

A full-page photograph of a young woman with blonde hair, wearing a white wedding dress and brown cowboy boots, sitting on concrete steps. She is looking directly at the camera. The background consists of a wooden wall and a brick wall.

Bill Hurter's

SMALL FLASH PHOTOGRAPHY

*Techniques for Professional
Digital Photographers*

About the Author

Bill Hurter started out in photography in 1972 in Washington, DC, where he was a news photographer. He even covered the political scene—including the Watergate hearings. After graduating with a BA in literature from American University in 1972, he completed training at the Brooks Institute of Photography in 1975. Going on to work at *Petersen's PhotoGraphic* magazine, he held practically every job except art director. He has been the owner of his own creative agency, shot stock, and worked assignments (including a year or so with the L.A. Dodgers). He has been directly involved in photography for the last thirty plus years and has seen the revolution in technology. In 1988, Bill was awarded an honorary Master of Science degree from the Brooks Institute. In 2007 he was awarded an honorary Masters of Fine Arts degree from Brooks. He has written close to forty instructional books for professional photographers and is currently the editor of *Rangefinder* and *AfterCapture* magazines.

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PHOTOGRAPH BY JEFF KOLODNY.



PHOTOGRAPH BY CHRISTIAN LALONDE.

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Thanks, as well, to all of the other photographers who helped me put this book together. It wouldn't have been possible without your talent.

Introduction

The new flash is small flash—and it has become king. In recent years, small flash has been widely popularized by people like David Hobby, the founder of strobist.com (a leading photography web site that is devoted to small flash and its many applications), as well as Joe McNally and Lou Jones, both small flash aficionados and authors of popular books on the subject.

So why is small flash so popular among today's professional photographers? Well, first, because studio flash (a.k.a. “big flash” photography) is expensive, not particularly mobile, and ill-suited to really small areas—like nooks, crannies, and the back seats of sports cars.

Additionally, small flash photography is done without modeling lights, which essentially made it impossible before the advent of the DSLR's instant-preview LCD. With film, you had to do the math (sometimes exceedingly difficult math) in your head—calculating distance to the subject, factoring in the reflectivity of the subjects and environs, and taking into account a myriad of other factors. Now, all you have to do is to check the LCD screen and say, “Whoops. I'd better give that one a stop more exposure.” The times have decidedly changed.

Small flash has the added advantage that it can be controlled via the camera's LCD. Because of WiFi technology, and the camera makers'—specifically Nikon's—ingenious engineering of TTL units, multiple small flashes can now be completely controlled from the camera.

The result is nothing short of amazing, as you will see throughout this book.

1. Small Flash Units

What to Look For

While it is not the province of this book to recommend a specific small flash unit that will be the “perfect” flash for you, it can be helpful to look at what you can expect from a pretty good small flash. We’ll look at one that has recently been introduced by Nikon: the SB-700. This is not the top-of-the-line flash unit (that would be the SB-900), but an all-around performer with great specs and great system compatibility.

First, however, we should consider the value of using a dedicated flash (one designed by your camera’s manufacturer to work with your camera) as opposed to third-party flash units. For your primary flash, a dedicated unit offers significant advantages: it will incorporate all of the technology that went into the camera design and it will speak the right “language” to communicate seamlessly with your camera. In the old days, a Vivitar 283 would do the trick—just pop it on the hot-shoe and off you merrily go! Today, the powerful ways in which camera manufacturers have dedicated their TTL flash units to work with their DSLR camera systems cannot, in this writer’s opinion, be duplicated by third-party units. Where third-party flash units *do* come into play, however, is as auxiliary flash units to be used in a multiple-flash setups. In short, their value comes in being slaved to the dedicated system.

With that issue put to bed, here’s a closer look at some of the specs you need to aim for in purchasing your TTL flash unit. Again, these specs reflect the capabilities of the Nikon SB-700, but they are good benchmarks for any TTL-dedicated flash unit.

Angle of Coverage. The flash’s angle of coverage adjusts the spread of the light for the effective focal length at which you are shooting. On the SB-700, the angle of coverage is 24mm to 120mm (for the DX or full-frame format). The flash also automatically senses whether your camera uses an FX- or DX-format sensor and optimizes the light distribution for that format.

Bounce Function. Bouncing the flash off a wall, ceiling, or other surface is a primary way of softening the light (making it, effectively, a larger source) and providing a better sense of direction in the lighting (making it strike the



Nikon’s SB-700 looks like an off-the-shelf, modest electronic flash unit. However, reviewing the specs reveals that it represents a benchmark for all who want to do creative small flash photography.



FACING PAGE—Here, Cherie Steinberg-Coté's main lighting was Nikon's Matrix-balanced fill flash with a Nikon D70 and SB-80 DX flash. Cherie dialed in $+2/3$ stop flash exposure compensation so that the flash would become the main light, overpowering the shade exposure and yielding pure white tones in the dress and accurate skin tones.

subject from a side wall, for example, rather than straight-on from the camera position). This technique will be discussed in greater detail in chapter 2. The greater the tilt and rotation capabilities of the flash, the more bounce “targets” you’ll be able to make use of. On the SB-700, the flash head tilts down to 7 degrees or up to 90 degrees with click-stops at -7 , 0 , 45 , 60 , 75 , and 90 degrees. The flash head rotates horizontally 180 degrees to the left and right with click-stops at 0 , 30 , 60 , 75 , 90 , 120 , 150 , and 180 degrees.

Guide Numbers (GN). On an electronic flash, the guide numbers indicate the ability of the flash to illuminate a subject at a specific ISO and angle of view. Higher guide numbers reflect a more powerful flash. For the SB-700, Nikon specifies GNs of 28m/92ft. (ISO 100, 35mm zoom head position, in FX format, standard illumination pattern, $20^{\circ}\text{C}/68^{\circ}\text{F}$) to 39m/128ft. (ISO 200, 35mm zoom head position, in FX format, standard illumination pattern, $20^{\circ}\text{C}/68^{\circ}\text{F}$).

Flash Duration. The flash duration is the length of a single flash burst. Low flash durations are useful for stopping motion with fast-moving subjects. For the SB-700, Nikon specifies the following flash duration values:

$1/1,042$ second at full output
 $1/1,136$ second at $1/2$ output
 $1/2,857$ second at $1/4$ output
 $1/5,714$ second at $1/8$ output
 $1/10,000$ second at $1/16$ output
 $1/18,182$ second at $1/32$ output
 $1/25,000$ second at $1/64$ output
 $1/40,000$ second at $1/128$ output

This is an especially
important factor for
photographers doing
high-speed shooting . . .

Minimum Recycle Time. The recycle time is the amount of time required for a flash to return to full power after being fired. This is an especially important factor for photographers doing high-speed shooting (such as at weddings or sporting events). Shooting at higher power settings will result in longer recycle times; lower output settings result in faster recycle times. For the SB-700, this is approximately 2.5 seconds with AA alkaline (1.5V) batteries, 3.5 seconds with lithium (1.5V) batteries, and 2.5 seconds with NiMH (2600 mAh) batteries.

Minimum Number of Flashes. This value reflects the number of continuous flashes at the minimum recycle time for the given battery.

160/2.5–30 second (AA Alkaline, 1.5V)
230/2.5–30 second (Evolta, 1.5V)
330/3.5–30 second (Lithium, 1.5V)
260/2.5–30 second (NiMH, 2600 mAh)



Light Distribution Patterns. Using a simple slider switch on the back of the SB-700, you can optimize the light quality by selecting “standard” for general illumination, “center-weighted” for portraits, or “even” for groups or interiors.

Flash Exposure-Compensation Settings. Flash exposure-compensation settings allow you to adjust the total output from the flash unit, setting it above or below what the camera assumes the “correct” exposure to be. This can be especially helpful for achieving accurate results when photographing very bright or very dark scenes/subjects. On the Nikon SB-700, exposure compensation is available (in i-TTL mode) from -3.0 EV to $+3.0$ EV in $\frac{1}{3}$ EV increments.

Wireless Flash Control. Nikon’s Wireless Commander Mode controls up to two remote Speedlight groups and an unlimited number of compatible Speedlights. When used as a remote Speedlight, up to three groups can be selected. Four wireless channel options help manage wireless conflicts in multi-photographer environments. Several wireless flash modes are also offered: off, master, remote, SU-4, i-TTL, manual, and quick wireless.

Flash can be bounced off the ceiling, a side wall, or a reflector. Once diffused in this way, it becomes a soft light source. Here, photographer Jim Garner bounced a remotely fired flash into a reflector for soft, directional light.

2. Small Flash Modifiers

■ Size of the Light

If you want texture, use a small light source to skim undiffused light across the subject's surface. If you want smoothness or softness, use a larger light source. Larger light sources tend to be more forgiving and easier to use. The disadvantage is that the larger the source, the less texture it creates.

Softening the Light

Unmodified on-camera flash should be avoided for making portraits, unless it is used as a fill-in source. Its light is too harsh and flat and it produces no roundness or contouring of the faces. However, when you diffuse on-camera flash using a modifier, you get a softer look. While diffused flash is still a flat lighting and frontal in nature, its softness produces much better contouring than direct, undiffused flash.

There are various products on the market designed to diffuse on-camera flash. Most can even be used with your flash in auto or TTL mode, making exposure calculation effortless. Nikon offers retractable diffusion panels for its

Lumiquest makes a wide variety of modifiers designed to soften the effects of straight flash. These soften the shadows by either refracting the light through a translucent material or bouncing the light off another surface, or some combination of the two.





■ Small Flash Adapters

IDC (www.idcphotography.com) makes a complete line of well-machined, billet-aluminum adapters so that small flash can be used with anything from large softboxes and strip lights to shoot-through scrims. IDC also makes it possible to mate small flash rigs, of either one or two speedlight combos, with the more popular lighting products available from manufacturers like Photoflex, Larson, and Chimera—as well as generic lighting equipment. IDC's elegant Strobe Slipper, which also supports the wireless radio receiver as well as the flash, mates to a wide variety of flash lighting products, including softboxes, strip lights, grids or other light modifiers normally reserved for studio strobes. They also make a nice product called the Cold Shoe (opposite of hot-shoe), which can be used for mounting radio receivers as well as flash units to the IDC Strobe Slipper. It has other applications as well, including being a good go-between with remote speedlights and monopods.



Bruce Dorn, a Canon Explorer of Light, has come up with a line of small flash products that bring the studio to wherever you are. This shot (top) was made with his Asymmetrical Strip Light (bottom), an 18x42-inch softbox that can be oriented vertically or horizontally for a soft light source that can be easily feathered. In this image, the unit was used in a vertical position to produce a column of very soft but directional light. The light source was a single Canon 580EXII flash mounted in the Asymmetrical Strip Light, as shown.



The SB-700 shown with its diffuser "hat" on. This is a Nikon accessory that comes with the flash unit and is specifically designed for the SB-700.



A good bounce-flash accessory is the Omni-Bounce, a frosted cap that fits over the flash head. With this in place, the beam of light is diffused and can be used as a diffused straight flash or in bounce mode for an even softer effect. The Omni-Bounce is made to fit the popular Canon and Nikon electronic flash units.

high-end SB Speedlights that provide full TTL operation with the diffuser in place.

Diffusers. Diffusers mount over the face of the electronic flash and are usually heavily frosted to scatter the light, creating a softer effect. Some diffusers can be used in an intermediate bounce position, directing some of the softened light onto the subject and some onto the ceiling, from which it bounces back down onto the subject.

Softboxes. A softbox is like a tent housing. The frontal surface of the box is translucent nylon, usually a double thickness. The sides are black on the outside and white on the inside to gather and diffuse more light. Softboxes come in many sizes and shapes. Most are square or rectangular (but there are a few other shapes out there) and range in size from about 12-inches square all the way up to several feet in size. Softboxes are the ideal means of putting a lot of diffused light in a controlled area, and provide much more precise control over the light than umbrellas, which lose much of their light intensity to scatter. Some softboxes accept multiple flash heads for additional lighting power and intensity.



ABOVE AND LEFT—The marionette image was made with two iDC Double Headers. The top/front light was equipped with a wok-shaped, 1950s Moon hub-cap that Bruce Dorn modified and powder-coated white. He says, “It’s shallower than a Mola Light and much, much cheaper.” Dorn likes to make one-of-a-kind lighting gear and sometimes makes a few extra for like-minded souls. This was a prototype that iDC may bring to market in the future. The side-light was also a Double Header with a 54x72-inch Bruce Dorn Select Shallow Softbox from FJ Westcott. Both instruments featured a pair of Canon 580EXII Speedlites set to $\frac{1}{2}$ or $\frac{1}{4}$ power for faster recycling times. Older PocketWizards controlled the flash sync. Note that the final marionette image above was pieced together from individual stills in Photoshop.



Quantum makes a device called the Mini Folding Softbox QF69 that allows you to shoot close-up portraits with portable flash, but with an in-studio type of light—much like a large softbox. The mini softbox contains an extra layer of diffusion material, which reduces any hot spots. The Mini Folding Softbox QF69 gives close to a full 180 degree light spread, so it can be used with very wide-angle lenses. Its placement on the flash head of a Quantum Qflash 4d,

RIGHT—Lumiquest makes a softbox that can be mounted to an on-camera flash. The Lumiquest SoftBox III provides center-weighted, very diffuse lighting, especially at close distances, and can be mounted to conventional speedlights (Nikon, Canon, Sunpak, Vivitar, etc.). One note: the approximate light loss is 2 f-stops when using this and similar devices. FAR RIGHT—The Mini Folding Softbox QF69 joins the Qflash family of specialized reflectors that include: 12x12 Softbox (QF68), Wide-angle Diffuser (QF67A), Bare Bulb Enhancers (QF62Bs/g), Telephoto/Portrait (QF63B) and Snoot (QF63B).





ABOVE LEFT—The FourSquare Softbox (www.lightwaredirect.com) is designed specifically to fire up to four electronic flashes simultaneously while they are inside a softbox. To do this, you need to use a radio trigger. (*Note:* Since Canon Speedlites do not have optical slave eyes built-in, you'll have to have one for each flash.) FourSquares are sold as complete kits, including the mount (made of T6061 anodized aluminum) and softbox. Using a standard Manfrotto umbrella adapter and the $\frac{1}{4}$ x 20 thread, you can put this on any stand you want. ABOVE RIGHT—Umbrellas come in a variety of sizes and shapes. Some have opaque backing for maximum light output. Some are translucent for shoot-through effects. BELOW—An umbrella is a beautiful light source to work with. When used close to the subject, it produces delicate wraparound lighting with no need for a fill source. Photograph by Mark Nixon.





LEFT—The iDC Triple Threat from Bruce Dorn is a mounting bracket that allows you to mount three speedlights into a conventional shoot-through or bounce umbrella. RIGHT—The iDC Baby Slipper is an ideal setup for small softboxes used outdoors or close to your subjects in any location. Small softboxes are available from a number of manufacturers, such as Westcott and Chimera.



Bruce Dorn and iDC made a unit that allows you to house and fire two Speedlights into a softbox, using a softbox adapter ring. Using Radio Poppers (right) or PocketWizards (left) to fire the strobes remotely, the unit becomes a very potent in-the-field small flash option. Bruce calls the unit a Double Header!

5d, or 5d-R allows for automatic (using Qflash sensor), manual, and TTL shooting modes with Qflash.

Umbrellas. Umbrellas, while not as popular as they once were, are still useful for spreading soft light over large areas. They produce a rounded catchlight in the eyes of portrait subjects and, when used close to the subject, provide an almost shadowless light that shows great roundness in the human face.

Reflective umbrellas are black on the exterior and either white or silvered on the interior. The flash is bounced onto the inner surface and reflected back out onto the subject, widening the beam and softening the light. A silver-lined umbrella produces a more specular, direct light than does a matte white umbrella.



Adorama markets the “Q” series of Flashpoint light modifiers for portable flash units. Designed to transform a shoe-mount flash into a studio-like strobe, these modifiers include a 6-inch beauty dish reflector, a snoot, a diffuser dome, and an accessory pack for the beauty dish reflector. Flashpoint’s accessories fit Nikon and Canon flash units, as well as most other portable flash brands.

Shoot-through umbrellas are translucent white, allowing the light from the flash to shine through the umbrella and onto the subject. This gives a softer, more directional light than that from a reflective umbrella. There are many varieties of shoot-through umbrellas available commercially and they act very much like softboxes.

When working with an umbrella, it is important to place it at the optimal distance from the flash. This occurs when the light strikes the full surface. If the umbrella is too close to the flash, the beam of reflected, diffused light will be minimized. If the light is too far from the umbrella surface, the perimeter of the beam will extend past the umbrella’s surface, wasting valuable light output.

Beauty Dishes. Beauty dishes produce a directional but very smooth and soft rendering of the skin tones. This is accomplished by focusing the beam of light from the flash into a small reflector. This bounces the light back into the polished white interior of the beauty dish, further softening the light but still keeping it directional. These devices, such as the Mola Light and others, are primarily designed to be used with studio strobes, which fit into the beauty dish and create a formidable main light for softly lit portraits. However, there are now several miniaturized versions of the beauty dish designed for small flash.

Beauty dishes produce a directional but very smooth and soft rendering of the skin tones.

Today, high-powered ring flashes have become very popular in portrait and fashion photography.

Ring Flash Adapters. The ring flash is a circular flash unit that fits around the lens. It was primarily intended to be used with a macro lens for close-up work (it was originally designed for use in dental photography, because it provided an intense, on-axis light source that was good at revealing small details).

Today, high-powered ring flashes have become very popular in portrait and fashion photography because they provide very even illumination with no visible shadows. In addition to softening shadows, ring flashes produce an on-axis shadow that outlines the subject, an effect that has become a common feature of fashion photography.

Larger ring flash units, like those used for fashion photography, are usually run off a battery or AC power pack and contain one or more flash tubes within the unit. For small flash photographers, there are ring flash modifiers designed to change the shape the light from an ordinary (shoe-mount) flash into that of a ring flash. These adapters use a series of diffusers and reflectors to “bend” the light around the lens axis. This maintains any TTL lighting functions that may be shared by the camera and flash.

The Ray Flash is one such portable and lightweight flash unit, designed to take advantage of the camera’s TTL metering capabilities. Because it relies on



ABOVE—The Ray Flash adapter is specifically designed for the Canon 580EX (I and II) as well as the Nikon SB-800 and SB-900 flash units. RIGHT—The Nissin MF18 ring flash ships with lens mount adapters from 49 to 77mm.





The Orbis ring flash adapter.

the hot-shoe flash to generate its light, it contains no electronics and no flash tubes—and therefore requires no cumbersome cables. The light is modified through a sophisticated system of internal shapers that distribute and project the light evenly around the lens. The Ray Flash is specifically designed for the Canon 580EX (I and II), Nikon SB-800, and Nikon SB-900 flash units, but existing Ray Flash models will also fit older Nikon flash units (including the SB-24, SB-26, and SB-600) as well as some flash units from Sony, Metz, Olympus, and Sigma (which also makes its own ring flash, the EM140DG macro flash). For the full model range, visit www.ray-flash.com.

Orbis (Griffin, GA, www.orbisflash.com) markets another ring flash adapter that transforms the harsh light from portable flash units into beautiful, shadowless, on-axis illumination. The adapter is easily installed onto the flash unit and positioned in front of the camera, where it works with the camera's TTL metering system.

The Nissin MF18 ring flash employs a different strategy—operating not as a modifier for an existing electronic flash as but its own hot-shoe light source. The unit has a user-friendly color display, and both wireless and high-speed synchro functions to achieve the ultimate in performance. It is compatible with Canon E-TTL, Nikon i-TTL, and Sony ADI/P-TTL cameras, and ships with adapters (from 49 to 77mm) for attaching the “ring” to the front of the camera's lens.

Directing the Light

Other flash modifiers are designed to narrow the output of the flash, preventing its light from striking any area of the subject or scene where it is not desired.

Cinefoil. With studio flash, barn doors (black metal flaps that can be opened or closed) are used to control the spread of the beam of light. Unfortunately, barn doors are impractical and have no means of being mounted to small flash (for one exception, see the discussion of the Strobies Portrait Kit later in this

The light is modified through a sophisticated system of internal shapers . . .

chapter). Thus, another product has risen to fill the bill: matte black Cinefoil. This thick, metallic foil, which is opaque and malleable, can be molded and taped around the small flash head to redirect or diminish the light in an infinite number of ways. It is often used on background lights, which are meant to light only a small, specific area of the scene.

