Strobist Lighting 101

(all text by David Hobby, taken from http://strobist.blogspot.com/2006/03/lighting-101.html, version 05/06/07)

Intimidated by the idea of off-camera lighting?

Don't be.

We are pretty much starting from scratch, so no worries. The first posts will be about what kind of gear you will need to do the minimalist strobe thing.

When we are done having our way with your wallet (remembering that light gives you far more bang-for-the-buck than does fast glass or the latest digital camera or 300/2.8) we'll move into basic technique. And after that, we'll keep it going with periodical essays and ideas on how to improve (or refresh) your lighting ability.

When you've worked your way through the basics of designing your light kit and learning how to use it, make a point to browse some of the examples in the "On Assignment" section. Those will be updated constantly, too. So keep checking back.

You will likely have some questions along the way. Sadly, it is not possible for me to take the time to personally answer all of the one-to-one lighting questions that pop up. So try to resist asking them in the comments section. The only people reading this behind you are the people who are, well, behind you.

You will find the one-to-one knowledge bank you seek in the Strobist Group on Flickr. There, you can ask away and get the diversity of response that you need. These are the lighting grad students, so to speak. They know this stuff, and are very enthusiastic about sharing their knowledge.

Most of all, remember to have fun and learn to make some cool light.

Two Things Your Flash Needs to Have

To make use of the techniques described in the following lessons, we are going to assume a couple of things:

1) You have a strobe that can be triggered externally via your camera's PC connection, as seen in the first photo. (This example is a Nikon SB-28dx, a circa "D1 era" pro flash.) This capability can be added to any hot-shoe flash for about $20 via a "hot-shoe to household" synch adapter. No worries.

2) You have a strobe that can be set to manual power and "dialed down," as seen in the second photo. This is pretty much mandatory. If your flash does not have a variable manual control, you are gonne be one unhappy (and very limited) puppy. Fortunately, most good flashes have this feature. And you can easily find one that has it if you need to get it.

I had assumed that Canon pro flash gear had these two basic features. But apparently, most units do not have a synch terminal. (Shame on you, Canon.) If you are shooting Nikon, I know the SB-24, -25, -26, -28 series and -800 have PC synchs and manual control. So, consider the HS-HH adapter mentioned above.

Even if you are not shooting Nikon, I would consider grabbing one of the older Nikon SB speedlight units. Most have have full manual control and external PC synch. And SB-24's for instance, (learn more here) can

be had for as little as $75. That is an absolute steal compared to current TTL-Everything Nikon flash prices.

One good alternative that is currently being manufactured new is the Vivitar 285HV, which is discussed in detail here. Vivitar is trying to keep up with the market, but the 285HV's can sometimes still be tough to find.

Important: Avoid the used 285HV's unless you know for sure how to decipher which ones have digital-camera-safe voltage synch levels.

Another caveat: Do not use a Nikon flash directly on the hot shoe of a Canon camera. The flash could damage the camera, or vice versa. If you shoot Canon and get one of the old Nikon SB's, just keep it with the stand and umbrella in a "light bag," which you grab whenever you plan to light off-camera. Which should be more and more, once you learn how.

Once you have your flash, the question is how to better use it.

Briefly, your decisions are:

• Where am I going to put the light - and why?
• How am I going to get it to stay there?
• How am I going to trigger it?
• What will the quality of the light be: Hard or soft?
• What will the beam spread of the light be - wide, narrow?
• How will I balance the strobe's intensity with the ambient light?
• How will I balance the strobe's color with the ambient light?

There you go. Seven decisions you get to make, with an infinite number of possibilities. And that is just assuming one strobe as a light source. Very soon, most of these variables will get to be instinctive, and you can concentrate on the two or three that will define the quality of light in your photo.

Next we will look at a typical photojournalist's core equipment (the gear that goes to most every typical assignment) and how it can be expanded with minimal extra weight, fuss and expense to greatly improve lighting effectiveness.

Traveling Light

Everyone is different with respect to the gear they choose to take a given assignment. But a news photographer typically carries two digital bodies, one with a fast wide zoom and another with a fast tele zoom. A Nikon user might have two Nikon D2h's, a 17-35/2.8 and an 80-200/2.8. This gear covers wide to telephoto with the ability to shoot wide open at f/2.8 throughout the range.

Add to that a small waist pack with a strobe and a 50 (either an f/1.4 for speed or a micro depending on the assignment in my case) and you have a very capable setup.

But with the addition of a few small, light items, you can add to it the ability to easily use light off camera on any given assignment.

The idea is to incorporate the gear into your standard setup so you will always have the ability to use better light. The White Lightnings are nice, but they don't do much good from inside the trunk. Or under the bed. If you have the light with you, you'll be more inclined to use it. That is the whole

philosophy behind learning to better use the shoe-mount strobes. They are always there. If you get in the habit of using them more effectively, you will always be ready to add light to a situation when you need it.

The first photo (up top) shows the typical two-body, two-zoom setup and small waist pack.

The second shot shows that with the addition of a little bit of gear you have the added ability to use light off camera. You can create hard, soft or bare-tube-style light, with a full beam spread or very tight throw. It can be balanced for flourescent, daylight or tungsten ambient light. The light can be positioned with either a stand or a Super Clamp. Not much difference in weight. Huge difference in ability.

The light stand is a compact, 5-section Bogen 3373, modified (drilled) to have a strap. It is topped by a standard umbrella/stand adapter with a shoe mount. "Ball-Bungeed" to that is a full-size stowaway umbrella that double folds for easy transport. The umbrella is stuffed inside of a homemade folding snoot made out of gaffer's tape and the cardboard from a box of Frosted Flakes.

In the waist pack is a set of Pocket Wizard remotes that will allow me to trigger the strobe wirelessly from up to several hundred feet away. I keep some small items, like a Super Clamp, a Sto-Fen Omni Bounce and some gels there, too. The ball-bungees holding the umbrella to the stand also double as clamps.

I sometimes carry an external high-speed battery for the flash, but only if I am likely to be using the flash above quarter power (or for extended shooting.)

This gear suffices for easily 90% of the assignments I shoot. And I can comfortably walk a couple of miles with it, if need be. I also can easily shoot with either camera with the lighting gear hung from my shoulder.

The sooner you get the "less-is-more" philosophy about how much gear you carry around, the less likely you are to be popping Vioxx for your back and joint pain when you are 40.

Lighting 101 - Light Stands

Now that you have decided to get the flash off of the camera, you'll need some place to put it. And for most situations the best choice will be to attach it to a light stand.

Most any light stand will safely support a shoe-mount strobe. So look for a stand that that is reasonably priced, can stand up to some abuse and is light and easily transportable.

Two of my favorites are the Bogen 6' Retractable 5-Section Light Stand and the Bogen 8' Compact Light Stand (where to get them).

The two specific stands I mentioned are about $50-$60 each, but there are several other models that sell for less than $30. If you do not plan to put them through heavy, professional use, there's no reason to spend a lot of money.

The first example is my workhorse (I use two of them regularly) because they fold up to a very compact package and will support a shoe-mount strobe just fine. But if you are looking to get a little extra height and are willing to forego the ultra-compact folding advantages of the 3373, you have many good choices to suit just about any budget.

The second example, for instance, is a sturdier, taller, general purpose stand will double as a support for larger strobes when I need it, but does not fold as compactly because it has only three sections.

There are plenty of good choices. But if you are shopping price, make sure the stand is a full-sized version, and not just a short "background" stand, though.

Besides extreme portability, another reason that I like the 5-section stands is that they use solid aluminum legs to save space. This means that they can be easily drilled (1/4" hole works fine - see detail photo) to take an O-ring so you can attach a strap. This is a great setup, as it allows you to just throw the stand over your shoulder as easily as carrying another camera body.

You can easily attach a strap to a tubular-legged light stand, too. Just use a little gaffer's tale and 3 or 4 inches of a straight section of clothes hanger wire with a little "bump-out" bent into the middle of it. Use needle-nosed pliers and gaffer tape the straight parts to the stand legs. Hook the O-rings to the middle parts.

One advantage of stands other than the 3373 is that it gives you more choices on the umbrella, which we will talk about later. The 5-section, small-folding stands are pretty close to the same size of the double-fold umbrellas. But if you get a normal-sized stand, you have a much wider choice of umbrellas to choose from.

(It would make very little sense to get a compact-folding stand and bungee it to a full-sized umbrella, or vice versa.)

Whichever way you go, either version will be very functional. The 3373's and double-fold umbrellas can be annoyingly difficult to find in stock, as you pretty much have only one model number to choose from for each. But if you do not need that N-th degree of portability, the normal stands and umbrellas will give you a more sturdy support and light softener for less money.

Super Clamps

While stands are usually the best choice, they aren't the only way to hold a light in a specific location. And other options take up less room in a lighting kit, too.

The favorite of most shooters is the Bogen Super Clamp. It can clamp onto just about anything, provided the thickness is a couple inches or less.

