


GOING WHERE *GEOGRAPHIC* HAS NEVER GONE BEFORE. BY RUSSELL HART

# DIGITAL TAKES FLIGHT





McNally's spooky view of the Navy's new Pegasus X-47A drone, shot with the six-megapixel Nikon D1X digital SLR.

Like most boys who grew up with the smell of airplane glue, Joe McNally has always been intrigued by human flight. And as a photographer whose work has appeared in just about every important magazine you can think of, he has always followed the lead of his aviation heroes—pushing the envelope of imaging technology. In a match made in the stratosphere, McNally's plane fancy recently crossed paths with his photographic instincts in a milestone cover story for the December issue of *National Geographic* magazine.

Photographed by McNally over the better part of a year, "Wings of Change," which focuses on the future of flight, is the first *National Geographic* assignment to be executed all digitally. McNally didn't shoot a single roll of film for it. But as you can see from our (continued on page 60)

On  
Assignment



**Up, Up, and Away** Taken from the back seat of an F-16 fighter jet with the Nikon D1X digital SLR, McNally's photograph of the world's most powerful new military airplane, the F-22 Raptor, represents the conceptual and logistical problems he faced in shooting *National Geographic's* "Wings of Change" cover story. While the F-22 still looks like a classic fighter jet, its inner works are state-of-the-art—and unlike the F-16 it can accelerate vertically until it runs out of atmosphere. "As a photographer I was confronted with trying to illustrate the future of flight technology without having a visibly different operational aircraft to show," says McNally, who was pulling five or six "G's" when he made the picture. "The other difficulty was that the military was either preparing for war or actively at war while we were shooting."



An F-22 Raptor being built at the Lockheed plant in Marietta, Georgia. The aircraft, which has more than a million parts, costs more than \$150 million.

## MCNALLY'S EDITORS DECIDED THAT "WINGS OF CHANGE" WOULD SERVE AS A TEST OF HOW NATIONAL GEOGRAPHIC MIGHT GO DIGITAL.

exclusive sampling of the story's dramatic images, had the magazine not chosen to acknowledge the event in its own pages, readers would have been none the wiser. The article, which marks the 100th anniversary of the Wright Brothers' first motor-driven flight, represents what many pros and other photographers have been waiting for—an environment in which digital capture is simply a new and useful means to photography's abiding ends of teaching, telling stories, and exciting the eye.

Several things came together to make the story happen. "Serendipity kicked in," says McNally, who received an invitation from the Navy in the Spring of 2002 to shoot onboard the aircraft carrier *USS Harry S. Truman*. Around the same time, McNally participated in the Digital Summit workshop, held in Jackson Hole, Wyoming by former *National Geographic* director of photography Rich Clarkson. To help himself over the digital learning curve, McNally also photographed the Kentucky Derby with the Nikon D1X, Nikon's top-of-the-line, six-megapixel digital SLR. Why not shoot such a high-speed subject with the lower-resolution-but-faster-firing Nikon D1H? "I've been more inclined to use the D1X because of the quality of the file, even though it's not as fast a camera," says McNally. "I was one of those people who always tried to use Plus-X instead of Tri-X when I was covering the news."

**M**cnally was all the more happy to win the aviation assignment when he learned that it was to be supervised by longtime friend and *Geographic* picture editor Bill Douthitt. "I immediately proposed to Bill that we should do it digitally," says the photographer, whose well-known technical prowess would prove indispensable given the story's massive subjects (airplanes) and difficult shooting situations (traveling at mach speed). "Bill has always been technologically savvy and forward-looking." Yet *National Geographic* has never been an early adopter of imaging technology. Its photographers were still encouraged, if not required, to shoot fine-grained, honey-hued Kodachrome

### McNally on digital capture

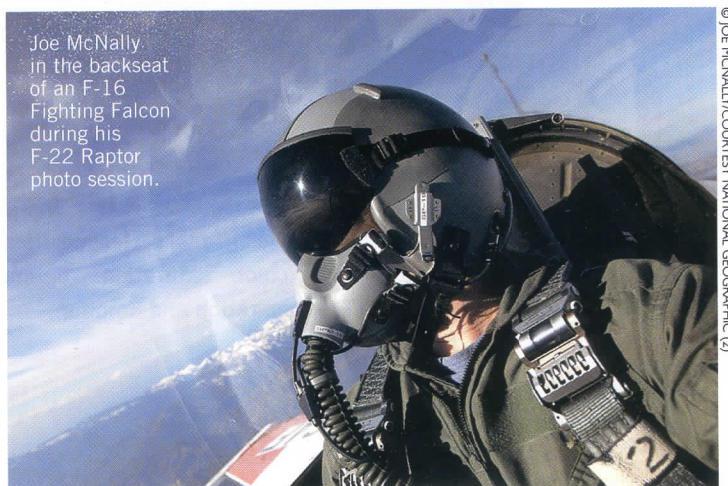
"I don't think I'll ever be exclusively digital," says **Joe McNally**. "I'll match the needs of the job to the best medium. Certain kinds of things are still more problematic for digital than for film, such as time exposures. And certain kinds of clients will still demand a larger piece of film, so I'll continue to shoot medium format in addition to 35mm. But I think the 'Wings of Change' story in *National Geographic* confirms that generally, there's no visible difference in terms of the end result. While you might use film for a certain kind of look or special purpose, digital is up to the challenge for eighty or ninety percent of all-purpose photojournalism.

