

ANDREW LESNIE, ASC, ACS
THE LAST AIRBENDER

YORICK LE SAUX
I AM LOVE

OUSAMA RAWI, BSC, CSC
THE TUDORS

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INCEPTION

WALLY PFISTER, ASC
WEAVES LUCID DREAMS





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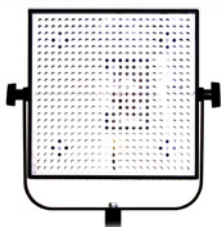
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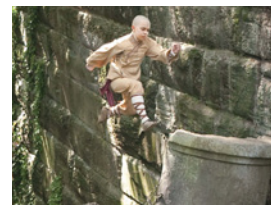
American Cinematographer

The International Journal of Motion Imaging

On Our Cover: Dom Cobb (Leonardo DiCaprio) leads a team of expert thieves who steal valuable secrets by invading and manipulating dreams in *Inception*, shot by Wally Pfister, ASC. (Photo by Melissa Moseley, SMPSP, courtesy of Warner Bros.)

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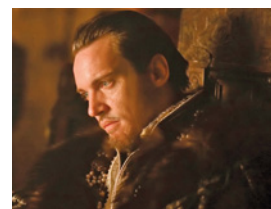
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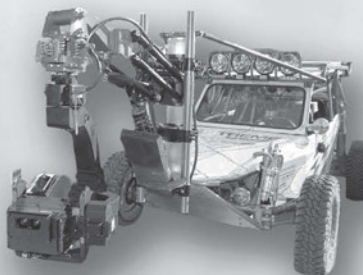
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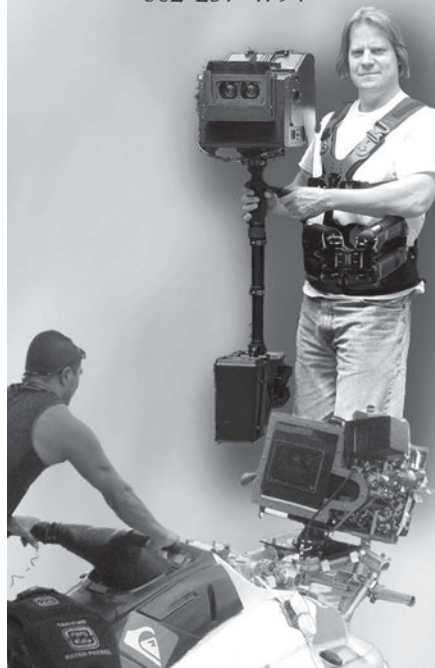


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THIS MONTH'S CONTRIBUTORS

Daniel Frankel

is a freelance writer
(Production Slate, p. 22).

Michael Goldman

is a freelance writer
("Crowning Achievements,"
p. 58).

Simon Gray

is a filmmaker and the
Australia correspondent for
the magazine ("Elements of
Power," p. 40).

David Heuring

is a former *AC* editor and writes
for Creative Communications
Services Public Relations,
whose clients include the ASC
("Dream Thieves," p. 26;
"Skiing into the Action," p. 30).

Jean Oppenheimer

is a film critic for National
Public Radio's "Film Week"
(Production Slate, p. 16).

Iain Stasukevich

is a New York correspondent
for the magazine (Short Takes,
p. 12; Post Focus, p. 68).

Gale Tattersall

has earned two ASC Award
nominations for the series
House, M.D. (Filmmakers'
Forum, p. 72).

Patricia Thomson

is a New York correspondent
for the magazine ("An
Emotional Rebirth," p. 50).

Jon D. Witmer

is the associate editor
(In Memoria, p. 86).

Editor's Note



From his very first feature, the 1998 thriller *Following*, director Christopher Nolan has favored challenging narratives. Quick trips to the concession stand during his movies are not recommended, as his films have put a postmodern spin on film noir (*Memento*), sleight-of-hand (*The Prestige*) and a popular superhero (*Batman Begins* and *The Dark Knight*). With his new film, *Inception*, Nolan takes viewers on another head trip, this time with a tale about thieves who steal valuable secrets by invading and manipulating people's dreams.

Nolan once again tapped Wally Pfister, ASC, his accomplice since *Memento*, to create unforgettable imagery. Keeping plot twists secret was of paramount concern; security on the set was so tight it made Area 51 seem like an open house. Fortunately, *AC*'s long and friendly relationship with the filmmakers earned us special access, though we half expected we'd submit to retinal scans at the stage door. What we saw onstage was intriguingly surreal, but, as Pfister tells *AC* contributor David Heuring ("Dream Thieves," page 26), "Often, the surrealism in the movie comes from the environment rather than the camerawork or photography. By maintaining a realistic feel, we believed we could introduce a bizarre or unsettling feel very subtly, without taking the viewer out of the story."

While Pfister was bending minds, Andrew Lesnie, ASC, *ACS* was busy bending the elements on M. Night Shyamalan's *The Last Airbender* ("Elements of Power," page 40). The production posed a number of challenges, but Shyamalan knew that Lesnie, who had survived Mount Doom on the *Lord of the Rings* trilogy, could handle them. "I wanted to tell a story with an intricate narrative on a larger scale than I've ever attempted," the director tells *AC*'s Simon Gray. "Andrew's balance of artistry and accessibility, as well as his fluency in the newest technologies, made him the perfect cinematographer for this movie."

Showtime's period drama *The Tudors*, which recently wrapped after four compelling seasons, proved equally ambitious. In an interview with Michael Goldman ("Crowning Achievements," page 58), Ousama Rawi, BSC, CSC notes that he spotlighted the show's handsome costumes and sets by applying feature-film techniques, including extensive camera movement. "These sets were so elaborate, large and interconnected that I felt it would be an injustice not to use them, so I'd pan the camera all over the place, up and down, tracking from room to room. That required more lighting and setting up, and the art department had to dress more sets."

Cinematographer Yorick Le Saux also created a lush look for the Italian melodrama *I Am Love*. Patricia Thomson's piece ("An Emotional Rebirth," page 50) offers a feast of details about the film, in which the wife of a wealthy businessman has a romantic affair with a humble chef from the country. Describing the approach he took with director Luca Guadagnino, Le Saux offers, "From the beginning, we talked about the two worlds. The world of the Recchis is strict, with more contrast, wide angles and a colder feel in the characters' relationships. For the countryside, Luca wanted natural light, longer lenses, more close-ups and no depth-of-field, and we strove to be open to catching everything that happened on set."

A stylized, handwritten signature of Stephen Pizzello in dark ink.

Stephen Pizzello
Executive Editor



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President's Desk



"Just what do you all do at the Clubhouse, and why do you need one?"

Every so often I get that question, and I don't know that I've really ever given a comprehensive reply because the scope of the ASC's activities, and how much having the Clubhouse affects them, is a massive topic.

The ASC Clubhouse is one of the oldest buildings in Hollywood. Since we took possession of it in 1936, from silent-film star Conway Tearle, it has gained almost mythic status in the motion-picture industry. In addition to housing the oldest organization in the American film industry, it serves as a museum for the tools used to create moving images, an archive of the methods and practices used by some of the world's greatest cinematographers, and most importantly, an inspiration for those who intend to make the craft their life's work. It is the house where cinematography lives, the iconic representation of the very best visual artists in the business. There is literally nothing like it in the entire world.

Almost a decade ago, the ASC began discussing how to renovate the building to better suit our needs without losing the classic feel of the architecture and the distinct visual accents that everyone has come to expect when they walk through its doors. The construction process began in earnest four years ago, when we moved out to accommodate soil tests, wall and ceiling exploratory excavations, and other structural examinations necessary for a building the Clubhouse's age. At that time, the Academy of Motion Picture Arts & Sciences generously helped us by offering office space for ASC and *American Cinematographer* staff so our operations could continue.

The building project needed to be chaired by an ASC member who knew the history of the place and why it was important to preserve what made it the Clubhouse. Owen Roizman, ASC rose to the challenge and spent thousands of hours poring over blueprints and design spec sheets filled with millions of minute details, any of which could have derailed the project if they had not been correct. ASC honorary member Brian Spruill, whose memory for detail was invaluable when we were trying to recall whether a certain type of electrical fixture that was discussed seven months earlier matched the one that had been ordered, aided Owen in this endeavor. And because you can't enter into something of this scope without considerable capital, George Spiro Dibie, ASC took on the role of Fundraising Chairman and became a crucial part of the process.

The newly refurbished ASC Clubhouse enables the Society to expand its educational outreach not only domestically, but also internationally. New generations of filmmakers will benefit from the kinds of programs made possible by this renovation and will perpetuate the spirit of artistry that resides within its walls. But most importantly, it gives us back the heart and soul of the Society. When we hang out in the lounge, meet in the boardroom, or chat in the great room's seating area, the mythical magic that exists within the Clubhouse walls is made real. Because it is truly a clubhouse, a place where members can relax, the kinds of monumental ideas that result from the interaction we share there can seem to happen almost by accident. Whether it be a new lighting effect that one of us discovered on a film or the exploration of technologies that will shape the future of the products the industry will use, being in that building and experiencing the camaraderie and openness with which ASC members express their ideas is akin to being in that cornfield in *Field of Dreams*. You just can't believe it can get any better.

Cinematographers of the future, your unending quest for excellence in your craft does have a pinnacle, and that is the feeling you get every time you walk through the gates of the ASC Clubhouse and feel the spirit of the many great cinematographers who came before you. To my contemporaries in the ASC, who share your stories of those little visual things you did that may end up being iconic images in motion-picture history, I am pleased to say we've got our mojo back. Welcome home.

Michael Goi, ASC

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Short Takes

After getting out of the slammer, Lady Gaga's onscreen alter ego stops at a roadside diner in the music video for "Telephone," directed by Jonas Åkerlund and shot by Pär Ekberg.



"Telephone" Generates Caged Heat

By Iain Stasukevich

The music video for Lady Gaga's "Telephone" continues a storyline that was begun in her video for "Paparazzi," in which she plays a waning pop star who reclaims her fame when she murders her double-crossing boyfriend. In "Telephone," she is locked up in the slammer. If "Paparazzi" was a riff on a Hitchcock thriller, then "Telephone," which co-stars singer Beyoncé, comes across like a tribute to tough-chick flicks such as *Caged Heat*.

"Telephone" was directed by Jonas Åkerlund and shot by Pär Ekberg, who first collaborated in the early days of their respective careers in their native Sweden. When Åkerlund moved to the United States, Ekberg stayed behind and built an impressive commercial reel. "In Sweden, you get used to working with small teams and limited budgets," says the cinematographer. "We're used to doing more with less, so I've become very efficient. That made a bigger production like 'Telephone' easy to do."

He hastens to add, however, that there was an enormous amount of pressure to shoot as quickly as possible. Two days of principal photography were slated, and the shoot required multiple locations, dance numbers, many extras and two very busy leading ladies. Åkerlund and Ekberg spent most of their prep time scouting locations and poring over the script and shot lists. Mindful of the short schedule, Ekberg designed a modest approach to the lighting. "I

wanted to light in a simple fashion so I could shoot a lot without a big pre-light, and then add a true beauty light for the artists," he explains. "One of my biggest concerns was keeping a natural look while doing justice to whatever outfits or makeup the talent was wearing, and whatever details the props or art department designed."

"Telephone" begins in a prison, and the crew shot these scenes in an oft-used Los Angeles location where they had to work around art-department leftovers from previous productions. All of the prison interiors were lit with a mixture of HMIs and fluorescent fixtures. Ekberg positioned 18K HMIs on a ledge outside the grimy prison windows, which were also covered with a layer of makeshift diffusion, translucent plastic floor covering. 4-by-4 Kino Flos were used for fill in cells and holding pens. For Lady Gaga and Beyoncé's close-ups, Ekberg used a camera-side Briesse umbrella light holding a 1.2K HMI. "The Briesse is a traditional tool for still photographers," he says. "It gives you soft but directional bounce light."

After Beyoncé bails Lady Gaga out of jail, the duo hits the road, arriving at a roadside diner somewhere in the California high desert. For the diner scenes, the filmmakers used The Four Aces Motel in Palmdale, Calif. Scenes in the diner and the adjacent motel were all filmed on the first day of shooting and incorporated the same lighting approach used in the prison sequence: HMIs outside windows, 4-by Kino Flos inside and a Briesse beauty light for close-ups and singles. ➤

Photos by Lauren Dukoff and Jason Hamilton, courtesy of Serial Pictures and Pär Ekberg.

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Above: Gaga bursts into a dance number after poisoning the diner's food. Right: Ekberg lines up a shot in the prison, which he lit with a mixture of HMIs and fluorescent fixtures.



The prison and diner sequences both feature dance numbers, which proved a challenge to photograph within the confines of the locations. Three cameras — an Arricam Studio, an Arri 435 and an Arri 235 — ran almost constantly; the operators were Ekberg, Åkerlund and 2nd-unit director of photography Erik Sohlstrom. (They used Arri Master Primes and Angenieux Optimo 28-76mm, 17-80mm and 24-290mm zoom lenses, all provided by The Camera House.) With the three cameras, the team was able to capture about 150

setups per day. "The actual operating is a short part of our day," Åkerlund points out. "Instead of doing a big dance number 20 times, we'll do it 10 times with two cameras, one wide and one close. There is constant communication because I rarely have a chance to go back to the monitor to see what we did."

"In these situations, you light the location once and keep the gear you have to move around to a minimum so you can move [quickly]," observes Ekberg. Even though the grip-and-electric truck was

stocked with additional fixtures for pre-rigging, the cinematographer typically used no more than six lights at any time at the diner. "I'm usually pretty specific with the lights I use," he notes. "I do floor plans for the gaffer and the grips. That's the normal way we work back home in Sweden: everything is tight and time is precious. You can't change your mind because you don't have the time."

A kitchen sequence in which Lady Gaga concocts a batch of poisonous condiments came together late in the game, when the production couldn't lock in a location large enough to accommodate a dance routine. "The set we ended up using for the kitchen was a storage room in the prison," says Ekberg. "That was the hardest room to light with a natural look. It was a bright room with a lot of tiling, so we went with a more clinical feel, like a mix of a kitchen and a laboratory. I put a couple of Condors outside with HMIs and lit the rest of it with 4-by-4 Kinos and the Briese."

Most of "Telephone" was shot on Kodak Vision3 250D 5207, which Ekberg calls "one of my favorite stocks. I'll shoot it for interiors and exteriors, night or day, and it always looks great. I've even shot without filtration under tungsten conditions. You can do anything with it." (He used Kodak Vision2 50D 5201 for some day exteriors.)

Going into the telecine at Company 3, where they worked with colorist Dave Hussey, Ekberg and Åkerlund agreed that "the image should be clean and true in color, with the whites white and the blacks black," continues Ekberg. "I might add some grain and some punch to the colors and contrast in telecine, but even when I try to go crazy with the grading, I always end up coming back to something closer to the original negative."

Since finishing "Telephone," Åkerlund and Ekberg have continued to collaborate on other projects. "I've only worked with Pär and a couple of other guys throughout my career," notes the director. "I have high expectations, and I put a lot of pressure on all my collaborators because working together can be a lot like a relationship: if you get too comfortable, you end up taking the other person for granted." ●

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Production Slate

When a finalist in the World Series of Poker goes missing, Dr. Cal Lightman (Tim Roth) travels to Sin City to put his deception-detecting prowess to the test in the *Lie to Me* episode "Fold Equity." The series' second season has introduced considerably more color and longer lenses than were employed in season one.



Telltale Tics

By Jean Oppenheimer

When the Fox television series *Lie to Me* was renewed for its latest season, the show's second, the network asked the creative team to make some changes. A switch from film to digital capture was mandated, and director of photography Sidney Sidell was brought aboard to share the workload with Joe Gallagher, who had worked on the first season.

Season one had established a monochromatic look. The camera favored wide-angle lenses and was almost always handheld; dollies were seldom used and Steadicam was virtually banned. For the second season, more stylized visuals were the goal. The first installments of the recent BBC miniseries *Wallander* (shot by Anthony Dod Mantle, BSC, DFF) became a reference for composition and use of color, and, accordingly, *Lie to Me*'s team replaced white with color and handheld with dollies and Steadicam. Longer lenses were also employed, and to introduce more of a natural-light feel, windows were installed where walls had previously stood.

The series revolves around Dr. Cal Lightman (Tim Roth), a

psychologist and "deception expert" who studies facial expressions and body language to determine whether a person is lying. His firm, The Lightman Group, frequently assists law-enforcement and government agencies. In a soundstage at Fox Studios, The Lightman Group offices occupy some 3,000 square feet. In addition to adding more windows in the set, the production has incorporated skylights along the offices' central hallway, the site of many walk-and-talks. "We placed 20Ks outside the windows and hung 12Ks above the skylights," reports Sidell, whose previous credits include the series *Life* and *Lyon's Den*.

Perhaps the biggest adjustment for the camera department was the switch to digital acquisition. After testing a number of cameras, Sidell lobbied for the Arri D-21. "It delivers a more film-like image," he attests. "It has softer edges; it can hold detail in the whites; overexposure does not clip as quickly; and it has an optical viewfinder, which I much prefer to an electronic one because I like to light through the camera, and operators can get an accurate image for framing and focus.

"Arri has worked out all the kinks from the [D-20]," he continues. "The D-21 runs cooler, has an adjustable shutter and is capable of variable frame rates. Furthermore, I don't like using a

Lie to Me photos by Isabella Vosmikova, courtesy of Fox Broadcasting Co.

digital-imaging technician, and I don't have to with this camera; [we used it with] an onboard digital recorder that helps keep the camera self-contained." The Camera House in North Hollywood supplied the new camera package, which includes two D-21s, three zoom lenses for each camera — an Angenieux Optimo 24-290mm, an Optimo 15-40mm and an Optimo 17-80mm — and a full set of Cooke S4 primes.

Gallagher, too, quickly became a fan of the D-21. "I'd use it again in a second," enthuses the cinematographer, whose previous credits include the series *Deadwood* and *John From Cincinnati*. But one wrinkle had to be ironed out. Gallagher explains, "The D-21 has a base sensitivity of 200 ASA, and lighting for that wasn't practical for us. We went to our colorist at Encore Hollywood, Pankaj Bajpai, who suggested applying a 400-ASA LUT. We set our meters as if for 400 ASA and lit interior scenes accordingly, but the camera recorded at 200 ASA. For exteriors, Pankaj could apply either a 200-ASA LUT or the 400-ASA one.

"With the 400-ASA LUT, I used a touch more fill to keep the blacks rich," adds Gallagher. Both cinematographers regularly shoot with a 1/4 Schneider Black Frost filter on the lens, "primarily to take the edge off of shooting digital," he adds. When filming women, both cinematographers occasionally employed a Mitchell A filter.

The switch to the D-21 also required an adjustment to the night look used in season one, which relied on the use of Heavy Amber gels. With digital capture, the warm orange became a more unflattering hue, so Gallagher and Sidell switched to Golden Amber, which the D-21 renders as a warm hue similar to the first-season look.

A favorite lighting setup this season was in a huge warehouse, the meeting place of an underground fight club. "It was a massive space," Gallagher says of the location. Inside the warehouse, a circle of cars surrounded two combatants, with headlights and fog lights providing a key source that the crew augmented with Par 64s. Gallagher added color with the fill and background lighting. "First," he says,



Assisting Lightman in his work are FBI Agent Ben Reynolds (Mekhi Phifer, top) and Dr. Gillian Foster (Kelli Williams, bottom).

"my rigging gaffer, Tony Varoulo, placed a bunch of 4K Zip lights gelled with Storaro Yellow [Roscolux 2003] about every 10 feet around the perimeter of the warehouse. We backed them into corners and put them directly in the shot, facing the camera. The stands were all blacked out, so it looks as if the lights are bolted to the walls. Storaro Yellow is great for backlighting the smoke we pumped in.

"We also placed 40 2K nooks gelled with Rosco Industrial Green on the

floor, some of them shooting up through staircases," he continues. "There was all this wrought-iron and metal and industrial stuff lying around that we could shoot through, and it created wild, hard shadows everywhere."

Although it was a night scene, it was shot during the day, and a bank of 20'-wide, two-story-high windows presented an obvious problem. Some of the windows were blacked out with Visqueen, which Gallagher preferred over

Top: Cinematographer Joe Gallagher checks his meter. Middle: The crew readies two Arri D-21 cameras for a setup in the episode "Pied Piper." Bottom: Atmospheric lighting surrounds Foster in a scene from the episode "Delinquent."



Duvelty in this situation. "Visqueen has a little sheen," he says. "You can hit it with light and get reflections and kicks off it." Other windows were covered with huge panels of clear Visqueen that were painted with thick coats of red, rust, yellow and sienna. With the sunlight pouring through the painted Visqueen, Gallagher notes, "they looked like old, industrial windows that were getting hit by streetlamps, which is exactly the look I wanted."

The location was introduced with a crane shot that began with the camera on the floor as Lightman walked into the foreground. Working with a 50' Technocrane, "we just started booming up," says Gallagher. "You start to see the car headlights, then the people. We keep craning up, and you see all these giant streaks of yellow across the lens [emphasized by a Streak filter]. Then the fight begins inside this huge circle of cars and people."

Gallagher notes that series production designer Victoria Paul deserves a lot of credit for this scene's success — and for the show's overall look. "She's a great collaborator and has done a fantastic job," he says. Sidell enthusiastically agrees, adding that Paul works with both cinematographers to select two prominent colors for each episode.

Sidell shot this season's first episode, which concerned a young woman (Erika Christensen) with multiple personalities who is haunted by visions of a murder. The opening sequence comprised an eerie montage of grainy images. Sidell recounts, "We wanted to go extreme with the images. Dan Sackheim directed the episode and wanted to do a bleach-bypass look, but I suggested we use a hand-cranked Bolex instead. When you get the rollout, the camera changes frame rate and produces flash frames and glitches. I wanted reversal stock but couldn't get it, so we used Kodak Vision2 500T 7260 for night exteriors and Vision3 250D 7207 for day interiors, pushing them both two stops with the intention of manipulating the look further in post.

"The sequence is short," he continues. "The first images were shot by



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Top left: The Cube is one of the show's most striking — and challenging — sets. Top right: Cinematographer Sidney Sidell considers his next move. Bottom: The crew readies a shot on Eli Loker (Brendan Hines) outside of The Cube.



an operator running down the street, so they have an intentionally shaky feel. The scene cuts to an interior, a light suddenly comes on, and the camera — with a fish-eye lens — starts turning and spinning, closing in and pulling back." Sidell finessed the sequence with Bajpai during the telecine.