The bent arms of the clamping jaws make it particularly appropriate for clamping onto a variety of shapes. Pipes, railing, doors, shelves, tables, tree branches, electrical conduit running up the wall in a high school gym (not too tight...) are all no problem.

It comes with a stud that will accept a ball head or an umbrella stand adapter, too. So mounting your light is

very easy. They are about $28.00, and every photographer should have at least one.

NOTE: You should know that there are several different versions of the Superclamp to be had. If the version you are looking for is out of stock, ask your retailer which alternative models they have in stock. They come with the stud, without, metal handle, plastic handle, etc. They are all very good clamps.

With the right accessory, they can hold remote cameras too. The Bogen Super Clamp is one very useful piece of gear.

Ball Bungees

OK, can I tell you how much I am starting to like these things?

Being a guy, I realize I am genetically predisposed to liking bungee cords. But the thing about the ball bungees is that they have no metal hooks to scrape up your gear. Sweet.

Fellow Baltimore Sun photographer Karl Ferron turned me on to using bungees to secure a flash to a variety of things. On the rare occasion when I am caught without a light stand, these (and a little placement creativity) will get the job done in a pinch.

You just stretch it around whatever you want to fasten you flash to, aim the head, and start shooting. You can double them up for fastening flashes to thicker items, too.

They do double duty by holding my umbrella to my light stand when I am packing gear. They weigh next to nothing. They cost next to nothing - I paid $1.93 for a four-pack of 8" Ball Bungees (which is a very useful length) at WalMart. So get plenty.

They are good for fastening Pocket Wizards (we'll get to those soon) to a strobe, too.

Umbrella Stand Adapters

OK, so now you've got a flash and a stand or clamp, you'll need a way to join them together.

You'll probably want an umbrella stand adapter. I suppose you could get a ball head if you were sure you would never use an umbrella (to soften the light) but the decent ones cost a bunch. And (even though you may not know it yet) you are saving your money for a set of Pocket Wizards. Because that is where you will want to splurge in your little light kit.

The advantage of the umbrella stand adapter is that it does everything the ball head will do, plus it'll hold an umbrella for bouncing or shooting through. Plus it costs less.

You can get these brackets for about $20.

You just fasten this thinga-ma-jig to the top of your stand (or the stud in your super clamp as the photo showed in the post about clamps) and it'll hold your strobe at any angle you want.

Surprisingly, for $20.00, they typically come with a stud and a shoe-mount adapter. Be sure to ask, tho.

Oh, and before I forget, as soon as you get it, if the shoe mount is made of metal PUT A PIECE OF ELECTRICAL TAPE ON TOP WHERE THE FLASH SITS. It could screw up the electronics in the month's-rent-worth-of-strobe you have sitting up there if you don't. I'm not kidding about that.

PC Cords and Pocket Wizards

And you'd better be sitting down for this one

One of the biggest (and economically variable) decisions you'll make is choosing how to trigger your flash off-camera. Your method of choice will probably evolve with your pocket book.

There are a few ways to trigger an off-camera flash. Some are cheap, some are expensive. Some are very reliable, some aren't.

Basically, they fall into two categories: Wired and wireless. The wireless category can either be radio-frequency based, or infrared.

The good news is that you may already have the capability and not know it, depending on your camera and flash model. Nikon and Canon both have proprietary, infrared triggering systems that also make use of the auto, do-everything TTL flash systems.

But (a) those TTL systems don't always make your photos look the way you want, and (b) infrared systems need close quarters, line-of-sight and specifica angles to work.

That said, save the money and experiment with your Canon E-TTL or Nikon CLS systems if you already own them. You can learn much more about these systems by searching (here) or asking on the Flickr Strobist group discussion boards.

The next option is a "PC Cord." It is the wired version of the off-camera flash world, and it is a reasonably cheap, reasonably effective method. The main consideration is what connections your camera and flash have that you can wire together.

Your camera will have either a hot shoe (up top, where you attach your flash) or a PC jack (little 1/4" round concentric-circle-looking jack) or both. Higher-end cameras usually have both. Lower-end camera have hot shoes. Point and shoot cameras frequently have neither, so thay are not well-suited for off-camera flash.

Your flash will have a male hot shoe (that's how and where it connects to you camera) but it may also have an external sync jack, such as a female PC connection just like many cameras.

If your camera and your flash both have a PC jack, just get a male-to-male PC cord and you in like Flynn. If either or both of them only have a hot shoe, you'll need an apapter or two.

Any hot shoe flash can be adapted to have what is called a "household sync" (like an American power cord) with something called a Wein HSH adapter. Any hot-shoe-based camera can be made to have a PC jack with a PC adapter, such as the Nikon AS-15. (The latter is not restricted to use on Nikon cameras, either.)

This probably sounds a little confusing to a newb, but fortunately this (and many of the other decisions in the gear portion of the Lighting 101 section) have been solved by a guy named Moishe Applebaum at Midwest Photo Exchange. He has put together reasonably priced off-camera flash kits (stands, umbrellas, sync, Ni-MH batts, etc.) that can be shipped anywhere in the world.

The prices are reasonable, the gear choices are sound and it is a great way to save the time and headache of trying to figure this all out for yourself. The only thing you will need to know is (a) if your camera has a PC jack or only a hot shoe, and (b) if you want to spring for pair of the high-end-Pocket Wizards, which we will get to in a minute.

The various kits are detailed here.

If you have specific hook-up/gear questions, I am setting up a discussion thread here, just to preserve everyone's sanity.

Now, if you are just a student or hobbyist, this next part is going to sound needlessly expensive to you. And it may very well be. But if you are a pro, you will eventually wind up at the doorstep of the Pocket Wizard. We all do, pretty much.

They are $375 a pair, and they are pretty much the Gold Standard of off-camera synching.

Why? Insane range (1600 feet) and rock-solid reliability. They just work. Every time. Period. Try to find someone who uses them and does not like them. You won't.

But if you are just sticking your toe in the the of-camera flash world, there is no need to break the bank yet. For those just taking shots of their kids or playing around at table-top studio stuff, you are probably fine to start out with PC cords or your camera's infrared systems.

But be careful before you go out and buy a $300 flash, so you can use the "cheap" infrared Nikon/Canon system. It may make sense to go with the cheaper, manual flashes and the more expensive Pocket Wizards. That's what I do, BTW.

There is another alternative that won't break the bank while you experiment. There is a Hong Kong-based company called Gadget Infinity, which makes very inexpensive radio remotes for flashes. And they are all hot-shoe based, too. This solves a lot of connection issues for newbs.

Best yet, the set is $29.95 at the time of this writing, and you can get extra receivers for a nominal fee. These are not suitable for pros, IMO. They are not nearly as reliable as the Pocket Wizards.

But the PW's cost about 15 times as much. So hey, there's that. There is always a discussion going on about them here, in the discussion threads.

Finally, you could choose the option of a DIY Pro PC Cord, which I have detailed further on. If you want to read through that, it'll keep you in the Lighting 101 series when you exit.

Or you can just skip ahead to leaning about umbrellas, by clicking below.

If you are confused, take heart. This is far and away the most confusing thing about off-camera flash. And there are many people that can help you on the above-linked discussion groups. Don't let this one technical issue throw you off.

Soft Light: Umbrellas

Remember that umbrella adapter you stuck on the top of your stand?

Well, you are gonna want an umbrella. You shoot into them (some are designed to shoot through, but they are way less efficient) and they make your hard-light flash soft and purdy.

Now, you have alight stand-related choice to make.

If you are going with the super-compact Bogen 3373 light stand, you have exactly two choices in umbrellas to match that portability, and one of which will be just perfect for you. They are the Westcott 43" Double-Folding Umbrellas, in either white satin or silver.

The silver is more efficient (throws back more light) and the white is softer and can double as a "shoot-through" umbrella.

The silver version comes with a black backing to control spill.

And - big sigh of relief - each is about $20.

(We won't do that Pocket Wizard thing to your wallet again if we can help it.)

They double fold down to a size small enough to where you can cram either one diagonally into a Domke F2 bag. Or, as an earlier photo showed, you can ball-bungee it to your strapped stand and have a nice, transportable light kit.

But open that sucker up and you have a nice, (43") full-sized umbrella, ready to spread soft-light goodness all over your photos.

The bad news? They are hard to keep in stock.

But, if you are saving money on a moderately priced light stand, you have no need for a double fold umbrella, anyway. It's a waste of compact-ness. (If that's a word, which I do not think it is.)

Here are the decisions you have to make:

1. White (satin) or silver?

White is softer light, but silver is more efficient. Since we are working with low-power flashes, efficiency trumps the extra softness in my book.

Besides, you can alter the latter quality by moving the umbrella in anyway.

2. Reflective or translucent (shoot-through)?

Just what it sounds like. Most people opt for reflective, unless you do a lot of close-up stuff. And they are more efficient. Which is important.

3. Removable back or not?

A removable back gives you a compromise on #2. But it comes at a little more cost in both money and light efficiency.