"Digital photography comes with its own perils. At first, you're just as nervous about

losing these little tiny flash cards as you'd be about your exposed film. But the difference is that once you get those images off the card and into your computer, which you can do as soon as you finish shooting, you can safeguard them more quickly than with film by burning them to a CD.

"Partly because of the nature of the story, and partly because of digital's instant confirmation, I actually shot far fewer frames than I have for *National Geographic* stories in the past. Your average *Geographic* story for me has consumed between 500 and 800 rolls of 36-exposure 35mm film. For this story I think the final output was about 7,500 pictures. That's the equivalent of just over a couple of hundred rolls."

Joe McNally in the backseat of an F-16 Fighting Falcon during his F-22 Raptor photo session.



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Flying backseat in the "slot" position with the Navy's Blue Angels, McNally took this picture during a "diamond roll," in which all four planes do a 360-degree spin a few feet apart at 460 miles per hour.

T E C H N O L O G Y & V I S I O N

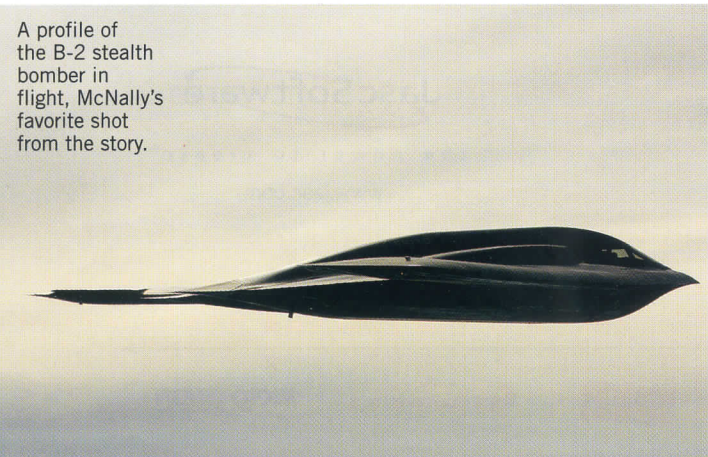
SHOOTING DIGITALLY CHANGED THE WAY McNALLY WORKED, IN THE FIELD AND WITH HIS PICTURE EDITOR.

25 when other magazines were running pictures taken with faster, more modern films. In pushing to do the aviation story digitally, McNally and Douthitt had to convince *Geographic* editor Bill Allen that image quality would meet the magazine's exacting standards.

When Allen expressed concern about the size of the digital files from the D1X, McNally pointed out that at 16 bits the camera can generate a hefty 60MB image. But the evidence that won Allen over was, fittingly, ink on paper. Epson had made some large-scale prints of McNally's work from the aircraft carrier, which he was shooting

with the Nikon D1X and Lexar CompactFlash cards. "We set up a meeting with Bill Allen, [director of illustrations] Chris Johns, [director of photography] Kent Kobersteen, and their deputies to show them the prints," Douthitt recalls. "They could see that the quality was there." Thanks to the enthusiastic support of both Kobersteen and Johns, it was decided that the aviation story would serve as a test of digital capture and workflow for *National Geographic*. "Because of its technological bent," says Douthitt, "the story lent itself very well to digital."

Though the difference in (continued on page 96)



A profile of the B-2 stealth bomber in flight, McNally's favorite shot from the story.

**Douthitt on digital workflow**

"The impetus for doing this story digitally was that even though we'd dipped our toes into the digital ocean at various times, we really hadn't figured out a lot of the workflow processes that would make the technology adaptable to *National Geographic*," says **Bill Douthitt**, Joe McNally's picture editor. "It was becoming obvious that we needed to move in this direction."

"Joe and I evolved a system where we would treat each CD as the equivalent of a roll of film. But instead of having to get film processed, catalogued, and sorted on a lightbox, I could look at the material right away on my computer. And I'd be able to get comments on it very quickly back to Joe. We could talk almost every day, and

we knew we were looking at the same pictures. When we finally sat down together to work on the edit, it was an exhilaratingly fast process.