Lie to Me's most striking set has been dubbed "The Cube" — a 12'-square room with glass on all sides that serves as a kind of observation room for The Lightman Group. Avoiding reflections was a challenge throughout the first season, so

for this season, the glass walls were gimbaled, and Sidell suggested that at the touch of a button, the panels should transition from clear to white, an effect realized with CGI. Viewers were introduced to the concept in this season's first episode, after which it wasn't mentioned again. Now, when characters enter The Cube, the panels are either all white or all clear; when the cube is white, each panel requires a 10K for backlight. Putting the panels on gimbals created a gap along the floor that Sidell filled with daylight-balanced fluorescent tubes. He also added a strip of blue

neon in the ceiling for a touch of color.

In separate interviews with AC, both cinematographers extol the contributions of their shared crew, which includes A-camera operator Loren Yaconelli, B-camera/Steadicam operator Barnaby Shapiro, 1st ACs Bob Heine and David Seekins, gaffer Chris Strong and key grip Sandy Williams. They also praise Bajpai for his work on final color. "Not only does Pankaj have an amazing knowledge of the digital process, but he also has an incredible aesthetic," says Sidell. (The production's digital magazines are downloaded to hard drives as DPX files, and Bajpai grades the images in Log-C format using Autodesk's Lustre color-grading system.) Gallagher adds, "After seeing what Pankaj can do on the Lustre, I now light scenes based on what I know he can do later. That's ultimately how you create a look that can't be duplicated; it's not just about what you do in-camera, it's also about where you can go from there."

TECHNICAL SPECS

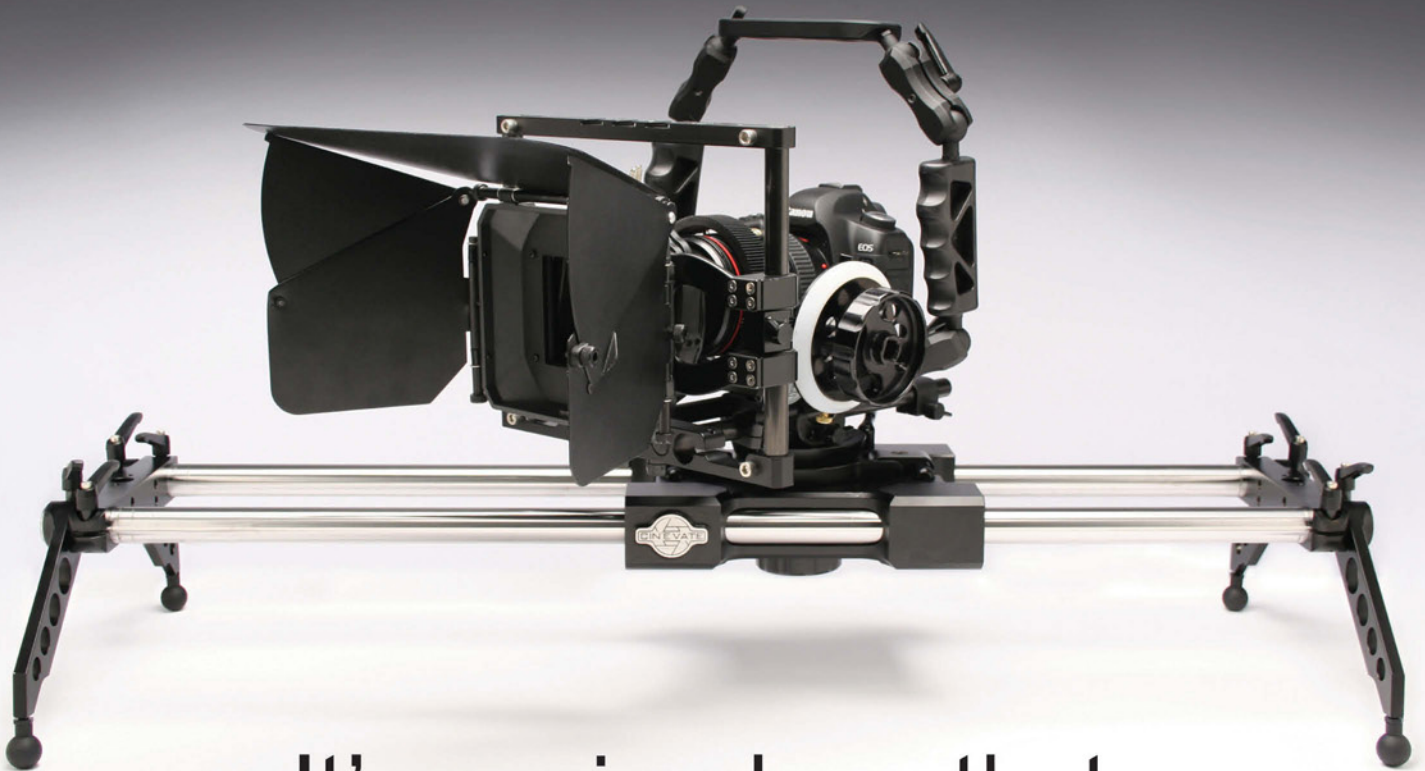
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Digital Capture

Arri D-21

Cooke and Angenieux lenses





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Amy Stanton (Kate Hudson) doesn't realize she's courting a killer when she gets romantically involved with small-town cop Lou Ford (Casey Affleck) in *The Killer Inside Me*.

A Lawman Gone Wrong

By Daniel Frankel

It took director Michael Winterbottom and cinematographer Marcel Zyskind about seven weeks to shoot *The Killer Inside Me* in various small-town locations throughout Oklahoma, but the quest to adapt novelist Jim Thompson's pitch-black exploration of a pathological mind actually began five decades ago. In the 1950s, Marlon Brando was attached to star as Lou Ford, the baby-faced Texas lawman with hidden proclivities for rough sex and brutal murder; Elizabeth Taylor was considered for Ford's girlfriend, Amy, and Marilyn Monroe for the hooker Ford falls for and then murders.

That plan fell apart after Monroe's death, and over the years, a number of other plans were hatched before the project finally came to Winterbottom. His film stars Casey Affleck as Ford, and Jessica Alba and Kate Hudson as the unfortunate women in Ford's life.

Winterbottom is unapologetic about the film's brutality, which first made waves at this year's Sundance Film Festival.

"Jim Thompson's prose is very simple and very direct, so my approach was to keep the production very simple and try to shoot simply and directly," he says. "I think Marcel did a great job."

The Killer Inside Me is Zyskind's ninth collaboration with Winterbottom, following such features as *A Mighty Heart*, *Tristram Shandy: A Cock and Bull Story* (AC Feb. '06) and *Code 46* (AC Sept. '04). The pair have shot most of their collaborations digitally, "but we both knew we wanted to shoot this on film," says Zyskind, who chose three Fuji stocks, Eterna 500T 8573, 250D 8563 and Super F-64D 8522, for the job. He adds, "This is actually only the second movie we've shot on 35mm [after *Code 46*]. On some of our projects, the budget has dictated digital, but we had the money to shoot film this time, and we preferred the look of film for this material."

The filmmakers shot 3-perf Super 35mm for a final aspect ratio of 2.40:1. Their camera package, rented from Arri CSC, comprised Arri Studio and Lite cameras; Zeiss Ultra Prime lenses; and Angenieux Optimo 15-40mm, 17-80mm

and 24-290mm zoom lenses. (The 15-40mm was the favorite.) Zyskind used a 1/8 Tiffen White Pro-Mist on the lens throughout the shoot. "I find that gives just the right amount of softness around windows, edges and highlights," he observes. "We wanted this to have a slightly softer look."

Lighting and crew were kept to a minimum, as is typical of Winterbottom's work. "This budget [\$13 million] was a lot of money for us — I don't remember having a dolly or a crane before on Michael's films — but Michael tends to keep things to a minimum," says Zyskind. Texas-based 1st AC Robert Rendon adds, "[Winterbottom] is insistent on a no-rehearsals, no-marks kind of style, almost like a documentary. He mandates a very small camera footprint on the set. He wants to make it very comfortable for the actors, as though we're not even there. He often had us roll film and catch the actors on a break, sitting under a tree. Catching those moments is a lot of his style."

Originally slated to begin shooting in January 2009, the film experienced

The Killer Inside Me photos by Michael Muller, courtesy of IFC Films.



Director Michael Winterbottom (left) and cinematographer Marcel Zyskind set up a car scene on location outside Santa Fe, New Mexico.

several delays because of the global financial crisis. "The toughest challenge on this film was just getting started!" recalls Zyskind. "We were sitting at home from January through the middle of April, always thinking we were getting ready to leave." Shooting finally commenced in the spring, which meant better natural light. "That worked out well because in terms of lighting, Michael and I try to be as naturalistic as possible," the cinematographer notes. "Lou's house, for example, was a practical house that was quite dark, and we kept it that way. We had the walls painted to lighten it up a little, but the main light in there was coming from outside." Key grip Jon Shryock adds, "We used 18K, 12K and 6K HMIs outside, and when we were inside, we used a few Ultra Bounces to let a little sunlight in. We wanted to make it look like it was all natural light; everything was shot at the bottom of the curve. We almost could have done this movie without a generator!"

As an example of the filmmakers' low-light aesthetic, Zyskind cites a night scene that shows Ford meeting with union tough guy Joe Rothman (Elias Koteas) in an office. "That scene is lit by a 100-watt bulb hanging from the ceiling and the practical desk lamp, which had a 40-watt bulb, in the corner," he says. "That makes it sort of murky and slightly dingy. It creates a nice tension."

The film's most controversial scene,

in which Ford beats Joyce (Alba) to death, incorporates numerous cuts and relies heavily on the prosthetic makeup created by Richard Redlefsen, who made the necessary modifications to depict Alba's continually degrading face. For this scene, Winterbottom had Zyskind stay very close to the actors and mingle Steadicam and handheld work. "The dialogue before the violence was covered with a static shot from across the room, then we did Steadicam over-the-shoulders on both actors, and once Lou threw the first punch, we moved into handheld," says the cinematographer. "Then we went back to Steadicam for the aftermath."

"I've used Steadicam and handheld this way a lot with Michael, and he knows I know how to do it," he adds. "It's very effective for certain kinds of scenes. Unfortunately, our schedule was too tight to fly a Steadicam operator in, so I did all the Steadicam work myself."

"Handheld shots were usually 2 or 3 feet from the actor, and focus at that distance with a wide-open aperture becomes very critical," notes Rendon. "There were no rehearsals, and no shot was ever repeated; we moved too quickly and were too close to refer to a cine tape, and checking [focus] with the onboard monitor was impossible in the dimly lit scenes. I'd ride alongside Marcel and whisper, 'Does it look okay?' After a while, we developed a nonverbal communication system. It was all a dance, and after a few

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Top:
Winterbottom
(center) surveys
the landscape
as the camera
crew prepares
to capture a
shot of a
billboard
advertising one
of the tale's key
characters,
construction
tycoon Chester
Conway (Ned
Beatty).
Bottom: Ford
develops a
dangerous
fixation on
prostitute Joyce
Lakeland
(Jessica Alba).



weeks, we had it down.”

Over the course of their many collaborations, Winterbottom and Zyskind have created their own unspoken code, and new crewmembers can find it a challenge to keep up. “There were days when Michael never stopped running — he didn’t eat or stop to use the bathroom!” recalls Shryock. “On the first day of shooting, we all dropped about 5 pounds of water weight!”

The production’s footage was processed by Technicolor Los Angeles, and

the team there also did a 4K scan of the negative when the filmmakers were ready to begin the final grade. Winterbottom and Zyskind did the final timing at Technicolor London with colorist Dan Coles. “During our testing in prep, Michael and I decided we wanted the film to have a warm, slightly magenta look, so that’s what we worked toward,” says Zyskind.

TECHNICAL SPECS

2.40:1

3-perf Super 35mm

Arricam Studio, Lite

Zeiss and Angenieux lenses

Fuji Eterna 500T 8573, 250D 8563;

Super F-64D 8522

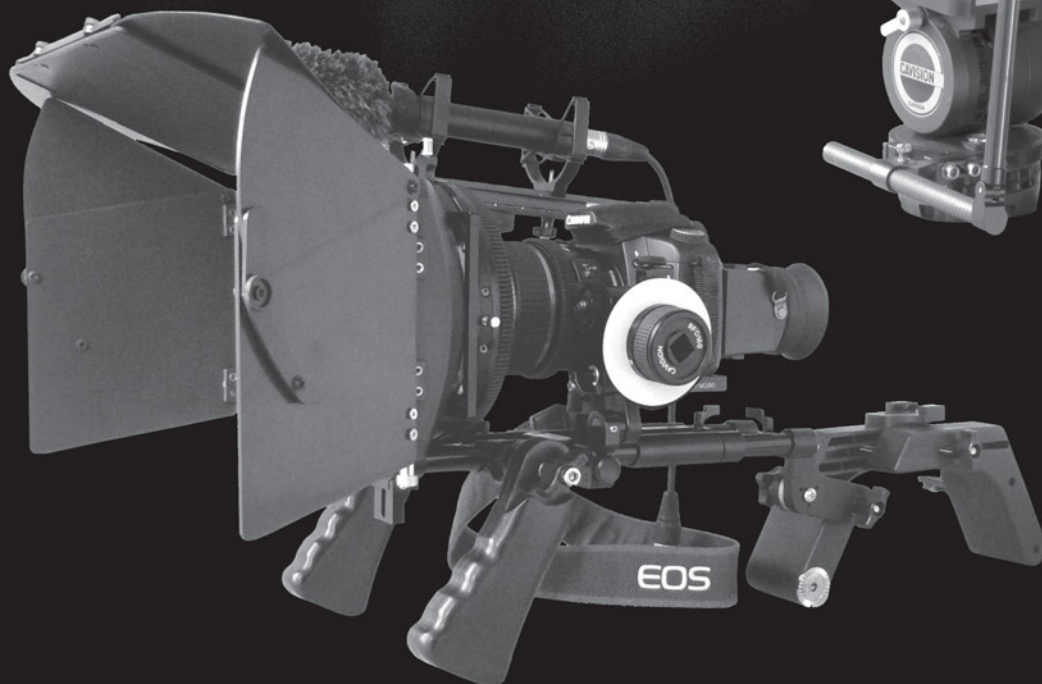
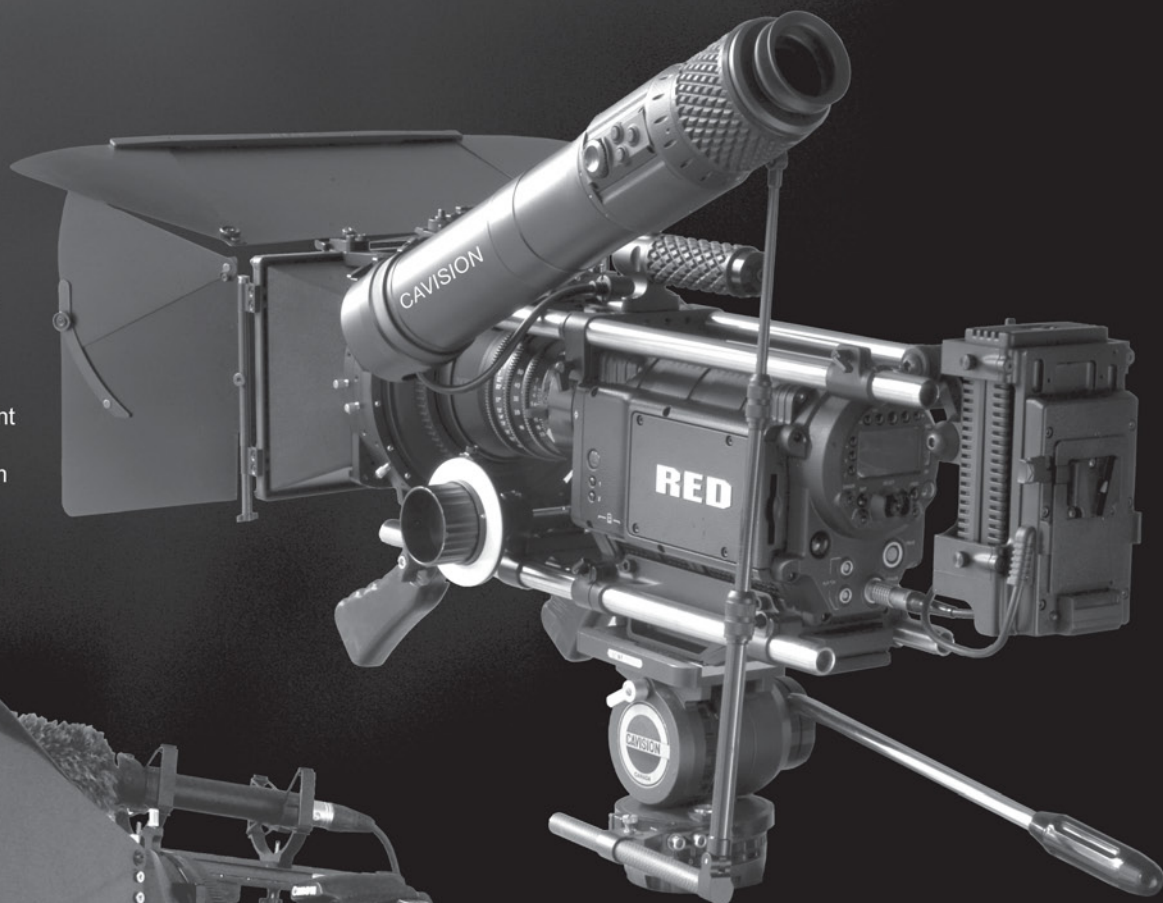
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Wally Pfister, ASC
and Christopher
Nolan offer *AC* an
inside view of the
sci-fi thriller
Inception.

By David Heuring

•|•

Dream Thieves

Tight security is in place on Universal Studios' Stage 12 as a film crew readies for a take on a surreal-looking set: a large, high-ceilinged vault with black walls divided into blocks by a grid-like pattern of thin, white lines. More than 100 space lights are positioned overhead, above a layer of Full Grid and another layer of muslin; the light they cast is neutral, sterile and shadowless. Actor Cillian Murphy kneels on the floor. At the call of "Action!" two cameras roll, one capturing the scene in anamorphic 35mm, the other recording the action in 65mm. Suddenly, a crack appears in the floor, and an irregular chunk of the set collapses and falls away, sending Murphy and some set pieces plummeting through a hole. Dust rises into the set as director Christopher

Nolan yells, "Cut!" A moment later, hydraulic pistons lift the collapsed floor back into position for take 2.

It's an attention-grabbing moment on the set of *Inception*, Nolan's latest collaboration with director of photography Wally Pfister, ASC. The film, also written by Nolan, presents the experience of dreaming and takes it to dramatic extremes: a character can invade the dreams of others, multiple characters can be linked and experience the same dream world simultaneously, and dreams can be manufactured and altered in order to manipulate the dreamer. The main character, Dom Cobb (Leonardo DiCaprio), infiltrates dreams for profit, and his accomplishments in the field of corporate espionage have made him an international fugitive.

As with so many of their ventures, the touchstone for Nolan and Pfister was photographic realism. “The underlying idea is that dreams feel real while we’re in them, which is actually a line in the film,” says Nolan, speaking to *AC* after the production wrapped. “That was important to the photography and to every aspect of the film. We didn’t want to have dream sequences with any superfluous surrealism. We didn’t want them to have any less validity than what is specified as being the real world. So we took the approach of trying to make them feel real.”

“There are times when the characters don’t know what they’re seeing is a dream, so the visual difference between reality and dreams had to be seamless, except in specific places where we wanted to communicate that difference to the audience,” notes Pfister. “Often, the surrealism in the movie comes from the environment rather than the camerawork or photography. By maintaining a realistic feel, we

believed we could introduce a bizarre or unsettling feel very subtly when we wanted to, without taking the viewer out of the story.”

Pleased with what they were able to achieve by mixing anamorphic 35mm cinematography with 15-perf 65mm on *The Dark Knight* (*AC* July ’08), Nolan and Pfister decided to test large formats for some sequences in *Inception*. “We’ve always been inter-

ested in exploring the highest resolutions and highest-quality imaging formats,” says Nolan. “We decided to use 35mm anamorphic as our main format on this film because it’s the most controllable, the cameras are reasonably lightweight and very efficient, and we’ve got a lot of experience with it. But we also decided we could get some value out of mixing large-format photography into some of our biggest



Opposite: Expert thief Dom Cobb (Leonardo DiCaprio) steals valuable information by invading and manipulating people’s dreams. This page, top: In this frame grab, which shows a portion of the set *AC* visited, Eames (Tom Hardy) prepares to enter a “strong room” that represents the deeply held secrets in another man’s mind. Bottom: Cinematographer Wally Pfister, ASC meters the star on location at University College London.

Dream Thieves



Above: Cobb and his cohorts travel to Mombasa, Kenya, to visit a secret facility where sleep control is pushed to its limits. Right: Director Christopher Nolan (far left) and Pfister block out a handheld scene with DiCaprio.



set pieces and some of the more formally constructed scenes.”

Imax was ruled out because the filmmakers decided that extensive handheld camerawork would be a cornerstone of their visual approach. “We wanted to do a lot of handheld in many very confined locations to get a documentary feel,” says Nolan. “And

there was a lot of physically challenging work planned.”

Shooting film, however, was always a given. “Film has an enormous amount of exposure latitude and dynamic range, which gives us infinite creative flexibility in creating images,” says Pfister. “I can underexpose it by 3 stops and overexpose it by 5 stops

within the same frame and see the entire spectrum on the screen. That’s simply not possible in any digital format I’ve seen. Every digital camera is trying hard to emulate 35mm film, and there’s a reason for that.”

In their quest to find the most suitable large format for *Inception*, the filmmakers met with industry legend Douglas Trumbull and took a look at Showscan’s latest iteration. They also examined Super Dimension 70, a system devised by Robert Weisgerber that allows shooting and projecting at 48 fps. “Strangely, Super Dimension 70 images have an almost hyper-HD quality, despite the phenomenal resolution,” says Pfister. “We just couldn’t get around that.” They also screened a presentation created by ASC members Bill Bennett and Kees van Oostrum that mixed wide shots captured on 65mm with closer shots made on 35mm. “We saw that the 35mm and 65mm footage cut together well,” says



Above: Saito (Ken Watanabe) grabs Nash (Lukas Haas). Right: Cobb gains the upper hand.