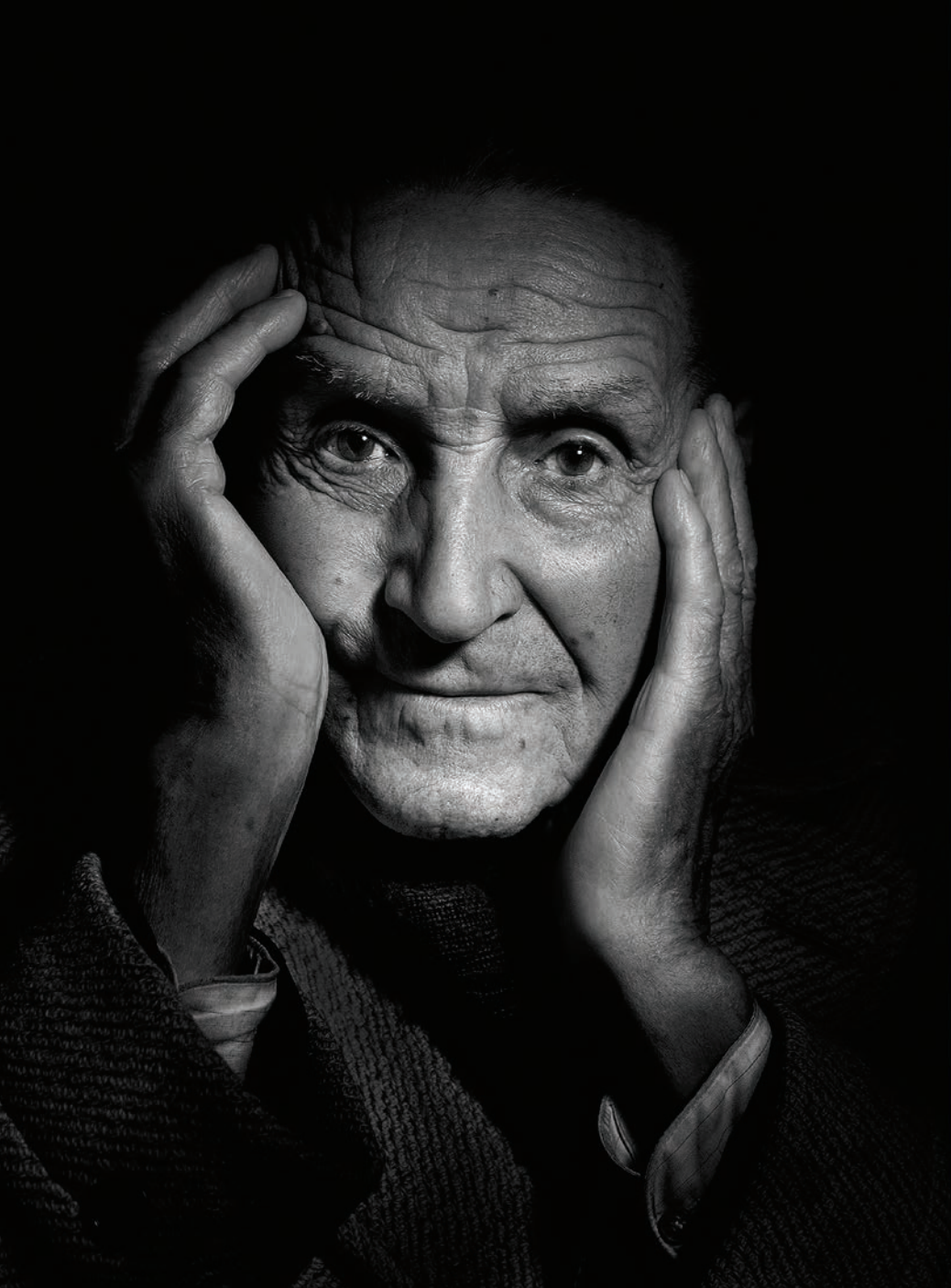
Grids. Grids are honeycomb-shaped metal devices that snap onto the flash. Each comb in the honeycomb grid prevents the light from spreading out. Grids produce a narrow core of light with a diffused edge that falls off quickly to black. Because the light is collimated, there is very little spill with a grid. This allows you to place light in a specific and relatively small area, making grids ideal for portraits in which a dramatic one-light effect is desired. The light naturally feathers at its edge, providing a beautiful transition from high-light to shadow.

TOP RIGHT—Here is the small flash equivalent of barn doors: matte black Cinefoil, available from Rosco Gels (www.rosco.com) and Lee Filters (www.leefilters.com). These two Nikon SB-800 Speedlights were modified with Cinefoil to form a “snoot” that will narrow the angle of the flash output. Photograph by Christian LaLonde.

BOTTOM LEFT—Grid spots are available for small flash units via an adapter sold by Adorama. Here you see an assortment of the grids available. Their primary function is to collimate the beam of light from the flash, transforming it into structured columns of light. This provides an intensity to the lighting that other devices cannot.

BOTTOM RIGHT—Honl’s Speed Grids attach easily to most portable flashes using their Speed Strap™ (which is sold separately). The 1/4 Speed Grid has 1/4-inch honeycomb cells to narrow the beam of light from your portable flash, producing a small circle of light on your subject. Honl also makes a 1/8 Speed Grid, which has a 1/8-inch honeycomb cells to create an even narrower beam of light.





Anthony Cava captured this remarkable portrait of an old friend who lived near his Ottawa studio. Anthony used a single flash with a grid spot at a steep angle so that the light is almost overhead. The light skims across the old man's skin to reveal texture and specular brilliance in the highlights. The grid spot drastically narrowed the beam of light so that it became an intense shaft of collimated light with a feathered edge.

Snoots. Snoots are shaped like top-hats and snap on to the flash, narrowing the beam of light into a very thin core. They are ideal for small edge lights used from behind the subject—when you want to light just a part of your subject, like the shoulder or side of the face. Snoots reduce the light output because they restrict the width of the outgoing light—but that is precisely what they are designed to do.

Spotlights. Spotlights are basically a hard-edged light source. Usually, these are small lights with a Fresnel lens attached to condense the beam of light over a longer distance. Spots produce a distinct shadow edge, giving more shape to the subject's features than lower-contrast, diffused light sources. Although originally a hot light, various strobe manufacturers have introduced strobe ver-

Snoots reduce the light output because they restrict the width of the outgoing light . . .



LEFT—A snoot narrows the beam of light so that it can manageably light a small area, like the side of the subject's chin or the shoulder of his suit. This particular snoot is from Adorama (www.adorama.com). RIGHT—This handy small-flash accessory extends the useful range of the electronic flash. It uses a Fresnel lens and an extended housing to send the beam out farther than the flash unit's small internal reflector.

Honl offers a wide variety of speedlight accessories including softboxes, gobos, grids, snoots, and filter kits. The Honl Speed Grids effectively narrow the beam from your speedlight into a small circle of light. These products have been favorably reviewed by *National Geographic Traveler* and www.Strobist.com.



sions of Fresnel spots. For small flash, the “Better Beamer” Flash Extender performs a similar function—and provides faster refresh rates and reduced battery consumption, creating a better chance of catching the action when it happens. It’s lightweight, simple to attach with the Velcro strap provided, and folds flat for packing. “Better Beamer” Flash Extenders are intended for use with focal lengths of 300mm or greater. The unit is designed to work with most Canon and Nikon flash units.

Color Gels

Often, small flash units come with a filter set for special effects or for color-correcting a scene. This is true of the new (at this writing) Nikon SB-700 Speedlight, which comes with a gel set as well as two hard, snap-on filters for color correcting fluorescent and incandescent lighting. The coolest thing

Often, small flash units come with a filter set for special effects or for color-correcting a scene.



The Nikon SB-700 flash comes with a set of four interchangeable gel filters. It also comes with a set of hard, heat-resistant correction filters for fluorescent and incandescent lighting. The gel-type filters come in red, blue, yellow, and amber and can be used as a sort of gross color-correction filter. The great thing about using filters with the SB-700 is that the flash/camera circuitry detects the color filter in use and automatically adjusts the white balance for the filter.

MPS Sticky Filters are color-correction gels that cling to the front of your flash.



about the flash is that it automatically identifies the type of filter and adjusts the camera's white-balance setting.

MPS Sticky Filters (www.stickyfilters.com) are color-correction gels that cling to the front of your flash, allowing them to quickly be attached or removed. Each set includes two sets of filters—and a lifetime replacement. The standard size filter set (2x3.25 inches) is large enough to cover the reflector of a Sunpak 544 handle-mount flash with room to spare. The filters come in five different colors: tungsten bulb; .5 tungsten bulb; cool fluorescent (to balance for standard 40-watt industrial fluorescent tubes); unknown fluorescent (used for mixed or unknown fluorescent types, as well as for mercury vapor lamps and some metal halides); and hazy/open shade (to warm up the cool outdoor lighting). For example, you could add the blue hazy/open shade filter when shooting on the shady side of a building under full sun. The scene is primarily illuminated by the blue sky, so making your flash blue and setting your white balance to custom will result in warmer tones being captured.

Strobies Portrait Kit

The Strobies Portrait kit from Interfit is a practical solution to mobilize your small flash for greater duties: fashion, group portraiture, macro work, and so on. Using the Strobies Flex Mount on your flash, you can adapt all of the Stro-



The Strobies Portrait Kit includes the following accessories for your small flash unit (clockwise from top left): beauty dish, globe diffuser, white softbox, barn doors, snoot, and grid spot.



Sometimes straight flash is the only effective way to make an exposure. Photographer Cliff Mautner used a very slow shutter speed and panned the camera in the dim light to blur the background lights. The on-camera speedlight fired at the instant of hilarity, creating a priceless image.

bies accessories to your speedlight and maintain full TTL capabilities (check www.interfitphotographic.com for compatibility details).

Bounce-Flash Accessories

Many photographers use their on-camera flash in bounce-flash mode. A problem, however, with bounce flash is that it produces an overhead soft light.



TOP LEFT—The LumiQuest Bounce Kit includes the Pocket Bouncer, gold and silver metallic inserts, and a storage envelope. The Pocket Bouncer redirects light at a 90 degree angle to soften shadows and spread the light over a wider area. The gold insert is ideal for late afternoon fill; the silver insert adds a specular look to the highlights. BOTTOM LEFT—The ProFusion Flash Diffuser (www.profusion-flash-diffuser.com) is a multiple-bounce, universal light modifier that affords photographers unparalleled flexibility in the direction, color, and diffusion of their small flash lighting. ABOVE—Reed Young created this photo in a railroad tunnel near Santa Barbara, CA. The backlight is a strobe with a pink gel, placed about 40 feet into the tunnel, just outside the left side of the frame. The key light, an undiffused Quantum Qflash, was just over his right shoulder to side-light her face, accenting the Chinese poem. He adjusted his shutter speed and flash output level to pick up the frontal strobe, the backlight, and the overhead lights in the tunnel. The model applied glitter makeup to create specular highlights when used with the undiffused Qflash. According to Reed, the Chinese poem is about enjoying the small things in life.



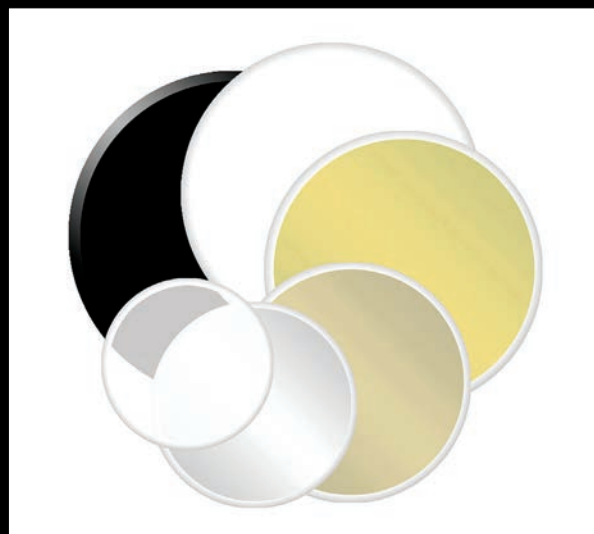
With high ceilings, the problem is even worse—the light source, while soft, is almost directly overhead. There are a number of devices on the market, like the Lumiquest ProMax system, that allow most of the flash's illumination to bounce off the ceiling while some is redirected forward as fill light. This solves the problem of overhead bounce flash. The Lumiquest system also includes interchangeable white, gold, and silver inserts, as well as a removable frosted diffusion screen.

Lumiquest also offers devices like the Pocket Bouncer, which enlarges and redirects light at a 90 degree angle from the flash to soften the quality of



LEFT—Lastolite handheld Tri-Grip reflector from www.Lastolite.com. This tool, unlike conventional reflectors, which do not have handles, is extremely easy to manipulate one-handed, while holding the DSLR in the other hand.

BELOW—Portable LiteDiscs from Photoflex are flexible reflectors that fold up into a compact shape for transport. They come in a variety of surfaces and sizes and some are reversible. The in-use shot shows the effect of a gold-foiled LiteDisc used close to the subject.



light and distribute it over a wider area. While no exposure compensation is necessary with TTL flash exposure systems, operating distances are somewhat reduced. With both systems, light loss is approximately $1\frac{1}{3}$ stops; with the ProMax system, however, using the gold or silver inserts will lower the light loss to approximately $\frac{2}{3}$ stop.

Existing-Light Modifiers

In addition to the light modifiers used directly on a small flash unit, achieving success may also require modifying the existing light. Small flash photographers will likely find regular use for the following types of modifiers.

Flats. Flats are large, white opaque reflectors that are portable (usually on rollers or castors). Once they are wheeled into position, lights can be bounced into them like a temporary wall.

Gobos. Sometimes, because of the nature of the lighting, it is difficult to keep unflattering light off of certain parts of the portrait. For instance, hands that receive too much light can gain too much prominence in the photograph.

A good solution is to use a device called a gobo or flag, which is a light blocking card (usually black) that can be attached to a boom-type light stand or held by an assistant. When placed in the path of a diffused light source, the light will wrap around the flag, creating a very subtle light-blocking effect. The less diffused the light source, the more pronounced the effect of the gobo will be. Lastolite (see facing page) makes a variety of these handheld gobos.

In the field, these panels are often used to block overhead light when no natural obstruction exists. This minimizes the darkness under the eyes and, in

Achieving success
may also require modifying
the existing light with
reflectors and gobos.

LEFT—Lite Panels from Photoflex are translucent and reflective flexible panels that can combine to create any kind of lighting on a set or on location. RIGHT—LiteDiscs also come in oval sizes for a full-length fill or for use as a scrim.



effect, lowers the angle of the main light so that it is more of a sidelight. Gobos are also used to create a shadow when the source of the main light is too large, with no natural obstruction to one side or the other of the subject.

Mirrors. Mirrors are used to bounce light into a shadow area or to provide a reflected main light. Mirrors reflect a high percentage of the light that strikes them, so they can be used outdoors to channel backlight into a main light. On a tabletop setup, small mirrors the size of matchbooks are sometimes used to kick light into a hard-to-light area.

Reflectors. A reflector is any surface that is used to bounce light onto the shadow areas of a subject. A wide variety of reflectors can be purchased commercially, including the kind that are collapsible and store in a small pouch. The surface of reflectors can be white, translucent, silver foil, black (for subtractive lighting effects), or gold foil. The silver- and gold-foil surfaces provide more light than matte white or translucent surfaces. Gold-surfaced reflectors are also ideal for shade, where a warm-tone fill is desirable.

When using a reflector, place it slightly in front of the subject's face, being careful not to put it beside the face, where it may resemble a secondary light source coming from the opposite direction of the main light. Properly placed, the reflector picks up some of the main light and wraps it around onto the shadow side of the face, opening up detail even in the deepest shadows.

Scrims. Scrims are translucent diffusers. Light is directed through the material of the scrim to diffuse the light. In the movie business, huge scrims are suspended like sails on adjustable flats or frames and positioned between the sun (or a bank of lights) and the actors, diffusing the light over the entire set.

The reflector picks up some of the main light and wraps it around onto the shadow side of the face.



Bruce Dorn created this stunning outdoor portrait with an Strobe Slipper equipped with a Canon 580EX Speedlite and Radio Popper remote triggering device. The small flash was emptied into a small 1.5-foot square softbox. When such a light is used outdoors and up close, as it was here, it will overpower the daylight, creating a delicate lighting pattern in the midst of the abundant available light. In this shot, Dorn's assistant held the softbox close to the model and off to her left to produce nicely contoured portrait lighting.



Bruce Dorn was commissioned to produce a portrait similar to one his client had seen. He set up a couch with a strip light above it. For soft light, designed to look like window light, he attached two Canon 580EX Speedlites to Strobe Slippers to provide main light from the right side. These were mounted in small softboxes. Bruce and the mother got the two girls in place, but they soon tired of modeling on the sofa. "The setup decayed into chaos," Dorn admits. "They tumbled down to the floor, bushed, and fell into this pose." With a mixture of stealth and speed, Bruce quickly adjusted the lights for this new pose, and started shooting. The image was made with a Canon EOS 1D Mark II with 85mm f/1.2L USM lens.

A scrim works the same way a diffuser in a softbox works, scattering the light that shines through it.

The late Monte Zucker perfected a system of using large scrims—3x6 feet and larger. With the sun as a backlight, he had two assistants hold a translucent panel above and behind the subject so that the backlighting was diffused. He paired this with a reflector close in front of the subject to bounce the diffused backlight onto the subject or subjects. The effect this creates is very much like an oversized softbox used close to the subject for shadowless lighting.

Scrims can also be used in window frames for softening sunlight that enters the windows. The scrim can be tucked inside the window frame and is invisible from the camera position.

3. Taking the Flash Off the Camera

Flash Brackets

On-camera flash is used sparingly because of the flat, harsh light it produces. As an alternative, many photographers use on-camera flash brackets, which position the flash over and away from the lens, thus minimizing flash red-eye and dropping the harsh shadows behind the subjects—a slightly more flattering light. On-camera flash is often used outdoors, especially with TTL-balanced flash-exposure systems. With such systems, you can adjust the flash output for various fill-in ratios, thus producing consistent exposures. In these situations,



ABOVE—Small wired flash units combined with various PC cords, slaves and reflectors. Photo courtesy of ProPhotoLife.com. RIGHT—Moving the flash off the camera, and more importantly, off the lens/subject axis, produces more dynamic lighting. Here, Bruce Dorn used a Strobe Slipper with a Canon 580 EX Speedlite and a Radio Popper remote activation unit for his basic lighting. The small flash was aimed into a small softbox, which, when used close to the subject, produces delightfully soft light. Dorn had an assistant hold the light, remotely fired from the camera, off to the right and slightly above the subject's head height so that it produced what is known as a loop lighting pattern. This is characterized by the off-to-the-side shadow under the nose.



The Honeywell AC-to-PC cord used to be *the* standard in the small flash industry. Most flash units—especially the handle-mount units (sometimes called “potato mashers”)—used AC-to-PC cords for flash triggering. For \$5, they were the most reliable PC cord you could buy.

the on-camera flash is most frequently used to fill in the shadows caused by the daylight, or to match the ambient light output in order to provide direction to the light.

Wired Flash Triggering

Many small flash units (and most studio flash units) support PC connectors, electrical connectors/wires used to connect cameras to the flash units. These convey a trigger current but do not carry digital data of any kind, such as metering information. All pro and high-end DSLRs have a built-in PC socket. If your camera doesn’t have one—and many low-to mid-range DSLRs don’t—you can buy a small adapter that plugs into the camera’s hot-shoe mount, allowing it to accept a PC cable.



The major camera companies offer limited support for PC connectors, but this is rarely an issue, since PC sockets are purely for manual flash triggering. PC triggering has become increasingly popular again for digital photographers, however, since the LCD screen allows the flash effect to be seen immediately.

Another option for creating a wired connection between your camera and off-camera flash is to use a dedicated TTL sync cord. This attaches from the hot-shoe of the camera to the foot of the flash. Although they are substantially more expensive than PC cables, dedicated TTL cords allow you to use all the features of your TTL flash and keep any advanced high-speed flash-sync options in play.



Wireless Flash Triggering

If using multiple flash units (to light the dance floor, for instance), wired connections will quickly become impractical. Instead, some type of remote triggering device will be needed to sync all the flashes at the instant of exposure. There are a variety of these devices available.

Light-actuated slaves are sensitive to the light of a flash unit being fired and trigger the flash to which they are attached at the same instant they sense a flash going off. Unfortunately, this can be your flash or someone else's—a real drawback to this type of remote flash trigger.

Infrared receivers are triggered by a coded pulse of infrared light from a transmitter, so they are unaffected by flash-happy point-and-shooters at your event. The infrared transmitters are battery-dependent, but the receivers do not require batteries. Like the flash itself, the transmitter must recycle between



LEFT AND ABOVE—Bruce Dorn has come up with a remote softbox that he uses on location called the Strobe Slipper (available from his web site: www.idcphotography.com). The Photoflex softbox is small and maneuverable and uses a Canon (or Nikon) Speedlight mounted to a stainless steel plate, which also holds a PocketWizard receiver. The wireless transmitter is mounted in the hot-shoe of Dorn's Canon DSLR. The image to the left was made with a Strobe Slipper with the light used facing the model and allowed to wrap around her with no reflector. The strobe exposure is, naturally, balanced with the daylight exposure for a perfect combination of daylight and studio strobe.



LEFT—Radio Poppers, starting in the \$70 range, give photographers the ability to reliably control nearly any type of off-camera lighting. Their flagship PX Transmitter and Receivers remove the line-of-sight limitations of ETTL/iTTL strobes, enabling them to be used inside or in direct sunlight at distances up to 1500 feet—all the while being able to take full advantage of high speed sync.



ABOVE—The PocketWizard Plus II™ transceiver is beautiful in its simplicity. It is “auto-sensing,” meaning it automatically switches from receive to transmit as needed and reliably triggers lights and/or cameras up to 1600 feet away. Utilizing advanced digital technology, four 16-bit channels are available for selective firing of lights or remote cameras. Images can be captured at up to 12 frames per second—faster than any current DSLR. Ultra-fast microprocessors allow for top sync speeds of $\frac{1}{250}$ second for focal-plane shutters and $\frac{1}{500}$ second for leaf shutters.

