

AMERICAN CINEMATOGRAPHER • JANUARY 2016 • THE REVENANT - IN THE HEART OF THE SEA - MACBETH - THE DANISH GIRL • VOL. 97 NO. 1

ANTHONY DOD MANTLE, ASC, BSC, DFF
IN THE HEART OF THE SEA

ADAM ARKAPAW
MACBETH

DANNY COHEN, BSC
THE DANISH GIRL

American Cinematographer

An International Publication of the ASC

JANUARY 2016

**THE
REVENANT**
EMMANUEL LUBEZKI, ASC, AMC
GOES TO EXTREMES

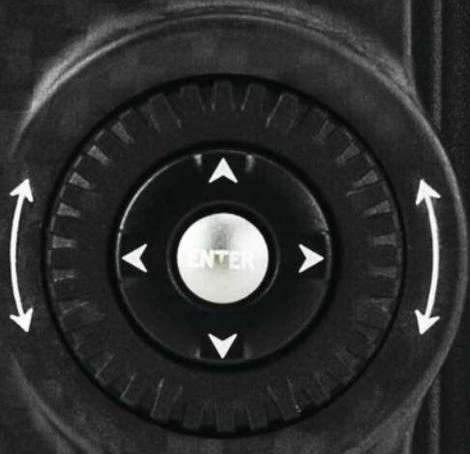
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HOLLAND GETS MORE K WITH FF-PRIMES

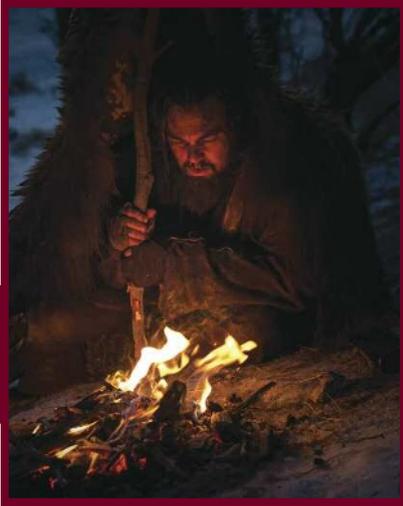
Phil Holland is known for his work as a Digital Colorist, Digital Imaging Specialist, and DP/Director. As a DIS, he worked on dozens of films including: *Life of Pi*, *X-Men: First Class*, *Cabin in the*

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On Our Cover: Hugh Glass (Leonardo DiCaprio) seeks revenge while struggling to survive in an unforgiving environment in *The Revenant*, shot by Emmanuel Lubezki, ASC, AMC. (Photo by Kimberley French, SMPSP, courtesy of Twentieth Century Fox Film Corp.)

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THE REVENANT

BEST CINEMATOGRAPHY

EMMANUEL LUBEZKI, ASC/AMC



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EDITOR-IN-CHIEF and PUBLISHER

Stephen Pizzello

EDITORIAL

MANAGING EDITOR Jon D. Witmer

ASSOCIATE EDITOR Andrew Fish

TECHNICAL EDITOR Christopher Probst

CONTRIBUTING WRITERS

Benjamin B, Douglas Bankston, John Calhoun, Mark Dillon, Michael Goldman, Simon Gray,
Jay Holben, Noah Kadner, Debra Kaufman, Jean Oppenheimer, Phil Rhodes, Iain Stasukevich, Patricia Thomson

ART & DESIGN

CREATIVE DIRECTOR Marion Kramer

PHOTO EDITOR Kelly Brinker

ONLINE

MANAGING DIRECTOR Rachael K. Bosley

PODCASTS Jim Hemphill, Iain Stasukevich, Chase Yeremian

BLOGS

Benjamin B

John Bailey, ASC

David Heuring

WEB DEVELOPER Jon Stout

ADVERTISING

ADVERTISING SALES DIRECTOR Angie Gollmann

323-936-3769 Fax 323-936-9188 e-mail: angiegollmann@gmail.com

ADVERTISING SALES DIRECTOR Sanja Pearce

323-952-2114 Fax 323-952-2140 e-mail: sanja@ascmag.com

CLASSIFIEDS/ADVERTISING COORDINATOR Diella Peru

323-952-2124 Fax 323-952-2140 e-mail: diella@ascmag.com

SUBSCRIPTIONS, BOOKS & PRODUCTS

CIRCULATION DIRECTOR Saul Molina

CIRCULATION MANAGER Alex Lopez

SHIPPING MANAGER Miguel Madrigal

ASC GENERAL MANAGER Brett Grauman

ASC EVENTS COORDINATOR Patricia Armacost

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ASC ACCOUNTS RECEIVABLE Nelson Sandoval

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TAKES USUAL PERIOD
AND SPY TROPES AND
MAKES THEM LOOK
LIKE WORKS OF ART,
FROM THE CHAOS-LADEN COURTROOM
SCENES TO THE STARK TONES
OF EAST GERMANY AND
THE ICONIC GLIENICKE BRIDGE.”
USA TODAY, Brian Truitt

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—— LINUS SANDGREN, F.S.F. ——

THIS MONTH'S CONTRIBUTORS

Jason Apuzzo

is a filmmaker and freelance writer (Short Takes, p. 14).

