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OUR WORLD

Tom Servais / Born in Miami in 1953, Servais moved to California at the age of 20 to find himself and pursue surfing. After taking several photography classes, he began his career as a photographer with Surfer magazine. Fueled by the joy of turning his passion into a career, he travels the world in pursuit of an endless summer.

Photo data: SIGMA 18-250mm F3.5-6.3 DC OS HSM, 1/1,000-second exposure at f/6.3.

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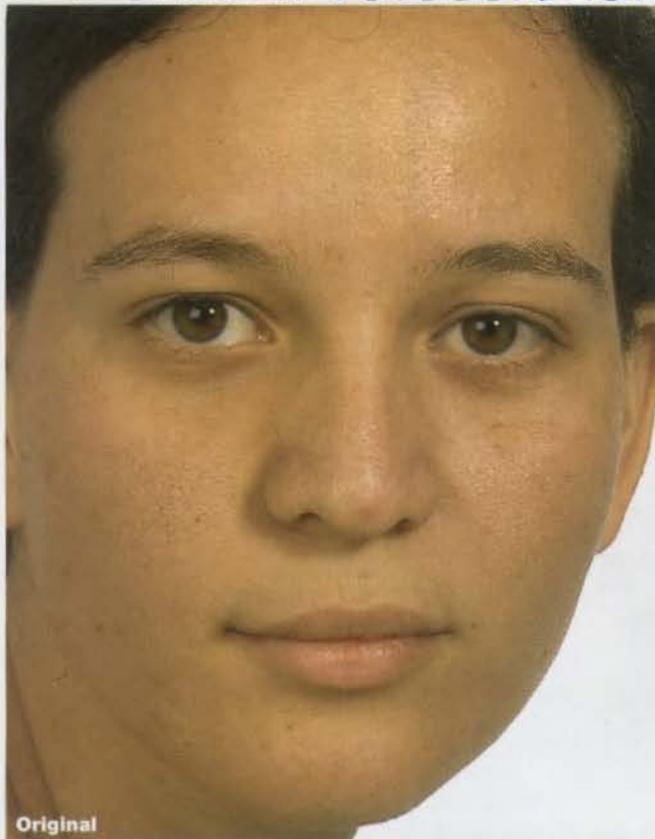
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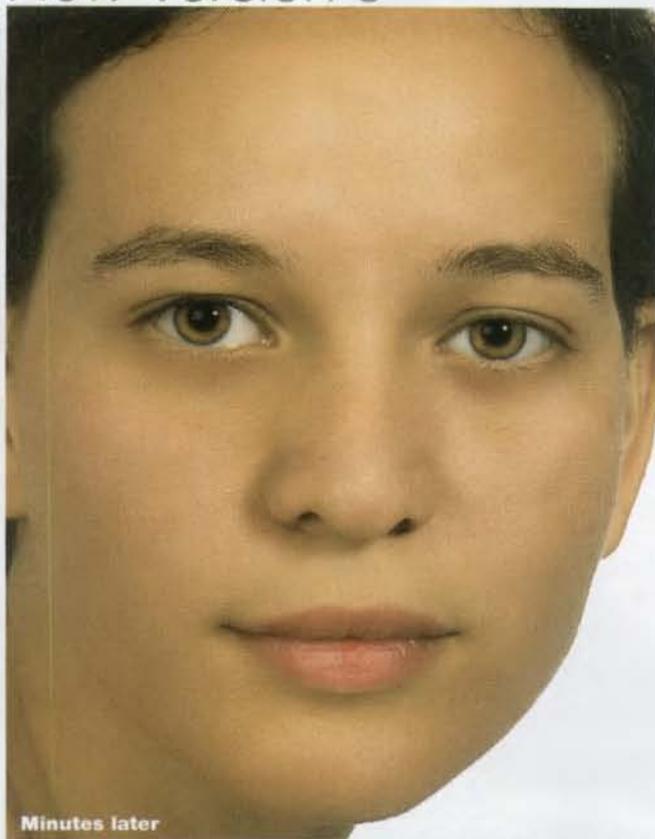
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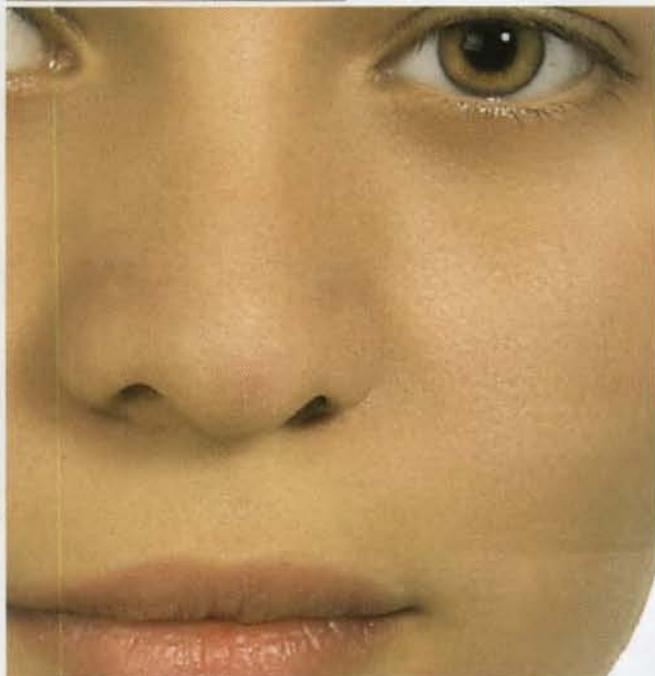
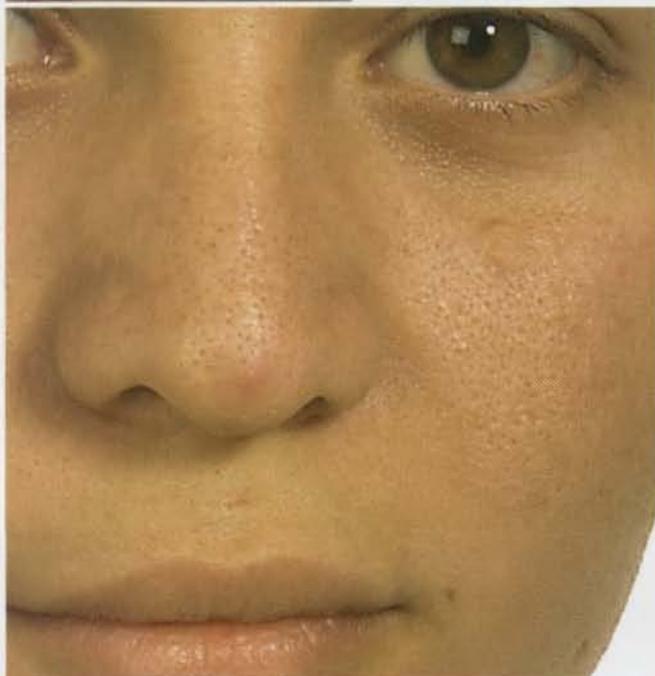
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NEWSSTANDS: Canon and Nikon come out with new HD-video-shooting DSLRs for less than \$900 with kit lens. Page 76. Photographed by Tony Cordoza.

SUBSCRIBERS: Creating high-key portraits like this one by Randall Cottrell is one of the 20 new skills you'll learn in the Big How-To Special, page 50.

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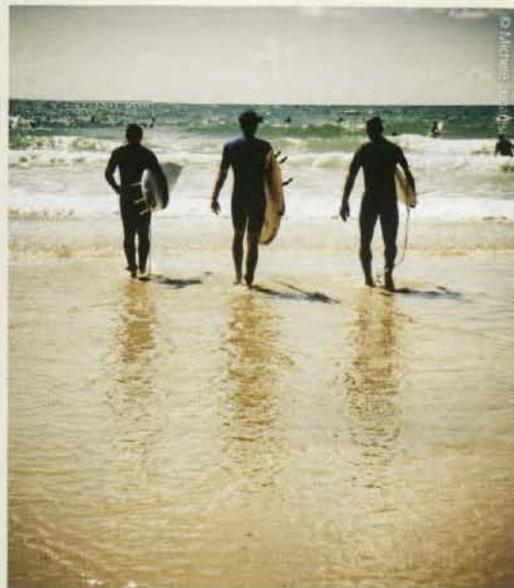
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A visit to a private full service horse farm provides an exclusive tour and the occasion to photograph the beauty of these gentle animals. Practice your panning as the horses gracefully gallop across the polo field, or take a slower approach and set up environmental portraits of the equestrians and detail shots of the stables.

Head on out to Montauk, the eastern tip of Long Island, where the light and the sea are constantly changing. Surrounded by water on three sides, Montauk's distinct natural beauty is unmatched. You won't want to miss the historic **Montauk Point Lighthouse**, perched on a rocky bluff above the eastern coastline. From this iconic landmark, you can also turn your lens on miles of beautiful unspoiled beaches or take action shots of surfers attempting the wild waters down below.

Experience charming **Sag Harbor**, a village nestled on the north bay of the South Fork. The historic enchanting town boasts its strong maritime flavor and holds tight to its history. The centuries-old tree lined streets complement the 18th and 19th century architecture that is still intact. The streets slope down to the bay and boats that fill the harbor will fill your lens with colorful opportunities to capture the main port of this captivating area.

Go from the South Fork to the North Fork on board a private vessel

and experience the magnificent **Peconic Estuary System** by boat. The combination of tidal creeks, woodlands, vast fields and eastern coastline make it an ideal habitat for wildlife and a fantastic opportunity for you to capture birds in their natural environs. The itinerary includes Barcelona Point, **Cedar Point Lighthouse** and the **Mashomack Nature Preserve** on Shelter Island.

Enjoy the best of the North Fork by experiencing the quiet beauty of a stunning vineyard. Your camera will be treated to the majestic scenery of the landscape and classic images of the wine making process, all the way from the vine to the bottle. Let the Mentors help you capture the lush grapes and rolling hills that serve as a backdrop to this amazing unique vineyard. Afterwards, relax with special wine tasting and sample a few of the winery's award winning vintages.

Long Island is all about its beautiful beaches and this trek will not disappoint. An afternoon of beach activities awaits your lens with the chance to capture recreation and lifestyle shots as the light changes. Focus your lens on the pristine dunes, the vast landscape at sundown or learn to light a surfer as she takes to the open water. Experience an oceanfront cookout and set up a still life or approach the fest as a full-on event. Wherever you point your camera, you'll enjoy it from the unspoiled Long Island beach while your photography instructors encourage your creative approach and provide technical advice.

The diversity of photo ops and richness of color and light make eastern Long Island the ideal place to hone your photography skills. Get ready to be enchanted by this part of America and wrap up your summer by joining the Mentor Series when they take to Long Island in September!



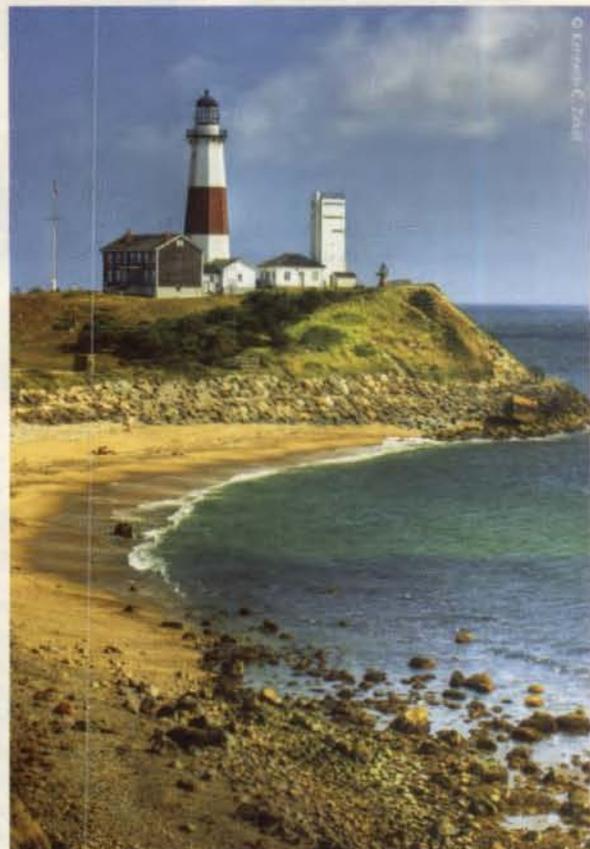
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At the heart of the image... **Nikon**

Oil and water don't mix, but that's a good thing, since it makes photographing bubbles easy to do using only basic gear.

Get a glass cake pan and elevate each end about 6 inches above your working surface with books or wooden blocks. Leave the center under the pan open. Then fill it about two-thirds of the way with water and add a splash of cooking oil.

In the center, under the pan, place a piece of brightly colored paper (I use newspaper ads or candy wrappers). The distance between the water and paper puts the background material out of focus.

For this shot, I used a Canon EOS 5D Mark II and 100mm f/2.8 Canon EF macro lens—extension tubes or a close-up filter work also. A tripod head that lets you tilt your camera forward so it's



BETTER Bubbles

or f/11, 1/125 sec. An AlienBees studio flash lit this shot, but available light will work.

Now fire away, changing the background often, and periodically mixing things up with a fork.

*Allen Thornton
Castle Rock, CO*

parallel to the water will maximize focus edge-to-edge. Autofocus may not work—use manual.

I typically shoot at ISO 200, f/8

Distorted view

The scorecard in "The Full-Frame Decision" (April 2009) goes too much by the numbers and overlooks photographers like me. Most of my photography is of my children and family, and I'm waiting for a full-frame DSLR in my price range.

My Nikon D40 is leagues ahead of my compact and so much more convenient than my film SLRs that I'd never go back. But every time I take a group shot of my family, its crop factor makes wide-angle lenses not so wide, and fitting everyone in is harder than it should be. Also, if I forget I'm using a digital-only lens and shoot at its widest setting (18mm), anyone near the edge of the frame is distorted in very unflattering ways. Sure, the crop factor is helpful when shooting kids' sports, but I don't do that nearly as often as I shoot people at moderate to close range. *Michael Kolodner
Erdenheim, PA*

News on noise

My Canon EOS 5D Mark II has three settings for high-ISO noise

reduction: off, standard, and high. I also have Noise Ninja plugged into my copy of Adobe Photoshop. Will I get better photos using Canon's internal noise reduction, a Noise Ninja-type postproduction alternative (with Canon's internal program turned off to preserve maximum detail), or a combination of the two—say, standard internal noise reduction combined with Noise Ninja's custom profile for my camera? *Ryan Kelly
Washington, DC*

While the 5D Mark II's in-camera noise reduction works well, we recommend leaving it off and shooting RAW. This way, you can apply whatever level of noise reduction looks best when converting in Canon Digital Photo Professional, and compare it to the results using Noise Ninja in Photoshop. We obtained our noise test results on the 5D Mark II by applying Digital Photo Professional's default level of noise reduction, which varies (i.e., increases) as the ISO increases.

Hi, dynamic rangers

I noticed in the test of the Olympus

E-30 (March 2009) that the camera lets you combine Multiple Exposure mode and Auto Gain. That sounds like the perfect formula for high-dynamic-range (HDR) images.

I've used HDR software that combines images that are 1 stop underexposed and 1 stop overexposed, but doing it inside the camera would provide some real advantages. How close is this to becoming reality? *Jim McKeever
Ormond Beach, FL*

In-camera HDR is coming, but you may not want it in your DSLR just yet. So far, really good HDR images still require a lot of manual adjustments in software. Most of the defaults in these programs look okay, but often aren't very true to life. We'd expect the same from automated in-camera HDR at this point. Plus, any in-camera HDR adjustments would have to be done on a 3-inch LCD screen on the back of the camera instead of on a big computer monitor.

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CREATIVE Force



Classical architecture. The building shown in the photo at left is the St. Louis Art Museum. "It was the only permanent building built for the 1904 World's Fair: 'Meet me in St. Louis, Louis, meet me at the fair,'" Crim points out. "It was designed by New York architect Cass Gilbert, who designed the Minnesota and West Virginia State Capitols, and the U.S. Supreme Court building."

Animals. In addition to the 700 species in the St. Louis Zoo, Crim's encountered diving kingfishers, giant snapping turtles, and mating

ART FOR ART'S SAKE:

"I think everyone should give himself creative assignments," says St. Louis pro Edward Crim, who's deep into a yearlong shoot.

ducks. "I have new respect for wildlife photographers," he laughs. "Try getting a small nervous bird to sit still for you. I'd rather photograph a bad kid."

And, of course, people.

"I've been out on a couple of 10-degree days," he says, "and there are always people in the park."

Joggers, anglers, rugby players, a man who's fascinated by great horned owls... "I just walk up and say 'Hey, that looks interesting. Can I take your picture?' And nobody has said no."

But still, how can someone who feeds his family working with a camera devote at least five hours every single day to an income-free creative project?

"It is very demanding," admits Crim, who on the evening we spoke had an assignment at a corporate event. "But I'm one of those guys who works well under a deadline."

"For me, the creation of these images and meeting all of these people is enough."

Is it making you a better photographer?

"Definitely. And it has put me in an awfully good mood." 

One man, one year, one helluva project

How do you get to be a better photographer? Shoot. Shoot a lot. But as Edward Crim will tell you, volume is only half the story.

Having spent decades in photography and the past six years as a full-time pro, Crim has fired the shutter millions of times. "But any creative person can get stuck in a rut," says the 54-year-old.

So Crim decided to do something about it: He gave himself a 365-day assignment. His subject: St. Louis, MO's Forest Park, the city's 1,293-acre epicenter of nature, culture, and the arts, which isn't far from Crim's home. His project: Shoot in the park every day of the year, starting January 1, 2009.

"I'd taken engagement and wedding photos in the park many times over the years," he says. "But I'd never really seen the owls, muskrats, and other wildlife, and this project has helped me see the familiar in a new way."

Think it's just another whimsical "photo-a-day" project? Hardly. For one thing, Crim set up a website to showcase his photos and chronicle his efforts (www.forestpark365.com). For another, Forest Park is huge—dwarfing New York City's Central Park by nearly a square mile.

I talked with Crim 75 days into the shooting, and "effort" is the operative word. "It has spun into a whole lot more time than I thought it would," he confesses. "There have been times I've been out in the park an hour before midnight."

Typically, Crim spends two to three hours a day in the park shooting anywhere from 170 to 300 images, pulling from his arsenal of Canon EOS gear (1Ds, 1D Mark II, 5D, and 30D). Each evening, he devotes another couple hours to editing and posting about 30 images.

"Dust is the only thing I edit out of a photo," he says. "I prefer to present things the way I see them. I'm trying to show people what's really there."

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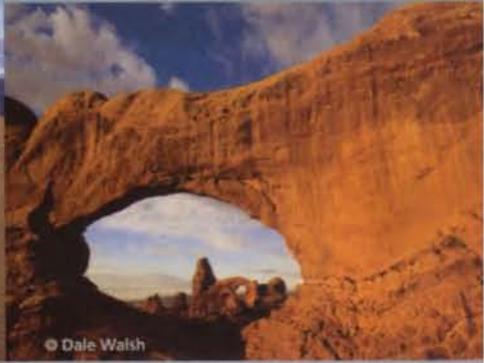
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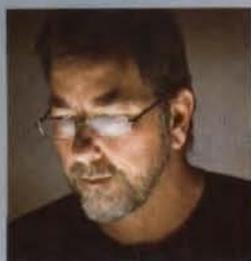


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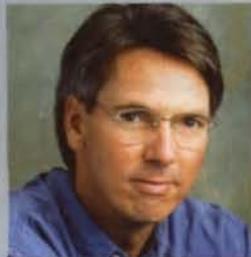
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\$70-\$90, estimated street ■ www.lowepro.com Pockets, protection, and style mean little if you can't get to your camera quickly. With Lowepro's Toploader Pro AW series bags, you're ready to fire at a moment's notice.

HOT: The side opening makes it easy to grab and shoot, quick-release buckle gives zipper-free access, and all-weather cover is perfect for imperfect days. **NOT:** Though the bag can be worn three ways (with a belt system, topload chest harness, or holster-style shoulder strap), the belt and harness are sold separately (\$10-\$43). And even the largest size lacks room for extra lenses and flashes.



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\$540-\$1,500 (2-, 4- or 8TB), street ■ www.wdc.com

If you shoot in RAW (and you should), chances are your hard drive is getting crowded, especially if you aren't the only one using it. Western Digital's ShareSpace is a network attached storage (NAS) device, so several people can use it at the same time from different computers.

HOT: In case you forgot, 1TB equals 1024GB, so with up to 8TB of storage, you'll be set for a long time. You can backup remotely with MioNet Web access, and transfer at speeds up to 125MB/sec over Gigabit Ethernet. **NOT:** Backup software isn't Mac-compatible.



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COMPACT CAMERAS

should be, well, compact, right? Pentax agrees. The Optio P70 is the lightest in the line. With 12 megapixels, 4X optical wide-angle 28-112mm (full-frame equivalent) zoom lens, 2.7-inch LCD, shake reduction, and a \$180 street price, it weighs only 4.4 ounces with battery and SD card. (www.pentaximaging.com)

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THE GOODS HIGH 5

1. Canon PowerShot D10

\$330, street ■ www.powershot.com

■ 12.1MP; 3X optical zoom; waterproof to 33 feet

Canon's first foray into waterproof digital compacts looks like a cross between a Digital ELPH and a diving bell. With a waterproof rating down to 33 feet, it's among the deepest divers in this category, but its 2.5-inch LCD and optically stabilized 35–105mm (equivalent) f/2.8–4.9 zoom lens aren't at the front of this pack. Like the other cameras here, the D10 is freeze- and shockproof, in this case surviving temperatures down to 14 degrees Fahrenheit and falls of up to 4 feet.

2. Fujifilm Finepix Z33WP

\$200, street ■ www.fujifilmusa.com

■ 10MP; 3X optical zoom; waterproof to 10 feet

Borrowing design cues from Fuji's teen-targeted Z30, this underwater shooter is one of the tiniest and most stylish, as well as the most affordable. Its 2.7-inch LCD is as large as they come on this type of compact. But its waterproof only to 10 feet, and its 10MP and 35–105mm (equivalent) f/3.7–4.2 optical zoom aren't groundbreaking.

3. Olympus Stylus Tough 8000

\$400, street ■ www.stylustough.com

■ 12MP; 3.6X optical zoom; waterproof to 33 feet

Olympus offers some of the most rugged compact cameras you can get, and its latest fits the mold. You can shoot down to 33 feet underwater, drop the camera from up to 6.6 feet, and use it in temperatures down to 14 degrees Fahrenheit. Plus, its metal construction can withstand up to 220 pounds of pressure. Sensor-shift image stabilization combats hand shake, and the zoom, while not league-leading, spans an equivalent 28–102mm f/3.5–5.1.

4. Panasonic Lumix DMC-TS1

\$400, street ■ www.panasonic.com

■ 12.1MP; 4.6X optical zoom; waterproof to 10 feet

Panasonic has stepped up to the pool in a strong way with its first waterproof digital camera. Its optically stabilized 28–128mm (equivalent) f/3.3–5.9 zoom offers a nice balance of wide angle for underwater and midrange tele for land-based adventures. At 12.1MP, it affords plenty of resolution, and it has an ample 2.7-inch LCD. While we wish it could go deeper than 10 feet, its 720p video recording should make playing in the backyard pool more fun than ever.

5. Pentax Optio W60

\$250, street ■ www.pentaximaging.com

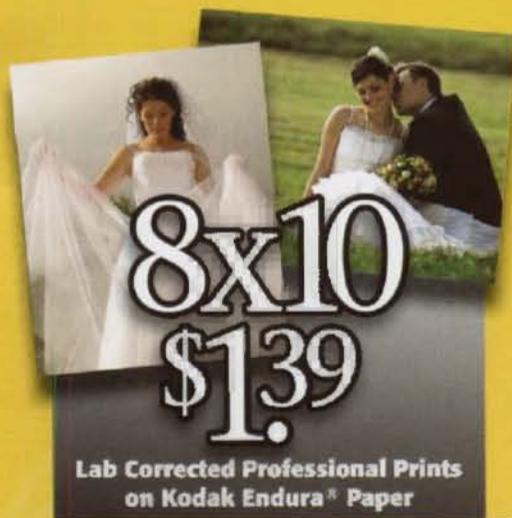
■ 10MP; 5X optical zoom; waterproof to 13 feet

Pentax was one of the first to offer dunkable digital cameras with its WP series years ago, and now it's a major force. This model has plenty of room to the left of the lens to hold onto, and we like the 720p video recording, though we'd rather have a faster rate than its 15 frames per second. Its Super Macro mode should be a boon below the surface, letting you focus as close as 0.4 inches from the front of the 28–140mm (equivalent) f/3.5–5.5 lens.



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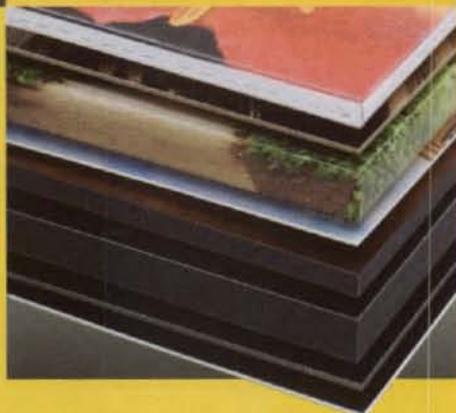
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HOW I SHOT THIS



REDSea

**SHOOTING SUPER
STINKY SPRINGS**

THE OUTTAKES: Too much steam and a run-of-the-mill shoreline make this one **(A)** a dud. The other shot **(B)** has all the right stuff without the right exposure.



Daniel Lemin, 33, had a brief stint

as a professional photographer, but he went back to a career in marketing when he realized that trying to make money with his pictures was sapping him of the passion to photograph. Check out more of the Los Angeles-based photographer's work at www.daniellemin.com.

Q. What are we looking at here?

A. This is a section of the rim of a sulfur pool in a geothermal area in New Zealand's North Island. You're looking at the edge of the pool—fluid bubbles up from the earth's core and causes these geothermal activities, similar to Old Faithful. The different colors are mineral deposits that have collected over the years. The section in this photo is probably no more than 2 feet wide.

Q. Where are you standing?

A. I had my camera on a tripod looking straight down. I'm standing about a foot back from the edge of what they call a champagne pool. It's very hot. Sulfuric steam rises from it constantly and blows in all directions.

Q. Any problems while shooting?

A. The whole series had a lot of challenges, but the biggest one was getting over the smell. It was a windy, cloudy day, and the light was very inconsistent from frame to frame. The steam was blowing in different directions, and because the steam is yellow it kept messing with my white balance settings.

Q. What equipment did you use?

A. This was shot with a Hasselblad H3 and an 80mm lens. The H3 is a 39-megapixel beast; the camera itself weighs 8 or 9 pounds. I had to bring a lot of batteries. I like shooting with it because it allows me to capture the finest details. Sometimes I blow these pictures up to wall size. The largest I've made is 5 feet by 7 feet—they just come alive at that scale. I was shooting on manual focus to make sure I could focus not on the water and bubbles but on the mineral deposits that formed the pool. They're fairly deep—you can see it's like a steep cliff down about 5 or 6 feet from the edge. Mostly I shot pretty fast, about 1/350 sec at ISO 200. I normally take long exposures, but in this case I had to shoot fast. If I'd used a slow shutter speed, the steam would have blurred and looked like fog.

Q. Did you do much editing afterward?

A. I had to. Because the steam was causing so much condensation on my lens, I spent hours retouching out the water spots. If you look closely at the outtakes, you can see them. The outtakes are straight RAW conversions from the camera—you can see what it would look like without color enhancement. The final actually looks like it did in life, though. There really were these fluorescent colors. It doesn't look like it's real, but it is. And it's beautiful. 

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① 1st Place

Petal Pusher

This isn't the first time a winner found a subject to photograph while at work. Postal carrier DEB BARICH, 50, noticed this peony in the garden of one of her customers in Eugene, OR, and returned the next day with her husband RICK BARICH (also an avid flower photographer) to capture it. The couple used a wireless flash with a softbox to get diffuse light—perfect for soft, white petals. With such a carefully planned setup, it didn't take them long to get this graceful photo.

"After a few dozen shots, we found the jewel that showed the shadows and layers just right," Deb Barich says. Check out more of the duo's floral images at www.oregonmacro.com.

TECH INFO: Canon EOS Rebel XTi with 50mm f/2.8 Sigma macro lens and Sunpak 622 Super Pro flash with mini softbox. Exposure: 1/125 sec at f/22, ISO 100. Color cast, curves and sharpness adjustments made in Adobe Photoshop CS.

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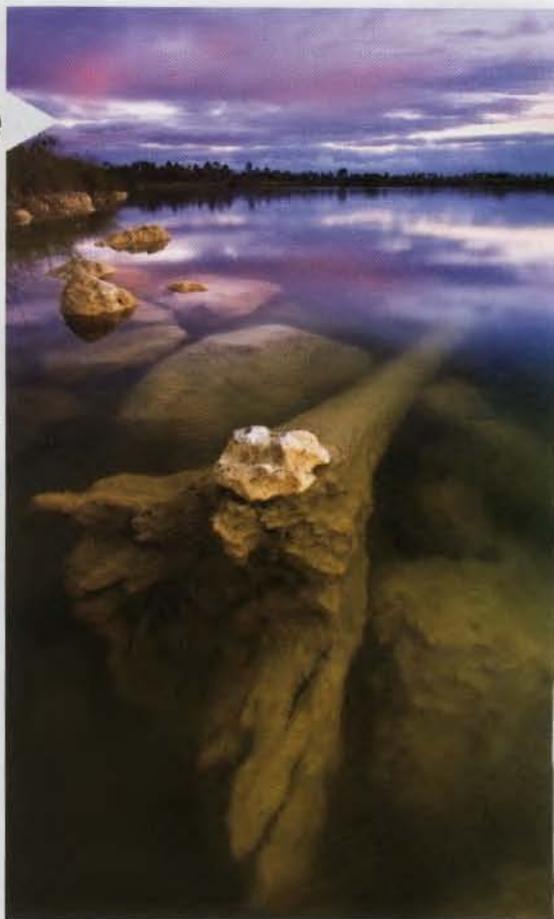
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YOUR BEST SHOT

②nd Place Water Logged

PAUL MARCELLINI, 24, is a naturalist for the Miami-Dade Park and Recreation department, but that doesn't give him his fill of nature. He escapes the city for the seclusion of the Everglades every other weekend. "I noticed the sunken log and knew it would make an excellent leading line," he says of this photo. But taking it wasn't easy. Waist-deep in the water, he had to "hop between boulders, and splay the tripod legs in awkward directions to get the perfect angle." See more at www.paulmarcellini.com. **TECH INFO:** Tripod-mounted Canon EOS 20D and 10-22mm f/3.5-4.5 Canon EF-S lens with polarizer. Exposure, 4 sec at f/18, ISO 100. Curves and levels adjusted, and dodging and burning done in Adobe Photoshop CS3.



③rd Place Full of Egret

We always advise shooting early in the morning, but as the day gets later, flash is your friend. That's what helped Queens College Network Service Director MORRIS ALTMAN, 53, of Flushing, NY, avoid harsh late-morning shadows when he captured this well-cropped photo of a great egret at the Oceanside Marine Nature Study Area. "I stopped down one click from my guess and had the exposure correct." **TECH INFO:** Nikon D70S with 80-400mm f/4.5-5.6D Zoom-Nikkor ED VR lens, and Nikon SB-800 Speedlight with a Better Beamer. Exposure, 1/500 sec at f/11, ISO 200. Minor levels and sharpening adjustments made in Adobe Photoshop CS2.