RIGHT—Christian LaLonde photographed this couple using a Nikon D700 and SB-800 flash and a 28–70mm f/2.8 lens. The SB-800 Speedlight was gelled to warm the couple and cool down the ambient light. A PocketWizard was attached to a clamp holding the Speedlight. All were mounted to a copper pipe and handheld.



photos; as the transmitter's batteries near the end of their life, the transmitter's recycling time will increase.

A third type, the radio remote triggering device, uses a radio signal that is transmitted when you press the shutter release and then picked up by individual receivers mounted to each flash. These are reliable, but not foolproof—a cordless microphone may trigger them accidentally. Radio remotes transmit





The beauty of off-camera flash is that you can use it just off-axis to produce beautiful head-on fashion-type lighting. This image was made by JB and DeEtte Sallee with a Quantum T5d-R at $\frac{1}{2}$ power in a small softbox from a few feet away. (Nikon D2X; AF DC-Nikkor 135mm f/2D; ISO 100)

signals in either digital or analog form. Digital systems, like PocketWizards and Radio Poppers, are much more reliable and are not affected by local radio signals. Some photographers use, as part of their standard equipment, a separate transmitter for each camera being used (for instance, an assistant's camera), as well as a separate transmitter for the handheld flashmeter, allowing the photographer to take remote flash readings from anywhere in the room.

Nikon's Creative Lighting System (CLS). Some of the latest DSLRs and their TTL flash systems allow you to set up remote flash units in groups, all keyed to the flash on the camera.

The latest development in electronic flash is a device Nikon calls the SU-800 Wireless Speedlight Commander. This enables you to wirelessly coordinate the

independent operation of two groups of Nikon Speedlights in close-up mode, or three groups (A, B, C) of compatible Speedlights in commander mode. In either mode, the commander manages the flash output with exceptional precision, automatically delivering the light level dictated by the camera's metering systems and supporting automatically balanced fill flash with compatible cameras.

In use, the Speedlight Commander is remarkable because you can easily control the output and ratio between flashes and verify the results on the camera's LCD. With an assistant, you can easily light scenes with multiple flashes and control the output of each flash. This simplifies the task of photographing group portraits—or, at weddings, special moments like the first dance or cake cutting—with sophisticated TTL flash lighting.



Nikon's SB-900 allows you to control up to three remote Speedlight groups and an unlimited number of compatible Speedlights. It features Auto Power Zoom coverage from 17–200mm in the FX-format and is able to discern if it is in use on an FX or DX Nikon camera. Its distance range is from 2 to 66 feet, depending on the ISO setting and the zoom-head position. It also features flash output level compensation from -3.0 to $+3.0$ EV in $\frac{1}{3}$ -stop increments in i-TTL Auto Aperture flash modes. The SB-900's bounce capability ranges from $+90$ to -11 degrees and it rotates horizontally 180 degrees to the left and right.

Mike Colón carries a small arsenal of Nikon SB-800 AF speedlights to every wedding. “I’ve been setting them up strategically around the dance floor at my weddings for a dramatic backlight or using them for my table shots to get a natural look,” he says. “I’ll throw some light on the table from behind with one of the SB-800s, and have an SB-800 on the camera, but powered down to minus two or three stops so it looks almost like the ambient light in the room is hitting the table from the front. If you took out the backlight and shot by available light only, it would look very flat. The backlighting from the speedlights makes the image pop.”

There are a variety of ways you can support one or a series of off-camera flash units.

Supporting the Off-Camera Flash

There are a variety of ways you can support one or a series of off-camera flash units. If using only one off-camera flash, triggered by the hot-shoe-mounted camera flash, a monopod is probably the most convenient and flexible. Manfrotto makes a full line of lightweight carbon-fiber monopods that are ideal for having an assistant position an off-camera flash.

Most small flash units also come with a small stand that can be used to remotely position the flash on a table or other flat surface. On the bottom of these flash stands there is also a receptacle that allows the flash to be conveniently attached to a monopod or light stand. A word to the wise, however: avoid overtightening, or the plastic flash stand will be destroyed. Another ca-

Mike Colón takes advantage of the tinted tent lighting of the reception and uses two remotely fired Nikon SB-800 AF Speedlights to light the bride and groom for their first dance.





■ The Making of a Remarkable Wedding Photograph

Marc Weisberg is a perfectionist, but when you see images like this, you know why. “It was late in the day and we were losing sun,” he recalls.

“The shadows that appear are actually from my trusty Quantum flash, mounted with a Bogen quick release plate on a Bogen tripod at camera left. Instead of using a light meter, which I use now for my large-group portraits to nail the exposure, I used my more expensive light meter, my Canon 1-D, set to manual, and dialed in the exposure while looking (at the meter scale) through the viewfinder. I shot a Canon ‘Polaroid’ to make sure that my histogram was not clipping the shadows or highlights. Then I set my Quantum flash one stop under and metered the flash output with my Sekonic L508 light meter. PocketWizards were used to trigger my Quantum flash. (I now use a Sekonic L358 with the built-in PocketWizard chip to fire my flashes and read ambient and flash output.)”

Marc created this image using a 17–35mm f/2.8 L lens on his Canon 1-D at ISO 200. The exposure was at $\frac{1}{32}$ second at f/5.7. Postproduction enhancements were used to complete the image. “The saturation was selectively bumped up with the saturation tool in Photoshop,” says Marc, “and the LucisArt filter was used with a mask—this filter wreaks havoc on the skin, so I added the mask so that I could selectively apply the effects to the dress (bringing out the delicate folds) and to the shoes and tuxedos (to bring out the highlights better). I also used the LucisArt filter with a mask to bring out texture details in the walls, terracotta tiles and plants.”



Los Angeles photographer Ben Chen used a Canon EOS-1D Mark II and 70-200mm f/2.8 lens set at 165mm to create this image of Kimberly. He fired a Canon Speedlite remotely into a shoot-through umbrella and balanced his exposure with a wide open f/2.8 aperture to get the beautiful out-of-focus background. Since the umbrella is close, the light is very soft and slightly overrides the daylight. The back-light on her hair is natural sunlight. Note that even though the speedlight is on a stand and firmly mounted, the photographer used an assistant to precisely position the light and keep it from tipping on the rough terrain.



veat with using a secondary off-camera flash in this manner is that the person holding the monopod/flash may need to point the receiver on the auxiliary flash toward the camera, depending on the distance between flash and camera. Otherwise, the radio signal may not be received and the flash won't fire. The flash head can be swiveled back toward the subject without affecting the line-of-sight between the sensor and the camera.

A sturdier way to attach a second hot-shoe flash to a monopod is with the Stroboframe Flash Mount, available from Tiffen (www.tiffen.com). The company makes rugged, machined aluminum mounts for every type of flash unit. A single set-screw holds the flash securely in its cold-shoe mount. A receptacle is built into the base so that it attaches to a monopod or light stand.

The flash head can be swiveled back toward the subject without affecting the line-of-sight between the sensor and the camera.

Even though this image looks like it was taken on daylight film under tungsten lighting, this engaging image was actually made digitally with a custom white-balance setting. The photographer used bounce flash and set the white balance to shade, about 7500K, warming up the image substantially. Photograph by Anthony Cava.





When using multiple off-camera small flash units, it is impractical to assume you will be able to have assistants manning each one. In this situation, light stands are a much better alternative. The Strobies line of stands from Interfit (www.interfitphotographic.com) are a well-designed series of lightweight stands that take the bulk out of conventional light stands to better accommodate small-flash use. As with all light stands positioned remotely at an event, they should be duct-taped to the floor so that they don't present a hazard to attendees. (Strobies also makes an ingenious device called the Flex Mount, which allows you to attach any number of exotic light-enhancing modifiers to your small flash without interrupting TTL flash performance.)

A full lineup of clamps and clips for small-flash use, or for general location mounting needs, are a mainstay of Manfrotto (www.manfrotto.com). Manfrotto's Super Clamp and Nano Clamp are excellent all-around useful mounting devices for small-flash photography on location and should be a staple in any photographer's gear bag. These devices can facilitate mounting small flash gear virtually anywhere.

Bruce Dorn made this image in a huge tree-lined pasture, which contained nothing but grass, a couple of curious horses, and an old settler's wagon. He was using a Quantum Q Flash on an iDC Magic Slipper with a PocketWizard for sync, and was approximately sixty feet from the model. He continues, "The below-the-horizon sun illuminated the western sky to frame left. I made a quick decision to deny nature and moved my softbox exactly opposite of the twilight sun. I then dialed my strobe's output to a very low setting and imagined it as my new setting sun. Now the afternoon sunlight seemed to be coming from the right-rear of the frame but the 'magic hour' sky assured that the face remained beautifully illuminated. It's all about balance." The image was finished with one of Maura Dutra's nifty textures.

4. Lighting Fundamentals for Small Flash

The Color of Light

The color of light affects the way colors are recorded in a scene and is, therefore, of concern to all professional photographers. The color of light is measured in degrees Kelvin, based on a system devised in the 1800s by British physicist William Kelvin. Kelvin heated a dense block of carbon and noted that,

Jeff Kolodny combined at least three different light sources in the scene to make a beautiful bridal formal. The doorway was lit by dim daylight with a blue tinge, while the room light was a combination of much warmer light from the chandeliers and other room lights. Jeff also popped a camera-mounted flash at less intensity than the daylight to help warm up the color balance and add a sparkle to the bride's eyes.



at different temperatures, it emitted a repeatable and measurable color of light. The particular color of light seen at a specific temperature is now called the color temperature. When the carbon, also known as a “black body radiator,” is hot enough and just begins to emit light, it is dull red. As more heat is applied, it glows yellow, and then white, and finally blue.

Electronic flashes also have specific color temperatures. For example, the color of the light emitted by a flash may be rated at 5500K when it is designed to imitate noon daylight. If the flash produces light that is 6000K, it will be on the cool (bluish) side. If it is rated at 4800K degrees, it is slightly warmer (more yellowish) than white light.

Custom White Balance. When combining ambient light sources with flash, a custom white-balance reading should be taken. You may have room-lamp brightnesses to contend with, as well. Your best bet in these situations is to shoot a few test frames with flash and ambient combined to see where your white balance is. Then perform a custom white balance procedure to balance all of the light sources harmoniously.

Alternatively, shoot in RAW capture mode, which will allow you to fine-tune the color balance after capture.

The following is a resource for determining color temperatures in Kelvin degrees in the most popular lighting situations. These readings correspond to your menu settings for white balance and are provided in order to give you an insight into the Kelvin settings of most DSLRs.

DAYLIGHT LIGHT SOURCES	COLOR TEMPERATURES
Clear Blue Sky	8000–27,000K
Misty Daylight	7200–8500K
Overcast	6500–7200K
Direct Sun, Blue Sky	5700–6500K
Midday Sun (9:00AM–3:00PM)	5400–5700K
Sun at Noon	5000–5400K
Early Morning/Late Afternoon	4900–5600K
Sunrise/Sunset	2000–3000K
ARTIFICIAL LIGHT SOURCES	COLOR TEMPERATURE
Fluorescent/Daylight	6500K
Electronic Flash	6200–6800K
Fluorescent/Cool White	4300K
Photoflood	3400K
Tungsten-Halogen	3200K
Fluorescent/Warm White	3000K
General-Purpose Lamps (200–500W)	2900K
Household Lamps (40–150W)	2500–2900K
Candle Flame	2000K

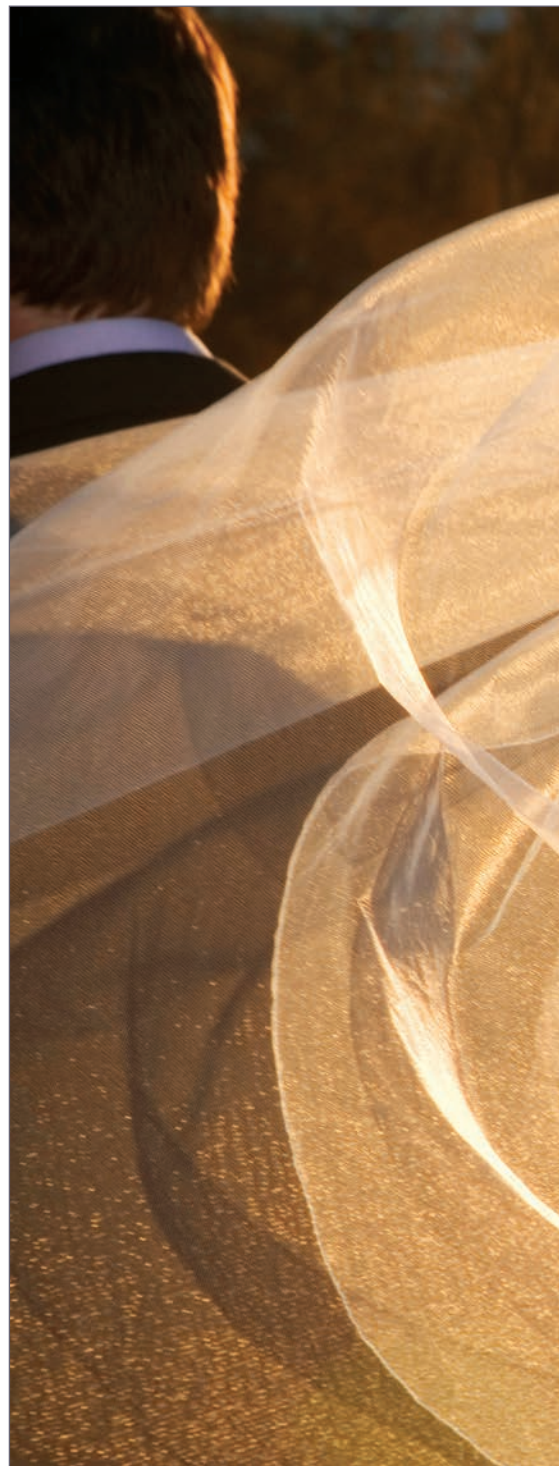


ABOVE—The natural shade of late afternoon is very soft, but also lacks sparkle. To give the light a little extra snap, the photographer, JB Sallee, fired an on-camera flash that was set to output at two stops less than the daylight. The effect is exactly what the photographer intended. FACING PAGE, BOTTOM—Kevin Jairaj photographed this couple with available light and camera-mounted fill flash. Light was coming from camera left and from behind camera. The skin tones are warm because Kevin set the white balance on his Canon EOS 10D to cloudy. The flash, just noticeable, adds a little fill and catchlights to the eyes. Kevin also shoots in RAW mode so that he can increase the saturation and adjust the white balance if the image needs it. This image was exposed for 1/45 second at f/2.8 at ISO 100.





ABOVE—Scott Eklund created this terrific action shot of a boxer in training by combining the diffused daylight of the gym with rear-curtain sync flash. The interior exposure was fairly dim and Eklund used a medium aperture so that there would be plenty of blurring in the ambient light exposure. The flash, positioned above and to the right of the boxer was set to rear-curtain sync mode so that the flash would fire at the end of the long exposure, creating speed blurs behind the flash exposure for a dramatic effect. **RIGHT**—Marcus Bell, because of his preparations, is ready for any contingency. Here, he observed the beautiful geometric circles the veil formed around the bride—and knew that only on-camera flash would bring out all of the details in the scene. Preparation is one of the main keys to success as a top wedding photographer.



Flash Synchronization

X-Sync Speed. All cameras with focal-plane shutters have an X-sync speed, the fastest shutter speed at which you can fire the camera with a flash attached and be assured the flash will register throughout the entire frame.

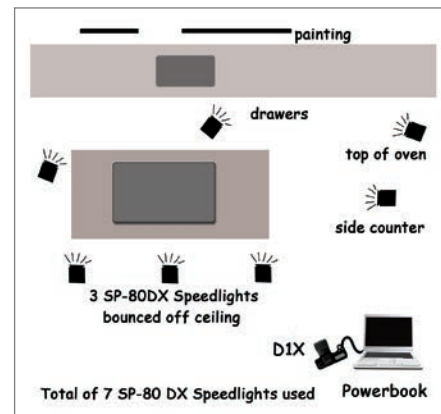
At shutter speeds faster than the X-sync speed, only part of the frame will be exposed, because the shutter curtain will block off a portion of the frame. Modern SLRs and DSLRs have X-sync speeds up to $\frac{1}{500}$ second. (*Note:* Cameras with lens shutters, on the other hand, will sync with flash at any shutter speed.)

You can, of course, work at shutter speeds slower than the X-sync speed. This allows you to incorporate available light into the scene along with the flash. There is no limit to how slow a shutter speed you can use, but you may incur subject movement at slow shutter speeds. In these situations, the sharply



rendered subject will have an unnatural shadow around it, as if cut out from the background.

Rear-Curtain Sync. Some modern electronic cameras include the ability to fire the flash just before the closing of the shutter, so that moving objects will show a streak where they came from and a sharp image where they were at the end of the exposure, useful for moving objects to convey a sense of speed. This mode is called either rear-curtain sync or second-curtain sync.



This elaborate kitchen showroom image was done on location by Christian LaLonde using seven Nikon SB-80 DX Speedlights positioned throughout the scene. These Nikon Speedlights are highly versatile because they can all be regulated differently so that their output can be fine-tuned as the shot is constructed. A Kodak SLRn with a 28–80mm Nikon lens was used and the camera had a Nikon SB-28 Speedlight mounted to the camera hot-shoe to trigger all the remote strobes. The main light was from fluorescents overhead and in order to color-correct the strobes, each SB-80 DX used .30 units of green filtration. The flash units had to have their output beam altered so that it would not spill into unwanted areas, so LaLonde used Rosco Cinefoil around the flash head to shape the light. Cinefoil is matte-black aluminum foil that can be molded into any shape and acts like a sculpted gobo to selectively block light. The final image was exposed at $\frac{1}{8}$ second at f/11 in RAW mode at ISO 160.

High-Speed Flash Sync. High-speed flash sync allows the shutter speed to exceed the X-sync limit and use the camera's maximum shutter speeds ($\frac{1}{2,000}$ second or faster). To accomplish this, the flash emits a series of pulses, rather than one burst of light. Essentially, the flash fires for the duration of the shutter curtain's travel, thus syncing with the camera's shutter speed when that speed is set higher than the camera's normal X-sync speed, usually $\frac{1}{250}$ second.

The primary drawback is that the pulsing light results in an overall reduction in light output; this decreases the range of the flash. Using high-speed sync, you will get about $\frac{1}{3}$ less range than you would if you were shooting

with normal flash sync. With a powerful flash unit, this may not be a big problem—particularly if your flash subject is fairly close to the flash. This limited range could, however, be a problem if you’re using a small flash unit with a distant subject or a low ISO.

To create these playful images, Michael O’Neill relied upon his Nikon D2X’s 3D Matrix Metering, coupled with the Nikon SB-800’s high-speed flash sync capabilities to properly expose the scene while he concentrated on directing these big, rowdy groups.





Because of its reduced power, high-speed sync is used primarily for fill-flash in brightly lit conditions. It will fill in and open up shadows in order to portray the greatest detail in subjects. It's also useful when using wide-aperture lenses—and because it allows fast shutter speeds (up to the fastest shutter speed available on compatible cameras), it is often used for action-stopping sports photography. For portraits, high-speed sync allows you to open up your lenses to their full aperture in order to isolate your subject against a blurred background without overexposing the image.

You can see all three reflected light values in this portrait of former Guns 'N Roses guitarist Slash—specular highlights (pure white), diffused highlights (gradated tone), and shadow values (all the dark areas). Photographer Gene Martin was a big believer in using speedlights combined with other lighting accessories, like soft-boxes and umbrellas, to create a studio on location.

Reflected Light Values

There are three distinct values of reflected light: specular highlights, diffused highlights, and shadow values. These are sometimes referred to collectively as lighting contrast.

Specular Highlights. Specular values refer to highlights that are pure paper-base white and have no image detail. Specular highlights act like mirrors of the light source. Specular highlights exist within diffused highlight areas, adding brilliance and depth to the highlight.

Diffused Highlights. Diffused highlight values are those bright areas with image detail.

Shadow Values. Shadow values are areas that are not illuminated or partially illuminated.



For this detail shot of the couple's wedding bands, flowers, and invitation. Michael O'Neill used a manual exposure calculated with his Minolta Flashmeter III under a Larson Starfish lightbox. According to the photographer, "My trusty Minolta flashmeter still occupies a readily accessible spot in my camera bag and gets pulled out for ambient light or manual electronic flash readings many times throughout the wedding day."

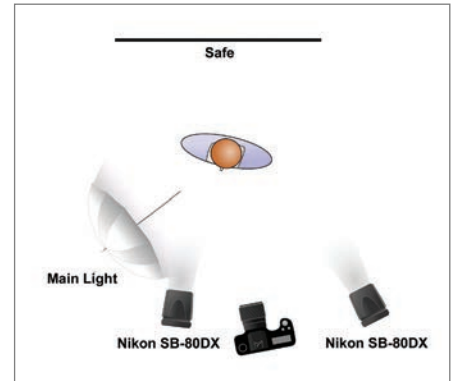
Small focused light sources have higher specular quality because the light is concentrated in a small area. Larger light sources like softboxes and umbrellas have higher diffused highlight values because the light is distributed over a larger area, and it is scattered.