For what it's worth, both of my umbrellas are of the silver variety, with (non-removable) black backs. And they work great.

But choose whatever you want.

One more thing. Don't bother getting one bigger than, say, 45 inches, unless you are using a more powerful strobe into them. You need the efficiency and reasonable working distance with a shoe-mount flash.

Now, let's look at how to use them.

Umbrellas give you a good mix between softness, efficiency and control. Softboxes offer more control over the beam of the light. But they cost way more and eat up much more of your precious little watt-seconds.

With an umbrella, you get soft light that is reasonably directional.

(If you want to light a whole room, you will likely be bouncing off of a ceiling. More on that later.)

Stick it in close and you soft-but-controlled light that works great for headshots and environmental portraiture.

This is a very simple way to make your mugshots look more like they were shot by a professional and not by someone from the Department of Motor Vehicles. With a short tele, and umbrella'd strobe and awareness of your ambient light, you can make a headshot look more like a cover shot.

Back it up and you get directional light that will cover a larger area. You can move the subject around a decent amount (or not worry if the subject is moving around on his own) and the light will stay good.

It is safe, classic-looking light that is easy to tote around. Total no-brainer in the bang-for-the-buck department.

Bouncing off of Walls and Ceilings

Before I even start, I know what many of you TTL bouncers are thinking.

"Why bother to take your light off of the camera when you are just going to bounce it off of a wall/ceiling anyway?"

Because you move around when you shoot, which changes where the light hits/comes from in a room.

Because lighting on manual from a set location gives you consistency in exposure, light direction and hard/soft quality.

Because it is a quick technique to half-way set up and begin shooting while you decide what you really want to do with cooler light.

Because working with the light off camera is a good habit/ethic to get into, whether you are just bouncing off of a wall/ceiling, or using a stofen with a half tungsten gel through an office-plant cookie to make a slick, layered quickie portrait in an otherwise drab, flourescent office.

This technique is easy, heavy-use, bread-and-butter stuff. And, you will notice, we are talking pure technique at this point and not hitting you up for yet another piece of hardware. 'Bout time, huh?

OK, then. So this gives broad, room-filling light and is good for setting up a forgiving zone of directional light. Smooth and flat, but crisp, too. This is the strobist's version of quick and dirty.

Things to remember?

First, watch your wall color. It'll color cast your light.

You can frequently use it to advantage, as in the warm light the wall kicked back in this artist portrait.

Use the lens angle adjustment on your strobe to control the size of the patch of light illuminating your subject. Just pop the flash and eyeball the hotspot on your bounce surface. The above photo of the county sheriff had the flash set on 85mm, bounced off of the ceiling near the subject. Note the fall-off through the back of the frame.

Conversely, this shot of a midnight Harry Potter fanatic was lit up into the ceiling behind me with the strobe set to 24mm. So this just casts a wide, soft swath of light.

Bare-Tube-Style Lighting

One of the limits of using a small, shoe-mount strobe is that all of the pieces are integrated into the flash. Power, capacitors, flash tube and reflector - all wrapped up in a package the size of a small Subway sandwich.

(Mmm-hmm-hmmmmm, saaand-wich...)

Larger flashes tend to have a more "component" type of layout, with separate power packs, flash heads, tubes and reflectors. While this generally adds more weight and size, the fact that the reflectors are usually removable gives the big-flash guys the ability to shoot "bare-tube."

Bare-tube (or maybe you have heard the more old-school term, "bare-bulb,") means nothing more than having your flash tube sitting out there in open space pushing its light out into (nearly) a 360-degree sphere of coverage. I say nearly because there has to be some wire carrying power and triggering the flash. And that blocks some of the light in one direction.

But, for all practical purposes, it acts like a strobe-on-a-rope.

Why is this cool? There are a couple of reasons.

First, you can light a room with one head, effectively spewing light in all directions. Two bare-tube heads, high and at 45-degree angles, will light one very crisp-looking group shot. (Just drop one of the heads down a stop or so to get a nice ratio.)

Second, and one of the reasons the light looks the way it does, is a bare-tube head generates its own fill in a typical room environment. Since the light goes in all directions, it bounces off of walls, ceilings, etc., to fill its own shadows.

Third, you can stick a small bare-tube flash up close (or in a small enclosure) and it is going to light the entire area, regardless of the angle the subject is to the light. Think sticking a small bare-tube behind a computer to light the wall and the user. Or in a refridgerator to light someone looking in. Or in an open book. Or just about anywhere. You get the idea.

But since most of us do not have the ability to yank the tube out of a Canon EZ strobe, the guys from Sto-Fen invented the Omni Bounce. And, fortunately for you poverty-stricken photojournalism students, someone also invented small, cheap tupperware-style containers. More on that in a minute.

The Omni Bounce, which comes in a variety of sizes for different flash heads (and one "universal," one-size-supposedly-fits-all size) is a small, translucent piece of white plastic that pops onto your flash for a quick and easy bare-tube effect.

The bad news: It eats light. That's just physics. Sorry. It also costs about $20.

But the good news is that it is very small and light to carry around.

And if you a bit of a DIY-type, keep an eye out for a piece of tupperware container that will do the same thing for your strobe. You can either find a bottom that will scrunch onto your flash, or cut an "X" in the lid about the same size as the cross section of your flash head and just slide the closed container on. Just be mindful (as in test) to make sure the tupperware is not giving you an unwanted color cast.

There are many neat things you can do with a 360-degree flash, no matter how you get the effect. We'll hit some in the On Assignment section soon, and will link to them from this page.

But for now, on to Hard Light.

Hard Light

When most of us started out using flash, we did it primarily to increase the quantity of light.

But the quality of the light really stunk. So we started looking at work from other photographers, who used things like bounce, umbrellas, soft boxes, etc., to change the quality of the light. And we began to think, "Hard light bad, soft light good."

Those bad early experiences, I suspect, have built into many of us a bias against hard light. Which is really a shame.

There is nothing inherently wrong with hard light at all. The problems with our bad early experiences were largely the result of bad light direction (as in "on camera") and truly horrid lighting ratios (as in "nuke 'em 'till they glow.")

But if you approach hard light with an eye toward light direction, light color and lighting ratio, hard light can really work for you. Which is a good thing for small strobe users, because these units really do have a lot of power to give if you are not diffusing it away.

And hard light - especially from multiple angles - has a crisp, high-end (if you mind your ratios and fill) look that reproduces well even when printed on Charmin newsprint.

Soft light may be safer, more predictable light. But, the way I see it, the little TFT displays on the back of our Nikons and Canons give us the feedback we need to live out on the edge a little when it comes to light.

If you want to dip your toe in the water, try working close to the ambient level. (If you do not know what I mean, you will learn how to do this a couple of posts down from here.) The fact that the shadows will have good detail will lessen the chances of getting a bad result with hard light. But the edgy effect will still be there.

You can easily create your own soft light/hard light combinations by using two small strobes, too.

Say you had an environmental portrait in an office. You might bounce one small strobe off of the ceiling, softly bringing the room up to, say, f/4. Then you put your other strobe on a stand, point it directly at your subject's face, and dial it down until it gives you an exposure of about f/5.6. You may wish to limit the area the hard light will hit by moving the flash up close and zooming the head to an 85mm coverage angle. Or use a quickie snoot made out of a piece of cardboard.

So, you'd be shooting at f/5.6, with the shadows lit to f/4. The effect will be crisp light on the face of your subject, with nice shadow detail everywhere. Brownie points for thinking to cool the bounced

strobe down a little (with a cooling gel) and warming up the harder accent light. (You'd then have contrast in color, direction and hard/soft quality of the two lights.)

Of course, you can just as easily get this effect with just one strobe and some ambient light floating around. Which is what we will talk about next.

Balancing Flash Intensity with Ambient

More than maybe anything, the quality of light in a photo comes down to the lighting ratio. On one level, it creates the whole look of your photo. On another, your lighting ratio will likely be the key variable in determining whether your paper can reproduce the information in the shadows. It's all about the shadow detail - either you want it or you don't. And you want to make the call on what reproduces in the paper.

Balancing with ambient is the same process, whether you are lighting an interior portrait or fill flashing a headshot outside. Always think in terms of balance instead of fill. The concept is less limiting. And it will not predispose you to use the sun as your main light when the strobe might be the better choice in a given situation.

I am gonna make the assumption that not every one here owns a flash meter (I have one somewhere, but I no longer use it) and give an approach that will allow you to just eyeball your way to a good balance. Flash meters are great, but they are one more thing to carry around. And if you get used to lighting intuitively, you'll find you really do not need them.

Let's start with the example of balancing flash with ambient light in a room. In this case, we'll be using strobe as the main light, with ambient as fill.

Back in your Neanderthal days, you'd pop the flash on the camera (by now, the thought, "on-camera flash: bad" should have just run through your mind,) put the aperture on f/8 and set the shutter at the camera's highest synch speed.

Great depth of field. Horrid light.

