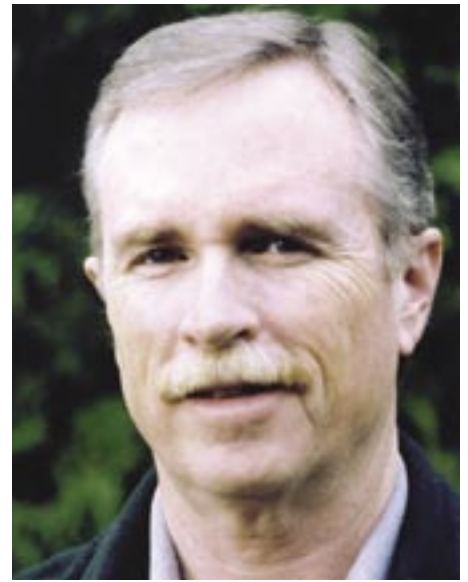


Timothy Perrin

# Digital *Photography* Revisited



**F**ive years ago in this space, I said,

So far, the quality of digital photography—at least camera-based digital photography—is not good enough for me. Rather, I shoot film, then scan the resulting slides or negatives onto my computer at very high resolution.

My major objection was the cameras then available just didn't have the resolution needed for really good photography. At the time, the top-of-the-line Canon D30 captured only 3.3 megapixels and cost a whopping US\$3500. Instead, I shot 35mm film and scanned the ones I liked into the computer at about 7 megapixels, using a desktop scanner. Since the theoretical resolution of 35mm film is about 6 megapixels—it is limited by the size of the silver halide particles that capture the image—I was getting as much detail as it was possible to get out of my slides.

Well, we're not in Kansas anymore, Dorothy, and things have changed a lot in five years.

I made the switch to digital in the Summer of 2004 and do not regret it in the least. I sold my old Minolta

SRT-101 on eBay, traded in my Canon EOS 3 and Elan 7 bodies, and bought a Canon 10D. I eventually even sold my lenses for the Canon 35mm bodies on eBay. I have pared myself down to the one camera body and one lens, a Tamron 18-200mm zoom.

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## Developments in Cameras and Lenses

First, let's start with the improvements in cameras since I last looked at them here in 2000.

The quality of digital cameras has been moving at a steady pace. Last Summer, in August 2005, Canon announced a 12 megapixel "prosumer" camera body for less than they charged five years ago for that 3.3 megapixel camera. Consumer point-and-shoot models continue to push the price-to-performance ratio down with higher resolutions, better lenses, and smarter processing than ever before. But perhaps the biggest improvement to emerge last year was the development of "full sized" digital sensors.

One of the quirks of digital single lens reflex cameras has been that they have a "magnification" factor, usually about 1.6. That was because the sensor was smaller than a frame of 35mm film. The sensor just saw the middle of the image. The result was equivalent to "zooming in."

That has led to a whole market in lenses built specially for digital cameras. For example, I mentioned I was now using a Tamron 18-200 zoom lens, one of those special digital lenses. It replaced a Tamron 28-300 lens. On my digital, the 18-200 performs about the same as the 28-300 does on a 35mm camera, from a moderately wide angle to a 6X telephoto.

When I used the 28-300 on my digital camera, everything was multiplied by 1.6. It became the equivalent of a 45-480mm lens, basically a "normal" lens—no wide angle at all—to a 9.5X zoom. But now, with the introduction of "full-sized" sensors, the older lenses will produce "normal" images on those new cameras.

There is another advantage to the larger sensors: Each receptor unit is physically larger. That means it can more easily and quickly capture more light and more information about that light. Larger sensors are simply more sensitive.

They are also an engineering requirement as we move to higher and higher pixel counts. For example, to create a receptor with 6 megapixels, you need to put about 3000 receptors along one dimension and 2000 along the other. To make one with 12 megapixels, you need 4200 by 2800. Eighteen megapixels requires 5200 by 3450. You either need to make your receptor higher and wider or make each receptor smaller. Guess which is easier to do.

### **Memory Cards**

My other big gripe five years ago was the cost of memory cards. On my 2000 trip to Europe, I shot about 1700 frames in five weeks. That was 50 rolls of film. They cost me almost \$500 to buy and \$400 to process. But it was still cheaper than buying memory.

Today, the cost of compact flash and SD memory cards is way down. Even the high-speed cards you want for digital photography are going for a song. On my current trip, I carry three 512

megabyte cards, each capable of holding 177 frames at maximum resolution. That is more than 500 shots, almost one-third of my total output in five weeks in 2000. I just looked at one Website where I found a 4 GB compact flash card, big enough to hold 1400 shots—almost my entire output in 2000—for \$500, what I paid for film alone. And I couldn't reuse the film.

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### **Downloading the Images**

Another of my gripes five years ago was that I didn't want to carry a computer

to download the images. Given the price of memory, that's hardly an issue anymore, but you know my mantra: *backup, backup, backup*. Today there are products that will burn a DVD or CD for you without the hassle of carrying a full computer. Alternatively, you can use small portable hard-drive units, similar in size to an MP3 player like an iPod. These units, however, are designed to hold your images rather than your songs. Many are in the 20 GB range. Forty gigabytes is starting to become common. One company simply sells a shell into which you can drop the mini hard-drive of your choice.

### **Software**

Purists may wonder about my choice of a Tamron 18-200 zoom lens. Up until now, *aficionados* have had their doubts about zooms. Yes, they are incredibly convenient, but they also suffer from a number of liabilities caused by the challenges of creating a lens that can work over a wide range

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of magnifications. To a trained eye and particularly on certain types of pictures, these imperfections cause smeared colours, make straight lines curve, and otherwise mess up a beautiful shot.

But DxO software out of Paris has solved the problem. Digital photos are just bits and bytes, computer data to be manipulated like any other data. And every camera body and lens can be tested to see exactly what imperfections it produces. So, DxO has written software to compensate for those imperfections. If your lens produces an effect known as pin-cushioning when you are using it at 250mm, DxO will fix it. If the receptors give a greenish cast to all your photos, DxO will fix that.

The software comes in two modules, one for the camera and one for each lens. Unlike Photoshop and its ilk, rather than tweaking each photo on its own, with DxO you batch-process photos. It looks at each, reads which camera and lens you used, what the settings were—focal length, aperture, shutter speed—then applies the corrections that their experiments have shown are needed to fix the problems introduced by that combination of camera body and lens.

It's close to magic!

So, happy picture-taking. Just don't look for me in the lineup at Quickie Photo. I'll be out taking pictures.

\* \* \*

The Keyhole.com satellite imaging Website about which I wrote in my Spring 2005 column has been acquired by Google.com. The basic service is now available free at <http://earth.google.com>. The areas covered by high-quality images have also been expanded since my original visit. Take a look. At the very least, you'll have fun for a few hours. ▲

**Timothy Perrin**, a former lawyer, writes about technology and other topics. He is currently in Europe researching books on Hannibal and 21st Century technology.

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