Shadow Edge. The shadow edge, the region where the diffused highlight meets the shadow value, also differs between these two types of light sources. Depending on the size of the light, the distance of the light from the subject, and the level of ambient or fill light, the transition can be gradual or dramatic. With a small light, the transfer edge tends to be more abrupt (depending, again, on the level of ambient light). With larger light sources, the transfer edge is typically more gradual.

Metering for Exposure

The TTL light meters built into today's DSLRs are not totally foolproof, but they are much better than ever before. These so-called 3D metering systems take into consideration various aspects of scene brightness and tonal distribution, light to dark. Besides the uncanny accuracy of these systems, you now have the option of previewing every photograph on the camera's LCD, many of which now include more than one million dots (and you thought your iPhone looked sharp!). Lighting and exposure techniques have drastically improved due to these improved technologies.

The newest metering systems, such as Nikon's 3D Color Matrix Metering II, evaluate multiple segments of a scene to determine the best exposure by essentially splitting the scene into sections, evaluating either 420-segments or 1,005 segments, depending on the camera model in use. This system takes into account the scene's contrast and brightness, the subject's distance (via a D- or G-type Nikkor lenses), the color of the subject within the scene, and the RGB color values in every section of the scene. 3D Color Matrix Metering II also uses special exposure-evaluation algorithms that detect highlight areas. The meter then accesses a database of over 30,000 actual images to determine the best exposure for the scene. Once the camera receives the scene data, its powerful microprocessor and the database work together to provide the finest automatic exposure control available. These incredible systems also "talk"



FACING PAGE—This image of a bank director in front of the vault door was made by Christian LaLonde as a feature shot for an annual report. A Nikon D2X and 50mm f/1.4 lens were used along with a Paul C. Buff 1800 head with an umbrella as a main light. Additionally, two Nikon SB-80DX Speedlights were set at minimum power to flare on the steel and add definition. One Speedlight was set mid-height; the other one was a little lower.

■ **Continuous vs. Instantaneous Light Sources**

You can create professional-quality images with either continuous or instantaneous light sources. Continuous light sources do have one advantage over instantaneous ones: you see exactly the lighting effect you will get, since the light source is both the modeling light and the actual shooting light. With studio strobe lighting, the modeling light is only a guide to the lighting; it is not the actual light source that exposes the image. With

speedlights there is obviously no modeling light. Fortunately, LCD screens have made this almost a non-issue, allowing you to immediately preview your strobe results and make any needed adjustments. Strobe lighting is also easier to work with because you can pair it with any daylight white balance, it requires substantially less power to operate than continuous sources, and there is no heat from the lights.

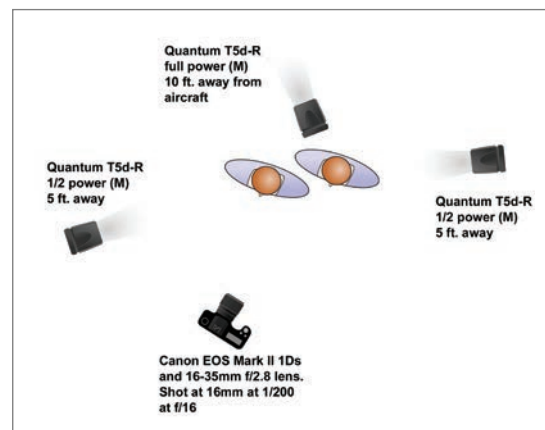




JB Sallee photographed this happy couple in front of an old TWA jetliner. The sun was used as a backlight; a Quantum T5d-R, at $\frac{1}{2}$ power and a distance of 5 feet, lit the subjects from the front. An identical flash was used 5 feet behind the subjects as a rim light. A third T5d-R was used at full power, 10 feet from the plane. (Canon Mark II 1Ds; 16–35mm f/2.8 lens at 16mm; $\frac{1}{200}$ second at f/16.) Lighting diagram © Kevin Kertz.

to the TTL flash systems to optimize not only exposure but also the ratio of flash to ambient light.

For those who still like the tangible aspects of photography, a handheld incident flashmeter is still a valuable tool for working indoors and out—but it's particularly important when mixing flash and daylight, and useful for determining lighting ratios. Flashmeters are invaluable when using multiple flashes or when trying to determine the overall evenness of lighting in a large-size room, or a large-size group. Flashmeters also function as ambient/incident-light meters, meaning that they measure the light falling on them and not the light reflected from a source or object, as the in-camera meter does.



5. Single Flash Techniques

The Three-Dimensional Illusion

Lighting, when we are referring to photography, helps in the translation process from a three-dimensional subject to a two-dimensional image. For example, the job of the portrait, fashion, or editorial photographer is to reveal the contours of the human face—to use highlights and shadows to create the illusion of roundness. A good photographer, through accurate control of lighting, can reliably produce a sense of depth in the two-dimensional medium of photography.

Two Primary Light Roles

The light sources that create virtually all lighting patterns and effects are the main light and the fill light. When working with one flash, the flash will be used as either the main light or the fill light; the ambient light in the scene will fulfill the other role.

The light sources that create virtually all lighting patterns and effects are the main light and the fill light.

Single Flash as the Main Light. The main light is what creates form, producing the interplay of highlight and shadow. The direction at which the main light hits the subject will determine how it is rendered. You can create smoothness on the subject's surface if the light is near the camera and close to the camera-subject axis; you can create texture if the light skims across the subject from the side. The main light is the primary tool of the photographic artist, allowing you to paint texture and shadow where you want it by virtue of its placement relative to the subject.

Single Flash as the Fill Light. The fill light controls the intensity of the shadows created by the main light. The best way to achieve this shadow-filling effect is to have the fill light source as close as possible to the camera-subject axis. This ensures that any shadows created by that light will be cast behind the subject and be less visible to the camera. When working with one flash, the fill light can come from the flash (with the ambient light acting as the main light) or from the ambient light (with the flash acting as the main light).

Fill from a reflector has also become quite popular in all forms of photography. The reflectors available today are capable of reflecting any percentage



FACING PAGE—Sometimes the wedding photographer doesn't have a choice in when to make the formals. In this case, Joe Photo needed to make them at high noon. He set the sun as a backlight and decided to overpower the sun with the off-camera flash—so that the flash became the main light. He overexposed the daylight scene by 1 stop with the flash, thus wiping out the overhead shadows and creating a pleasing group portrait.

of light back on to the subject—from close to 100 percent reflectance with various mirrored or Mylar-covered reflectors to a very small percentage of light with other types. Reflectors can also be adjusted almost infinitely just by finessing the angle at which they are reflecting the fill-in light.

Small Flash as the Main Light

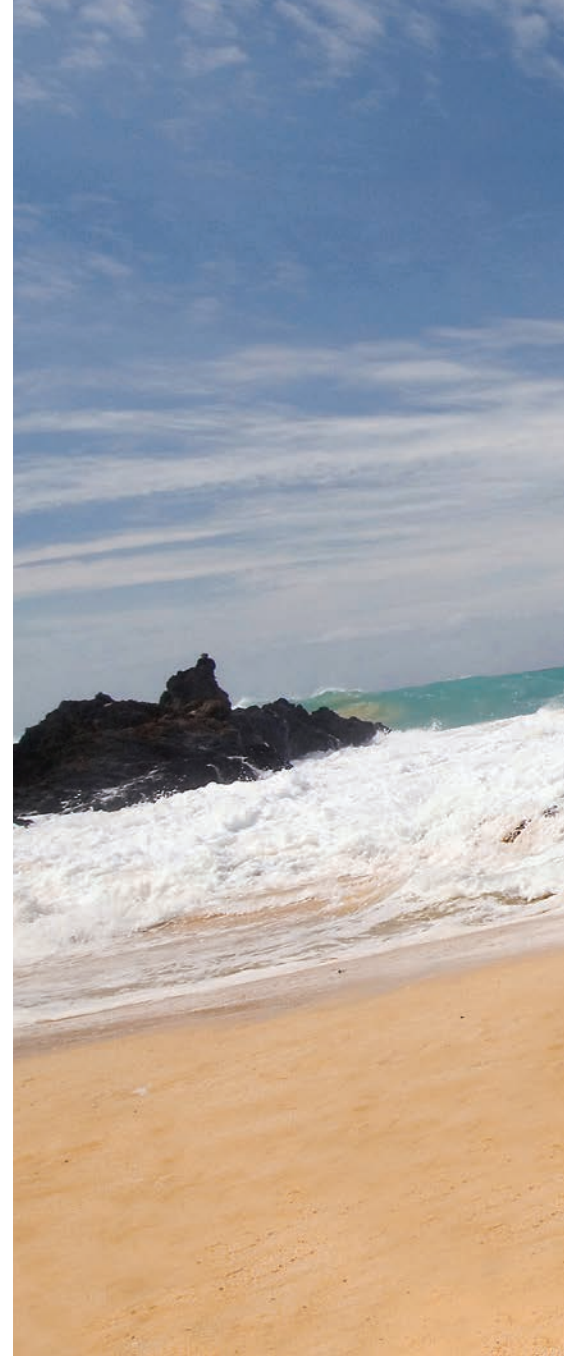
When adding flash as the main light, it is important to remember that you are balancing two light sources in one scene (flash and ambient lighting). The ambient light exposure will dictate the exposure on the background and the subjects. The flash exposure only affects the subjects.

Don't think too hard about the direction of the main light in this stylized bridal portrait; it has been altered by the introduction of a Strobe Slipper used to camera left as a soft main light. The strong shadows produced by the direct sunlight are still visible—but the portrait would have been a disaster had *that* been the primary light source for this image. The exposure was $\frac{1}{250}$ second at f/16, one stop greater than the daylight exposure for the bright sunlight. Photograph by Bruce Dorn.



To use your flash as a main light that overrides the ambient daylight, you need to adjust the flash's output or the flash-to-subject distance so that the flash will produce an exposure on the subject that is greater than the ambient light exposure. It is unwise to override the ambient light exposure by more than two f-stops. This will cause a spotlight effect that will make the portrait appear as if it were shot at night. It will also substantially darken the background.

When using flash as the main light, it is best if the flash can be removed from the camera and positioned above and to one side of the subject. This will more closely imitate nature's light, which always comes from above and never



Kevin Jairaj created this beautiful portrait of a bride and groom for print competition. Kevin often shoots in the RAW format so he can adjust the skin tones and lighting subtleties after the capture. For this image, he used a single off-camera diffused flash to light the couple and had an assistant “drop” the veil an instant before exposure so it would look like it was suspended in midair.



Sometimes wedding photographers are forced to work by mid-day sunlight, as was the case here. Gordon Nash fired a strobe from camera left. This was slightly less powerful than the daylight in order to counteract the sunlight directly overhead. The image was made with a Nikon D200 and 12–24mm f/4.0 lens.

head-on. Moving the flash to the side will improve the modeling qualities of the light and show more roundness in the face.

Saturating the Background. To shoot for optimal color saturation in the background, you can overpower the daylight with flash. For example, if the daylight exposure was $\frac{1}{15}$ second at f/8, you might adjust your flash output so your flashmeter reading is f/11—a stop more powerful than the daylight—then, set your camera to $\frac{1}{15}$ second at f/11. At these settings, the flash functions as the main light and the ambient light works as the fill light. Do not underexpose your background by more than two stops, however, or you will produce an unnatural nighttime effect. This technique works best when the flash is diffused and placed at an angle to the subjects so there is some discernible lighting pattern.

Overcast Days. When the flash exposure and the daylight exposure are identical, the effect is like creating your own sunlight. This works particularly well on overcast days. Position the flash to the right or left of the subject and elevate it for better modeling. If you want to accentuate the lighting pattern and darken the background, increase the flash output to $\frac{1}{2}$ to one stop greater than the daylight exposure and expose for the flash exposure.

Many times this effect will allow you to shoot out in open shade without fear of creating shadows that hollow the eye sockets. The overhead nature of the diffused daylight will be overridden by the directional flash, which creates its own lighting pattern. One suggestion is to warm up the flash by placing a warming gel on the flash. The gel will warm the facial lighting, but not the rest of the scene. It's a beautiful effect.

Bright Sunlight. If you are forced to shoot in direct sunlight (the background or location may be irresistible) position your subject with the sun be-

■ Check the Background

It is important to check the background while composing a portrait in direct sunlight. Since there is considerably more light than in a portrait made in the shade, the tendency is to use an average shutter speed like $\frac{1}{250}$ second with a smaller-than-usual aperture like f/11. Small apertures will sharpen the background and distract from your subject. Preview the depth of field (by magnifying the image on your LCD) to analyze the background. Use a faster shutter speed and wider lens aperture to minimize background effects in these situations. The faster shutter speeds may also require the use of high-speed flash sync so that you utilize faster shutter speeds and lower lens apertures.



Greg Gibson's base exposure for the scene was $\frac{1}{20}$ second at f/2.8. He fired a balanced TTL on-camera flash to freeze his subjects and ensure he would not lose the priceless moment. Notice that the combination of straight flash and available light is not nearly as harsh as direct flash when it overpowers the existing light.



This colorful shot was made in the late afternoon in spotty sunlight. To unify the lighting and override it to some extent, Cherie Steinberg-Coté used a Nikon Speedlight from camera right to equalize the lighting. The image was made with a Nikon D3 and 24–70mm f/2.8 lens. The exposure was $\frac{1}{250}$ second at f/7.1 at ISO 250.

■ Room Lamps

Many hotels use coiled fluorescent bulbs instead of tungsten-filament bulbs in their room lamps. Be on the lookout for them; these fluorescents will not have the same warming quality as tungsten bulbs and could turn things a bit green. You may have to change your white balance (or use a custom white-balance setting) in these situations.

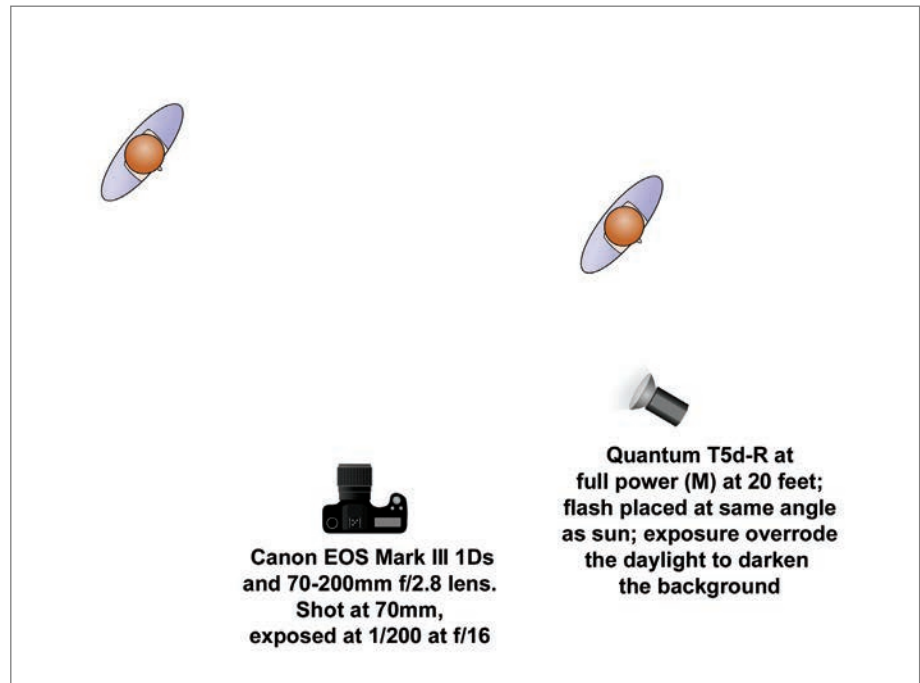
hind them and use flash to create a frontal lighting pattern. The flash should be set to produce the same exposure as the daylight. The daylight will act like a background light and the flash, set to the same exposure, will act like a main light. If your exposure is $\frac{1}{500}$ second at f/8, for example, your flash would be set to produce an f/8 on the subject. Position the flash to either side of the subject and elevate it to produce good facial modeling. An assistant or light stand will be called for in this lighting setup. You may also want to warm the flash output with a gel. This is when DSLRs are really handy.

Dragging the Shutter. Dragging the shutter means using a shutter speed that is slower than the flash-sync speed in order to expose the background properly using the ambient light. Leaving the shutter open after the flash pops allows you to incorporate the ambient light, matching the flash exposure and the ambient-light exposure.

Begin by taking an incident reading of the ambient light. Let's say, for the purposes of example, that the exposure from a combination of room light and window light is $\frac{1}{30}$ second at f/4 at ISO 320. If you set up your flash to fire at



LEFT—TTL-balanced fill flash is extremely accurate with today's DSLRs and dedicated flash systems—even when a diffuser is placed over the flash head, as was done here. Cherie Steinberg-Coté made this wonderful fashion portrait of a bride in a black veil on a downtown Los Angeles bridge. Her main lighting was Matrix-balanced fill flash with a Nikon D70 and SB-80 DX Speedlight. These systems are so precise that you can set flash or exposure compensation in $\frac{1}{3}$ stops and the system will defy your imagination with its uncanny accuracy, allowing the photographer to concentrate on her creativity and not the nuts and bolts of on-location flash fill.



JB Sallee used a Quantum T5d-R at full power from 20 feet away on the same angle as the sun to light the bride on her horse. That single strobe was used for fill on the subject—and because the exposure was biased toward the flash to overpower the daylight exposure (darkening the background). JB used a Canon Mark EOS III 1Ds and 70-200mm f/2.8 lens. The image was shot at 70mm at $\frac{1}{200}$ second at f/16 at ISO 100. Diagram © Kevin Kertz (www.kevinkertz.com).

the flash-sync speed at f/8, for example, you would overpower the background light completely and the image would look like it was taken in a dark, unlit room. However, if you use the same shutter speed as the ambient light exposure— $\frac{1}{30}$ second—and power down your strobe to create an f/4 output, you will precisely blend the two light intensities. If you wanted the portrait part of the scene to be a little brighter than the background, which is often the case, you would set your flash to produce an output between f/4 and f/5.6, slightly overpowering the ambient light (by $\frac{1}{2}$ stop).

Small Flash as the Fill Light

Here is how you determine accurate fill-flash exposures every time. First, meter the daylight with an incident flashmeter in “ambi” mode (when using flash for fill-in, it is important to carry a digital flashmeter to determine the intensity of the flash). Say, for example, that the metered exposure is $\frac{1}{30}$ second at f/8. Next, meter the flash only. It is desirable for the flash output to be one stop less than the ambient exposure. Adjust the flash output or flash distance until your flash reading is f/5.6. Set the camera to $\frac{1}{30}$ second at f/8. That’s it. You can set the flash output from f/8 to f/5.6 and you will not overpower the daylight, you will only fill in the shadows created by the daylight and add sparkle to the eyes.



Cross Lighting. If the sun is low in the sky, you can use cross-lighting (split lighting) to get good modeling on your subject. Almost half of the face will be in shadow while the other half is highlighted. Turn your subject into the light so as not to create deep shadows along laugh lines and in eye sockets. If photographing a group, you must also position your subjects so that one person's head doesn't block the light of the person next to him or her. There must be adequate fill from the shadow side of camera so that the shadows don't go dead. Try to keep your fill flash output equal to or about a stop less than your daylight exposure.

Twilight. One problem that occurs when working with this light is that twilight does not produce catchlights—white specular highlights in the eyes of the subjects. For this reason, most photographers augment the twilight with flash, either barebulb or softbox-mounted, to provide a twinkle in the eye. The flash can be up to two stops less in intensity than the skylight and still produce good eye fill-in and bright catchlights.

TTL Fill. Many TTL flash systems feature a mode that adjusts the flash output to the ambient-light exposure for balanced fill-flash. Immediately before the main flash goes off, the unit fires a series of monitor pre-flashes; these convey information about the scene's lighting to the camera. Combined with information from the camera's metering system, the information is analyzed to adjust flash output to balance the scene's ambient light.

Tibor Imely says of this shot, "It all happened really quickly. Everyone was waiting for the bride and groom to enter the reception for the introduction. I looked behind me and three feet away were these three little girls with their arms around each other. When I aimed the camera at them they came up with these incredible expressions. I made only one shot." The image was made with a Canon EOS 10D, 16–35mm f/2.8 zoom and bounce flash.

Many such systems are also
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output compensation . . .

Many such systems are also controllable by virtue of flash-output compensation that allows you to dial in full- or fractional-stop output changes for the desired ratio of ambient-to-fill illumination. They are marvelous systems and, of more importance, they are reliable and predictable. As long as the photographer is in TTL flash mode, the flash will react as programmed, cutting or increasing output as you desire in order to optimize the combined lighting of flash and existing light.

Some of these systems also allow you to remove the flash from the camera with a TTL remote cord or to set up remote flash units in groups, all keyed to the flash on the camera. You could, for instance, photograph a family group with four synced flashes remotely fired from the camera location, all producing the desired output for the predetermined flash-to-daylight ratio.