We humanoids typically light to light our interiors to about 1/60th at f/4 at ASA 400. While this may be rapidly depleting our fossil fuels and sending our global climate spiraling out of control, it works out just peachy for photographers. It is a very flexible light level, and we'll use it to run through the idea of balancing strobe and ambient.

OK, so without strobe, you'd be shooting at 1/60th, f/4, ASA 400. And there are many times when you will happily bang away without strobe. Go to 1/125 - f/2.8 if you need the speed, or 1/30th - f/5.6 if you need depth of field. But this is also an easy position from which to create a nice, balanced ambient/strobe look. And we are all about that here.

So, we're going to balance to use your strobe as the main light source, with the ambient providing the fill. Assuming you have solved your florescent/daylight/tungsten color issues (which we will tackle after we learn balancing,) you now have two, color-consistent light sources: flash and ambient.

Let's say for the sake of argument that you are going to shoot some hotshot New York designer in his apartment filled with dead, stuffed animals, as in the above photo. You throw a shoe-mount flash onto a stand and bounce it up into the ceiling at a 45-degree angle to him. Why? Because you only have a couple of minutes before the guy becomes fatally bored with you. And you want something safe that will not give you too many things to worry about. (You'll be way past this soon.)

You park him on his couch just behind his genuine, stuffed-rhino-foot planter(!) and get ready to shoot him.

Bearing in mind your original ambient exposure was a 60th at f/4, you want to drop the ambient down, say, two stops. This will create your shadows - but with detail. Assuming your camera can synch at up to a 250th of a sec, you have several choices. You can stay at a 60th and go to f/8, for depth, but your flash will have to work a little harder to put out the extra light to support that aperture.

You can keep the aperture at f/4 and go to a 250th of a sec., which might be a good choice if you are powering with AA's and/or want faster recycle times for better chance at grabbing moments.

You could split the difference and go to 125th at f/5.6. Whatever. The idea is to build an ambient-light-only exposure that would result in an underexposure of 2 stops. That will be your lighting ratio. You can choose another ratio (and you should experiment) but 2 stops is a good starting point.

So, now that you have a 2-stop-underexposed ambient photo, you simply dial your strobe up or down on manual until he looks good well lit. If this sounds a little seat-of-the-pants, it is and it isn't.

One the one hand, lighting is a little like horseshoes and hand grenades. Close enough is close enough if it looks good. You will quickly start to learn to judge what your display (and histograms) are showing you. But the advantage to working this way is that it is fast and intuitive.

And this is not to say that you want to be lazy. Fast is important because you (a) frequently do not have a lot of time, and (b) you want to get to making well-lit photos of him before you have used up all of his good will waiting for you to get your light just right. Hey, he's got stuff to design, right? So lose the idea of the Minolta meter and tenths of f/stops and learn to quickly go with the flow.

You'll light more often and your photos will look much better.

Besides, as we'll talk about later, you'll quickly get the kinda-scary ability to set your flash's manual setting very close to where it needs to be on the first attempt. I find that I am rarely more than a stop off on my first guess now. It is a very quick, intuitive way of working that fits well with the variables you need to solve when shooting an assignment.

In our case, this lighting scheme can be completely set up in about three minutes with a little practice. And that is including 30 seconds to pop few test frames to adjust the strobe's main output to nail the exposure down.

Rewinding for a sec here, we are talking about using the flash on manual, and adjusting your output up or down (usually you can do this in 1/3 to 1/2 stops) to fine tune your flash exposure. Check your manuals for your particular flash to learn how to do this. The advantage is repeatability. You nail down the light, and it flashes the same way, every time through the shoot, for consistent and predictable results.

One more thing. If you want to change the lighting angle during the shoot without going through the process of balancing (just the 30 secs worth of test popping, that is) simply keep the flash at about the same distance from the subject as you adjust the angle. Cake.

Before we talked about the idea of balancing strobe with ambient. We were using the strobe as a main light and the ambient as fill, but you do not always have to do it that way.

Straight fill flash is very simple these day, with TTL flashes doing the heavy lifting for you automatically. But doing it the easy way usually means keeping the light on the camera, or using a TTL cord. These little cords tend to make the light come from a consistent position on the left side of the frame because that's where Darwin stuck your left hand.

The goal here is to start to replace the concept of 'fill flash' with that of 'balancing light.' And, more importantly, to separate the ideas of fill flash fill/balance from the rote use of on-camera flash.

The process of using flash to augment (which is a better concept than fill) sunlight is very straightforward. First you are going to start at your camera's highest synch speed, because that'll get you the most flexibility from your small flash. While you're at it, dial your ASA down as low as it will go to get better quality and avoid those CCD-chip dust spots, too.

Now think about your lighting angle. As opposed to the idea of fill flashing, on-camera, from any angle outside without regard to the sun's direction, using a strobe on a stand effectively gives you two lights to play with. You can balance. You can cross light, You can do both. You'll have more flexible (and consistent) results using this approach.

When you just fill flash from on-camera, it does bring up the shadows. But while the flash adds detail it really misses out on the opportunity to improve the depth and quality of the light. So why not do both at the same time?

Step one: Think of the sun as your *main light*, and your strobe as a secondary light. You are not just getting rid of raccoon eyes now. You are working with two lights. You have flexibility.

Choose your angle of attack. Maybe you have the sun behind you (on the left side) at a ~45-degree angle. Why would you have your fill on on camera when it would look better lighting from the upper right? On camera flash limits you. All the time.

Maybe you turn the angle around and shoot the subject in profile. Say he is facing to your right. You could have him looking into the sun, which is now angled to come from slightly behind his face to provide nice (but too contrasty) rim light. Just move your strobe over to the left side, elevate it a little, and you have a cool-looking, two-light setup.

Whatever the angle, the technique for balancing is the same. We are basing the exposure on the ambient this time, and bringing the flash up to fill shadows and/or provide light from another direction.

Assuming a sunny ambient to balance, set your camera at the highest synch speed (i.e. lowest aperture) to ease the burden on your flash. Now, get your base (ambient) exposure. We'll call it a 250th at f/11 at ASA 200 for the sake of argument.

Now, with your strobe on manual and on a stand, set it to somewhere around a quarter to half power if you are working close. Maybe half to full power if the flash is further away. If you are not lighting a large area (and you usually are not) zoom the flash to a 70mm or 85mm lens angle to make it even more powerful.

Pop a test frame and eyeball it. If your flash-lit area is too bright, dial the flash down or move it back. If it is too dark, dial it up or move it forward.

This is a fast, simple technique that works great. No flash meter needed. Full manual for a consistent shoot.

The important thing to remember (and why I told you the angle stuff first) is that this is now a starting point to turn your outside "fill" strobe into a true, useful second light source. Experiment.

One of the most useful ~~guinea pigs~~ subjects on which to practice your outside lighting is a simple mug shot. What you have to remember is that *they don't know* you could do a perfectly good job by just sticking them in the shade for 30 seconds and bolting.

Outside? Play with fill light and angles. (You might want to grab something safe in the shade first just in case.)

Inside? Set up a quick umbrella in a corner where one wall is your background and another is your fill card.

You'll turn a mug shot into a head shot, which is just a more professional way to do it. You'll get some good (low-pressure) experience in your lighting. And they'll look better in the paper. It's a win-win.

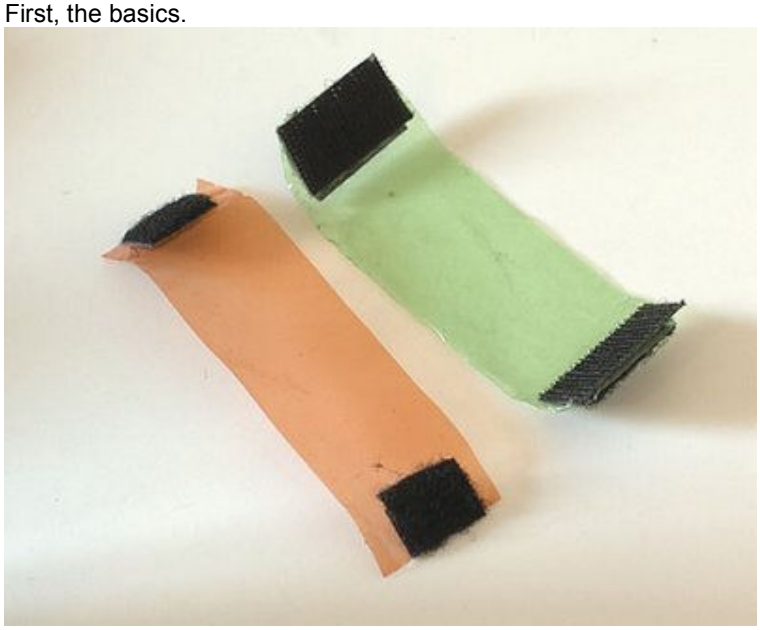
And, contrary to what you might think, most people will be secretly flattered by the effort you are putting in to making a better photo of them.

And one more thing. Stop thinking of them as mug shots from this point forward. A ~~reporter~~ trained monkey can do a mug shot. Start shooting head shots. You'll improve your quality and get into a habit of using light effectively.