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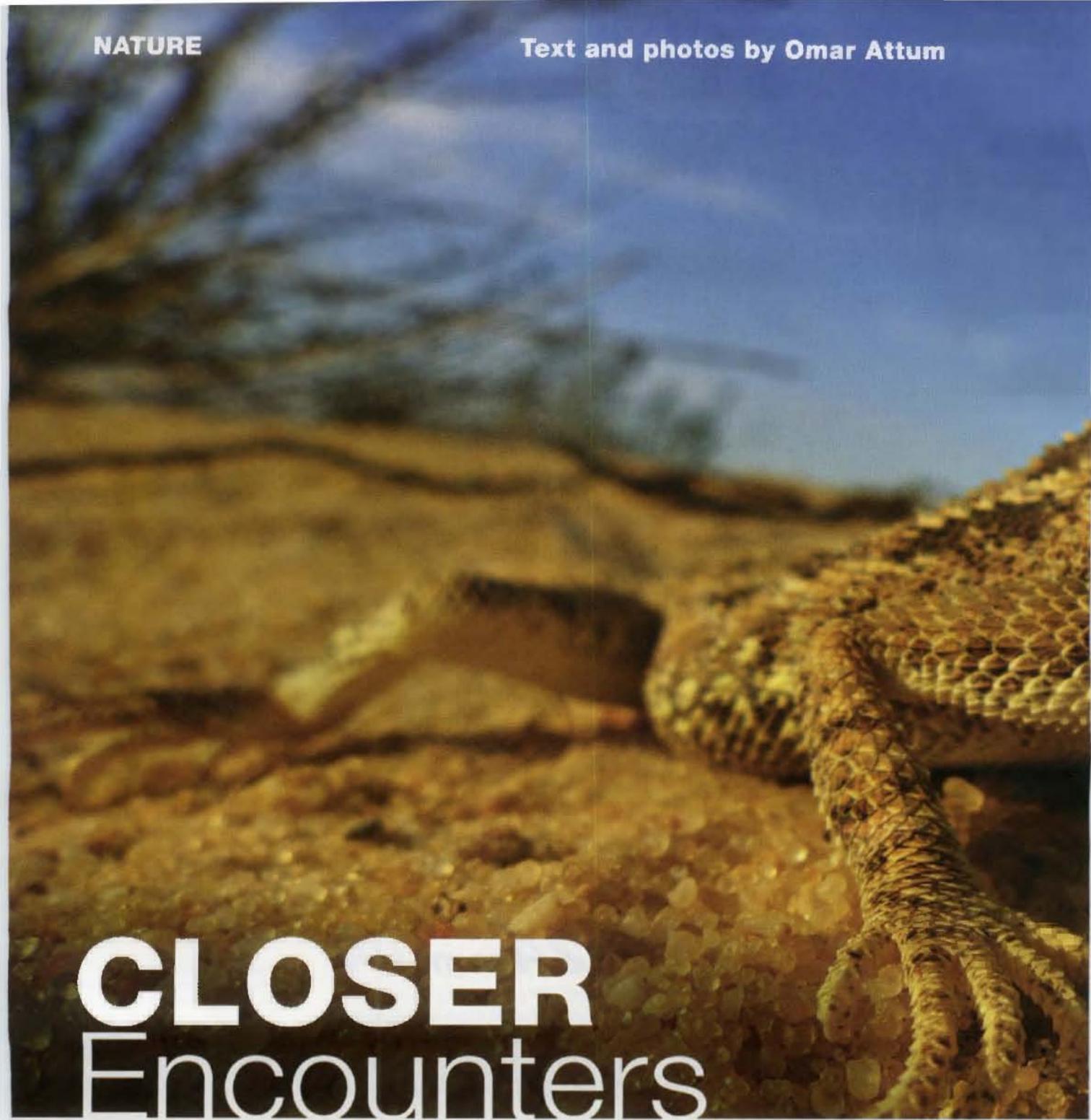


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CLOSER Encounters

Make the small loom large

It's the smaller species—insects, amphibians, reptiles—that often slip through the conservation cracks, their decline or disappearance unnoticed. These creatures depend on the preservation of their habitats

for survival. That's why I focus my photography on an animal's connection to the landscape—I think of it as telling habitat stories.

For photographers, this approach has the added bonus of a dynamic, almost three-dimensional, look to the images. Here are my tips for making them happen.

Use the right tools

For this type of photography, camera system or sensor size is less important than lens selection. Habitat stories are best told with wide-angle lenses, between 16mm and 35mm (full-frame equivalent) that have close-focusing distances of 10 inches or less. My favorites for DSLRs with APS-C-



**SAVIGNY'S AGAMA
(SINAI, EGYPT):**

This type of agama is relatively easy to approach, as it relies on cryptic behavior—such as remaining motionless—for its defense. Handheld Panasonic Lumix LX3 with lens set at 24mm (equiv.), 1/320 sec at f/5.6, ISO 80.

sized sensors are Sigma's 10–20mm f/4.5–5.6 (close-focusing distance, 9.4 inches) and 17–70mm f/2.8–4.5 (AF to 7.9 inches, manual to 6 inches).

Full-field fisheye lenses are also good tools, despite their severe distortion, as they often focus to less than 6 inches. Subjects and straight lines in the center of the frame often

appear normal, while outer areas of the frame progressively more distorted—suggesting the roundness of the earth.

To depict the relationship between really small wildlife (such as tiny invertebrates) and their habitats, I prefer compact cameras. Why? Many have optical image stabilization, which allows for sharp handheld photographs

at marginal shutter speeds. More important, they often focus to just an inch or so from the front of the lens.

Two models that I favor: Canon's PowerShot G9 and Panasonic's Lumix DMC-LX3, both of which record images in RAW format. The LX3 also has the ability to focus off-center subjects by using a joystick to select



PRAYING MANTIS (SINAI, EGYPT): I used a circular-image fisheye lens, which on an APS-C sensor makes a full-field image, to accentuate the curvature in the scene. Canon EOS 20D with 8mm f/3.5 Sigma EX DG lens, 1/500 sec at f/3.5, ISO 400.

the focus point anywhere on the screen, so you don't need to prefocus and recompose. It also lets you switch the image's aspect ratio among 16:9, 3:2, and 4:3, while maintaining the same angle of view. I chiefly use 4:3 for verticals (I find 3:2 too narrow), and the wider 16:9 to emphasize the sweep of terrain for horizontals.

Get down and dirty

Photographs looking down on small ground-dwelling wildlife are usually just plain boring: They lack intimacy and show no connection with the animal. So be prepared to get your

stomach, knees, and elbows dirty, because the most important rule here is to be eye-level with the animal.

For small species, this usually involves lying on the ground, often handholding the camera. I use a tripod when possible, but only if it can lie flush with or close to the ground. I use the very short and light Really Right Stuff BH-25 ballhead (\$90, direct; reallyrightstuff.com). I place my ballhead platform on its side and attach a Kirk Enterprises

L-bracket (starting at \$80, direct; www.kirkphoto.com) in the horizontal position to get even closer to the ground (see inset photo below).

Move in close

Don't waste your time exploring for rare species—they're precisely the ones you're not likely to find. Look instead for common ones. Think local: You can find them in your backyard, city park, or even a parking lot.

The best times to shoot are just after sunrise or before sunset. The lighting is warmer, but the air is cooler, so cold-blooded animals are more sluggish and less alert.

The best season? The transition of late winter into early spring, when animals emerge from hibernation ready to breed. You can usually get really close to males, who have one thing on their mind (breeding) and are less concerned with predators or photographers—in summer, they're more alert to danger. Females often are hard to approach any time of year.

You can get quite close to small animals if you approach slowly. We are on an entirely different spatial scale than these creatures and don't share a predator/prey evolutionary history. For instance, you may get within a few

SCORPION (WESTERN DESERT, EGYPT): Discovered accidentally while moving a large stone to set up my tent. Handheld Panasonic Lumix LX2 with lens at 28mm (equiv.), 1/125 sec at f/8, ISO 100. Inset: Setup I use with a tripod.



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**COPPERBELLY
WATERSNAKE (PIONEER,
OH):** This is the closest I've
ever been able to approach
this very wary species—it may
be a once-in-a-lifetime shot.
Handheld Canon EOS 20D with
17–70mm f/2.8–4.5 Sigma
DC Macro lens, 1/100 sec
at f/5, ISO 200.



inches of some desert lizards, but if there is a faint black dot in the sky that represents a bird of prey, the lizard may well disappear as fast as if the bird were within a foot of it.

When I'm walking, the heel of my advancing foot goes no farther than the toes of the other foot. Many small animals will not skitter away if you crawl rather than walk, so I may start crawling from 20 feet away, scooting my tripod (when I use one) ahead of me on the ground.

This type of photography is not safe with venomous snakes—you will be within striking distance—but most nonvenomous ones will simply

flee. And keep in mind that when you are very close to small animals, especially in a desert, they may move toward or even underneath you, viewing the large object near them as cover. A scorpion once ran underneath me, and for a few seconds, I had no idea where it was—unnerving, to say the least.

Compose for depth

The point of shooting up close with a wide-angle lens is to achieve a strong foreground/background composition that shows a species' place in the greater landscape. You create an exaggerated, larger-than-

life, 3D-like perspective at minimum focusing distance, since objects in the foreground appear larger than life in relation to the background.

Compose with the animal off-center, ideally in a corner, and taking up at least a third of the frame. The background should be the habitat of importance, such as a forested wetland, mountain peak, or stream.

I often set the aperture to f/5.6, which provides a balance between a sharply rendered subject and defocused background that doesn't steal attention, yet reads as habitat.

I try to maintain a shutter speed fast enough to minimize vibration while handholding; 1/30 sec is about as slow as I go before using a tripod. Considering how little digital noise today's DSLRs produce, I don't hesitate to use ISO 800 or even 1600. If the composition is striking, grain or noise concerns are secondary.

Keep at it

Don't get discouraged. This type of photography consists mostly of unsuccessful attempts—about 90 percent. Wildlife often flees before you can get close. And a compact camera may be unable to focus on an insect against a low-contrast background.

Your success, paradoxically, may depend on how you spend your time away from the camera. Learn about wildlife and their habitats. Join a local conservation group or read up on the species struggling to survive in an area near you. Take hikes. Imagine yourself as a child, looking for small creatures hiding in the leaf litter, under rocks, or on a wetland's edge. A whole new world has opened up to me since I started looking for insects and flowers to photograph during neighborhood walks with my child.

I find myself previsualizing compositions that tell a larger story and show the interaction between wildlife and their habitats. This can help you create images when you chance upon a creature in the field. ☉

Omar Attum is a professor of conservation biology at Indiana University Southeast, as well as a freelance photographer who travels between Louisville, KY, and the Middle East. A Blue Earth Alliance Photography fellow, he has been published in National Geographic and Wildlife Conservation.

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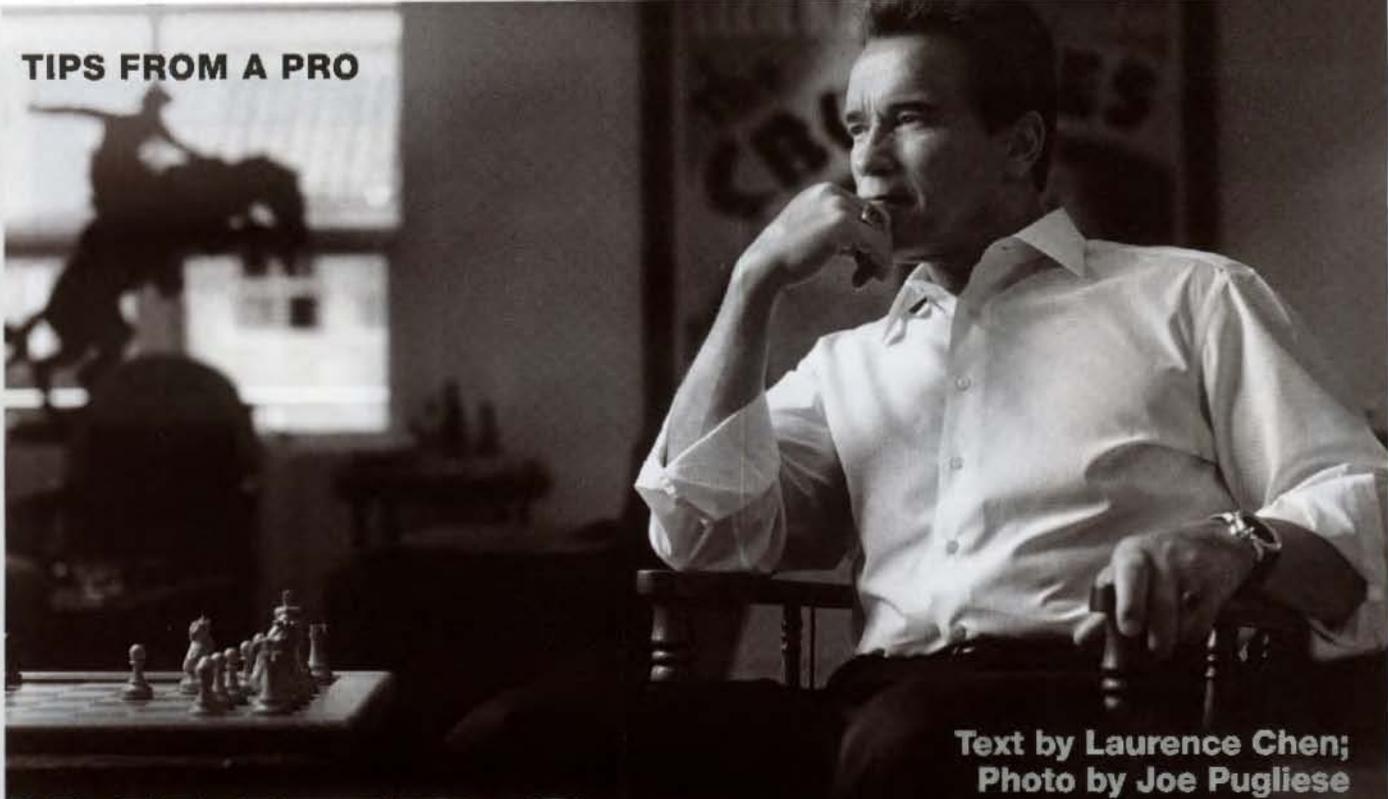
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Text by Laurence Chen;
Photo by Joe Pugliese

INNER Sanctum

Capturing an unknown facet of a well-known face

Schwarzenegger and chess?

You might not put them together, but that's just what makes this portrait work. Revealing the unexpected is one of the greatest tools in a portrait shooter's kit.

When such an opportunity arises, Los Angeles-based Joe Pugliese (www.joepug.com) pounces. Formerly with the *Los Angeles Times*, he shot this photo of Arnold Schwarzenegger for *Time* magazine's "Time 100" in the California governor's Santa Monica office.

"I want something to be revealed, something true, quiet, and honest—the everyday emotions we all feel," Pugliese says. "Big cameras and light are how I get there, but I'm always paying attention to what's in there." His advice:

1 Build a rapport. It took time before Pugliese realized that portraits needed to "have something going on" between the people on both sides of the camera. "The reason I'm there is to have an interaction with the subject, and if I don't get something real that anyone else can see, I've failed to do my job," he says. Even if he has only 10 minutes to hoot, he'll

spend half the time conversing so that the resulting photo will be more natural.

"Schwarzenegger has a grand persona—laughing, smiling, shaking hands," the photographer says. To get past that, he asked the actor-turned-politician about the posters, art, and other items in his office. "I wanted it to be between me and him. If I talk to him for a couple of minutes without the camera in my hands, he can get to know my personality. The photo reflects our interaction."

2 Light for multiple angles.

Pugliese planned for three locations: against a white wall, at the desk, and at the chessboard. In each, he kept the lighting simple, so he could shoot from different angles without a big change in his set-up. The main lights: Elinchrom Midi 53-inch Octa Banks lit by Profoto Pro-7 flash heads and Pro-7a generators. At the chessboard, he first aimed the light head-on for a frontal view across from his subject. Moving rightward, he had to make sure the window didn't reflect the lights.

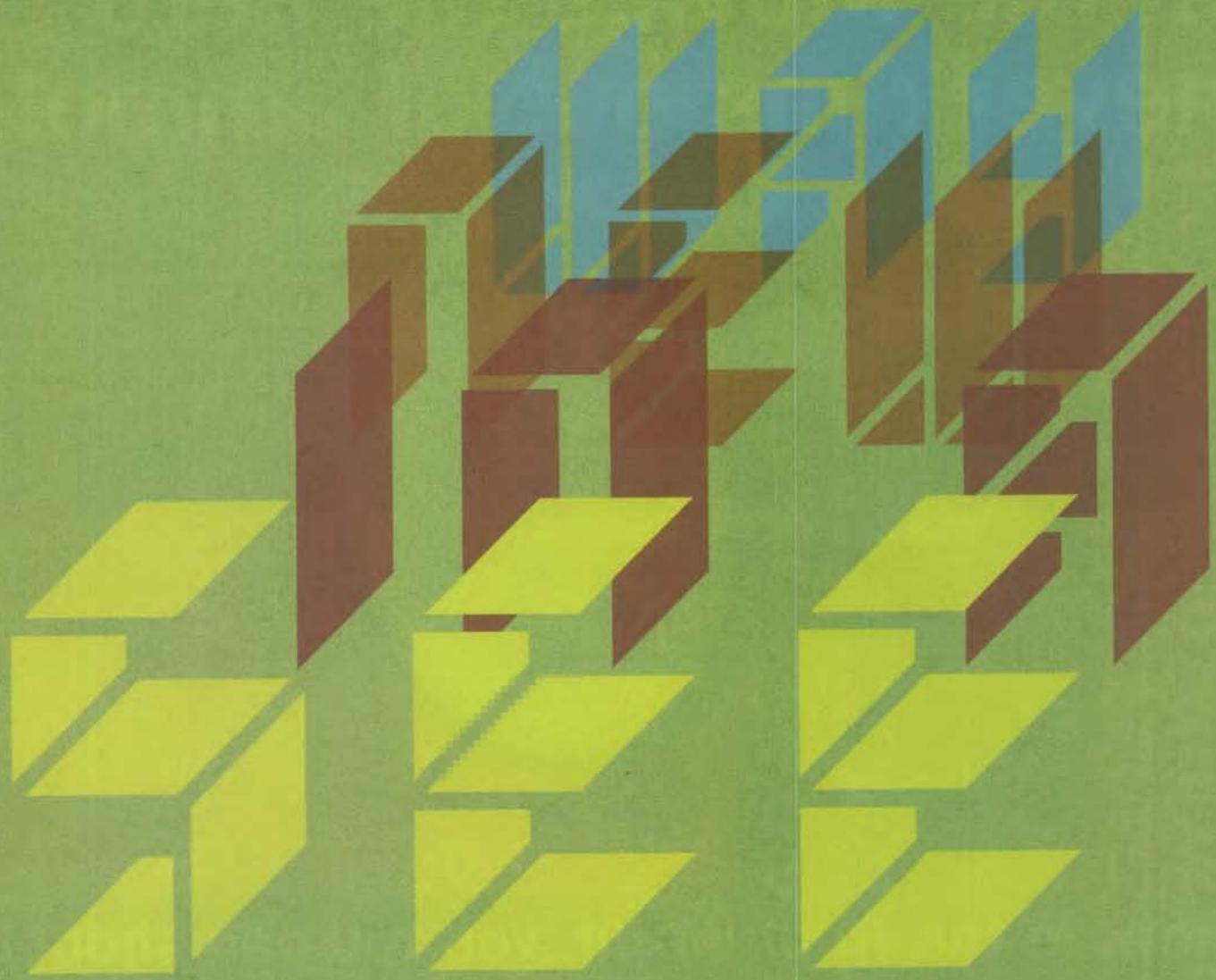
3 Vary the pace. Preparation goes only so far. "Sometimes I try a pose with an assistant, but then it doesn't work with the subject," he says.

Varying the pace of your shooting opens up more chance for surprise. Since Pugliese uses medium-format film with a Mamiya RZ67 and 110mm f/2.8 lens, there's a natural ebb and flow as he changes rolls. This allows him to redirect his subject's energy, and switch between active and contemplative poses. With digital, you can take a break between sets or simply use smaller memory cards.

4 Direct your subject. After conversing, Schwarzenegger snapped back into form with big grins and strong poses. Pugliese shot these, then suggested a quieter moment, saying it was "because the light is great." A few frames, and he was ready to move on.

"That tiny direction loosens subjects up enough to let them know you're in charge," he says. "They know that I know what I want and what makes them look good." And people appreciate knowing their role in front of the camera.

At the chessboard, Pugliese instructed: "Imagine you're playing an opponent you admire, and you're watching them think about the next move." The actor fell right into character. "The expression, the look on his face, the relaxed pose—it all worked out better than I thought it would." 



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GRAND Tour

HOW TO PHOTOGRAPH THE GRAND CANYON

1 For great skies, visit during "monsoon" season. From late July through early September, capture dramatic clouds and, if you're lucky, lightning storms or rainbows in the distance.

2 Avoid crowds by going to the North Rim. Open only in summer, it's harder to reach than the South Rim. More than 1,000 feet higher and covered with forests, it's more scenic, too.

3 Stick to classic overlooks to shoot panoramas at dawn or dusk. On the North Rim, Point Imperial and Cape Royal (better at sunset) reveal rock formations all the way down. On the South Rim, busy Hopi Point juts from a cliff into the heart of the canyon for views in every direction. Desert View and Navajo Point (less crowded and best for sunrise and sunset) look out on the winding Colorado River. At Desert View, compose around the landmark Desert View Watchtower.

4 Consider the foreground. The view of cliffs from Mather Point, South Rim, is close enough to let you crop out the sky and focus on detail. Tired of tourists? Wander off the beaten path in search of interesting details to highlight.

5 Hike one of the trails. You can reach the popular South Kaibab trail by shuttle bus from the visitors' center. The strenuous 6.5-mile trek

lacks shade, but it follows a ridge for an open view in all directions. Bring plenty of water—you'll walk for hours.

6 Capture the action on a river trip down the Colorado. Tours are available at www.raftingthegrandcanyon.com. Bring a waterproof, shockproof camera case such as those made by Pelican (from \$35, street; www.casesbypelican.com).

7 Get an aerial shot. Willing to drop some cash? Starting at around \$80, depending on length, helicopter tours offer a stunning view of hard-to-reach places such as Havasu Falls.

8 Don't forget your zoom. More valuable than a wide-angle (though fisheyes can be fun) is a long lens to get new angles on classics and "zero in on things beneath the rim," advises local photographer Mike Buchheit. Zoom in at sunrise and sunset, when moving clouds paint shadows on canyon walls.

9 Load up your kit. Bring a tripod, polarizing filter, and at least one split neutral-density filter.

10 Learn while you're there. Get insider tips on where and how to shoot the canyon from one of the local photo workshops, such as those offered by Grand Canyon Field Institute (www.grandcanyonassociation.org) and Friends of Arizona Highways (www.friendsofazhighways.com).

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RAW Tone

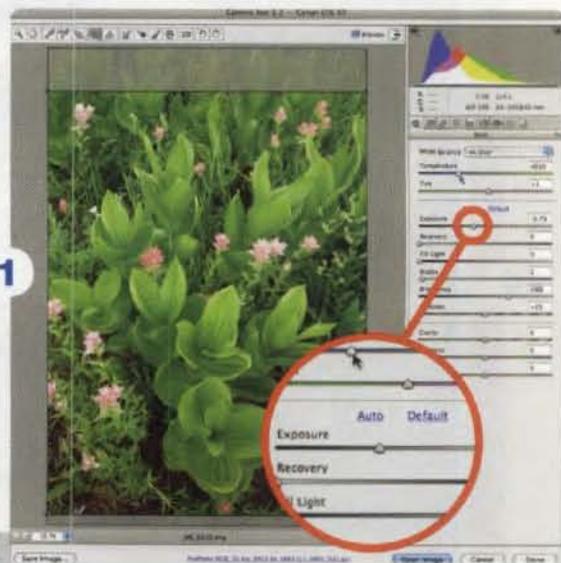
How to go b&w and split-tone, too

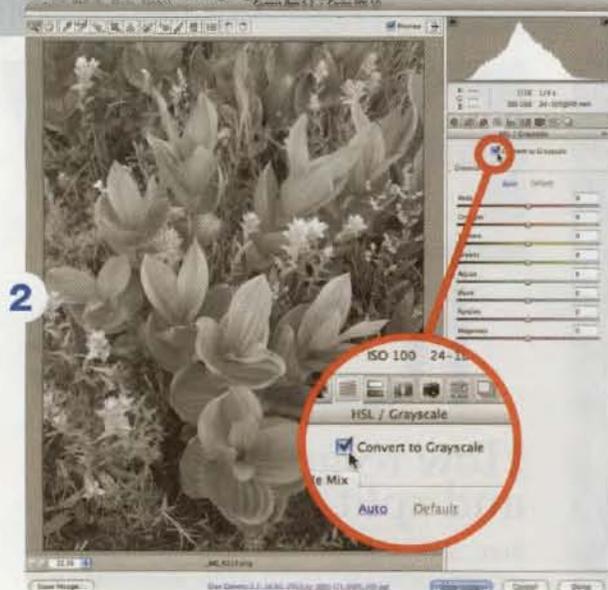
Sure, shooting RAW can help you improve a goofed-up image. But it really shines when you get the exposure right. Using the Adobe Camera RAW processor that comes with Photoshop, you can take a good image in all kinds of new directions. And because of the RAW file's inherent flexibility when it comes to white balance, you can get an incredible range of results when converting to black-and-white. Then, once you get a monochrome you like, you can even split-tone your photo for extra depth and beauty, all before you even enter Photoshop itself. Here's how to do both.

Unfortunately for Elements users, its version of ACR doesn't let you do this to go b&w. But since Photoshop's ACR and Lightroom share the same RAW engine, you can try these techniques in Lightroom instead. The interface just looks slightly different.

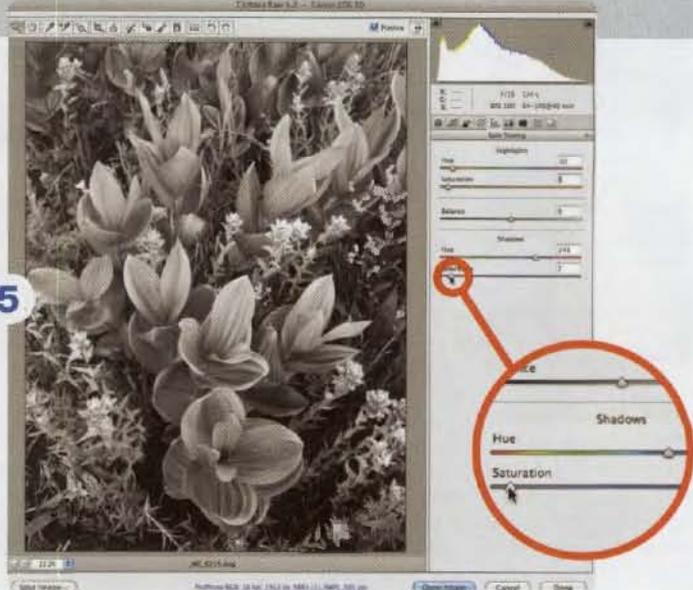
- 1 OPEN YOUR FILE IN** Photoshop's RAW converter. Now's the time to crop, if that's part of your plan. And if you aren't starting with a good exposure, fix it now.

GUYTAL (ORIGINAL)

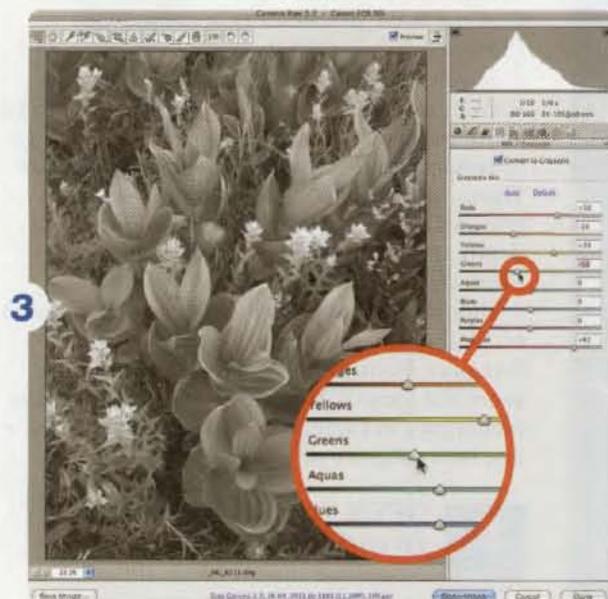




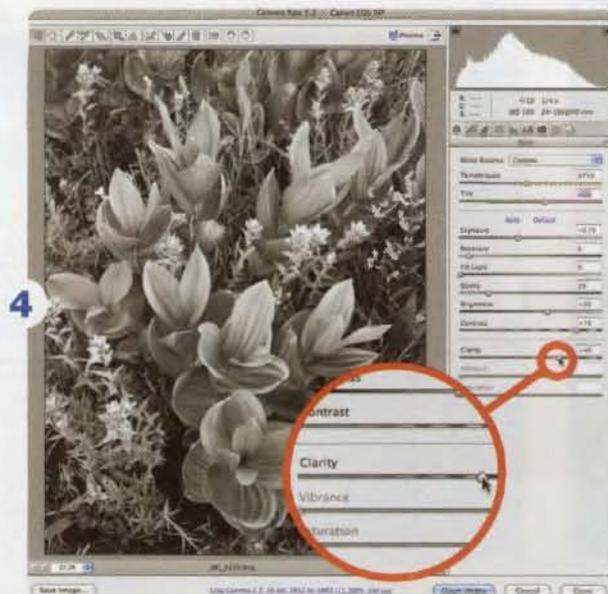
2



5



3



4

2 GO TO THE HSL/GRAYSCALE TAB and check the Convert to Grayscale box. Your first result will most likely look flat and boring, but we'll deal with that in a minute. If you like the Auto settings that the program determines, use those as your base. If not, click on the word Default to set the sliders to zero.

3 START MOVING THE COLOR SLIDERS. Begin with the most predominant color—in this case, green. Move it to the left, and all the green tones get darker. Move it to the right, and they get brighter. Then move the sliders for the less predominant colors. These leaves have yellow-green highlights, so moving the yellow slider to the right brightens them relative to the greener midtones and adds some depth. The flowers are made up of red, orange, and magenta tones. Move those sliders to brighten them so they contrast with the leaves.

4 SINCE THE B&W STILL LOOKS BLAH, go back to the Basic tab to add definition and contrast. Start by moving the white balance sliders. You've already set the relative weight you want to assign to each tone, so moving these sliders produces dramatic shifts in contrast. Then fine-tune the contrast and brightness until your picture looks the way you want it to. Since this image was so monochromatic from the start, take advantage of the Clarity slider to add more contrast in the midtones.

5 NOW ADD THE COLOR. Click on the Split Toning tab, and address the highlights first. To make the highlights a bit warmer, move the hue highlights slider to an orange or red. Then move the saturation slider slightly rightward to see your color. Keep it below 10 to avoid making it garish. Since the highlights are warm, cool down the shadows. Pick a blue tone and add some saturation to it. The trick is to keep the split-toning subtle enough that your b&w looks especially rich, though a viewer might not quite know why.