Pfister. “They got great detail and resolution on the wide shots, where objects in the frame appear smaller. Seeing that encouraged us to use that model.” The filmmakers eventually decided to add both 65mm and VistaVision 8-perf 35mm to the mix for *Inception*. (VistaVision was used for aerial cinematography, shot by Hans Bjerno.)

In a bit of a departure from their previous work, they also decided to do extensive high-speed photography, which Pfister accomplished mainly with the Photo-Sonics 4ER, which works with Panavision lenses and allows frame rates of up to 360 fps, and the Photo-Sonics 4E Rotary Prism, which goes as high as 1,500 fps. (A PanArri 435ESA and a Vision Research Phantom HD camera were also used for some high-speed work.) “There are very few high-speed shots in anything I’ve done because I feel it is inherently unreal,” says Nolan, “but it’s an essential component of *Inception* because there is a very specific temporal relationship between the dream world and the waking world. We wanted to use high-speed photography and speed ramps for narrative effect as opposed to aesthetic effect.”

Knowing that he would be contending with an array of cameras, formats and the stop loss associated with high-speed cinematography, Pfister decided to limit his film stocks to two: Kodak Vision3 500T 5219 and 250D 5207. “I don’t change stocks to create different looks,” he notes. “I know that works for some cinematographers, but I prefer to change the lighting or exposure, for example. I like the simplicity of using the same stocks. In day-exterior situations, we’d start out with an ND.6 or .9 and pull the filters out as the light waned.”

The production filmed in six countries, beginning in Japan, and Pfister depended on his regular crew throughout the 92-day shoot: camera assistants Bob Hall and Dan McFadden, gaffer Cory Geryak, and key grip Ray Garcia. (In the United Kingdom, key grip Ryan Monroe was an important collaborator.) Imagica in Tokyo, LTC in Paris, and Technicolor facilities in London and North Hollywood were tapped for processing the 35mm footage; throughout the shoot, Technicolor’s North Hollywood lab processed the 65mm. (Iwerks in Burbank created 35mm anamorphic

reduction prints from the 65mm negative for dailies.)

After two days in Japan, where the schedule included aerials and some bullet-train exteriors, the filmmakers moved into the airship hangar in Cardington, England, where they had shot major portions of *The Dark Knight* and *Batman Begins* (AC June ’05). This became home base for prepping the rest of the shoot. The hangar housed some spectacular sets, including a hotel bar that could be tilted 30 degrees and a massive elevator shaft laid out horizontally. Special-effects supervisor Chris Corbould oversaw their construction. “Chris has been working with us since *Batman Begins*, and he’s an absolutely brilliant engineer and artist,” notes Pfister. “It’s hard to imagine doing a film of this scale without him.”

Another Cardington set, a hotel hallway, comes into play during a scene that features some zero-gravity action. The hallway was built twice, with identical interiors seen by the camera. In one case, the entire hallway vertically rotates 360 degrees, like a rotisserie, with the camera looking into one end and moving either independently (via a Technocrane) or mounted to the set on

•| Skiing into the Action •|

To create a particularly hair-raising action sequence in snowy mountains for *Inception*, director Christopher Nolan wanted to capture spectacular shots on the slopes and from the air in the Canadian Rockies. Aerial cinematographer Hans Bjerno worked with a Beaucam VistaVision camera for helicopter shots, and action-sports cinematographer Chris Patterson hit the slopes with a PanArri 235 to capture the close coverage.

“Fundamentally, I wanted every shot to be moving,” says Nolan. “I wanted to base the photography in these scenes on what we’d done with vehicles in *The Dark Knight*. I wanted to always have a point of view for the camera, to

always be moving with the action and putting the audience into the experience. Chris was able to pull off some really extraordinary shots. He was very receptive to putting more and more movement into shots, even little storytelling shots. That footage all cut together with what I like to call a ‘tumbling forward’ quality, where you’re being pulled along with the action.”

Patterson’s PanArri 235 was equipped with 200’ 2-C magazines. The lens was usually a 28mm, 35mm or 75mm Panavision G-Series anamorphic prime. Primo 48-550mm and 270-840mm zoom lenses were used to capture some shots from a distance. “I approach it like bike racing — shaving

ounces keeps me shooting longer and helps me maintain better control,” says Patterson. “I have the camera supported for handheld with a lightweight rig made by Red Rock Micro that includes a [Preston wireless] FIZ remote follow focus. My first AC, Scott DaHarb, is familiar with my high-energy shooting, and he skis along behind me, pulling focus. I had a small Transvideo monitor to glance at as I skied.

“Our ski unit comprised Canadian Local 669 members with strong backgrounds in skiing and mountain travel,” he adds. “It’s key to approach this kind of shooting with safe, capable people who are comfortable in the mountains.”

Overall, Patterson continues, “I worked to mate what Chris and Wally [Pfister, ASC] envisioned with what I thought would really take the action to the next level. They were totally open to my ideas and really encouraged me to contribute to the creative approach. Each morning, I’d meet with stunt coordinators Sy Hollands and Tom Struthers to discuss the stunts and the beats the scene required. At lunch, we’d review the footage with Chris and Wally.”

The main unit took to the slopes with a snowmobile tracking vehicle put together by key grip Ray Garcia and his crew. A Scorpio gyrostabilized head was mounted to the front of the vehicle, and Pfister was able to operate the camera from the passenger seat. This rig was used to capture some high-speed work and tracking shots in deep snow.

Nolan and Pfister agree, however, that Patterson’s handheld coverage is the star of the sequence. “Chris’ skill at wielding a handheld camera on skis became absolutely essential, and I don’t think there’s any other way we could have gotten the kinds of shots we have in the finished film,” says Nolan. Adds Pfister, “We knew that by going with Chris, we’d get the best out of Calgary. Everybody is talking about his footage.”

— David Heuring



Above: Ski-unit director of photography Chris Patterson works with a PanArri 235. Below: Patterson and 1st AC Scott DaHarb capture a shot on location in Calgary at a fortress exterior.





Left: A full-scale model of a locomotive was built onto the chassis of an 18-wheeler for a major action scene shot at the intersection of 7th and Spring streets in downtown Los Angeles. Below: Cobb and Ariadne (Ellen Page) experience a dream state at a corner café in Paris.

a specially designed rail system that moved the gyroscopically stabilized camera back-and-forth along a hidden groove. (Think Fred Astaire dancing on the ceiling, or some of the zero-gravity interiors in *2001: A Space Odyssey*.) The second hallway stands vertically on its end, with the camera on a telescopic Towercam rig, looking straight up. Actors were raised or lowered on wires to perform in the space. A third method of shooting in the hallway sequence involved moving the actors on a trolley rig that was later removed in post.

Nolan wanted the corridor set to rotate freely without having to be reset. Geryak explains, “We found a company that designed a slip-ring brush system to supply power to the hotel hallway, we told them what our power needs would be, and they built a carousel-like system that enabled electricity to flow from land power to the rig. Our dimmer pack was actually onboard, which was a streamlined way to do it. We had to balance our cables and dimmers around the entire rig so it wouldn’t make the load uneven.” Because of the high-speed work, a lot of light was required,



and the lighting was designed to be extra sturdy because the actors would have to fall on it. Practical fixtures designed by the art department each held six 150-watt Photofloods. There were also sconces and a soffit built around the existing practicals and fitted with nook lights with 1,000-watt globes behind milk glass. The stop was

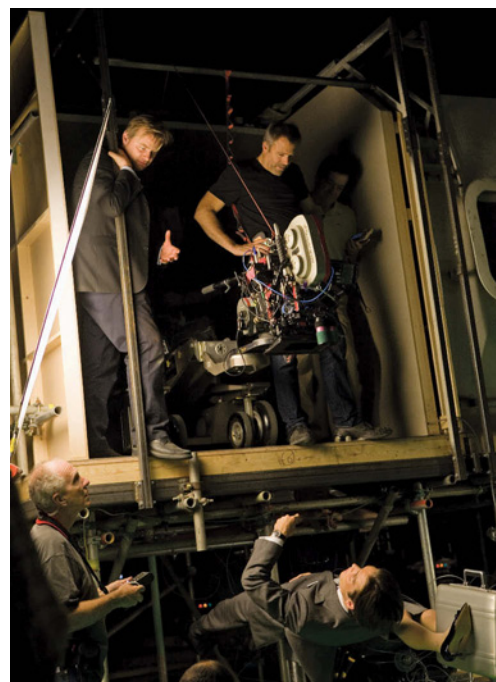
usually T2.8 $\frac{1}{2}$.

The hallway sequence required particular beats of action, and stunt coordinator Tom Struthers worked closely with the actors to determine what would be possible and also safe. “A couple of key rigs we used to achieve effects in camera were very specifically inspired by *2001* [AC June ’68] and the

Dream Thieves



Above: Indulging the filmmakers' preference for in-camera tricks, special-effects supervisor Chris Courbould and his crew built a horizontal elevator shaft in an old airship hangar in Cardington, England, using the facility's steel infrastructure to help sell the illusion. Right: Nolan and Pfister use an improvised location to shoot a quick pickup of actor Cillian Murphy. Pfister's longtime first assistant, Bob Hall, helps at far left.



way in which Stanley Kubrick portrayed the lack of gravity," says Nolan. "I was interested in taking those ideas, techniques and philosophies and applying them to an action scenario. I challenged Tom Struthers, Chris Corbould, and Wally and his team to put all the energy of an action scene into a setup that we could shoot with these extraordinary rigs. I think the result is an interesting hybrid; it's surreal and quirky, but it's got a pounding action rhythm."

"Safety was a huge concern, and it was very painful for the actors because they had to bounce off the walls," says Pfister. "They had to learn to jump at just the right moment. We had a crewmember with a hand poised over the kill switch at all times."

Another elaborate set is a hotel bar where gravity suddenly shifts and the weather outside undergoes a sudden, dramatic change. Corbould and his crew built the entire set to tilt 30 degrees. The set windows looked out on greenscreens that would be replaced with vistas in post. To effect the lighting change, Pfister's crew wired all fixtures to a dimmer board. The scene's initial lighting required a sunset feel, so Molebeams were gelled with 2½ CTS.

As that light dimmed, 60'-long softboxes filled with Maxi-Brutes and covered with Grid Cloth were brought up to create overcast light. "That's one scene where the camerawork and lighting become surreal, but it's all part of the storyline," says Pfister. "It's still a naturalistic approach in that every source is motivated. What's very unusual is the way it changes. Combined with the set tilting, it creates a very unsettling sensation."

Laying out the setting's elevator shaft horizontally was Nolan's idea, and Pfister notes that doing so "allowed us to give the scene scope that could not have been achieved any other way. In your average Hollywood movie, that would be a visual-effects-heavy scene, but in keeping with our policy of doing as much in-camera as possible, we got it for real, and it was wonderfully successful."

After wrapping up in England, the production spent a week in Paris and then two weeks in Morocco. The shoot then brought the filmmakers to Los Angeles, where they spent three weeks shooting an action sequence downtown in the rain. The biggest challenge there, according to Pfister, was blocking the sun with Condors and

huge flags. "Ray Garcia did a phenomenal job blocking light in resourceful ways and helping to make the rain look credible," says the cinematographer. "When I was fretting about harsh sunlight that occasionally sneaked into a shot, Chris, who is always happy to speed things along, would remind me, 'Well, it is a dream.'"

One segment of the downtown shoot called for a full-sized train to hurtle down a city street without actual rails. To achieve this, production designer Guy Dyas built a mock locomotive onto the chassis of an 18-wheeler. "It was fantastically detailed," says Pfister. "We shot that, along with many of our downtown L.A. action sequences, in 65mm using an Ultimate Arm." As the train approached, Pfister, working handheld, tried a number of things to make the frame shake, and in the end he simply shook the camera. "The simple solution is often the right one," he observes with a laugh.

For high-speed work, the filmmakers were constantly reaching for the highest possible frame rates. Many such scenes were filmed in daylight, but several were done in artificial light. In one scene, shot on the third floor of a hotel in downtown L.A., Cobb's dream



is interrupted when he falls backward into a bathtub full of water. To heighten the effect, and to communicate Cobb's passage from a dream state to consciousness, Nolan asked for a speed ramp. The goal was 1,000 fps, necessitating the faster Photo-Sonics camera and a 7-stop light loss. "We knew we needed a lot of punch to shoot at 1,000 frames with that camera," says Geryak. "The lenses it requires only go to a stop of 4.5. I believe I was getting the equivalent of $f/90$ on the edgelight, measuring the light at 24 fps. We achieved that by setting two Condors outside the windows that each held two Arrimax 18K Pars with spot reflectors; they were less than 15 feet from Leo. We also had two 12K Pars banging into the ceiling for 'a bit of fill' — the stand-in actually started steaming!" Pfister notes, "The shot looks great. You can see individual beads of water, which gives the scene an otherworldly feeling."

Another complicated shot involved rotating a van on its horizontal axis 360 degrees. The target frame rate was 1,000 fps, leading Geryak to construct what Nolan jokingly dubbed the "tunnel of expense." Geryak explains, "We essentially built a tunnel out of truss. We had six rows of five



Clockwise from far left: A Japanese fortress shown at the beginning of the film required several different sets built in various places, including an oceanfront site in California (shown here), Warner Bros. soundstages in Burbank, and London; Nolan, DiCaprio and Murphy discuss a sequence set in a hotel bar, where Pfister used warm light emulating sunset to exaggerate a lighting effect; Nolan and crewmembers, including Pfister, gaffer Cory Geryak (in shorts) and visual-effects supervisor Paul Franklin, have fun testing the massive bar set, which was built on hydraulics that could tilt it up to 30 degrees; DiCaprio and Page step into a surreal world on a greenscreen stage at Universal.

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An elaborate rig Nolan wryly dubbed "the tunnel of expense" was constructed from truss to capture a shot of a van rotating 360 degrees on its horizontal axis.

18K Fresnels lined up around the van, aiming straight in. The van spun within that tunnel. The result was basically a wraparound blanket of daylight. We didn't have any lights on the ground, so as the van spins, the intermittent darkness communicates that they are spinning and flipping over."

Onstage at Warner Bros., a portion of a Japanese fortress interior was built and destroyed for the production; this footage was melded with exteriors shot at Abalone Cove in Palos Verdes, Calif. For another sequence, the interior of a wintry mountain redoubt was built onstage at Universal Studios. In the scene, pieces of the floor fall away as the fortress crumbles. To achieve the effect practically, the production built the main level of the set higher than normal, so chunks of the floor could collapse and fall away on cue. The set was surrounded by large greenscreens, which were later replaced by snowy Rocky Mountain vistas.

"In order to have enough green outside and still give the feel of daylight coming through the windows, the lights and the greenscreen needed to be positioned a considerable distance back, which, of course, meant that the greenscreens had to be bigger," says Geryak. "We knew the actual location, near

Calgary, would have soft ambient light, and that the sun would be behind the mountain, so we built about a dozen 20-foot-long softboxes that we could raise and lower. They could be configured to follow the path of the windows, which had an irregular triangular shape." The crew hung space lights just outside and above the windows to create the feel of natural skylight that could stream in more strongly when the floor fell away.

The exteriors for this sequence were filmed in Kaninaskis Country, in the mountains west of Calgary in Alberta, Canada. Two versions of the mountain fortress were built, one full-sized and the other a miniature that was eventually blown up. Extraordinary ski footage was shot by ski-unit director of photography Chris Patterson, whose work "simply blew us away," says Pfister. (See sidebar on page 30.)

Because Nolan intended to intercut a lot of material in the edit, he asked Pfister to give each location and dream level a distinctive feel. "We wanted to have the color palette change quite a bit when we go from one location to another," says Pfister. "Calgary has a sterile, cool look; the hallways have warm hues; and the van scenes are neutral. You immediately know where

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Dream Thieves



A spinning hallway set, capable of rotating 360 degrees, was employed to capture a zero-gravity action sequence. This set required a camera platform that could dolly along the floor as the set moved (opposite page, right); the track was hidden in the pattern of the floor's carpet. The other camera is mounted on a Technocrane, which allowed it to move independently of the set.
Below: The lighting plot for the hallway.

you are, even if we cut to a tighter shot or to something that is slightly out of context. It's a choice that helps tell the story."

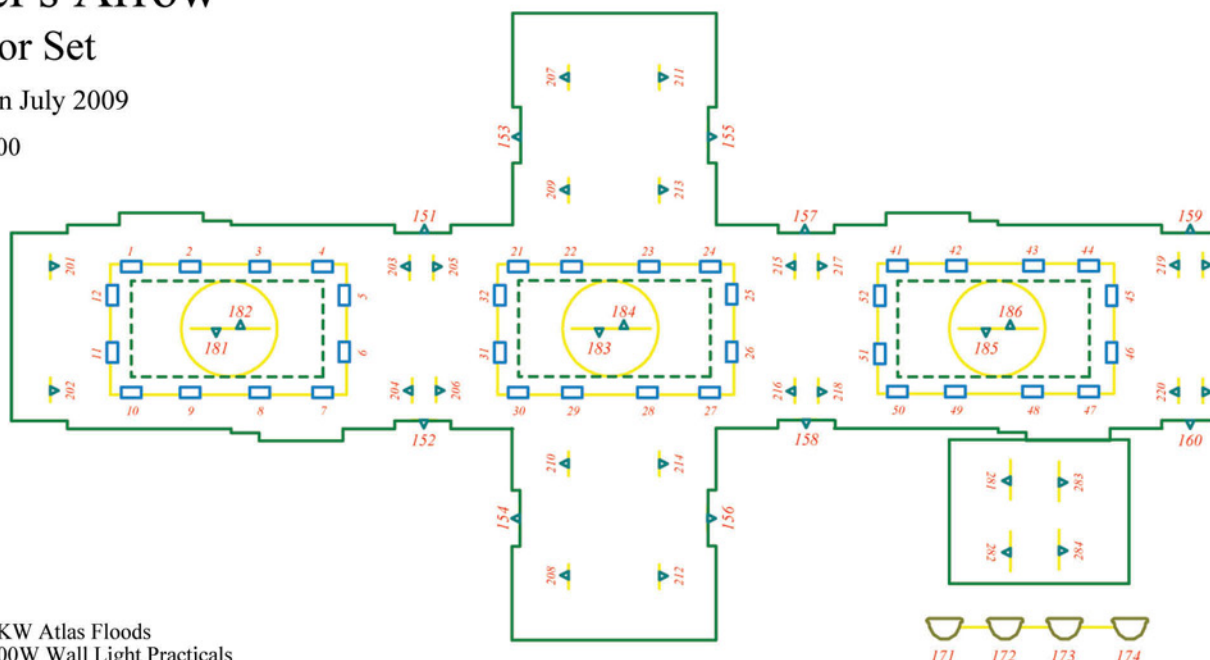
"This film relies heavily on cross-cutting," notes Nolan. "Editorially, you are very liberated if the different locations each have a distinct look, but Wally and I were loath to do any artificial processing to the image. Instead, we wanted to find the natural hues of each location. In the script, I tried to place the different strands of action in locations that would naturally be different in terms of their design and feel. We asked everyone to observe that, including the design and sound departments, and Wally carried that very elegantly into the photography."

"I consider myself a naturalist in terms of lighting," says Pfister. "I don't often light in a stylized way. In certain situations, due to creative choices or

Oliver's Arrow Corridor Set

Cardington July 2009

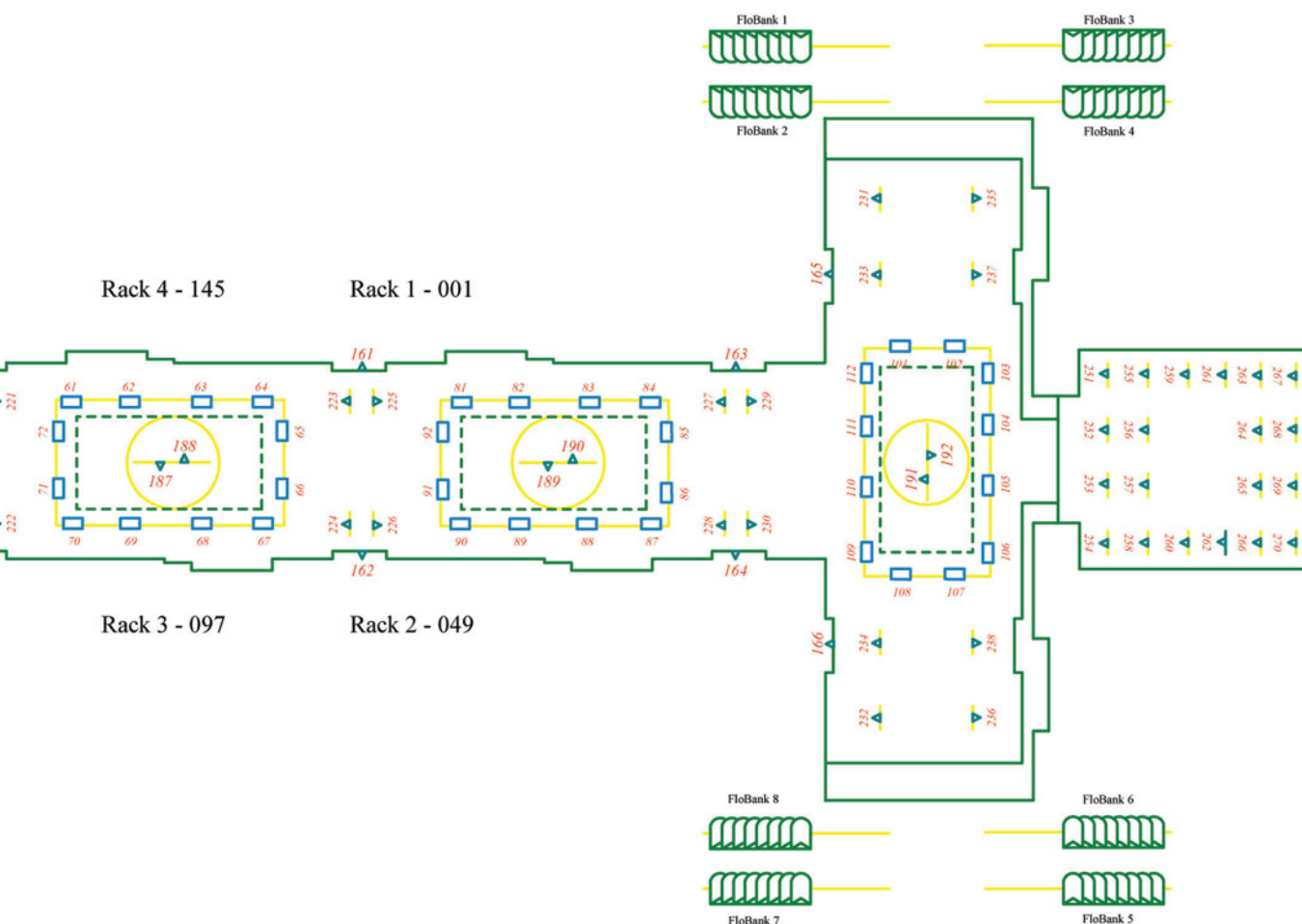
Scale 1: 100



- 1 - 112 1KW Atlas Floods
- 151 - 166 100W Wall Light Practicals
- 171 - 174 2KW Blondes
- 181 - 192 3Bulb, 450W Practical Circuits
- 201 - 284 LED Downlighters, Tungsten

natural beauty, things do end up looking stylized, but that happens naturally. It's fun that Chris and I are able to make big studio films using this approach.