Using Gels to Correct Light

I would hope that anyone shooting in color and using flash is color correcting their light by now. But *this is* Lighting 101. So just in case you aren't, we are going to run through it quickly and throw a couple tips out that you may not have considered yet.

First, the basics.



Every flash that you use should have two gels - Window Green and CTO, which stands for Color Temperature Orange (where to get them) nearby and ready to be used at any time. These are your bread-and-butter correction gels.

To attach them to a flash, I cut the gels into strips and put adhesive velcro (very cheap at Home Depot, Wal Mart, etc.) onto the edges. I put hooks on one side and loops on the other, so on very rare occasions you can stack the gels if need be. But mostly it helps to be able to stack them on the side of the flash for easy storage.

You will also be putting the "loop" side of the velcro on the side of your strobe, as shown. This will provide an easy way to attach bounce cards and light shields to keep your flash from causing glare when it is being used as a side/backlight. More on that later.

Back to light color. Florescent light is not white. It is a sickly, putrid green. If you are not gelling your strobe green to match it, objects lit by your flash will be white and the ambient-lit portion of your frame will be green. This is a problem that even Photoshop cannot fix.

The solution is very simple: You place a "Window Green" florescent gel over the strobe head. You color balance your digital camera for shooting in florescent light. You get consistent, reasonably color-correct photos, with both the strobe and ambient light coming out as (again, reasonably) correct color.

I say "reasonably," because all florescent lights are not the same color temperature. And, depending on which part of the 60hz electric sine wave cycle your shutter happens to grab from the florescent ambient lights, they will color shift on you, too.

Don't believe me? Set your camera on an interim shutter speed between 1/60th and 1/125th, such as 1/80th or 1/100th. You are trying to grab a portion of the sine wave here. Motor off ten available light frames in quick succession. See the color shifts between the frames? That's what I am talking about. Not much you can do about it, except to shoot at 1/60th (to get a whole, 60hz wave) or 1/30th (to capture two complete waves.) Not the ideal solution, but it does help.

So, you balance your strobe output level for the ambient light levels when you shoot (just like we talked about earlier) and you should get a smooth, color-corrected photo. If you run into problems, try warming up or cooling down the the florescent setting on your camera. I know my Nikon digital cameras do this very easily, and I would assume the Canon digital cameras do it, too.

Tungsten is the same process, except you use the CTO gel and balance your camera to tungsten. And again, tungsten is not necessarily tungsten. Some lights burn warmer (color-wise) and some light - especially those turned way down on a dimmer, are almost red-orange. But balancing the camera for tungsten and using your CTO gel on the flash will get you acceptably close on most all cases.

Ah, but what about the rooms that have florescent overheads, tungsten desk lamps and big, daylight streaming windows?

No problem. Just shoot black and white.

(Kidding, kidding...)

What you have to do is to choose your dominant light color and go with it. Bear in mind that tungsten and daylight mix much better than do florescent and everything else.

If the room is mostly florescent light but there is window light creeping in, close the blinds/shades/drapes and try to keep the window out of your shot, because some light will creep around whatever is shielding it at the window.

If the windows are large and/or bright (such as in a classroom) I usually just ask if I can turn off the florescent lights "because they make your skin look green in photos." Very few people object to things that keep their skin from looking green. Besides, if the window light was intense enough to be problematic, there should be enough light for people to work by.

After that you just use your flash without gels. Be aware of light levels coming from the the window and, as they say in Great Britain, Bob's your uncle.

I suspect that as our library of photo examples in "On Assignment" grows, we will be getting into using colored gels for effect. But that's for later. If you feel compelled to experiment, just try to remember that (a) that 80's-MTV-Gel-The-Heck-Out-Of-It look is so over and (b) less is more when it comes to color-gelling your photos for effect.

Cereal Box Snoots and GoBo's

Now that you are getting comfortable with the idea of shooting a light into an umbrella or ceiling, creating the lighting ratio and being color correct, it is time to start stretching a little.

Sometimes what makes a photo sing is not so much where the light is, but where it isn't. And, given that you already have a basic, off-camera strobe setup, you can make the gear you will need to restrict light for just a few pennies.

Remember when we put the Velcro on the sides of your flash head? It holds gels fine, but you should also add another piece of (loop side) Velcro so you can fasten a GoBo to your light.

("GoBo" is slang for something that goes between your light and something you do not want it to hit.)

To make a useful-sized GoBo, Cut a piece of still cardboard to make a rectangle about 4x8 inches. Cover it with gaffer's tape and stick some Velcro (the "hooks" side) at one end and at about a third of the way from the other end. This will allow you to attach it to the side of your flash either way so that you can choose how far it sticks out.

While I am thinking about it, you'll want to get a small roll of gaffer's tape. Looks like duct tape, but it is not. This stuff is light-tight, leaves no residue (unless you leave it on for about 6 months) and is indispensable to have in your trunk/light bag.

Back to the GoBo.

Now, you have a sort of "barn door" that can block the light from your flash in the direction that you choose.

Say you are using your flash to side/backlight something. Your flash, being small and not-too-powerful, is just out of the camera frame. The GoBo could be stuck on the side of the strobe closest to you to keep light from flaring into your lens.

You can also use one on each side of the flash to make light that spreads vertically, but not horizontally (or vice versa.) You can keep light off of a background this way, as you may be lighting it from another source.

If you are going to make one of these, you may as well blow a whole quarters worth of Velcro and make four or six of them. They just slide into the lid or back pocket of a Domke bag and weigh almost nothing. No brainer.

If you want to restrict the light even more, you'll want a snoot. It is nothing more than a sort of tunnel for the light to go through that will restrict it is all directions except for the exact direction the strobe is pointed.

Just shape the cardboard into a rectangular-shaped tube that will slide over your flash head. Make a few - 6", 8", 12" - the longer the tube, the tighter the beam of light. Now cover it in gaffer's tape to make it more durable and light-tight.

(By the way, when you shoot with a snoot, set your flash on its most telephoto setting. No sense in wasting power by sending a wide beam of light just to block it with a snoot.)

How do you know how big your spot will be? Pop it against a wall from a good working distance (say, 5 feet) to get an idea of the beam spread of the various tubes. You might want to write your results on the tubes themselves, as in "1x2-foot pattern at 5 feet," etc.

This is a flash fired against the wall (4 feet away) at the "85mm" zoom setting. Note the pattern of the light.

This is the same setup, with an 8" cardboard snoot on the flash.

Now, how are you gonna work like this without modeling lights? I'll tell you.

You don't need no stinkin' modeling lights.

Here's your modeling light:

You ask your subject, "Can you see the front of my flash through the tube from where you are sitting?" If they can, the light will be falling on their face.

You know that cool shaft of light you like to exploit when you see it coming from a window or something? Now you can make it any time.

This is a *very* useful style of light for cool portraits, but you have to be aware of your ambient level. Crank up the shutter speed for more drama, or open it up for more detail in the unlit areas.

For many beginners, this is a new technique that will open up loads of possibilities. Spend an evening experimenting with it at home to start to understand what it can do.

Textural Lighting for Detail Shots

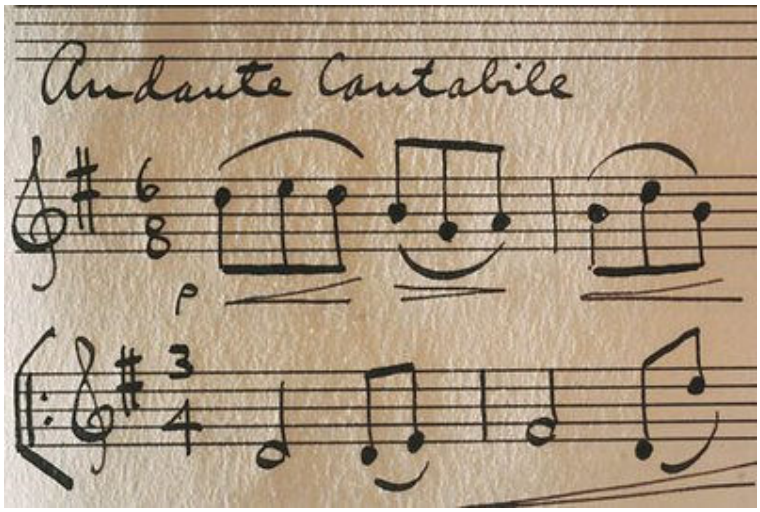
This is one technique I like to use when I am looking for one or two more photos to glean from an assignment.

Designers appreciate the flexibility of being able to use a well-done detail shot in a layout, and you will sometimes be surprised by how well they are used. This is especially the case when they have strong relevance to the story or are executed particularly well.

The key is adding depth and texture to what may be a boring, two-dimensional object. To do this, you'll be placing the item somewhere so that you can get the strobe to exectly the same height to let the hard light rake across your object. You can use a table, or you can simply set the item on a floor and place the flash on the floor a few feet away.