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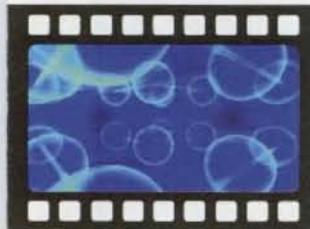


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GREENScheme



ALL IN ONE: Westcott's uLite Video Kit packs a greenscreen, lights, softboxes, stands, case, and more, including many royalty-free stills (e.g., first two images, far left) and animated background clips (e.g., bottom two, far left).

may sound complicated, but this kit makes it easy enough for grade-schoolers. You get all the hardware and software you need, including a DVD of foolproof instructions that cover how to...

■ **Shoot your background footage.**

While you can use the dozen or so still and video clips that Westcott provides, you will ultimately find them confining and want to make your own—it's actually half the fun.

■ **Set up your studio.**

In a basement or garage, hang the kit's elastic greenscreen, getting it perfectly taut, or else shadows cast by any wrinkles or folds will prevent a clean composite.

■ **Light the screen.** Position the lights so that your subject casts no shadow on the background. This usually means placing the subject—no green clothing, please!—at least 4 feet in front of the background, and cross-lighting from the sides.

■ **Capture the foreground footage.** Place your subject left, right, or centrally so that he or she will fall correctly into the background clip.

■ **Combine your clips in Elements.**

Export the greenscreen footage from the camcorder to a computer, and open it and the background clip in a new Premier Elements project. Drag the background file to Video Track 1, and the foreground (greenscreened) clip to Track 2. Elements should automatically recognize the greenscreen and ask if you want to merge the files. Click Yes, and that's all there is to it.

For inspiration, search YouTube for greenscreen tutorials, and amateur featurettes. For more on the uLite Video kit, visit www.photobasics.net.

How to bring Hollywood home

Greenscreen, or "chroma-key," is one of the oldest tricks in TV. To fake a background, they just shoot a subject in front of a green backdrop, then digitally swap out the green for anything from a weather map to a city skyline.

The technique is popular in still photography, too, for popping Hawaiian sunsets or football stadiums behind portrait subjects.

And now that more of our cameras—both DSLRs and compacts—shoot high-quality video, there's more interest than ever in greenscreen. Lighting titan F.J. Westcott has made unlocking your inner Spielberg almost push-button simple with its Photo Basics uLite Video Lighting Kit (\$249, street), designed to be used with Adobe Premiere Elements 7 (\$89, street).

The process of extracting a subject from one video clip (or still) and superimposing it on another

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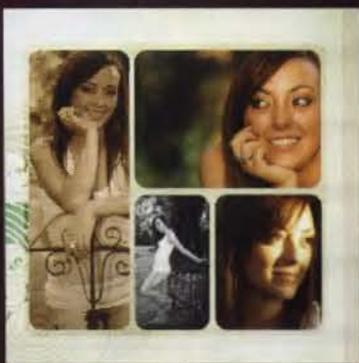


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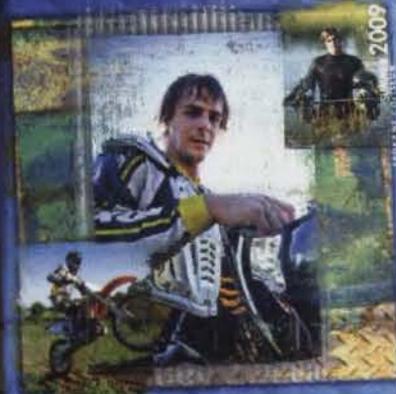
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Distracting

Too dark overall

Take foot off edge

▲ Before
▼ After

■ INTO THE WATER!

■ Sharafulla Shihab
Malé, Maldives

The problem: There's much to like in this photo—the boy captured midleap, the off-center placement, the action moving into negative space rather than out of the frame, and the dynamic backdrop of the waterfall. The picture, though, is dark, and the boy could use a little more detail. His foot touching the edge of the frame is distracting, as is the shadow at the left.

What now: We opened the original RAW file in Adobe Camera RAW and dialed up the highlight and midtone brightness, which was sufficient to bring up some detail in the boy. We also boosted the contrast so the shadows didn't wash out. We changed the crop to get rid of the shadow on the left and keep



the boy's leg fully in the frame. Finally, as the original image looked a little too cool, we set a slightly warmer white balance.

Next time: The major issue was the strong backlight—this is a typical situation in which the meter gets fooled into setting too low an exposure. About +0.7 to +1.0 EV

exposure compensation would have helped. But there was plenty of room to correct it in the RAW file. Moral: Shoot RAW!

Tech info: Nikon D700 with 24–85mm f/2.8–4D AF Nikkor lens, 1/2500 sec at f/3.8, ISO 400. Contrast adjustments, Vibrance added in Adobe Photoshop CS4.

Crop tighter



Get more detail



◀ Before
After ▶

INTO THE AIR! Marv Kaminsky Flanders, NJ

The problem: Again, a dynamic composition, with good use of negative space, and captured at a (hoo boy!) peak moment. While the photographer made some good adjustments to get detail in the bike and rider, we'd like to see a little more. We also think that the photographer's crop places the rider just a little too close to the center (and you know how the Fix Team feels about that).

What now: We cropped a little tighter and went with a more traditional 4:3 aspect ratio. We think this makes the rider appear even higher in the sky and puts him closer to a Rule of Thirds placement, if you worry about things like that. Using Photoshop CS4's Shadows/Highlights tool, we brightened the shadows and brought up the midtone contrast for more detail in the subject overall. We found that this left the tires and rider's boots looking a little over-boosted (that is, grayish), so we also made local Curves adjustments for a better black in those spots.

Next time: Crop a little more aggressively, and shoot RAW to maintain more information in both highlights and shadows.

Tech info: Nikon D200, 18-200mm f/3.5-5.6 VR DX AF-S Nikkor lens, 1/250 sec at f/16, ISO 400. Brightness and contrast adjustments in Photoshop CS3. ☺

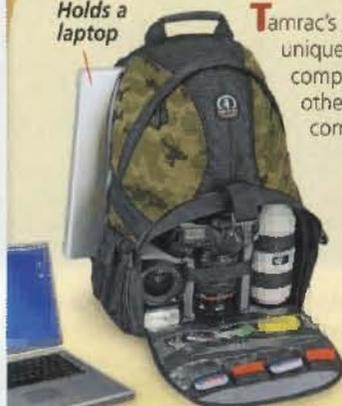
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■ **Fundamentals:** Contrast of colors and textures, vantage point, Rule of Thirds composition.

■ **Contrast:** The tree roots are essentially monochromatic, hard-edged, and lit by contrasty dappled sunlight. The foliage and sky are airy and pastel. This creates a

visual tension that keeps your eye moving around the frame.

■ **Vantage point:** Choosing a low point of view and shooting vertically with a wide-angle lens, the photographer accentuated the foreground roots so that they look nearly sculptural. This also leads

the eye up into the frame. The use of hyperfocal depth of field helps here, too.

■ **Rule of Thirds:** The horizon line is off-center, and the focal point of the composition—the tree trunk—lands at just about the one-third vertical level. ©



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HDR-READY:

This Dublin cathedral—with its details, textures, and interplay of highlights and shadows—was a natural for HDR imaging.

Tech info: Nikon D70 and Sigma 10–20mm f/4–5.6 (at 18mm).

Exposures, 1/4 sec, 1 sec, and 4 sec at f/8 and ISO 320. Auto bracketing intervals:

–2, 0, and +2 EV. Auto White Balance.



Text and photos
by Amund Nedland

HIGH Church

Shoot like the Old Masters painted

What I like about high dynamic range (HDR) photography is the surprises. So often, I'll start with a set of images that look kind of dull, and somehow the process of combining them into a single HDR file creates something wonderful and painterly.

Sometimes called tone mapping, HDR is the process of digitally combining under-, over-, and normally exposed shots of the same scene to show more detail than a single exposure could capture. Here's my step-by-step method (visit www.PopPhoto.com for more on HDR).

1 Pick the right subjects. Because HDR's ultimate goal is to bring out detail, look for subjects, such as this church and castle in Dublin, Ireland, that have plenty to begin with. Don't bother with featureless blue or uniformly cloud-blanketed skies, for example, but look for scenes with puffy, full-

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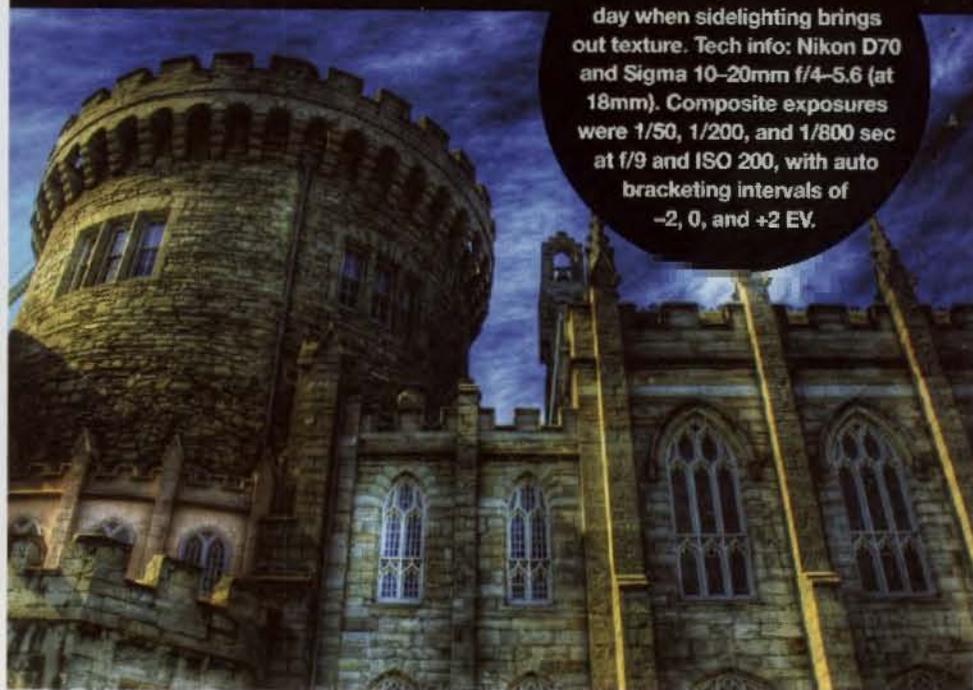


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YOU CAN DO IT



THINK SIDELIGHT:

Shoot early or late in the day when sidelighting brings out texture. Tech info: Nikon D70 and Sigma 10-20mm f/4-5.6 (at 18mm). Composite exposures were 1/50, 1/200, and 1/800 sec at f/9 and ISO 200, with auto bracketing intervals of -2, 0, and +2 EV.

featured cloudscapes. I don't shoot foliage either, especially on windy days, because leaves and branches rarely line up from shot to shot.

2 **Work the scene.** When you've found a suitable subject, use an unusual vantage point to showcase it. The super-low camera angle I used for the shot on the previous spread makes the church loom large in a way that suits the painterly aspects of HDR.

3 **Gather your gear.** Start with a tripod to keep your composite images aligned and sharp. Also, get a cable or electronic remote release for your DSLR, so that you don't touch it (and nudge it out of place) between or during exposures.

4 **Set the camera.** Shoot in aperture-priority mode at the same f-stop so that each image has the same depth of field, and autobracket to produce various exposures with a minimum of fuss.

5 **Record it all.** Shoot RAW and check histograms to help capture a full dynamic range. Make sure your histogram's under-, normal-, and overexposed curves are to the left, center, and right of the exposure axis, respectively. Strive for some overlap of the curves, and if you're not getting it, add exposures to the autobracketing sequence at appropriate intervals.

6 **Move on to postprocessing.** Got your shots? The most popular tone-mapping software packages are Adobe Photoshop CS4 (\$640, street) and HDRsoft's Photomatix (\$99, direct; www.hdrsoft.com). I prefer Photomatix, and use Photoshop only for final touchups.

7 **Fine-tune the software.** In Photomatix, I avoid the default settings because, for me, each image requires its own look. In general, I dial in relatively high values for Strength, Color Saturation, Luminosity, and Light Smoothing. This usually results in an image that's too light, which I correct by cranking up the Gamma setting.

8 **Finish in Photoshop.** My last move in Photomatix is to fine-tune the overall color temperature. Then I open the file in Photoshop, where I tweak contrast in Levels and Curves, before a final sharpening.

Besides the surprises, there's something else I like about HDR: The look on people's faces when they first see the images!

Amund Nedland, a computer engineer, lives in Trondheim, Norway, with his wife and daughter. For more of his HDR images, visit www.flickr.com/photos/amuundn.



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◀ HOW TO... Spark up your lighting

The difference between satisfying and blah portraits can be as simple as adding a second light. For indoor flash pictures, it can add color, depth, a sense of place, or visual texture in the form of highlights and shadows. Let it illuminate a subject from behind (called a rim light) or above (hair light) to add interest and dimension, as well as separate your subject from a dark background.

Your second light can be an inexpensive shoe-mount flash set on a flash foot or lightstand. Because it must fire simultaneously with your

main light, though, you'll need a syncing device. With an accessory flash that packs wireless TTL capability (a good idea), the camera itself triggers the flash. Otherwise you'll need a slave trigger. The least expensive option is an optical slave (activated by the light from your main strobe, not from radio or infrared signals). Optical slaves are built into some flashes or are hot-shoe add-ons often called "peanuts." Look for one that can be programmed to ignore the preflashes that many DSLRs fire to determine exposure—accessory slaves such as the Wein HSD (\$70, street) and flashes such as the Metz 28 CS-2 (\$120, street) do the trick.

With syncing issues resolved, the fun begins. Customize your second flash with a diffuser, colored gels, or light modifier such as HonlPhoto's Speed Grid or Speed Snoot (\$30, each, direct; honlphoto.com).



■ HOW TO... Show motion with flash

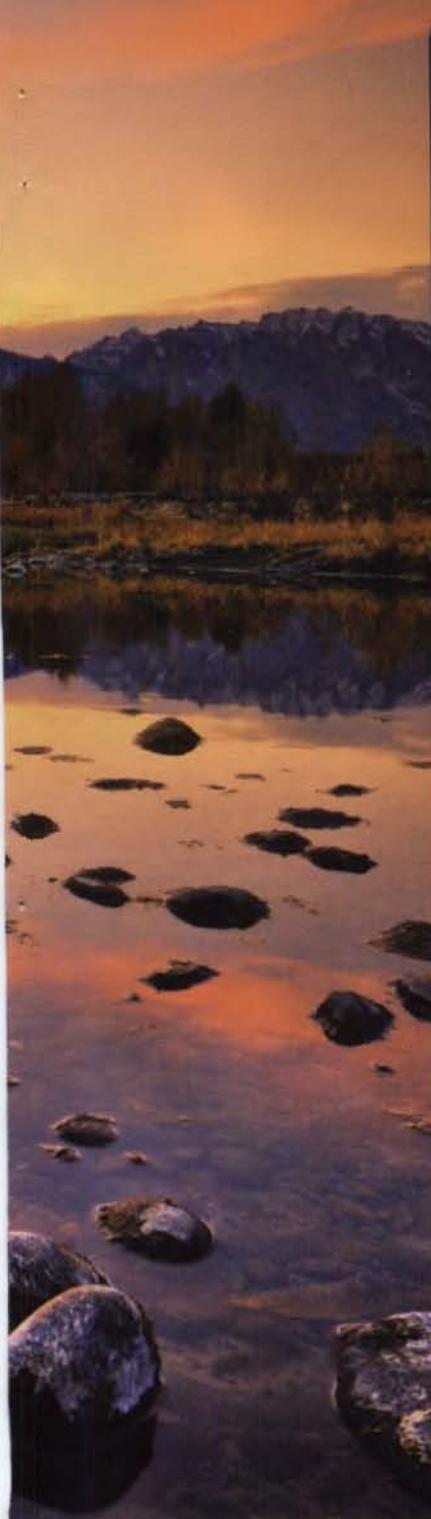
If you take a flash photo with a slow shutter speed, a moving subject will appear as a sharp image amid a blur, an effect called ghosting. It can be used to depict motion

dynamically within the frame. But there's one problem: Because flash synchronization usually occurs at the beginning of an exposure, forward motion will look like it's going backwards as the ghostly blur extends in front of the subject.

To remedy this so the blur trails behind, set the flash to trailing

sync. Also known as second-curtain sync, this mode fires the flash near the end of the exposure. On your camera, the control can be found anywhere from an external switch to a menu selection, so check your instruction manual.

Try shutter speeds in the 1/8–1/30-sec range for walkers, runners,



◀ HOW TO... Get the deepest focus possible

When you want your most distant subjects in focus, you could rack your lens out to infinity. But then closer elements might turn out blurry. How to set focus to get all the depth of field you can? Figure out your hyperfocal distance.

If your lens has a depth-of-field scale, switch to manual focus and simply line up the infinity focus mark with the line for the aperture you're using.

No DOF scale? With your aperture set, switch the lens to manual focus and trigger depth-of-field preview (most DSLRs have this). Start with the lens focused close, and gradually dial to a more distant focus until the farthest object sharpens. (If you don't have a light-tight viewfinder eyecup, cup it with your hands.)

At smaller apertures ($f/11$, $f/16$, etc.), the finder image may be too dim to evaluate focus. If your DSLR allows live view in the LCD, you're home free—in live view, stop the lens down with DOF preview on, and gradually focus the lens back to get infinity just sharp. Use the live-view zoom magnifier to get it perfect.

Without live view, just guess the hyperfocal distance using the DOF preview, and take a picture. Use the image magnifier in playback to check the focus in the frame. Infinity not sharp? Focus the lens a little farther away, and take another picture. Infinity in crisp focus? Focus the lens a little closer, take a test shot, and see if you can squeeze some more foreground into focus.

cyclists, or skateboarders. The faster the motion, the longer the blur trail will be. Slower shutter speeds also elongate the ghost. If you want the effect of frantic motion, pan with your subject at a slightly slower rate than its speed—this will add a streaky, smeared background. As with many special effects in photography, practice is key.

■ HOW TO... Get the most from your polarizer

Most people use a polarizing filter to enhance blue skies, but you shouldn't overlook the purpose for which it was invented: controlling reflections. When you photograph a window, it'll reveal

objects behind the glass. Shooting architecture? Cutting reflectivity can enhance a building's appearance.

You can also reduce or eliminate reflections and glare on water—deepening the blue in sunlight and allowing you to capture what's under the surface. With a twist of the polarizer, enhance the greens or yellows or reds of foliage and flowers. It can even cut atmospheric haze in broad mountaintop scenics.

With any SLR, or any digital camera that has live view, adjusting the polarizer is simple: Just rotate the filter until you get the look you like in the prism finder or LCD. Keep in mind that a polarizer can't completely eliminate spectral reflections—highlights with no tone at all—especially those coming off metal.

■ HOW TO... Separate autofocus and metering

By default, DSLRs autofocus and meter the exposure simultaneously when you press the shutter button halfway (or all the way) down. But sometimes you don't want to meter and focus on the same thing. And sometimes you want the button to activate only the shutter.

Say you're shooting tennis on a variably cloudy day. Since most players dress almost entirely in white, metering off them would result in serious underexposure, and the moving clouds would likely require frequent remetering. You'd also want to pick a point of focus that doesn't change when you press the shutter button.

In a situation like this, first set your exposure manually: Press the shutter button halfway to meter, then dial in the aperture and a shutter speed fast enough to capture the action. Pressing the shutter button now will not change your exposure, so you must meter and adjust again when the lighting changes.

Next, hunt for a button most DSLRs have on the back—usually within easy reach of your right thumb—that can be customized to activate AF. On Canon DSLRs, it's marked with an asterisk; Olympus models label it Fn. Using the custom function menu, assign AF to it (Nikons have a dedicated AF-on button already), and you can use this to set your point of focus independent of metering, auto or manual.

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▲ HOW TO... Get amazing night skies

The blue hour is the narrow window between sunset and the black of night when skies turn a deep cerulean. Night shots gain depth, and many subjects pop better than they do in daylight.

Because the blue "hour" rarely lasts more than 15 minutes, it

helps to set up in advance. Find your subject and camera position while there's still sun. For distant subjects that you can't light with flash, you'll need a tripod—have it in place, your camera mounted, and all its controls where you want them. If your camera offers a special long-exposure mode, use it.

Play with white balance to get the most exciting shades of blue in your background. Pick subjects

suited to the Tungsten setting—cityscapes, well-lit buildings, amusement parks. For portraits lit by mixed ambient light, arrange the shot so your main light (and WB) is Tungsten. But the deep azure of the blue hour is usually intense enough that even Auto WB will yield cool photos.

Flash opens up other blue-hour possibilities. For portraits, try attaching a warming filter such

■ HOW TO... Straighten out a skyscraper

Stand at the base of a tall building and look up. You see the building narrowing as it gets higher, but your

eye/brain computer allows you to perceive it as perfectly rectangular. But take a picture of it, especially with a wide-angle lens, and it will look too wide at the bottom and too narrow at the top. This perspective distortion is called keystoneing, after

the trapezoidal building block.

Serious architectural photographers use tilt-shift lenses or view cameras to deal with keystoneing, but you can often fix the picture without pricey gear.

The trick is going to an even wider focal length. Move back as far as you

■ HOW TO... Set the right white balance

Think of your camera's white-balance (WB) settings as a set of electronic color filters. They counteract color casts in the existing light to render a neutral or near-neutral color balance in your photo.

Automatic WB usually works well, but there are times when it pays to set it manually: In a scene with a single predominant color, automatic WB can be fooled into overcompensating—throwing an

amber filter over a field of dense blue flowers, for example. And in some scenes you may want a warmer or cooler, rather than neutral, tone.

The simplest manual WB setting is a preset. Cloudy WB acts as an amber warming filter to counteract chilly blue light. The Tungsten preset acts as a strong blue filter to compensate for the yellow of household incandescent bulbs. The Fluorescent preset uses a magenta tone to cut down the green color cast of standard fluorescent lights.

Most DSLRs also let you set WB in Kelvin color temperature. The

▼ HOW TO... Dive in using a compact

One of the hottest current trends is also wet: Compact waterproof cameras that can capture photos and video while submerged. (See High 5, page 16, for some of the top new models.) But shooting underwater requires some special techniques to get the best pictures:

●**MOVE IN.** Light falls off much more quickly underwater than in air, so get closer to your subject than you normally would. Having a wide-angle lens with good close-focusing capabilities is a particular boon below the surface.

●**FORGET THE FLASH.** Don't count on your built-in flash to add light. Since it's so close to the lens, it will illuminate any small particles between you and your subject (an effect called backscatter).

●**CHECK YOUR WHITE BALANCE.** Some waterproof

cameras have more than one underwater WB setting because what's appropriate for a swimming pool differs from what you'd want while snorkeling in the Caribbean.

●**GET CREATIVE.** When composing underwater, make the most of what you've got. In a pool? Try capturing the bubbles that form when someone dives in. Also try shooting up from just below the surface, as partially submerged subjects provide a perspective you'd never get on dry land.

●**USE THE STRAP.** Most waterproof compacts can be submerged only to 10–33 feet while maintaining their watertight seals. If you drop the camera, it might sink down too far, so attach a strap or flotation device. Want both? Olympus makes a floating wrist strap for its underwater compact models.

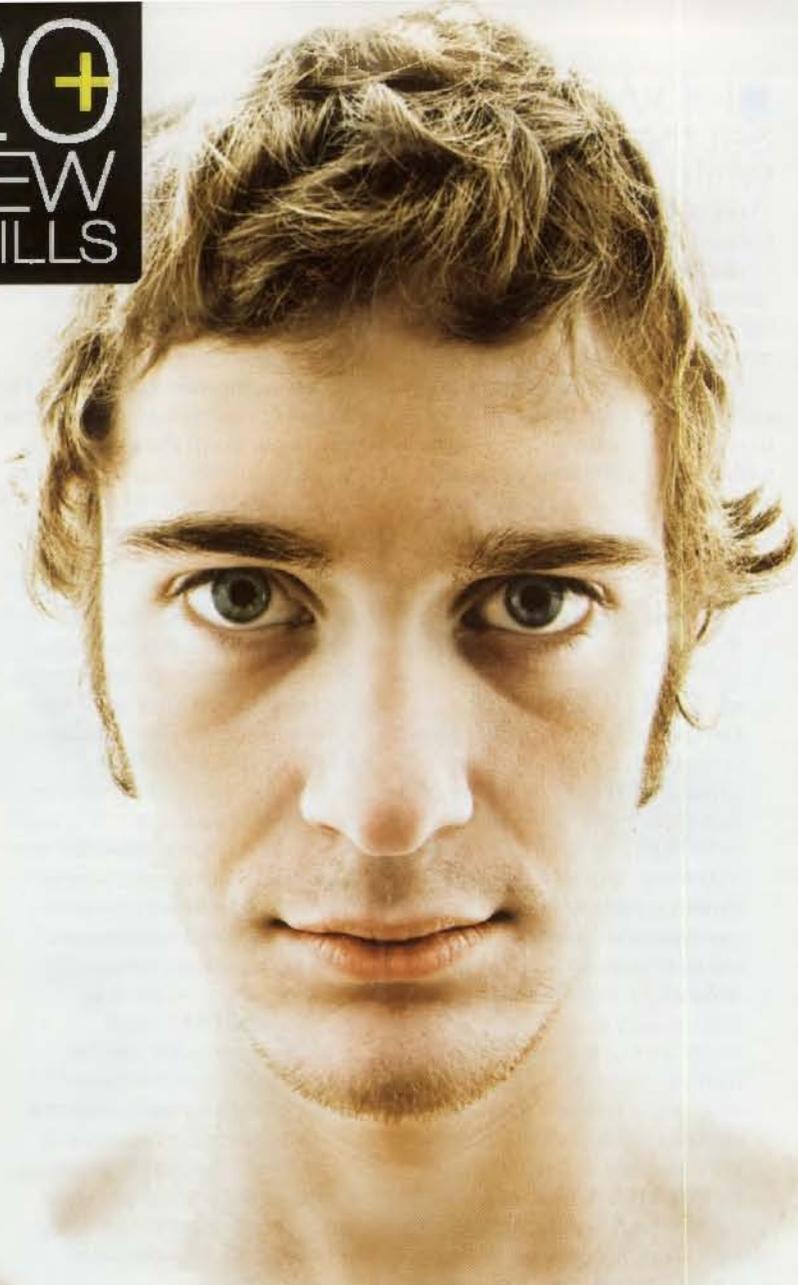
●**KEEP IT CLEAN.** Always rinse your waterproof camera in plain water when you're done, to clear out any chlorine or salt water.

NOTLEY HAWKINS, WWW.NOTLEYHAWKINS.COM

as a Rosco Cinegel #3420 (\$6.50, street) over the flash head and set WB to Tungsten. Set your flash to trailing sync, and set a long shutter speed—1 sec or more. (Beware: Too long can wash out the background blue.) Then, as the shutter opens, have your subject take a slow step backward, striking a pose just before the flash fires near the end of the exposure. Your subject will be rimmed by a halo-like dark shadow.

can while still keeping an unobstructed view of the entire building, and shoot with the camera perfectly level. (A hot-shoe-mounted bubble level helps with this.) Sure, you'll have a whole expanse of unwanted foreground at the bottom of the frame, but that's what cropping is for.





▲HOW TO... Take high-key portraits

High-key portraits pose light-hued subjects against white backgrounds, with important subject contours defined by shadows—exactly the opposite of low-key, in which a dark subject is defined by highlights. The high-key effect is one of visual and emotional lightness and simplicity.

This technique suits young children, romantic renderings, and anyone with problem skin. Your subject's expression should be happy or at least neutral. It's

counterproductive to use high-key to convey depression, anger, or uncertainty, and inherently dark subjects (your Goth cousin, say) resist the treatment.

Because you will be reproducing the face as light as possible, it often makes sense, especially for women, to use a light application of eyeliner and/or eye shadow so the eyes don't wash out. (This works for children, too.) And use a light red lipstick, even for men and children.

Err on the side of overexposure. Push the histogram to the right, and if it falls off the chart, no worries—with high-key, losing a little highlight detail is often a good thing.

higher the number, the warmer (yellow) the filter; the lower the number, the cooler (blue) the filter. Many cameras let you use a Kelvin setting to fine-tune the WB presets.

Finally, you can create a custom WB. Place a photo gray card (not a white card) in the light falling on the scene, and make a WB reading with your camera. (The procedure differs from camera to camera, so you'll have to consult the manual.) You usually can fine-tune this setting with the Kelvin controls.

Of course, if you shoot in RAW format, you can fiddle with WB when you convert your files.

■HOW TO... Shoot flattering portraits

Save hours of image editing by setting up portrait shoots to minimize your subjects' flaws. Here are common issues and their fixes.

●**PROBLEM SKIN:** Zap wrinkles or blemishes by positioning your main and fill lights just above the camera position (one right, the other left), overexpose, and reproduce the image as high-key as possible. Avoid side fill and keep your subject from smiling. Try a subtle-but-effective soft-focus filter, such as Tiffen's Soft FX 3 (from \$40, street).

●**BAGS UNDER THE EYES:** Use front light only, with lights at eye level. Lift the camera slightly, and have your subject look up into the lens while keeping the chin down. Apply a little foundation makeup under the eyes, even on men.

●**DOUBLE CHIN:** Shoot down onto your subject from slightly above. Ask your subject to lift the chin while looking up toward the lens, and position your lights as high as possible to throw the chin into shadow.

●**WEIGHT ISSUES:** Lift the camera to eye level, and try to light the face exclusively, letting the body go into shadow. Crop out as much of the body as possible, and dress the subject in clothes that blend with the background. For tight head-and-shoulder portraits, have the subject turn slightly away from the lens, and light the far side of the face, so that the broader, near side of the face is in shadow.

●**LARGE NOSE:** Shoot straight on as your subject looks directly into the lens. Light so the nose casts no shadow.

RANDALL_COTTRELL, WWW.FLICKR.COM/PHOTOS/RANDALL_COTTRELL

■HOW TO... Feel the noise

Sometimes there just isn't enough light. Maybe you're shooting in a dim place where you can't use a flash, or maybe your camera's weak pop-up will make things worse rather than better. So you crank up your ISO and get what you can. The result? Lots of noise, and an image almost too dark to print. When you brighten it, the noise only becomes more apparent.

Instead of trying to ignore the noise or clumsily reducing it, work with it. Convert the image to black-and-white and disguise the noise as grain—think old-school, push-processed, fast b&w film.

If you're using Adobe Photoshop Elements 7, start by going grayscale using the black-and-white converter under the Enhance menu. Use Levels to simultaneously adjust brightness and contrast. Bring the black and white point sliders (the ones directly under the histogram) closer to the center to add contrast. Then move the gray, middle slider to the left to brighten the image. You'll get a gritty black-and-white, and no one will guess you didn't plan it all along.

■HOW TO... Make crowds disappear

Yes, you really can make people disappear from a crowded landmark or cars vanish from a highway. Just buy an overall neutral-density (ND) filter, whose gray tone cuts light without affecting color in the scene. (Street prices start at around \$20.)

The trick is to use an exposure time so long that anyone walking, running, or even dawdling in the frame blurs out completely. If they're moving relatively quickly, a 10-second exposure might work, but you'll usually need anywhere from 30 seconds to several minutes.

For instance, an overcast outdoor scene typically needs an exposure of about 1/8 sec at *f*/22 and ISO 100, too short to rid it of people. To get the exposure to 30 sec, you'd need to cut light intake by 8 stops or so.

