a rough thing a small JPEG image really is. But if you want images on a CDROM or on a web site then JPEGs are great. Another interesting thing is that because they are so small it is possible to put some 50 or more onto an ordinary floppy disc that costs fifty cents, and as long as a recipient has an internet browser program, Photoshop or a JPEG viewer, they can see your images. This provides an incredibly inexpensive way of distributing images for people to look at.

If you are interested in digital photography talk to your local newspaper photographers (who are going digital faster than anyone else), do research and read magazines for awhile to get a sense of things before leaping into spending money on equipment and software.

## Considerations in Photographing Various Media

Three - dimensional objects will be well served by the methods described before, such as overhead diffuse lighting, fill card and mirror use. For flat things (like prints) use copy set - ups which primarily consist of extremely even light on the object and the camera centered properly on the work. Shiny things will need tents. We did, however, ask a number of craftspeople and artists whether there were any special considerations they felt were associated with different media. The following is derived from their comments.

### Paper and flat art

Sue Archer and Georgia Deal made these points: It is important in dealing with paper to retain some sense of relief and surface texture. This could be accomplished by varying the light distances a bit or adding a side lighting source to the copy set - up. Color saturation is a tricky one and you will just have to experiment. Try Kodachrome to see if you like it any better than the tungsten films. In large objects in order to shoot the whole thing you may lose a sense of detail and so have to provide both a global shot of the object and several detailed shots as well. You will have to choose a compromise: color, bold graphic quality versus a sense of detail.

### Textiles

Layne Goldsmith and Akemi Nakano Cohn contributed some thoughts. For textiles and quilts that are flat the considerations are similar. A sense of texture is very important and so side lighting helps. A raking light at about 30 degrees, from one side with a fill card on the shadow side can produce good results with a quilt (Collins, p 96). Lyn Pflueger, a Calgary fiber artist, says that because textiles, unlike metal, are non - reflective, they tend to 'suck up' light, so lighting is a problem. It's very easy to get an image that is too dark, or not sharp and clear enough. This can be remedied by lighting the surface strongly, using a gray card and bracketing. Presentation and display for the photograph is also a concern; hanging textile pieces on the wall is often convenient, but is not always the best solution because then you lose the sense of three - dimensionality that some pieces have. Tapestries can have relief parts in otherwise flat work. Again, some cross lighting can be helpful. Here's where mirrors are useful with their ability to spotlight specific areas on a piece.

### Baskets

In regard to baskets Lissa Hunter and Crys Harse had the following comments. Depth of field is important, especially for larger pieces needing some 12 - 15" depth of field. One may need to increase the general lighting levels or begin to use longer exposures than 1 second. If you are getting a camera for such objects then you might want a camera that has settings for longer time periods than a second. Depth of field is important for woven pieces where specific weaves matter. This is because structure is very important to basket makers. Therefore with baskets it is important to take good detail shots of the surfaces and structures occurring. There is some concern about trying to convey the intimate, tactile, close understanding of the material and process experienced by the maker.



Harse also wants a background light enough to translate well into both black and white slides and prints or even black and white laser prints. My suggestion would be to try a white shooting surface and work with the lighting to obtain a drop shadow effect. Texture and its subtleties are of importance as well. It would therefore be good to use side lighting and miniature spotlighting with mirrors and perhaps judicious projector use as well. Fill lighting is very important to lighten shadowed areas. Be careful of what shadows are doing on the object and background.

Another theme very important to basket makers (and to many people who make vessels) is the play of inside and out and what that means. Therefore position the camera so you can see some of the inside of the object to better describe it (a vertical shot for instance at 45 degrees downwards towards the object).

### Ceramics

In regard to ceramics we asked Barbara Tipton and Peter Beasecker for some comments. As someone who publishes a ceramicists magazine, Tipton finds that most problems with submitted photos stem from ceramists hiring photographers who are versed primarily in 2 - dimensional objects, when specialized product photographers would be more familiar with 3-D work. Depth of field is important, and the ability to show surface textures. So, side lighting, long exposures, mirrors. The degree of glare and reflection is very important in indicating a particular quality of surface or glaze. This means side lighting and spotlighting to reveal those qualities. Watch out for hot spots. Beasecker tones down a hot spot by blotting the surface with beeswax (I'd avoid this on some porous or textured surfaces). Broad soft box lighting from above along with fill cards works well with many ceramics so that one is reflecting light back upwards against the object from the sides. Dealing with portraying the scale of work: its size can be a difficult thing and a concern. Inserting a penny or a ruler to indicate scale is simply not done any more. An additional shot of the artist at work in the studio along with the object can be a good way to indicate scale. Tipton had some concern about people using the correct film types. Regarding composition of photos sent in for publication: for technical reasons, leave enough background space around the object.

### Jewelry

Because jewelry is the focus of most of my own photography, the approaches I've said I use personally throughout the text work well for most jewelry objects. Coins work well with side lighting of various kinds; experiment also with altering various lights distance from the coin.