I used to do this quick and dirty with a TTL cord when I shot film. But I do not completely trust TTL and digital yet. And besides, I have a TFT screen on the back of my camera to adjust the results very quickly while shooting on manual.

By far, your biggest variable will be the height of the flash to your object. Nail this variable down first. Little moves make big differences. That is why I like to use a table to get the object offf of the ground (and the flash on a nearby stand) for flexibility.



You'll be surprised at how much texture you can bring out in a "2-D" object this way.

Move the flash away a little. You have power to burn - you are shooting with direct, hard light - so there is no sense in getting llight fall-off if you do not want it.

Use a warming gel to mimic late-day light if you wish. Place books strategically between your light and the objects to create interesting shadows.

(If you do this, consider having the light come in from the direction of on of the corners of your frame. That makes for more interesting compositional lines.)

This is a technique that can quickly quickly boost a freelancer's income. Most assignments are billed on a day-rate-against-space basis. Designers love adding detail shots to layouts. You'll be surprised how often spending 5 minutes on making a nice one can net you another hundred bucks on the day.

Cross Lighting

Cross lighting is nothing more than using two light sources that oppose each other in their direction.

I say light sources, instead of strobes, because It is important to remember that if you are photographing outdoors with one strobe, you really have two lights. Rather than just trying to do damage control on what the sun is doing to your subject, start to think in terms of using the sunlight as your main (or secondary) light.

The photo above is of a fifth grader who, using herself as a human shield, saved this tree at her school when construction workers building a nearby parking lot were about to mistakenly bulldoze it.

She was a hero in the story. And I wanted to visualize her that way in the photo, so I shot up at her from a low angle. To get a clean background, the sun had to be coming from the upper-back-camera-right direction.

I could have very easily fill flashed her if I was just trying to undo bad sunlight. But if you are working with a small stand, it is just as easy to use your strobe more effectively.

I placed the strobe on manual (at 1/2 power) up on a stand coming from the upper-camera-left, and had her face the strobe. Exposure was 1/250th, of course, to make life easier on the flash, with the corresponding aperture to properly expose the sky.

Now, the strobe becomes the main light, and the sun becomes the rim light. Waaay better than on-camera fill flashing.

This cross lighting scheme is pretty forgiving with respect to subject movement, too. As long as you are working on the quarter angles (roughly splitting the difference between the two light sources) you are going to be fine.

When I shoot high school basketball I like to cross light, too. I use two SB's, one at the top center of each set of bleachers, aimed in a cross pattern at the top of the key. Using them at 1/2 power with a 50mm throw will usually get you an honest, crisp-looking f/2.8 at ASA 800 from the mid-court line to the other basket.

It is helpful to use (sadly, expensive) external battery packs for these strobes, as you are gonna be firing off a lot of half-power frames. AA's get eaten up pretty quickly this way.

Back Light as Main Light

When you are deciding how you are going to add light to a scene, don't forget to consider the idea of adding only back light.

And try not to think of it as such. Learn to think "separation" light.

Those of us in the newspaper biz need all of the help we can get when it comes to repro. And using a separation light can really make a photo pop.

Additionally, if the light is strong it will create shadows that will create leading lines into the direction of your light source.

One caveat is that you have to hide your light from your camera. As mentioned before, one good techniques (especially in a darkened room) is to mount the flash backwards and turn the head around. This will let you use the recycle light as a guide to help keep some item in your frame between you and your flash.

The shadows should tell you which performer I am using as a GoBo.

One other thing you should notice with this photo. This small, shoe-mount flash is about a hundred feet away from the kids rehearsing their post-musical bow.

These little strobes put out a lot more power than you might think. And you can work at great distances, especially when shooting in low light.

Headshot in a Corner

As newspaper photographers, we shoot a lot of headshots.

That's just the way it is. It has always been thus. While you can look at it as a mental vacation (a trained monkey could shoot a headshot) they can also be an opportunity to practice with light.

As previously mentioned, your subject probably does not know you could bang it off in about 30 seconds in some shade.

So why not use the assignment as a low-pressure chance to work on your lighting skills?

To that end, I offer the quick and easy, one-light corner headshot.

The concept is simple, but it allows you the chance to play with ratios to see how they affect your photo.

Exhibit "A" is my dear old mother, Griselda Strobist (OK, actually actor Bruce Vilanch, in drag, prepping for his role as Edna Turnblad in Hairspray.)

All you need for a headshot that is crisp and detailed enough to get bigger play is an umbrella'd strobe, a stand and a neutral corner. Not the boxing-type of neutral corner, but one with white or grey walls. If they are tan or some other warmer color, you can get away with that, too.

Now, back to the ratios. There are two at play in this photo.

The first will control how bright the background is. The ratio at question is the flash-subject-distance:flash-background-distance.

That is to say that if your strobe is much closer to the subject than it is to the background wall, you background will be darker.

The fill light for the headshot comes from a reflection off of the other wall of the corner. In this example, the strobe is at camera left, at a nice, safe, boring 45 degrees. At camera right is a wall. (The other wall that comprises the corner becomes our clean background.)

So, the second ratio at play is that of flash-subject-distance:flash-reflecting-wall-distance. In other words, the further your reflector wall is from the flash/subject combo, the darker the shadow side will be.

How does this work in practice? Simple.

For openers, you are shooting at the high synch speed, with enough power on your flash to get f/5.6 or f/8. This will give you sharpness and keep room ambient from screwing you up. If you cannot kill the florescents (sigh, there are *always* florescents) you'll have to gel green and balance for them.

Say that you start with the subject two feet from the side wall, with the flash three feet away (in an umbrella) and the background wall four feet behind him. Pop a test frame. Or better yet use your hand (placed where his head would be) to quicky get into the ballpark before your subject sits in his spot. I shoot my left hand a lot when testing light.

Wanna make the background lighter? Move the whole shootin match (subject and light) toward the back wall. Wanna make it darker? Move it away from the background wall.

Same idea applies to the fill light. Move subject/strobe combo towards the side wall for lighter. Away for darker.

As Velvet Jones would say, "It's as simple as that."

But your headshots (as opposed to *mugshots*) will look good.

And you will be gaining speed and confidence in your lighting skills.

Lighting for Glasses

This one is gonna be quick and dirty. If you already know how to do a portrait without having to worry about reflections in peoples' glasses, just scroll down to the bottom and move on.

But if glasses have been giving you a Devil of a time, this is gonna be one of those Homer Simpson "D'Oh!" moments. And if you are having trouble with it, don't feel bad. I did, too.

The problem is that if you are going to the trouble to light someone, you are naturally inclined to have them face toward the light. Which is fine.

Unless they are wearing glasses.

To avoid refections in glasses, *simply light from one side and have the person face the other*. There is no need to be shooting all of the way in profile, either. A flattering, 3/4 angle (subject to camera) will work just fine.

The photo at the top of the post is a perfect example.

That's all there is to it.

Long-Throw Hard Light

One more lighting technique example before we move on to your learning how to "reverse engineer" others' light.

And to get you started thinking that way, I am going to guide you through reverse engineering this photo.

For lack of a better term, I am going to call this technique "long-throw hard light." This photo, like the backlit kids taking a bow onstage, is a good example of just what kind of a working distance you can acheive with a small shoe-mount flash.

The light in this case was a Nikon SB-28 on a stand, at full power, 85mm throw, about a 80-100 feet from the budding gymnasts.

I was probably working at ASA 800 (exposure was unrecorded) but the light makes the photo crisp and gives the illusion of a lower ASA, in my opinion at least. This was also shot with an early Nikon D1, which did not do nearly as well with high ASA's as do today's bodies.

OK, let's break down the light as we explain the technique.

Look at the picture. Was the light on the right or the left?

It was to my left, as the shadow of the obscurred, back center gymnast on the right side of the background should show you.

Was the light hard or soft? Well, you already know that. Hard. As it darn well had better be if you are throwing a shoe-mount flash 100 feet.

What was my lighting ratio? The density (tone) of the shadows compared to the wall should clue you into the fact that I was working my ambient about 1 1/2 stops below the strobe.

"So, gyms are not daylight-lit," you say.

No, they are not. Not where I live, anyway. They are usually icky sodium vapor color. The closest I could get my flash was to gel for florescents on the flash, dial it in on the camera, and dial the white balance compensation down to -1 (a bit warmer) to try to "spackle over" the inconsistencies a bit.

If I had missed it badly, where would you see it?

If you said the color of the (ambient-lit) shadows on the walls, brownie points for you. But the gymnasts would have looked a little bit hinky on the shadow side, too.

What about the gymnasts in the foreground? They are closer to the flash, yet they are not as brightly lit. What gives?

Here's where the tight beam spread of the 85mm setting on the SB-28 pays off for a second time. Because it has a controlled beam spread, I was able to "feather" the light, or aim it a few degrees high. This put the kids on the balance beam in the main path of the light and the kids in front in the fall-off, bottom portion of the beam.