"I'm always fighting to keep things from becoming overly complicated," continues the cinematographer. "I never want things to look overlit — or lit, for that matter. The trick is to work quickly and simply while getting results that don't look as though they were rushed. I think it goes back to my training as a news and documentary cameraman. In those situations, you learn to find the beauty in natural light. You start with the simplest terms: which direction to look, the time of day, single or multiple sources. You take note of what works in real life, and you form an opinion according to your taste. I take that with me not only to practical locations but also to the stage, even



Dream Thieves

This page: The action peaks as an explosion rocks a mountain fortress.
Opposite: The filmmakers bundle up while shooting the movie's climax on location in Calgary.



though we have the advantage of being able to design the stage situations.”

Pfister maintains that operating the camera is integral to his approach. “In good photography, I can’t distinguish between good lighting and good composition; they work in conjunction. When it comes to handheld work, I always want to operate myself because I can change my mind and react at any given moment. Chris and I have a

general formula for covering action — from behind, from the front, and then bridging things together with different sizes. Operating allows me to adapt within this formula as the material, the drama, the lighting and the environment change.”

Inception’s post phase involved multiple facilities. According to post supervisor David Hall, the two Phantom HD shots that made it into

the final cut were sent to Double Negative in London and finished as visual-effects shots. The 65mm negative was scanned at 6K at DKP 70mm Inc. under the watchful eye of company president David Keighley. Those 6K files were then turned over to Technicolor in Hollywood, where a team extracted from the 6K data to generate 4K 35mm filmouts that could be combined with the native 35mm



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footage. Pfister did all of the color timing photochemically at Technicolor, working with longtime collaborator David Orr. In addition to 35mm and digital-cinema presentations, *Inception* will be released on 70mm Imax in select markets, and DKP 70mm Inc. scanned the 35mm color-timed interpositives to create those prints.

"The photochemical process is quite simple and works well for us,"

notes Pfister. "I put a lot of care into the color balance and exposure during filming, and that limits the manipulation required in post. If we want a scene to have more contrast, we accomplish that with lighting, wardrobe and set design. We were able to time this entire film in just three check prints. That's about half the time of the average digital intermediate."

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Elements of Power

Andrew Lesnie, ASC, ACS
confronts frigid locations and
daunting logistics on M. Night
Shyamalan's *The Last Airbender*.

By Simon Gray



Upon its debut on Nickelodeon in 2005, the animated TV series *Avatar: The Last Airbender* was an instant hit. The appeal of its eclectic fantasy universe reached far beyond the intended pre-teen audience. Indeed, M. Night Shyamalan, director of Paramount's new live-action adaptation of the material, recalls, "My whole family, including my parents, were all captivated by the show. It is one of those rare things whose appeal transcends ethnicity and age."

Based on the events of the show's first season, Shyamalan's *The Last Airbender* features a *mise en scène* strongly influenced by Eastern mythology, martial arts and related philosophies. The movie's world is made up of four nations with cultures based upon the classic elements: fire, water, earth and air. Within each nation, special individuals

known as "benders" have the power to kinetically manipulate their namesake element. The only person who can control all four of the elements is the Avatar, the world's spirit in human form. The Avatar is reincarnated throughout the ages, and his unique ability gives him the power to maintain peace and balance by preventing any one nation from dominating the others.

In the history that precedes the story at hand, the aggressively militaristic Fire Nation made a pre-emptive strike against the Avatar's most recent incarnation, a 12-year-old Airbender monk named Aang (Noah Ringer). After the smoke cleared, the peaceful Air Nomad nation lay in ruins, and Aang was nowhere to be found. Emboldened by the Avatar's apparent death, the Fire Nation attacked the Earth and Water nations. *The Last Airbender* picks up about a century later, with the conflict among the nations grinding on and the Fire Nation, now led by Firelord Ozai (Cliff Curtis), tightening its grip. The world's only hope, the Avatar, remains missing, but one person who believes in his imminent return is Katara (Nicola Peltz), a 14-year-old member of the Southern Water Tribe. Katara's belief is finally rewarded when she and her brother, Sokka (Jackson Rathbone), discover Aang frozen in a sphere of ice. After his release, the trio begins a hazardous journey to the city of the Northern Water Tribe.

Shyamalan decided that the ideal cinematographer for



Opposite page: Young monk Aang (Noah Ringer), the latest incarnation of the Avatar, tries his hand at water bending. This page, left: Long frozen in a sphere of ice, Aang is freed by siblings Katara and Sokka, members of the Southern Water Tribe. Below: The filmmakers prepare to shoot live-action elements of the scene on location in Greenland.

The Last Airbender would be Andrew Lesnie, ASC, ACS, whose credits include the *Lord of the Rings* trilogy (AC Dec. '01, Dec. '02, Jan. '04) and *The Lovely Bones* (AC Jan. '10). Shyamalan had a chance to meet Lesnie when the cinematographer was working on *The Lovely Bones* in Pennsylvania, just a few minutes from the director's house. "With *The Last Airbender*, I wanted to tell a story with an intricate narrative on a larger scale than I've ever attempted, a story that takes more than one movie to tell," says Shyamalan. "Andrew's balance of artistry and accessibility, as well as his fluency in the newest technologies, made him the perfect cinematographer for this movie."

"Night kindly invited me to participate very early in the process," recalls Lesnie, who spent five weeks refining storyboards and working on 3-D previsualizations with the director several months before the commencement of principal photography. "I've had significant involvement with storyboards and previs on complex films such as *Babe* and the *Lord of the Rings* trilogy, and it's great to be involved so early in prep," he continues. "Night and I had the time to consider our choices without the pressure of the whole production bearing down, and being



part of the discussion provided me with a deeper understanding of all the final decisions. The final previs, complete with a temp soundtrack, was a substantial and cohesive sequence, with the added benefit of being enjoyable to watch! It proved invaluable to the visual-effects, special-effects, stunt, lighting, production and art departments, and made the whole production a lot more cost-efficient."

The Last Airbender starts in the Avatar world's South Pole. These scenes were filmed in the icy terrain of Greenland, where winter temperatures

range from -20°F to a comparatively balmy 15°F. To assess the considerable logistical requirements for shooting in such conditions, gaffer Jay Fortune and key grip George Patsos embarked upon an early scout to Greenland with production designer Phil Messina and other art-department personnel in October 2008. It was determined that the remoteness of several locations would require the equipment to be sling-loaded in by a large transport helicopter accompanied by several smaller ones. The team then placed orders with Copenhagen rental house

Elements of Power

Right: Katara (Nicola Peltz, background center) and her brother (Jackson Rathbone, background right) bring Aang to their native village. Below: Director of photography Andrew Lesnie, ASC, ACS (seated at camera) and director M. Night Shyamalan enjoy a spot of sunshine in the frigid temps.



Film Gear for dollies, lighting and a GF8 crane converted to move on ice skates. This equipment, plus shipping containers of art-department materials, special-effects equipment and other items, had to arrive in Ilulissat, Greenland, no later than December 2008, before the shipping lanes froze.

Principal photography began in February 2009, but Lesnie notes that aerial cinematographer Phil Pastuhov and Industrial Light & Magic visual-effects supervisor Pablo Helman started working before then, shooting plates

for ILM with a Wescam system. "Once the aerials were complete," says Lesnie, "Phil stayed on to shoot water-level plates using the GF8 mounted on the front of a trawler with a Libra head. They set sail among the multitude of intricately beautiful icebergs and came back with some amazing imagery."

Arri CSC in New Jersey supplied the main cameras — three Arricam Lites, an Arri 235 (for handheld work) and an Arri 435ES (for second-unit work) — and Lee Kazista provided two Libra heads. For lenses, Lesnie chose

Arri Master Primes and Angenieux Optimo 15-40mm, 28-76mm, 17-80mm and 24-290mm zooms. He notes that the Master Primes were unaffected by Greenland's temperatures, but the Optimos became difficult to run with the Arri LCS motors. To overcome this problem, Arri CSC provided a prototype remote-focus system, the WCU-3, which features CLM-3 high-torque motors. This teething problem aside, most of the Greenland shoot was accomplished on the zooms for ease in the difficult conditions.

The Greenland lighting package comprised large HMIs for day-exterior fill and small incandescent lamps for fire effects and lanterns. "The biggest issue working in those temperatures was keeping the generators up and running," recalls Fortune. "On really cold nights, they ran 24 hours."

Katara and Sokka's discovery of Aang was shot on a frozen inland lake. "It was like working on a giant ice cube," says Lesnie. Cast and crew avoided using crampons on the 10'-thick ice because the metal spikes would have destroyed the lake's distinctive appearance, created by bubbles



Left: Seeking to learn how to “bend” all of the elements, Aang arrives at Earth Nation with the siblings, indulging in a little air bending along the way. Below: Lesnie readies a shot on the Earth Nation set.

trapped in the frozen water. “We decided to simply slide around the lake day after day,” Lesnie recalls with a laugh.

Katara and Sokka take Aang to their home, the Southern Water Tribe village. These scenes were filmed at Disko Bay, where, against a dramatic backdrop of floating icebergs, the art department constructed a complete village featuring numerous igloos and a meetinghouse. “The biggest issue was how long we could film a take before our young cast turned blue,” Lesnie says.

After wrapping in Greenland, the crew thawed out in the warmer climes of Philadelphia. One of the sets built there was the deck of a Fire Nation warship commanded by Prince Zuko (Dev Patel). Banished by his father, Firelord Ozai, the 16-year-old Zuko can only return home if he captures the Avatar. His ship is a dark gray, coal-powered ironclad featuring a prominent foredeck, upon which several key scenes, including an encounter between Zuko and Aang, take place. Constructed in the Budd Building, a 180,000-square-foot warehouse in Philadelphia, the set was



70'x30', surrounded by greenscreens and lit by seven 12'x6' sausage-shaped 4.8K HMI lighting balloons. The balloons gave Lesnie a high shooting stop, which he prefers for studio scenes set outdoors, and their cooler color temperature contrasted with the real flame effects, enabling saturation of the flame elements when the image was timed back to a conventional color. A 50' SuperTechnocrane was used extensively on this set; however it didn't always have the elevation needed to get

over the gunnels. Patsos came up with the solution of putting the crane on a tow-truck to obtain extra height and simply driving the truck around the set from one setup to the next.

The industrial environs of the disused and decaying Port Richmond Power Station, the former home of the Philadelphia Electric Co., was the setting for interior scenes on Zuko's and other Fire Nation ships. A 100'x250' area was used as the mess hall of the ambitious Commander Zhao

Elements of Power



Top: Banished from the Fire Nation by his father, Prince Zuko (Dev Patel, left) sulks under the watchful eye of his uncle (Shaun Toub). Middle and bottom: Sprung from captivity by the Blue Spirit, Aang and his new ally battle an army of Fire Nation warriors.



(Aasif Mandvi), Zuko's main rival in the hunt for the Avatar. Before the space could be used, various safeguards were required. "The space had another level 30 feet above that, and the significantly deteriorated roof was up another 50 feet again," recalls Lesnie. "To control the sunlight and safeguard against falling debris, George and [rigging key grip] Billy Patsos rigged a

100-by-250-foot safety net 20 feet above the top level. That, in turn, was covered by a heavy Visqueen plastic that diffused the sun, if it poked out, and also prevented any moisture from getting in." The weak daylight ambience was augmented with 18Ks placed on the top-level gantry. "The flames in that huge set, such as the fixtures on the tables and the huge furnace positioned

behind Zhao's table, were all real," notes Fortune.

Firelord Ozai's imposing throne chamber was filmed on location at the Girard College Founder's Hall. Messina designed an elevated throne area resplendent in deep-red regalia, heraldry and aggressively styled fire-fixtures. "When Zhao reports to Ozai, we followed him from the lobby into a wide shot revealing the size of the room and Ozai's omnipresent pageantry, and then cut to the far end to see Zhao walk toward the throne," says Lesnie. This approach presented some particular lighting challenges. There are no windows in the hall, and huge columns on either side support a vaulted ceiling. Fortune suggested laying five Nine-light Maxi-Brutes with spot bulbs on the floor down each side of the hall. "The light bounced off the high ceiling's gold inlay, bathing the room in the golden glow I was after," says Lesnie.

Aang's luck runs out when he is captured by Zhao and imprisoned in the former Northern Airbender Temple. Deliberately transformed by the Fire Nation into a dungeon, the room is situated at the end of a long corridor lined with hollow, patterned-metal columns. Suspended by chains in the middle of the room, the last Airbender awaits his fate.

To underscore Aang's precarious predicament, Lesnie imbued the set with an eerie, subterranean feel. A row of dimmed space lights running down the center of the corridor provided a faint level of warm ambience. Clusters of 500-watt mogul-base bulbs were placed inside the columns on a three-circuit chase for the fire effect. Par cans aimed into the set through the bottom of each column extended the effect into the corridor, and an 18K Par positioned above the set's ceiling was aimed down the length of the corridor for a strong backlight. "Cracks built into the ceiling gave the corridor some distinct but random shafts from the 18K," notes Fortune. "In the temple room, a 20K aimed into a mirror above Aang produced an aggressive toplight, and



Left: With Fire Nation soldiers at his heels, Aang makes his escape, action Shyamalan was keen to capture with a long master Steadicam shot. Below: On a break while shooting the sequence, the director confers with his young star.

positioning timber beams across an opening in the ceiling created a large cuculoris pattern in the room.”

Aang is rescued by a mysterious figure, the Blue Spirit, initiating a daring jailbreak under cover of darkness. The alarm is sounded, and the duo has to fight its way through a horde of Fire Nation soldiers in a large, open courtyard. “Night was keen on doing a long, complex master Steadicam shot for most of the fighting,” recalls Lesnie. “The shot involved Aang running down a huge flight of stairs into the 200-by-350-foot courtyard set, retreating into a large Stonehenge-like structure, and then running over a series of wooden pylons spanning a bottomless canyon. I was exhausted just watching the rehearsal!” Filmed in the Budd building, the sequence required complex choreography and stunt work, and the firelight motif had to be maintained while keeping the overhead area free for stunt and effects rigs. “We ended up creating moonlight from one side of the set with a line of the HMI balloons, and the firelight effects were Dinos dotted around the place and put on chase patterns,” says Fortune. “That gave everyone enough space to work with.”

When Aang and his friends



finally reach the massive ice city of the Northern Water Tribe, events head rapidly toward the impending showdown with a vast Fire Nation armada commanded by Zhao. According to Lesnie, the Northern Water Tribe fortress was “the biggest set of the production. Phil Messina’s grand design incorporated two-story buildings, terraces, canals, courtyards and a huge defensive wall facing the ocean.” The set was constructed in a seaplane hangar at the Philadelphia Navy Yard. The hangar’s interior measured 350’x250’,

with a ceiling height of 70’ tapering to 50’ on either side. In order to use the ceiling as a lighting gantry, all the apparatus had to be in place prior to the set build, six months before the shoot. Patsos outlines some of the logistics involved in preparing the space: “It’s common practice for the Navy to retain all documentation of building histories, but the plans for this World War II-era hangar couldn’t be located. Consequently, specialist engineers had to conduct tests on the concrete and the building’s foundations. To ensure the

Elements of Power

Right: Production designer Phil Messina's spectacular set for the Northern Water Tribe village, the site of the final battle, was housed in a hangar at the Philadelphia Navy Yard. Below: In a frame from the battle, Master Pakku (Francis Guinan, center) uses his water-bending abilities to fend off Fire Nation soldiers.



ceiling would take the weight of our 200-by-250-foot lighting truss, a 30-ton weight was hung for 30 minutes from each of the ceiling's 42 load-bearing points."

One hundred feet of greenbeds were hung beneath the truss, with 300 sets of scaffolding for lighting platforms running down both sides. About 1,500' of mobile greenscreens ran down the sides and at one end of the hangar, and the curved sides of the ceiling were painted green to blend with the tapered section of the greenscreens. "The lighting challenges in this building were substantial," says Lesnie. "The set just about touched the corners of the

hangar; the 'ground' started 10 feet in the air, necessitating the use of a small construction crane to get heavy technology, such as Technocranes, onto the set; and scenes took place at various times of day. There was also the possibility that the schedule would not be in chronological script order. Provision had to be made for extensive special effects and stunt wire-rigging, and multiple units needed to be able to work simultaneously on the big battles, which involved up to 400 extras."

"For this set, we commissioned Airstar to build 12 16K HMI balloons," explains Fortune. "Each balloon was 24 feet long and contained

four 4K HMI bulbs placed toward the ends of the sausage and run from a dimmable ballast unit. With that much firepower, we were able to shoot high-speed without re-rigging. Andrew loved the quality of the light, and the balloons saved a lot of time because they didn't take space from the stunt-riggers or the visual-effects and special-effects crews. They also ensured that the gantry didn't have too much weight put on it. We hung 160 space lights, half straight tungsten, the rest gelled with Half CTB, for ambient illumination. 12K and 18K HMI Pars provided moonlight, while 24-bulb Dinos for flame and fireball effects were positioned on both sides of the set and on top of buildings inside the set. If Andrew wanted something coming from a particular direction, the unit was already in place."

Adding another layer of complexity were 3,000 candle fixtures that adorned the set. Most of these contained three 250-watt or 500-watt bulbs, depending on what could be fit inside them; the bigger fixtures used six bulbs running off a three-circuit chase to create the appearance of flames. A combination of patterned glass and brushed silk was used in the fixtures. ➤

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Elements of Power



Shyamalan (standing at left) coaches Ringer through the film's final scene as the first and second units capture the action. At the cameras are (from left) 2nd-unit 1st AC Michael Asa Leonard, 2nd-unit cinematographer Pat Capone, dolly grip Louis Sabat, camera operator Kyle Rudolph and 1st AC Bobby Mancuso. 2nd AC Scott Tinsley is standing in the background, and actress Nicola Peltz is kneeling in front of the second-unit camera.

As the epic battle between the Water and Fire nations rages, Zhao enters the spiritual center of the Water Nation city, intent on killing the Moon Spirit and thus depriving the Waterbenders of their power. "The spiritual place's set design, a lush garden with a moat where the moon and water spirits dwell in the form of Koi fish, gave me the idea of using underwater HMI Pars as my light source," says Lesnie. "When the characters enter the space for the first time, it has an other-worldly feel, the feeling of a thermal garden. It's lit like an underground grotto, providing some relief from the snow world outside."

Zhao kills the Moon Spirit, throwing the world out of balance and turning the moonlight red. To achieve the lighting transition in-camera, most of the space lights and 20Ks positioned over the back end of the set were gelled with Rosco E-Color Primary Red, and a simple cross-fade from every lamp

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gelled Half CTB to those gelled Primary Red was performed. "It wasn't anything complicated, and the result looked great," says Fortune. "The only constant color sources were some tungsten spacelights and the underwater Pars."

Just as it begins to look as though the Northern Water Tribe will share the fate of the Air Nomad Nation, the Moon Spirit is reincarnated by the self-sacrifice of Northern Water Tribe's Princess Yue (Seychelle Gabriel). Spiritual balance is restored, and the Waterbenders reacquire their powers. Lesnie's goal for this sequence was "to create a light so strong that the image would start burning out," he says. "It was harder than it sounds. Every single lighting unit out of the truck was blasting down that lens. I even had the camera assistants firing their flashlights down the barrel. It was a staggering amount of light. Looking through the viewfinder was pretty difficult, but these

days the capacity of film technology to withstand this kind of abuse frequently exceeds my expectations."

Throughout the shoot, colorist Steve Bodner Jr. timed HD dailies at Deluxe in New York. "Steve's work was excellent," says Lesnie. "He's very focused. I sent him graded stills accompanied by comprehensive notes each day. The notes and stills also went to [colorists] Joe Gawler and Yvan Lucas at EFilm in Hollywood, where we did the final grade. I knew they'd have to field a large number of plates from ILM prior to the final timing, so I spent some time with Yvan at the end of principal photography, creating a color bible and locking in the look of the whole picture."

A year after the production wrapped, Paramount decided to convert *The Last Airbender* to 3-D, and at press time, Lesnie was preparing to return to Los Angeles to approve some of those reels. "Stereo D is doing the

post conversion," says Lesnie. "Given the timing of the decision and my limited opportunity to be involved, I'm getting a crash course in how to avoid 'cardboarding' and 'miniaturization,' determining proper interaxial distances, and finishing with 'fluid studio grading.'" ●

TECHNICAL SPECS

2.40:1

4-perf Super 35mm

Arricam Lite; Arri 235, 435ES

Angenieux and Arri lenses

**Kodak Vision2 250D 5205,
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An Emotional Rebirth

Cinematographer Yorick Le Saux
creates artful images for the
sensuous Italian melodrama
I Am Love.

By Patricia Thomson



It's been years since Italy has produced a film about the life of the haute bourgeoisie as sumptuous, sensuous and grand as *I Am Love* (*Io Sono l'Amore*). References to Luchino Visconti's films have peppered reviews, and director Luca Guadagnino acknowledges that he drew from that well, but, he insists, "I wanted to create my own prototype." Helping Guadagnino realize that ambition was French cinematographer Yorick Le Saux, whose work on Erick Zonca's *Julia* (2008) had caught his eye.

