

Trees, Montana. 1994. Dicomed Digital Camera, infrared.



New Eye on the World

Landscape photographer
Stephen Johnson is documenting
our national parks—digitally

By Bruce Fraser

Photographs by
Stephen Johnson

A Ford van bumps down a remote road deep in a wilderness. It pulls to a halt, raising clouds of dust. The driver gets out, and produces from the side door a backpack, a camera, and a tripod. He heads up the trail.

Just another tourist taking snapshots of nature? Not exactly. The camera in his hand is a 4 x 5 view camera; inside the backpack are a Macintosh PowerBook, a digital back for the camera, a 6-pound battery pack, a hefty digital storage device, and a satellite-reading GPS (Global Positioning System) receiver.

What's going on here? It's a day in the life of Stephen Johnson, landscape photographer and digital-image pioneer. He's recording images for his latest project, entitled "With a New Eye," the first filmless photographic look at the U.S.'s national parks. "Photography has always been based on the highest technology of its time," says Johnson, "and the history of the national park system and of photography are so inextricably linked that the parks seemed like a fitting subject for an exploration of the latest imaging technologies."

In the last year or two digital cameras have become useful tools in certain narrow niches, usually because they shave hours off turnaround time or save the expense of scanning. Johnson, however, is drawn to the medium for other reasons.

With proper care, the photographs in "With a New Eye" will be immune to the ravages of time—the color will never fade, and there's no film to crack or curl. The



Susan Warner

Photographer Stephen Johnson near his Bay Area home.

archival aspect of the images will be further enhanced by the use of the satellite-based global positioning system to record the location of each image as it is made.

Perhaps more importantly, Johnson has found that the digital camera is providing him with *better* images, with purer color and a higher visual resolution, than he can achieve with film. "People tend to go for dramatic color—gutsy, saturated color—but I've always been drawn to the light-filled pastels in the world," he says. "The digital camera can give me results that look much more like the world I see with my eyes."

Abandoned Vineyard, Kern County. 1985. From *The Great Central Valley: California's Heartland*.



While this project is in many ways the most ambitious he's yet undertaken, the 39-year-old Johnson is no stranger to digital imaging. This is obvious from even a cursory look at the studio he shares with his wife, designer Mary Ford. The main room of their house in Pacifica, Calif., an airy, light-filled space with three large windows looking down the valley to the Pacific Ocean, is a cheerfully chaotic jumble of high-powered Macintoshes, storage arrays, CD-ROM writers, scanners, and dye-sublimation printers. "I never planned on becoming a color separator or a scanner operator," he muses,



Oil Well near McKittrick, Kern County. 1983. From *The Great Central Valley: California's Heartland*.

“but the technology really allows the individual artist to regain control of their work. Of course, with the control comes an awful lot of responsibility.”

Johnson has made his living as a fine art photographer for almost 20 years, and has been teaching and publishing for the past 15. Most of his work has been shot on

negative film, which Johnson prefers to transparencies. However, most color separation houses don't handle negatives, and the oil-mounting techniques used on most drum scanners put the film at considerable risk. So he generally had prints scanned for reproduction. It wasn't an entirely satisfactory solution—color houses typically have much less experience scanning prints than transparencies.

Besides, he says, “I was never comfortable with the typical scenario of the photographer handing over work to a publisher or printer, then letting the magic of reproduction happen. I like to control the magic.”

These concerns came to a head during the creation of the book *The Great Central Valley: California's Heartland*, which grew out of an exhibit featuring photographs by Johnson and fellow photographer Robert Dawson that opened in 1986. Johnson started preliminary design work on the book in late 1987 using PageMaker on a Macintosh SE and stripping the photographs in conventionally. The early mock-ups worked well enough and garnered enough support to convince him that the book was a viable project. So, in late 1988, Johnson began a years-long labor of love that also became a dizzying ride on the cutting edge of digital imaging technology.

The amount of work involved in the book was formidable, with a 70,000-word manuscript from author

Gerald Haslam, and over 20,000 photographs to choose from. In addition to Johnson's and Dawson's photography, the book integrated historical photographs—many of which required considerable restoration—as well as maps, graphics, and Haslam's text. But Johnson, a native of Merced, found the project close to his heart.

Producing the book took the better part of four years of his life. Desktop scanning and image-editing technology went through a dramatic evolution during those four years, and Johnson was quick to exploit each new development. Working with scanners such as the Leafscan 45 and the Agfa Horizon, he was able to make his own critical decisions about image sharpness and color rendition, thereby extending the control photographers have traditionally enjoyed in the darkroom all the way into the book-printing process itself.