If you're shooting in a truly dim environment, you may not need an ND filter at all. So indoor

MARC YANKUS, "TOWER", 2008, ARCHIVAL PIGMENT PRINT, COURTESY OF THE ARTIST AND CLAMPART GALLERY, NYC

▲HOW TO... Lose your focus

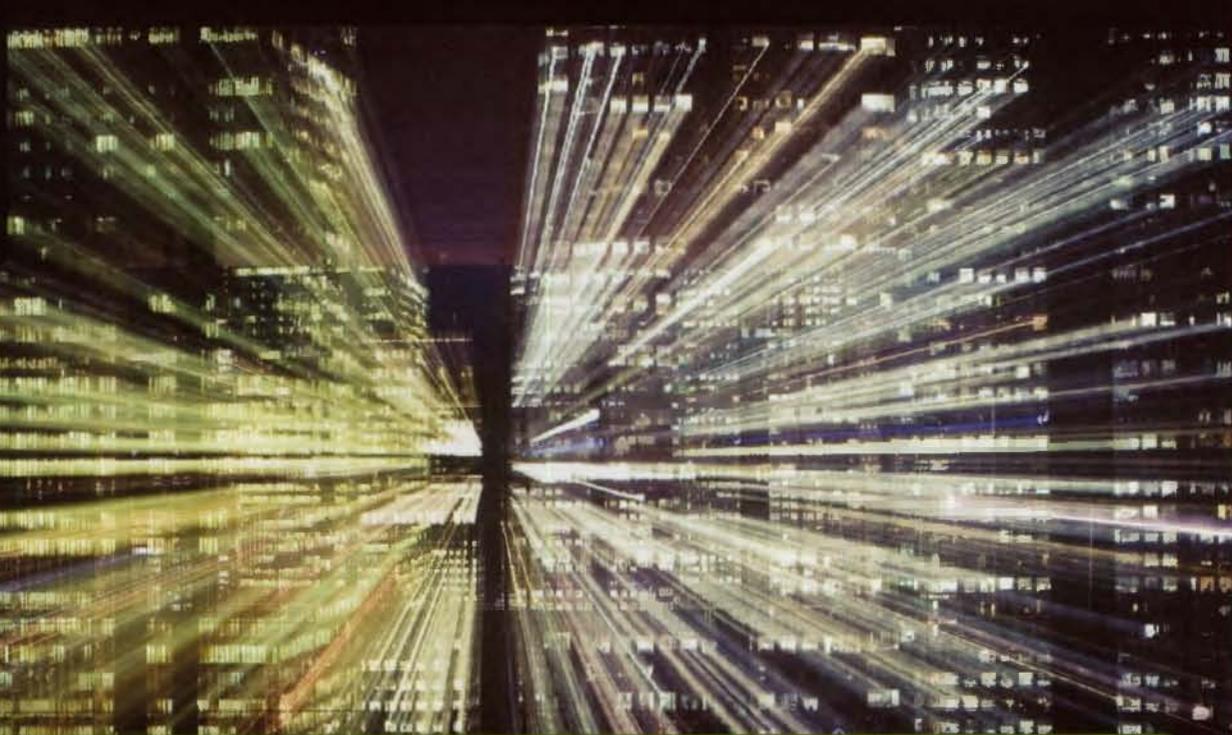
For a picture that feels more like a tone poem than it does a news report, try throwing your entire image out of focus.

That's the starting point for fine-art photographer Marc Yankus (www.marcyankus.com) in creating such images as "Tower" (above). Although his artwork involves a lot of work with imaging software,

he captures a beautifully blurry shot entirely in his camera using a lens that focuses manually. Usually shooting at twilight or in very low light, he handholds for exposures that can run as long as 5 seconds.

How does Yankus know when he's reached the right level of defocus? Instinct. "When I'm taking it out of focus, at a certain point the image starts to have a poetic feel to it," he says. "It starts to be in focus in my world."

20+ NEW SKILLS



▲HOW TO... Fake motion

Zooming in or out during an exposure, called motion zoom, creates colorful streaks that converge kaleidoscopically toward a single point. The effect can be either cool or cheesy, so boost your odds with these strategies:

● **PICK COLORFUL, CONTRASTY SUBJECTS.** Holiday lighting is close to a sure bet. Deepen the colors by setting

your DSLR to its top saturation level.

● **SPEED UP AND SLOW DOWN.**

Experiment with both long and short shutter speeds. Shutter speeds of 1 sec or more let you use the entire zoom range, producing pure abstractions, often with little or no recognizable subject. Shorter speeds produce an identifiable subject surrounded by dream-like streaks of color. With some subjects, either way works.

● **CONTROL APERTURE.** Small apertures (high f-numbers) produce

thin streaks, while larger ones give you broad smears of color.

● **GO BOTH WAYS.** Try zooming in (starting at the widest focal length) and out (starting at the longest) for two distinctly different looks.

● **USE A TRIPOD—OR DON'T.** You get straighter streaks and a stronger sense of structure when you use a tripod. Don't want structure? Handhold and move the camera left, right, up, down, in, or out as you zoom. To create a vortex, twist the camera as you zoom.

spaces lend themselves more to this technique. You need a tripod, of course, and you should set the smallest aperture (largest f-number) you can.

How much ND to use? Each 0.3 of density will eat up 1 stop of exposure, and each stop doubles your exposure time. So, if the right exposure without a filter is 1 sec, a 3-stop reduction in

light will let you shoot at 8 sec.

Filter makers produce ND filters up to a humongous 3.0 density, or 10 stops—that will take your 1 sec exposure to 1,024 sec, or 17 minutes and small change. Singh-Ray makes a Vari-ND filter that can be dialed anywhere from 2 to 8 stops of light loss. (It's pricey though: \$340 and up,

direct; www.singh-ray.com.)

With too much ND, you may not be able to see through the viewfinder, and it may be too dim for your camera's meter and AF. So compose and focus with the filter off the lens, take a meter reading, and double the exposure time for every stop of light your ND filter will eat up after you've put it on.

WITHOUT ND FILTER



WITH ND FILTER





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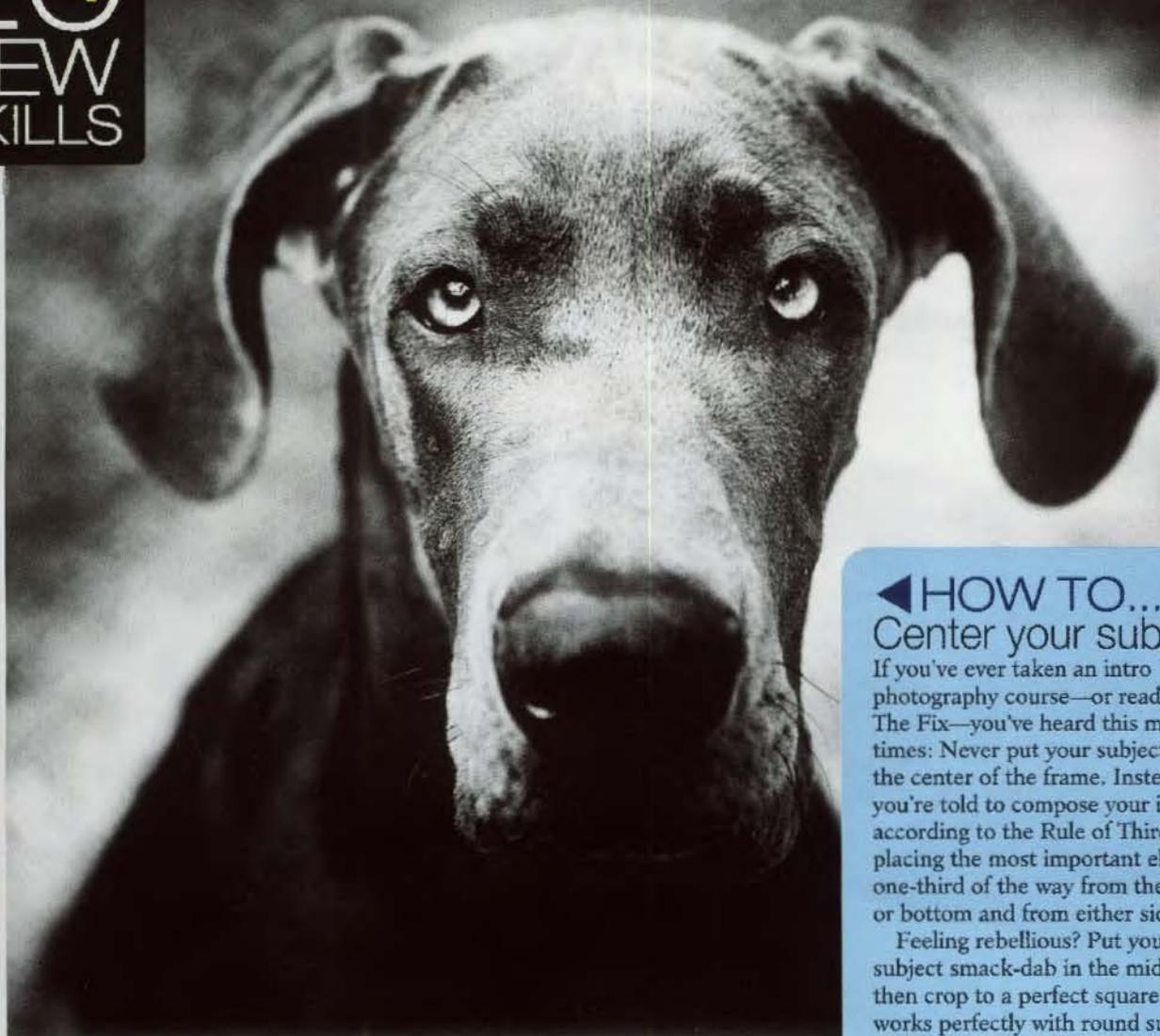
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■ HOW TO... Take great portraits on the beach

A sun-filled day at the beach can be heavenly, but it can also be exposure hell, especially for portraits. The light is glaringly bright and the shadows dimly dark. A common scenario has the subject turned away from the sun to prevent squinting, throwing his or her face into deep shadow. With so much dynamic range to cover, if you meter for the shadowed face, much of the sunlit background will be overexposed by several stops.

Remedy this by posing your subject seated on the sand, using it as a giant reflector. Or use fill flash, either from a built-in or shoe-mounted unit. Start in your favorite

autoexposure mode, then dial down the background using exposure compensation. Start at -0.5 EV, and keep going until background colors are rich but not murky.

When you've found an exposure for the overall scene, add flash for your subject. If you own a LumiQuest, Ken Kobre, Gary Fong, or similar diffuser, pop it into place. Start with flash exposure comp at 0, then try $+0.5$ or $+1$ EV of additional flash fill to brighten your subject. (When the flash calls attention to itself, you've gone too far.)

Want to mimic the effect of backlighting but still have detail in your subject's face? Reverse the compensation: Dial up the background by 0.5 to 1 EV, and dial down the flash by -0.5 to -1 EV.

◀ HOW TO... Center your subject

If you've ever taken an intro photography course—or read *The Fix*—you've heard this many times: Never put your subject in the center of the frame. Instead, you're told to compose your image according to the Rule of Thirds by placing the most important element one-third of the way from the top or bottom and from either side.

Feeling rebellious? Put your subject smack-dab in the middle, then crop to a perfect square. This works perfectly with round subjects such as sunflowers, clock faces, and domes interiors—particularly if you crop in tight enough for your subject to fill the frame.

With a portrait, whether of man or beast, leave a little breathing space around your subject to avoid a feeling of claustrophobia. And, while the subject as whole may be centered, the picture still follows the Rule of Thirds—look at where the eyes and mouth (or, in this case, nose) wind up.

■ HOW TO... Depict architectural detail in seconds

Architectural details, such as the bases of columns, moldings around doors, pedestals, and balustrades can pay off

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Three photographers share their inspiring stories

Can a photograph change the world? A single image can touch or amaze us, and sometimes awaken us to something important. Such extraordinary photos may be the result

of a lens in the right place at the right time, or one photographer's passion to open people's eyes. And although pictures alone won't change the world, one thing's certain—just taking up your camera and getting behind a

cause, whether across the globe or close to home, can have a vital impact. To show you how, we tracked down three exceptional photographers who've made a big difference—and many little ones along the way.



NO MONEY IN OIL: Photographing the impoverished conditions of the oil-wealthy Niger Delta for *National Geographic*, Ed Kashi (www.edkashi.com) captured this adolescent slaughterfield worker using a Canon EOS 5D and 24mm lens. The photo changed the boy's life, and Kashi is committed to advocating change for Nigeria.

By Lori Fredrickson

Difference

"I realize that photographs cannot change the world in one fell swoop," says Ed Kashi. "But they can change people's minds, and isn't that where change begins?"

The 52-year-old photojournalist has spent 30 years documenting conflict and civil war. And with his wife, Julie Winokur, Kashi now creates advocacy projects that include books, exhibits, and films.

From 2004–06, *National Geographic* assignments brought him to the Niger Delta to photograph the oil industry. The poverty of villages near the oil wells, toxicity of the environment, near-anarchy of government corruption—all in the world's sixth-largest oil-producing nation—made him wonder how this was possible.

"In Port Harcourt, there's billions of dollars in oil wealth and no paved roads," Kashi says. "About 90 percent of Nigeria's wealth is derived from oil, but this is the poorest part of the country. It's one of the grossest examples of social injustice that I've seen." He adds, "It's something that affects everyone, not just Nigerians."

Kashi documented the villages, oil wells, and activities of MEND, a local group that "shuts-in" wells in a campaign for local resource control. His images are beyond disturbing: women baking tapioca on oil flares, villagers cleaning up oil spills from neglected wellheads, their dwellings built around gated oil-company facilities.

Some of these made it into *National Geo*, but the full impact was published in *Curse of the Black Gold* (powerHouse, 2008; \$45), a book he did with the help of scholar Michael Watts that includes essays and interviews by Nigerian writers. Now, he says, "universities are teaching the book, activists and NGOs are using it, legal teams are using the images as evidence against the oil companies. Oxfam has commissioned a [traveling] panel exhibition."

And the project has expanded into multimedia and video. (To see more, visit www.curseoftheblackgoldbook.com).

Kashi's photos didn't change things

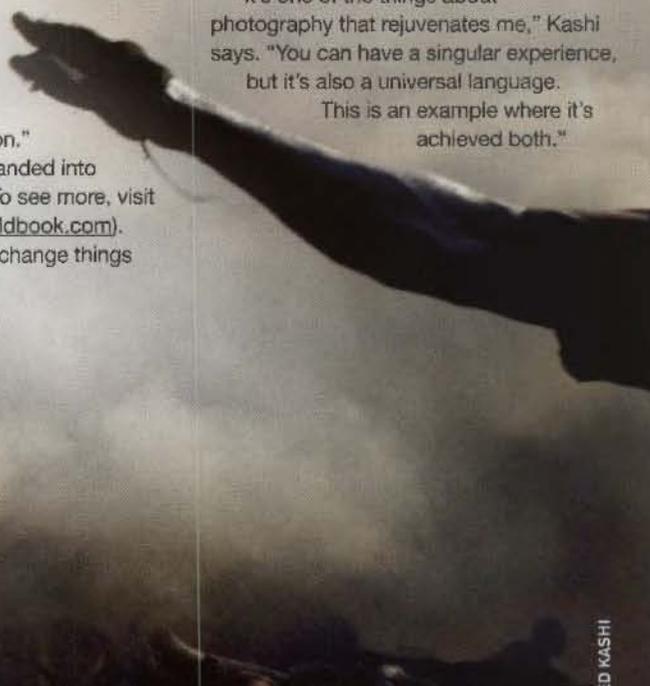
overnight for Nigeria, but they did for 14-year-old Paulinus Uko, shown here working in a field where animals are slaughtered, heaped in a pile, then roasted on toxic fires fueled by discarded rubber.

After this photo ran in *National Geo* in February 2007, Kashi got an e-mail from a woman in Smithtown, NY, who had been touched by it. So touched that she had her church group contact Nigerian churches to find out who and where the boy was. And she began sending him money to help him.

With her original donation of \$500, the boy started attending school, and he and his benefactor in America have been in regular correspondence since.

"It's one of the things about photography that rejuvenates me," Kashi says. "You can have a singular experience, but it's also a universal language.

This is an example where it's achieved both."

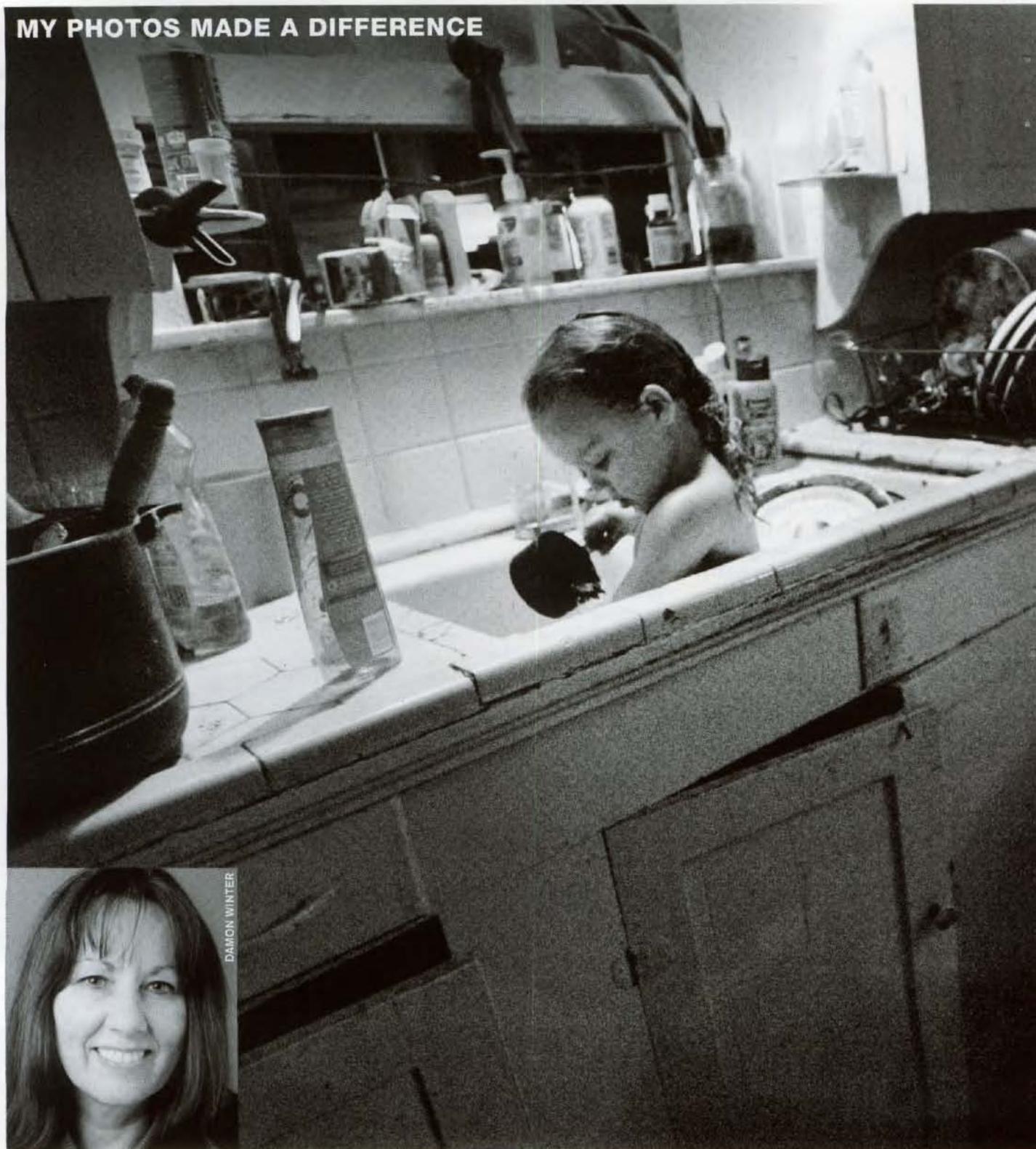


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MY PHOTOS MADE A DIFFERENCE



DAMON WINTER

Photographer Mona Reeder

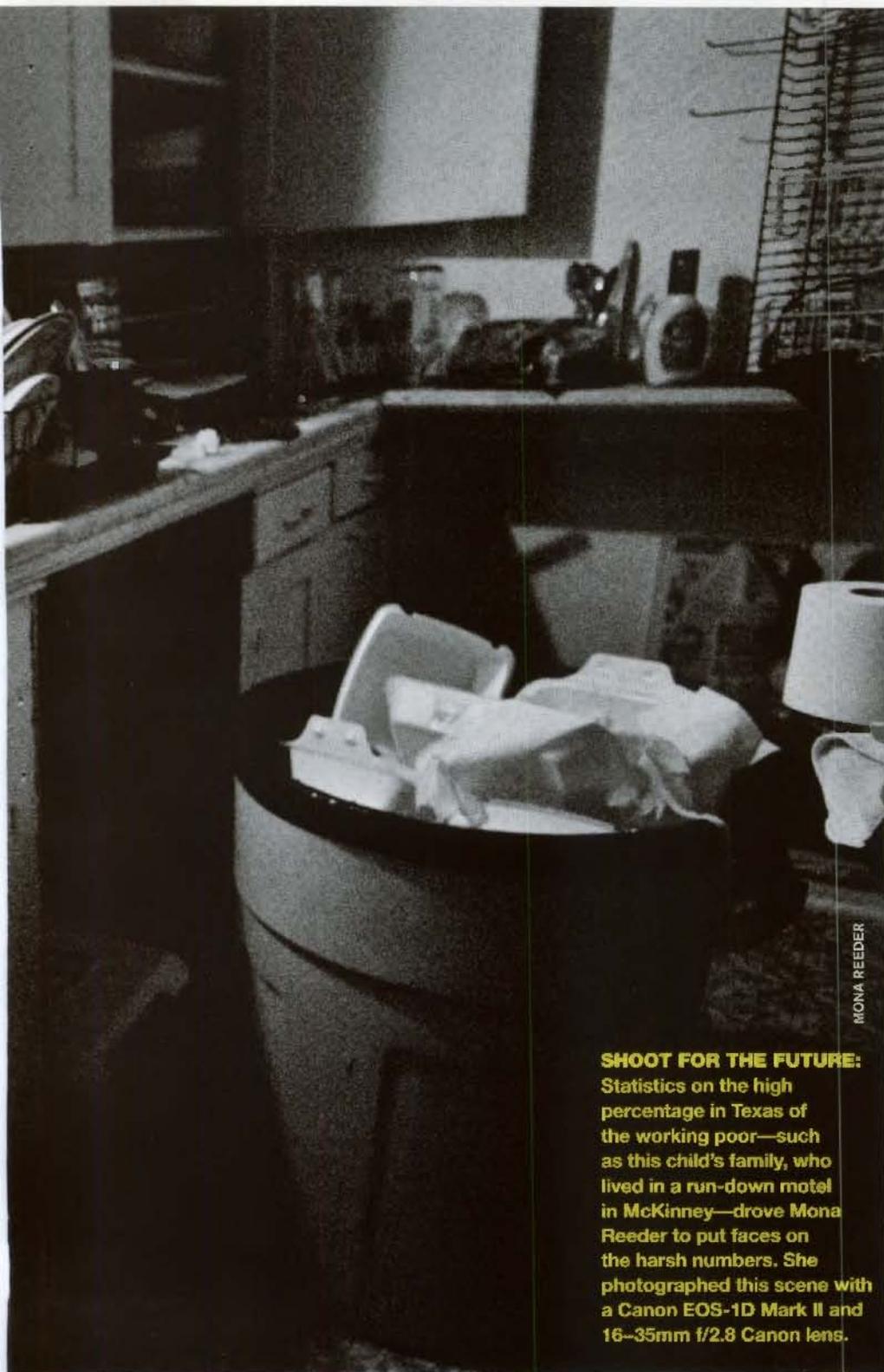
was finishing a story for the *Dallas Morning News* on homelessness when a social worker handed her a set of statistics from the state comptroller's office: state-by-state rankings on such social issues as teen pregnancy and high-school dropout

rates, voter apathy, and medical care.

With a career dedicated to socially concerned photography, she had already covered these topics individually. "But the impact comes when you see all of these things together, and see how low Texas ranks," she says. "It's a very wealthy state,

so you wonder: How could this be?"

This was the birth of her photo essay, "The Bottom Line," a Pulitzer Prize finalist. It was a long time in the making. Papers rarely take photographers seriously as journalists, Reeder says. "They feel that the ideas should only come from the



MONA REEDER

SHOOT FOR THE FUTURE: Statistics on the high percentage in Texas of the working poor—such as this child's family, who lived in a run-down motel in McKinney—drove Mona Reeder to put faces on the harsh numbers. She photographed this scene with a Canon EOS-1D Mark II and 16–35mm f/2.8 Canon lens.

get someone to buy into the concept."

When an editor finally did give her the go-ahead, it was to work on the project on her own time—after her daytime assignments for the news desk, and without the assistance of writers.

that list of rankings and document all of them. Poverty in South Texas. Children without medical insurance. Teen mothers. Teens in the juvenile justice system. Families suffering the effects of toxic emissions. The working poor.

"I spent weeks and weeks doing research and getting access to prisons, for example," she says. "I made countless phone calls. I'd contact all kinds of advocacy groups, activists, and outreach groups. It took 3 or 4 weeks just to get to ride with Meals on Wheels," where she eventually found a family willing to open up to her as a subject.

The vast scope of her project helped open the door. With such institutions as the Texas Youth Commission, "I had to talk about the project in its entirety to make them understand it was about the state rather than just them, so that they realized that they weren't under the gun and going to be targeted," she recalls.

And to convince her actual subjects—the families she found through various organizations—to take part, she had to convey the importance of her project.

She worked nearly every waking hour from January 2007 until right before her photo essay ran in the paper on December 23. She wrote all the captions and even created audio for a multimedia project posted on the newspaper's website (see it at www.dallasnews.com/s/dws/photography/2007/bottomline/).

Although the effects are hard to measure, her photos brought attention to the groups she featured. Says Lynn Sipiora, director of a Collins County homeless shelter Reeder depicted, "Anytime we get press coverage, we're able to raise public awareness, which always increases community support"—contributions and volunteers.

But Reeder hopes for greater changes. She sent copies of the story to Texas officials, including the governor, state senators, mayors of every major city—and also to the presidential candidates and the White House.

The *Morning News* plans to print a special edition for the Texas legislature.

Reeder's grueling experience has only motivated her more. "One thing the project taught me," she says, "was that I could accomplish almost anything if I was honest and sincere about it."

MY PHOTOS MADE A DIFFERENCE



"I didn't go into it with a big political idea," says Subhankar Banerjee, 42. "People think of the Arctic as this very cold and lifeless place—I wanted to show them differently."

Still, the photographer found his work at the center of a political storm when, during a 2003 debate in the U.S. Senate on oil drilling in the Arctic National Wildlife Refuge, California's Barbara Boxer

whipped out his wildlife photos to refute Alaska Senator Ted Stevens' claim that the refuge had no wildlife to protect.

This was far more attention than the India-born Banerjee had ever expected

NOT QUITE LIFELESS: Subhankar Banerjee (www.subhankarbanerjee.org) captured these bleached-whalebone gravemarkers in an Inupiat cemetery of the Arctic National Wildlife Refuge in November 2001, proving that life does exist in the Arctic. He shot the image in 40-below (Fahrenheit) weather using a Nikon F4s and Kodak Ektachrome 100SW film.



SUBHANKAR BANERJEE

DIDIER DE FAYS



when he quit his job at Boeing in 2001 to pursue his passion for photography.

Dreaming of creating a major photo project, Banerjee was drawn to Blue Earth (www.blueearth.org), a nonprofit that

supports and funds socially concerned photography. Under the guidance of one of its founders, Natalie Fobes, who had shot in the Arctic, he studied the region's wildlife and immersed himself in what he'd

planned as a 14-month project. Eight years later, he's still at it.

His first night in the Arctic, the thermometer dropped to 90 below, and for an instant Banerjee thought about giving up. But having survived the night, there was no turning back. He spent more than a year traveling throughout the Arctic National Wildlife Refuge, capturing the colors of the landscape, the migration patterns of caribou and whales, and the Inuit societies that have subsisted in this ecosystem for hundreds of years.

Upon his return, he published his photos, with the help of Blue Earth, as *Arctic National Wildlife Refuge: Seasons of Life and Land* (Mountaineers Books, 2003; \$40) and landed an exhibit at the Smithsonian Institution's Museum of Natural History. This may be how Boxer got wind of his work—which was moved from its designated spot in a main-floor rotunda to a much smaller space in the basement after the infamous Senate dust-up. While partly thrilled by the publicity, Banerjee says he was "a nervous wreck. I had depleted all of my savings on the Arctic trip and, at the time, I was not yet officially a U.S. citizen."

But the experience pushed Banerjee into advocacy. "From 2003 to 2006 I was on the road all the time, giving lectures and exhibiting the work," he says.

Then he went back to his first love: Photographing at 90 below. Now he travels not just the North American Arctic but Siberia, lugging medium-format film cameras that don't have batteries that might freeze (though the film sometimes does): a Mamiya 6x7, Fujifilm 6x9, and two Fuji GSW 690s.

Oil drilling in the Arctic National Wildlife Refuge remains a political hot-potato, but it hasn't happened yet. And Banerjee hopes that his work will help show why this unique and beautiful habitat must remain untouched. "It's aesthetic as well as journalistic," he says.

"I don't want to show people in a strict photojournalistic way and make it all about information. If you give people just information, they forget it. I want people to imagine the Arctic otherwise." 

HIDDEN Assets



WHAT'S HOT

- Small, light body.
- 2.7-inch LCD tilts and swivels.
- In-body sensor-shift image stabilization.

WHAT'S NOT

- Noisy imaging at ISO 1600 and 3200.
- Multiple exposures limited to 2 frames.
- Only one command wheel.

WHO'S THIS FOR?

- Four Thirds fans (and confirmed still shooters) who want a small yet powerful DSLR.

ON THE BACK:

Even in normal Digital ESP metering mode, rather than Shadow-priority, the Olympus E-620 captured plenty of detail in this magpie shrike at the Central Park Zoo. Shot using a 50–200mm f/2.8–3.5 lens. Exposure: 1/400 sec at f/3.5, ISO 1600.

More than meets the eye

So you want a full-sized

DSLR, but something in you—such as your vertebrae—is telling you that it's not a good idea.

Olympus feels your pain, as it has for a couple generations of compact DSLRs. The latest, the E-620, has a body that's no bigger than a pack of ramen noodles and weighs just 1.04 pounds.

That's several cubic inches smaller and—most important—nearly a quarter-pound lighter than the just-announced Nikon D5000 (see page 76). Doesn't

sound like much of a difference? Tell yourself that after a day of playing "I want to be Ansel Adams" at Yosemite National Park.

And like its body, the E-620 is fairly light on the wallet. Body only: \$700, street. With a 14–42mm f/3.5–5.6 Zuiko lens, \$800. With that lens and a 40–150mm f/4–5.6 Zuiko, \$900.

Despite its compact size, the E-620 is loaded. In fact, it's a bit smaller than its Olympus predecessor, the E-520, yet has everything the E-520 did and more: Sensor-shift image stabilization (our tests showed about 2 stops of

handholding leeway), 12.3MP in the Four Thirds format (2X lens factor), live view, 4-frames-per-second burst, and a 2.7-inch 230,000-dot LCD on a flip-out/swivel-around mechanism, which is clearly a good idea (just ask Nikon).