Bounce Flash Techniques

Portable electronic flash is the most difficult of one-light applications. Because portable flash units do not have modeling lights, it is impossible to preview the lighting effect you will achieve. Still, when it is bounced off the ceiling or a side wall, portable flash produces efficient wraparound lighting that illuminates portrait subjects beautifully. The key is to aim the flash unit at a point on the wall or ceiling that will produce the widest beam of light reflecting back onto your subjects. Also, keep in mind that you should never bounce flash off colored walls or ceilings. The light reflected back onto your subjects will be the same color as the walls or ceiling and it will be almost impossible to correct, whether you're shooting film or digital.

Portable flash units do not have modeling lights, so it is impossible to see beforehand the lighting effect that will be produced. However, there are cer-

■ Watch the Skin Tones

A problem you may encounter is cool coloration in portraits taken in shade. If your subject is standing in a grove of trees surrounded by foliage, there is a good chance green will be reflected into the skin tones. Just as often the foliage surrounding your subject in shade will reflect the cyan of an open blue sky.

In order to correct green or cyan coloration, you must first observe it. Your eyes will become accustomed to seeing the off-color rendering, so you will need to study the faces carefully—especially the coloration of the shadow areas of the face. If the color of the light is neutral, you will see gray in the shadows. If not, you will see either green or cyan.

Before digital capture, if you had to correct this coloration, you would use color-compensating (CC) filters over the lens. These are gelatin filters that fit in a filter holder. To correct the

color shift, you would use the complementary filter to neutralize the color balance of the light. With digital you only need to perform a custom white balance or use one of the camera's pre-set white balance settings, like "open shade." Those who use the Wallace ExpoDisc swear by its accuracy in these kinds of situations. By correcting the white balance, there is no need to color-correct the scene with filters.

There are times, however, when you want the light to be warm, not just color-corrected. In these situations, you can use a gold-foil reflector to bounce warm light into the faces. The reflector does not change the color of the foliage or background, just the skin tones.



Construction workers were photographed on the fourteenth floor of a new building under construction. Photographer Christian LaLonde notes that there were no elevators, so creating the shot turned out to be “one heck of a workout!” The image was produced with a Hasselblad and 50mm lens. One Nikon SB-800 Speedlight, used with a PocketWizard, was bounced off a reflector hidden behind the bricks to add a slight fill to the space and on the workers.

tain ways to use a camera-mounted flash in a predictable way to get excellent lighting.

Bounce flash is an ideal type of portrait light. It is soft and directional. By bouncing the flash off the ceiling, you can achieve an elegant, soft light that fully illuminates your subjects. You must, however, learn to gauge angles and distances when using bounce flash.

One problem with bounce flash off the ceiling is that it results in overhead lighting. With high ceilings, the problem is even worse—the light is almost directly overhead. To resolve this issue, a number of devices, like the Lumiquest ProMax system, are available to direct some of that bounce light directly toward the subject. These accessories mount to the flash housing and transmit 10–20 percent of the light forward onto the subject, with the remainder of the light being aimed at the ceiling. This same company also offers devices like the Pocket Bouncer, which redirects light at a 90 degree angle from the flash to soften the quality of light and distribute it over a wider area. When using these

devices, no exposure compensation is necessary with automatic and TTL flash exposure systems (although operating distances will be somewhat reduced).

You don't necessarily have to use your flash-sync speed when making bounce flash exposures. If the room-light exposure is within a stop or two of your bounce-flash exposure (let's say this is $\frac{1}{125}$ second at $f/4$), you can select a slower shutter speed to record more of the ambient room light. For example, if the room light exposure is $\frac{1}{30}$ second at $f/4$ you could expose the bounce-flash photos at $\frac{1}{30}$ second at $f/4$ for a balanced flash and room-light exposure. Be wary of shutter speeds longer than $\frac{1}{15}$ second, however; you might incur camera movement or subject movement (the flash will freeze the nearer subject

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to use your flash-sync speed
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exposures.

Marcus Bell made this memorable image of the bride descending a circular staircase by pushing the limits of the available light. A very slow shutter speed of $\frac{1}{15}$ second was required to record the three levels of the photograph. A bounce flash at the top of the stairwell, where Bell was located with a very wide-angle lens, put just enough light on the bride to make her the focal point of the composition. The wall sconces and lights at the foot of the stairs brought the overall light level up to a point where Marcus could make a $\frac{1}{15}$ second exposure with the bounce flash.





Bounce flash is often the only way to make good exposures on wedding day. Here, Jeffrey and Julia Woods isolated an intimate moment between bride and groom by selecting a high vantage point, a 180mm lens to fill the frame, and bounce flash to light the scene. (Nikon D1X; 180mm f/2.8 lens; $\frac{1}{125}$ second at f/2.8; bounce flash)

although the longish shutter speed might produce “ghosting” if your subject is moving). These effects can actually be quite interesting, and many photographers incorporate a slow shutter speed and flash to record a sharp image over a moving one for a painterly effect.

Bounce Flash Exposure. The best way to determine exposure is to fire a bounce test and review it on the camera’s LCD. If the scene requires more flash at the exposure settings you’ve established, add flash output in $\frac{1}{3}$ -stop increments or adjust exposure settings.

If using an integrated TTL flash system, merely set your basic exposure settings as if you were not using flash, turn on the flash unit, set the bounce mode and position of the flash head and fire away. Evaluate the test exposure on the camera’s LCD to determine if (1) the ambient light is too bright or too dim—adjust exposure settings accordingly; and (2) if the flash exposure is too bright or too dim—adjust the flash output in $\frac{1}{3}$ -stop increments until you achieve the effect you desire. Personally, I prefer the strobe exposure to be about $\frac{1}{2}$ to 1 full stop more intense than the ambient light so that it is the dominant lighting in the scene.

However, if you wish to incorporate some of the light in the room, you may reduce the flash output to make it more of a fill light. This often occurs when window light is the defining light source. These times the flash is good for filling in shadows and lessening lighting ratios.

TTL flash systems, particularly those made by Nikon and Canon, produce amazingly accurate exposures in bounce-flash mode. Further, the bounce-flash output can be set to correlate to the available light-meter reading in fractions of f-stops, meaning that you can set your flash to fire at $\frac{1}{3}$ stop less intensity than the daylight reading, for perfect, unnoticeable fill flash. Conversely, you

To incorporate some of the light in the room, reduce the flash output to make it more of a fill light.

can set your bounce exposure to fire at one stop over your daylight reading to overpower problematic room light. The versatility of these systems is remarkable and both manufacturers' systems have been refined over six and seven generations, making them virtually foolproof and fully controllable.

Here, Jeff Kolodny used a 10.5mm f/2.8G ED AF DX Fisheye-Nikkor lens on a Fujifilm FinePix S2 Pro camera to create a wonderful wide-angle effect. Notice that the roses, very close to the lens, look huge, while other aspects of the scene recede in size quite dramatically. This is a normal fisheye lens effect that is exaggerated the closer objects are to the camera. The 10.5mm Nikkor lens is designed for digital imaging and produces the effect of a 15mm fisheye lens with the smaller size imaging chip on the FinePix S2. Jeff used bounce flash to freeze the bridesmaids and captured the scene at $\frac{1}{8}$ second at f/6.7 with an ISO of 800.



A dark hallway and a priceless moment—there was no time for anything but bounce flash off the ceiling. This not only preserved the moment, it was also the perfect lighting choice for this spontaneous image, giving it a journalistic, real-time look. Photograph by Marcus Bell.





ABOVE—When working with the bride getting ready in dressing rooms, hotel rooms, etc., Joe Photo leaves a bounce flash on his D1X or D2X. The flash has a reflector that kicks a small percentage of the light forward rather than straight up. The result is a bounce flash with a little direction to it. This image was made with 17mm f/2.8 lens wide open.

LEFT—Greg Gibson made this image with a Canon EOS-1D Mark II N and EF 16-35mm f/2.8L USM lens at 16mm. He lit it with bounce flash off the white tent's ceiling.

FACING PAGE—Bruce Dorn captured this image with a Canon 1-Ds Mark III and two Canon 580EXII Speedlites. Flash synchronization was provided via one Radio Popper transmitter and one Radio Popper receiver. The off-camera flash was handheld by an iDC Strobe Slipper with a Missing Link riser and a small Westcott softbox. In this image, the softbox was off to Sara's right, almost behind her, producing an elegant edge light. The on-camera speedlight provided a pleasant, but not overpowering, overall level of fill light.



6. Multiple Flash Techniques

Lighting Group Portraits

A common location assignment is photography of a group of people—a family reunion at a home, executives in a boardroom, employees at a factory, etc.

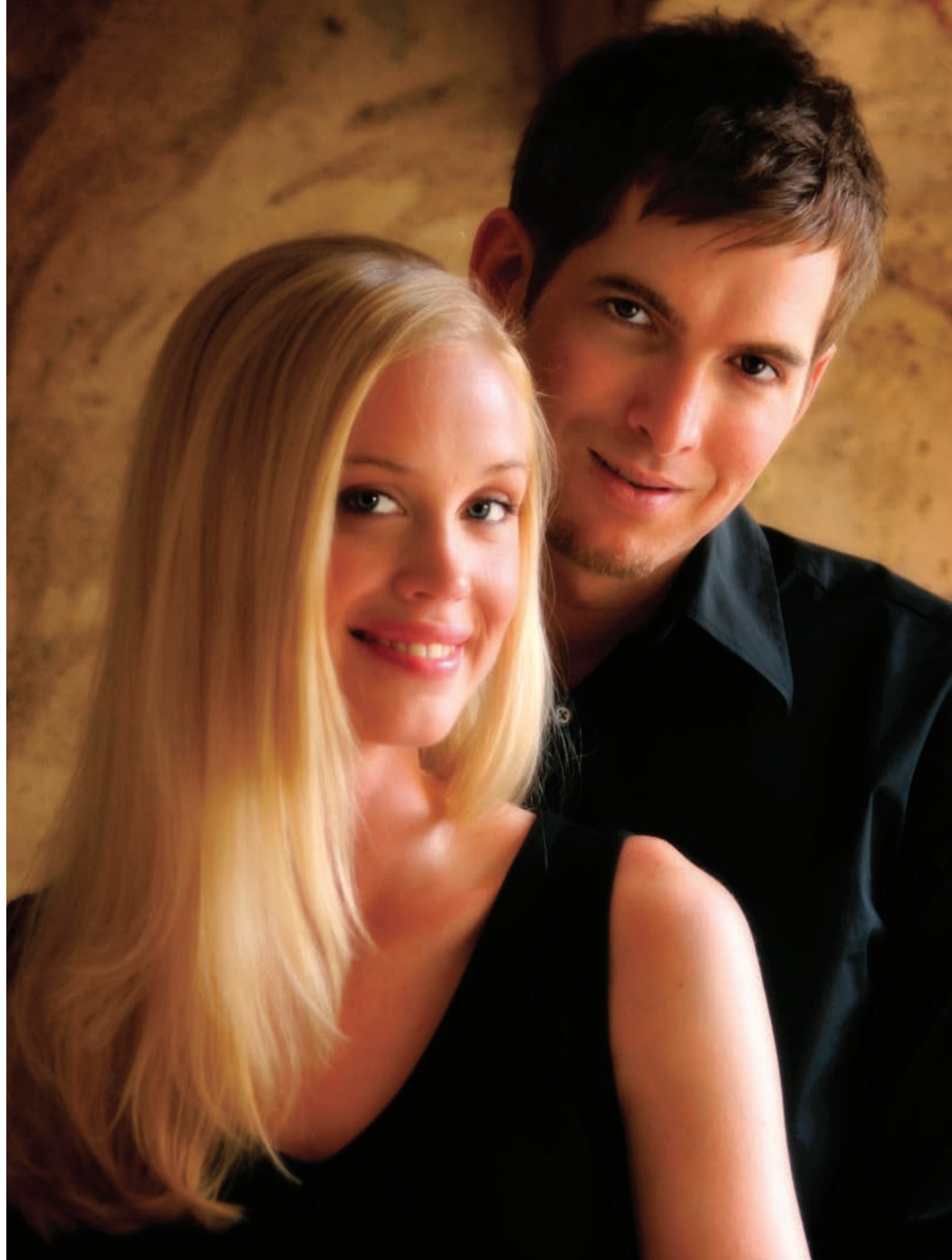
Types of Lights. Umbrella lights are the best choice for lighting large groups. Usually, the umbrellas are positioned on either side of the camera, equidistant between the group and the camera, so the light is even. The lights should be feathered so there is no hot center to the lighting. These units should also be slaved (with either radio or optical slaves) so that when the photographer triggers the main flash, all of the umbrellas will fire in sync.

Another means of lighting large groups is to bounce undiffused flash off the ceiling to produce an overhead type of soft light. This light will produce an even overall lighting but not necessarily the most flattering portrait light. You can, however, pair this light with a more powerful (by about one stop) umbrella flash at the camera. Placed slightly higher than the group and slightly to one side, this will produce a pleasant modeling effect. The bounce light then acts as fill, while the umbrella flash acts as the main light. Be sure to meter the fill and the main lights separately and expose for the main.

This group portrait pushes the limits of the light. Bars are notorious for being dimly lit, so Kevin Jairaj photographed the bridal party using both room light and bounce flash. Kevin had to lower the base exposure to record the room lights, a technique known as “dragging the shutter.” He chose f/4 rather than f/2.8, the lens’s maximum aperture, to control some of the aberrations and sharpness problems that occur with ultra wide-angle lenses used wide open. (Canon EOS 5D; EF 16–35mm f/2.8L USM lens; $\frac{1}{30}$ second at f/4; ISO 1250; bounce flash off the ceiling at the same output as the base exposure)



Kevin Jairaj says the lighting was not tricky for this shot—but finding good lighting like this is. The image was shot in an outdoor hallway with light coming in from camera right. According to Kevin, “It was really dark in the hallway except for the nice light coming in. I used just a touch of fill-flash to get some sparkle in the eyes.” The shot is warm toned because he selected a “cloudy” white balance setting. He also shoots in RAW mode so he can increase the saturation a little if need be. (Canon 20D; 70–200mm IS L lens at 130mm; $\frac{1}{20}$ second at f/2.8; ISO 100)



What is important is that you
create a one-light look, as
you’d find in nature.

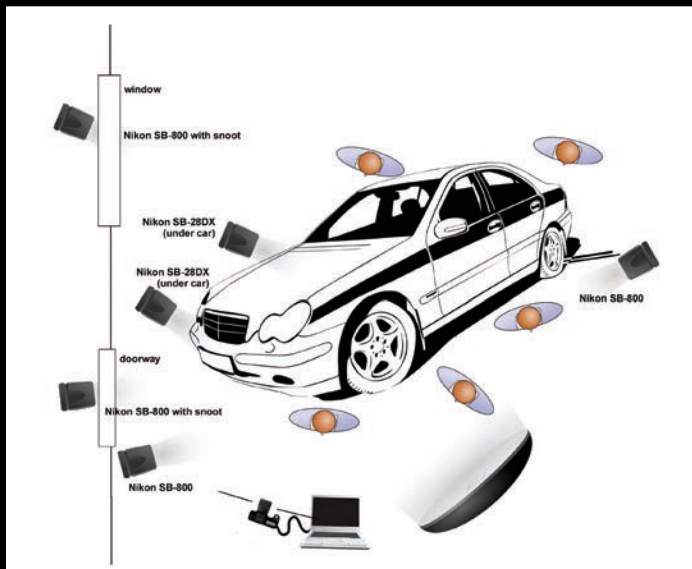
Even Lighting. It is imperative that the lighting is even across the group—left to right and front to back. Any deviation of more than $\frac{1}{3}$ stop will be noticeable, particularly if shooting digital in the JPEG mode. It is a good idea, when you set the lights, to have an assistant meter the ends and center of the group to confirm that the lighting is even.

Light Positions. Your goals should be getting the lights high enough to model the subjects’ faces and placing the light off to the side so that it is not a flat frontal lighting. But again, these aspects of the lighting are dictated by the size of the group and the area in which you must photograph them. What is important is that you create a one-light look, as you’d find in nature, with no double sets of shadows.

■ Small Flash On Assignment

Christian LaLonde received an assignment from *Reader's Digest* to photograph a high school auto mechanics teacher and his class who were making a car for regional races. LaLonde drew a sketch of his ideas to help his assistant visualize what he was imagining. The main light was a Lumedyne 400W pack triggered by a PocketWizard with an umbrella on a Manfrotto Mini Boom on a stand. To get the depth of field he needed, he set his main light source for f/8. He set up four Nikon SB-800 and two Nikon SB-80DX Speedlights to create accents and separation on each person. He set up one light at a time, having the students stand in for test images. This helped in the end because the students clearly understood what LaLonde was trying to achieve.

The first light was positioned on the left side of the camera in front of the car. The second SB-800 was placed on the right in back of the car to light up the entire side. As LaLonde was setting his lights, he made test images to see what his lighting was doing so that he could find the perfect exposure. Next, he positioned three of the students on the car and set up the third



SB-800 Speedlight in a doorway on the left side of the camera. Initially, this was splashing the light in too wide an arc, so LaLonde made a snoot with black foil.

After positioning the last student on top of the car, LaLonde realized that he needed more light on her. He set up the fourth SB-800 Speedlight with a snoot in a storage room at the back left of the car and pointed it through the glass directly at the back of the student. He added two SB-28DX lights underneath the car to give separation between the wheels and floor.

Because of all of the lights and the wide-angle lens, he was having a flare problem. To solve it, he used two Lightshaper sheets clamped on stands on either side of the camera.

Shooting with his camera tethered to a laptop lets LaLonde see and play with his RAW files immediately. He applied a Camera Raw effect that he created called "Cartoon," which made the subjects jump out from the background and gave the images depth and a cartoon-like feel. Before he was done, LaLonde did several different set-ups, modifying the lighting and moving the camera and subjects. This session took approximately one hour and 45 minutes from setup to break down. Before leaving the garage, the files were backed up on an Epson P3000 portable drive.

LaLonde used a Nikon D2X with a Sigma 15-30mm lens. Image photographed in RAW/NEF mode and converted to DNG format. Main light was a Lumedyne 400W pack, four Nikon SB-800 and two SB-28DX units were also used. The flash output was 100W/S with various output settings for Nikon strobes (from $\frac{1}{8}$ to $\frac{1}{2}$ power). The computers used were a Mac PowerBook and a Mac G5 Quad Core and the software included Nikon Camera Control Pro, Bridge, Adobe Camera Raw and Adobe Photoshop.



The camera was positioned directly in front of a softbox for a ring-light effect. Two Nikon SB-80 strobes illuminated the background to pull a clean white. Careful exposure was critical to maintain good detail throughout the white tones and jewelry. Photograph by Anthony Cava.



The light will be
less diffused the farther
you move it back.

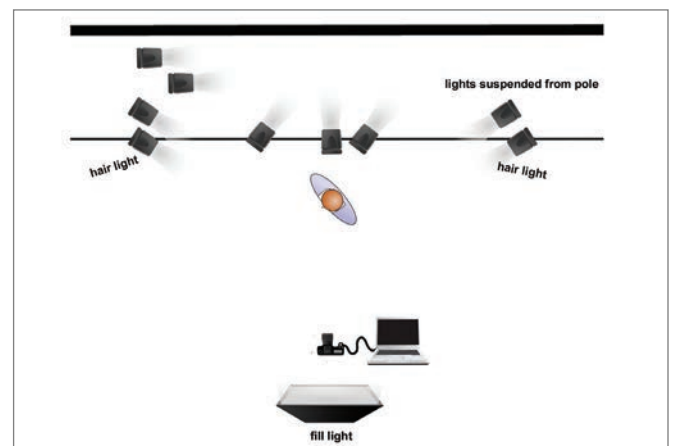
Another trick is to move the light source back so that it is less intense overall, but covers a wider area. The light will be less diffused the farther you move it back.

Focus. Since you will be using the lens at or near its widest aperture, it is important to focus carefully. Focus on the eyes and, if necessary, adjust members of the group forward or backward so they fall within the same plane of focus. Depth of field is minimal at these apertures, so control the pose, focus as carefully as possible, and be sure light falls evenly on all the faces.

Room Lights. Sometimes, flicking on a few room lights will produce good overall fill by raising the ambient light level. If you do this, however, be sure to make a few test shots to make sure the flash does not overpower the room's ambient light. Keep in mind that you will get a warm glow from the tungsten



Here is yet another mind-boggling speedlight setup from Christian LaLonde. This image was made for a new martial arts school. The client wanted something really dramatic, displaying some moves. The image was done in an abandoned industrial site (a steel mill, Christian recalls). As you can see in the diagram, five Nikon Speedlights were attached to a pole suspended above the set in order to light the flocked background, which really ate up the light. Two stand-mounted Speedlights were used for edge lighting on the kung-fu master. Two more were used to skim the background, revealing texture. A single Speedlight in a softbox was used over the camera to provide frontal fill. All of the flash units were controlled from the camera position, using the Nikon's onboard Flash Commander. The image was shot with a Nikon D2X and 50mm f/1.4 lens, with the camera and lens tethered to Christian's Mac Powerbook.



room lights if you are using daylight white balance setting. This is quite pleasing if it's not too intense.

It is also a good idea to have a room light in the background behind the subjects. This opens up an otherwise dark background and provides better depth in the portrait. If possible, position the background room light behind the subject, out of view of the camera, or off to the side, out of the camera's field of view so it lights the wall behind the subjects.