Johnson personally opened every one of the 280 image files in the book, checking them for dust, color, contrast, cropping, and sharpness. He also created most of the duotones in the book—in fact, along with Adobe's Senior Art Director Russell Brown, he lobbied for the development of the duotone feature in Photoshop 2.0. The sample duotone curves that have shipped with each version of Photoshop since then were his creations.

The book finally appeared in 1993, garnering glowing reviews and winning a number of regional and national awards. It's an impressive demonstration of what can be achieved using desktop digital imaging, but more importantly, it's a compelling piece of art and a thoughtful documentation of a fast-vanishing part of America's heritage. It also attracted enough attention from the digital imaging community to prompt Johnson to produce a 48-page booklet entitled *Making a Digital Book: Art, Computers, Design, & the Production of "The Great Central Valley: California's Heartland,"* which documents the creation of the book.

His immersion in digital imaging made Johnson ever

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more aware of the ethical pitfalls that come with the technology. “On the downside, it’s easier than ever to steal someone else’s photographs, and there isn’t nearly enough being written on the subject. That part is simple: if you didn’t shoot it, you don’t own it and you can’t use it without paying for the rights to do so.” For him, issues

such as cropping images or overlaying type on them are ethical as well as contractual: when he delivers images on disk, he’s careful to label them with a short statement indicating that the right to reproduce them is contingent on them not being cropped or altered in any way.

Johnson also has very clear ideas about what is and is not appropriate in photo restoration. He restored a number of historical photographs for the book, and more recently he’s been working on a collection of about 600 glass plates made by early-20th-century Central Valley photographer Frank Day Robinson. His absolute rule in restoration is that no real objects should be added or subtracted from the photograph. He’ll remove dust or scratches, but not if he has to fake the facial features they were obscuring, and he’ll sharpen the scan to bring it back to the sharpness of the original, but no more.

A similar code guides his treatment of his own images. “Trying to get the color as accurate as possible, getting rid of dust, sharpening—these are image-finishing processes, just as one would do in the darkroom. Altering color or contrast begins to move into the realm of interpretation. And moving trees or adding moons is definitely manipulation, and I’m just not interested in doing that in my landscape work.”



Trees, Shenandoah National Park. 1994. Dicomed Digital Camera.



Leaves, Shenandoah National Park. 1994. Dicomed Digital Camera.

The first large-format digital cameras were strictly studio devices, while the smaller-format “untethered” models offered only limited resolution and no perspective control. These limitations precluded their use in Johnson’s main passion, landscape photography. So his photography remained primarily film-based until inventor Michael Collette introduced him to a prototype of what would eventually become the Dicomed Digital Insert, in September of 1993.

The Dicomed camera is a scanning back that fits any 4 x 5 camera—it essentially replaces the film with a high-resolution scanner—and at maximum resolution, it produces a 6000 x 7520-pixel, 130MB image. More importantly for Johnson’s purposes, it comes with a battery pack and a storage device that can hold eight full-resolution images, so it can be taken out into the field. Johnson



Half Dome and Merced River, Yosemite National Park. 1994. Dicomed Digital Camera.

enthusiastically started doing so, adapting a hiking backpack for the purpose.

By January of 1994 the camera was out of the prototype stage. Johnson started taking the camera out with Michael Collette and making images. He was immediately intrigued by the fact that he could obtain instant feedback. A Macintosh PowerBook controls the camera via Dicomed software, and it's possible to bring the entire 130MB image into the PowerBook in the field and view it in Photoshop. It takes about 12 minutes to

transfer a full-resolution image from the Dicomed's storage disk to the PowerBook. "I can actually open the image while I'm out in the field and see if I've recorded what I want," he enthuses. "I can choose the contrast I want to impose before I even make the photograph and see the results on the spot. It feels very natural."

At first Johnson was skeptical of Collette's claim that the camera could out-resolve film, but an experiment early in 1994 convinced him that Collette was in

fact right. He shot the same San Francisco panorama from Telegraph Hill on both conventional fine-grain emulsion and on the digital back. Viewing the film through a high-power loupe, one can clearly see the Tower Records sign at the corner of Columbus and Beach, but it's partially obscured by an unidentifiable blob. The digital image not only resolves the blob as a street light, but also makes it possible to identify the Linda Ronstadt posters that paper the parking lot.