I Am Love portrays two worlds, each beautiful and seductive in its own way. The story begins in the exquisitely

appointed palazzo of the Recchi family, a modern-day dynasty in the textile industry. When paterfamilias Edoardo Recchi Sr. (Gabriele Ferzetti) announces his retirement and passes the torch to his son, Tancredi (Pippo Delbono), and grandson, Edoardo Jr. (Flavio Parenti), during a birthday dinner, the family's comfortable patterns begin to unravel. The biggest upheaval involves Emma (Tilda Swinton), Tancredi's Russian-born trophy wife, who falls in love with one of her son's friends, a young chef named Antonio (Edoardo Gabbriellini). Edoardo and Antonio decide to partner on a restaurant near San Remo, and it is in this bucolic Riviera setting that Emma and Antonio first entwine.

Developed by Guadagnino and Swinton over seven years, *I Am Love* was shot over 45 days mostly on practical locations in Milan, San Remo and the village of Castel Vittorio, near the French border. "From the beginning, we talked about the two worlds," recalls Le Saux. "The world of the Recchis is strict, with more contrast, wide angles and a colder feel in the characters' relationships. For the countryside, Luca wanted natural light, longer lenses, more close-ups and no depth-of-field, and we strove to be open to catching everything that happened on set."

The filmmakers' visual touchstones included Gustav Courbet, Russian Constructivist Kazimir Malevich and

Italian painter Giovanni Boldini, and of Visconti's films, *Rocco and His Brothers* was particularly influential. "That film helped with all the camera moves and also had the light we were after in the villa scenes; we wanted the feel to be rich and majestic but not luxe," says Le Saux. "We didn't want something that would look like a commercial, with too much light, too much brilliance."

During preproduction, Le Saux helped Guadagnino narrow down his tools of choice. "Luca is probably the most technical director I've worked with," observes Le Saux, who has also collaborated with François Ozon and Olivier Assayas. "He knows everything about cameras and lenses. I think he can tell you every special speed that Christopher Doyle [HKSC] used on a Wong Kar-wai movie in the Nineties! My work was to show him a lot of things — aspect ratio, filters, film stocks, lenses and so on — and then reduce and explain why we didn't need this or that. My job consisted of simplifying and finding a good way to shoot the story." Guadagnino adds, "My dream is to spend four months with special technicians finding those things that fit my movie."

Guadagnino originally wanted to frame the film in 1.33:1, "like *The Magnificent Ambersons*," he says. But Le Saux dissuaded him. "I said, 'It's okay if you want the film to be shown on a cell phone, but to be on screens now, it has to be either 1.85 or 2.40,'" recalls Le Saux. "He was concerned about seeing the ceilings and the architecture of the palazzo, so, in the end, we chose 1.85."

The palazzo was well worth exploiting. Built in the 1930s for a wealthy family, the Villa Necchi Campiglio was designed by Milanese architect Piero Portaluppi and is now a museum, which meant the filmmakers had to contend with severe restrictions on grip and lighting equipment. "It was difficult because they were always on our backs, watching," says Le Saux. "It was impossible to put lights overhead, so almost everything went through the



Opposite: Emma (Tilda Swinton) gets a quick lesson in technique upon meeting her son's friend Antonio (Edoardo Gabbriellini), a gifted chef. This page: Emma and Antonio's affair takes flight on his rural property, a world that contrasts starkly with the one to which Emma has become accustomed. Impressionistic long shots and close-ups characterize the filmmakers' unusual approach to the couple's love scenes.

■ An Emotional Rebirth

Emma follows her son (Flavio Parenti) out of the family mansion when he storms off after learning of her affair.



windows, but the windows were so huge that every light seemed small. Our budget was limited, so I was using natural light with reflectors and white bounce. I'd also try to determine the best hour for shooting, but each time, we were late."

Le Saux operated the main camera, an Arricam Lite that was equipped with a Cooke S4 prime lens or an Angenieux Optimo 24–290mm zoom. "It's a better way to feel the light," he says of operating. "When I'm not looking through the camera, I cannot feel the light from *inside* the movie." The B camera, which was infrequently used, was an Arri 535B.

To help differentiate the story's two worlds, Le Saux used two different tungsten stocks: Kodak Vision3 500T 5219 for the palazzo and Fuji Eterna 250T 8553 for Antonio's bungalow and garden. "With daylight stock, the contrast on the Riviera would have been too high, too strong," he notes. The lovers' world was intended to be soft and sensual, so filtration was also boosted for the countryside scenes; Le Saux used Tiffen Pro-Mist and Soft/FX filters, sometimes at levels as high as 1 or 2. "We used a *lot* of filters," he notes. "The idea was to approximate

the look of some of the 1970s film stocks. Sometimes we shot one extra take with a stronger filter, and if it was too much, we just didn't use it. But we did go very far."

For camera moves, Guadagnino wanted to echo the rectilinear lines of

▶
"That house somehow summarizes the weakness, the arrogance and the beauty of a class."
▼

the Recchi palazzo and called for wide, low shots with a static camera or moves in straight lines. "For me, the production design always leads," says the director. "That house somehow summarizes the weakness, the arrogance and the beauty of a class. It's all about avoiding conflict, avoiding show-

ing-off, but establishing power very strongly in this big block of marble. When you frame people in a sort of box, you can feel why they behave the way they behave." Le Saux recalls that initially, Guadagnino took it a bit too far. "He wanted to use the 14mm and strange angles, low or high," says the cinematographer. "I was trying to make it less extreme, because I don't like when the camera is too visible." Le Saux would often suggest a slightly longer lens. "I tended to stay in the 25mm to 32mm range inside the house, and in the 40mm to 200mm range when on the Optimo zoom in the countryside," he says. (Extreme close-ups of flowers and insects were accomplished with a 200mm Arri Macro.)

The cinematographer also introduced some subtle camera moves in the palazzo. "Luca loves a static camera, but I like moving the camera," he says. "So even when it was a static shot, I put it on wood or tracks and was always on the dolly, ready to move a little bit, to follow the actors and give a little sensation of movement." These small moves contrasted with greater mobility in the countryside, where Le Saux was always following the actors on track or board.



Left: At a formal lunch that stretches into the evening, the Recchi family patriarch (Gabriele Ferzetti, with back to camera) announces his plans to retire. Below left: The lighting setup for the scene. Below right: Preparing for another key scene that centers upon a meal — Emma's rapturous experience at Antonio's restaurant — cinematographer Yorick Le Saux adjusts a Kino Flo for Swinton's close-up.



I Am Love features two extended sequences in the palazzo's dining room. In the first, more than a dozen members of the Recchi family gather to celebrate Edoardo Sr.'s birthday. In the second, the Recchis are entertaining prospective buyers of the company over dinner, which Emma has hired Antonio to cook. Concerned about the length of the first scene, Le Saux decided to break it up visually, determining that a traditional Italian lunch

could easily stretch from midday into evening. "I thought it would be a good idea to start the lunch in daylight, then mix daylight and tungsten sources, and then go into night," he says. "For the second dinner, where Emma's son discovers her affair, I found a new way to show this room: with candles, like an annunciation of death."

To prepare for the first dinner-table scene, Le Saux spent long hours in the location "watching how the natural

light played and moved inside the house." For the day scenes, he set two 6K HMIs and a 4K outside the enormous windows and bounced that light off the floor. By the time Edoardo Sr. makes his speech, night has fallen, and the lighting has changed to a strong overhead source bouncing off the white tablecloth; the bounce "reflects onto the faces of the people as a sort of inner light from that class," Guadagnino marvels. "I think Yorick was very clever

■ An Emotional Rebirth

Right: Emma's daughter (Alba Rohrwacher) confides in her about her own new affair. Below: Le Saux preps an exterior shot.



and intuitive about that. I asked him to do very dramatic lighting, and what he came up with is remarkable.”

“Honestly, I first tried something softer — and safer,” notes Le Saux. “Then, suddenly, I decided the sequence was too long, so I decided to go with something stronger.” The overhead source comprised three Par 64s. “Everybody was against me because it got so hot in the room, like 110°F!” laughs the cinematographer. “But I was sure it was a good idea.” He notes that

the crystal, silver and porcelain props on the table helped him control the bounce. “If we’d taken all those things off the table, the light would have been awful,” he says. “I worked very closely with the art director, Francesca Balestra Di Mottola, to make sure the tablecloth was hidden where the white was too white. I was moving bowls of fruit, food, dishes, everything. Sometimes I’d move a plate to change the angle of the bounce, or I’d take the steak off a plate to get the maximum amount of reflec-

tion. They thought I was crazy!”

The look of the second dinner-table scene involved a table loaded with candelabras. “We used *a lot* of candles,” Le Saux says. “Francesca thought there were so many that it looked fake. ‘Why? *Why?*’ she said. But it was appropriate because two minutes later, someone at that table would be dead.” To augment the candlelight, Le Saux used two China balls that each held an 800-watt bulb. “We kept it simple; we didn’t play with a dimmer to change the light level at all.”

In the middle of the meal, Emma scurries downstairs to the kitchen to steal a kiss from Antonio. Her emotions are roiling, and the camerawork changes accordingly — it’s a four-minute Steadicam shot (the only Steadicam shot in the film) that follows Emma through multiple rooms, down a curved staircase, to the threshold of the kitchen and back. Guadagnino notes that he rarely uses the Steadicam, but in this case, he felt it was necessary. “We had to have that feeling of dizzy, relentless movement through the house,” he explains. “Emma is almost on the verge of publicly exposing her



Top: Emma informs her husband (Pippo Delbono) of her infidelity. Below: Director Luca Guadagnino checks a shot as the actors rehearse the scene.

love for Antonio, and this had to be strongly felt.”

It was a complicated shot to stage, involving not only Emma but also numerous servants. “Luca was very good at coordinating the actors and organizing all the movement,” says Le Saux. “He was so fast, in fact, that he had to wait for me!” The shot required nine takes. “Coverage is for cowards,” states Guadagnino. “I’m old-school when it comes to filmmaking. You have to express courage. You have to choose in advance rather than wait to choose in the editing room. You have to be able to stage action, and that can be an unnerving process. It’s the moment in which you are very weak and alone as a director.” In this case, he felt he chose well. “We shot for two hours, but we had prepared for 10. I staged while Yorick lit. He basically lit the entire house; it’s an amazing achievement.”

“Light is always a question of rhythm — rhythm can be by color, by contrast, or by direction of light,” Le Saux observes. “For this Steadicam shot, I wanted to find a different



rhythm in each room. It was a pleasure to light every room and think, ‘What was the room before? What comes after?’” Some spaces featured reflected light, some had no light, and some had low light (courtesy of strategically placed Kino Flos). Le Saux hid stands wherever he could, in one case even disguising one as a coat rack. “It was difficult for the Steadicam operator, Luca dell’Oro, because of the staircase

and because there was only one place for him to move within each room so he wouldn’t cast a shadow.”

Though complicated, this scene wasn’t the one that caused Le Saux the greatest concern. That distinction belonged to another scene that had to express big emotions: the lunch where Emma first tastes Antonio’s cooking and is inexpressibly moved by it. Shot in one of the production’s few built sets,

■ An Emotional Rebirth



The cold elegance of the villa comes to the fore in the film's final moments, as Emma prepares to leave.

the scene takes place at a chic restaurant. As Emma tastes her elegantly plated shrimp with ratatouille, the lights around her dim, and she is literally in the spotlight, savoring the dish's taste, aroma and texture. "Tilda wanted

to try to achieve an homage to the great scene in *Ratatouille*, when the food critic tastes the ratatouille and has an intense flashback to his childhood," says Guadagnino. Initially, the director envisioned isolating Emma from her

companions by using an old-fashioned iris, but Le Saux feared that would look too artificial. "We had to find a way to get in her head," says the cinematographer. "I sat in the set a long time, looking for an idea."

He finally decided to isolate her with an abrupt lighting transition. Unfortunately, he had already set up the room with four 800-watt HMIs that could not be dimmed, and there was no time to relight. He recalls, "We put a crew member behind each HMI with a flag, and on my count, each would flag his light." Simultaneously, other grips moved a large black solid to cut the light coming from a large window. With this coordinated maneuver, they isolated Swinton in a pool of toplight. For subsequent close-ups of the actress, Le Saux relit with a 2'-4-bank Kino Flo and enhanced her rapture with a slight bit of slow motion, shooting at 29 fps. "This film is a melodrama, so I was ready to embark on bigger-than-life

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moments,” Guadagnino says of the scene’s theatricality. “There was a lot of skepticism, but people didn’t remember how Orson Welles used light in this way, or the glorious *Age of Innocence*, when Scorsese shows the secret relationship by lighting just the couple in the theater.” Says Le Saux, “I have to applaud Luca. He was the only one to believe so much, and he brought me along with him.”

When the story moves to Antonio’s world on the Riviera, the idea was to use natural light as much as possible. In Antonio’s bungalow, “the lighting setup was very simple — natural light and one 1.2K HMI bouncing off the floor,” says Le Saux. “We wanted to make the love sequence pure, without too much preparation or backlight or soft light.” When the couple makes love outside, the cinematographer initially thought he’d control the sunlight with a silk, but he changed his mind. “I just felt the real

beauty of the sequence was not to diffuse the feel, but to go strongly with it — they’re under the sun, and Tilda has super-white skin. So I removed the silk and shot it in direct sunlight. I used a little filtration, probably a ¼ Soft/FX and ¼ White Pro-Mist, and overexposed the Fuji a bit to burn it and be very white.”

I Am Love was given a traditional photochemical finish at Technicolor in Rome, where color timer Angelo Francavilla put the final touches on the filmmakers’ work. “Angelo comes from the school of Carlo Labella, who worked for Vittorio Storaro [ASC, AIC] for many years,” says Guadagnino. “Angelo did an amazing job. The film has a painterly look, with rich, bold visuals, and it was achieved only by chemicals! I hate the digital intermediate; it allows a lazy way of making movies.” Le Saux notes that a photochemical finish was particularly well-suited to the project: “From the

beginning, Luca and I agreed that we didn’t want that modern, high-fashion image where you can feel the contrast, and the DI would have given us that. It was really important for us to stay with tradition.” ●

◀ TECHNICAL SPECS ▶

1.85:1

35mm

Arricam Lite; Arri 535B

Cooke, Angenieux and Arri lenses

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Ousama Rawi, BSC, CSC details his award-winning work on *The Tudors*, a lush period piece he captured digitally, first with the Sony F900, and finally with the Panavision Genesis.

By Michael Goldman



Crowning Achievements

Upon launching his four-year adventure shooting Showtime's *The Tudors*, cinematographer Ousama Rawi, BSC, CSC rapidly found his thoughts turning to the subject of light. After all, when one endeavors to bring 16th-century England to life onscreen in a realistic fashion, one has to face the fact that the only period-correct artificial light sources will be candles, torches, fireplaces and the like. Rawi notes that when he signed onto *The Tudors*, in 2006, Sony's HDW-F900 was the acquisition tool, and the camera "is ultra-sensitive to anything bright. And yet I needed brightness for my frames because I intended to use candles as primary sources as much as possible to enhance realism."

The Tudors recently ended its 38-episode run, and after color timing the last episode at Technicolor Toronto (with colorist Ross Cole), Rawi finally had time to reflect on what he and his colleagues had achieved on the series. For the Iraq-born cinematographer, these achievements included an Emmy Award (for episode 3.03) and an ASC Award nomination (for episode 2.01).

Rawi recalls that capturing *The Tudors* digitally impacted even the smallest decisions early on, including what kind of candles to use. "We carried out tests with various candlemakers, trying all sorts of formulas that might work with the cameras," he says. "Eventually, we found one that the

cameras could handle and which gave me good exposure, and we stayed with that formula for all four years."

The candles burned rapidly, however, sometimes with unintended consequences. "They could melt from full height to 2 inches in less than 30 minutes!" he recalls. "Candle-height continuity was a big issue; we were constantly changing them. For some evening scenes in the Great Hall set, those candles were not only visual decoration, but also fill light, sometimes even key light! We'd light them on large chandeliers above the action, and they would drip down on whomever was below — actors, extras or crew. The fast-burning wax did not discriminate. It would pour down on their heads and quickly harden. It became quite an ordeal to remove."

Waxy hair was a small price to pay for what the production achieved over four seasons. *The Tudors* is the lushest, most detailed and most complicated period drama to air as a regular series on American television in quite some time, possibly ever. Shot on three stages (on about 80 unique sets) at Ardmore Studios in Dublin, Ireland, and in the surrounding countryside, the show endeavored to bring the 38-year reign of King Henry VIII (Jonathan Rhys Meyers) to life with precision and visual excitement — and some creative license.

The period nature of the evolving story, along with the fact that the characters and locations had to age decades

during the show's run, put lots of creative pressure on Rawi and his colleagues. For one thing, they often found themselves shooting thematically similar story developments, such as beheadings and violent jousting tournaments, at different times for different episodes over the years. Series creator Michael Hirst and Rawi also wanted a feature-film style aesthetic, complete with a mobile camera. The cinematographer offers, "I wanted to shoot it as if it were a feature film, which meant using depth, keeping doors open, and not having people close to walls where you'd just see the character and two walls — as they often do on TV so they can take less time lighting and dressing sets. These sets were so elaborate, large and interconnected that I felt it would be an injustice not to use them, so I'd pan the camera all over the place, up and down, tracking from room to room. That required more lighting and setting up, and the art department had to dress more sets.

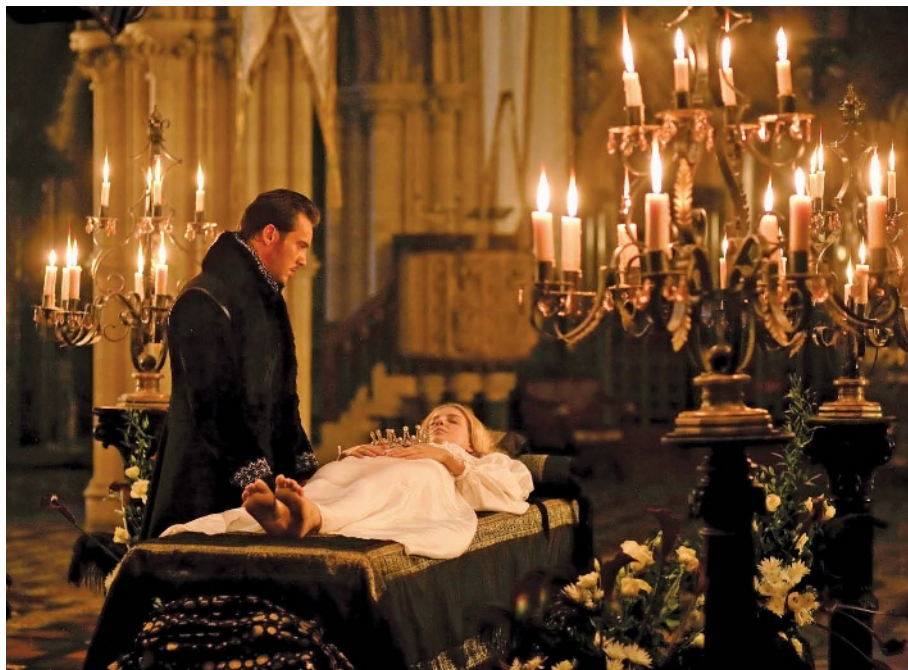
"I always found reasons to keep the camera moving," he continues. "We could see more of the set and keep energy up that way. We went handheld a lot, and that wasn't always easy, especially when we were using the F900 [during the first two seasons]. Also, if we were shooting another execution or another jousting scene, we'd try to differentiate it from previous such scenes as much as we could, usually by using different angles. We tried not to repeat ourselves."

Because the show had a team of directors, Rawi was part of a triumvirate charged with keeping the look consistent, along with production designer Tom Conroy and costume designer Joan Bergin. "The three of us had a symbiotic collaboration," says Conroy. "I would travel to castles and estates in the United Kingdom, where a lot of the architecture from the 16th century survives, to gather ideas, and then I'd show Ossi what I was thinking, and he'd bring something more to it. Early on, I suggested that we put most windows up high, which meant the characters would



Opposite: The crown weighs heavily on King Henry VIII (Jonathan Rhys Meyers) in *The Tudors*, which recently completed its four-season run. This page, top: Henry's daughter, Princess Mary (Sarah Bolger), basks in the glow of candlelight. Middle: Anne Boleyn (Natalie Dormer, left), Henry's second wife, appears in a dream sequence alongside Princess Elizabeth (Laoise Murray), her daughter with the king. Bottom: Cinematographer Ousama Rawi, BSC, CSC checks his lighting on stand-in Irina Kuksova inside the chambers of Queen Catherine.

■ Crowning Achievements



Top: Henry mourns the death of his third wife, Jane Seymour (Annabelle Wallis), who bore his only son, Edward.
 Middle: A fireplace helps illuminate Henry's relationship with his fifth wife, Katherine Howard (Tamzin Merchant).
 Bottom: Katherine and Henry share a familial moment with Prince Edward (Eoin Murtagh).



be lit from a high angle and the immediate background would be quite dark. Ossi brought his level of drama to that; he lit most of the time from those true windows or from doorways or other openings. We talked constantly about lining up doorways and always having one plane in front of another to help create depth.”

Similarly, Bergin was constantly bringing fabrics and designs to Rawi to discuss how to best incorporate them into the show’s aesthetic. “One time, I decided to attire the English court in black and silver for the arrival of an Italian ambassador, and, as always, I let Ossi know about it,” she recalls. “He did tests with candlelight to figure out how to bring out the silver, and he set about designing ways to make one shot of silver [in the fabric] the focus. Everything looks black at first, and then two or three people turn their backs, and there is a wonderful silver sheen. Ossi is into that kind of subtlety, and I really appreciate that.” Rawi elaborates, “I felt Joan’s costumes were characters in their own right, and I therefore enjoyed finding ways to emphasize them. Her black-and-silver costumes were done with great detail, and much of it could have been lost on camera given the low-key lighting. To draw attention to the costumes, I positioned banks of candles at two specific heights, adjusted for the actors’ heights, so that when the actors turned, the silver in their costumes caught and reflected the candlelight. Shooting the scene wide open helped create a bright and very subtle highlight around the shiny silver that made it glow.”