Benjamin Bergery

(a.k.a. Benjamin B) is the European correspondent for the magazine ("Battle Tested," p. 70).

Mark Dillon

is a freelance writer ("Leading Lady," p. 82).

Michael Goldman

is a Los Angeles correspondent for the magazine ("Left for Dead," p. 36).

Neil Matsumoto

is a freelance writer (Production Slate, p. 20; Post Focus, p. 96).

Jean Oppenheimer

is a Los Angeles correspondent for the magazine (Production Slate, p. 28).

David E. Williams

is a freelance writer and filmmaker, and recently celebrated 20 years of association with the magazine ("Savage Sea," p. 54; "Deep Focus," p. 64).

Jon D. Witmer

is the managing editor (In Memoriam, p. 115).

Editor's Note



Every so often, rumors reach our ears about a show that's truly going for broke, and *The Revenant* is just such an endeavor, having achieved legendary status while it was still being made. Shot by Emmanuel Lubezki, ASC, AMC for director Alejandro González Iñárritu, the movie is based upon the remarkable true-life experiences of Hugh Glass (played by Leonardo DiCaprio), a 19th-century explorer cruelly abandoned by his companions after being mauled by a grizzly bear. The movie's dramatization follows Glass as he treks through mile after mile of freezing, inhospitable terrain to exact his revenge. In bringing the saga to life, the cast and crew of *The Revenant* braved a long, arduous shoot amid brutal winter weather conditions that tested their mettle to the max. The reward for their labors is an

impressive survival epic replete with fierce, jaw-dropping images — including one astounding sequence in which a strategically induced background avalanche appears, on cue, to augment the emotional undercurrents of DiCaprio's performance.

In Michael Goldman's coverage ("Left for Dead," page 36), Lubezki describes *The Revenant* as "the roughest and hardest thing I have ever done in my life," while Iñárritu notes, "We couldn't do it on a set, under normal Hollywood rules, and bring in snow and put in bluescreens. I wanted to absolutely kill any artifice. In keeping with that truth, we had to go through a true natural process, and challenge ourselves."

In the Heart of the Sea, which reteamed Anthony Dod Mantle, ASC, BSC, DFF with director Ron Howard, also tells a rugged tale of survival — complicated by what the cinematographer recalls as "an orgy of interior and exterior studio work, water-tank shooting, location shooting, second- and third-unit work, underwater photography, aerial work and visual effects." David E. Williams has logged all of the details ("Savage Sea," page 54).

Adam Arkapaw further confirms that cinematography is not the best career choice for anyone who prefers the comforts of a Barcalounger to a canvas-backed crew chair. While shooting *Macbeth* on location in Scotland, Arkapaw endured conditions that sent even hardy locals scurrying for cover. "A lot of exteriors were hour-long walk-ins, often on mountain-tops," he tells Benjamin B ("Battle Tested," page 70). "It was super windy, up to 40 miles an hour. My memory of Scotland is having three layers of waterproof jackets on, with my hood on and my back to the wind, and just watching hail come sideways across my body."

Danny Cohen, BSC and director Tom Hooper had already battled operatic complexities several years ago while shooting a majestic musical adaptation of *Les Misérables*, so they were probably somewhat relieved to collaborate on a provocative but intimate drama like *The Danish Girl* — which still required them to finesse the nuances of framing and lighting the transgender protagonist portrayed by Eddie Redmayne. In Mark Dillon's article ("Leading Lady," page 82), Cohen's longtime gaffer, Paul McGeachan, offers a succinct summation of the cinematographer's approach: "When Eddie was Einar, we lit him like you would a man. But when he became Lili, we used big, soft sources and concentrated more on eye lights, as you would with a leading lady."

Stephen Pizzello
Editor-in-Chief and Publisher

VANITY FAIR
"A GORGEOUS
MOVIE."

Edward Lachman's cinematography
is lyrical and expressive."