Multiple Flash Exposures

Suppose you are shooting an interior where everything is completely static, and your strobes are set for maximum light output yet only produce an f/11.



The image started out by locking down the Nikon D700 and Sigma 15-31mm f/3.5-4 lens at an exposure of 0.4 seconds at f/11. Those settings could not change or the image would have varying degrees of sharpness and depth of field. You can see from the progressive images, that Christian LaLonde's assistant wanders through the scene lighting specific areas with an SB-800 strobe on a fully extended monopod triggered by a PocketWizard. At Christians's direction, he illuminates specific areas of the scene that need highlighting. The SB-800 was used with a manual setting and the power was varied depending on height and spread of the zoom in the flash head. For some exposures, Christian also used black Cinefoil to snoot the flash and avoid splashing light everywhere. A total of *twenty-six* separate flash exposures were needed to make this shot. Only a handful are shown here, so you can get the basic idea of how the image was made. Each of the frames became a separate layer in the final composite. According to Christian, "That's exactly how I do it. I cut out what I need, layer it on top of my main base image, then mask out more precisely. Once the layers are all in sync and arranged appropriately, I correct the lines and retouch the image. The image took approximately twenty minutes to shoot and thirty minutes to complete in Photoshop."



base image



final image

In reviewing the scene on the LCD, you determine you need an aperture of at least $f/22$ to get all aspects of the scene sharp. The solution is to create a multiple-exposure, wherein the camera is firmly tripod-mounted and the shutter can be activated with an electronic shutter release so that multiple exposures are allowed. This technique is used frequently in both architectural and interior photography.

How many additional exposures are needed? To double the amount of light (taking you from $f/11$ to $f/16$) you would create two identical exposures on one frame. This is with all speedlights firing. To double the amount of light again, you would create four more exposures on a single frame (a total of six pops). That will produce an $f/22$ exposure. You have effectively doubled the light output twice.

One caveat: wait until you see the ready light glowing on the main flash before you fire it for subsequent multi-exposures. If the speedlights are not fully recycled, they may not fire at all—which will negate the results of your careful testing.

These drinks were photographed in the studio using Nikon SB-800 Speedlights; their short flash duration allowed the photographer, Christian LaLonde, to freeze the splash. Four SB-800s were aimed at a white background and one SB-800 was positioned at camera left, lighting the splashing fruit drinks. The triggering was done by trial and error. Two images were combined to create the final look, and a blue tint was added to this version.



This is a portable light tent from Lastolite with the background slot open to reveal the backdrop. This feature is helpful for producing studio lighting on small objects with outdoor backgrounds.



Tabletop Lighting

Sweep Tables. One of the basic tools of tabletop lighting is the sweep table (sometimes called a cove). This is a translucent Plexiglas table molded into a sweep shape with no horizon line. This allows you to create seamless product photography with even, shadowless lighting. The idea behind the sweep table is that light can be directed onto the subject from any of many possible directions, including underneath. If the overhead lighting matches the intensity of the underneath lighting coming through the Plexiglas, it will be shadowless. Sweep tables come with a variety of accessories, including an exterior frame that will support diffusion material so that the table can be made into a light tent for completely uniform lighting.

Light Tents. Light tents are nothing more than translucent tents that completely surround a subject. Lights are placed outside the tent to illuminate the subject. A small slit or hole is left in the tent surface so that the camera lens can be positioned.

Light tents are ideal for lighting small, reflective objects—like jewelry, which has dozens of curved, highly reflective surfaces. The idea is to surround the subject in diffused light that is scattered by the translucent tent material. When photographing reflective objects, everything will reflect the tent surface, which reads as diffuse white. For highlight transitions, small strips of opaque tape are often applied to the inside of the tent surface. Depending on the geometry of the object, these will reflect as black or gray on the object's surface.

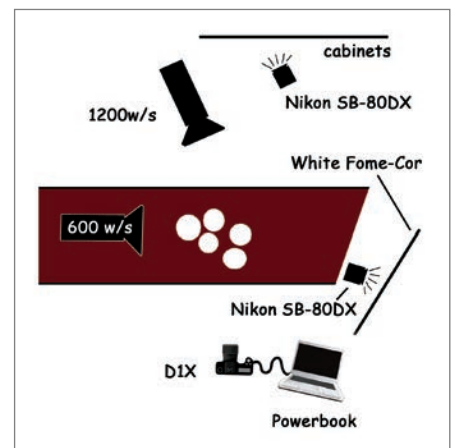
Even if you are good at geometry and at determining angles of reflection, complex shapes require lighting by trial and error. You will need to experiment with light placement and distance, as well as transitions within the highlights,

Light tents are ideal for lighting small, reflective objects—like jewelry, which has dozens of curved, highly reflective surfaces.

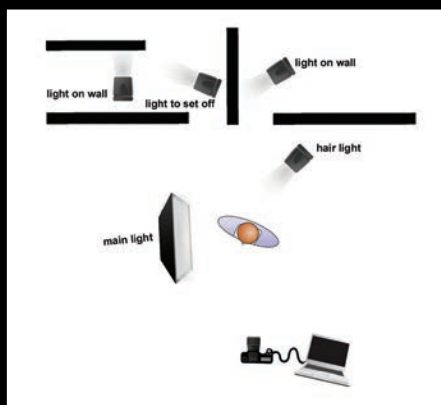
and subject placement. Each reflective object is different and will call for a different means of lighting.

Lighting Reflective Objects

The rule of thumb when lighting a reflective surface is to light what is reflected into the surface, rather than the surface itself. Any light shining onto a highly reflective surface, such as glass or metal, will reflect directly into the camera, creating hot spots or specular highlights. Such highlights will be unavoidable if the reflective surface is curved, but the idea is to control what is reflected into the shiny surface. Black will not register as a reflection; it will disappear. White will register as a milky white highlight, depending on the reflectivity of the surface and the distance of the white card from the subject. Transitions within the highlight area are important. For this reason, photographers will often tape black or gray strips onto the white card that is being reflected by the shiny surface.



Christian LaLonde created this gorgeous beer shot using multiple Bogen strobes (see diagram) and several Nikon SB-80 DX Speedlights as wireless remote strobes for accent lights. The big strobes were used to create backlighting so that the light would skim the foam. His Nikon D1X was tethered to a Mac Powerbook so that he could check sharpness across the image. The Powerbook acts like a giant viewfinder on which to check subtle image details, which is a real advantage for clients or art directors on site. The image was shot in RAW mode at ISO 125 and $\frac{1}{125}$ second at f/8.



Christian LaLonde wanted to create an interior portrait that contained a lot of depth. He used a 600W/S beauty dish as the main light, then added an array of Nikon Speedlights (see diagram), triggered by PocketWizards, to light the concrete walls, highlighting selected regions and letting the light fall off to shadow quickly. This enhanced the overall feeling of depth in the image.

■ Executive Portraits On Location

Christian LaLonde shot the large image below (right) for the cover of an annual report. All the images he did of the company employees and directors were done with the same theme in mind: stairs and their representation of growth.

Christian shot seven different locations with various styles of stairs—with one up to seven people on them. The location, the Canadian War Museum, was ideal because of its grand spaces. However, everything is very dark (blacks, grays, and browns) so a lot of light was required.

According to Christian, “I hate to have to look for power sources on location, so all of the images were done with Lumedyne packs and Nikon SB-80 DX flash heads. I always carry about seven Nikon heads with me and I needed all of them in this shot.”

He also used LightShaper modifiers, a great tool to change the shape of the light coming from a softbox. Basically, the LightShaper consists of four panels that Velcro onto the front panel of a softbox. He says, “Because I wanted to keep the

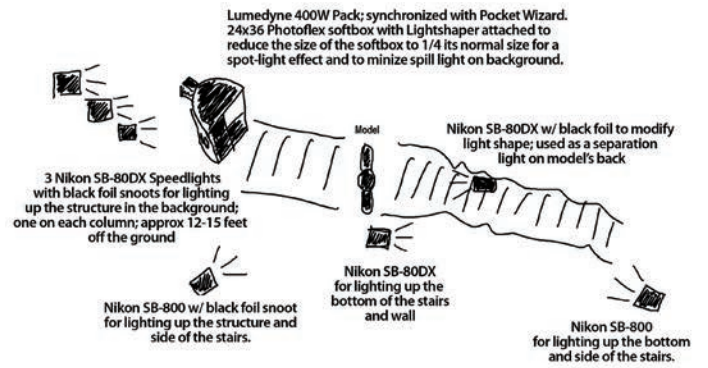


ABOVE—In the area where this executive portrait was created, the stairs were made of dark, light-absorbing woods. Christian LaLonde used Nikon SB-80 DX and SB800 Speedlights and a LightShaper, positioned high on a stand and mounted on a table, to get the light above the head height of the subject.



image very dark, I shrunk the box down to $\frac{1}{4}$ of its original 24x36-inch size, creating a tight light on the face and upper body. This stopped most of the spill from hitting the background. The rest of the area was illuminated with SB-80 DX flash heads modified with black foil that I taped to the front of the light to control the shape of the source."

PocketWizards were used to fire the strobes in sync. Christian shot the images on a Nikon D2X with a Sigma 18-50mm f/2.8 lens. The exposure was $\frac{1}{20}$ second at f/6.3.



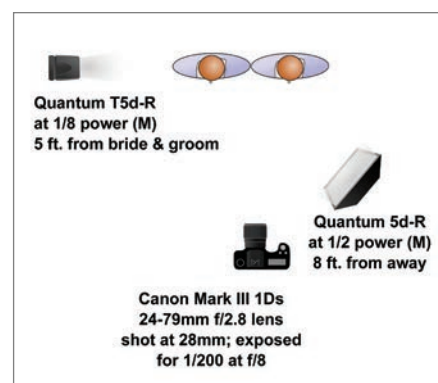
Nikon D2X with 18-50mm lens tethered to G4 laptop; Pocket Wizards for flash sync. Exposure: $\frac{1}{20}$ at f/6.3 at ISO 100



7. Portrait Lighting

This chapter will cover the basic forms of conventional portrait lighting. They are conventional in that they are used day in and day out by commercial portrait photographers to produce salable portraits. They are basic in that they represent a starting point for any photographer. Once you have mastered the basic forms of lighting, you can refine them and vary them to meet the particular needs of your individual subject and the artistic demands of your photography.

The aim of the photographer is to reveal the roundness and form of the human face by controlling the subtle interplay of highlight and shadow. In the studio, the portrait photographer has much more control plus the ability to manipulate the placement and intensity of highlights and shadows. Portrait lighting in the field, and with small flash, is much more difficult and requires the photographer to rethink the basic portrait lighting arrangement—often



FACING PAGE—JB Sallee photographed this “American Gothic” Texas-style wedding portrait using a Canon Mark III 1Ds and 24-70mm f/2.8 lens with two Quantum T5d-R flash units (see diagram). The Quantum strobe to the right was set to $\frac{1}{2}$ power in manual and was 8 feet from the subjects in a small softbox, held by an assistant. A second Quantum unit was positioned to the left of the bride to provide an edge light. The exposure was based on the sky and the Quantum strobes were used to fill to that level.



LEFT—Bruce Dorn used one of his Asymmetrical Strip Lights on the subject to create this portrait. He used another to blow out the background to a pure white. Note the delicate off-axis lighting pattern caused by raising the softbox above and to the right of the model. Two Canon Speedlites were used to power the softbox. Only one frontal light was used here—but it was every bit as powerful as using studio strobes.



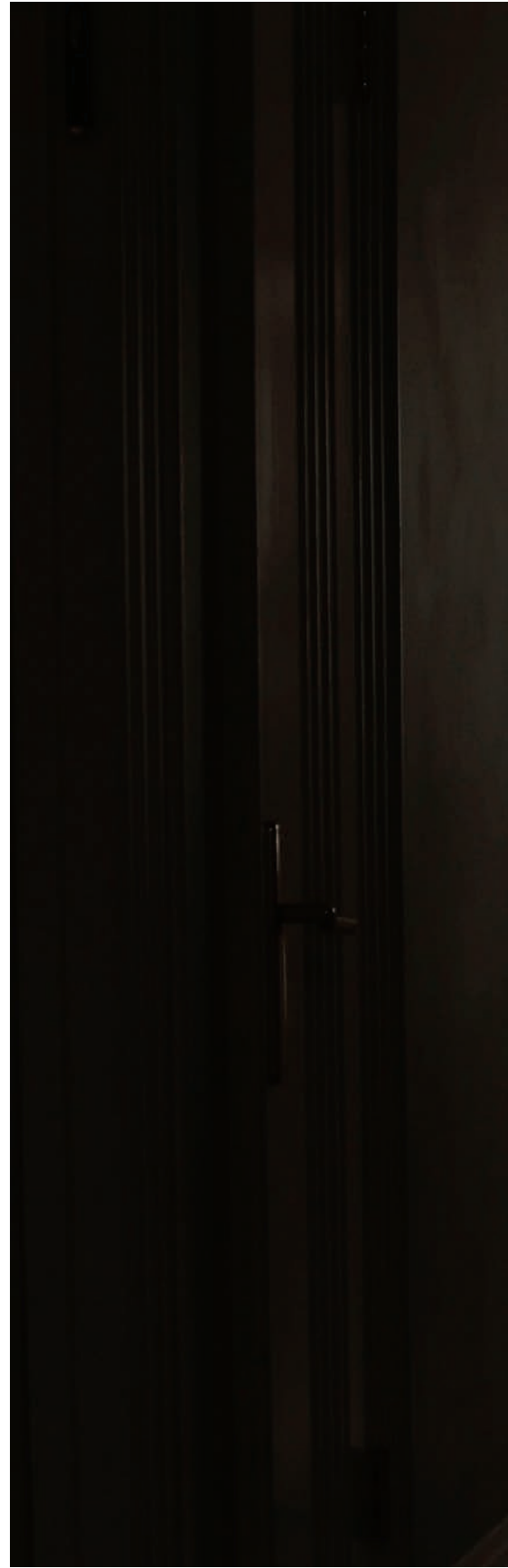
settling for one main light with adequate fill, so that the shadow areas of the portrait don't go dormant.

All portrait lighting should be a one-light look. In other words, even though numerous light sources may be used, one light must dominate, establishing a pattern of shadows and highlights on the face. All other lights must be secondary to the main light and modify it. The placement of the main light is what determines the lighting pattern.

The Light Positions

These lighting techniques can be done with very basic equipment. As noted above, just one light establishes the portrait lighting pattern; any other lights that are added merely refine and enhance the effect of that main light.

A single soft main light—in this case a small, closely positioned softbox—created great facial modeling. Photograph by Bruce Dorn.





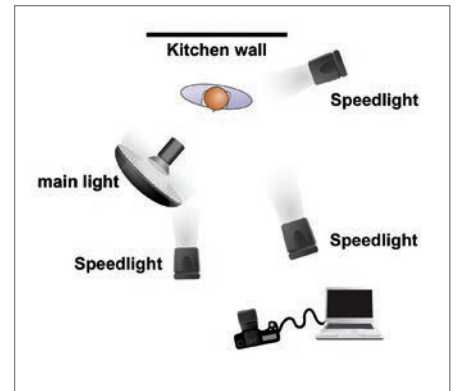
The main light establishes the direction and character of the lighting. Here, the main light produced frontal lighting on the bride and side lighting on the groom. Its most important role was to establish a main light on the bride, who is the focal point of the composition. Photograph by Sam Sciarrino.

The Main Light. The light that establishes the lighting pattern in a portrait is called the main (or key) light. These patterns will be covered in detail later in this chapter. Note, however, that without modeling lights (which you'd find on studio strobes), it can be very difficult to precisely establish these lighting patterns. That's why, when using small flash, it is highly desirable to choose a diffused light source for the main light. These sources are infinitely more forgiving—so the success of your portrait will be less dependent on a highly precise placement of the main light.

The Fill Light. This light may or may not be required in a basic one-flash portrait situation. More often, the fill light is simply a reflector. If you opt to use a diffused light source, such as an umbrella, for a fill light, be sure not to “spill” light into areas of the scene where it is unwanted, such as the background. Your manipulation of the fill source can be checked by firing a test frame and analyzing the lighting on the LCD screen.

The Hair Light. The hair light should be placed behind the subject, usually at about a 45 degree angle. It skims the hair, shoulder, or sleeve to add depth

This charming image was made entirely with speedlights. The only daylight was on the sun-drenched stove in the background. An umbrella-mounted flash was used close to the boy to produce short lighting—and notice the use of a hair light to illuminate the boy's ruffled hair. It is one of those intangibles in lighting that makes a huge difference in the final outcome. Two lower-output flash units provided a basic light level in the kitchen. Photograph by Christian LaLonde.





Snoots for electronic flash units are a recent development, but this one from Lumiquest is quite effective.

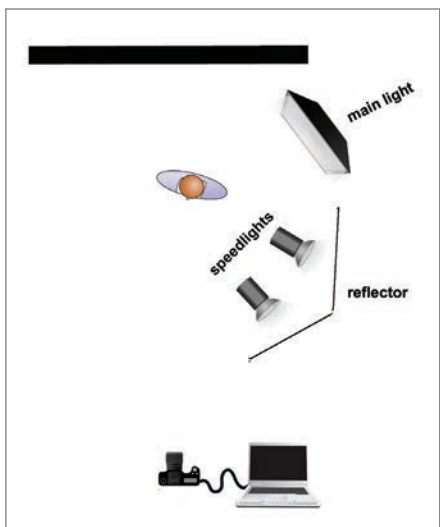
to the portrait. Since speedlights do not come equipped with barn doors, like studio lights, many photographers use snoots or black Cinefoil to shape the flash output of the hair light to the desired width and height (see chapter 2).

Background Lights. Background lights are used to illuminate the background so that the subject will separate from it tonally. The background light is usually placed on a small stand directly behind the subject, out of view of the camera lens. It can also be placed on a higher stand or boom arm and directed onto the background from either side of the set.

Kickers. These are optional lights used very much like hair lights. These add highlights to the sides of the face or body to increase the feeling of depth and richness in a portrait. Because they are used behind the subject, they produce highlights with great brilliance—but they can also cause lens flare. Cinefoil (or a snoot) is recommended to narrow the beam of light from the flash.

Broad and Short Lighting

There are two basic types of portrait lighting. Broad lighting means that the main light is illuminating the side of the face turned toward the camera. Broad lighting is used less frequently than short lighting because it tends to flatten



Broad lighting is characterized by the main highlight area that illuminates the side of the subject's face turned toward the camera. Christian LaLonde used an umbrella-mounted speedlight as a main light and two lower-powered speedlights bounced into a freestanding white reflector. The model's pale complexion and light colored clothes, combined with the light tones of the set, made for a nicely done high-key fashion portrait.





LEFT AND FACING PAGE—Short lighting is more common than broad lighting. In short lighting, the main light illuminates the side of the face turned away from the camera, leaving the side of the face closest to the camera in shadow. The photo to the left, showing broad lighting, is by Dennis Orchard. The photo on the facing page, showing short lighting, is by Noel Del Pilar.

out and de-emphasize facial contours. It is often used to widen the look of a thin or long face.

Short lighting means that the main light is illuminating the side of the face turned away from the camera. Short lighting emphasizes facial contours, and can be used as a corrective lighting technique to narrow a round or wide face. When used with a weak fill light, short lighting produces dramatic lighting with bold highlights and deep shadows.

The Five Basic Portrait Lighting Setups

Paramount Lighting. Paramount lighting, sometimes called butterfly lighting or glamour lighting, is a feminine lighting pattern, basically, that produces a symmetrical, butterfly-like shadow beneath the subject's nose. It tends to

Short lighting means that the main light is illuminating the side of the face turned away from the camera.



emphasize high cheek bones and good skin. It is generally not used on men because it tends to hollow out their cheeks and eye sockets too much.

The main light is placed high and directly in front of the subject's face, parallel to the vertical line of the subject's nose. Since the light must be high and close to the subject to produce the wanted butterfly shadow, it should not be used on women with deep eye sockets, or no light will illuminate the eyes.

The fill light is placed at the subject's head height directly under the main light. Since both the main and fill lights are on the same side of the camera, a reflector must be used opposite these lights and in close to the subject to fill in the deep shadows on the neck and shaded cheek.

The hair light, which is always used opposite the main light, should light the hair only and not skim onto the face of the subject. If a background light is used, it should be low and behind the subject, forming a semi-circle of illumination on the background so that its tone grows gradually darker the farther out from the subject you look.

Loop Lighting. Loop lighting is a minor variation of Paramount lighting. The main light is lowered and moved more to the side of the subject so that the shadow under the nose becomes a small loop on the shadow side of the face. This is one of the more commonly used lighting setups and is ideal for people with average, oval-shaped faces.

The fill light is moved on the opposite side of the camera from the fill light in loop lighting. It is on the camera/subject axis. It is important that the fill light not cast a shadow of its own in order to maintain the one-light character of the portrait. The only place you can really observe whether the fill light is

FACING PAGE—Here, the butterfly lighting pattern was created by open shade with the bride under an overhang. The photographer augmented the natural light with weak fill flash at the camera position to create catchlights in the bride's eyes and fill in the shadows caused by the overhead lighting. Photograph by Sal Cincotta.