## Wood

Henry Schlosser was our consultant for wood. He emphasized documentary, rather than 'artistic' photographs (it's that 'neutral background is better' again). Magazines like an unobtrusive background so the object itself is the focus of the picture. He noted problems with hot spots and fill lighting. Good lighting is very important because colors tend to be very subtle, and you want to be able to make out different colors. You might experiment again with film types here. An issue he noted too is one that sometimes occurs when photographing paintings: 'false color.' The film records a different color than you see: i.e. a white wood appears green in the photograph. Collins suggests that using a UV and/or an Infrared filter or even UV filter material over the lights may help this as the color differences are caused by the material fluorescing under excitation of the UV or infrared light being emitted by the photofloods. He has filter suggestions to compensate for this as well but notes it is a very complex subject (Collins, pp 66 - 67). For reproduction, Schlosser notes that magazines want fairly high contrast photos - sharp and 'crisp.'

## Models

We asked Morgan B. Turney, the editor of *Canadian Railway Modeller*, for some comments. His largest concern in model photography is depth of field - specifically, what type of lens to use with an SLR camera to get good depth of field. Again we generally get greater depth of field by playing with lighting levels, small f-stops and long exposures. Mirrors for modeling light on the objects would be useful. Detail, texture and color are of importance.

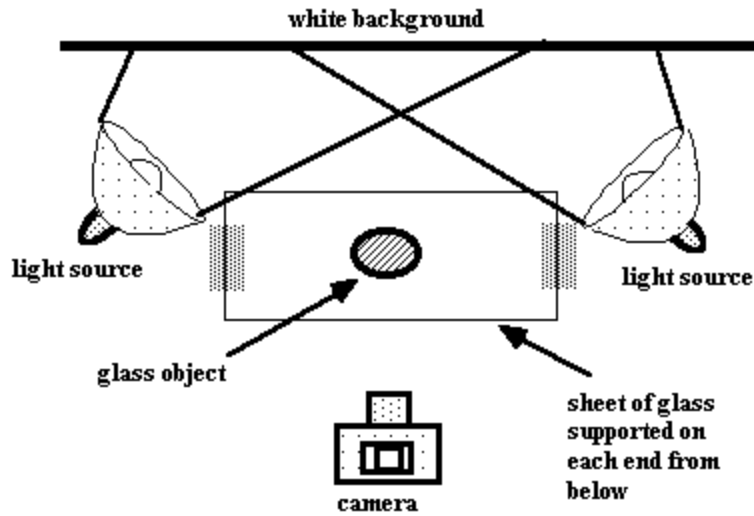
Mr. Turney himself uses a 28 mm lens with 2x extenders to make an f-stop of 22 into one of 45, then cuts the exposure time in half to produce a good close - up with good depth of field. Hmm, sounds like he knows what he's doing - I refer model makers with further questions not answered in this book to your respective journals.

## Glass

Many professional photographers cringe when someone brings them a glass object to shoot.

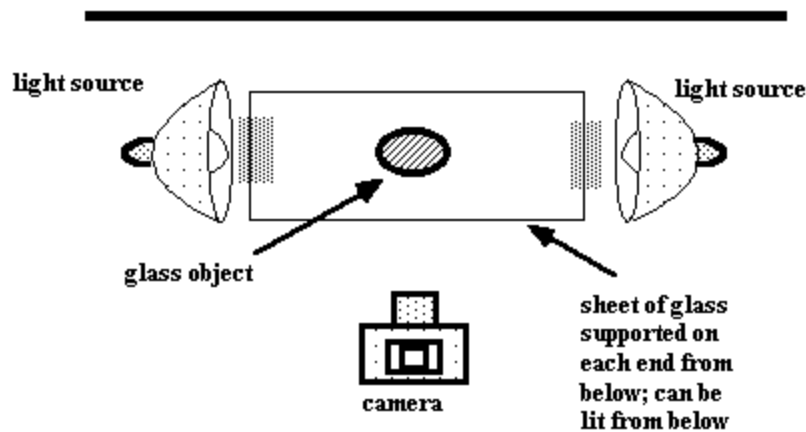
Transparency, hot spots, reflection, color are all special issues with glass. Plexiglas L's provide some good options for glass. Glass seems to work well when lit from below, from the sides or above through a diffusion screen or translucent white Plexiglas or frosted glass. You might try a tent. Defining edges with thin light streaks would come from fill cards and side lighting. One can cut out translucent Mylar® or white paper in the shape of the object and place it behind the glass to deal with the transparency problem as long as it doesn't distort the understanding of your object. A couple of set - ups that have been used for glass follow (from Bomback, p 160).

top view of a set-up for shooting glass



A similar approach produces quite different effects when the glass is lit from the sides (and possibly from below as well) in front of a black background (Meltzer, p 69). This lights the edges and any details within the glass. I don't use this approach but there may be a time when this will be a good solution for you, perhaps with paper - weights or rock crystals.

black background



top view of another set-up for shooting glass

All rights reserved internationally. Copyright © Charles Lewton-Brain. Users have permission to download the information and share it as long as no money is made-no commercial use of this information is allowed without permission in writing from [Charles Lewton-Brain](http://CharlesLewton-Brain.com).