Fistful of camera

What's the downside of the small size? Ergonomics, you might say. But no. With a prominent grip on the right front of the body, and a pad for your thumb on the back, the E-620 gives you comfortable control to create any composition. Even big-

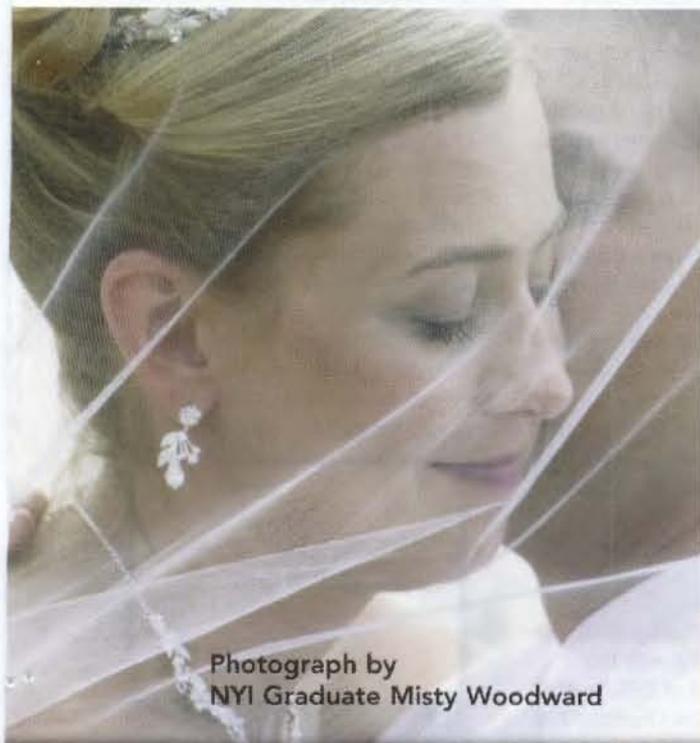


▼ **ON THE TOP:** The mode dial, exposure comp, command wheel, and shutter release occupy the right-hand side, while flash and drive mode buttons are found to the left of the viewfinder.

fingered lumberjacks won't feel like girly men trying to take hold. For a better handhold—especially for portrait shooters—try the add-on vertical grip (\$166, estimated street). While that adds to the mass, it nearly doubles your battery power.

From what we can see, the real downside of cramming so much camera into such a small body is noise. Heat builds up around the sensor, and there isn't much that can be done to draw it off with so little real estate. Let's not overstate the case, since much noise can be removed in postprocessing, but it is an issue. In our tests in the Pop Photo Lab, the E-620 had a noise score of 1.7 at ISO 100 for a rating of Low, stepping up to a rating of Moderately Low with a score of 2.1 at ISO 400, and reaching Unacceptable levels at ISO 1600 and 3200 with respective scores of 3.2 and 4.8. All of these numbers were derived from TIFF files developed from RAW files with Olympus' RAW conversion software's noise reduction set to Standard.

Compare that with the new, small, \$520 (street) Pentax K2000, which had scores of 1.1 at ISO 100, 1.6 at ISO 400 and didn't reach Unacceptable levels



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NYI Graduate Misty Woodward

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Radeon® series 9550, 9800, x700, x800, x850, x1300, x1600, x1800 or x1900; All-in-Wonder® series 9800, 2006, x600, x800, x1800 or x1900; All FireGL® or All FireMV®.

To be eligible to submit a claim, you must have purchased one or more cards that were built by or for ATI, not by or for another company such as Asus, Diamond, Gigabyte, Palit, Sapphire, or VisionTek.

Please read this entire notice completely as it affects your legal rights. The Court authorized publication of this notice.

WHAT'S THIS ABOUT?

The plaintiffs in the lawsuit claim that ATI advertised or marketed the graphics cards listed above as being "HDCP ready," or otherwise conforming to High-bandwidth Digital Content Protection ("HDCP") specifications for transmission of HDCP content, an attribute they claim the cards did not or could not have possessed. ATI denies the allegations and has asserted many defenses. The Court has not made any findings on this issue and the settlement is not an admission of wrongdoing by any party.

WHAT DOES THE SETTLEMENT PROVIDE?

For each authorized claim you submit, you will receive one new Radeon® 4650 512MB PCI express graphics card (if 55,500 or fewer authorized claims are submitted); one new Radeon® 2400 256MB PCI express graphics card (if more than 55,500 and less than 71,501 authorized claims are submitted); or a pro-rata share of \$3 million if more than 71,500 authorized claims are submitted. For example, if there are 71,501 authorized claims, each authorized claimant will receive a check in the amount of \$41.95 for each authorized claim he or she submits.

WHAT ARE YOUR OPTIONS?

Remain in the Class and submit a claim: For a detailed notice and claim form package call toll free 1-888-309-9567 or go to ATIClassAction.com. Your claim must be postmarked on or before August 10, 2009. Claim Forms not mailed by this date will be rejected.

Object to all or any portion of the proposed settlement: The Court will hold a hearing on August 31, 2009, at 9:00 a.m. to consider (a) the fairness, reasonableness and adequacy of the proposed settlement; (b) the dismissal of the case with prejudice as to all defendants and the entry of a final judgment; and (c) whether an award of attorneys' fees, costs and expenses should be made to Class Counsel. You may appear at the hearing, but you don't have to. Any objections to the proposed settlement must be submitted to the Court and the parties no later than August 10, 2009. The detailed notice explains more fully how to object to the proposed settlement.

Opt out from the Class: If you want to be excluded from the Class and the proposed settlement, you must submit to Class Counsel a request to be excluded postmarked by August 10, 2009. If you exclude yourself from the Class, you will not receive any benefits of the settlement.

Do nothing: If you do nothing, you will still be bound by the terms of the proposed settlement and you won't be able to sue the defendants about the legal claims in this case.

This is only a summary notice. To obtain a detailed notice containing additional information on the proposed settlement and other of these options, please call toll free 1-888-309-9567 or go to ATIClassAction.com. You may also write to Plaintiffs' Counsel: Scott A. Kamber of KamberEdelson LLC, 11 Broadway, 22nd Floor, New York, NY 10004; or David C. Parisi, Parisi & Havens LLP, 15233 Valleyheart Drive, Sherman Oaks, CA 91403.

TEST OLYMPUS E-620

until ISO 3200 using default levels of noise reduction. We'll see how the new Nikon D5000 fares as soon as we get a production unit.

Other image-quality factors are quite good, though. In color accuracy it scores 7.9, an Excellent on our scale, besting the 8.3 from the Pentax K2000 but not the Canon EOS Rebel XSi's 7.3. Resolution, too, was impressive, with 2120 lines at ISO 100 (the Pentax scored a little better at 2170 and the Canon had 2265 lines).

Ready, set...focus!

The autofocus system is new, with 7 points in a horizontal diamond array. In bright light, the Olympus is fast. At EV 12, the brightest light level in our test, it locked focus in 0.34 sec. AF took 0.5 sec at the next level down (EV 10), and was still under a second by the dim light of EV 2. In this range, the Pentax K2000 is slightly faster at several points.

But in lower light, the Olympus doesn't slow as much as the Pentax, keeping a focus time of 1.57 sec down to the cave-like conditions of EV -1. Compared with the Canon Rebel XSi and the Nikon D60, though, both the Olympus and Pentax are AF laggards.

Metering? Certainly a strong suit on the E-620. In our field tests, the 49-point multi-pattern metering did a great job of determining the proper exposure for most conditions. And if you have an extremely bright or dark scene, set it to Highlight or Shadow mode, and the camera compensates, bringing out details in the shadows and saving them in the highlights. Impressive.

Like to spotmeter? You'll love the 2% spot in this viewfinder. No other low-priced DSLR comes close in this regard.

As for the viewfinder overall, it covers 95% of the frame, which is excellent for the class, and the 0.96X magnification keeps you from feeling like you're looking through a tunnel.

Creative license

You'll imagine you're in a funhouse if you spend any time playing with the camera's "art filters." Lots of DSLRs now have in-camera editing, but Olympus has taken it to a new level, as we first saw with the recent Olympus E-30. Simply pressing a button can turn your image into '60s pop art, give you the grainy realism of classic black-and-white film,

VITAL STATISTICS

IMAGING: 12.3MP effective Live MOS sensor captures images at 4032x3024 pixels with up to 12 bits/color in RAW. **STORAGE:** Dual slots for CompactFlash Type I/II (including UDMA) and xD-Picture cards. Stores JPEG, RAW, RAW + JPEG. **BURST RATE:** JPEGs (Super Fine-quality), 4 fps up to 9 shots. RAW, 4 fps up to 5 shots. **AF SYSTEM:** TTL phase-difference detection system with 7 points full twin-cross AF sensors. Single-shot and continuous AF with focus tracking. Sensitive down to EV -1 (at ISO 100, f/1.4). **SHUTTER SPEEDS:** 1/4000 to 60 sec plus B (1.3-EV increments). **METERING:** 49-zone TTL metering with Digital ESP, centerweighted, and spotmetering (approximately 2.0% of viewfinder). EV 1-20 (at ISO 100). **ISO RANGE:** ISO 100-3200 (1/3- or 1-EV increments). **FLASH:** TTL auto pop-up flash, GN 36 (ISO 100, feet). Flash sync to 1/180 sec. Provides wireless control of Olympus RC flashes. Dedicated hot-shoe. **VIEWFINDER:** Fixed eye-level pentaprism. **LCD:** Swiveling/tilting 2.7-inch TFT with 230,000-dot resolution and live-view mode. **OUTPUT:** Hi-Speed USB 2.0, NTSC/PAL video, PC terminal. **BATTERY:** Rechargeable BLS-1 Li-ion. CIPA rating, 750 shots, 50% with flash. **SIZE/WEIGHT:** 5.6x4.2x3.0 in., 1.04 lb without card and battery. **STREET PRICE:** \$700, body only; \$800 with 14-42mm f/3.5-5.6 Zuiko ED lens; \$900 with 14-42mm f/3.5-5.6 Zuiko ED lens and 40-150mm f/4-5.6 Zuiko ED lens. **FOR INFO:** www.olympusamerica.com.



VIEWFINDER TEST

ACCURACY: 95% (Excellent)
MAGNIFICATION: 0.96X (Excellent)

CERTIFIED TEST RESULTS

IMAGE QUALITY (ISO 100-800)

VERY HIGH

POOR ← → EXCELLENT

RESOLUTION (ISO 100)

VERY HIGH 2120

1500 2000 2500 3000 3500 4000
HIGH ← → EXCELLENT

COLOR ACCURACY (AVG. DELTA E)

EXCELLENT 7.9

14 12 10 8 6
HIGH ← → EXCELLENT

NOISE AT ISO

1.7 LOW 100

1.9 LOW 200

2.1 MODERATELY LOW 400

2.3 MODERATELY LOW 800

3.2 UNACCEPTABLE 1600

4.8 UNACCEPTABLE 3200

3.0 2.5 2.0 1.5 1.0 0.5
UNACCEPTABLE ← → EXTREMELY LOW

HIGHLIGHT/SHADOW DETAIL

VERY HIGH

LOW ← → EXT. HIGH

CONTRAST (AT DEFAULT SETTING)

SLIGHTLY HIGH

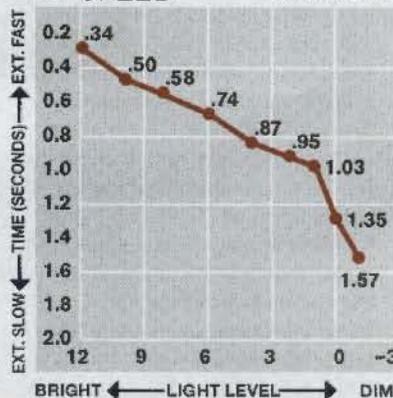
LOW ← → HIGH

IMAGE STABILIZATION

2.0 STOPS

TESTED AT 200MM

AF SPEED EV AT ISO 100



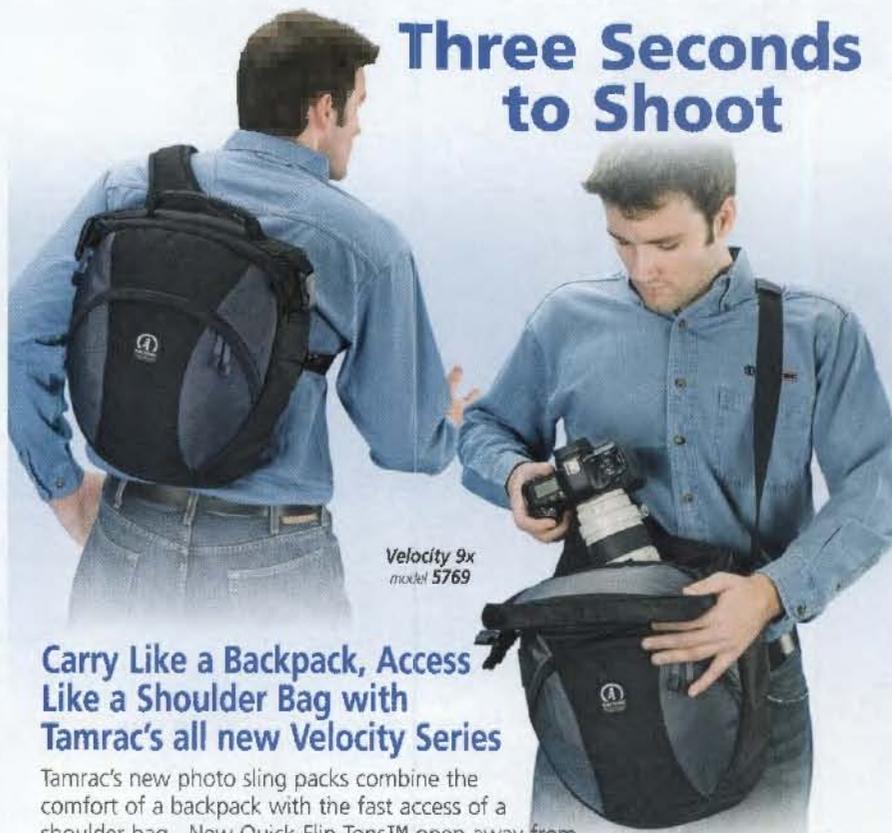
or even mimic a pinhole photograph. There are six effects in all.

Don't confuse these with the special effects that are built into almost every digital compact. The Olympus approach is much more sophisticated in technology as well as execution. Best of all, you can preview the effects in live view without any risk of wrecking the original image file.

More fun and creativity can be unleashed with the double-exposure feature. While the more expensive E-30 (\$1,250, street, body only) can combine

up to four images, the E-620 lets you blend two. Try it, and you'll be hooked. Set it to multiple exposure in the menu, and fire the first shot. Then, while looking at that image in the LCD, compose the second image on top of it. Press the shutter, and the camera does the rest.

If this is starting to sound like a glorified point-and-shoot, banish that thought. One look at the back of the E-620 shows a control-freak-caliber array of buttons. And what you can't press immediately is easy to access on the LCD with Olympus' well-proven five-way control pad.



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IMAGE QUALITY: Elbows braced on a railing and image stabilization enabled, Philip Ryan photographed this Victoria crowned pigeon at the Central Park Zoo using a 50-200mm f/2.8-3.5 lens zoomed to 200mm. Exposure, 1/25 sec at f/5.6, ISO 1600.

There's one control wheel on top of the body, but we wish there were a second tucked in front of the shutter button for controlling aperture and shutter speed independently in manual shooting. As it is, you have to press the exposure compensation button to switch between these two.

Serious control also extends to flash. The E-620's built-in pop-up controls up to three groups of Olympus accessory flashes through your choice of four channels, so there's little chance of

other shooters firing your strobes.

Shrunken treasure

In all, this is a very competent little DSLR. Being little is its strength—and if you're sensitive to noise, its weakness. This might be one of the last DSLRs not to include video capture. After all, both the new Canon EOS Rebel T1i—which costs within \$100 of the E-620—and the similarly priced Nikon D5000 pack it. But many dedicated still shooters aren't clamoring for it. For those photographers, there's plenty in this small package already. ☺

COMPETITIVE SET

■PENTAX K2000

\$520, street, with 18-55mm f/3.5-5.6 lens and AF-200FG flash

Given its price, and the fact that it comes with an accessory flash, this Pentax is a strong competitor. In Pop Photo Lab tests, resolution proved comparable, but Pentax took the lead in noise and AF speed in moderate and bright light (except at EV 12, where they essentially tied). The Olympus E-620 rallied back in low-light AF, where it didn't slow as much as the Pentax, and in color accuracy, where it edged into our Excellent rating with an average Delta E of 7.9, compared with the Pentax's 8.3 (an Extremely High rating). If you've never been in live-view mode with a DSLR that has a swiveling, tilting LCD, you won't know how convenient it can be. For us, it's enough to bring this match-up to a tie.

■CANON REBEL XSi

\$690, street, with 18-55mm f/3.5-5.6 IS lens

Again, this Canon carries a more appealing price tag than the E-620. And in our lab tests, it bests the Olympus in most ways. Color accuracy? Both achieved Excellent ratings, but the Canon did so with a score of 7.3, compared to the E-620's 7.9. In resolution, the Canon scored almost 150 more lines than the Olympus. It also proved less noisy than the Olympus across all its ISOs, though the Canon tops out at ISO 1600, which is starting to feel outdated even for entry-level DSLRs. Autofocus? The Rebel XSi was faster at all light levels in our test, though the difference was more pronounced in low light. At EV -1, the Canon focused more than a half second faster than the Olympus. And the Canon focused at EV -2, while the Olympus failed in that super-dimness. Though the E-620's articulated LCD redeems it against the Pentax, in this case, the Rebel XSi has the edge.

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DOUBLETake



High-def video and stills for under \$900?!

DSLR shooters who fall somewhere between hardcore and tyro are getting the cross-hair treatment from camera makers these days. That's who Olympus is aiming for with its tiny, creatively playful, yet powerful new E-620 (\$700, body only), tested on page 68.

Now the two biggest guns—Canon and Nikon—have these buyers in their sights, with DSLRs that bring high-definition video capture and other major-league features to kits costing \$900 or less.

Canon's entry, the 15.1MP EOS Rebel T1i, inherits capabilities from the EOS 50D and 5D Mark II. Similarly, the 12.3MP Nikon D5000 is packed with much of the tech coolness of Nikon's upmarket D90. But these contenders

Canon EOS Rebel T1i

IMAGING: 15.1MP APS-C-size CMOS sensor (A/D, 14-bit). **LCD:** Fixed 3-inch, 920,000-dot. **ISO RANGE:** ISO 100–12,800 (extended). **VIDEO:** 1920x1080-pixel HD, 20 fps, 12 min/clip; 1280x720-pixel HD, 30 fps, 18 min/clip; 640x480-pixel, 30 fps, 24 min/clip. Mono sound via built-in mic. **BURST RATE:** 170 (Large Fine) JPEGs or 9 RAW at 3.4 fps. **AF:** 9-point diamond pattern with high-precision center cross-type sensor, 8 linear sensors. **METERING:** 35-zone evaluative, centerweighted, limited-area, and spot. **BATTERY:** LP-E5, 400 shots per charge (50% with flash). **FLASH:** GN 43 (ISO 100, feet); coverage angle, 17mm lens. No wireless TTL control from pop-up. **LENS COMPATIBILITY:** All Canon EF and EF-S lenses. 1.6X lens factor. **SIZE/WEIGHT (BODY ONLY):** 5.1x3.8x2.4 in.; 1.06 lb. **EST. STREET PRICE:** \$800, body only; \$900 with 18–55mm f/3.5–5.6 EF-S IS lens.

DIFFERENCES ARE BEHIND THEM:

One of the most obvious points of divergence between the Canon EOS Rebel T1i and Nikon D5000 is the LCD. The Canon's is bigger and sharper, while the Nikon's flips down and swivels.

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also demonstrate some divergence in thinking by their respective makers.

Let's look at them side by side in several key areas.

Imaging

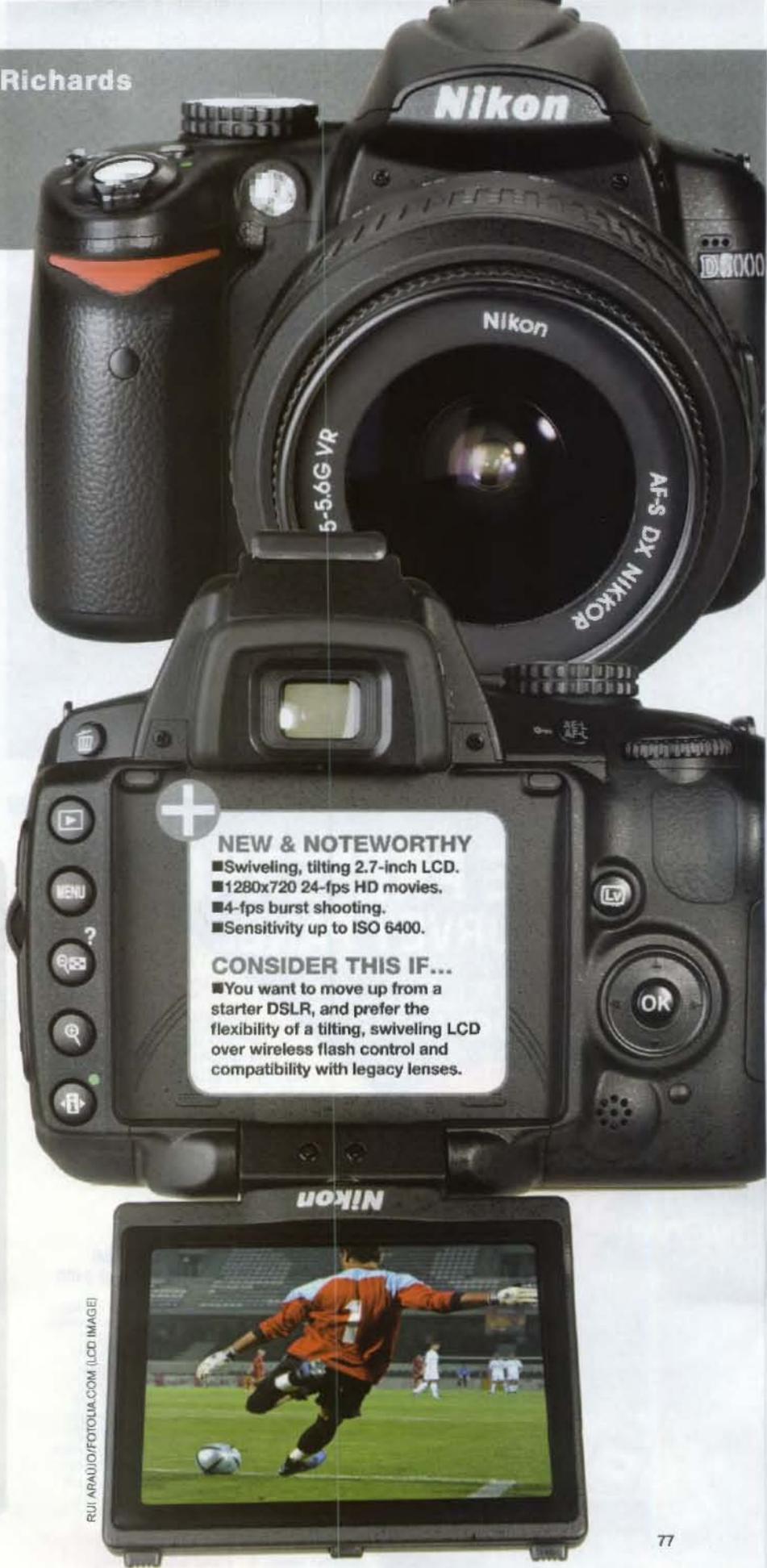
Both cameras use sensors and processors from existing models of what might be called the high-midlevel class.

The Canon gets its 15.1MP CMOS sensor from the 50D, plus 14-bit A/D conversion, and like the 50D, ISOs can be pushed into an extended range to 12,800. Naturally, we expect that image quality from the Rebel T1i will closely match that of the 50D.

The Nikon D5000 plays it a little more conservatively, using the 12.3MP CMOS sensor of the D90, with its 12-bit A/D converter, and ISOs expanding up to 6400. This hardly makes it a slouch. As the Nikon D90 ran practically neck and neck with the Canon 50D in our lab tests—and bested the 50D in noise performance at

Nikon D5000

IMAGING: 12.3MP APS-C-size CMOS sensor (A/D, 12-bit). **LCD:** Articulating 2.7-inch, 230,000-dot. **ISO RANGE:** ISO 100–6400 (extended). **VIDEO:** 1280x720-pixel HD, 24 fps, 5 min/clip; 640x480-pixel, 30 fps, 20 min/clip. Mono sound via built-in mic. **BURST RATE:** 100 (Large Normal) JPEGs or 9 RAW at 4 fps. **AF:** 11-point box pattern with center cross-type sensor, 10 linear sensors. **METERING:** 420-pixel 3D Color Matrix evaluative, center-weighted, and spot. **BATTERY:** EN-EL9a, 510 shots per charge (50% with flash). **FLASH:** GN 56; coverage angle not yet available. No wireless TTL control from pop-up. **LENS COMPATIBILITY:** AF-S Nikkor lenses with autofocus; all other Nikkors with manual focus. 1.5X lens factor. **SIZE/WEIGHT (BODY ONLY):** 5x4.1x3.1 in.; 1.25 lb. **EST. STREET PRICE:** \$730, body only; \$850 with 18–55mm f/3.5–5.6 AF Nikkor VR lens; \$1,100 in two-lens kit with added 55–200mm f/4–5.6 AF Nikkor VR lens.



NEW & NOTEWORTHY

- Swiveling, tilting 2.7-inch LCD.
- 1280x720 24-fps HD movies.
- 4-fps burst shooting.
- Sensitivity up to ISO 6400.

CONSIDER THIS IF...

- You want to move up from a starter DSLR, and prefer the flexibility of a tilting, swiveling LCD over wireless flash control and compatibility with legacy lenses.



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HANDS ON

higher ISOs—we expect a comparison of the two new cameras to be quite competitive. Keep in mind, too, that camera makers often tweak the processing firmware for newer models with the same sensor, so we might even see some improvement.

Viewing and focusing

The D5000 shows some new thinking from the Nikon engineers—it's the first Nikon DSLR to have an articulated LCD screen. A great idea in any event, the D5000's does something different and, in our view, better. The 2.7-inch, 230,000-dot display flips down—not out to the side—and then rotates.

Since the display remains centered laterally, you don't need to move the camera to the right to keep the screen in front of your face while you frame your shots. This also keeps the screen centered on the optical axis and makes panning feel more natural than with a flip-to-the-side design. This setup will also come in handy when capturing video.

Canon took the more traditional path, with a fixed 3-inch, 920,000-dot LCD borrowed from the EOS 50D and EOS 5D Mark II. If fine-grained screen viewing is more important to you than an articulating LCD, the Canon may tug harder on your heartstrings—it's a gorgeous display.

Autofocusing systems on both cameras are also off-the-shelf items. The Canon uses essentially the same 9-point, diamond-pattern AF array as the EOS Rebel XSi (which will remain in the lineup, as well as the EOS Rebel XS). The center cross-sensor is surrounded by linear sensors.

The Nikon, as you might expect, employs the AF system of the D90, with 10 linear sensors arrayed in a box pattern around a central cross-type sensor. Both systems tested out fast and sensitive in the respective older models, and we'll see how they fare in these new cameras.

Video

The Nikon D5000 has the same video capability as the D90: 1280x720-pixel HD video at 24 frames per second in clips up to 5 minutes long, with mono sound and manual focus.

Canon seems to have a clear advantage with its full 1920x1080-pixel

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CANON EOS REBEL T1i and NIKON D5000

HD recording, up to 12 minutes a clip, but there are a few asterisks. Because the T1i has just two outlet channels from the sensor, as opposed to four on the 5D Mark II, the camera can manage only 20 fps at 1920x1080, making for choppy motion.

And since it has a smaller sensor (and smaller pixels) than the full-frame 5D Mark II, there may be greater noise issues in videos taken at higher ISOs. Unlike the stereo-capable 5D Mark II, sound recording is limited to the built-in mono microphone.

The Rebel T1i does take lower-resolution 1280x720 video at 30 fps, though, and at this price, it may prove a boon for film students.

Handling and add-ons

We shot with the two cameras in brief field tests and were impressed with both. In terms of the body, the Canon Rebel T1i is a near-clone of the Rebel XSi, differing only in the video setting on the mode dial on top, and a thumb button on the back, for live view and video recording. (Note to Canon: That button needs to be raised a little more—it's almost impossible to find by feel alone.)

The fit of body panels was trim and tight on the beta version we handled. As with other Rebels, if you have big hands, your pinky could slip off the bottom of this petite camera, so you may want to add the battery grip for extra finger room. (The T1i uses the same battery grip, Li-ion battery, and remote switches as the XSi.)

The D5000 is similar to Nikon's D90 in body design. There's a dedicated live view button to make it easy to switch to framing images on the LCD or to capture video. Also, the grip is longer than the one on the Rebel, so your pinky won't feel left out. And a bevy of buttons gives you access to all the most important controls.

Nikon's display lets you change other important settings and see all your main settings quickly. The build quality felt solid on the preproduction sample we used. The D5000 isn't compatible with any of Nikon's existing battery grips, and unfortunately there won't be a new grip for this model. But it is compatible with current Nikon Speedlights, ML-L3 wireless remote, and GP-1 geotagger.

The bottom line

Both DSLRs stack up fairly evenly in terms of in-camera effects like dynamic range adjustments, filter effects, JPEG profiles, and so on. (The Nikon D5000 doesn't offer wireless flash control from the pop-up flash, unlike higher-end Nikons. But since Canon doesn't offer this feature on any EOS model, mark them even here, too.)

Another issue: The Nikon D5000 does not have the AF-coupling pin

found on more expensive Nikons, which means that you need AF-S lenses (which have internal focusing motors) to autofocus. The Canon, on the other hand, can take any lens from the EF arsenal, digital-only or full frame.

Whether you're a Canon or Nikon fan, you're getting a ton for your money in these respective models. And if you're sitting on the fence deciding on a sub-\$1,000 DSLR, your decision just got exponentially harder. 



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"normal" lens (\$220, street), this 52mm full-frame equivalent is also the fastest DX and widest nonfisheye digital-only Nikkor prime. It has a single aspheric element, Nikon's

2.08 in.