Rawi says the primary references for the show’s visuals were “the old masters.” He explains, “I prepared a folder of different historical lighting references, and it wasn’t all from that period — I had Goya, Velasquez, Vermeer, Rembrandt, Caravaggio, and so on. In those paintings, they’d have dramatic daylight pouring into a room and the rest of the room in deep shadow. Caravaggio’s lighting sources were flames or natural daylight coming from



Top: A frame grab from a Panavision Genesis showing the night-interior LUT applied to a scene in the Great Hall. Bottom left: Catherine Parr (Joely Richardson), Henry's sixth and final wife, joins the dance in the Great Hall. Bottom right: Henry and Jane walk Mary through the Hall.



high or eye-level windows, and I figured that is how he saw life in his day, so that influenced my lighting approach."

Rawi was particularly careful with his lighting when working with the F900 because the camera is limited to 4:2:2 color space. He stayed with a .45 Gamma setting and restricted camera presets to four, only for Knee adjustments: 0 Point, 0 Slope; 30 Point, -65 Slope; 30 Point, 0 Slope; and 40 Point, 15 Slope. (The camera's standard Knee setting is 4 Point, 0 Slope.) "I engaged those settings whenever I encountered exposure-latitude problems. For instance, when a window really blasted light and resulted in clip-

ping, or if I was shooting an exterior scene with a blue sky and a white cloud suddenly came into the shot, those sudden changes in light levels played havoc with the F900, so I'd try out the four Knee settings until clipping was a bit more controllable.

"I also had to take into account the compression that takes place when the image is recorded to the F900's built-in recording deck — the 1920x1080 image is compressed to something like 1440x800," he continues. "This compression makes it a faux 1080p camera. I had to bear that in mind while lighting scenes in order to conceal any image degradation."

Indeed, Rawi became well versed in "learning about and working around the F900's idiosyncrasies to get the look I wanted." Showtime had mandated digital acquisition from the outset, and at the time, Rawi had committed to a four-camera package. "My first choice was the [Panavision] Genesis, but we couldn't get four of them on our budget," he says. "We'd decided that we'd run two cameras all the time for the main unit, and we needed one camera for second unit and a backup camera, since we were shooting far from our rental house. The F900 enabled me to use the Panavision [Digital Primo] lenses I wanted, so that's what we chose.

■ Crowning Achievements



I didn't use prime lenses with the F900 unless we were in Steadicam or hand-held mode; we relied primarily on short and long zooms on the A and B cameras."

When the production began planning its third season, Rawi and Panavision made the numbers work for a switch to the Genesis. That changeover, says Rawi, improved virtually everything. "Finally, I had large-chip full-frame 35mm framing, which meant the entire collection of [Panavision] Primo film lenses was available to me, so I could incorporate a lot of primes. Another bonus was that we no longer had to deal with the F900's back-focus problem — it drifted due to temperature changes. And the compression problem became a thing of the past."

With the transition to the Genesis, Rawi had to take time to design a series of look-up tables — day interior, day exterior, night interior and night exterior — that could be applied on set so the filmmakers could see how the final images would look. The LUTs were embedded in the Genesis Display Processor and called up as necessary with the push of a button. The filmmakers also gained access to the full color spectrum, which was a big step forward. "With the F900, I used deep, dark shadows and bright highlights to create contrast and approximate the look of 4:4:4 color space," he explains. "I had to do a lot less of that on seasons three and four because we were actually working with 4:4:4 color space. I didn't need to fool the viewer's eye."

"[With the F900], I also had to deal with overexposure — if it went 2 to 3 stops over for a view out a window, for example, it would go off the scale and we'd start clipping, and I'd have to start balancing again," he continues. "Irish weather changes every 15 minutes, so shooting on location was always a challenge because the F900 couldn't always cope with the changing skies. Panavision claims the Genesis has 11 stops of latitude, but I found it was more like 11½. That made it easier to cope on

The Tudors' four seasons spanned 38 years, requiring costume and hair-and-makeup tricks to age Henry and the members of his court. Rawi further sold the aging effects with lighting: "I tried to bring out features in Jonathan's face that would make him look different. With the help of makeup, I could make him look off-color, paler, and with lighting we could create hollows around his eyes."



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■ Crowning Achievements

Top and middle:
Rawi (middle
photo, center)
and company
prepare to
shoot the
executions of
Katherine
Howard and
Lady Rochford
on a set
constructed at
Powerscourt
Estate in
Enniskerry,
County
Wicklow. Bottom: A
location in
Humewood was used to
represent West
Yorkshire's
Pontefract
Castle.



location.”

The Genesis was set to its Panalog setting, and Gain was set to 0dB. “Gain was increased very rarely, and only if I was getting no reading on the waveform monitor,” notes Rawi. The shutter angle was set to 172.8 degrees “to cope with HMI lights in the 50Hz realm of the Irish electrical system.”

Because the F900 has a smaller chip, Rawi originally had to take extra steps to achieve the shallow depth-of-field he wanted in particular scenes. He shot wide open, “and that helped give me a little selective focus, depending, of course, on the focal lengths I was employing.”

Shooting digitally posed ongoing focus challenges for A-camera 1st AC Alan Butler and B-camera 1st AC Shane Deasy, notes Rawi. “Film’s three color layers make focus more forgiving, but the digital camera has only one layer: the front surface,” he explains. “Therefore, the image landing on that sensor has to be in sharp focus, with no room for error. This issue actually became more critical when we switched to the Genesis because of the superior optics. The difference between pin-sharp focus and slightly off-focus was



Left: The cinematographer (foreground left) plans his next setup with (from left) B-camera 1st AC Shane Deasy, B-camera 2nd AC Conor Crawley, B-camera operator Iain Baird and director Ciarán Donnelly. **Right:** To keep the camera moving over the hilly terrain, key grip Philip Murphy and his crew mounted a crane to a specialized Land Rover 130.

more pronounced. It was challenging for Alan and Shane to keep it sharp, especially when we were shooting wide-open apertures, but they excelled at it.”

Rawi tried hard to avoid using diffusion on the lens. In fact, he restricted himself to carrying a single piece of glass diffusion, a 1/2 Schneider Classic Soft. “I only used that to hide the occasional skin blemish,” he says.

Throughout the show’s run, footage was recorded to HDCam (with the F900) and HDCam-SR (with the Genesis) tape using the cameras’ onboard decks. Rawi did incorporate the Genesis’ onboard Solid State recording option for Steadicam work, but otherwise, the show was always recorded to tape. Rawi typically took time at the end of each shooting day to time select frames from each setup using the Gamma & Density 3cP System. Those frames and the corresponding metadata were then burned to a CD and sent with the tapes to Technicolor Toronto, which sent digital Betacam synced dailies across the globe using the Internet-based Sample Digital dax/D3 distribution system.

Bergin and Conroy, Rawi’s fellow “keepers of the look,” also noticed immediate benefits once the production switched to the Genesis. “It only improved things,” says Conroy. “The film lenses gave us much better focal depth and control, so I could really see

exactly how my sets were behaving, how my textures were doing. It was the best of both worlds because we could also get that dynamic range. If we had a courtyard that was brightly lit, my materials could straddle that distance better.”

Throughout the series, Rawi endeavored to shoot virtually everything in low-key light. Because the team wanted to be as faithful as possible to the era’s architecture, a single, giant bay window was built into the Great Hall set, but almost all other windows on the various sets were strategically designed to be small, in keeping with the period. “Many of the windows were high, so to look authentic, the light for day interiors would come from [a point] that was usually higher than where the actors were standing or seated,” says the cinematographer. “During night scenes, light sources were candles no more than waist high and fireplaces low on the ground. When chandeliers appeared in frame, I’d have those candles lit, but I wouldn’t add any artificial light to augment them. The light from the chandeliers was usually enough to gently fill the scene without spoiling the look we achieved with lower-level lighting.”

Rawi organized two lighting packages, one for the studio and one for location work. The studio package was spread around the three stages at Ardmore. On the largest stage, D-stage, permanent or semi-permanent sets were

built, including the composite set of the Great Hall, Henry’s throne room, his bedchamber and outer chamber, the queen’s chambers, and a couple of other sets. Sets that changed for each episode were built on the other two stages.

A permanent row of space lights ran the length of the Great Hall set, close to the wall where the large bay window was located. Those were the instruments Rawi used to introduce ambient light. “I’d vary the intensity by selecting the number of heads that would be illuminated and the number of bulbs in each head,” he says. “For night scenes, we could use the dimmers to control the color temperature of those bulbs and keep them burning at a very low voltage to match the warmth of the candle flames. I used these sparingly and infrequently, but they were ready to be used at a moment’s notice.” A similar arrangement was rigged for a London exterior street set, also on D-stage; the crew rigged 18 space lights overhead to create soft toplight.

The crew utilized hundreds of Fresnel heads of all intensities and stands of all sizes as part of the stage package, along with an array of Kino Flos, Cyc floods, Skypans, Silver Bullets and space lights. For locations such as Dublin’s Christchurch Cathedral (which frequently doubled for London’s Great Chapel), the production generally rolled out a truck carrying at least two

■ Crowning Achievements

The crew captures a crane shot in a church in Bray, which stood in for St. Mary's Abbey in York, England. In the scene, Henry and his royal entourage await the arrival of the King of Scotland.



18K HMIs, a couple of 6K HMI Pars, a few 4K HMIs, two 1.2K HMIs and a range of tungsten lamps.

Each two-episode production cycle included about three weeks of work onstage and one week on location. Some of the location work was complicated by Ireland's hilly terrain. In fact, to negotiate the hills and achieve certain shots, Rawi asked key grip Philip Murphy to mount a camera crane to a specialized vehicle. "Ossi wanted to get a master shot at the top of the trenches [on a battlefield location simulating Boulogne, France] and have a Giraffe Crane ready at the other end of a field for the next setup," recalls Murphy. "So our grips built a specialized Land Rover 130 to allow for speed and versatility. It could go over any mountain and level up even on the side of a hill. On location shoots like that, we used Hustler and PeeWee dollies and carried about 300 feet of track that could be laid on any terrain, so we could always keep the camera moving either on cranes or dollies."

Rawi has high praise for Murphy and others on "my marvelous crew," including 2nd-unit director/visual-effects supervisor Bob Munroe; camera operators Des Whelan and Iain Baird; 2nd ACs Jessica Drum, Conor Crowley and Amy Breen; gaffer Terry Mulligan; and rigging gaffer Kevin Scott.

Of all the challenges posed by *The Tudors*, perhaps the greatest was figuring out how to age lead actor Meyers believably. Because the show spanned 38 years, the filmmakers had to make the king look older, heavier and more haggard as it came to an end. Rawi says this was a vexing creative challenge because Meyers is a young, fit actor whose fans enjoy seeing him that way. Some license was therefore taken, and the production settled for making the older Henry relatively bigger, slower and wearier as his reign wore on. Much of this was accomplished with costume padding and hair-and-makeup tricks, but Rawi used some of his own sorcery as well. "I did a lot of it with lighting," he says. "I tried to bring out features in

Jonathan's face that would make him look different. With the help of makeup, I could make him look off-color, paler, and with lighting we could create hollows around his eyes. Those things, in concert with hair, makeup and costuming, got the idea across." ●

◀ TECHNICAL SPECS ▶

16:9

Digital Capture

Panavision Genesis
(Seasons 3-4);
Sony HDW-F900 (Seasons 1-2)

Panavision Primo (Seasons 3-4)
and Digital Primo (Seasons 1-2)
lenses



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Post Focus



Restoring Fassbinder's *World on a Wire*

By Iain Stasukevich

Film restoration often leads audiences to discover classic pictures they have only heard about but never seen, and *World on a Wire* (*Welt am Draht*), directed by Rainer Werner Fassbinder and shot by future ASC member Michael Ballhaus, seems ripe for rediscovery given its pedigree, extreme stylization and heady ideas.

Created for West German television in 1973, the film was adapted from the 1964 American novel *Simulacron 3*. In the film, Dr. Fred Stiller (Klaus Löwitsch) is a research scientist with the Simulacron 1 program, a computer designed to concoct theoretical models of future social, economic and political events as they would occur in reality, complete with a simulated world and simulated inhabitants. When a colleague on the project begins to act strangely and then commits what appears to be suicide, Stiller's investigation takes him inside Simulacron 1, and soon his perceptions of which reality he actually inhabits are turned upside-down.

Because of copyright problems, TV reruns of *World on a Wire* were rare, and theatrical screenings rarer still. The film has been screened just twice in the past 15 years, in New York and Paris, where an unretouched 35mm copy produced in 1996 by the Rainer Werner Fassbinder Foundation was shown.

Juliane Lorenz, president and managing director of the Fassbinder Foundation, has spent more than a decade trying to preserve the filmmaker's most important works. In 2006, the foundation partnered with New York's Museum of Modern Art to restore the 15½-hour telefilm *Berlin Alexanderplatz*, which, like *World on a Wire*, seemed unusually ambitious for the small screen. As Lorenz notes, "The special thing about Fassbinder is that he didn't care where the



Clockwise from top left: In a frame from *World on a Wire*, Gloria (Barbara Valentin) reflects on her dangerous attraction to Dr. Stiller; Ulrich Prinz (left), Rainer Werner Fassbinder (at camera) and Michael Ballhaus (partially visible) set up a shot of actor Adrian Hoven; in another frame from the film, Dr. Stiller (Klaus Löwitsch) prepares to enter the artificial world of Simulacron 1.



viewers came from — he was happy to make films for television. In his mind, he was still making a movie."

Recently, the Fassbinder Foundation and MoMA reteamed to restore *World on a Wire*, and Ballhaus served as the project's creative director. (The cinematographer was unavailable at press time, so his comments have been taken from an interview he gave Lorenz to publicize the restoration.)

"Rainer was never prepared, but he always knew what he wanted: the camera would be constantly moving and all the imagery rather unusual," Ballhaus says of the project, which he shot on 16mm Ektachrome color reversal stock. "Also, there's a tremendous amount of smoking in this film. All the stars whiffed like smokestacks, but I find smoke in film wonderful to look at. A bit of smoke in the room makes for a much nicer atmosphere; it makes the image a little

Images courtesy of the Rainer Werner Fassbinder Foundation and the Museum of Modern Art.

bit softer and gives it a different depth.”

Ballhaus supervised the creation of a new digital master at Arri Munich, where the restoration team worked with the original A/B-rolled 16mm reversed positive, which was faded and marred with scratches, dust and perforation tears. The restoration work began in July 2009 with repairs of the perf damage and a thorough ultrasonic cleansing. After a 2K Arriscan transfer, the MTI Digital Restoration System was used to stabilize and degrain each take. Density shifts were corrected, and scratches and other minor flaws were removed. Lorenz recalls, however, that Ballhaus was not interested in creating a squeaky-clean image: “It was important for him to keep this as a very filmic experience, so some of the dust and dirt and even gate hairs were left in the picture.” Ballhaus notes, “The original picture remains. It won’t be distorted. To do so would be an interference with the creativity of the filmmakers. [This way] the audience gets to see the film the way they would’ve seen it in 1973. The way these images are coming back to life, it’s more like a rebirth than a restoration.”

Arri lead colorist Traudl Nicholson assisted Ballhaus with the finishing touches, using a Discreet Lustre. “Michael wanted to restore the Ektachrome look,” she explains. “Color-wise, we were trying to get back to the deep blacks and reds, with orange skin tones.” Adds Ballhaus, “We’ve gone through the whole movie, and occasionally we enhanced the exposure of certain scenes, depending on the mood.” Some partial vignettes were also added. “Darkening the corners of the frame encourages the viewer to focus more on the center of the picture,” he notes.

One visual effect in *World on a Wire* posed a bit of a challenge to the restoration team. Stiller is inside Simulacron 1 when it appears that someone in the real world is trying to disconnect him from the simulation, a move that would kill him. The doctors in the real world try to wake Stiller by flashing the words “Stiller come back” across his field of vision in giant white letters against an opaque red background. During the original broadcast, the 10-second effect was composited live from separate magnetic-tape elements. Not wanting to reproduce any elements that weren’t created for the

original film, Ballhaus and Lorenz went back to the magnetic source tapes and transferred the 10-second title effect to HD for compositing with the new 2K digital master.

The restoration was filmed out at 2K on an Arrilaser, and the resulting 35mm print maintains the original 1.33:1 aspect ratio. “We tried looking at the film in a wider aspect ratio, and it just didn’t work,” says Lorenz.

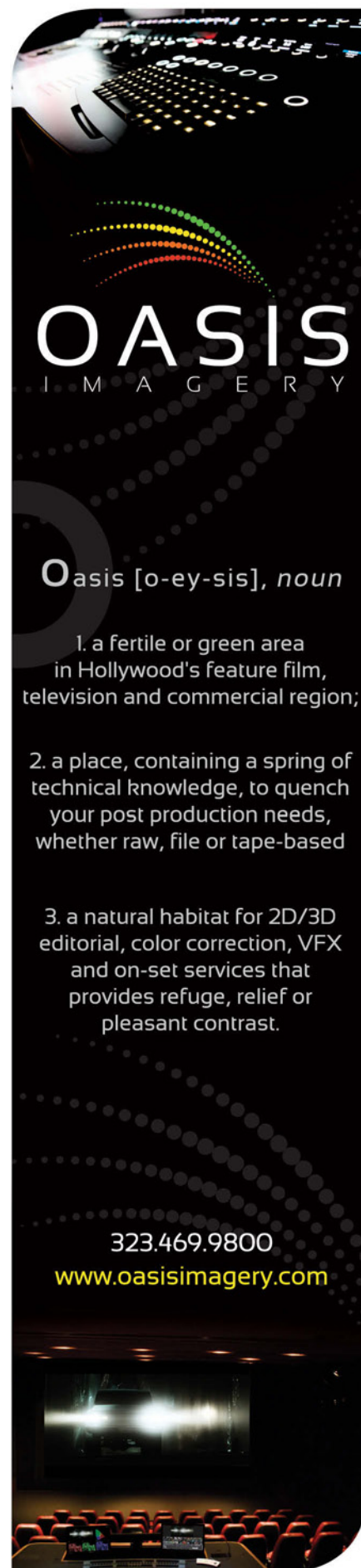
The Fassbinder Foundation is exploring theatrical, home-video and online exhibition possibilities. “We have contracts that allow us to distribute the film through any media for the next 50 years,” says Lorenz.

Product News

JMR’s DigiLab Takes Dailies Production on Set

JMR Electronics, Inc. has expanded its BlueStor brand of high-performance digital-workflow solutions with the DigiLab Video Server. The DigiLab combines the latest CPU, PCI-Express hardware and I-O components with JMR’s patented high-performance storage technology to shortcut on-set and post-production workflows, saving productions time and money. Additionally, JMR’s BlueStor RAID technology guarantees that every DigiLab is an easily scalable solution.

The DigiLab Video Server is an extremely flexible, open-platform storage system delivering on-location digital-image-processing performance, monitoring and control functionality for the most demanding digital cinema workflows. The DigiLab seamlessly integrates top-of-the-line Quad-Core Intel processors, an Nvidia graphics card, built-in Blu-ray writer and a 19-in-1 media reader into a high performance 16-drive hot-swappable RAID storage system. Using JMR’s patented PCI-Express-based storage technology for higher RAID performance and easy capacity scaling, each DigiLab contains dual RAID controllers and dual SAS expanders that provide higher real-world throughput rates than any competing solution. As a result, the DigiLab delivers a sustained transfer rate of over 1,400MB/second, easily accommodating four streams of 1080p24 at 16-bit RGB, three streams of 2K x 1,556p24 at 16-bit RGB or one stream of 4Kp24 (Red) at 16-bit RGB while providing the processing power



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Oasis [o-ey-sis], *noun*

1. a fertile or green area in Hollywood's feature film, television and commercial region;
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Director of photography Michael Lohmann recently put the BlueStor DigiLab Video Server through its paces during production of the upcoming Disney Channel movie *Sixteen Wishes*. Lohmann successfully created his own on-set digital lab with the portable (3'x3') DigiLab system, equipped with 32TB of RAID storage. The system remained in the camera truck while Lohmann shot with the Red One digital camera.

"When BlueStor DigiLab was combined with Assimilate's Scratch, we found we could color time, store, process footage and create dailies with viewing LUTs right on the set, and be fast enough to be practical," enthuses Lohmann. "It's also great that the BlueStor DigiLab allowed us to view those dailies within an hour of wrapping, when our creative intentions are still fresh in our minds."

The DigiLab also allows editors to begin editing scenes on location after the creation of dailies, saving additional time and money. Lohmann adds, "The DigiLab was rock solid in performance and everything was linked to the phenomenal storage capacity and power of the BlueStor RAID, which was more than we'd ever need."

For additional information, visit www.jmr.com.

Arriscan Incorporates Nucoda

Digital Vision and Arri recently announced an agreement to launch a jointly developed state-of-the-art digital dailies product tailored to the Arriscan digital film scanner. The new system incorporates such

features and benefits of Digital Vision's DI workflow as QC, grading, audio and meta-data management combined with the best of Arri's color and imaging science.

Simon Cuff, Digital Vision's COO, says, "We are delighted to announce this partnership with Arri ... which will provide studios and facilities with a digital dailies process that improves today's DI workflows. The Nucoda philosophy has been adopted by studios and facilities worldwide and the combination of Nucoda and Arriscan is a first-class proposition for the industry."

Stephen Schenk, Arri's general manager of the Business Unit Camera & DI Systems, adds, "More than 100 Arriscans are currently in use worldwide for feature-film scanning as well as in a wide range of commercials, film restoration and digital-dailies applications. Constant evolution since its introduction in 2004 has made the Arriscan the future-proof investment in film digitizing, and this latest technological development with Digital Vision's Nucoda technology will redefine the digital-dailies process."

The new software is scheduled for release in the third quarter of this year. For more information, visit www.digitalvision.se and www.arri.com.

Pixel Farm Stocks PFSilo

The Pixel Farm has introduced PFSilo, a collaborative workflow-management system for the restoration market.

