



By Bob Fisher

Hybrid Filmmaking Shifts Into High Gear It's Getting Better All the Time

Hybrid filmmaking shifted into high gear during the past year with more than 200 motion pictures produced in the United States leveraging advances in digital intermediate (DI) technology at some 20-plus domestic postproduction facilities. They ranged from affiliates of large and smaller film labs to big and boutique postproduction houses. The films varied from big studio features to independent movies produced with relatively modest budgets.

The list also includes films shot by the five nominees for the 2007 **American Society of Cinematographers** Outstanding Achievement Award: "Children of Men" (Emmanuel Lu-

bezki, ASC, AMC), "The Illusionist" (Dick Pope, BSC), "The Good Shepherd" (Robert Richardson, ASC), "Apocalypto" (Dean Semler, ASC, ACS) and "The Black Dahlia" (Vilmos Zsigmond, ASC). Maybe it is a coincidence, but it's also a sign of the times.

DI traces its roots to the invention of the Rank-Cintel telecine in England during the late 1970s. The first telecines were installed in North America during the early 1980s. By the late '80s, virtually all music videos, commercials and narrative programming produced for television were timed in collaboration with telecine colorists.

Kodak upped the ante in 1991 with the introduction of the Cineon digital film system, including a film scanner, recorder, computer workstation, and image manipulation software. The scanner and recorder could be operated at up to 4K resolution.

A Kodak scientist noted that a 4K scan of a single frame of 35mm color negative film typically converted to some 108 million bits of information. Since the average word in the English language contains 30 bits of information, he concluded that the information captured on a frame of 35mm color negative film was the equivalent of some 3.6 million words – so much for the adage about a picture being worth 1,000 words.

DI technology was initially used for blending digital effects with live-action film and for restoration projects. The first application was the frame-by-frame restoration of the classic 1937 Walt Disney animated feature, "Snow White and the Seven Dwarfs."

Gary Ross opened a new frontier with "Pleasantville" in 1997. Ross had scripted a story about two 1990s teenagers who were zapped into a 1950s black-and-white TV program set in the fictional town of Pleasantville. He envisioned using the gradual introduction of colors as visual metaphors for changing attitudes in a world that time had left behind. Ross directed the film and personally timed the DI on a computer screen with the advice of a visual effects supervisor and a consultant who had supervised colorizing classic black-and-white movies in the **MGM** library for the **TNT** cable network.

The next step wasn't taken until 2000, when Joel and Ethan Coen were preparing to produce and direct "O Brother, Where Art Thou?" They envisioned a dry, dusty, delta look with golden sunsets. Since the film was slated for production during summertime in Mississippi, Roger Deakins, ASC, BSC anticipated, that he would be shooting exterior scenes in bright sunshine with lush green foliage in backgrounds.

The cinematographer suggested turning summer into winter with the new DI technology. After the film was edited offline, the negative was scanned and converted to a digital file at 2K resolution. A 4K scan would have been too costly at that time.

Deakins timed the film on a CRT computer screen, guiding DI colorist Julius Friede through the process of turning green foliage brown and painting golden sunsets into backgrounds. The digital files were occasionally recorded out to film so that Deakins could judge how they played on a cinema screen. It took several months to complete the process.

During the last half-dozen years, DI has gradually become a more accessible and affordable creative alternative as all aspects of the workflow – including film scanning, recording, and image manipulation – have become faster and more flexible. DIs are now typically timed in cinema-like environments in weeks, rather than months.

Snapshots of DI Projects

During their initial discussions about "Flags of Our Fathers" and the sequel "Letters From Iwo Jima," Clint Eastwood and Tom Stern planned a contrasty look with desaturated colors. They envisioned the sequel, which takes place in shadowy cave environments, being somewhat darker. The director and cinematographer chose to shoot both films in 35mm anamorphic format and decided on DI timing, partially because many visual effects shots would have to be integrated with live-action footage.

Both films were produced at practical locations in Iceland, with **Technicolor** in Los Ange-

les providing both front-end lab and DI services. After the films were edited offline, a Northlight film scanner was used to convert the negative to a 4K digital master file, which was "rezzed" down to 2K to expedite the DI sessions.

DI colorist Jill Bogdanowicz, who had previously worked with Stern on "The Exorcism of Emily Rose," timed the DI with him. The 2K digital images were projected on a cinema-sized screen in a theater-like environment. It was an interactive process – Stern would ask Bogdanowicz to desaturate a scene "a little more," she made some adjustments, and then projected corrected 2K images on the screen within minutes.

In another shot, Stern asked Bogdanowicz to make someone's eyes brighter, a bloodstain redder, and the glow of firelight warmer. She isolated the character's eyes, the bloodstain, and the glow of the flames, and made appropriate corrections. When Stern was satisfied with the shot, Bogdanowicz instructed the computer to automatically track and make the same corrections in the rest of the shot.

Eastwood occasionally visited the DI suite and made comments. "He had us make some adjustments in things like skin tones and the texture of sand on the beaches," Bogdanowicz recalled. "It took a few days longer than two weeks to do the DI for the first film, because some visual effects trickled in a little slower than anticipated. The second DI only took two weeks. The corrections were made on the 4K master file, which was rendered onto color intermediate film with an **ARRILASER** recorder."

