There’s no question about it. Digital technology has dramatically altered the way cinematographers shoot, whether it’s a feature film, TV show, commercial or anything other project. And now that shooting on film is becoming more of an exception than the norm, I wanted to find out how digital technology can affect a DP’s choice of camera lens.

In addition to being the co-founder and president of the **Digital Cinema Society,** Cinematographer James Mathers has been shooting TV shows and independent films for over 25 years. Having done over 30 features and MOWs, Mathers specializes in shooting “film-style” digital projects and he’s very particular about camera lenses. “An image chain is only as good as its weakest link,” Mathers explains. “It doesn’t make sense to me for people to use lesser quality inexpensive lenses on digital cinema cameras.” The introduction of the
RED
EPIC camera with its 5K sensor presented a new challenge for Mathers and other DPs. “Because the EPIC’s sensor itself is physically larger than so many other cameras, none of the existing zoom lenses could adequately cover the larger sensor area,” he says. “They were all designed to cover a Super 35mm frame size.” Mathers and a number of other cinematographers lobbied
Angenieux
to create a new version of its Optimo lens specifically for cameras like the EPIC.

By the time you read this, Angenieux will have formally announced its newest product, a 19.5–94mm zoom lens with a wider rear element to properly cover a 5K sensor. Slower than other Optimos, the new lens has a T-stop rating of 2.6 instead of 2.2. Due to the difference in sensor size, Mathers says that having the 19.5–94mm lens optimized for larger sensors offers almost the same zoom ratio as the 17–80mm with the same feel and focal length that he's used to. "When you're shooting [with] a wider sensor, the millimeters don't have the same coverage area so the same lens on a camera with a smaller sensor appears to be a longer lens," says Mathers. Many cinematographers have already invested tens of thousands of dollars in prior models of the Optimo zoom, and Mathers reports that Angenieux plans to offer a service that will essentially retrofit existing lenses with the new, wider rear elements so that they can work better with cameras like the EPIC.

Another product Mathers recently tested is the new 2/3-inch lens from **Fujinon**. "I was doing a documentary series on brain science for PBS called 'Closer to Truth,' and they wanted a super-wide-angle lens for an HD camera," Mathers recalls. The DP needed something that would let him capture the entire width of an operating-room during a procedure and get detailed close-ups while remaining physically distant from the surgeons. "Fujinon let me use this new zoom lens that's 4.5–63mm with a doubler, which makes it great for documentary work," Mathers says. "I was shooting brain surgery at the Cedars-Sinai Medical Center in Los Angeles and needed a really versatile lens. That was perfect."

To a large degree, Mathers is agnostic when it comes to having a preference for one lens manufacturer over another. He chooses his glass based on the specific needs of each project and the camera he'll be using, leaning towards higher-resolution cameras for their ability to future proof his footage. "You always get a better image when you down-sample, say from a native 5K image to 2K rather than shooting native 2K," Mathers explains. While the industry finishing standard for digital cinema is currently 2K resolution, if that standard migrates to 4K for distribution, Mathers says he likes the idea of having 5K original footage as protection as well as for making a better image now.

When shooting on film or with the RED ONE, one lens Mathers often uses is the Angenieux Optimo 17–80mm with a 2.2 T-stop, which he finds to be almost as fast as a standard prime lens. "I love that range because it's wide enough to get your masters and tight enough to get your close-ups," says Mathers. "This way, when I'm shooting indie features, once I put the lens on, I normally don't have to take it off all day." The DP adds that even though he doesn't usually zoom during a shot, he will use the zoom as a variable prime: "That [method] speeds things up tremendously, which is especially important when I'm shooting indie pictures."

Recently, **Canon** asked Mathers to shoot a test/promo for the FK 14.5–60mm PL-mount zoom, a new lens that premiered at the 2011 NAB. "Canon wanted to see how their lenses worked with different manufacturers' cameras," says Mathers, who shot the project with an **ARRI**

ALEXA. The DP was very impressed by the quality of the 4K-rated Canon lens: “The image was nice and crisp from edge to edge with excellent contrast.” He was also impressed by the way the FK 14.5–60 handled flares — a feat that he attributes to the lens’ 11-blade iris and coatings. “The size and weight are very similar to my Angenieux Optimo 17–80mm,” says Mathers. “I like the range, which is just long enough to grab a close-up and wide enough to capture the master without changing lenses.”

Peter Lyons Collister, ASC began his career fresh out of the USC’s School of Cinematic Arts in the late 1970s when Director Randal Kleiser hired him to shoot second-unit footage on *The Blue Lagoon*
. Since then, Collister has shot over 40 features and numerous TV shows as either the principle or second-unit cinematographer. His recent credits include the opening sequence for the 2011 Primetime Emmy Awards and second-unit work on
Big Miracle
for Director Ken Kwapis (a USC classmate).

Collister bought a RED ONE camera a few years ago and recently upgraded to the EPIC; he also owns lens mounts for **Panavision** lenses and **Leica** and Canon still-camera lenses as well as a PL mount. His latest project as a second-unit DP is the 3D film The Amazing Spider-Man for Director Marc Webb. Collister and Cinematographer John Schwartzman, ASC shot the feature natively in 3D using **3ality Technica**
TS-5 3D rigs and RED EPIC cameras. Because of the physical requirements of the 3D rigs, Schwartzman needed lenses that were compact in size, which ruled out zoom lenses and led to

Spider-Man
being shot with a mix of Panavision Primo and
Zeiss
Ultra Primes. This decision required them to periodically spend 15–20 minutes changing lenses on the rigs. During principle photography, Schwartzman’s crew was able to make lens changes while the director worked with the actors, but this often wasn’t practical for Collister’s second-unit team. “There were times when I wanted to go from a 32mm to a 40mm, but I knew it was going to take 20 minutes to change lenses, so we would stay with the 32mm and just dolly in instead,” recalls Collister. “I thought that was a bit of a compromise.”

[redacted]