Specifications

35mm (36.28mm tested), f/1.8 (f/1.83 tested), 8 elements in 6 groups. Focusing turns 120 degrees counter-clockwise. ■ **Weight:** 0.47 lb. ■ **Filter size:** 52mm. ■ **Mounts:** Nikon AF. ■ **Included:** Lenshood, softcase. ■ **Street price:** \$220.

super-quiet SWM autofocus motor, and rounded aperture blades for smoothly defocused image areas at all apertures. **HANDS ON:** An inch shorter and about half the weight of Sigma's comparable 30mm f/1.4 digital-only normal, it's both light and compact, casting no shadow when used with the Nikon D90's built-in flash. There's no distance scale, and its manual-focus ring turns with a slightly scratchy feel. **IN THE LAB:** Our SQF tests found near-flawless sharpness and contrast, with SQF scores a bit below the Sigma's mid-Excellent range results. DxO Analyzer 3.0.1 tests revealed only Slight barrel distortion (0.27%), an above-average performance. Light falloff left the corners by f/2.5. At the close-focus distance of 10.87 inches, maximum magnification came in at a powerful 1:5.10. Indeed, this Nikkor significantly outperformed the Sigma in distortion, falloff, and magnifying power. **CONCLUSIONS:** Fast for shooting in low light and able to produce attractively defocused backgrounds, this utility player is compact and light for travel, inconspicuous for street shooting, and about as affordable and useful a lens as you're likely to find. ☺

Subjective Quality Factor

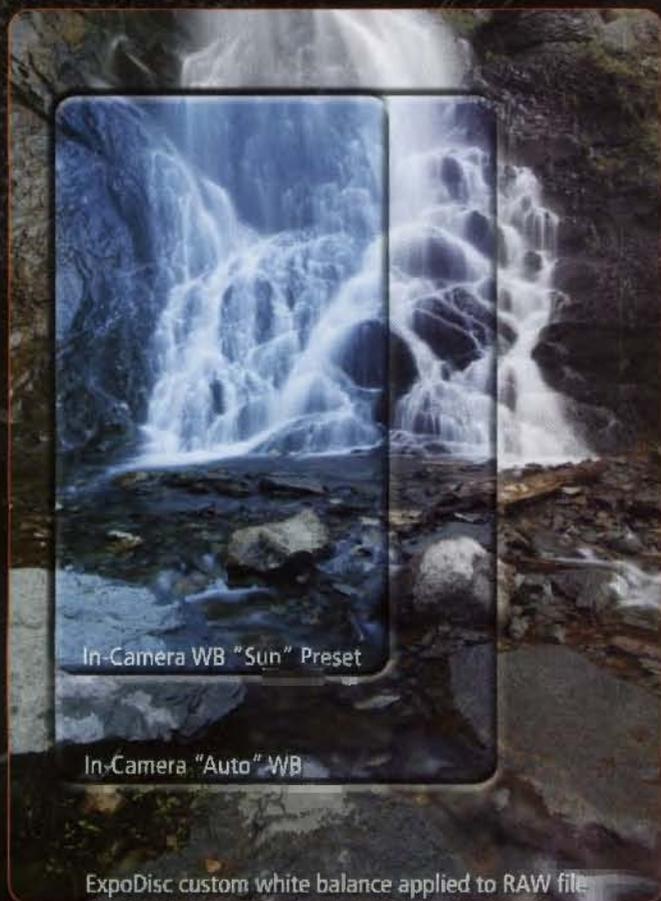
Size	5x7	8x10	11x14	16x20	20x24
1.8	97.0	96.1	93.8	88.9	82.6
2.0	97.0	96.1	93.8	89.0	82.8
2.8	97.1	96.3	94.2	89.7	83.9
4.0	97.0	96.1	93.9	89.1	83.0
5.6	96.9	95.9	93.6	88.4	81.7
8.0	96.8	95.8	93.4	88.1	81.2
11.0	96.8	95.6	93.1	87.4	80.2
16.0	96.3	95.2	92.4	86.4	78.7
22.0	95.8	94.8	91.3	84.0	74.5

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CANON EF 16-35MM F/2.8L II USM AF

Replacing Canon's original

16-35mm f/2.8L of 2001, this full-frame ultrawide for pros (\$1,450, street) has two UD glass elements to suppress chromatic aberrations, and three aspheric elements to minimize linear distortion. A 26-56mm equivalent on APS-C sensors, it delivers fast and quiet autofocus, smooth *bokeh*, internal focusing and zooming, and solid, dust- and moisture-sealed construction.

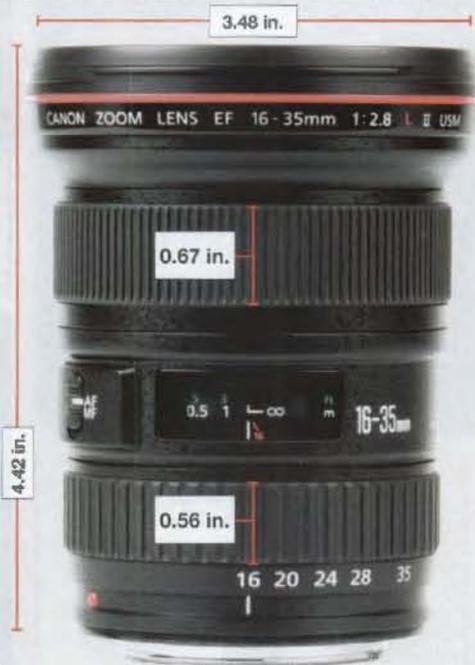
HANDS ON: Slightly bulkier and heavier than its predecessor, this tank of a lens balances nicely on metal-bodied EOS models, but is nose-heavy on Rebels. The ribbed and rubber-clad zoom and manual-focus rings turn with smooth, well-damped actions. The green distance scale in feet is a bit hard to read, especially in low light; the metric scale, in white, is easily legible. The new flush-mount AF/MF switch keeps you from accidentally changing modes.

IN THE LAB: SQF tests found sharpness and contrast in the Excellent range, similar to the original and to Nikon's 17-35mm f/2.8D. DxO Analyzer Version 3.0.1 tests found Visible barrel distortion (0.59%) at 16mm—a vast improvement over the Very Visible 2.9% of the earlier lens (and over the Nikon's 2.5%). At 24mm and 35mm, we found Slight pincushion distortion (0.12% and 0.19%, respectively), also a big improvement over the earlier version (0.25% and 0.86%).

Due to its larger diameter, vignetting was gone by f/4 at 16mm; we saw none at 24mm or 35mm—again,

Specifications

16-35mm (16.51-34.20mm tested), f/2.8 (f/2.79-2.98 tested), 16 elements in 12 groups. Focusing turns 90 degrees counterclockwise. Zoom ring turns 80 degrees clockwise. Focal lengths marked at 16-, 20-, 24-, 28-, and 35mm. ■ **Diagonal view angle:** 108-63 degrees. ■ **Weight:** 1.45 lb. ■ **Filter size:** 82mm. ■ **Mounts:** Canon AF. ■ **Included:** Lenshood, lens case. ■ **Street price:** \$1,450.



much better than the other lenses, both of which showed vignetting from f/4 to f/5.6 across the focal-length range. Maximum magnification at the uniform close-focusing distance of about 10.6 inches was 1:8.02 at 16mm, 1:5.51 at 24mm, and 1:4.06 at 35mm—similarly top-notch.

CONCLUSIONS: One of the most distortion-free fast, wide-angle zooms, this lens gives you relatively straight subject lines and lets you get close to a subject while including wide swaths of background. The price is high, but so are the rewards. ☺

Subjective Quality Factor

Size	16MM				
	5x7	6x10	11x14	16x20	20x24
2.8	95.5	95.4	92.8	87.5	81.9
4.0	91.1	95.2	82.5	87.2	80.1
5.6	95.2	95.1	82.3	90.8	80.0
8.0	95.3	95.2	82.5	87.2	80.7
11.0	96.4	95.3	82.7	87.5	81.5
16.0	96.0	94.8	82.0	86.4	79.5
22.0	96.2	95.0	82.2	86.6	79.7

Size	24MM				
	5x7	6x10	11x14	16x20	20x24
2.8	95.8	95.5	83.0	87.9	81.6
4.0	96.6	95.6	83.0	88.0	81.7
5.6	97.0	96.0	83.9	89.7	84.7
8.0	96.6	95.4	83.5	88.9	83.3
11.0	96.7	95.6	83.2	88.5	82.8
16.0	96.2	95.1	82.3	87.0	80.4
22.0	96.2	93.8	82.2	82.7	73.3

Size	35MM				
	5x7	6x10	11x14	16x20	20x24
2.8	87.1	86.1	84.0	89.9	84.9
4.0	96.9	95.9	83.6	89.0	83.2
5.6	96.8	95.8	83.5	88.7	82.7
8.0	87.1	86.1	84.0	89.7	84.4
11.0	87.0	86.1	84.0	89.7	84.5
16.0	96.6	95.8	83.1	86.3	82.3
22.0	96.8	94.5	81.4	84.8	76.6

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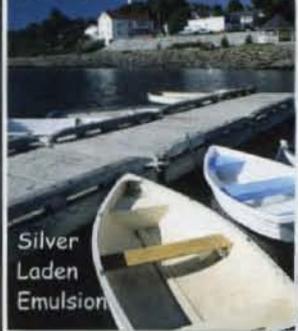
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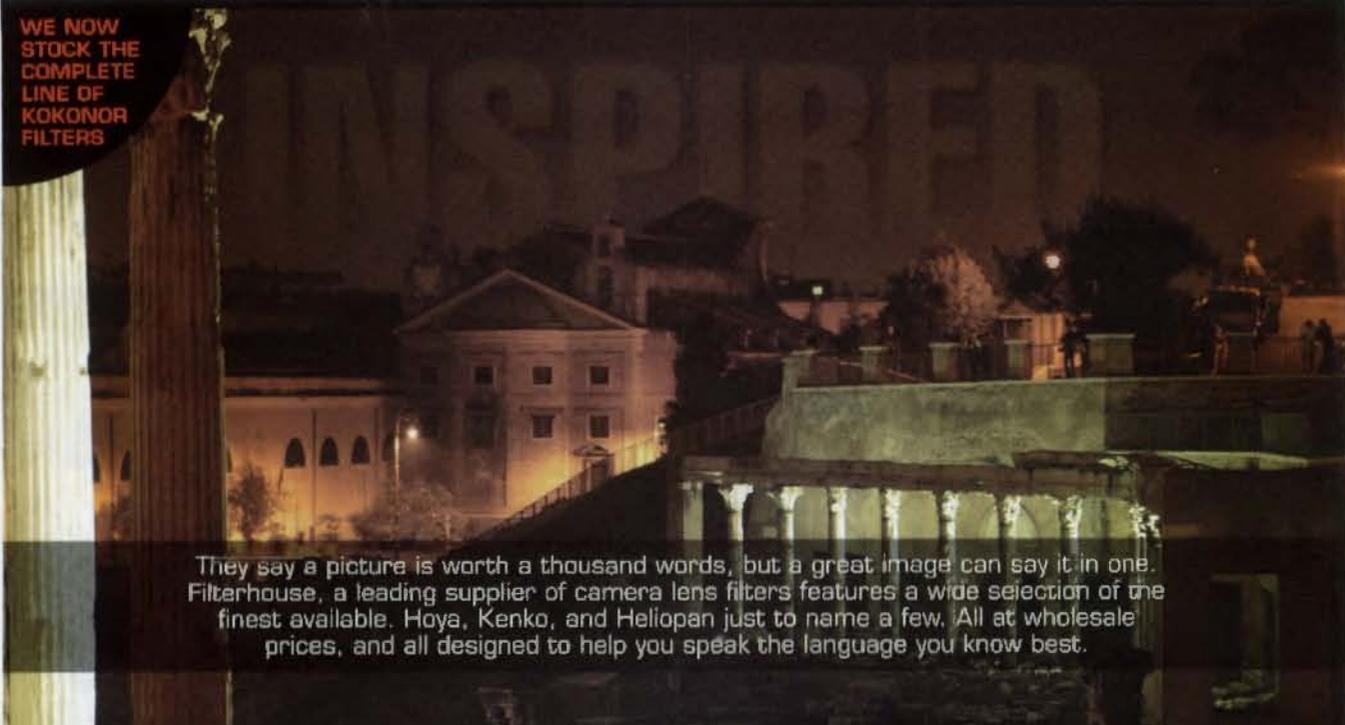
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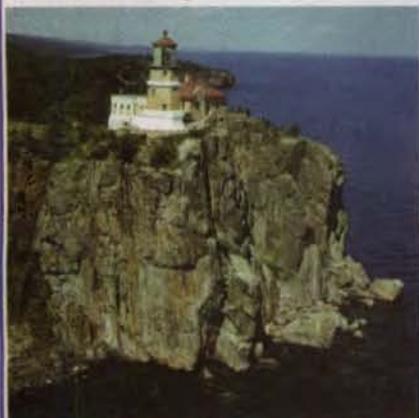
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3 Ways to Use Vibrance

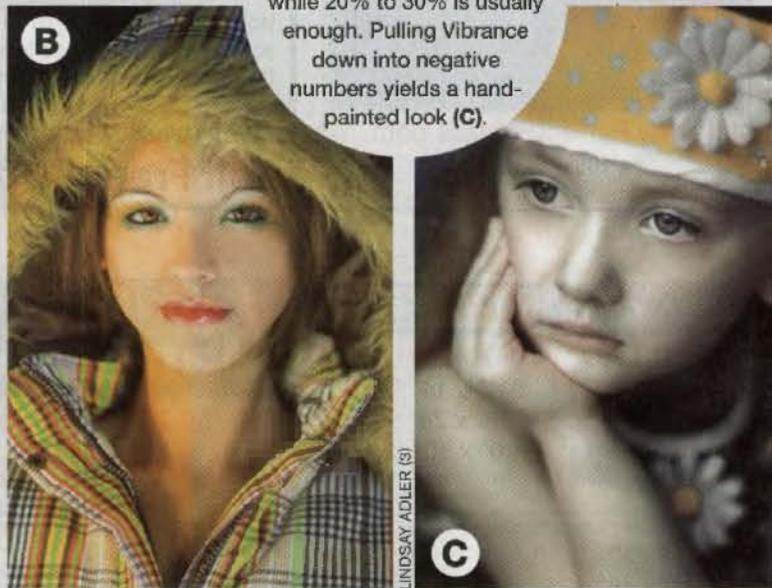
Photographers who use Adobe Photoshop's Saturation tool to increase the saturation of their digital images can often run into problems, notably unnatural color rendition. The Saturation slider adjusts all colors equally: Dull colors and already-saturated colors get the same boost, with the result that the latter can lose detail and become unrealistic—or just plain ugly. Photoshop CS4 and Photoshop Elements' RAW converter in Version 6 and higher remedy this with the Vibrance tool, which may also be called Smart Saturation. This tool minimizes the saturation change for colors that are near total saturation, while adding more saturation to the duller colors. Here are three good uses of Vibrance.

1 Enrich scenics: Saturation, used on the right third of Photo A, creates surreal colors and loss of detail in the richest areas—notice the halos of color around the blades of grass. Vibrance, used on the left third, makes the colors richer and deeper without losing detail in the saturated areas.

2 Improve portraits: Vibrance has built-in protection to avoid oversaturating skin tones. The software detects the tonal range of skin tones, and does not add saturation to these areas. In Photo B, Saturation was used on the left side, which affected all color values including skin tones, creating unnatural, undesirable tones. Vibrance, used on the right side, saturated various colors, including the eye makeup and the coat, without unnaturally altering skin tones.

3 Go pastel: Usually you add Vibrance to an image, but you can achieve some beautiful effects by dragging Vibrance into the negative settings. Doing so gives you a slightly muted image, more of a pastel effect than you'd get by desaturating. Decreasing Vibrance can be used to make portraits appear almost hand-painted, as in Photo C. And note that you can apply Vibrance locally using the Sponge tool.

—Lindsay Adler



LESS IS MORE: In portions of Photos A and B, Saturation and Vibrance were set at 100%, while 20% to 30% is usually enough. Pulling Vibrance down into negative numbers yields a hand-painted look (C).

LINDSAY ADLER (3)

Did you know. . .

A HISTOGRAM DOESN'T REPRESENT ALL THE IMAGE DATA IN YOUR IMAGE.

As our regular Nature contributor Guy Tal pointed out to us in May 2009, computing accurate histograms based on all the data in multi-megapixel images may slow down the camera's performance. In reality, the camera generates a small-scale JPEG version of the image, applies its default

processing, and then uses data from this smaller image to

create the histogram. The small version is generally a very good representation of the distribution of tones in the larger file. But be aware that if there are very small areas of

WIGGLE ROOM: It's good to leave a little more room on the right side of the histogram to allow for possible small inaccuracies.

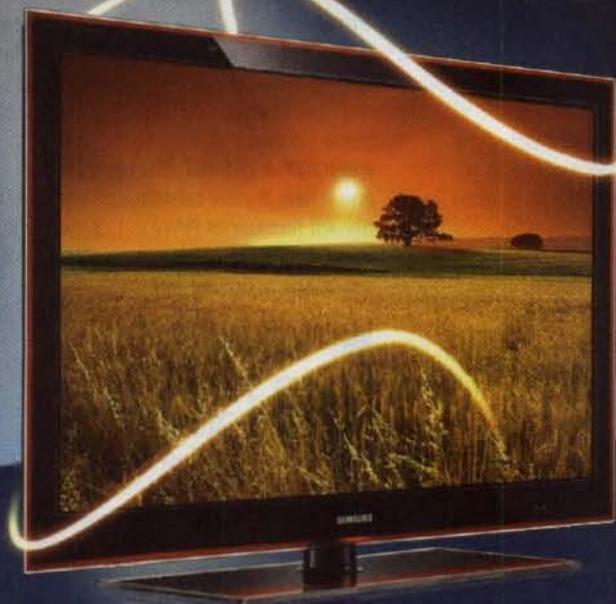
overexposed highlights or underexposed shadows, they may not show on the histogram. In addition, the camera's little LCD—even a very fine-grained one—is of limited precision. **Bottom line:** Leave room for error on the right, and bracket exposures. ☺



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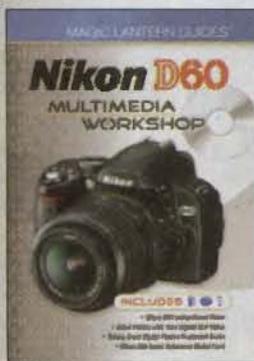
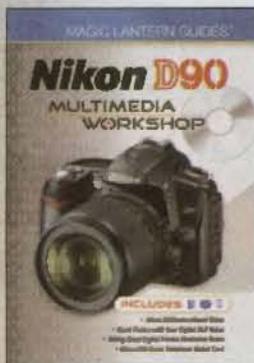
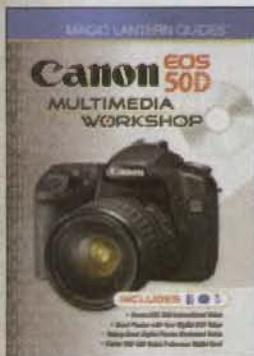
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CONTINUED FROM PAGE 60

in arty prints for decorating almost any room in your home. Use an approach similar to the one used by the architect who originally drew the details. How?

● **SHOOT HEAD-ON.** Record the object with your camera's imaging plane perfectly parallel to the primary subject planes. Whether it's a vaulted doorway, window casement, cornice, arch, or arcade, shoot it centered and straight on, without tilting the camera. (If you must tilt, follow the advice in "How to... Straighten out a skyscraper" on page 54.)

● **PLAY UP PARALLELS.** Place strong parallel lines in your subject parallel to the image edges.

● **FORGET COLOR.** Try monochrome. ● **LOOK OLD.** Tone your print to look antique with the sepia settings in most image editors, or by using Adobe Photoshop plug-ins such as Nik Software's powerful Silver Efex Pro (\$150, street).

● **FILTER IT.** Architectural details are one of the few subjects that benefit from Photoshop's Artistic, Sketch, and Stylize filters.

● **GROUP THEM.** If a single detail is underwhelming, match it with a second (or third or fourth) image. Grouped images that share leading lines or dominant shapes can succeed as diptychs or triptychs, adding up to much more than the sum of their parts.

■ HOW TO... Capture the make-a-wish moment

Getting the classic birthday-cake shot by available candlelight is no piece of cake. You have to deal with tricky technical issues (exposure, color balance, noise), as well as the human factor (usually a young and probably antsy subject), and then get the shot within just a couple of seconds.

So planning is key. Your best bet is to do a rehearsal shot beforehand with a stand-in and the appropriate number of candles on a table. Then...

● **SPEED UP.** Bump your ISO to 3200 or beyond—you want to get the shot, noisy or not. For a very young child, use thick-wick candles, because three or four skinny birthday candles don't shed much light.

● **PRESET EXPOSURE.** Spotmeter a face near the lit candles, and then set that as a manual exposure. (Auto can be flummoxed in scenes like this.) Use a fairly wide aperture (*f*/3.5 or *f*/4) but one that gives you some leeway on depth of field.

You want a shutter speed no slower than 1/100 or 1/125 sec—remember, the kid's going to move.

● **HOLD STEADY.** Tripods are impractical here. Use a monopod, tablepod, or articulating support such as the Gorillapod. No 'pod? Brace your elbows on the table or the back of a chair.

● **SET WHITE BALANCE.** Use the Tungsten preset. This will keep the scene amber, but not excessively so.

● **PREFOCUS.** Set your focus on the far edge of the cake. This is where most faces end up at the end of "Happy Birthday." And use manual—AF takes time to hunt in these scenes.

● **SHOOT A BURST.** Start it early and end it late. If your camera can manage a decent number of RAW exposures in a burst, shoot RAW for more control over the image in editing later.

■ HOW TO... Bring your own background

The insects and flowers in your backyard can be your best subjects. Because the yard is your own, you're intimately familiar with the best lighting conditions and the best seasons to photograph all the life that's there.

But familiarity can breed monotony, and there's a good chance you need to shake things up. Enter the portable (and simple) backdrop. One of the best props for outdoor, backyard photography is a pack of colored construction paper.

To set up your shot, choose a color that contrasts with your subject. Then set a wide aperture to get shallow depth of field, and ask a friend to hold the paper far enough from your flower that the paper falls out of focus. Make sure the sun's at your side to avoid casting a shadow on the backdrop, and shoot away.

For a photo that looks more studio than great outdoors, wait for a bright, cloudy day, and let the sky be your softbox. Need a bigger background? Savage (www.savagepaper.com) makes seamless paper in rolls as narrow as 26 inches. Want a background of blue sky with puffy white clouds? Take a picture of blue sky with puffy white clouds, get a big blowup of it, and mount it on foamcore.

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Three Ways to Take Macro-Free Close Ups

Want to try macro? If you're not ready to buy a dedicated macro lens, here are three inexpensive ways to use your DSLR and kit lens to see how the world looks in close-up.

- 1) **Reverse ring.** This \$40 (or so) gadget lets you mount a lens backward, turning a normal lens into a kind of macro. It isn't always the best solution, though. Autofocus won't work, so you'll have to focus manually. Some optically complex optics are impossible to focus in reverse; others produce poor results. Lenses without an aperture ring are hard to stop down. And reversing the lens exposes the rear element and coupling mechanism — shield these from damage with a makeshift lenshood.
- 2) **Extension tube.** With a rear lens mount at one end and a camera-body mount at the other, this device is usually used for closer focusing with long telephotos. But place one between your DSLR and a short tele or normal lens, and you can focus into the macro range. For even closer focusing, use one with a reverse-mounted lens. Try **Kenko Auto Extension Tube Set DG** (12-, 20- and 36mm for \$169, street).
- 3) **Macro filter.** Also called a diopter, this filter (about \$20 to \$30, street) is basically a magnifier that you put in front of the front lens element. These work better with telephotos (50mm or more). As a general rule, the weaker the diopter, the better the result. The edges of the resulting images tend to be soft, so you'll need to stop down quite a bit or plan on cropping.

—Kathleen Davis, Assistant Editor

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PowerShot SX10 IS
10.0 MEGA PIXEL
20X ZOOM
BIG ZOOM
 • MovieSnap mode lets you capture high-resolution still images while shooting a movie

PowerShot G10
14.7 MEGA PIXEL
5X ZOOM
CANON'S TOP RANGE DIGITAL
 • 28mm wide-angle lens
 • Optical Image Stabilizer
 • RAW + JPEG modes

NEW COMPACT DIGITAL CAMERAS
Nikon COOLPIX
Coolpix S220
10.0 MEGA PIXEL
3X ZOOM
FIVE NEW INCREDIBLE COLORS
 • 4-Way VR Image Stabilization
 • Scene Auto Selector
 • Nikon's Smart Portrait System

COOLPIX P90
12.1 MEGA PIXEL
24X ZOOM
24X OPTICAL WIDE-ANGLE
 • Bright 3.0-inch Vari-Angle High-Resolution LCD and Electronic Viewfinder
 • 4-Way VR Image Stabilization

COOLPIX S60
10.0 MEGA PIXEL
5X ZOOM
TOUCH PANEL LCD
 • Bright 3.5-inch High Resolution TOUCH PANEL LCD offers 160° Wide-Angle of View
 • Optical VR Image Stabilization

COOLPIX P80
10.0 MEGA PIXEL
18X ZOOM
SPECIAL PRICE!
COMPACT SUPER-TELEPHOTO
 • Wide-angle (27mm) to super-telephoto coverage (486mm)
 • Image Stabilization
 • Auto Adjusts up to ISO 6400

Panasonic
DMC-FZ2BK
10.1 MEGA PIXEL
18X ZOOM
27MM WIDE-ANGLE LEICA LENS
 • Ideal for tight indoor shots and long-distance action photos
 • IA Mode helps prevent shooting mistakes in any situation

DMC-LX3K
10.1 MEGA PIXEL
2.5X ZOOM
24MM WIDE-ANGLE LEICA LENS
 • Designed for easy, creative shooting, and high-performance in low-light conditions

DMC-FX500K
10.1 MEGA PIXEL
5X ZOOM
23MM WIDE-ANGLE LEICA LENS
 • 3" Touch Screen LCD
 • Intelligent Auto Mode helps get great shots in every situation
 • HD Output

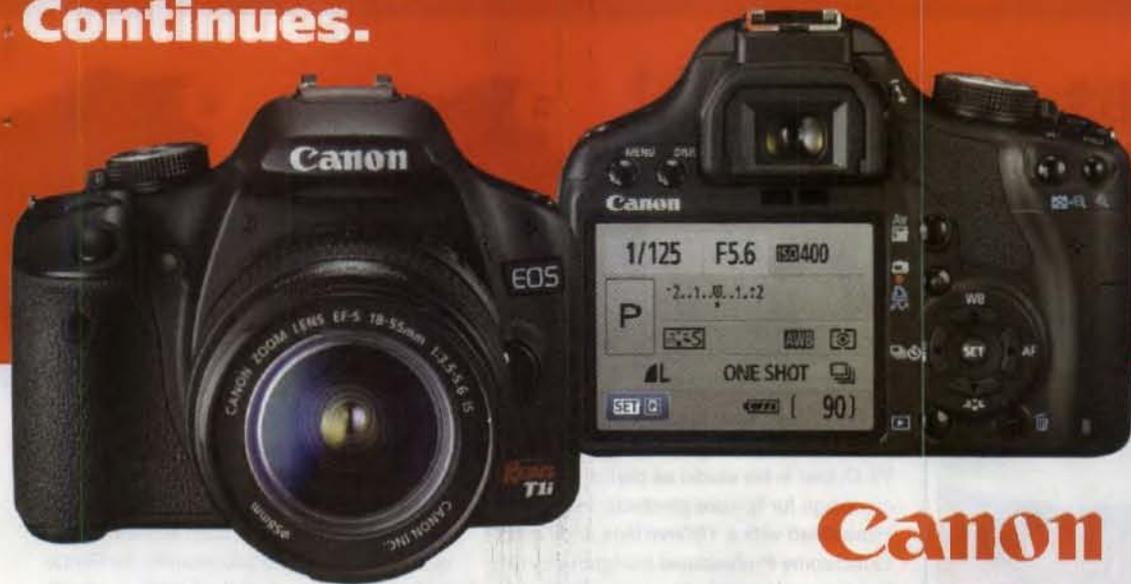
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Kit w/ 18-55IS Lens
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25 YEARS AGO

JUNE 1984

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The Pentax 645, a classy newcomer in medium format



Get the most from your zoom lens! An expert tells how

Special Product Report: All the latest in cameras, lenses, flash, video, darkroom, gadgets



2



3



4

1. Read her lips: Model Marjorie Andrade was photographed by Douglas W. Dubler in his studio as part of an ad campaign for lip-care products. He used a Hasselblad with a 150mm lens and Kodak Ektachrome Professional transparency film. Lighting was provided by two umbrella-bounced flash units against a rear-projected background.

2. Practiced what he preached: Senior Editor Norman Rothschild, advocate of the SLR, was shown using one with a zoom lens as part of an article on how to use zooms effectively. As he demonstrated, a tripod assures maximum sharpness when using a large, heavy lens.

3. A star is born: Technical Director Norman Goldberg described the new Pentax 645 medium-format SLR as "the most talked about" camera at the 1984 Photo Marketing Association trade show. Born with a whole system of lenses and accessories, the Pentax 645 combined much of the handling ease of 35mm with a significantly larger negative—a successful combination to this day.

4. Japanese low-tech: This 1903 Cherry Portable wooden box camera was shown at a historical exhibit highlighting the impressive growth of the Japanese photo industry. The show, at George Eastman House in Rochester, NY, was mounted in cooperation with Japan Camera Inspection Institute (JCII).

1930

1940

1950

1960

1970

1980

1990

2000

50 YEARS AGO

JUNE 1959



1



2

1. Nostalgia trip: The Gay Nineties were not quite like this recreation, but this send-up sells the idea of using photos to tell a story. This seaside picture was made by Mike Tabb using a Rolleiflex 2.8 with a 80mm f/2.8 Xenotar lens. Exposure on Super Anscochrome daylight-balanced film was 1/60 sec at f/8.

2. Bird meets girl: New York City's Pennsylvania Station was the scene of this random meeting between a pigeon and a child. Pop Photo editor Charles Reynolds shot this scene as part of an article on the photo essay, comparing how two photographers shot the same assignment. Reynolds used a 35mm lens on his Leica. Exposure on Ansco Super Hypan film, rated at ISO 650, was 1/50 sec at f/4.

3. No fun today: The discomfort of 4-year-old Dionis Lindsay in bed with a cold was recorded by *Look* photographer James Hansen using a Nikon SP and Kodak Tri-X film. The picture ran in an article on picture stories that showed how a common event could provide the basis for an interesting and accessible photo essay.

4. Square failure: An example of a camera that made little marketing sense was this Revere Eye-Matic, a fully automatic ugly duckling that used 127 roll film to produce 12 4x4cm pictures. It had a single shutter speed—1/80 sec—and a 58mm Wollensak f/2.8 lens. The camera was probably inspired by the success of 4x4 reflex cameras and of Super Slides. The price? An unrealistically expensive \$139.50, plus \$12.50 for a case.