Sometimes small light sources are needed to add a little sparkle to the eyes or define the lighting pattern. Here, a small diffused flash held above and to the bride's right did the job. It provided a beautiful butterfly lighting pattern and catchlights in the eyes. Note, too, that the flash helped bring out the color in the bride's eyes. Photograph by Noel del Pilar.



doing its job is at the camera position. Judge to see if the fill light is casting a shadow of its own by looking through the viewfinder.

The hair light and background light are used the same way they are in Paramount lighting.

Rembrandt Lighting. Rembrandt or 45-degree lighting is characterized by a small, triangular highlight on the shadowed cheek of the subject. The lighting takes its name from the famous Dutch painter who used a skylight to illuminate his subjects. This type of lighting produces a dramatic look that is often considered more masculine. It is commonly used with a weak fill light to accentuate the shadow-side highlight.

The main light is moved lower and farther to the side than in loop and Paramount lighting. In fact, the main light almost comes from the subject's side, depending on how far his or her head is turned away from the camera.

The fill light is used in the same manner as it is for loop lighting. The hair light, however, is often used a little closer to the subject for more brilliant highlights in the hair. The background light is in the standard position. With Rembrandt lighting, kickers are often used to delineate the sides of the face and to add brilliant highlights to the sides of the face. You must be careful when setting such lights not to allow them to shine directly into the camera lens. The best way to check for this is to place your hand between the subject and the camera on the axis of the kicker, and see if your hand casts a shadow when it is placed in front of the lens. If so, then the kicker is shining directly into the lens and should be adjusted.

Split Lighting. Split lighting is when the main light illuminates only half the face. It is an ideal slimming light. It can be used to narrow a wide face, or to narrow a wide nose. It can also be used with a weak fill to hide facial irregularities. Split lighting can be used with no fill light for highly dramatic effect.

In split lighting, the main light is moved farther to the side of the subject and lower. In some cases, the main light is slightly behind the subject, depend-

FACING PAGE—Rembrandt lighting is created by lowering the main light nearly behind the subject and off to one side. In Rembrandt lighting scenarios, the main light illuminates half the face. The other half of the face is either filled naturally by ambient light or flash, or by the use of a reflector. Here, the shadow side was filled with ambient light. Note the diamond-shaped highlight, which is characteristic of Rembrandt lighting. Photograph by Noel Del Pilar.

■ On-Axis Fashion Lighting

Fashion lighting is a variation of conventional portrait lighting. It is extremely soft and frontal in nature—in fact, the main light is usually on the lens–subject axis. Because the main light produces almost no shadows, makeup is used to produce contouring. It is a stark effect that is usually accomplished with a large softbox directly over the camera and a silver reflector just beneath the camera. Both the light and reflector are very close to the subject for the softest effect. (When you examine the catchlights in a fashion portrait you often will see two: a larger one over the pupil and a less intense one under the pupil. Occasionally, you will see a circular catchlight produced by a ring flash.)

A conventional softbox on its own light stand will not work for this type of lighting because the stand gets in the way. Usually a softbox that is mounted to a boom arm, counterweighted for balance, is the way to go. A silver reflector is often used beneath the camera lens and angled up at the face. The result is a wide beam of frontal light that minimizes texture.

When it comes to male fashion portraiture, the trend is quite different—you want a bold, dramatic, masculine look. Flat lighting is seldom used with men. Side lighting with bold shadows and very little fill is much more popular.





ing on how far the subject is turned from the camera. The fill light, hair light, and background light are used normally for split lighting.

Profile Lighting. Profile or rim lighting is used when the subject's head is turned facing 90 degrees from the camera lens. It is a dramatic style of lighting used to accent elegant features. It is used less frequently now than in the past, but it is still a stylish portrait lighting style, even today.

In rim lighting, the main light is placed behind the subject so that it illuminates the profile of the subject and leaves a polished highlight along the edge of the face. The main light will also highlight the hair and neck of the subject. Care should be taken so that the accent of the light is centered on the face and not so much on the hair or neck.

The fill source is moved to the same side of the camera as the main light and a reflector is used to fill in the shadows. An optional hair light can be used on the opposite side of the main light for better tonal separation of the hair from the background. The background light is used normally.

As you progress through the lighting setups from paramount to split lighting, each progressively makes the face slimmer. Each also progressively brings out more texture in the face because the light is more to one side, thus revealing texture.

ABOVE—Sam Sciarrino used classic rim lighting in this stunning profile portrait. Notice that the brilliance of the edge lighting is emphasized by a minimal fill source. This allows the highlights to have specular (pure white) as well as diffuse (milky white) characteristics. The combination of the two types of highlights provides what is often referred to as highlight brilliance.

FACING PAGE—Christian LaLonde created this executive portrait on a rooftop using a Hasselblad H2D-39 camera and 80mm Planar lens. As a main light, he used a Nikon SB-800 Speedlight mounted to a LiteShaper Strip Box set 2 stops over the ambient light level to darken the sky and create a dramatic background.





Ben Chen and a cadre of willing assistants joined forces to make this stunning portrait at sunset on a Southern California beach. Ben used a Canon EOS 1-DS and 16-35mm f/2.8 lens in manual exposure mode; the exposure was $\frac{1}{200}$ second at f/16 at ISO 125. Ben used the small aperture to sharply capture the surf and clouds behind his model, and effectively dragged the shutter to include the ambient light as well as the speedlight illumination. Two Canon Speedlites were used in medium-sized Westcott softboxes to light the model. The smaller softbox was powered down for minimal fill.

As you progress from Paramount to split, the main light mimics the setting sun—at first high, and gradually lower in relation to the subject. It is important that the main light never dip below subject/head height. In traditional portraiture this does not occur, primarily because it does not occur in nature.

The Finer Points

In setting the lights for the basic portrait lighting patterns discussed here, it is important that you position the lights with sensitivity. If you merely aim the light directly at the subject, there is a good chance you will overlight the subject, producing pasty highlights with no delicate detail.

Kevin Jairaj made this lovely on-location glamour portrait by using two scrims with Canon Speedlites behind them. The scrims were side by side to camera right and the lights were powered down so that the output would be about 1 stop greater than the ambient room light. The result is a nice blend of the two light sources.

You must adjust the lights carefully, and then observe the effects by shooting a test frame for review on the LCD screen. Instead of aiming the light so that the core of light strikes the subject, feather the light so that you employ the edge of the light to illuminate your subject. The trick is to add brilliance to your highlights. This is achieved by careful lighting. The highlights, when brilliant, have minute specular (pure white) highlights within the main highlight. This further enhances the illusion of great depth in a portrait.





Lighting Ratios

The term is used to describe the difference in intensity between the shadow and highlight sides of the face. It is usually expressed numerically—3:1, for example, means that the highlight side of the face is three times brighter than the shadow side.

Ratios are useful because they determine how much overall contrast there will be in the portrait. They do not determine the contrast of the scene (the subject's clothing, the background, and the tone of the face determine that), but rather, lighting ratios determine how much contrast you will give to the lighting of the subject.

Ratios also determine how much the light will slim the face of the subject. The higher the lighting ratio (the greater the tonal difference between highlight and shadow side of the face), the thinner the subject's face will appear.

Since lighting ratios reflect the difference in intensity between the fill light and the main light, the ratio is an indication of how much shadow detail you will have in the final portrait. Since the fill light controls the degree to which the shadows are illuminated, it is important to keep the lighting ratio fairly constant. A desirable ratio is roughly 3:1 because of the rather limited tonal latitude of photographic printing papers.

Ratios are determined by measuring the intensity of the fill light on both sides of the face with a light meter, and then measuring the intensity of the main-light side of the face. If the fill light is next to the camera, it will cast one unit of light on each side (shadow and highlight sides) of the face. The main light, however, only illuminates the highlight side of the face, not the shadows it creates. If the main light is the same intensity as the fill light, then you have a

In this image by Marcus Bell you have two lighting ratios present. On the bride, there is a rather stealthy ratio of 4–5:1. This was caused by a single speedlight positioned in one of the window alcoves. No fill was used so the ratio is steep. Because of light scatter, the ratio on the groom is less than 4:1—although the light intensity has dwindled because of the distance from the flash.



A 1:1 lighting ratio almost never occurs, but this is a good example of an image with little discernible difference in intensity between the shadows and the highlights on the subject. This ratio is probably closer to a 1.5:1 lighting ratio. Photograph by Dennis Orchard.

2:1 lighting ratio. (One unit of light on each side of the face from the fill light, and one unit of light on the highlight side only from the main light, means that the light on the highlight side of the face is twice as bright as on the shadow side; thus a 2:1 ratio.)

A 2:1 ratio is the lowest lighting ratio you should employ. It shows only minimal roundness in the face and is most desirable for high-key effects. High-



key portraits are those with low lighting ratios, light tones, and usually a white background.

A 3:1 lighting ratio is produced when the main light is one stop greater in intensity than the fill light. (One unit of light on both sides of the face from the fill light, two units of light on the highlight side from the main light; thus a 3:1 ratio.) This ratio is the one that is most preferred for color and black & white portraiture because it will yield an exposure with excellent shadow and

A high lighting ratio, like this one in the 4:1 to 5:1 range, creates drama by virtue of the contrast between the highlights and the shadows. This strong ratio was created by the side light and minimal fill. Photograph by Cherie Steinberg-Coté.



highlight detail. It shows good roundness in the face and is ideal for rendering average faces.

A 4:1 ratio (the main light is two stops greater in intensity than the fill light) is used when a slimming or dramatic effect is desired. In a 4:1 ratio, the shadow side of the face loses its slight glow and the accent of the portrait becomes the highlights. Ratios of 4:1 and higher are considered low-key portraits. Low-key portraits are often characterized by a higher lighting ratio, dark tones, and usually a dark background.

A 5:1 ratio (the main light is 3 stops greater than the fill light) and beyond is considered almost a high-contrast rendition. It is ideal for conveying a dramatic effect to your subject and is often used in character studies. Shadow detail is minimal at the higher ratios and as a result, they are not recommended for color films unless your only concern is highlight detail.

Setting the Lights

Most photographers have their own procedures for setting the portrait lights. You will develop your own system as you gain experience, but here is one plan you can start with. Generally, the first light you should set is the background light (if you're using one). This is done by placing the light behind the subject and illuminating the part of the background you want lighted.

Usually the background light is slightly hotter (brighter) in areas that are very close to the subject and fades gradually darker the farther out from the subject you look. If you have more space in front of than behind the subject in the composition of the image, the light should be brighter behind the subject than in front as seen from the camera. This helps increase the sense of direction in the portrait. The background light is usually set up and tested first, before the other lights.

Next, the hair light (if using one) is set. This is set up so that you can see if any stray light is falling onto the subject's face. If this happens, adjust the light until it illuminates only the subject's hair. When photographing men, sometimes the hair light can double as a kicker, illuminating the hair and one side of the forehead or cheek simultaneously. (*Note:* When using multiple small flash units in a network, the easiest way to extinguish the frontal lights is to turn them off.)

Then, the fill light is set. Usually it is used next to the camera. Adjust it for the amount of shadow detail you want to achieve. Examine the subject's face with only the fill light firing and determine if the skin looks oily or flat. Sometimes you will have to use a pancake base makeup to dry up excessively moist skin if adjusting the fill light won't correct the problem. If the skin looks too matte and lifeless, increase the amount of fill.

Finally, adjust the main light for the lighting pattern you desire. Move it closer or farther from the subject to determine the ratio you want. Ratios are



Dan Duke made this striking image at the New England Aquarium, where the wedding was held. His Canon 1Ds Mark II was tripod-mounted and the exposure was for 2 seconds at between $f/4$ and $f/5.6$. Two Quantum flash units were used with Freewire slaves. Dan's assistant held the second Quantum flash in an umbrella and feathered it 45 degrees to the right. The image was edited in Adobe Lightroom.

best metered by holding an incident light meter first in front of the shadow side of the face, and then in front of the highlight side, in each case pointing the meter directly at the light source. By determining how many stops of difference there are between your lights, you will know the ratio.

The ratio between the main light and the fill light is not as crucial as you might think. If there is abundant detail in the shadows and highlights, you are in the ballpark.

Overlighting

In setting the lights, it is important that you position the lights gradually, studying their effects as you use more and more light aimed at the subject. If you merely point the light directly at the subject, you will probably overlight the person, producing pasty highlights with no detail.

Adjust the lights carefully, and observe the effects from the camera position. Instead of aiming the light so that the core of light strikes the subject, feather the light so that you employ the edge of the light to light the subject.

It is important that you position the lights gradually, studying their effects . . .

Sometimes, feathering
won't make the skin "pop"
and you'll have to
make a lateral adjustment
to the light . . .

The trick is to add brilliance to your highlights. This is achieved by the use of careful lighting. The highlights, when brilliant, have minute specular (pure white) highlights within the main highlight. This further enhances the illusion of great depth in a portrait.

Sometimes, feathering won't make the skin "pop" (show highlight brilliance) and you'll have to make a lateral adjustment to the light or move it back from its current position.

Vignettes

Sometimes, because of the nature of the lighting, it is difficult to keep light off of certain parts of the portrait. An example of this is hands that receive too much light and gain dominance in the photograph. One solution is to use a vignette, an effect that can be applied in Adobe Camera Raw, Photoshop, or Lightroom. You can completely mask out unwanted foreground or background lighting with a vignette.

A well-placed vignette draws the eye in from the perimeter of the print and forces the viewer to focus on the subject. This is expertly done by master photographer Jim Garner.





For this image, Bruce Dorn used a Canon EOS 5D Mark II and a Canon zoom lens at the 58mm setting at an exposure of $\frac{1}{100}$ second at f/6.3 at ISO 100. The light source used was an iDC Softbox Double Header II (left), which is a modular unit of Dorn's design that allows the photographer to use any two slave-capable Canon shoe-mount Speedlites as well as all the various models of PocketWizards, Flex TT5s, Radio Poppers, and Canon's Wireless E-TTL configuration. As you can see, the Double Header produces amazing light at close to medium range outdoors in full daylight. It's a powerful portable softbox that uses small flash to produce big light.

Conclusion

Small flash photography is here to stay. There is no doubt about it. After all, what sane individual would rather cart around heavy, expensive power packs and strobe units when they could be using the camera's built-in programming to control a myriad of small, off-camera flash units that are all adjustable from the camera position? Hmmm. That's not a tough one; given the choice, *everyone* will go for the lightweight, infinitely more flexible small flash units. And let's not forget the financial incentive of being able to do most of this work yourself—without the cadre of assistants needed for the setup and deployment of a studio-flash system.

This is a great image of the father of the bride and his daughter. Two remote flash units were used: a raw flash directly behind the couple and a diffused, off-camera flash to camera left. The skin tones were warmed in postproduction to match the warm ambience of the room. Photograph by Jeff and Julia Woods.



At this time, we're just getting into the exploration of what small electronic flash units can do for us as professional photographers. The potential for remote lighting with an almost unlimited number of flash units is mind-boggling. With the right resources (*i.e.*, an almost unlimited number of flash units) one could light up something as large and grand as the new Dallas Cowboy Stadium with small flash—given the proper logistics and time for planning.

Additionally, we will doubtless be seeing much more participation by third-party manufacturers in the coming years. As these manufacturers, and the major camera manufacturers themselves, continue to devise increasingly useful and practical accessories for small flash, the market will no doubt continue to thrive—and so will photographers who know how to make the most of these powerful tools.

A moment like this is truly spontaneous, as if the photographer weren't even there. Marcus Bell made this fine image using subtle backlight and weak flash-fill from the camera position.



RIGHT—Here is a detail shot of the couple's champagne glasses and cake-top decoration. This was principally an available-light exposure created using the natural light streaming in through a window to the right of the table. The light was supplemented by bounce light off the ceiling from a camera-mounted Nikon SB-800 speedlight set on TTL (at -1EV). Photograph by Michael O'Neill. BELOW—Here, the bride posed on the floor by a fireplace. The main light was an off-camera, radio-fired Vivitar 285 HV flash. The fill light was provided by a camera-mounted Nikon SB-800 set in automatic mode (at -2EV). The camera was in manual exposure mode. The image was converted to sepia and selectively colored in Photoshop. Photograph by Michael O'Neill.



The Photographers

Marcus Bell. Marcus Bell's creative vision, natural style, and sensitivity have made him one of Australia's most revered photographers. It's this talent, combined with his natural ability to make people feel at ease in front of the lens, that attracts so many of his clients. Bell's comprehensive portfolio of photographic work clearly illustrates his versatility. His work has been published in numerous magazines in Australia and overseas including *Black White*, *Capture*, *Portfolio Bride*, and countless other bridal magazines. For more information on Marcus Bell, please visit www.marcusbell.com.

Anthony Cava, BA, MPA, APPO. Born and raised in Ottawa, Ontario, Canada, Anthony Cava owns and operates Photolux Studio with his brother Frank. Their parents originally founded Photolux as a wedding/portrait studio, thirty years ago. Anthony joined WPPI and the Professional Photographers of Canada ten years ago; he was the youngest "Master of Photographic Arts" (MPA) in Canada and won WPPI's Grand Award with the first print that he ever entered in competition. For more information, go to www.photoluxstudio.com.

Ben Chen. Ben Chen is a freelance photojournalist located in Southern California. He is best known for his award-winning sports photographs, which have been published in the nation's leading magazines and newspapers. Ben has recently transitioned to wedding photography and is using his instincts as a photojournalist to build his business. Visit his website at: www.socalpixels.com.

Sal Cincotta. Sal Cincotta is an award-winning photographer who was born and raised in New York City. He

now works in the St. Louis metro area, where his clients are couples looking to have fun on their day and do something different. Says Sal, "Every bride wants to look like she belongs on the cover of a magazine and it's my job to help her achieve that one shot—the one she'll look at twenty-five years from now and say, 'Damn, I looked good!'" For more, visit www.salcincotta.com

Mike Colón. Mike Colón is a celebrated wedding photojournalist from the San Diego area. Colón's work reveals his love for people and his passion for celebrating life. His natural and fun approach frees his subjects to be themselves, revealing their true personality and emotion. His images combine inner beauty, joy, life, and love frozen in time forever. He has spoken before national audiences on the art of wedding photography. You can see more of Mike's work at www.mikecolon.com

Cherie Steinberg-Coté. Cherie Steinberg-Coté is a photographer whose passion is traveling the world and photographing people. She is from Canada, where she is well known for her work in various newspapers and magazines. Cherie began her photography career as a photojournalist at the *Toronto Sun* in Toronto. She had the distinction of being the first female freelance photographer for that paper. She was also honored with Canada's equivalent of the National Endowment for the Arts. Cherie currently lives in Los Angeles and has recently been published in the *L.A. Times*, *Los Angeles Magazine* and *Towne & Country*. You'll find Cherie on-line at www.cheriefoto.com.

Noel Del Pilar is an award-winning wedding photographer from San Juan, Puerto Rico. After fifteen years of photographing weddings, he has established a reputation as a wedding photographer on the cutting edge; his embrace of wedding photojournalism has helped transform the look of wedding photography in Puerto Rico today. Noel Del Pilar specializes in destination weddings and is a preferred vendor of some of the best hotels in Puerto Rico. To learn more about Noel Del Pilar's wedding photography, visit www.noeldelpilar.com.

Dan Doke. Dan Doke, a Boston wedding photographer, started out shooting commercial in the 1980s. After much success, he bought a senior studio—and expanded the studio's business from 300 to 400 senior bookings a year to 2500. After deciding he was becoming more a manager than a photographer, he devoted all his time and energy to shooting weddings. He now owns a successful wedding studio that shoots over 200 weddings a year and employs six photographers. Dan can be reached at www.dandoke.com.

Bruce Hamilton Dorn. As a member of the Director's Guild of America, with twenty years of Hollywood filmmaking experience, Bruce's previous clients include McDonalds, Budweiser, Chevrolet, Mitsubishi, and Coca Cola. Bruce's company, iDC Photography, now offers this award-winning expertise to a very select group of wedding clients in a style that layers theatricality and romance onto a foundation of documentary coverage. Bruce Dorn's web site is www.idcphotovideo.com.

Scott Eklund. Scott Eklund makes his living as a photojournalist for the *Seattle Post-Intelligencer*. His work has appeared in numerous national publications. He specialized in sports, spot news, and feature stories—at least until he became interested in photographing weddings (after deciding that his skill set was “portable”). He has now won numerous awards for his wedding photography, which relies on a newspaperman's sense of timing and story-telling. To see more of Scott's photography, visit him on-line at www.scotteklundphotography.com.

Jim Garner. Jim Garner's photographs seamlessly integrate solid technical expertise with an artistic sense and passion for capturing real-life moments. By fusing edito-

rial fashion photography with a more relaxed, candid approach, Jim provides each couple with an amazing collection of wedding images, all while allowing the bride and groom to truly enjoy their special celebration. Jim has won numerous awards through WPPI for both his prints and albums. For more, go to www.jgarnerphoto.com.

Greg Gibson. Greg Gibson has covered hundreds of national and international stories for some of the largest news organizations in the world. His assignments have included three presidential campaigns, daily coverage of the White House, the Monica Lewinsky scandal, Gulf War, Super Bowls, and much more. In 1993 and 1999, Greg received the highest award in journalism: the Pulitzer Prize. Despite numerous offers to return to journalism, Greg is happy shooting between 40 and 50 weddings a year, finding it is the perfect genre to continually test his skills. To learn more about Greg Gibson and his work, please visit www.greggibson.com.