"The Black Dahlia" marked the fourth collaboration for Zsigmond and director Brian De Palma. The film is a dramatization of the brutal murder of a 22-year-old aspiring actress that rocked Los Angeles in 1947. Some 90 percent of "The Black Dahlia" was produced on sets built on makeshift stages in empty buildings in Sofia, Bulgaria. "Brian told me that he wanted beautiful photography and the best film noir ever shot, because it suited the dark mood of the story," Zsigmond said.

He suggested producing "The Black Dahlia" in three-perf Super 35 with DI timing. Zsigmond envisioned using DI to desaturate colors and darken shadows consistent with a film noir look. The three-perf film was an option because the timed DI file would be recorded directly onto four-perf color intermediate film with no com-

ARRILASER Recorder



promises in quality. The use of three-perf negative paid off twofold. It trimmed raw stock and lab costs by 25 percent, and enabled them to shoot longer takes without changing magazines.

"There are master shots in almost every scene that run for up to three to four minutes," Zsigmond said. "I encouraged Brian to do that because it feels more natural."

He timed the DI at **LaserPacific** in Hollywood. The film was scanned at 4K resolution with a Spirit DataCine, and rezzed down to a 1K proxy file. The digital file was projected on a 33-by-13-foot screen in a theater-like environment.

It was like watching an artist add the final dabs of paint to his canvas as Zsigmond asked DI colorist Mike Sowa to darken shadows and add contrast to enhance the film noir look. In a family dinner shot, Zsigmond told Sowa to make a tablecloth less white, the warm glow of candlelight a little cooler, and a wall in the background darker.

His corrections were applied to the 4K digital master file, and an ARRILASER recorder was used to transfer the images to color intermediate film. Sowa noted that the same digital file with slight "trim pass" adjustments was used to generate DVDs.

"Children of Men" is the fourth picture that Lubezki has lensed with his former classmate Alfonso Cuarón at the helm. In preproduction, they decided on a desaturated color palette with low-contrast images that reflected the emotional flow of the story.

Lubezki covered the action from beginning to end with a single camera, working primarily in natural light. He chose to record images on three-perf KODAK VISION2 Expression 5229 film because it is designed to probe deep into shadows while rendering smooth skin tones and

ARRISCAN



low contrast images with desaturated colors. Deluxe Labs in London provided film print dailies using a proprietary silver retention process called ACE that slightly desaturated the colors to match Lubezki's intentions for the final look.

The dailies served as a visual reference for Lubezki, Cuarón and everyone else, including DI colorist Steve Scott at **EFILM** in Los Angeles.

Scott cited examples of how they leveraged the ability to shoot longer takes without stopping to change magazines. He singled out, "... an amazing quarter-of-a-reel long scene that was filmed in a car driving through a ruined neighborhood ... and a seven-minute long, handheld shot of Clive Owen (who plays the male lead) escorting a woman carrying her newborn baby through a refugee camp. There was no way that they could have made adjustments in exposures as they were moving and shooting, but he knew we could finesse the looks in DI."

Scott notes that Lubezki often used multiple Windows to manipulate colors and contrast in different elements of shots for both continuity and emotional impact. The DI took about two weeks, which is about a quarter of the time that Deakins spent timing "O Brother" on a CRT display just six years ago.

Dean Semler mainly shot "Apocalypto" with a **Panavision** Genesis camera at locations in Mexican jungles. **EFILM** set up the equivalent of an electronic film lab in a small tent on loca-

tion that housed the facility's proprietary Color Stream System. Semler chose to program the system to emulate the look of **KODAK VISION2 5218** negative printed on **KODAK VISION Premier** print stock. He used the Color Stream box as a tool for previsualization. Bill Feightner, a technology guru for **EFILM**, likens the control system that Semler used to preview and fine tune dailies to printer lights used by timers at film labs.

"The preview technology enabled Dean to design looks as he was shooting without altering the raw data," Feightner explained. "That provided a visual reference for everyone, so no one was surprised. It also gave (DI colorist) Steve Bowen a head start."

Bowen timed the first run-through of "Apocalypto" to match the dailies that Semler had timed on location. They put finishing touches on the look in interactive timing sessions at **EFILM**, including some 35mm slow-motion shots and Super 16 film from cameras carried by the actors during a dramatic chase scene near the end of the movie.

Michael Barrett was shooting the TV series "Close to Home" when Emilio Estevez came onboard to direct an episode. That was their first meeting. Estevez gave the cinematographer the script that he had crafted for "Bobby." They subsequently collaborated on the production of a faithful dramatization of the events that oc-

curred before, during, and immediately after the assassination of Senator Robert F. Kennedy at the Ambassador Hotel in Los Angeles on June 6, 1968.

They filmed scenes for "Bobby" on sets and at practical locations in Los Angeles. Barrett said that the crowds in many scenes and scope of the story "cried out" for a widescreen aspect ratio. The cinematographer recommended the Super 35 format because he wanted the flexibility of using spherical lenses. He also suggested a DI, so he could "play with" contrast, grain, and colors, and blend 40-year-old 16mm news film into scenes.