Why did I do it? Purely sobjective choice. I wanted to emphasize the kids on the beam, instead of the ones in the foreground. They would have been brighter than the beam kids had I not feathered.

The success of this photo is not the final product (I like it, but it is not the end all) but rather the difference in what the photo would have looked like - really bad - if I had shot available light in the dark, cavernous gym.

No on-camera lighting technique could have helped much, either.

Reverse Engineering Other Shooters' Light

Alright, if you have been paying attention so far (and you are not a potted plant) you should have some idea of what kind of light produces what kind of effect. So let's run with that a little.

You cannot hide how you lit something. Everything about the light - style, color, direction, size, beam spread, etc., - is on display for any shooter with something between his or her ears to figure out.

You should be able to deconstruct the light used by others.

Here are some starters.

Q: Where did the light come from?
A: The shadows will tell you.

Q: Were there multiple sources?
A: If the light appears to be coming from multiple directions (assuming no mirrors) probably. Also check for inconsistent shadows.

Q: Was the strobe light balanced?
A: Well, do the florescents look, say, white? There you go. Ditto tungsten, etc.

Q: Is the light falling over a small, restricted area?
A: Snoot or grid.

Q: What is the easiest way to check the style of the front light in a portrait?
A: Eyes make good mirrors to see the light sources. If they are wearing sunglasses, you are golden. Unless they Photoshopped it. And no, you cannot do that if you are a journalist. And if you are a Strobist, you shouldn't have to.

Q: Was the light nearby?
A: Check how fast it falls off as it travels across the subject. Fast? Yes. Slow or none? No.

Q: Was the light source large?
A: Depends on how close it is. A small, shoe-mount flash head looks like a softbox from 2" away on a macro shot. The sun, which is the largest light source you'll likely be using, is pretty hard because of the 93,000,000 mile thing. It is all about how big the light appears to the subject.

Q: Is that light strobe or continuous?
A: That can be a toughie. You can use available light effectively enough to fool people.

Q: How did they get that overcast sky so neon blue?
A: Set the camera balance to tungsten, which renders the formerly neutral clouds blue. Underexpose the sky (to, say, a stop below medium grey) for more of an effect. Then, CTO-gel the flash lighting your subject to render the light hitting it as white and you have the effect.

Q: This is starting to sound random and incoherent. Are you OK?
A: Yes, it is. And no, I am not. I am home sick from work today, feeling like I got runover by a train. I will add more to it later when I am more lucid.

But I hope you are starting to get the idea that there are no secrets when it comes to light.

Only physics.

Know Your Flash

At the risk of sounding like I have gone off of the deep end, I want to talk about experimentation and, for lack of a better term, "flash anxiety."

Now that we have gone through a lot of technique and gear, it is time to upgrade the most basic piece of equipment: The space between your ears.

Most young photojournalists are guilty of what a tennis player might call "running around his backhand" when it comes to using flash. But in my own case (and, I suspect, in many others') it had to do more with flash anxiety.

The problem is two-fold.

First, flash happens in an extraordinarily brief amount of time. One ten thousandth of a second is typical for a low-power manual shot, or kissing a little light at the subject in TTL mode.

That is a really difficult thing to comprehend, much less visualize, let alone learn to control.

Second, our journalistic forefathers were of the "Tri-X, f/8 and be there" variety. Available light was the only "pure, ethical" choice.

Gregory Heisler, who has long been one of my very favorite lighting photographers, actually jokes that the only way to shoot truly ethically is to stick yourself out in space, shooting back at Earth with a 50mm lens on a *very* quiet Leica, using Tri-X.

I mean, if you really do not want to influence the situation *at all*, why not go all of the way?

Our early forefathers (sadly, there were very few foremothers but I am not taking away from their accomplishments) didn't have to worry about how the sodium vapor lights were going to come across in color in the next day's paper, for example.

Times have changed. And so has journalism. But that available light ~~crutch~~ argument works so well at keeping us from learning to light when we are young.

Does that mean it is cool to throw a hot, magenta 1980's gel look on the hair of every environmental portrait subject this week?

Probably not.

But light is a tool. You have to know how to use it and how to make it when you need to. So do not fall for the "putting-yourself-on-the-available-light-pedestal" excuse. You can always choose to use available light when you know how to use flash.

Heck, it is always *available*.

So drop the excuse and learn your craft.

I am going to say something here that will likely get me more than a little ridicule from some of my co-workers at The Sun. Especially the sports shooters - and we have some good ones.

Here goes.

I used to sit in on my couch, in front of my TV, during pro football games and "shoot" the game with a motor-driven Nikon F2 and a 180mm lens.

...

You still here? OK.

The reason I did such a doofus-head thing like that was (a) I liked to pretend I was at the game, shooting it (hey - I was very young) and (b) it was the best way I knew to work on the timing of my sports shooting between Friday night prep football assignments.

Goofy? Sure.

Did it help my timing? I really think so.

What did I do if my college roommate walked in on me? *Why, I pretended I was checking my camera's shutter speeds, of course...*

I told you that to tell you this. There is no substitute for experience, however you can get it. Whatever you need to learn, you need to practice. And if you cannot practice on assignment (for fear you will screw up) the only other way to do it is to experiment.

I have been using light for the better part of 20 years. But within the very past month, I have spent an evening, in my room, playing with a flash and trying a new lighting technique on an inanimate object. (The cat knows to run and hide by now.)

That particular evening, I was playing with the idea of a daylight-balanced flash, with a snoot, in a tungsten-ambient environment. I made several hundred really stupid-looking dismal failures. And three or four images that I really liked.

Which is three or four more than I would have, had not played around.

Digital is great for this.

Try out a new technique. Make some make huge mistakes.

Look at the TFT screen.

Make a few less-huge mistakes as you fine-tune the idea or technique.

Look at the TFT screen.

Start to understand the technique.

Now try the technique, as you now understand it, in a variety of different environments in your house, outside, whatever.

If your significant other asks why you have two lights set up and you are taking a photo of your tennis shoe, just tell her that one of your flashes is, uh, malfunctioning (which is technically is, due to temporary operator incompetence) and you are checking it out.

Ditto on the process of setting up your lights. Get to where you can do it in about a minute or two while you are carrying on a conversation to build repoire with your subject.

The last thing you want to be doing is fumbling sweatily around while you try to set up lights in your limited time frame with a big-shot CEO for a mag cover.

The Army Rangers have a saying when it comes to practice:

"Slow is smooth, and smooth is fast."

Only by repetitive practice will you be able to quickly set up the light that will give you a much better photo without blowing your one chance of building the good interaction with your subject you'll also need to get the photo.

You get the idea. Keep practicing.

See The Flash

As we said earlier, the incredibly brief burst of light from a strobe can be very difficult to visualize. Sure, you can see it. But what I mean is that it is hard to understand the way it is going to look when you are first learning to light.

At least it was for me.

I had this instructor in the photojournalism program at the University of Florida, (former Miami Herald photographer John Walther) who would tell me to just pop the flash and look at the effect on the subject/wall/whatever.

I can still hear him.

"Did you see that, Dave?" He would say. *"That looks like about 5.6 at 400 to me..."*

Uh-huh. Sure it does, Mr. Walther. If you say so.

I was never completely sure when the guy was kidding or serious. He was a legend as far as black and white technical quality was concerned. I swear, the guy could look at a tray of crystal clear fixer and tell you how many more good prints it had left in it.

I'll never really know if he was pulling my leg. But the guy sure could light.

And he got me thinking, which might have been what he was trying to do in the first place.

Rewinding a little, I had a couple of ~~heaters~~ Lowel Tota-Lights (quartz lights) at the time. And I could use those just fine, because I could see the effect right there. But flash? No way.

Then one day, it occurs to me that I could *previsualize* what the quartz lights were gonna give me before I turned them on. Why? Because I had seen the effect so many times.

This is really nuts, if you think about it. I could previsualize the quartz lights before I had even turned them on, but I could not previsualize my flashes? (C'mon, Dave.)

Anyone knows what effect a flash*light* will have when we turn it on. But a flash? Try to previsualize *that* and we suddenly turn dumb as a sack of nails.

Which is when it hit me. If I just imagined my little Vivitar (at the time) as a very powerful continuous light, *I could previsualize what the effect of the light would be.*

This was an epiphany for a dumb, green college shooter. And it worked. I could not judge the quantity of the light. That was what meters were for, before TFT sceens. But I could now prejudge the quality of the light. To some extent, I have been doing that ever since.

My mind applies a convenient little automatic dimmer to my mental Nikon Speed Light/Continuous Light. I'll take care of the exposure in a minute anyway. What is important to see is what the light is going to do, not how bright it will be.

Try it. Start out with hard light at first, because it is easier to visualize the effect. Then learn to think how restricted-beam (snooted) light will act. Then soft light.

Bouncing flash against a wall? Imagine a window right there. You'd be surprised how you brain will start to register how the light will look.

And getting back to Mr. Walther, I think he was onto something.