Tibor Imely. Imely Photography is one of the most prestigious studios in the Tampa Bay area. Tibor has won numerous awards, including his most recent: the Accolade of Photographic Mastery and Accolade of Outstanding Achievement from WPPI. Tibor was also recently presented with a Fujifilm New Approach Award for new and innovative solutions to tried-and-true photographic methods. You can learn more about Tibor's work at www.imleyphoto.com.

Kevin Jairaj. Kevin Jairaj is an award-winning wedding and portrait photographer whose creative eye has earned him a stellar reputation in the Dallas/Fort Worth, TX area. He is a former fashion photographer who uses skills learned in that discipline when shooting his weddings and portraits. His web site is www.kjimages.com.

Jeff Kolodny. Jeff Kolodny began his career as a professional photographer in 1985 after receiving a BA in Film Production from Adelphi University in New York. Jeff recently relocated his business from Los Angeles to South Florida, where his ultimate goal is to produce digital wedding photography that is cutting edge and that sets him apart from others in his field. To learn more, please visit www.jeffkolodnyphotography.com.

Christian LaLonde. Christian is a native of Ottawa, Canada. After graduation from La Cite Collegiale in 1996, he took a job in a commercial studio in Ottawa, photographing food. He later taught lighting for his alma mater and, while there, was approached by Anthony and Frank Cava of Photolux Studio in Ottawa about opening a commercial division within Photolux. He accepted and now concentrates mostly on corporate, architectural, food, product, and editorial jobs. In 2002 and 2003, he was named Canadian Commercial Photographer of the Year. You can see more of Christian's work at www.photoluxstudio.com.

Gene Martin. The late Gene Martin was an award-winning New York based photographer specializing in photographing entertainers and the world's finest jazz musicians. He was also known in the rock world for his conceptual portraiture for record labels and editorial markets. Besides photographing the likes of Bill Cosby to Cyndi Lauper, Gene's colorful portraiture of famous jazz musicians has been much heralded; for *JazzTimes* alone, he shot over fifty covers. His portraits also appeared in mainstream magazines including *Time*, *Newsweek*, *US*, *People*, *U.S. News & World Report*, *New York Magazine*, and *Entertainment Weekly*.

Cliff Mautner. After fifteen years as a photojournalist with the *Philadelphia Inquirer*, Cliff Mautner has experienced just about every situation a photographer could possibly encounter. Whether he was shooting in Liberia, following the President on a campaign stop, covering spelunking in Central Pennsylvania or any of the 6000 or so other assignments he's documented, he never dreamed that he would be enjoying wedding photography as much as he does. His images have been featured in *Modern Bride*, *Elegant Wedding*, *The Knot*, and various other wedding publications. To see more of Cliff's photography, visit www.cmphotography.com.

Gordon Nash. Gordon Nash is the owner of A Paradise Dream Wedding, one of Hawaii's largest and most successful wedding photography and wedding coordination businesses. He also developed a second, lower-end wedding company called Aekai Beach, which is staffed by younger photographers whom he mentors. He has six

photographers on staff and he shoots nearly all of his weddings outdoors. Visit www.gordonnash.com and www.mauiwedding.net.

Mark Nixon. Belfast native Mark Nixon, who now runs The Portrait Studio in Clontarf, Ireland, was named the Irish Professional Photographer of the Year in 2006. He is currently expanding his business to be international in nature and is on the worldwide lecture circuit. You can learn more about Mark Nixon at www.marknixon.com.

Michael O'Neill. Michael O'Neil runs a commercial photography studio in East Northport, NY. As an advertising and editorial photographer he has worked with some of the most prestigious New York advertising and public relations firms; his list of clients includes Nikon USA, The New York Jets, Calvin Klein, and Avis. Finding his editorial style of portraiture being the most sought-after of his photographic creations, Michael narrowed his specialty to producing portraits—for both large corporate concerns and a discriminating retail market, as well. You can explore more examples of Michael's work at www.michaeloneillfineart.com.

Dennis Orchard. Dennis Orchard is an award-winning photographer from Great Britain. He has been a speaker at WPPI conventions and is a member of the British Guild of portrait and wedding photographers. His unique lifestyle wedding photography has earned O'Neil many awards, including UK Wedding Photographer of the Year, International Wedding Photojournalism Print of the Year, and WPPI's highest award: the Accolade of Lifetime Photographic Excellence. To learn more, visit his web site at www.dennisorchard.com.

Joe Photo. Joe Photo hold degrees in both photography and cinematography. His wedding images have been featured in publications such as *Grace Ormonde's Wedding Style*, *Elegant Bride*, *Wedding Dresses*, *Los Angeles Magazine*, *RangeFinder*, and *The Knot Wedding Pages*. His weddings have been seen on NBC's *Life Moments* and the Lifetime network's programs *Weddings of a Lifetime* and *My Best Friend's Wedding*. You can see more of Joe Photo's images at www.joephoto.com

JB and DeEtte Sallee. JB and DeEtte Sallee are a photographic team located in Dallas, TX. In 2004, JB re-

ceived the first Hy Sheanin Memorial Scholarship through WPPI. In 2005, JB and DeEtte won numerous awards at their local Dallas PPA guild, including Dallas Photographer of the Year, Wedding Photographer of the Year, Best Album Designer of the Year, and Best Folio of the Year. To see more of this duo's amazing work, check out www.salleephoto.com.

Sam Sciarrino. Known for his creativity in portrait photography, Sam Sciarrino is an internationally known Master Photographer with degrees from both the Canadian and American associations of professional photographers. Sam has been featured in leading photography magazines and is a respected lecturer for the pro photography circuit worldwide. Sam is the owner of Horvath Studio of Photography in Toronto, Canada. Please visit www.horvathphoto.com to learn more.

Marc Weisberg has been photographing worldwide for 20 years, specializing in weddings and event photography. A graduate of UC Irvine with a degree in fine art and photography, he also attended the School of Visual Arts in New York City before relocating to Southern California in 1991. Marc distinguishes himself by creating

graceful, thoughtfully choreographed images. His interest in the culinary arts has also led Marc to create numerous images for marketing and public relations campaigns, as well as *Wines and Spirits*, *Riviera* magazine, *Orange Coast Magazine*, and *Where Los Angeles*. Marc's web site is www.marcweisberg.com.

Jeffrey and Julia Woods. Jeffrey and Julia Woods are award-winning wedding and portrait photographers who work as a team. They were awarded Best Wedding Album of the Year for 2002 and 2003, two Fuji Masterpiece awards, a Kodak Gallery Award, Best of Show at the APPI fall convention, and Top Ten Photographers in Illinois for 2002 and 2003. See more of their images at www.jw.weddinglife.com.

Reed Young. Reed grew up in Minneapolis, Minnesota, and later graduated from Brooks Institute of Photography in Santa Barbara, CA, where he focused his interests in fashion. Although he loved his hometown, he wanted to see new places and start a new career elsewhere, so he is currently working out of New York. His work can be seen at www.reedyoung.com.

Glossary

Adobe Camera Raw. Software used to process RAW files and import them to Adobe Photoshop.

Adobe Lightroom. Software used for image management and nondestructive image editing.

Adobe Photoshop. The industry standard program for digital image retouching.

Ambient light. The light that occurs naturally in a scene. This may be used on its own or modified/augmented by the photographer. Also called existing light.

Angle of coverage. The spread of light from a flash. Ideally, this will match the angle of view of the lens. If it is wider, flash power will be wasted illuminating areas outside of the camera's view; if it is narrower, the image will not evenly be illuminated by the flash.

Background light. A light source used to illuminate some element of the scene or set behind the subject.

Barebulb flash. A portable flash unit with a vertical flash tube that fires the flash illumination 360 degrees.

Barn doors. Black, metal folding doors that attach to a flash. These are used to control the width of the beam of light.

Beauty Dish. A bowl-shaped light modifier used to soften the light. In a beauty dish, the light is focused into a small central reflector. This bounces the light back into the white interior surface of the bowl. From there, it bounces onto the subject.

Boom arm. A light stand accessory that uses a heavy counterweight on one end of a pole to balance the weight of a softbox or other light modifier.

Bounce flash. Directing the light from a flash at a surface, such as a ceiling or wall, so that it will reflect back

onto the subject. This technique produces more appealing indirect lighting.

Bounce flash accessories. Devices fitted to an electronic flash to facilitate bouncing the flash or to provide a bounce surface when none is otherwise available.

Broad lighting. One of two basic types of portrait lighting in which the main light illuminates the side of the subject's face turned toward the camera.

Burst rate. The number of frames per second (FPS) a digital camera can record images and the number of frames per exposure sequence a camera can record. Typical burst rates range from 2.5fps up to six shots, all the way up to 8fps for up to 40 shots.

Butterfly lighting. One of the basic portrait lighting patterns, characterized by a high main light placed directly in line with the line of the subject's nose. This lighting produces a butterfly-like shadow under the nose. Also called Paramount lighting.

Catchlight. The specular highlights that appear in the iris or pupil of the subject's eyes, reflected from the portrait lights.

Cinefoil. A matte black type of foil commonly used to direct the output from an electronic flash unit.

Clamp. Device that allows an electronic flash unit to be attached to just about anything. Especially useful when working on location.

Color temperature. The degrees Kelvin of a light source. Also refers to a film's sensitivity. Color films are balanced for 5500K (daylight), or 3200K (tungsten) or 3400K (photoflood).

Continuous light sources. The sun, lightbulbs, can-

dles, and other sources that allow you to see the effect the light they produce has on the subject. *Contrast with* Instantaneous light sources.

Cove. *See* Sweep table.

Cross lighting. Lighting that comes from the side of the subject, skimming facial surfaces to reveal the maximum texture in the skin. Also called sidelighting.

Cross shadows. Shadows created by lighting a subject with two light sources from either side. These should be eliminated to restore the “one-light” look.

Depth of field. The distance that is sharp beyond and in front of the focus point at a given f-stop.

Diffused highlights. Bright areas with image detail.

Diffuser. A frosted plastic cap that fits over the flash head to soften the light output.

Diffusion flat. Portable, translucent diffuser that can be positioned in a window frame or near the subject to diffuse the light striking the subject. Also known as a scrim.

Dragging the shutter. Using a shutter speed slower than the X-sync speed in order to capture the ambient light in a scene.

Existing light. *See* Ambient light.

Fashion lighting. Type of lighting that is characterized by its shadowless light and its proximity to the lens axis. Fashion lighting is usually head-on and very soft in quality.

Feathering. Misdirecting the light deliberately so that the edge of the beam of light illuminates the subject.

Fill card. A white or silver-foil-covered card used to reflect light back into the shadow areas of the subject.

Fill light. Secondary light source used to fill in the shadows created by the main light.

Filters. Translucent, colored devices (either rigid or flexible) that attach to the head of the electronic flash to adjust the color temperature of its output.

Flash adapter. Device used to allow an electronic flash unit (or multiple units) to be used with large light modifiers like softboxes and umbrellas.

Flash bracket. A metal arm used to position the flash, still attached to the camera, somewhere other than directly above the lens. Distancing the flash from the lens provides more directional lighting.

Flash duration. The length of a single flash burst. Low flash durations are useful for stopping motion with fast-moving subjects.

Flash exposure compensation. Settings that allow you to adjust the total output from the flash unit to something above or below what the camera suggests as the “correct” exposure.

Flash fill. Flash technique that uses electronic flash to fill in the shadows created by the main light source.

Flash main. Flash technique in which the flash becomes the main light source and the ambient light in the scene fills the shadows created by the flash.

Flashmeter. A handheld incident light meter that measures both the ambient light of a scene and when connected to an electronic flash, will read flash only or a combination of flash and ambient light. They are invaluable for determining outdoors flash exposures and lighting ratios.

Flash stand. A small plastic stand, standard with most electronic flash models, that allows the flash to be positioned on a flat surface or attached to a light stand.

Flat. A large white or gray reflector usually on castors that can be moved around a set for bouncing light onto the set or subject.

45-degree lighting. Portrait lighting pattern characterized by a triangular highlight on the shadow side of the face. Also known as Rembrandt lighting.

Fresnel lens. Glass filter on a spotlight that concentrates the light rays into a narrow beam.

Gels. *See* Filters.

Gobo. Light-blocking card that is supported on a stand or boom and positioned between the light source and subject to selectively block light from portions of the scene.

Grid. A honeycomb-shaped light modifier used to produce a narrow, focused beam of light.

Guide numbers (GN). A measurement of the flash’s ability to illuminate a subject at a specific ISO and angle of view. Higher guide numbers reflect a more powerful flash.

Hair light. A light source placed above and behind the subject to add highlights on the hair.

High-key lighting. Type of lighting characterized by a low lighting ratio and a predominance of light tones.

Highlight brilliance. Refers to the specularity of highlights on the skin. A negative with good highlight brilliance shows specular highlights (paper base white) within a major highlight area. Achieved through good lighting and exposure techniques.

High-speed flash sync. A setting that allows the shutter speed to exceed the X-sync speed and use the camera's maximum shutter speeds ($\frac{1}{2,000}$ second or faster). Using this setting causes the flash to pulse.

Histogram. A graph associated with a single image file that indicates the number of pixels that exist for each brightness level. The range of the histogram represents 0–255 from left to right, with 0 indicating “absolute” black and 255 indicating “absolute” white.

Hot spots. A highlight area of the negative that is overexposed and without detail. Sometimes these areas are etched down to a printable density.

Incident light meter. A handheld light meter that measures the amount of light falling on its light-sensitive dome.

Instantaneous light sources. Light-emitting devices, such as flash units, that produce a burst of light. This does not allow you to see the effect of the light on the subject until after the image is captured. *Contrast with* Continuous light sources.

JPEG. An image file format with various compression levels. The higher the compression rate, the lower the image quality, when the file is expanded (restored).

Kelvin. A scale used to measure the color temperature of light. Named for British physicist William Kelvin.

Key light. *See* Main light.

Kicker light. A light coming from behind the subject that highlights the hair or contour of the body.

Light distribution patterns. A setting on some flash units that allows you to optimize the light quality—making it more center-weighted, for instance.

Lighting ratio. The difference in intensity between the highlight side of the face and the shadow side of the face. A 3:1 ratio implies that the highlight side is three times brighter than the shadow side of the face.

Light tent. A box-shaped device that completely surrounds a small subject. Lights are placed outside the tent

and directed through the tent's translucent fabric walls.

Light stand. A sturdy device used to support and position an electronic flash unit that is to be triggered remotely.

Loop lighting. A portrait lighting pattern characterized by a loop-like shadow on the shadow side of the subject's face. Differs from Paramount or butterfly lighting because the main light is slightly lower and farther to the side of the subject.

Low-key lighting. Type of lighting characterized by a high lighting ratio and strong scene contrast as well as a predominance of dark tones.

Main light. The light in portraiture used to establish the lighting pattern and define the facial features of the subject. Synonymous with key light.

Modeling light. A secondary light mounted in the center of a studio flash head that gives a close approximation of the lighting that the flash tube will produce. Usually high intensity, low-heat output quartz bulbs.

Monopod. A one-legged stand used to support (with the help of an assistant) a flash unit that will be remotely triggered. Monopods are highly mobile, allowing the flash to be repositioned quickly.

Off-camera flash. An electronic flash unit used from some position other than the camera's hot shoe. This may be connected to the camera via a cable or triggered using a wireless system.

On-camera flash. An electronic flash unit mounted on the camera's hot shoe and fired from that position. Also called straight flash.

Overlighting. An effect that occurs when the main light is too close to the subject or too intense. This makes it impossible to record detail in highlighted areas. Best corrected by feathering the light or moving it back.

Paramount lighting. One of the basic portrait lighting patterns, characterized by a high main light placed directly in line with the line of the subject's nose. This lighting produces a butterfly-like shadow under the nose. Also called butterfly lighting.

PC cable. A wire used to trigger a connected off-camera flash using the camera's PC port. This connection allows only for manual flash control.

Profile lighting. A style of lighting in which the main light is placed slightly behind the subject to create rim lighting on their face in profile (turned 90 degrees away from the camera).

RAW. A file format that records picture data as-is from the sensor, without applying any in-camera corrections. In order to use images recorded in the RAW format, files must first be processed by compatible software. RAW processing includes the option to adjust exposure, white balance and the color of the image, all the while leaving the original RAW picture data unchanged.

Rear-curtain sync. Firing the flash just before the closing of the shutter, so that moving objects will show a streak where they came from and a sharp image where they were at the end of the exposure, useful for moving objects to convey a sense of speed. This mode is called either rear-curtain sync or second-curtain sync.

Recycle time. The amount of time that is required for the flash to return to full power after it has been fired. Shooting at higher power settings will result in longer recycle times.

Reflected light meter. A meter that measures the amount of light reflected from a surface or scene. All in-camera meters are of the reflected type.

Reflection. One of the behaviors of light. Light striking an opaque or semi-opaque surface will either reflect light at various angles, transmit light through the surface or be absorbed by the surface.

Reflector. (1) Same as fill card. (2) A housing on a light that reflects the light outward in a controlled beam.

Rembrandt lighting. Same as 45-degree lighting.

Rim lighting. Portrait lighting pattern where the main light is behind the subject and illuminates the edge of the subject. Most often used with profile poses.

Ring flash. A type of light source that surrounds the lens, creating a shadowless look.

Rotate function, flash. The ability of a flash head to be turned to the side. A greater range in this facilitates bounce flash techniques.

Scatter. Light that, having been projected through a translucent medium, is transmitted at a wide variety of different angles.

Scrim. A panel used to diffuse sunlight. Scrims can be mounted in panels and set in windows, used on stands, or they can be suspended in front of a light source to diffuse the light.

Shadow. An area of the scene on which no direct light is falling making it darker than areas receiving direct light (*i.e.*, the highlights).

Shadow edge. Where a highlight and shadow meet on a surface is the shadow edge. With hard light, the shadow edge is abrupt. With soft light the shadow edge is gradual. Also known as the transfer edge.

Shadow values. Image areas that are not illuminated or are only partially illuminated.

Short lighting. One of two basic types of portrait lighting in which the main light illuminates the side of the face turned away from the camera.

Slave. A remote triggering device used to fire auxiliary flash units. These may be optical, or radio-controlled.

Snoot. A conical accessory that attaches to a flash and narrows the beam of light. Snoots allow the illumination of very small areas with relatively bright light.

Softbox. A box-shaped light modifier that contains one or more light heads directed through single or double-diffused scrims on the front of the box.

Specular highlights. Sharp, dense image points on the negative. Specular highlights are very small and usually appear on pores in the skin. Specular highlights are pure white with no detail.

Split lighting. A type of portrait lighting that splits the face into two distinct areas: a shadow side and a highlight side. To create this, the main light is placed far to the side of the subject and slightly higher than the subject's head height.

Spotmeter. A handheld reflected light meter that measures a narrow angle of view—usually from 1 to 4 degrees.

Spotlight. A small sharp light that uses a Fresnel lens to focus the light into a narrow beam.

Straight flash. The light of an on-camera flash unit—particularly when used without diffusion.

Strip light. A long, narrow type of softbox.

Sweep table. A translucent table for lighting small products and still lifes. It is characterized by a curved hori-

zon line so that objects can be photographed with a seamless background. Also called a cove.

Tilt function, flash. The ability of a flash head to be angled upward or downward. A greater range in this facilitates bounce flash techniques.

TTL cable. Wire used to control an off-camera flash using the camera's hot shoe. This connection allows only for triggering and complete TTL function, as well as high-speed flash sync (for compatible flash/camera systems).

TTL. An exposure systems that analyzes the area in front of the camera through the lens (thus, the TTL acronym) and adjusts the exposure settings and/or flash output accordingly.

Transfer edge. *See* shadow edge.

Umbrella, reflective. A light modifier, shaped like a standard rain umbrella. Light is bounced into its reflective concave surface and reflects back onto the subject for a softer effect than direct lighting.

Umbrella, shoot-through. A light modifier, shaped like a standard rain umbrella. Light is directed through its translucent surface, diffusing it for a softer look.

Vignette. A semicircular, soft-edged border around the main subject. Vignettes can be either light or dark in tone and can be included at the time of shooting, or added later in processing.

Watt-seconds (W/S). Numerical system used to rate the power output of electronic flash units.

White Balance. The camera's ability to correct color and tint when shooting under different lighting conditions including daylight, indoor and fluorescent lighting.

Wireless flash control. The use of various devices to remotely trigger (and, in some cases, control the settings of) a flash unit.

X-sync speed. The shutter speed at which focal-plane shutters synchronize with electronic flash.

Zebra. A term used to describe reflectors or umbrellas having alternating reflecting materials such as silver and white cloth.

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MASTER THE CREATIVE AND TECHNICAL SKILLS YOU NEED TO GET BIG RESULTS FROM SMALL FLASH

Today's electronic flash units are small, powerful, and remarkably easy to control. As a result, units that were once the province of wedding shooters and photojournalists are being used in every sector of professional photography—from commercial shoots, to fashion photography, to portraiture. From selecting gear, to placing the small flash units, to ensuring proper

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