The camera produces results that differ from film in

other ways. One issue that Johnson had to deal with immediately was the fact that the camera takes around three minutes to produce a full-resolution image as the scanning head moves across the film plane, building the image up line by line. Any movement of the subject during the exposure produces distinctly odd-looking results—moving leaves create rainbow trails and people are flattened into tricolor stick figures.

Johnson decided that the benefits of the camera were sufficiently compelling to accept this as a feature of the medium, one to be explored and exploited. "The notion of a photograph as a literal depiction of reality has always been one that we've been too ready to accept," he points out. "The Dicomed camera changes the photograph from an unreal slice of time into the photograph as an accumulation of slices of time, over time. Neither one is much like human experience."

As he began to work more in this medium, Johnson noticed that the color rendition of the digital camera had a purity unattainable by film. In particular, delicate pastel hues are rendered much more faithfully, and dark greens remain green deep into the shadows.

The camera also opened up an entirely new possibility—color infrared images. It is so sensitive to infrared frequencies that for normal color work an infrared cutoff filter is placed behind the lens. To capture infrared images, one simply removes the filter, but the images that result aren't like those captured by color infrared film. Biomass shows up as a vibrant pale electric blue, while nonliving objects mostly register in shades of gray. Most of the infrared work Johnson has done so far involved using one of the three color channels to make

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a black-and-white image, but he's recently started blending natural color and color infrared images to create an entirely new way of seeing.

Johnson started conceptualizing the national-parks project in January 1994, but the first real test occurred during the week of June 11, 1994, when he made the first digital view camera images of Yosemite. On June 17 he held a press conference in conjunction with the Ansel Adams Gallery in Yosemite Village, and showed Iris prints of the first few images. In homage to his friend Ansel Adams, he set up a Quadra 950 and a Radius Proof-Positive dye-sublimation printer in Adams's Yosemite darkroom, and to demonstrate the technology he took a small group out into the valley and made some photographs on the spot.

He hadn't expected to get any extraordinary images out of the exercise, but just as he was starting the final shot of the day, an infrared exposure of Yosemite Falls, the wind kicked up and blew the falls into a huge feather that remained hanging in the air for the minute or so that the scanning head took to traverse that part of the frame. It was an eerie moment. Michael Adams, Ansel Adams's son, turned to Johnson and said simply, "Ansel would have loved this."

Funding for the national-parks project remains a challenge. It's an ambitious and expensive undertaking: it will require equipping his Ford van as a complete portable electronic darkroom, with formidable quantities of mass storage, very fast computers, a dye-sublimation printer, and cellular communications equipment, all run by solar and battery power. By the time the project is completed Johnson plans to have produced a traveling exhibit of about 75 images, a book, a poster, and maps—as well as a CD-ROM with documentation of the project, movies of the work in progress, and a text that will discuss the photographs' context and, he hopes, provoke an examination of their broader meaning.

"Setting aside pieces of Eden sometimes seduces us into thinking that they have been preserved," he observes. "But ecosystems don't end at the park boundaries. I want this project to spark discussion of the extraordinary land-use pressures on the parks system and its role in today's culture."

In part to keep his own agenda distinct from anyone else's, he is not accepting grants from nonprofit organizations, which often have their own political baggage attached. Instead, he has turned to businesses. Vendors have been generous with providing equipment, but so far he's raised only about half of the cash he reckons will be needed.

Still, he is committed to bringing the national-parks project to fruition. He feels that he's simply come too far to stop now. "I'm recording color in my photographs that escapes film," he says. "Highlights are holding and shadows are opening up like never before. I'm making the first archival color photographs of my career. Grain has vanished. I'm seeing the photograph, when I am photographing, on the spot, when I should. As it always should have been." ▀

Bruce Fraser is a San Francisco-based freelance writer who specializes in issues related to color publishing. He is a contributing editor for MacWEEK and MacUser, and is currently working on Real World Photoshop 3.0, to be published by Peachpit Press early in 1995.

The Great Central Valley: California's Heartland (ISBN 0-520-0777-6) is published by the University of California Press, (800) 822-6657. Making a Digital Book is available from Stephen Johnson Photography, P.O. Box 1626, Pacifica, CA 94044. —Ed.



Yosemite Falls, Infrared. 1994.
Dicomed Digital Camera.

"Setting aside pieces of Eden sometimes seduces us into thinking that they have been preserved."



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