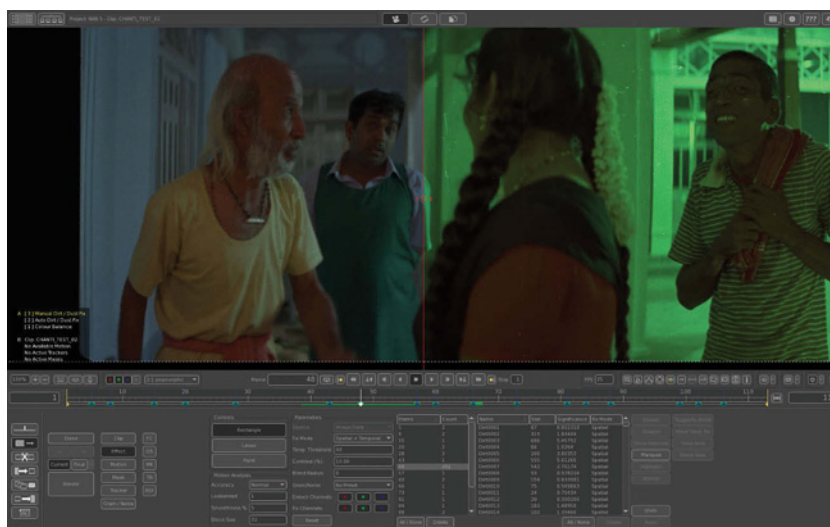
Designed for use with The Pixel Farm's comprehensive DI and restoration

toolset, PFClean, PFSilo enables teams of restoration artists to work on single or multiple feature-film projects simultaneously. Simple-to-administer project-management and asset-handling tools allow project managers and producers to organize and supervise the workloads of artists, helping to manage deadlines and deliverables and improve productivity. PFSilo is built on open, standard database technologies, and is extensible and flexible enough to be installed as a standalone solution or within established facility infrastructures.

"PFSilo was developed in response to customers' need to work in ever-more productive and efficient ways on restoration projects," says Michael Lancaster, managing director of The Pixel Farm. "PFClean already excels in restoration, providing artists with a range of auto/manual tools. Now PFSilo optimizes the way that shots are distributed and managed between digital artists, so that even the most intensive projects can be delivered with speed and efficiency."

Alongside the release of PFSilo, The Pixel Farm announced PFClean 5.1 software, designed specifically to work with PFSilo and incorporating such new features as a timeline with reference movies for film assembly, updated primary grading tools, improved image stabilization, edge-blending on auto dirt correction and new effects for de-quantizing, de-blocking and chroma re-sampling.

For additional information, visit www.thepixelfarm.co.uk. ●



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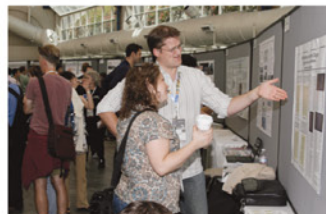
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Filmmakers' Forum

Capturing an Episodic Drama With a DSLR

By Gale Tattersall

Some filmmakers tend to think of their equipment as the starting point, but when executive producer/director Greg Yaitanes and I began to plan the finale for the sixth season of *House, M.D.*, we started with the script. According to that blueprint, a lot of the action would take place in a collapsed building, which meant that in order to film it, the crew would be spending about five days on their hands and knees and bellies on sets that were about 2½' tall. Our production designer, Jeremy Cassells, had designed the sets so that everything could move away and float up, but we realized very early on that the time to do this shot by shot would kill us unless we worked with small cameras.

I had shot some commercials for Canon Japan on the Universal Studios backlot, and the clients asked us to shoot the spots with the 5D Mark II DSLR. I thought they were absolutely nuts. How could you photograph a serious commercial with a tiny stills camera? But I did some tests, and the results were actually quite beautiful. When I went back on *House*, I showed Greg what I'd done with the 5D, and we went through some fairly extensive tests before making the decision to use it on *House*. At first, we decided to use it on just a few scenes in the episode "Lockdown," which involved a newborn baby. (The rules for filming infants are incredibly strict, and the idea of putting a 60-pound camera with a 50-pound geared head over the baby seemed ridiculous.) Using the 5D for those scenes worked well, and Greg suggested we shoot an entire episode with it.

We'd shot all six seasons of *House* on 3-perf Super 35mm, although we'd captured some shots here and there with digital cameras. We'd used the Panasonic HVX-200 for portability in our operating-room set, and we had also recently used the Weisscam HS-2 to capture a particular shot at 2,000 fps. Committing to shooting an entire episode digitally for the first time would be difficult, but every piece of equipment has its advantages and disadvantages — it's just a matter of going with the things that are wonderful and avoiding the areas of weakness.

One of the things I discovered during testing was that the 5D



“I’ll be surprised if many television shows don’t add a 5D, 7D (or the newer 1D MK IV) to their toolkits.”

brings something unique to the table: a large-format sensor that lets you play with a very shallow depth-of-field. I would argue that if you shot on 70mm film in the 16x9 aspect ratio, you still couldn’t achieve less depth-of-field than with a wide-open T1.2 or T1.4 lens on a 5D.

The script for the season finale was a very emotional one; it’s all about what’s going on in House’s head, so we really wanted to separate him from reality. On our hospital sets, a lot of distracting architectural elements vie for attention in the frame, and with the 5D, we could throw backgrounds completely out of focus, putting House (played by Hugh Laurie) in his own world. It’s an incredible look, but it

created a nightmarish problem with focus-pulling.

Part of the problem is the shallow depth-of-field — a Canon EF 50mm T1.0 lens has almost none. We did a lot of close-ups, and sometimes focusing on one eye would make the other go soft, and the end of the actor’s nose would be completely gone. Also, Canon lenses were made for still photography, so the barrel rotation between minimum focus and infinity is incredibly small — just a 2mm movement of the focus ring might make a focus difference of

10" in the action zone. If I hadn’t had such great focus pullers, I would have been in serious trouble. Don Carlson, my A-camera focus puller, opted to completely separate himself from video village and the camera and just eyeball everything off a 7" Marshall monitor, which has an edge peaking mode that displays the focus differential of a given shot as a colored highlight. We used BarTech remote-focus units, which were well-suited to the Canon lenses; the remote-focus units we use with our full-sized cinema lenses proved too powerful. (We rigged everything using Redrock Micro support equipment.) It tends to complicate things when the cameras are moving, the actors are moving, and you have to calculate a 1" plane of focus from 10' away, so we tried to minimize camera moves.

Having seen the rehearsals, Don knew which way the actors were likely to move.

In our tests, we also encountered the banding and aliasing caused by the 5D’s highly compressed 8-bit H.264 recording system. Banding breaks up tonal separations into distinctive gradations, but we found that if we added a tiny bit of grain in post — something

we were planning to do to take the edge off the clean digital look — we could get around that problem.

The camera's rolling shutter captures the image in such a way that if you do a swish pan, there's quite a lot of image distortion in the few frames where you're arriving on your shot. I don't think the general audience would recognize it, but someone working in post will see it immediately. Software companies are said to be working to eliminate that problem, but we simply tried to avoid those sorts of shots.

When I color timed the episode at The Post Group, I was incredibly happy with what I saw. Our data was transferred to 4:4:4 HDCam-SR to conform to our normal post workflow. I thought we'd have to correct a massive amount of stuff, but there were only a few things we needed to address, like the aliasing and banding. My color timer, Keith Shaw, is a master of his craft, so the image never suffered.

In spite of its flaws, using the 5D can be addictive. It's compact, lightweight and easy to handhold. You can put three of them where one film camera would typically fit — and we did. I'd put its lenses up against the best glass in the world in terms of their internal optics. There were some shots where our lights were actually in frame, but because the lens coating minimizes flares and internal reflections, we got away with murder.

I'll be surprised if many television shows don't add a 5D, 7D (or the newer 1D MK IV) to their toolkits. These DSLRs work beautifully for inserts and pickup pieces, and they also make a fantastic director's viewfinder. It's not the be-all and end-all, but what I love about the DSLR platform is that it represents the democratization of the filmmaking process. People who might not have access to conventional filmmaking tools can now go out and make something that will stand up theatrically. (I've seen 5D footage projected on a large screen and think it looks amazing.) There's no reason not to go out there and experiment — that's how we reinvent ourselves. ●

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Cinedeck Has Recording, Monitoring Solution

Cinedeck has introduced the first camera-mountable HDMI/HDSI recording, monitoring, playback and editing device for the production community. Designed by cinematographers for cinematographers, Cinedeck offers a new category of portable, affordable, platform-agnostic, cinema-grade recording and monitoring solutions for anyone with an HDMI, HDSI or LAN camera.

Cinedeck is a robust cinematographer's toolkit, complete with VTR and monitoring functionality as well as preview, focus assist, record, playback, downconvert and transcode capability, all in the form factor of a standard on-camera monitor. The extremely portable Cinedeck measures 5"x8"x3.5" and weighs less than 4 pounds; Cinedeck is camera-mountable and, even with its cables and accessories, can be stored in a space no larger than a shoebox. Cinedeck records from nearly any HDMI or single/dual-link HDSI camera to rugged and reliable 2.5" solid-state drives, and its source files are compatible with Mac, PC or Linux. Cinedeck also offers support for a wide array of codecs and file formats, including CineForm in both AVI/MOV wrappers, and Avid-compatible MXF, and it enables users to edit dailies on-site.

Charles d'Autremont, founder and creator of Cinedeck, says, "Cinedeck was born from years of experience in the field,



logging so-called portable and very expensive tape and direct-to-disk solutions through the Panamanian rain forests, Turkish deserts, and on the back of jeeps hurtling down potholed roads in Kazakhstan. We finally said, 'This is ridiculous; we can do better.' Cinedeck is the cinematographers' solution. We decided to create a new standard for portability, quality and reliability, and most of all to make that level of quality affordable and accessible to everyone."

Cinedeck is available in multiple configurations, including Cinedeck/Extreme, Cinedeck/3D, Cinedeck/2K, Cinedeck/422 and Cinedeck/DSLR; Cinedeck/Extreme is priced at \$7,995. For more information, visit www.cinedeck.com.

Band Pro Offers PL-Mount 7D

Band Pro now offers the FGV 7D-PL camera, a Canon EOS 7D DSLR body permanently retrofitted by FGV Schmidle with a one-piece lens/sensor/base mounting element made of rock-solid steel. The 7D-PL accommodates most cine-style PL-mount lenses and comes with a one-year limited warranty from FGV Schmidle.

During the retrofit process, the camera's mirror and optical viewfinder are removed and the original sensor block is rigidly reinstated in connection with the one-piece 3/8" threaded

Silicon Imaging Updates SI-2K

Silicon Imaging has introduced the SI-2K 2.0, the latest version of its HD and 2K cinema-quality RAW camera. The new system combines improvements in the SI-2K's firmware and software to deliver up to 11 stops



of dynamic range, 12-bit log processing, an Iridas color-managed pipeline, improved sensitivity, 360-Shutter modes, ambient time-code integration and uncompressed CineForm-Raw QuickTime recording to 2.5" Solid State Drives. The QuickTime Files can be instantly edited in Apple's Final Cut or imported into Avid with the ALE and metadata generated in-camera.

The SI-2K can be docked into the rugged SI-2K Cinema

DVR or tethered to the new Silicon Imaging Minideck for Steadicam, shoulder-mount or handheld operation. Two SI-2K cameras can be synchronized to shoot stereo 3-D mounted side by side or on a mirror rig for close-up work.

"The SI-2K camera delivers the image quality necessary for HD television and theatrical releases," says Ari Presler, CEO of Silicon Imaging. "The ability to capture and record uncompressed 12-bit log is unprecedented and enables our content to be easily cut with film or any other digital format out there. The CineFormRaw QuickTime codec offers real-time cost-effective editing, metadata-managed grading and ultimately DCI mastering.

"The industry support for SI-2K postproduction has been phenomenal," Presler continues. "Today, we are supported and integrated with Apple, Avid, Quantel, Adobe, DVS, Digital Vision, Gluttools, Iridas, and there are more on the way."

For additional information, visit www.si-2k.com.



steel mounting bracket and PL lens mount, ensuring that all critical camera elements move as one. A three-pin Fischer connection is also added to allow start/stop control when using a handgrip system or remote camera controls, making the 7D-PL ideal for remote rigs, car rigs, cranes and jibs.

For additional information, visit www.bandpro.com and www.fgv-rental.de.

JVC Christens Flagship Camcorder

JVC Professional Products, a division of JVC U.S.A., has introduced the new flagship of its ProHD camcorder line, the GY-HM790. With an innovative modular design and a full complement of accessories, the camera supports multi-core and fiber-based production. Plus, as a shoulder-mount camcorder, it delivers outstanding ENG performance with more features than ever.

The GY-HM790 features three 1/3" CCDs, which allow a lighter, more compact form factor for better maneuverability in the field and more flexibility with robotic camera-control systems in the studio. The camera produces 1920x1080 images and can record in 1080i, 720p and even SD (480i); the camera records at 35 Mbps (HQ mode/variable bit rate) or 19 Mbps/25 Mbps (SP mode/constant bit rate). The GY-HM790 is also available with an optional Canon 14x zoom lens, and it



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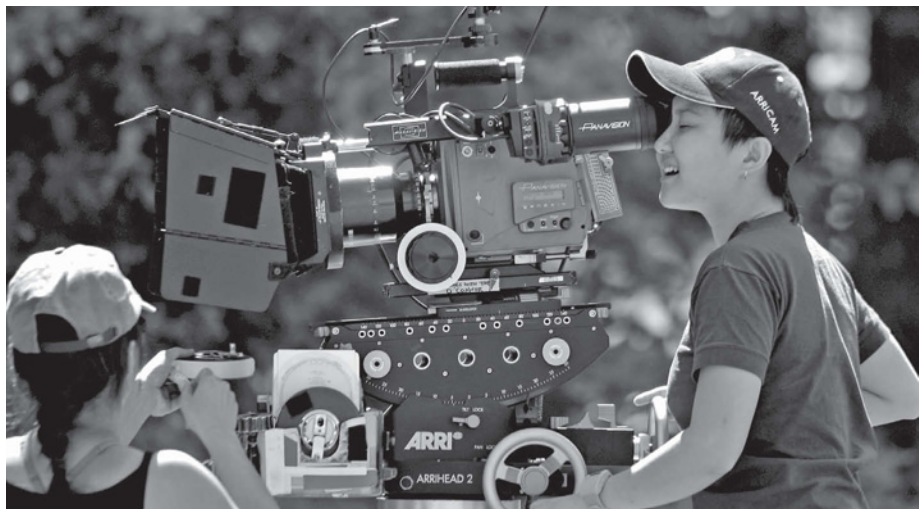
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accommodates an array of bayonet-mount lenses.

Adopting the tapeless workflow JVC introduced in the GY-HM700, the GY-HM790 features a dual card slot design that records to low-cost, non-proprietary SDHC Class 6 or 10 solid-state media cards. JVC's native file recording technology allows recording in ready-to-edit file formats for Apple Final Cut Pro and other major NLE systems that are compatible with the Sony XDCam EX workflow.

An optional ASI output module provides a direct feed from the camera to a satellite uplink or microwave transmitter via BNC for live HD video from the field. Other ENG features include an analog SD pool feed input, 4.3" LCD screen and a high-resolution 1.2 megapixel LCOS viewfinder. Two XLR inputs with phantom power offer uncompressed LPCM audio recording with manual level controls.

With its HD/SD-SDI port, the GY-HM790 provides an uncompressed 4:2:2 full HD signal for live monitoring, and a FireWire port provides output of SD signals or the HDV transport stream so footage can be backed up economically with an HDD recorder. An optional SxS media recorder module attaches directly to the camcorder and allows simultaneous recording to SDHC cards and SxS media.

The GY-HM790 also builds on the studio capabilities of JVC's GY-HD250 camera with improved picture quality and cleaner studio integration. Its redesigned studio adapter sled incorporates a modular approach to multicore or fiber connectivity for a cleaner interface. Modules connect directly to the camera without external cabling so they can be used either with the studio sled or handheld. Plus, JVC's modular approach allows the creation of additional modules to accommodate future technologies.

Other new features for studio or multi-camera use include built-in time-code in/out and genlock. JVC also offers a full complement of accessories, including a remote camera-control unit, remote shader panel, 8.4" studio viewfinder and multi-input special-effects generators.

The GY-HM790 is available at a recommended price of \$11,995, including the Canon 14x HD ENG lens. For additional information, visit <http://pro.jvc.com>.

Unique Solutions from UniOptics

UniOptics has introduced Kenji Suematsu Signature Series primes, Razor 7D Series primes and a double aspheric wide-angle adapter for 100mm-diameter prime lenses.

The result of UniOptics' decades of experience and the world-class optical-design expertise of the company's joint development partner, Hyperion Development, LLC, the Kenji Suematsu Signature Series primes are a professional set of digital lenses built in Simi Valley, Calif. Features of the set include modern digital optical design, a full range of focal lengths from 14-100mm, accurate focus marking, true T1.9-T22 aperture range, low distortion, virtually no breathing and uniform focus and iris gear diameters with full and easy-to-read scales.



Embracing the current trend toward DSLR image capture, UniOptics' Razor 7D Series is designed for use with Canon's EOS 7D camera. The prime lenses have been designed to give razor-sharp image control from corner to corner with virtually no distortion or breathing. The uniform-diameter focus and iris gears and single-window scales offer a familiar experience for the profes-

sional cinematographer; the industry-standard form factor of the Razor 7D Series allows compatibility with many professional cinema accessories.

Lastly, UniOptics' 0.7x wide-angle double-aspheric lens adapter includes a quick release mount that slips over a standard 110mm front diameter and increases the field of view by 30 percent. The double-aspheric lens technology insures the image quality is not compromised.

For additional information, visit www.unioptics.com.



Blue Handle Support Goes Mini

Building on the success of its Blue-Handle Support System, introduced in 1994, Real to Reel has introduced the Blue-Handle Mini Kit System. With a maximum payload of 20 pounds, the Mini Kit is specially designed for use with DSLRs and lightweight HD camcorders.

Manufactured with high-quality parts, the Mini Kit is built to withstand the rigors of studio and location shooting. The old ratchet system has been replaced by a robust tight-fit system, while the same aluminum alloy found in the original Blue-Handle Support is used in the Mini Kit, and the final assembly is handcrafted. The Mini Kit is supplied with a convenient travel case.

The Blue-Handle Mini Kit System is available in America through The Filter Gallery. For more information, visit www.filtergallery.com.

Compact Stereo Shooting with Element Technica's Neutron

Element Technica has introduced the ultra-small Neutron 3D Rig, designed to mount lightweight 3-D camera packages for stereoscopic video capture from smaller jibs, Steadicams, portable



cameras and point-of-view positions. The Neutron is a perfect solution for providing 3-D imaging from a small form factor, with the ability to mount the smallest $\frac{2}{3}$ "- or $\frac{1}{3}$ "-imager HD cameras such as the SI-2K Mini and the Iconix.

Though the Neutron is much smaller and lighter than Element Technica's Quasar 3D Rig, it provides the same simplicity of assembly and operation, the ability to integrate with standard stereoscopic production controls, and the ease of changing camera configuration quickly between side-by-side and beam-splitter modes. Like the Quasar, the Neutron can be configured into both over/through and under/through beam-splitter modes.

Whether a production chooses to employ the larger Quasar, the ultra-small Neutron or the upcoming medium-sized Pulsar, the crew will be able to assemble and align each rig in less than 30 minutes and convert from side-by-side to beam-splitter mode, or vice-versa, in less than 10 minutes.

For additional information, visit www.elementtechnica.com and www.technica3d.com.

S3D Intros Stereo Beam Splitter

S3D Technologies, a company focused on the research and development of technology for stereoscopic 3-D film production, has introduced the S3D Beam Splitter Rig to facilitate the shooting of live stereoscopic 3-D images.

The Beam Splitter Rig offers the perfect balance between stability, rigidity and weight. Suitable for film and digital cameras with lenses of up to 114mm diameter and 16mm focal length, the rig possesses a state-of-the-art camera-release system, allowing the operator to remove and fix cameras quickly and efficiently. The operating temperature range of the rig's electronic components is from

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S3D has also introduced the S3D Calculator, an essential tool when shooting stereo 3-D.

The Calculator software enables the exact configurations of stereoscopic parameters to be sourced based on the conditions of the set and its desired effects.

For additional information, visit www.s3dtechnologies.com.

Marvin Manages Digital Productions

Marvin Technologies has introduced the Marvin on-set workflow-management system for digital cinematography. Marvin automates the creation of backups, LTO tape masters, QuickTime proxies for offline editing and DVD dailies in a single process, offering filmmakers and rental houses numerous time- and cost-saving advantages over current ad-hoc practices.

Marvin is the brainchild of Dutch filmmaker Maarten Treurniet. After taking delivery of Red One camera body 49, Treurniet found managing the workflow between production and post was awkward and prone to costly mistakes. "The possibilities with digital acquisition are very exciting, but we saw a clear need for production protocols to streamline and standardize the process," he explains. "Marvin does all of that and ensures that your data is kept safe."

Marvin is built around a Windows 7 computer with 6 or 12TB of RAID5 storage and a core i7 processor. The standard configuration includes one built-in LTO tape drive; a second drive can be added. When removable media from the camera is attached to the system, Marvin automatically creates verified copies of every shot to its own internal RAID5 storage array and ejects the media, ready for reuse. Marvin then generates multiple verified LTO copies of all of the shots from the day, along with DVD dailies and Quick-

Time files for offline editing. After offline editorial, a companion application, Marvin InPost, assembles the shots specified in the edit decision list for post work and finishing.

The Marvin system supports the Red One camera, Silicon Imaging's SI-2K, Arri's D-21 and Alexa, Panasonic's P2 systems, and high-speed cameras such as the Vision Research Phantom and Weisscam HS-2. Anyone on the production team who has login privileges can browse through a project and view thumbnails or video.

For additional information, visit www.marvintech.com.

Rocket Fuel Powers Radius

NextComputing, a manufacturer of high-performance portable computers, has announced support for the Assimilate Rocket Fuel bundle, which includes the necessary tools for real-time ingest, conform, delivery and output of Red One 4K digital material. NextComputing has integrated Rocket Fuel into its Radius portable workstation, providing an elegant, compact and easily transportable on-set data-management solution for any production using the Red One.

Designed specifically for the R3D image format, Rocket Fuel combines Scratch Cine v5.0 software, an Nvidia Quadro FX 3800 SDI card and the Red Rocket hardware accelerator card. Leveraging the real-time de-Bayering capabilities of the Red Rocket card with Nvidia Cuda architecture, Scratch Cine v5.0 enables full-resolution playback of 4K Red files, direct creation of tape and file-based dailies without importing or conversion, one-light color grading, color and shot management, and initial R3D conform.