"To work digitally, you have to have a whole chain of interconnected things from camera to software to CD burner in sync, or you're simply out of business. For most publications, you're not really out of pocket when you're doing a story, so that isn't an issue. But *National Geographic* might send someone to Sudan or some other remote place for six weeks, and there's usually not a reliable system in place for digital. For that sort of shoot, at least in the foreseeable future, we'll probably stick with film."

# DIGITAL TAKES FLIGHT

(continued from page 62) image quality was all but invisible, shooting digitally greatly changed the way McNally worked both in the field and with his picture editor. "When you shoot film for a *National Geographic* story, at the end of the day you just number all your exposed film cassettes and try to keep them safe until you can send them back to the magazine," he says. "I've shipped sixty or seventy rolls of Kodachrome to the *Geographic* from India, and then just been sick with worry until I got word that they had arrived." With digital, McNally would simply download his images to his Macintosh G4 laptop at the end of the day, burning the files straight to CDs to keep them safe. He would then send the CDs by FedEx to Douthitt at the *Geographic*, keeping copies for himself.

Always the perfectionist, McNally shot only in RAW mode—the uncompressed but proprietary file format that Nikon has dubbed NEF, for Nikon Electronic File. He never resorted to JPEGs (for their speed and convenience) or on-the-spot Photoshop (to correct or clean up the files). "Because of digital's reputation for being instantly alterable we were extremely careful to make sure we did nothing to the files until they were presented to Bill Allen," says McNally, who sent every shot to Douthitt. "I applied the same phi-

losophy to this story that I've always employed shooting transparency film: When a picture comes out of the camera, it's the way I want it to be."

**P**icture editing has always played an unusually important part in the process of creating a *National Geographic* story. Because photographers are often "out of pocket"—shop talk for being in a remote, often primitive location—they may have to shoot for weeks at a time without seeing their results. Instead, they rely on the guidance of the picture editor as he or she sorts through thousands of slides on a lightbox. Only when photographers return to Washington, D.C. for editing sessions do they actually see their results.

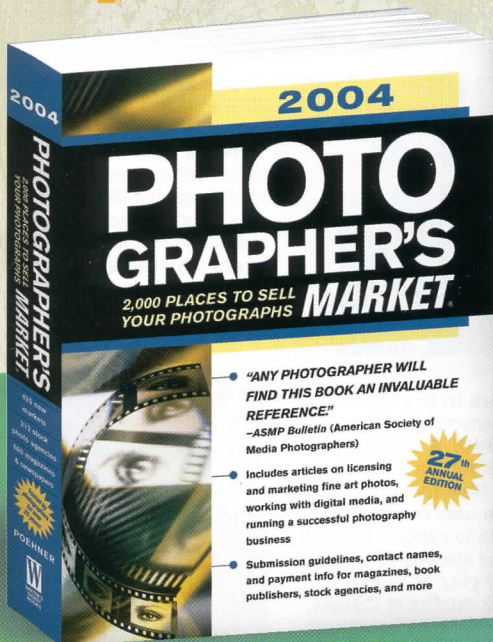
For McNally and Douthitt, working digitally changed that age-old dynamic. "Because we both had the files and the same file numbers, we could always talk about specific pictures over the phone," says McNally. "I had it on my monitor and he had it on his monitor. We could agree, 'We've got this subject nailed, let's move on,'" he says. Douthitt was also happy to be liberated from his light table when he and McNally met face-to-face to edit the story. "That process usually takes several days because you're looking at a fair volume of work," he says. "With this story, we'd just sit down in front of my big flat

panel screen with a contact-sheet-type program running and go through stuff really quickly. We could see it all taking shape right before our eyes."

Given the generous amount of time allocated for a *National Geographic* story, the speed of digital delivery is less of an advantage than it would be for a newspaper or newsweekly. But speed ended up playing a role in the "Wings of Change" story. As his deadline approached, McNally had yet to get access to the B-2 bomber, an early "stealth" airplane and the most visually distinctive example of the technology on which American air superiority now depends. McNally wanted to shoot the B-2 by late-day light, and you just don't tell the Air Force when to fly.

Ultimately, McNally was granted permission to shoot the plane at Missouri's Whiteman Air Force Base on the day before he and Douthitt were to present their final edit to Bill Allen. "Joe did the shot in the late afternoon and caught a flight back early the next morning," says Douthitt. "We'd been working on this thing for months and here we were gluing the last picture into place two minutes before we had to show it." As it turned out, McNally's photo of the B-2 bomber was used to open the story. "Had we not been working digitally," says Douthitt, "that simply wouldn't have happened." ■

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