3



4

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12 MegaPixels

Canon Powershot A1100 IS

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- 4x Optical Zoom • 4x Digital Zoom
- 6.2-24.8mm f/2.7-5.6 (35mm equiv. 35-140mm) • SD/SDHC Card Slot
- Dimensions 3.76 x 2.46 x 1.22"
- Weight 5.47 oz

Blue, Green, Grey, Pink #CAPSA1100*



10 MegaPixels

Canon Powershot SD880 IS

- Optical Image Stabilizer System
- 10 MegaPixels • 3.0" PureColor II LCD
- Intelligent Contrast Correction
- 4x Optical Zoom • 4x Digital Zoom
- 5-20mm (35 equiv. 28-112mm)
- SD/SDHC (High Capacity) Card Slot
- Dim. 2.3 x 3.7 x 0.9" • Weight 5.5 oz

Gold or Silver #CAPSSD880*



10 MegaPixels

Canon Powershot SD1200 IS

- Optical Image Stabilizer System
- 10.3 MegaPixels • 2.5" LCD Monitor
- 3x Optical Zoom • 4x Digital Zoom
- 6.2-18.6mm f/2.8-4.9 (35mm equiv. 35-105mm) • SD/SDHC Card Slot
- Dim. 3.48 x 2.16 x 0.86" • Weight 4.23 oz

Blue, Green, Dark Grey, Light Grey, Orange, Pink #CAPSSD1200*



14 MegaPixels

Canon Powershot G10

- Optical Image Stabilizer System
- 14.7 MegaPixels • 3" LCD Monitor
- RAW File Mode • E-TTL Flash Hot Shoe
- 5x Optical Zoom • 4x Digital Zoom
- 6.1-30.5mm f/3.2-5.9 (35 equiv. 28-140mm)
- SD/SDHC (High Capacity) Card Slot
- Dimensions 3.1 x 4.3 x 1.8"
- Weight 12.3 oz

#CAPSG10*



10 MegaPixels

FUJIFILM FinePix A150

- Picture Stabilization
- 10 MegaPixels • 3" LCD Monitor
- 3x Optical Zoom • 5.7x Digital Zoom
- 6.3-18.9mm f/3.1-5.6 (35 Equiv. 35-105mm)
- SD/SDHC Card Slot • Face Detection
- 20MB Built-in Memory
- Dimensions 3.6 x 2.4 x 0.85"
- Weight 4.5 oz

#FUJPA150*



10 MegaPixels

FUJIFILM FinePix S1500

- New SR AUTO & Face Detection
- 10 MegaPixels • 2.7" LCD Monitor
- 12x Optical Zoom • 5.7x Digital Zoom
- 5.9-70.8mm f/2.8-6.4 (35 Equiv. 33-306mm)
- SD/SDHC Card Slot • Instant Zoom
- 23MB Built-in Memory
- Dimensions 4.1 x 2.9 x 2.7"
- Weight 11.4 oz

#FUFPS1500*



10 MegaPixels

Nikon Coolpix S230

- 4-Way VR Image Stabilization
- New EXPED Image Processor
- 10 MegaPixels • 3" Touch Panel LCD
- 3x Optical Zoom • 3x Digital Zoom
- 6.3-18.9mm f/3.1-5.9 (35 Equiv. 38-114mm)
- SD/SDHC Card Slot • 44MB Built-in Memory
- Dim. 3.6 x 2.2 x 0.8" • Weight 4.1 oz

Black, Blue, Plum, Red, Silver #NIPCS230*



13 MegaPixels

Nikon Coolpix P6000

- VR Image Stabilization
- 13.5 MegaPixels • 2.7" LCD Monitor
- 4x Optical Zoom • 4x Digital Zoom
- 6.3-24mm f/2.7-5.9 (35 Equiv. 28-115mm)
- SD/SDHC Card Slot • 48MB MB Built-in Memory • Coolpix RAW Format
- Dimensions 2.6 x 4.2 x 1.7"
- Weight 8.5 oz

#NICPP6000*



12 MegaPixels

OLYMPUS FE3010

- Digital Image Stabilization
- 12 MegaPixels • 2.7" LCD Monitor
- VGA Movie with Sound
- 3x Optical Zoom • 4x Digital Zoom
- 6.3-18.9mm f/3.1-5.9 (35 Equiv. 36-108mm)
- xD card slot • 19MB Internal Memory
- Dim. 3.7 x 2.2 x 0.8" • Weight 3.8 oz

Black, Magenta, Titanium #OLFE3010*



10 MegaPixels

Panasonic Lumix DMC-LX3

- MEGA O.I.S. (Optical Image Stabilizer)
- 10.1 MegaPixels • 3.0" LCD Monitor
- 2.5x Optical Zoom • 4x Digital Zoom
- 5.1-12.8mm f/2.8-2.8 (35 Equiv. 24-60mm)
- Leica Lens • RAW File Mode
- SD Card Slot • 50MB Built-in Memory
- Dim. 2.4 x 4.3 x 1.1" • Weight 8 oz

Black or Silver #PADMLX3*



10 MegaPixels

PENTAX Optio W60

- JIS Class 8 Waterproof to 13'
- Face Recognition • HD Movie Capture
- 10 MegaPixels • 2.5" LCD Monitor
- 5x Optical Zoom • 5.7x Digital Zoom
- 5-25mm f/3.3-4 (35 Equiv. 28-140mm)
- SD/SDHC (High Capacity) Card Slot
- Dimensions 2.2 x 3.9 x 1" • Weight 4.4 oz

Ocean Blue, or Silver #PEOW60*



12 MegaPixels

SONY CyberShot DSC-W220

- Super SteadyShot® image stabilization
- 12.1 MegaPixels • 2.7" LCD Monitor
- 4x Optical Zoom • 2x Digital Zoom
- 5.35-21.4mm f/2.8-7.1 (35 Equiv. 30-120mm) Carl Zeiss Vario-Tessar Lens
- MS Duo/Pro Duo Card Slot
- Dim. 3.75" x 2.25" x 0.9" • Weight 4.2 oz

Black, Blue, Pink, Silver #SODSCW220*



12 MegaPixels

SONY CyberShot DSC-T90

- Super SteadyShot® image stabilization
- 12.1 MegaPixels • 3.0" LCD Monitor
- 4x Optical Zoom • 2x Digital Zoom
- 6.8-24.7mm f/3.5-4.6 (35 Equiv. 35-140mm) Carl Zeiss Vario-Tessar Lens
- MS Duo/Pro Duo Card Slot
- Dim. 3.75" x 2.375" x 0.6" • Weight 5.3 oz

Black, Blue, Pink, Silver, Titanium #SODSCT90*



10 MegaPixels

SONY CyberShot DSC-H20

- Super SteadyShot® image stabilization
- 10.1 MegaPixels • 3.0" LCD Monitor
- 10x Optical Zoom • 2x Digital Zoom
- 6.3-63mm f/3.5-4.4 (35 Equiv. 38-380mm) Carl Zeiss Vario-Tessar Lens
- MS Duo/Pro Duo Card Slot
- Dimensions 4.25" x 2.75" x 1.875"
- Weight 9.8 oz

#SODSCH20*

Memory Cards

CF Compact Flash

	Delkin		Kingston		Lexar			Sandisk			Sony		
	Std	Pro	Std	Ultimate	Ultimate	Platinum II	133x	233x	300x	Ultra II	Extreme III	133x	300x
1GB	9.95	22.95	—	—	—	—	—	—	—	—	—	—	—
2GB	12.95	29.95	9.95	—	—	14.95	30.95	22.95	34.95	14.95	18.95	—	34.95
4GB	18.95	46.95	14.50	14.95	54.50	27.95	—	38.50	59.95	26.50	32.95	64.95	54.50
8GB	28.95	84.95	—	19.95	86.50	41.95	—	54.95	109.95	34.95	37.95	119.95	—
16GB	48.50	149.50	—	34.95	123.95	64.95	—	—	199.95	—	104.95	214.95	259.95
32GB	87.50	—	—	—	—	—	—	—	—	—	218.50	—	—

MSDUO Memory Stick Pro Duo

	Lexar		Sandisk		Sony	
	4x	Standard	Ultra II	Ultra II Mobile	Gating	Mark II
1GB	13.50	11.95	—	—	16.95	16.95
2GB	18.50	17.95	24.50	—	—	—
4GB 7 Pack	—	32.50	—	—	—	—
4GB	27.50	19.95	33.95	129.95	32.50	29.95
8GB	49.95	34.95	49.95	—	—	49.95
16GB	—	—	108.50	—	—	99.95

SD Secure Digital

	Delkin		Kingston		Lexar			Sandisk			Panasonic		
	Standard	Pro	Micro	Mini	Standard	Standard	Platinum II 60x	133x	Standard	Ultra II	Extreme III 200MB/s - Class 6	Micro Ultra	Class 2
1GB	5.95	7.95	7.50	—	5.95	7.95	14.95	23.50	7.95	10.40	13.95	7.95	14.95
2GB	8.95	14.50	8.50	12.90	—	—	—	—	—	—	—	—	—
4GB	—	—	24.95	—	—	—	—	—	—	—	—	—	—
8GB	—	—	33.50	—	—	—	—	—	—	—	—	—	—

XD xD Memory

	Type II		1GB		2GB	
	Fuji	Olympus	Sandisk	—	—	—
22.50	28.95	—	—	—	—	
36-	44-	—	—	—	—	
16.30	24.95	—	—	—	—	
18.95	—	—	—	—	—	

SD HC Secure Digital High Capacity

	Delkin		Kingston		Lexar			Panasonic			Sandisk		
	Pro	Class 6	Class 4	Class 6	Standard	Platinum II 60x	133x	6 MB/s	10 MB/s	Standard	Ultra II	Extreme III - Class 4	
4 GB	14.95	9.95	3.95	11.95	9.99	22.50	34.95	—	—	14.50	24.50	9.95	—
8GB	24.95	19.95	18.95	19.95	18.95	34.95	67.50	47.95	—	—	17.39	32.95*	—
16 GB	44.50	—	34.95	—	—	59.95	—	—	—	—	89.50	39.95*	—
32 GB	109.95	—	—	—	—	—	—	—	—	—	273.95	124.95*	—



12 MegaPixels
E-520 Body Only.....#OLEE620
Kit with 14-42mm
Zuiko Lens.....#OLEE6201442
Kit with 14-42mm & 40-150mm
Zuiko Lenses.....#OLEE6202LK

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"D-SLR" Digital SLR Camera
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• Supersonic Wave Filter Anti-dust
System - Capture in JPEG or RAW
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• 6 Art Filters & Multiple Exposure
• 4 fps Burst • Face Detection
• Shadow Adjustment
• USB 2.0 • Uses BL5-1 Battery
• Dimensions 5.1 x 3.7 x 2.4"
• Weight 16.6 oz Body Only



10 MegaPixels
Kit with 18-55mm DA AL Lens &
AF-200FG Flash.....#PEK2000K

PENTAX K2000D Super
"D-SLR" Digital SLR Camera
• Dust Reduction & Dust Alert Features
• Convenient Scene Modes
• 10.2 Megapixels • 2.7" LCD Monitor
• Uses Pentax AF Lenses (1.5x factor)
• SD/SDHC Card Slot
• Shake Reduction Technology
• Intuitive Operation
• Dedicated Help Button • USB 2.0
• ISO 100-3200 • 3.5 fps Burst
• Powered by AA Batteries
• Dimensions 3.6 x 4.8 x 2"
• Weight 18.5 oz body only



12 MegaPixels
E3 Body Only.....#OLEE30
Kit with 14-42mm ED
Zuiko Lens.....#OLEE301442

OLYMPUS E30
"D-SLR" Digital SLR Camera
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System - Capture in JPEG or RAW
• 12.3 MegaPixels
• 2.7" Live View LCD monitor
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• CF & XD Dual Card Slots
• ISO 100-3200 • Scene Select Modes
• Art Filters & Multiple Exposure
• 5 fps Burst • Face Detection
• Shadow Adjustment
• USB 2.0 • Uses BLM-1 Battery
• Dimensions 4.3 x 5.6 x 2.9"
• Weight 23.1 oz Body Only



12 MegaPixels
A700 Body Only.....#SODSLRA700
Kit with 18-70mm.....#SODSLRA700K
Kit with 16-105mm.....#SODSLRA700P

SONY Alpha A700
"D-SLR" Digital SLR Camera
• Super SteadyShot image stabilization and dust reduction
• 12.2 MegaPixels • 5 fps Burst
• 3" LCD monitor • SLR viewfinder
• Uses Sony Alpha (compatible with Minolta A-type bay mount) Lenses (1.5x factor) • Program AE, Shutter Priority, Aperture Priority, Manual, Exposure Compensation, Bracketing
• CF & MS Card Slots • USB 2.0
• Auto or Manual Focus, Eye Start AF
• ISO 100-1600 (up to 6400 w/ Boost)
• Uses NP-FM500H Lithium-ion Battery
• 5.6 x 4.3 x 3.3" • Wt 24 oz Body Only



12 MegaPixels
Black with 14-45mm.....#PADMCG1KB
Blue with 14-45mm.....#PADMCG1KBL
Red with 14-45mm.....#PADMCG1KR

Panasonic Lumix DMC-G1
"D-SLR" Digital SLR Camera Micro
Four-Thirds System (17.3 x 13mm) CCD
• 12.1 MegaPixels • Electronic viewfinder
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• USB 2.0 • Li-Ion Battery Pack
• 3.3 x 4.9 x 1.8" • Wt. 13.6 oz. body only



24 MegaPixels
A900 Body Only.....#SODSLRA900

SONY Alpha A900
"D-SLR" Digital SLR Camera
• Dual BIONZ processing engines
• In-Camera Image Stabilization
• 24.6 MegaPixels 35mm full-frame sensor
• 3" LCD monitor • SLR viewfinder
• Uses Sony Alpha (compatible with Minolta A-type bay mount) Lenses (1.5x factor) • 5.0 fps Burst
• CF & MS Card Slots • USB 2.0
• 13 Creative shooting styles
• 3 programmable memories
• HDMI output & Photo TV HD mode
• ISO 100-5400 • Dust & Weather-Resistant
• Uses NP-FM500H Lithium-ion Battery
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• Ideal for not only macro photography but also as a portrait lens
• Minimum focus 9.45"
• 52mm filter diameter
• Weight 10.6 oz

PENTAX 50-200mm f/4-5.6 SMCP-DA ED AF Zoom Lens

• Exclusively designed for use with Digital SLRs
• 35mm equiv. 76.5-305mm
• Best for portraits, sports and scenery
• Quick-Shift Focus System
• Minimum focus 3.6"
• 52mm filter diameter
• Weight 9 oz

SONY HVL-F56AM Shoe Mount Digital Flash

• Guide No. 104'
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• Bounce & Swivel Head
• Zoom Head (24-85mm)
• Vm-Power
• Automatic Light Control
• High-speed synchronization
• Weight 13.1 oz

SONY 16-80mm f/3.5-4.5 Carl Zeiss Vario-Sonnar T* DT Lens

• Exclusively designed for use with Digital SLRs
• 35mm equiv. 24-120mm
• Best for snapshots, portraits, interiors or outdoor scenery
• Minimum focus 13.8"
• 62mm filter diameter
• Weight 15.5 oz

OLYMPUS

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SRF-11 Ring Flash Set.....	509.95
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7-14/4.0 ED (72ø).....	1,749.95
11-22/2.8-3.5 ED (77ø).....	749.95
12-60/2.8-4 ED SWD (72ø).....	949.95
14-42/3.5-5.6 ED (58ø).....	224.95
18-180/3.5-6.3 ED (62ø).....	449.95
35-100/2.0 ED (77ø).....	2,249.95
40-150/4-5.6 ED (58ø).....	251.95
50-200/2.8-3.2 ED SWD (67ø).....	1,149.95
90-250/2.8 ED (105ø).....	5,999.95
EC-14 1.4x Teleconverter.....	395.95
EC-20 2x Teleconverter.....	449.95
MF-1 OM Lens Adapter.....	99.95

PENTAX

AF Flash System	
AF-200FG.....	109.95
AF-360FGZ.....	209.95
AF-540FGZ.....	339.95
SMCP-DA Digital AF Lenses	
14/2.8 ED IF (77ø).....	599.95
21/3.2 AL Limited "Pentax" (49ø).....	439.95
35/2.8 Macro Limited (49ø).....	479.95
40/2.8 Limited "Pentax" (49ø).....	279.95
55/1.4 Limited (58ø).....	CALL
70/2.4 Limited "Pentax" (49ø).....	474.95
200/2.8 ED IF.....	899.95
300/4.0 ED IF SDM (77ø).....	1,099.95
10-17/3.5-4.5 ED IF (77ø).....	439.95
12-24/4 ED AL IF (77ø).....	699.95
16-45/4 ED AL (67ø).....	399.95
16-50/2.8 ED AL IF SDM (77ø).....	669.95
18-55/3.5-5.6 AL II (52ø).....	149.95
18-250/3.5-6.3 ED (72ø).....	419.95
50-135/2.8 ED IF SDM (67ø).....	749.95
50-200/4-5.6 ED (52ø).....	219.95
55-300/4-5.8 ED (58ø).....	329.95
60-250/4.0 ED IF SDM (67ø).....	CALL
AF Lenses for 35mm & Digital SLRs	
31/1.8 Limited (58ø).....	869.95
35/2.8 AL (49ø) 4-5.6.....	299.95
43/1.9 Limited "Pentax" (49ø).....	469.95
50/1.4 (49ø).....	199.00
50/2.8 Macro (52ø) with Case.....	394.95
77/1.8 Limited (49ø).....	679.00
100/2.8 D FA Macro (48ø).....	514.95
28-80/3.5-5.6 J FA AL (58ø).....	59.95

SONY

Compatible with Maxxum D-SLRs	
Flash System	
HVL-F42AM.....	299.99
HVL-F58AM.....	499.99
Digital Lenses	
16/2.8 Fish-eye.....	799.99
20/2.8 (72ø).....	559.99
28/2.8 (49ø).....	249.99
35/1.4 (55ø).....	1,299.99
50/1.4 (55ø).....	349.99
50/2.8 Macro (55ø).....	449.99
85/1.4 Carl Zeiss (72ø).....	1,299.99
100/2.8 Macro (55ø).....	639.99
135/1.8 Carl Zeiss (77ø).....	1,399.99
135/2.8 STF (72ø).....	1,199.99
300/2.8 G APO.....	5,999.99
500/8 Reflex.....	699.99
11-18/4.5-5.6 DT (77ø).....	649.99
16-80/3.5-4.5 DT Carl Zeiss (62ø).....	699.99
809.95	
18-70/3.5-5.6 DT (55ø).....	199.99
18-200/3.5-6.3 DT (62ø).....	499.99
70-200/2.8 G APO (77ø).....	1,799.99
75-300/4.5-5.6 (55ø).....	229.99
1.4x Teleconverter.....	449.99
2x Teleconverter.....	449.99



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64



10 MegaPixels

XS Kit with 18-55mm IS
Black #CAEDRXSKB
Silver #CAEDRXSKS

Canon Digital Rebel XS

- "D-SLR" Digital SLR Camera
- 10 MegaPixels CMOS Sensor
- 2.5" LCD Monitor • SLR viewfinder
- Live View Function • USB 2.0
- Uses Canon EF Lenses (1.6x factor)
- SD/SDHC (High Capacity) Card Slot
- Auto Lighting Optimizer
- 3.0 fps Continuous Shooting
- High Sensitivity (ISO 100-1600)
- Picture Style Settings
- Integrated Cleaning System
- Uses LP-E5 Battery
- Dimensions 3.8 x 5.0 x 2.4"
- Weight: 16.2 oz Body Only

21 MegaPixels

EOS-SD Mark II Body Only #CAESD2
Kit w/24-105mm IS #CAESD224105

Canon EOS-SD Mark II

- "D-SLR" Digital SLR Camera
- 21.1 Megapixel Full-Frame Sensor
- 3.0" High Resolution LCD Display
- SLR viewfinder • Uses Canon EF Lenses • CF, MD Card Slot
- Live View Mode • Record HD Video
- 1080p Movie Mode • Self-Cleaning Sensor • 3.9 fps Burst Mode
- Dust & Weather-Resistant • USB 2.0
- 9-point AF Sensor Array
- Broad ISO Range (50-25600)
- Uses LP-E6 Battery
- Dimensions 4.5 x 6.0 x 3.0"
- Weight 31.7 oz. body only



12 MegaPixels

Digital Rebel XSi (Black or Silver)
Body Only #CAEDRXSI*
Kit with 18-55mm IS #CAEDRXSIK*

Canon Digital Rebel XSi

- "D-SLR" Digital SLR Camera
- 12.2 MegaPixels CMOS Sensor
- 3.0" LCD Monitor • SLR viewfinder
- Live View Function • USB 2.0
- Uses Canon EF Lenses (1.6x factor)
- SD/SDHC (High Capacity) Card Slot
- Auto or Manual Focus
- 3.5 fps Continuous Shooting
- High Sensitivity (ISO 100-1600)
- Picture Style Settings
- Integrated Cleaning System
- Uses LP-E5 Battery
- Dimensions 3.8 x 5.1 x 2.4"
- Weight: 16.8 oz Body Only



10 MegaPixels

EOS-1Ds Mark III
Body Only #CAE1D3

Canon EOS-1D Mark III

- "D-SLR" Digital SLR Camera
- Weather Resistant Body
- Self-Cleaning Sensor
- 10.1 MegaPixels • SLR viewfinder
- 3" LCD Monitor with Live View
- Uses Canon EF Lenses
- 10 fps up to 110 shots in JPEG mode
- SD/SDHC & CF card slots
- Fast AF system • USB 2.0
- Picture Style Settings
- Powerful Bundled Software
- ISO 100-3200 (expandable to 50 and 8400) • Uses LP-E4 Battery
- Dimensions 6.1 x 6.2 x 3.1"
- Weight 40.7 oz. Body Only



15 MegaPixels

EOS-50D Body Only #CAE50D
Kit with 28-135mm IS USM #CAE50D28135

Canon EOS-50D

- "D-SLR" Digital SLR Camera
- RAW and sRAW Image Capture
- 15.1 MegaPixels • SLR viewfinder
- 3.0" Clear View VGA LCD
- Uses Canon EF Lenses (1.6x factor)
- CF Card Slot • "Picture Style" Settings
- HDMI output that enables the display of your photographs on any HDTV with HDMI ports • Live View Function
- Single, Continuous, or Manual Focus
- Incredibly High ISO Sensitivity
- Versatile Exposure Metering System
- USB 2.0 • Uses BP-511A Battery
- Dimensions 4.2 x 5.7 x 2.9"
- Weight 25.7 oz Body Only



21 MegaPixels

EOS-1Ds Mark III
Body Only #CAE1DS3

Canon EOS-1Ds Mark III

- "D-SLR" Digital SLR Camera
- Full-Frame CMOS Sensor
- Weather Resistant Body
- Self-Cleaning Sensor
- 21.1 MegaPixels • SLR viewfinder
- 3" LCD Monitor with Live View
- Uses Canon EF Lenses • 5 fps Burst
- SD/SDHC & CF card slots • USB 2.0
- UDMA-compliant CompactFlash
- Fast AF system • Picture Style Settings
- Powerful Bundled Software
- ISO 100-1600 • Uses LP-E4 Battery
- Dimensions 6.3 x 6.1 3.1"
- Weight 42.5 oz. Body Only

64

SLR Lenses & Flashes

Canon 50mm f/1.2 L Lens



- Fast, Quiet AF
- Super Spectra Coatings
- Passes Distance Information to E-TTL II
- Angle of View 46°
- 1:2-16 Stop Range
- Focus 1.5' to infinity
- 72mm filter diameter
- Weight 19.2 oz

Canon 10-22/3.5-4.5 EF-S USM Digital Lens



- Exclusively designed for Digital SLRs
- 35mm equivalent 18-35mm
- 3 spherical lens elements
- 3.5-7.1 i/stop Range
- Focus 1.5' to infinity
- 72mm filter diameter
- Weight 13.6 oz

Canon 17-55/2.8 EF-S USM Digital Lens



- Exclusively designed for Digital SLRs
- IS (Image Stabilizing) technology
- 2.8-22 i/stop Range
- Focus 1.8" to infinity
- Angle of View 78.3° to 27.5°
- 77mm filter diameter
- Weight 22.4 oz

Canon 24-70/2.8 EF "L" USM Lens



- Sealed and gasketed against dust & moisture
- Internal Focusing
- UD Elements
- Two Aspherical Elements
- 2.8-22 i/stop Range
- Focus 1.2' to infinity
- 77mm filter diameter
- Weight 33.6 oz

Canon 580 EX II Shoe Mount Flash



- Guide No. 190'
- Dust- and water-resistant
- Metal Hot Shoe
- Superior build quality, including a metal foot for higher rigidity
- E-TTL II, E-TTL, TTL & Manual
- Bounce & Swivel Head (24-105mm)
- Weight: 13.2 oz

Canon MR-14EX Ringlight Flash



- Guide No. 46' • Incandescent focusing lamps • 2 circular flash tubes
- Recycling Time: 7 Secs • 7 Custom Functions • Supports E-TTL wireless
- Weight: Control unit 10 oz, Flash Ring: 4.2 oz

Canon Canon EOS Flash System (USA)

220EX	125.95	430EX II	CALL	580EX II	CALL
MR-14EX Ringlight	670.00	MR-24EX Twin Flash	685.00		
Canon EF-S Lenses For Digital Only					
Compatible with the 300, 300L, 40D, 50D & Digital Rebel only					
60/2.8 USM Macro (52e)	384.95	400D	400.00		
10-22/3.5-4.5 USM (72e)	689.95	710D	710.00		
17-55/2.8 IS USM (67e)	999.95	1,030.00			
17-85/4.5-5.6 IS USM (67e)	499.95	515.00			
18-55/3.5-5.6 IS USM (58e)	159.95	170.00			
18-200/3.5-6.6 IS (72e)	CALL	CALL			
55-250/4.0-5.6 IS USM (58e)	CALL	CALL			
Canon EF Lenses					
15/2.8	599.95	610.00			
20/2.8 USM (77e)	434.95	445.00			
24/2.8 (58e)	294.95	305.00			
28/2.8 (52e)	174.95	180.00			
28/1.8 USM (58e)	409.95	420.00			
35/2 (52e)	229.95	240.00			
50/1.8 (52e)	84.95	89.95			
50/1.4 USM (58e)	319.95	325.00			
50/2.5 Macro (52e)	239.95	250.00			
MP-E 65/2.8 1x-5x Macro (58e)	849.95	865.00			
85/1.8 USM (58e)	344.95	355.00			
100/2.8 USM Macro (58e)	474.95	490.00			
100/2.8 USM (58e)	394.95	410.00			
135/2.8 Soft Focus (52e)	284.95	295.00			
400/4.0 DO IS (52e rear)	5,349.95	5,500.00			
24-85/3.5-4.5 USM (67e)	309.95	322.00			
28-90/4.0-5.6 III (58e)	104.95	109.95			
28-105/3.5-4.5 II USM (58e)	224.95	229.95			
28-135/3.5-5.6 IS USM (72e)	399.95	409.95			
28-200/3.5-6.6 USM (72e)	359.95	375.00			
70-300/4.5-5.6 DO IS USM (58e)	1,169.95	1,190.00			
70-300/4.0-5.6 IS USM (58e)	529.95	549.00			
75-300/4.0-5.6 III (58e)	154.95	159.95			
75-300/4.0-5.6 III USM (58e)	189.95	200.00			
100-300/4.5-5.6 USM (58e)	284.95	295.00			
Canon TS-E MF Lenses					
24/3.5 "L"	1,129.95	1,150.00			
45/2.8	1,129.95	1,150.00			
90/2.8	1,129.95	1,150.00			
Canon EF "L" Lenses					
14/2.8 USM II	1,999.95	2,020.00			
24/1.4 II (77e)	CALL	CALL			
35/1.4 USM (73e)	1,164.95	1,180.00			
50/1.2 USM (72e)	3,379.95	3,400.00			
85/1.2 USM II (72e)	1,849.95	1,870.00			
135/2.0 USM II (72e)	919.95	935.00			
180/3.5 USM Macro (72e)	1,279.95	1,300.00			
200/2.8 IS USM (52e)	CALL	CALL			
200/2.8 USM (72e)	679.95	695.00			
300/4.0 IS USM (77e)	1,189.95	1,210.00			
300/2.8 IS USM (52e rear)	3,999.95	4,100.00			
400/2.8 IS (52e rear)	6,659.95	6,800.00			
400/5.6 USM (77e)	1,119.95	1,140.00			
500/4 IS USM (52e rear)	5,639.95	5,800.00			
600/4.0 IS (52e rear)	7,399.95	7,600.00			
16-35/2.8 USM II (82e)	1,424.95	1,450.00			
17-40/4.0 USM (77e)	679.95	700.00			
24-70/2.8 USM (77e)	1,159.95	1,180.00			
24-105/4 IS USM (77e)	1,039.95	1,050.00			
28-300/3.5-5.6 IS USM (77e)	2,219.95	2,300.00			
70-200/4.0 USM (77e)	579.95	600.00			
70-200/4.0 IS USM (77e)	1,069.95	1,100.00			
70-200/2.8 USM (77e)	1,174.95	1,190.00			
70-200/2.8 IS USM (77e)	1,649.95	1,699.00			
100-400/4.5-5.6 IS USM (77e)	1,429.95	1,460.00			
Like II Teleconverter	279.95	290.00			
2x II Teleconverter	279.95	290.00			

USA = Imported & Warranted by Canon USA IMP = Imported & Warranted by B&H (not qualified for Canon USA Rebates & Warranties)



D40 Kit with 18-55mm DX.....#NID401855

Nikon D40

- "D-SLR" Digital SLR Camera
- Compact and Lightweight
- 6.1 MegaPixels
- 2.5" LCD Monitor • SLR Viewfinder
- SD/SDHC (High Capacity) Card Slot
- Accepts Nikon AF Lenses (1.5x factor)
- Auto or Manual Focus • USB 2.0
- Program, Digital Vari-Program, Aperture, Shutter, Manual, Exposure Compensation, Bracketing
- ISO 200-1600 • Uses EN-EL9 Battery
- Nikon Inc. limited warranty included**
- Dimensions 3.7 x 5 x 2.5"
- Weight 17 oz Body Only



D60 Kits with 18-55mm VR.....#NID601855 with 18-55mm & 55-200mm VR.....#NID601855200

Nikon D60

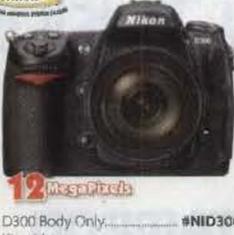
- "D-SLR" Digital SLR Camera
- 10.2 MegaPixels
- 2.5" LCD Monitor • SLR Viewfinder
- Accepts Nikon AF Lenses (1.5x factor)
- SD/SDHC Card Slot
- Built-in Speedlight
- Integrated Dust Reduction System
- 8 Digital Vari-Program Modes
- Stop-Motion Video • 3 fps Burst
- In-Camera Image Editing & RAW Processing • ISO 100-1600
- USB 2.0 • Uses EN-EL9 Battery
- Nikon Inc. limited warranty included**
- Dimensions 3.7 x 5.0 x 2.5"
- Weight 17 oz Body Only



D80 Kit with 18-135mm DX.....#NID8018135

Nikon D80

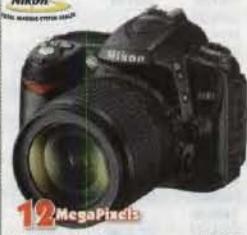
- "D-SLR" Digital SLR Camera
- 10.2 MegaPixels • Hot Shoe
- 2.5" LCD Monitor • SLR viewfinder
- Uses Nikon AF Lenses (1.5x factor)
- SD/SDHC (High Capacity) Card Slot
- Auto or Manual Focus • 5 fps Burst
- Program, Aperture, Shutter, Bracketing, Manual, Exposure Compensation • USB 2.0
- Optional Wireless Transmitter
- ISO 100-1600 • Uses EN-EL3e battery
- Nikon Inc. limited warranty included**
- Dimensions 4.1 x 5.2 x 3"
- Weight 20.6 oz. body only



D300 Body Only.....#NID300 Kit with 16-85mm DX VR.....#NID300168535 18-200mm DX VR.....#NID30018200

Nikon D300

- "D-SLR" Digital SLR Camera
- Self-Cleaning Sensor
- 12.3 MegaPixels • 3" LCD Monitor
- Live View • HDMI video out
- Accepts Nikon AF Lenses (1.5x factor)
- CF, MD Card Slot • 6 fps Burst
- Auto or Manual Focus • USB 2.0
- Live View Shooting • 51-Point AF
- 14-Bit A/D Conversion
- Shutter Rated to 150,000 Cycles
- 200-3200 ISO (100-6400 with Boost)
- Uses EN-EL3e battery
- Nikon Inc. limited warranty included**
- Dimensions 4.5 x 5.8 x 2.9"
- Weight 29.2 oz. body only