NextComputing's Radius portable workstation is a compact, briefcase-sized computer with an integrated HD display. Featuring a desktop-class Intel Core i7 processor and over 2TB of onboard storage, the Radius neatly integrates all the necessary hardware required to run Rocket Fuel to its fullest potential. Packaging all these features in the lightweight and portable Radius computer allows Red camera data to be efficiently managed

on-set, providing the smoothest possible transition to post. The ability to take this out to any location offers added flexibility to productions at any budget level.

For additional information, visit www.nextcomputing.com and www.assimilateinc.com.

Convergent Design Records 3-D

Building on the success of its NanoFlash recorder/player, Convergent Design has unveiled the Nano3D, a professional 3-D-HD portable player. Nano3D combines two NanoFlash recorders/players for fully synchronized stereoscopic recording and playback. Nano3D can also be used for simultaneous off-line/online (high quality and proxy modes) or redundant (two identical masters) recording.

The compact Nano3D measures only 3"x4.2"x3.8" and weighs only 2 pounds, making it an ideal choice for almost every 3-D camera rig. Nano3D utilizes the very-high-quality full-raster 4:2:2 Sony MPEG2 codec but extends the bit rate up to 280 Mbps for superb video quality. Compressed video and audio are stored on affordable Compact Flash media in QuickTime or MXF file format, providing universal NLE support.



As a recorder, Nano3D features dual HD-SDI inputs as well as an LTC input for time code. Nano3D supports a wide range of video formats, including 1080i60/50, 1080p30/25/24 and 720p60/50/30/25/24. I-Frame-only recording (up to 280 Mbps) guarantees that both the left and right frames are processed identically for superior 3-D rendering. Up to eight channels of embedded audio per HD-SDI stream can be recorded in uncompressed 24-bit 48KHz format, enabling full HD 5.1 or 7.1 program creation.

As a playback device, Nano3D offers standard dual-stream synchronized HD-SDI output. Nano3D also boasts a built-in combiner function, which merges

the left and right video into one of the popular 3-D formats such as side-by-side, top-and-bottom or line-by-line; the merged video is output over a single HD-SDI cable for display on professional 3-D monitors. Furthermore, the addition of a low-cost HD-SDI to HDMI converter enables the 3-D HD-SDI stream to be displayed on consumer 3-D TVs.

For additional information, visit www.convergent-design.com.

FFV Unveils HD3

Fast Forward Video has announced the launch of its HD3 digital video recorder. A highly versatile, compact, all-in-one system, the HD3 was designed specifically for on-set motion-picture and television production. Packed with state-of-the-art DVR and controller technology, the HD3 includes an integral HD monitor in a hard, portable case. The HD3 harnesses JPEG2000 compression to deliver the highest HD and SD image quality for recording and playback.

"The HD3 bundles all of the high-end HD recording and playback capabilities of our Omega HD deck into a

portable, all-in-one system, including a monitor, which makes it an ideal solution for on-set production tasks such as video assist," says Harry Glass, vice president of sales at FFV.

"The HD3 is not only powerful and versatile, but affordable, delivering high-quality results that typically are available only in more expensive systems."

Like FFV's Omega HD, the HD3 is available in either single- or dual-channel configurations, delivering all the advantages of HD images and the random-access non-linear benefits of solid state or hard disk drives. The system uses removable, hot-swappable 2.5" SATA drives that are compatible with the Omega HD.

For additional information, visit www.ffv.com.



DVEO Unleashes VideoTank

DVEO, the broadcast division of San Diego-based Computer Modules, Inc., has introduced the VideoTank HD, a rugged, handheld, high-definition H.264 recorder.

VideoTank HD supports up to 32GB Compact Flash cards, enabling it to record up to two hours of 1080i content in a unit measuring only 3.3"x3.3"x1.6". It features automatic standards detection, a built-in microphone and headphone connectors. The unit is controlled via an LCD panel and on-board push buttons.

VideoTank HD is designed for encoding, decoding and rugged mobile applications where small HD cameras are deployed. The system has integrated file-safe operation to help prevent corrupt files in case of errors or power loss.

The suggested retail price of the VideoTank HD is \$9,995. For more information, visit www.dveo.com.

Surreal Road Maps Production Data

Surreal Road has released a beta version of its flagship software product, Synaesthesia. The new version adds the capability to read-in clip information from Final Cut Pro XML files. The new feature adds to an already rich toolset, including support for Red camera footage and Google Maps integration.

Synaesthesia is a database-driven application for Max OSX, targeted at filmmakers who need to track data across the lifetime of a production. From loading in screenplays and storyboards during preproduction, through logging action during a shoot, to creating sequences during post, it forms intelligent links out of all the data and allows filmmakers to annotate and use modern data management techniques such as tagging to keep everything organized and accessible. Synaesthesia was created to fulfill a need

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to organize the massive amounts of data and metadata that can be generated on a shoot.

The beta version is available for free download at <http://synaesthe.surrealroad.com/beta>. For more information, visit www.surrealroad.com.

Marshall Monitor Enters Field

Marshall Electronics has added the V-LCD50-HDMI 5" monitor to its popular line of portable camera-top monitors. Packed with features, the portable unit is a perfect solution for DSLR and video professionals.

The compact LED-backlit V-LCD50-HDMI offers excellent picture performance and viewing angles. Standard features include a wide variety of formats and markers, four user-friendly configurable front-panel function buttons, RGB

check field/field detect, RGB gain and bias control. The monitor also features Marshall's False Color and Peaking filters, along with Image Flip, Freeze Frame, and HDMI Auto

Color Space and Ratio Detect.

The V-LCD50-HDMI can be powered either with the included power supply or with four AA batteries. Additionally, the bottom 1/4"-20 mount allows the monitor to be mounted to most DSLRs, cranes and jibs.

For additional information, visit www.lcdracks.com.

FSI Monitors Critical Color

Flanders Scientific, Inc. has announced the release of the 24" LM-2470W 10-bit RGB LED Matrix monitor. Incorporating all of the powerful features found across FSI's monitor line, the LM-2470W comes equipped with a true native 10-bit LCD panel and RGB LED Matrix Backlighting System. Designed for the most demanding color-critical applications, the monitor is capable of reproducing over 1.073 billion colors.

The LM-2470W is an ultra-wide-gamut LCD monitor (102 percent of

NTSC) with an advanced color-space selection option allowing users to instantly switch between Rec 709, SMPTE C, EBU and Wide Gamut modes. Additionally, the monitor comes standard with 3 Gbps HD/SD-SDI inputs, allowing the unit to support a 4:4:4 and 1080p50/60 source over a single serial digital interface. Other inputs include Component,



RGB, Composite and DVI-I; the four-mode waveform and vectorscope work for all inputs. Additionally, the monitor boasts a lightweight and rugged aluminum chassis, as well as audio disembedding, audio out, audio level meters and built-in speakers.

For additional information, visit www.shopfsi.com and www.flandersscientific.com.

Wohler Adds Vectorscope to RM HD Monitors

Wohler Technologies Inc. has announced the addition of vectorscope capability to all of the company's new RM HD LCD video-monitoring products. Already equipped with waveform display and a broad range of metering and overlay options, these sleek, compact monitors bring increased functionality and efficiency to high-quality HD monitoring, particularly in the space-constrained production environment.

"External gear such as hardware scopes not only require an additional equipment investment, but also demand valuable space in fixed and mobile installations," says Kim Templeman-Holmes, executive vice president of global sales and marketing at Wohler. "By integrating vectorscope capability into all of our new RM HD monitors, we've boosted the systems' value and eliminated a layer of

complexity in ensuring the quality of video sources. Operators now can acquire a rich array of source and signal data through the monitor by simply accessing that information through the onscreen display."

Ideal for confidence monitoring in mobile trucks, news and transmission control rooms, and duplication and post-production facilities, products in the RM family of slim, lightweight LCD monitors enable monitoring of HD/SD-SDI video and composite video with embedded audio. Each system boasts two to four high-resolution screens that display HD or SD video, as well as meters for up to eight channels of audio. Additional overlays that can be added by the operator include safe area and safe title markers, a center mark, time code, display format and IMD.

For additional information, visit www.wohler.com.

Skooba Stables Cables

Skooba Design has introduced the Cable Stable DLX, a completely redesigned edition of the unique cable and accessory organizer the company first developed and introduced in 2000.

The Cable Stable DLX looks and opens like a book and features approximately 18 different storage spaces in a 12-ounce case the size of a traditional day planner. Opening the Cable Stable DLX, one side features a grid of elastic hold-downs in different sizes and orientations. The elastic strips "float" freely under reinforced retention strips so they can easily stretch and contract to accommodate a near-limitless assortment of portable gadgets, cords, adapters and other accessories. Mesh pockets line the side opposite the storage grid, and elastic loops for batteries, pens and thumb drives line the center divider; additionally, the exterior features a document/CD pocket.

The Cable Stable DLX is available for a suggested retail price of \$39.95. For more information, visit www.skoobadesign.com.

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In Memoria

Karl Malkames, ASC 1926-2010



Cinematographer and film preservationist D. Karl Malkames, ASC died March 8 at his home in Scarsdale, N.Y., at the age of 83.

Malkames was born in Hazelton, Pa., on May 6, 1926, to ASC member Don Malkames and Dorothy Klotz. He grew up surrounded by his father's collection of motion-picture cameras and projectors, and, as a teenager, became proficient in the equipment's use. He enlisted in the U.S. Navy at the age of 17 and served through the end of World War II, working as an electronics technician aboard the submarine *USS Chopper*.

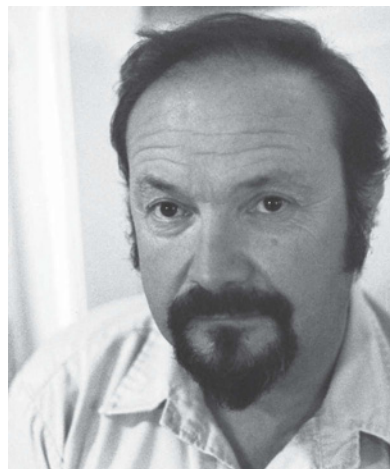
Upon returning to civilian life, Malkames married his high-school sweetheart, June Dougherty, and joined the staff of RKO Pathé as a camera assistant. He climbed the ranks, and in 1951 he joined Warner-Pathé News as a staff cameraman. He began to freelance in 1958 as both an operator (*Love With the Proper Stranger*, *Seven Days in May*) and cinematographer (*Harvey Middleman*, *Fireman* and second unit on *Thunder Road*).

In 1966, ASC members Sol Halprin and Arthur Miller proposed Malkames for Society membership. While continuing to freelance as a cinematographer, Malkames also founded Karl Malkames, Inc., where he served as cinematographer and producer on a variety of films, many of which were made for the Navy.

In 1979, Malkames produced and directed the documentary *The Motion Picture Camera*, about the cameras and projectors of the early film industry. Combining his passion for film history with his technical acumen, he also designed and built optical printers that were used in preservation/restoration work by such clients as the Museum of Modern Art, the American Film Institute and the George Eastman House.

Malkames is survived by his son, Rick; daughter, Christine; 11 grandchildren, and four great-grandchildren.

Vincent Martinelli, ASC, 1933-2010



Vincent Martinelli, ASC, whose credits as a director of photography include *Airport '77*, *The Ultimate Imposter*, *To Race the Wind* and the series *Simon & Simon*, died on March 5 at the age of 76.

Born in Hollywood on May 22, 1933, to Elsie and Enzo A. Martinelli, ASC, Martinelli grew up in the film industry. (His great-uncle, Arthur Martinelli, was also an ASC member.) Determined to become a cinematographer, he began his professional career as a film loader at Republic Studios. After only a few months, he was drafted into the U.S. Navy. After completing his service, he returned to Republic, where he rose to the head of the camera department before going freelance in 1960.

As a freelancer, Martinelli worked as a camera assistant until stepping up to operator in 1968; his credits during this period included the series *The Fugitive*, *Family Affair*, *Cannon* and *The Invisible Man*. In 1976, he was promoted to director of photography on a short-lived television series for Universal. He continued working as a cinematographer on projects for major studios and independents, and in foreign locations such as Hong Kong and the Virgin Islands. In 1985, Martinelli was proposed for ASC membership by Don Birnkrant, Harry Wolf and Alfred Keller.

After shooting the pilot for the series *Major Dad*, Martinelli moved to Bend, Ore., in 1989, and he hung up his light meter in 1991 to enjoy such hobbies as hunting and golfing.

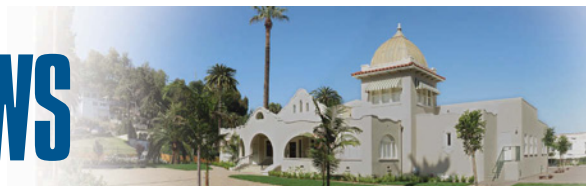
Martinelli is survived by his wife, Ann; sons, David and Robert; and two grandsons.

— Jon D. Witmer





Clubhouse News



Society Welcomes Miranda

New active member **Claudio Miranda, ASC** was born in Santiago, Chile. He began his career as a stage manager, and then decided to focus on working in the electrical department on film productions, where he steadily rose through the ranks. As a gaffer, he worked on features that included *The Crow*, *Crimson Tide* and *The Fan*, all photographed by Dariusz Wolski, ASC; *The Game*, shot by Harris Savides, ASC; *Enemy of the State*, shot by Daniel Mindel, ASC; and *Fight Club*, shot by Jeff Cronenweth, ASC.

Miranda transitioned to cinematographer on commercials and music videos, earning Clio, AICP and MVPA awards for his work with directors Joel Peissig and David Fincher, among others. In the feature realm, he has shot *A Thousand Roads*, *Failure to Launch*, *The Curious Case of Benjamin Button* and the upcoming release *Tron: Legacy*. He earned ASC, Academy and BAFTA nominations for his work on *Benjamin Button*.

Condon Becomes Associate

Michael Condon, vice president of the digital division at Clairmont Camera, has become an associate member of the ASC. He also belongs to the Society of Camera Operators.

Condon's career in the motion-picture industry began at JAR Enterprises, where he spent two years as a machinist and camera technician before moving on to Hill Production Service, where he remained for 16 years. At Hill, he worked on numerous productions as a camera assistant, operator and second-unit cinematographer.

Condon joined the staff of Clairmont Camera in 2000, and in 2001 he helped map the company's plan for the development and implementation of an HD department. He oversees all of the Digital Division's operations, including testing, purchasing and training. Condon was an active participant in last year's ASC/PGA Camera Assessment Series.

Acord, Schreiber Give Talks

Lance Acord, ASC and **Nancy Schreiber, ASC** recently joined writer/director Lee Isaac Chung, writer/director Jacob Tierney and producer Jon Kilik for an educational panel discussion sponsored by Kodak at the Tribeca Film Festival in New York. Moderated by journalist Brandon Harris, "Tribeca Talks Industry: Talking with Pictures" explored the collaborative process of creating compelling images.

Schreiber also recently discussed her career behind the lens with members of Women in Film Chicago at Fletcher Camera & Lenses' local facility.

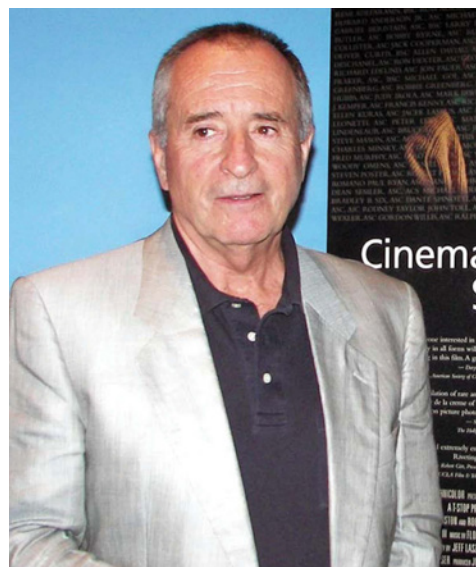
LACMA Salutes Musuraca

The Los Angeles County Museum of Art recently presented "Where Danger Lives: The Noir Cinematography of Nicholas Musuraca," a screening series celebrating the atmospheric black-and-white work of the late **Nicholas Musuraca, ASC**. The series included the films *Out of the Past*, *Where Danger Lives*, *Stranger on the Third Floor*, *Deadline at Dawn*, *Born to be Bad*, *The Woman on Pier 13*, *The Spiral Staircase*, *Bedlam*, *Clash by Night* and *The Blue Gardenia*.

Arri Names NYU Award for Bahnemann

In recognition of ASC associate member **Volker Bahnemann's** 40-plus years of service to the filmmaking industry, Arri has established the Volker Bahnemann Award for Cinematographers at New York University's Tisch School of the Arts Maurice Kanbar Institute of Film & Television. The award will be presented annually to one cinematographer in either the undergraduate or graduate division.

"Volker was, is and will be one of the most prominent figures in the film industry," says **Vittorio Storaro, ASC, AIC**. "He pushed all of us to use our



Top: Claudio Miranda, ASC. Bottom: Associate member Volker Bahnemann.

personal creativity and our knowledge of every art to better express ourselves in the 'Tenth Muse,' the cinema."

"I was truly overwhelmed by this philanthropic gift from my friends and colleagues," says Bahnemann. "Words alone cannot fully express my appreciation and gratitude to everyone who has generously contributed to establish this award for future generations of cinematographers. This also is my opportunity and motivation to stay involved with this wonderful art and craft well beyond my active business life."

When you were a child, what film made the strongest impression on you?

Gone With the Wind (1939), *The Wizard of Oz* (1939) and *The Boy With the Green Hair* (1948).

Which cinematographers, past or present, do you most admire, and why?

James Wong Howe, ASC, for contrast in black-and-white and compositional use of wide-angle lenses in *Seconds*. Jordan Cronenweth, ASC, for his original work of mixing hard and soft light in *Zandy's Bride*. Conrad Hall, ASC, for his ability to suit the image to the narrative in every film he shot.

What sparked your interest in photography?

My father was a director and my mother was an actress, so I was exposed to the industry at an early age and spent countless hours on sets. I was always amazed at the craft of cinematography — how the director and cinematographer collaborated, and, ultimately, how the cinematographer would realize the vision through composition and lighting and by skillfully using the crew to achieve that end. I was hooked! I knew that's what I wanted to do.

Where did you train and/or study

After my discharge from the Army, I enrolled in Valley State College (Northridge). I later transferred to the University of Southern California and took cinema classes while working as a messenger at Walt Disney Studios.

Who were your early teachers or mentors?

Cinematographers Leon Shamroy, ASC; Jordan Cronenweth, ASC; Conrad Hall, ASC; and Bruce Surtees.

What are some of your key artistic influences?

In addition to the art I discuss a bit later in this questionnaire, it would be the work of other cinematographers, namely Caleb Deschanel, ASC, and Janusz Kaminski, whose work I find magical.

How did you get your first break in the business?

I was a print model and commercial actor who always had a desire to be behind the camera, so I used my agent and my own commercial contacts to obtain an interview with Sol Halprin, ASC, who was the head of the camera department at 20th Century Fox. Fortunately for me, the meeting went well, and I was hired as a second assistant cameraman.

What has been your most satisfying moment on a project?

Back in the late 1980s, I was shooting a Schwarzenegger movie, *The*

Running Man, and we had several weeks of night shooting at the abandoned Fontana Steel Mill, which spread out about a half-mile in every direction. The mill was essentially constructed of black steel, and it had matching set dressing. My dilemma was how to get it to read on film. I eventually came up with the idea of having a crop duster spray the entire area with glycerin while employing six Muscos as backlight and back/crosslight. Wow! It worked beautifully. The set shimmered and glowed.



Have you made any memorable blunders?

Oh, yes! I was shooting reversal stock on a feature and set the wrong ASA on my meter. As a result, the scene was so underexposed it was unusable. Lesson learned: pay attention!

What is the best professional advice you've ever received?

From Jordan Cronenweth: 'Minimize compromise, be prepared for rejection, and

save your money.'

What recent books, films or artworks have inspired you?

I have always had a penchant for abstraction and romanticism. I tend to view the world through diffusion as an attempt to soften its sometimes-harsh reality. I gravitate to Impressionists such as Monet, Pissarro and Morisot, and Romantics such as J.M.W. Turner.

Do you have any favorite genres, or genres you would like to try?

By far my favorite is period pieces, but I would love to shoot Westerns and noir.

If you weren't a cinematographer, what might you be doing instead?

I'd be a film editor.

Which ASC cinematographers recommended you for membership?

Howard Schwartz, Conrad Hall and Jordan Cronenweth.

How has ASC membership impacted your life and career?

Being invited to join the ASC was certainly one of the high points of my career. The honor and prestige that those initials bring to a cinematographer are immeasurable, a form of validation for your professional existence. My only regret is that I can't attend most ASC meetings and functions — living a thousand miles away has its price.

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RAOUL COUTARD



"Making a film is a love story. You must be happy to make the film with the director, the actors, and the team. You must learn to communicate and delegate, and to promote cohesion. Cinematography is not the technique, but the eye. It's a way of looking at things. A frame is like a photograph, a moment, but with cinema that moment has a before and an after. The time of viewing is limited, imposed by the director. A succession of these moments gives birth to emotion for the spectator. No one wants to see a film for the beauty of the photography only. For a film to be an artistic success, the vision must be a whole. A good film is when you come out of the theater totally stunned. You have no idea what hit you. You don't remember if you had dinner or where you parked your car. You want to be alone to think about it."

Raoul Coutard was born in Paris and started his career as a photojournalist in Indochina. His career in the film business started in the late 1950s with his friend, writer-director Pierre Schoendeorffer, and producer Georges de Beauregard. His 1960 collaboration with Jean-Luc Godard on *Breathless* gave birth to the Nouvelle Vague. He went on to make 17 films with Godard, including *My Life to Live*, *Contempt*, *Alphaville*, and *Pierrot Le Fou*. With Francois Truffaut he made *Shoot the Piano Player*, *Jules and Jim*, and *The Bride Wore Black*. As a director, his credits include *Hoa-Binh*, *Military Coup in Kolwezi* and *S.A.S. a San Salvador*. He is the recipient of countless awards, including the American Society of Cinematographers International Award.

[All these films were shot on Kodak motion picture film.]

For an extended interview with Coutard, visit www.kodak.com/go/onfilm.

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