Barrett also suggested shooting in three-perf 35mm film because that enabled them to shoot five- to six-minute scenes in one take with a 1,000-foot magazine. He cites a compelling scene where a **Steadicam** operator followed an actor down a hallway and into a room, where he made a 180-degree move and then went out a door into another set.

Supervising colorist Jan Yarborough timed the DI at **Warner Brothers** Motion Picture Imaging (MPI). The negative and stock footage were scanned at 2K resolution. Yarborough removed dirt and scratches and enhanced fading highlights and shadows in the 40-year-old news film, and referred to copious notes that Barrett provided describing his shot-by-shot intentions for levels of desaturation and contrast enhancement.

"Black Snake Moan" marks the second collaboration between Amy Vincent, ASC, and director Craig Brewer, who dreamed up and scripted an intimate story about two disparate characters in a rural town in Northern Mississippi. Samuel L. Jackson portrays a religious farmer who plays the guitar and sings blues songs about sin and salvation. Christina Ricci plays a young woman who is wracked by memories of being abused in her childhood. Their lives intersect at a bar, where he resolves to redeem her.

The film was mainly produced at practical locations in and around Memphis, Tennessee, by **Paramount** Classics. Brewer favored getting his story on film in one or two takes whenever possible, especially the song and dance numbers.

Vincent generally covered the action with two Panaflex cameras, recording master shots and close-ups on **KODAK VISION2 500T 5218** film. **FotoKem Film & Video** in Burbank provided both front-end lab and DI services.

After the 35mm negative was scanned at 2K resolution, Vincent timed the DI with colorist Walter Volpato for continuity while manipulating colors and contrast to augment moods. They added artful touches, including painting a pink edge on the skyline during an exterior scene staged at sunset, and subtle bluish overtones fading in and out of a shot where Ricci is running through a field under the influence of drugs.

The convergence of advances in film and DI technologies is also fostering a renaissance in Super 16 filmmaking. "Shortbus" is a low-budget

independent feature that explores the social and political mores of an underground subculture that thrived in Manhattan from 1999 through 2002. The film was directed by John Cameron Mitchell – in collaboration with cinematographer Frank DeMarco – at practical locations in the city, and timed with DI colorist John Dowdell at **Goldcrest Post New York** in Manhattan.

"We were able to handhold the camera and shoot in small, dark spaces with a very small crew—just me, a focus puller and a sound guy, without a lot of cables and technical people," DeMarco said. "The film (KODAK VISION2 7218 500T) has a nice edge and feels more organic than digital video. It's the right look for this film."

They covered some scenes with an 800-foot magazine on an **Aaton XTRprod** camera. That enabled them to cover scenes for 11 minutes without reloading. For longer takes, a second camera was available and ready to roll for another 11 minutes.

Dowdell converted the negative to a digital file with an **ARRISCAN** film scanner. Goldcrest uses Kodak Display Manager (KDM) software with a Panasonic DLP digital projector to mimic a print film look when images are projected in a DI suite.

Some filmmakers are shooting in multiple formats and media for aesthetic reasons and blending the images in DI. Nancy Schreiber, ASC shot "The Nines," a low-budget feature written and directed by John August. There are three stories with different characters played by same actors. August and Schreiber shot the film in 23 days, mainly at practical locations, including August's house in Los Angeles.

They decided that a handheld digital 24P camera was the correct aesthetic for a story that probes behind the scenes at a live TV show. They shot a segment calling for a slightly edgy documentary look in Super 16 format. The third story required cinematic production values. It was filmed in three-perf 35mm film format. Schreiber timed "The Nines" at LaserPacific using the facility's inDI™ system.

"The inDI system uses the economies of an HD tape workflow to trim costs while retaining nuanced production values," explained Glenn Kennel, LaserPacific Vice President of Motion Picture Services. "The film is scanned with a Spirit DataCine and converted to HDSR format (1920 x 1080 RGB 4:4:4), which incorporates advanced data compression technology, resulting in cleaner signals and truer colors than standard HD."

Schreiber timed the DI on a CRT monitor with colorist Pam Moore, and added final touches with Sowa in a half-day session in a cinema environment.

"Déjà Vu" is a tense mystery set in New Orleans, where a detective played by Denzel Washington tries to prevent a terrorist from bombing a ferryboat by traveling back in time. Tony Scott directed the film and Paul Cameron,



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ASC, was the cinematographer. They used a Genesis camera rated for an exposure index of 2,500 to cover expansive night exterior scenes, and also for an edgy look when the detective was traveling in time. Cameron used a palette of three KODAK VISION2 stocks to shoot other scenes in 35mm format in 1.85:1 aspect ratio. The film was processed at FotoKem with a skip-bleach process, and the conformed negative was scanned at 2K resolution.

Cameron says that the distinctive "Déjà Vu" look was nailed down during initial testing with dailies timer Shane Harris and DI colorist Stefan Sonnenfeld at **Company 3** in Santa Monica, California. He and Scott put final touches on the look in collaboration with Sonnenfeld, with whom they had worked on commercials for more than a dozen years. **P**

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