D90 Body Only.....#NID90 Kit with 18-105mm VR Lens.....#NID9018105

Nikon D90

- "D-SLR" Digital SLR Camera
- D-Movie mode - record 720p HD movie clips • Self-Cleaning Sensor
- 12.3 MegaPixels • GPS geo-tagging
- 3.0" LCD Monitor • SLR viewfinder
- Uses Nikon AF Lenses (1.5x factor)
- SD/SDHC (High Capacity) Card Slot
- Auto or Manual Focus • 4.5 fps Burst
- In-Camera image Editing
- Scene Recognition System
- Active D-Lighting • USB 2.0
- ISO 100-3200 • Uses EN-EL3e battery
- Nikon Inc. limited warranty included**
- Dimensions 5.2 x 4.1 x 3"
- Weight 22 oz. body only



D700 Body Only.....#NID700 Kit with 24-120mm VR Lens.....#NID70024120

Nikon D700

- "D-SLR" Digital SLR Camera
- Self-Cleaning Sensor
- 12.1 MegaPixels • Live View
- 3" VGA LCD Monitor • SLR viewfinder
- Uses Nikon AF Lenses
- FX-format CMOS (full frame)
- CompactFlash Card Slot
- Dust and Water Resistant
- Picture Control Settings • 5 fps Burst
- 51-point AF System • HDMI Video Out
- Active D-Lighting Mode • USB 2.0
- ISO 6400 • Uses EN-EL3e battery
- Nikon Inc. limited warranty included**
- Dimensions 4.8 x 5.8 x 3.0"
- Weight 33.6 oz. body only

SLR Lenses & Flashes

Nikon 16-85mm f/3.5-5.6 DX ED-IF G AF-S VR AF Lens

- Exclusively designed for use with Digital SLRs
- Silent Wave Motor
- EJ (Extra-low Dispersion)
- Super Integrated Coating
- 35mm equiv. 24-127.5mm
- Minimum focus 1.3'
- 67mm filter diameter
- Weight 17 oz

Nikon 24-70mm f/2.8 G AF-S ED-IF Wide Zoom AF Lens

- Optimized for edge-to-edge sharpness on both the Nikon FX (Full-frame) & DX-format image sensors
- Rugged construction, dust and moisture resistance
- Minimum focus 1.2'
- 77mm filter diameter
- Weight 32 oz

Nikon 18-200mm f/3.5-5.6 DX G AF-S ED-IF Digital Lens

- Exclusively designed for use with Digital SLRs
- 35mm equiv. 27-300mm
- VR II Vibration Reduction
- SWM (Silent Wave Motor)
- 3.5-22 Stop Range
- Focus 1.6' to infinity
- 72mm filter diameter
- Weight 19.8 oz

Nikon 24mm f/3.5 D ED PC-E Ultra-Wide Lens with

- Compatible with digital and 35mm SLR cameras
- Ideal for architectural and nature photography
- "Perspective Control" tilt and shift functions
- Minimum focus 0.7'
- 77mm filter diameter
- Weight 25.6 oz

Nikon Nikon AF Flashes

	IMP	USA
SB-400	CALL	CALL
SB-600	CALL	CALL
SB-900	CALL	CALL
R1 Wireless Twin Flash	CALL	CALL
RC1 Wireless Twin Flash System	CALL	CALL
DX ED-IF Lenses for Digital Only	IMP	USA
10.5/2.8 Fish Eye	684.95	699.95
35/1.8 G AF-S (52e)	CALL	199.95
12-24/4 G AF-S (77e)	CALL	CALL
16-85/3.5-5.6 G AF-S VR (67e)	599.95	629.95
17-55/2.8 G AF-S (77e)	CALL	CALL
18-55/3.5-5.6 G AF-S II (52e)	124.95	129.95
18-55/3.5-5.6 G AF-S VR (52e)	169.95	189.95
18-70/3.5-4.5 G AF-S (67e)	CALL	CALL
18-105/3.5-5.6 G AF-S VR (67e)	CALL	359.95
18-135/3.5-5.6 G AF-S (67e)	CALL	CALL
18-200/3.5-5.6 G AF-S (72e)	679.95	699.95
55-200/4.5-5.6 G AF-S (67e)	174.95	184.95
55-200/4.5-5.6 G AF-S VR (67e)	219.95	229.95
Nikon D-Type AF Lenses	IMP	USA
14/2.8 D ED	1,629.95	1,719.95
16/2.8 D (39e) with Hood	849.95	909.95
20/2.8 D (62e)	549.95	569.95
24/2.8 D (57e)	339.95	359.95
24/3.5 D ED PC-E (77e)	1,899.95	1,999.95
28/2.8 (52e)	239.95	259.95
35/2.0 (52e)	339.95	359.95
45/2.8 D ED PC-E Micro (77e)	1,849.95	1,899.95
50/1.8 D (52e)	129.95	134.95
50/1.4 D (52e)	324.95	339.95
50/1.4 G AF-S (58e)	CALL	499.95

Nikon D-Type AF Lenses

	IMP	USA
60/2.8 D Micro (62e) (1:1)	439.95	469.95
60/2.8 G AF-S ED Micro (62e)	519.95	539.95
85/1.8 D (62e) with Hood	429.95	449.95
85/1.4 D IF (77e)	1,099.95	1,229.95
85/2.8 PC-E Micro (77e)	1,699.95	1,799.95
105/2.8 G AF-S ED-IF VR Micro (62e)	859.95	894.95
105/2.0 DC D with Hood (72e)	999.95	1,089.95
135/2.0 DC D (72e)	1,249.95	1,269.95
180/2.8 D ED-IF (72e)	869.95	914.95
200/2 G AF-S ED-IF VR (52e)	4,599.95	4,799.95
200/4 D ED-IF Micro w/Case (62e)	1,579.95	1,619.95
300/4.0 D AF-S ED-IF (77e)	1,339.95	1,369.95
300/2.8 G AF-S VR (52e-R)	CALL	CALL
400/2.8 G AF-S VR ED (52e)	CALL	CALL
500/4.0 G AF-S VR ED (52e)	CALL	CALL
600/4.0 G AF-S VR ED (52e)	CALL	CALL
14-24/2.8 G AF-S ED-IF	1,749.95	1,799.95
17-35/2.8 (77e)	1,589.95	1,769.95
24-70/2.8 G AF-S ED-IF (77e)	1,669.95	1,699.95
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DX 11-16/2.8 Pro (77a)	#T0111628PDX*	\$399.95	\$399.95
DX 12-24/4.0 Pro (77a)	#T0122440*	\$499.95	\$499.95
DX 16-50/2.8 Pro (77a)	#T0165028PDX*	\$659.95	\$659.95
DX 50-135/2.8 (67a)	#T05013528*	\$699.95	\$699.95

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Di-II 10-24/3.5-4.5 (a)	#T102435*	\$499.00*	\$499.00*	—	—
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Di-II 17-35/2.8-4 LD IF Aspherical (77a)	#T173528*	\$289.00*	\$289.00*	—	—
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Di-II 18-200/3.5-6.3 (62a)	#T1820035*	\$269.00*	\$269.00*	\$269.00*	\$269.00*
Di-II 18-250/3.5-6.3 (62a)	#T1825035*	\$499.00*	\$499.00*	\$499.00*	\$499.00*
Di-II 18-270/3.5-6.3 VC	#T1827035*	\$629.00*	\$629.00*	—	—
Di 28-75/2.8 XR (67a)	#T287528*	\$489.00*	\$489.00*	\$489.00*	\$489.00*
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Di 28-300/3.5-6.3 XR (62a)	#T2830035*	\$369.00*	\$369.00*	\$369.00*	\$369.00*
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Di-II 55-200/4-5.6 LD Macro (52a)	#T55200456*	\$159.00*	\$159.00*	\$159.00*	—
Di 70-200/2.8 LD IF Macro (77a)	#T7020028M*	\$769.00*	\$769.00*	\$769.00*	\$769.00*
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DC 10mm f/2.8 EX Fisheye HSM*	#S1028DC10*	\$699.00	\$699.00	\$699.00	—	\$699.00	\$699.00
DC 15/2.8 EX Diagonal Fisheye*	#S1528DC15*	\$749.00	\$749.00	\$749.00	—	\$749.00	\$749.00
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DG 24/1.8 EX DF Aspherical Macro (77a)	#S2418M*	\$479.00	\$479.00	\$479.00	\$479.00	\$479.00	\$479.00
DG 28/1.8 EX DF Aspherical Macro (77a)	#S2818M*	\$379.00	\$379.00	\$379.00	—	\$379.00	\$379.00
DG 30mm f/1.4 EX HSM (62a)	#S3014DC*	\$439.00	\$439.00	\$439.00	\$439.00	\$439.00	\$439.00
DG 50mm 1/1.4 EX (77a)	#S5014*	\$499.00*	\$499.00*	\$499.00*	\$499.00*	\$499.00*	\$499.00*
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DG 105/2.8 EX Macro (58a)	#S10528MDC*	\$479.00	\$479.00	\$479.00	\$479.00	\$479.00	\$479.00
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DG 300/2.8 APO EX HSM	#S30028DC*	\$3,299.00	\$3,299.00	\$3,299.00	—	\$3,299.00	\$3,299.00
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DG 28-70/2.8-4.0 EX (58a)	#S287028*	\$159.00	\$159.00	\$159.00	—	\$159.00	\$159.00
DG 28-70/2.8 EX (67a)	#S287028DC*	\$379.00	\$379.00	\$379.00	—	\$379.00	\$379.00
DG 28-300/3.5-6.3 Macro (62a)	#S2830035DC*	\$299.00	\$299.00	\$299.00	—	\$299.00	\$299.00
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DG 50-500/4-6.3 EX APO RF (86Ca)	#S5050046*	\$1,159.00*	\$1,159.00*	\$1,159.00*	\$1,159.00*	\$1,159.00*	\$1,159.00*
DC 55-200/4-5.6 (55a)	#S5520045*	\$149.00	\$149.00	\$149.00	\$149.00	\$149.00	\$149.00
DG 70-200/2.8 EX Macro II HSM (77a)	#S7020028*	\$799.00	\$799.00	\$799.00	\$799.00	\$799.00	\$799.00
DG 70-300/4-5.6 EX Macro Super II (58a)	#S7030045*	\$119.00	\$119.00	\$119.00	—	\$119.00	\$119.00
DG 70-300/4-5.6 APO Macro Super II (58a)	#S7030045DC*	\$209.00	\$209.00	\$209.00	—	\$209.00	\$209.00
DG 120-300/2.8 EX APO IF HSM (105a)	#S120300DC*	\$3,199.00	\$3,199.00	—	—	—	\$3,199.00
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DG 150-500/5-6.3 APO OS HSM	#S150500*	\$999.00	\$999.00	\$999.00	—	\$999.00	\$999.00
DG 300-800/5.6 APO EX HSM	#S300800DC*	\$9,999.00	\$9,999.00	—	\$9,999.00	—	\$9,999.00
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5 THINGS YOU DIDN'T KNOW ABOUT MEMORY CARDS

1 THERE ARE TWO different speed ratings that matter to still photos and video. When you're shooting stills, pay attention to the maximum transfer speed, expressed in megabytes per second. But for video, what counts is the Speed Class rating, listed as Class 2, 4, or 6. This designates the minimum sustained write speed for video applications, whether you use a camcorder with flash-memory or the video function of a digital compact camera or DSLR. For standard definition, Class 2 is all you need, but if you're shooting high-def, spring for Class 4 or 6 (which cost \$10-\$15 more).

2 IF YOU HAVE THE right camera, a faster card can boost the burst. Some DSLRs, such as the Nikon D90, can take more successive images when loaded with a fast card, particularly the 30MB/sec SanDisk Extreme III SDHC card. You could also potentially get a faster burst rate with the right card/camera combo. For example, with any brand of UDMA CompactFlash card, the Sony Alpha 700 captures images at 5 frames per second, instead of 4.8 fps with a non-UDMA card.

3 YOU CAN'T TAKE full advantage of the fast speed of a memory card unless you have a fast enough

card reader, too. Sure, a top-rated card will allow your DSLR to recover more quickly so you can go back to shooting after a big burst of images. But the other main benefit of these cards is their faster transfer speed when uploading images to a computer. For instance, the Lexar Multi-card USB 2.0 Card Reader (\$24, street) transfers images at up to 480Mb/sec, sufficient for many types of consumer CF, memory stick, and SD cards, while the Lexar Professional UDMA FireWire 800 Reader (\$75, street) transfers data at up to 800Mb/sec, better for a Lexar Professional UDMA 300x card or other Professional CF cards.

4 ALWAYS FORMAT your memory card for the camera you're using. If you swap the card between cameras, you could lose what's on the card, or risk corrupting the new pictures you're taking. And, of course, before you format, make sure you've off-loaded the photos you just took.

5 THEN AGAIN, YOUR pictures might still be there, even if it looks like they're gone. While reformatting your card wipes all the data—deleting doesn't. So if you think you've lost some images but you haven't formatted your card since the mess-up, rescue software might save them. If your card comes with it, use that. With a SanDisk Extreme Card, you can download free RescuePRO data recovery software from www.sandisk.com. Lexar Image Rescue 3 (\$29, direct; free with some pro-level cards; www.lexar.com) works with any brand of memory card.



NEED FOR SPEED: Fast cards (A) can increase your burst rate, and a fast card reader (B) will optimize write speed when uploading. If you don't have a pro card, go with a multi-card reader (C). Rescue software (D) recovers seemingly lost images.

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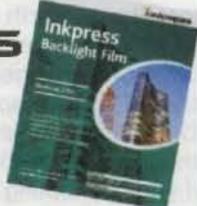
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3 WAYS TO SHOOT THE MOON

BY KATHLEEN DAVIS

Who doesn't want to capture the beauty of the evening moon, whether it's moody and full or just an enigmatic crescent?

But getting your exposure right can prove challenging. Here are three ways to include the moon in your scene without losing any of its mystery.

1 When the moon is full, follow the Sunny 16 rule. Because a full moon on a clear night reflects sunlight just like the earth on a clear day, avoid getting an overexposed ball or an underexposed foreground by setting your aperture to f/16. Determine your shutter speed using the formula 1/ISO. For example, if you're shooting at ISO 200, the shutter speed should be 1/200 sec.

2 In other phases, open up the aperture. As the moon waxes and wanes, its brightness stays the same, but there is less light overall, so adjust by 2.5 stops in the first or third phases, and 10 or more stops when it has a thin crescent shape to get a good foreground exposure.

3 Get it early and late. The best time to capture the moon is 10 to 20 minutes before sunrise or after sunset. The moon is distinct then, but there is still enough light to capture detail in the foreground—a rising or setting full moon is best. Look for it directly opposite the sun in the sky (in the east at dusk and the west at dawn).

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105.2mm F1.8 DC HSM Di Nikon	749.00	749.00	749.00	749.00	749.00	---
105.2mm F1.8 DC HSM Di Canon	999.00	999.00	---	999.00	999.00	---
247mm F2.8 EX-DG	479.00	479.00	479.00	479.00	479.00	---
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307mm F2.8 EX-DG	439.00	439.00	439.00	439.00	439.00	---
307mm F2.8 EX-DG HSM	499.00	499.00	499.00	499.00	499.00	---
307mm F2.8 EX-DG HSM II	799.00	799.00	799.00	799.00	799.00	---
707mm F2.8 EX-DG Macro	699.00	699.00	699.00	699.00	699.00	---
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180 2.8 EX-70 Macro APS	---	669.00	669.00	---	669.00	---
180 2.8 EX-70 Macro APS II	899.00	899.00	899.00	899.00	899.00	---
300 2.8 APS EX-DG	3299.00	3299.00	3299.00	3299.00	3299.00	---
300 4.5 APS DG	4999.00	4999.00	4999.00	4999.00	4999.00	---
800 5.6 EX-APS II HSM	7999.00	7999.00	7999.00	7999.00	7999.00	---
10-20 4.5-5.6 EX-DC	479.00	479.00	479.00	479.00	479.00	---
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24-70 2.8 EX-DC ASP	619.00	619.00	619.00	619.00	619.00	---
28-70 2.8 EX-DG	379.00	379.00	379.00	379.00	379.00	---
28-70 2.8 EX-DG II	199.00	199.00	199.00	199.00	199.00	---
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30-105 2.8 EX-DG HSM II	749.00	749.00	749.00	749.00	749.00	---
30-300 4.5-5.6 EX-DG HSM	1199.00	1199.00	1199.00	1199.00	1199.00	---
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135-450 2.8 EX-DG HSM DG	899.00	899.00	899.00	899.00	899.00	---
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1.4x APS Extender	219.00	219.00	219.00	219.00	219.00	---
2x APS Extender	239.00	239.00	239.00	239.00	239.00	---

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DC Series for Digital cameras
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17 - 70mm f2.8-4.5

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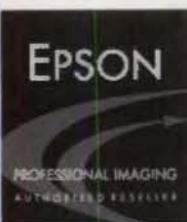
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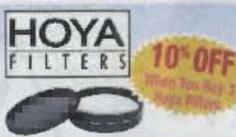
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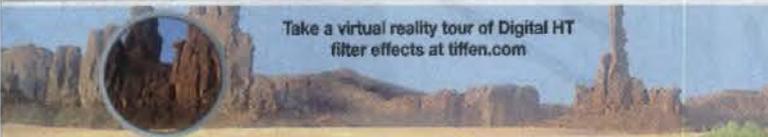
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 BOOK**

COMPILED BY KATHLEEN DAVIS

FOCUS, PLEASE

It's one of the quickest photo killers and
 easiest things to mess up. So how to get
 the focus right? Here are three solutions.

- Switch among focusing areas in the viewfinder. In most DSLRs, you'll find several, usually delineated by a box. When your subject is off-center, a dial or toggle lets you select the primary area for focus.
- Use zone focusing. This is for when you can anticipate your subject's trajectory (e.g., in sports such as racing). Focus manually on a point ahead of your subject, then snap the shutter when it arrives.
- Differentiate between single and constant autofocus. Single AF focuses just once when you press the shutter button halfway and is best when you and your subject are still. Constant or continuous mode, also called focus tracking, adjusts to keep your subject sharp when in motion, as long as you're holding the shutter button down halfway.

ADAPTED FROM LANGFORD'S STARTING PHOTOGRAPHY, SIXTH EDITION; THE GUIDE TO CREATING GREAT IMAGES BY MICHAEL LANGFORD & PHILIP ANDREWS (FOCAL PRESS, 2009; \$27)

SMALL STUFF

Knowing the technical aspects of macro
 photography is important, but getting the
 composition right is what really pulls the
 image together. Here are a few tips for
 extreme close-up shots.

- Frame your subject with an out-of-focus foreground and background. A sharply rendered subject surrounded by softer tones and shapes gives it visual weight.
- Fill the frame completely. Sometimes even small gaps or holes disrupt the texture of an image and inadvertently distract the viewer's eye.
- Shoot horizontally, then vertically. Sometimes it's difficult to tell what will make the best composition when you're shooting. Cropping after the fact means you'll lose pixels and image quality, so take pictures in both orientations and decide later which works better.

ADAPTED FROM UNDERSTANDING CLOSE-UP PHOTOGRAPHY: CREATIVE ENCOUNTERS WITH OR WITHOUT A MACRO LENS BY BRYAN PETERSON (AMPHOTO BOOKS, 2009; \$26)

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- The 110 volt unit plugs into any standard household socket.
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- Specs: 6-1/2" long, 3-1/2" diameter. Weighs only 15 ounces.



(LTBF)

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\$9⁹⁵



SOFT BOXES

For the Budget Monolights.

12"x12" (LTBSB12) **\$19⁹⁵**

18"x18" (LTBSB18) **\$29⁹⁵**

20"x28" (LTBSB2028) **\$29⁹⁵**

24"x36" (LTBSB2436) **\$39⁹⁵**



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BUDGET STUDIO FLASH KIT #1

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- 2 - 7" Light stands
- 1 - 33" White Umbrellas with Black Cover
- 1 - Deluxe carrying case

(LTBK1) **\$199⁹⁵**

BUDGET STUDIO FLASH KIT #4

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- 3 - 7" Light stands
- 2 - 33" White Umbrella with Black Cover
- 1 - Barndoors
- 1 - Snoot
- 1 - Set of 4 Color Filters
- 1 - Deluxe carrying case

(LTBK4) **\$299⁹⁵**

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BUDGET 160 STUDIO FLASH KIT #1

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- 1 - Deluxe carrying case

(FPBK1) **\$219⁹⁵**

BUDGET 160 STUDIO FLASH KIT #4

- 3 - Budget Studio Flashes
- 3 - 7" Light stands
- 2 - 33" White Umbrella with Black Cover
- 1 - Barndoors
- 1 - Snoot
- 1 - Set of 4 Color Filters
- 1 - Deluxe carrying case

(FPBK4) **\$319⁹⁵**

Adorama AC Master Slave

with PC Connection, Guide Number of 90 at ISO 100.

(LTACS)

\$19⁹⁵



Adorama AC Slave Flash

Guide number 90 at ISO 100.

(LTACMS)

\$18⁹⁵



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for the AC Slave & AC Master Slave Flashes, Red, Green, Blue and Yellow

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Adorama Reversible Short Stud for Pro Clamp, 1/4 & 3/8 Threads.

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(FPCA)

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FLASHPOINT MONOLIGHTS

	Model	GN	Recycle	Weight	Sync	Price
FLASHPOINT	320	118	1.2 Sec	3.00 lbs.	Ev	\$99⁹⁵
FLASHPOINT	620	192	1.2 Sec	4.6 lbs.	Ev	\$189⁹⁵
FLASHPOINT	1220	252	2.6 Sec	5.25 lbs.	Ev	\$279⁹⁵
FLASHPOINT	1820	282	3 Sec	5.75 lbs.	Ev	\$329⁹⁵
FLASHPOINT	2420	320	4.5 Sec	6.20 lbs.	Ev	\$399⁹⁵

Buy a Flashpoint Kit & Save

Flashpoint II kit

Includes: 1 Monolight, 10' Air Cushion Stand & a 40" Umbrella (White w/Black Cover)

320 Kit.....	\$129.95	620 Kit.....	\$229.95
1220 Kit.....	\$299.95	1820 Kit.....	\$389.95
2420 Kit.....	\$429.95		

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320 Kit.....	\$329.95	620 Kit.....	\$489.95
1220 Kit.....	\$689.95	1820 Kit.....	\$799.95



STARTING AT
\$99⁹⁵

FLASHPOINT ACCESSORIES

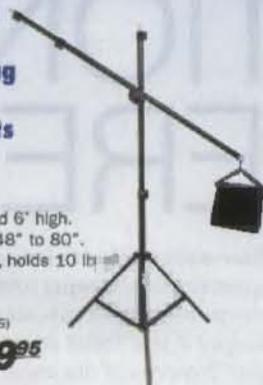
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- Weight shipped empty, holds 10 lbs sand or lead shot.

(LTBAWS)
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30w	7.69	7.19^{ea.}
70w	19.95	18.95^{ea.}



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- 11" reflector with hardware to plug in AC and to mount an umbrella. Flicker-free noiseless operation.

Flashpoint Cool Light 1 Kit

1- 11" Reflector
1- 30W Fluorescent Bulb
1- 10' Air Cushioned light stand

(FPCL1K) **\$69⁹⁵**



(FPCL1) **\$39⁹⁵**

Flashpoint Cool Light 4,

16" Reflector with Four 24W Fluorescent Bulbs, 480 Watt Equivalent.

- 16" reflector with hardware to plug in AC and to mount an umbrella. Flicker-free noiseless operation. There Are Two Switches That Each Control Two Lights so You Can Use Two Or Four Lights.
- Separate switch for 2 bulbs for half power

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4- 24W Fluorescent Bulb
1- 10' Air Cushioned light stand

(FPCL4K) **\$129⁹⁵**



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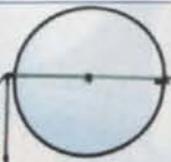
They can be hand held or attached to a light stand with the extendable Reflector Holder



22	32	42
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Shown With Stand & Translucent Reflector
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16"X16"

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TECH SUPPORT



YOUR QUESTIONS ANSWERED

Night shift

I use a Canon EOS Rebel XSi and have found that at night I seem to get more depth of field than I do in daylight. Is that possible? This photo was made at f/3.5 and 30 sec with a 18-55mm f/3.5-5.6 Canon kit lens at 18mm. How do you account for the incredible DOF at such a large aperture?

Tim Weir
Via e-mail

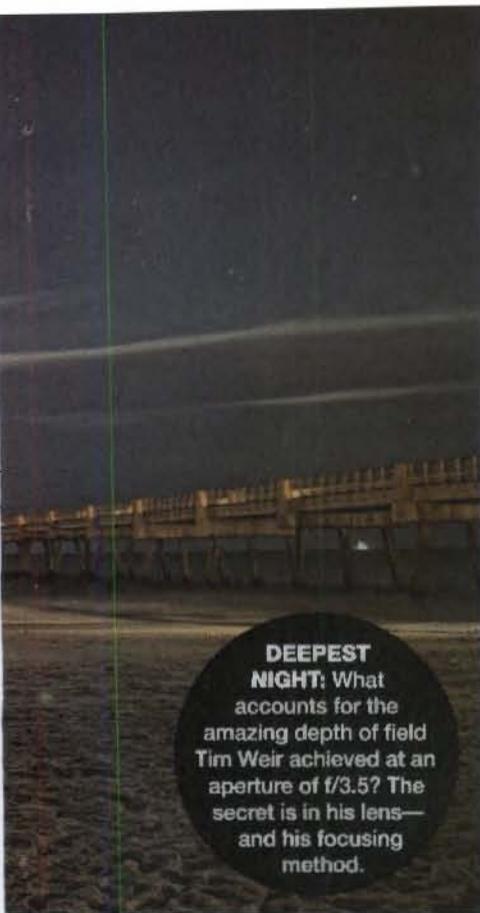
Depth of field isn't affected by light levels. But it is by focal length.

Your wide angle of view gives the appearance of deeper zones of sharpness, which can seem even deeper if you focus at or near the lens' hyperfocal distance. (For advice on how to use hyperfocal distance to your advantage, see page 53.)

Frame up

Having read "The Full-Frame Decision" (April 2009), I have one question: What would be the difference between a 20x30-inch print from a 12.1MP Nikon D300

TIM WEIR



DEEPEST NIGHT: What accounts for the amazing depth of field Tim Weir achieved at an aperture of $f/3.5$? The secret is in his lens—and his focusing method.

(APS-sized sensor) and one from a 12.3MP Nikon D700 (full-frame-sized sensor)—both shot in RAW and with the same technique? Dale Heit Cedar City, UT

If you were shooting at ISO 800 or below, you'd see very little difference. The two cameras produce images with the same pixel dimensions, and in our tests their resolution was very similar. But you'd need to use different lenses (or the same zoom lens at different focal lengths) to frame the same scene in the same way at the same distance from the subject. So you might see a divergence in sharpness, distortion, light falloff, or other optical factors.

Polari-zing!

When I shoot in bright sunlight with a polarizing filter and Auto ISO, my Nikon D80 sets ISO 800. Shouldn't it be ISO 200 in such bright light? Is something wrong? The pictures look fine.

Bhagavatula Ramakrishna
Via e-mail

It sounds like your camera works fine. Polarizers can cut light transmission

by several stops, which is why your ISO jumped to 800. If you're concerned about image quality and enlargeability, turn off Auto and set a lower ISO. If that means you have to use a tripod to make up for the longer shutter speed, so be it.

SQF across the ages

I had a Canon 35mm SLR (the EOS Elan) with a Sigma 28-70mm $f/2.8$ and 75-300mm $f/4-5.6$ lens, both bought in 1993. For each, I have the vintage Pop Photo SQF charts published in 1992. I just bought a Canon EOS 40D, and want to see how my older lenses compare with today's optics. So my question is: Can I compare 1992 SQF charts with current ones, or have your criteria and/or testing methods changed over the years?

Christian Savoie
Via e-mail

Our optical bench was completely overhauled in 2001, resulting in more accurate test data and a slight dip (5 to 7 percent) in apparent sharpness for lenses tested since then. So, unfortunately, the old and new test results are not directly comparable.

The TWIN shall meet

I recently upgraded to Adobe Photoshop CS4 on my Mac, and was surprised that my scanner didn't automatically appear as an option in Photoshop's Import/Export menu as it did in previous versions. The scanner is several years old, but I recently updated its driver. Do I have to keep CS2 for scanning?

D.T.
Via e-mail

CS4 should work, though you may experience occasional crashes. The TWIN, the pipeline Photoshop uses to communicate with your scanner driver, considered outmoded by Adobe, is no longer automatically loaded into Photoshop. The answer lies in the Goodies folder in your CS4 installation disk. In Goodies, open the Plug-ins folder and then the Import-Export folder. It should contain the file TWIN.plugin. Drag that file into Photoshop's Import-Export folder inside the Plug-ins folder. Reboot and scan away.

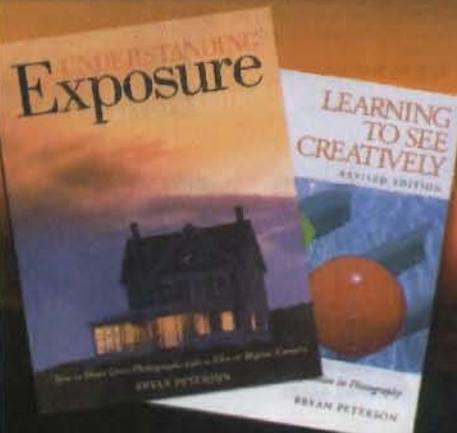
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Don't let the low prices fool you.

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POPULAR PHOTOGRAPHY (ISSN 1542-0337) (USPS 504-890), June 2009, volume #73, issue #6, is published monthly by Hachette Filipacchi Media U.S., Inc., 1633 Broadway, New York, NY 10019. Periodicals postage paid at New York, NY 10001 and at additional mailing offices. Authorized periodicals postage by the Post Office Department, Ottawa, Canada, and for payment in cash. POSTMASTER: Send address changes to Popular Photography, P.O. Box 54915, Boulder, CO 80322-4915; (386) 597-4375; Fax (303) 604-7644; popphoto@neodata.com. If the postal services alert us that your magazine is undeliverable, we have no further obligation unless we receive a corrected address within one year.

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BACKSTORY

MARK PETERSON



"This is a stairway in the Plaza Hotel in New York, and the debutantes are getting ready before being introduced to their families and friends and other guests. They're doing their last bit of primping. I tried to capture the nervous energy of being young and being on the cusp of adulthood. I did this as part of the Redux book on American youth—I wanted to follow people around who are right at the point where one thing is ending and another beginning. The white dresses to me are a uniform, where people assume they know who these girls are and what they're about. But they're all individuals, with their own lives, their own paths. I shot this with a Canon EOS 5D. I'm a real slave to my 24mm f/1.4 lens. The light wasn't great in there, so I was at ISO 400 at f/2.8 and 1/15 sec. It looks much brighter in there than it was—that's the beauty of a fast lens."

MARK PETERSON, 2008. AMERICAN YOUTH BY THE PHOTOGRAPHERS OF REDUX PICTURES. PUBLISHED BY CONTRASTO, 2009

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