When you choose the zoom/lens coverage setting on your flash, for instance, it will affect the size your light source. (The light source is now the bounce surface.) Pop the flash while looking at the wall. Sure, it only happens in a 10,000th of a sec, but you can see it because it burns a momentary image into the rods and cones in your eye.

Where does the light hit? How big is it?

What would the light from a window that size and location look like on your subject?

Starting to get the idea?

Be The Flash

One of my (and, I suspect, many others') biggest gripes with using small, battery powered flash used to be the lack of modeling lights.

The fact is that modeling lights need lots of juice. And juice wither comes from the wall - as in AC - or from big, heavy batteries. And stop-gap measure modeling lights, designed not to use much juice, usually do not put out that much light anyway.

So, if you want extreme portability, lose the idea of modeling lights. You do not need them anyway.

You know what hard light looks like. You know what soft light looks like. So, no need for a modeling light for previewing on that front.

What you want to know is (a) where will the light fall, and (b) will there be reflections?

Reflections are pretty easy. Light works like a pool shot. Light will reflect off of a subject at the same angle (but in opposite direction) that it struck.

That is why we learned to light eyeglass wearers at an oblique angle. The reflections are still there. They are just angled to go harmlessly away from the camera angle.

You can also pop the flash and "eyeball" the scene - especially shiny or glass areas - to check for reflections, too. Just make sure you are looking from the same position from which you will be shooting.

It is easier than you think. Try it.

Now, where will the light fall? That one is different, and is the main reason most people use modeling lights.

This is another really easy workaround.

You are already used to walking around a looking at your scene from a few different points of view to choose your camera angle. (You should be, anyway.)

You need to get in the habit of doing this with your light, too. A good time to do it is while you are setting up your lights.

The difference between your camera angle and your lighting angle will determine much of the quality of your photo, so consciously considering both angles is a good habit to get into.

But, more importantly, when you are looking at the scene from your lighting angle, *you see exactly what the light will see*. Which, with a little practice, will eliminate your need for a modeling light.

Last I checked, (and absent your working near a black hole) light travels in a straight line. If you are looking at the scene from the same perspective that your light will see it, you become your own modeling light.

With a little practice, it is a very fast procedure. Especially if you are folding the process into that of setting up the lights.

I know it may sound a little kooky.

Just try it.

Don't Let Good Light Ruin a Photo

From the e-mail conversations I have had with a few of you, I am starting to get the impression that there is a small-but-enthusiastic army of Nouveaux Flashers out there, ready to take over the world with just a (used) 60 watt-second strobe.

For example, I have to wonder what any motorists driving down a certain street in Romania a few days ago might have thought of the sight of a photographer - complete with off-camera flash on a stand - snapping away at *a very well-lit* tree. I am not making this up.

(I am thinking the reaction might have included whatever the Romanian word is for "drugs.")

And no, I am not making fun of the reader in question, either. Far from it. I think it is great. You get better by practicing, and I have seen an outpouring of genuine enthusiam on this site from day one that really makes me feel good about setting it up.

But since I set up this site to help people avoid many of the mistakes I made as a young(er) photographer, you might as well consider this one:

In your new-found enthusiasm for lighting, remember not to shoe-horn cool light into photos that might have been just as good (or better) shot in ambient.

I say that because I always have a strong inclination to apply whatever trick I just learned on the next job that comes along. I doubt I am alone in this psychosis.

In the photojournalism pecking order, content and moments trump cool light. If you are concentrating on light at the expense of the other two, you are short-changing yourself and your pictures.

Case in point: Yesterday, I walked into a court hearing for John Allen Muhammad, (the convicted killer in the Washington, D.C. "sniper" killings in 2002) armed with a strobe, a light stand, and umbrella and Pocket Wizards.

Granted, this is my normal set-up that I usually carry with camera gear into indoor settings. But still.

We were going to have the opportunity to shoot the major players in his second trial (Maryland jurisdiction this time) for the killings that happened in Maryland. Actually, I felt pretty smug when the light turned out to be about 1/20th of a sec at f/2.8 at ASA 1000. I just set that strobe up on a stand in the corner, put it on full manual into the white ceiling, popped on a Pocket Wizard and got ready to shoot at 1/125 at 2.8 at ASA 400.

Long story short, the lawyers became concerned at how Mr. Muhammad might react at the sudden site of nine video guys and an equal number of still shooters. It was a genuine media circus, and probably not too respectful of the jududicial process at that.

Upon sensing that the judge was a hairs breadth from kicking us all out, we quickly agreed to let the AP's Chris Gardner shoot - available light - as a single pool photog to preserve our chance of getting any photos at all.

We were lucky. It worked, and Chris and I spent the next hour burning CD's for everyone else of his whole shoot.

Back to the point, at some point during the day, Chris said, "Do you always carry a light stand around like that?"

"Well, yeah," I told him. It is nothing much to throw my little set up on my shoulder, so why not? As long as I can lug it, where's the downside?

Well, the downside is subtle and a little sneaky.

The downside is that you go in, *planning to light*. And because of your set-in-stone preconceptions, miss a found picture or moment. Why? Because you did not let the assignment develop more organically, for lack of a better word.

I look at light like this: The primary benefit of adding light is to raise the quality level on low-yield assignments. That's a no-brainer.

You could say the same for portraits, but it is not always the case. I try to think of strobe light as an *option*, along with all of the ambient sources at my disposal at the assignment. I walk in ready to use a strobe, a window, a desk light, a florescent, a sunbeam - whatever is there. Any or all of the above.

Just don't walk in with your lighting technique set in stone and ready to do. The gift of being open to serendipity is one of the best strengths a shooter can have, IMO. Be ready for cool stuff to happen. Keep your eyes open.

And if it doesn't, (or if it was never going to in the first place) think up some cool light and do it up right.

To a hammer, everything looks like a nail. That's the trap. Don't be a hammer. Adding light is a great option.

Just don't make it the only option.

Great (and Free) Idea: Keep a "Lighting File"

If you have worked your way through the Lighting 101 and On Assignment sections, you should be getting to the point where there are few lit photos that you can't reverse engineer.

Heck, we even did a page on this, which reminds me that I should update and expand it now that I am not writing through the haze of the Please-Let-Me-Die Flu.

The idea a Lighting File is similar to the technique Mrs. Strobist uses to keep track of examples she sees of cool kitchens and (potentially) great haircuts.

While I am not one to equate mere lighting design with epic, critical decisions such as kitchen remodeling and haircut choice (*just in case you are reading this, honey*) the concept is a good one.

In practice, it is very simple. Any time I see a photo in which great light was created, I try to keep it in a file for later use.

If the idea is in a magazine that is (eventually) bound for the ~~trash~~ recycling bin, simply tear it out. One should get permission, of course. (Or develop a sufficiently noisy cough to mask the sound...)

If the idea is a reproduction of an Old Master's painting in a valuable manuscript in your college library, that's a different story. Maybe jot some ideas down. It's hard to light stuff from jail.

Keep a rolling list of visual ideas in a folder or envelope in one of the slots in your laptop bag and you may be surprised at how organic and serendipitous the lighting idea process will become.

Ditto the web sites of great photographers. On a Mac at least, you can save anything in a web window by simply "printing" it to your hard drive as a .pdf file. Keep a folder full of cool stuff for inspiration when you need it.

For example, I keep a file of California-based photog Tim Tadder's work. He is really doing some edgy stuff with light lately, and I have been experimenting with a "wrap-around" look similar to what he does with several of the photos on his site.

As an aside, just 10 years ago this guy was a college puke following one of my colleagues around, soaking up knowledge. Now, he is out there cranking some top-notch stuff.

For me, this is inspirational on a couple of levels.

First, he is doing some crankin' light. And second, Tim is a great example of getting off of his butt and just diving right into his work and technique.

Note that I am using the term "inspire," and not "rip off." The idea is not to ape someone, but to look to their style as a new venue you can explore and meld into your own vision.

The difference is important.

Anyhow, keeping Tim as an example, I am trying to create a sort-of wrap-around look with two or three cheap, small strobes.

I already have one attempt under my belt, and I will throw up a full write-up after it runs in the paper on May 10th.

I gave the first effort an overall "B-," meaning the concept will absolutely work, but I have some work to do on the execution. This is normal, and not to be interpreted as a failure. I will keep working at it, tweaking the light to be more subtle and remembering to have more to the picture (content and motion) than just cool light.

My first shot at it had the subtlety of Mike Tyson. In addition to toning it down a bit, I should worked more (uh, as in some) content into the photos. But I was using three lights in a tight zone. And one of them was the sun, which was moving in and out of the clouds. (That's my first-timer's excuse, and I'm sticking with it.)

I keep a file with me most of the time, because I am always combining ideas and techniques on assignment. If I have 20 minutes before heading to a portrait assignment, I might drop by a magazine stand on the way there. Or, better yet, a music store. You get the idea.

Visual stimulation is everywhere.

Immerse yourself in it, and keep a journal. You'll be gald you did.

David Hobby aka Strobist
March to May 2006