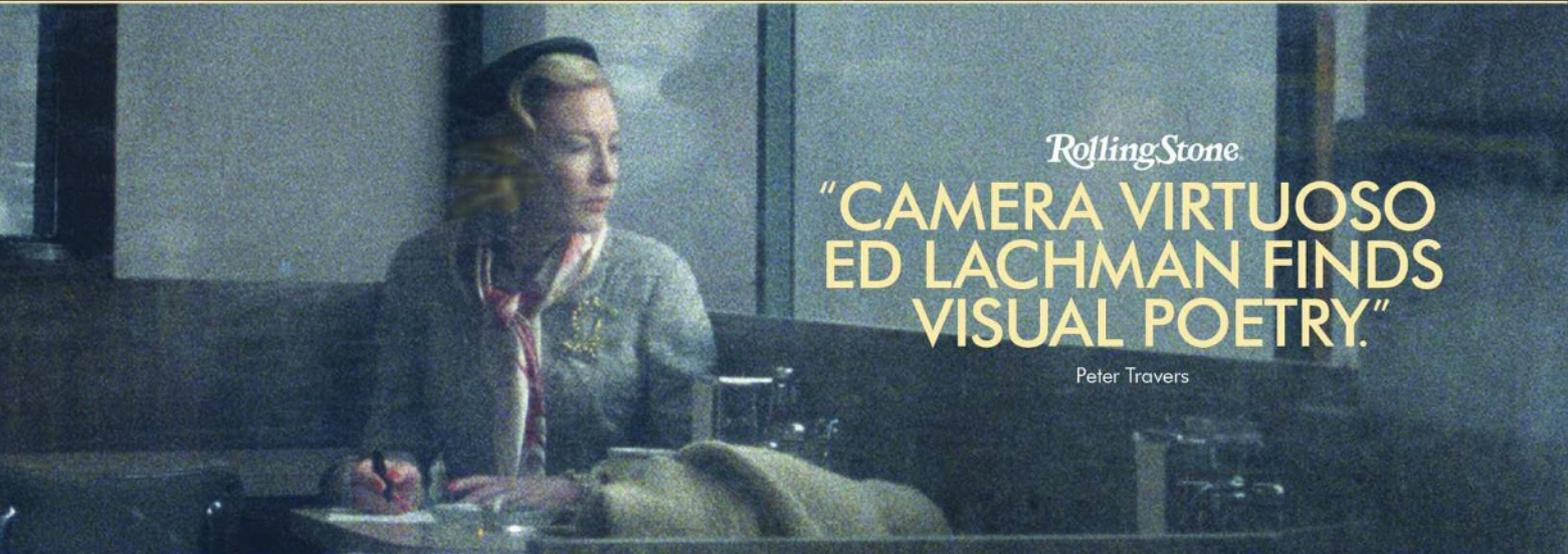
Richard Lawson



Rolling Stone

"CAMERA VIRTUOSO
ED LACHMAN FINDS
VISUAL POETRY."

Peter Travers



Austin American-Statesman

"'CAROL' IS A
MASTERPIECE."

Cinematographer **Ed Lachman** captures
1950s New York and the luminosity of
Cate Blanchett with every frame."

Charles Ealy



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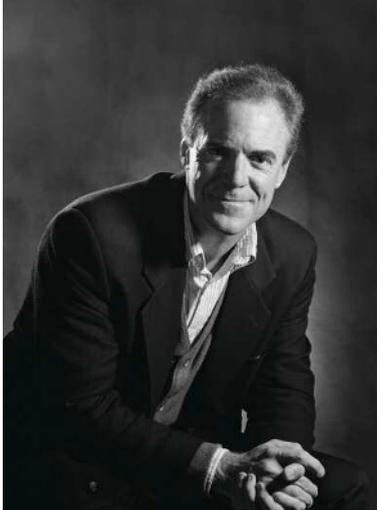
BEST CINEMATOGRAPHY - ED LACHMAN, ASC

CAROL

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President's Desk



Here's wishing you a happy, healthy and continually employed 2016!

Speaking of being happy and healthy, *American Cinematographer's* lead time has delayed my reporting on this past November's Camerimage International Film Festival, which was held in the delightful city of Bydgoszcz, Poland. Nonetheless, the interval hasn't dulled my enthusiasm for an event that has become the world's premier celebration of who we are and what we do as cinematographers. 2015 marked the 23rd consecutive gathering; it also presented my first opportunity to attend. Like each previous one, this year's festival brought together cinematographers, fans and supporters from every corner of the world. As the first and most prestigious offering of its kind, Camerimage deserves great praise and encouragement from everyone associated with motion pictures.

The idea for Camerimage originated in 1992 with Festival Director — and now ASC honorary member — Marek Zydowicz. His reasoning was that cinematographers needed a forum through which to highlight their contributions to world cinema — and those contributions alone. Believe me, he has done a sensational job. The explosive growth in attendance and recognition over the years — 2015 saw more than 500 cinematographers and some 5,000 others in attendance — is proof enough of his great achievement. Along with his top lieutenants Kazik Suwala and Marek Zebrowski, Zydowicz warrants high praise for a job well done. Their effort is akin to pulling off a second invasion of the beaches at Normandy.

This year's edition bolted from the gate on Nov. 14 and ran through Nov. 21. In addition to the requisite whirl of seminars, roundtable discussions, and master classes that are taught by some of the profession's most elite practitioners, there were an endless number of screenings chosen to showcase the best of the best. Using an unconventional yet wholly correct approach, distinguished panels of cinematographers judged the films in competition purely upon their visual merits. According to Zydowicz, by structuring Camerimage in this fashion, he hoped to not only introduce new talents to the world but to refine and expand the scope of our art by dissecting it in fresh, ever more passionate ways. After seeing just a portion of the work, it's clear that he has exceeded his initial expectations.

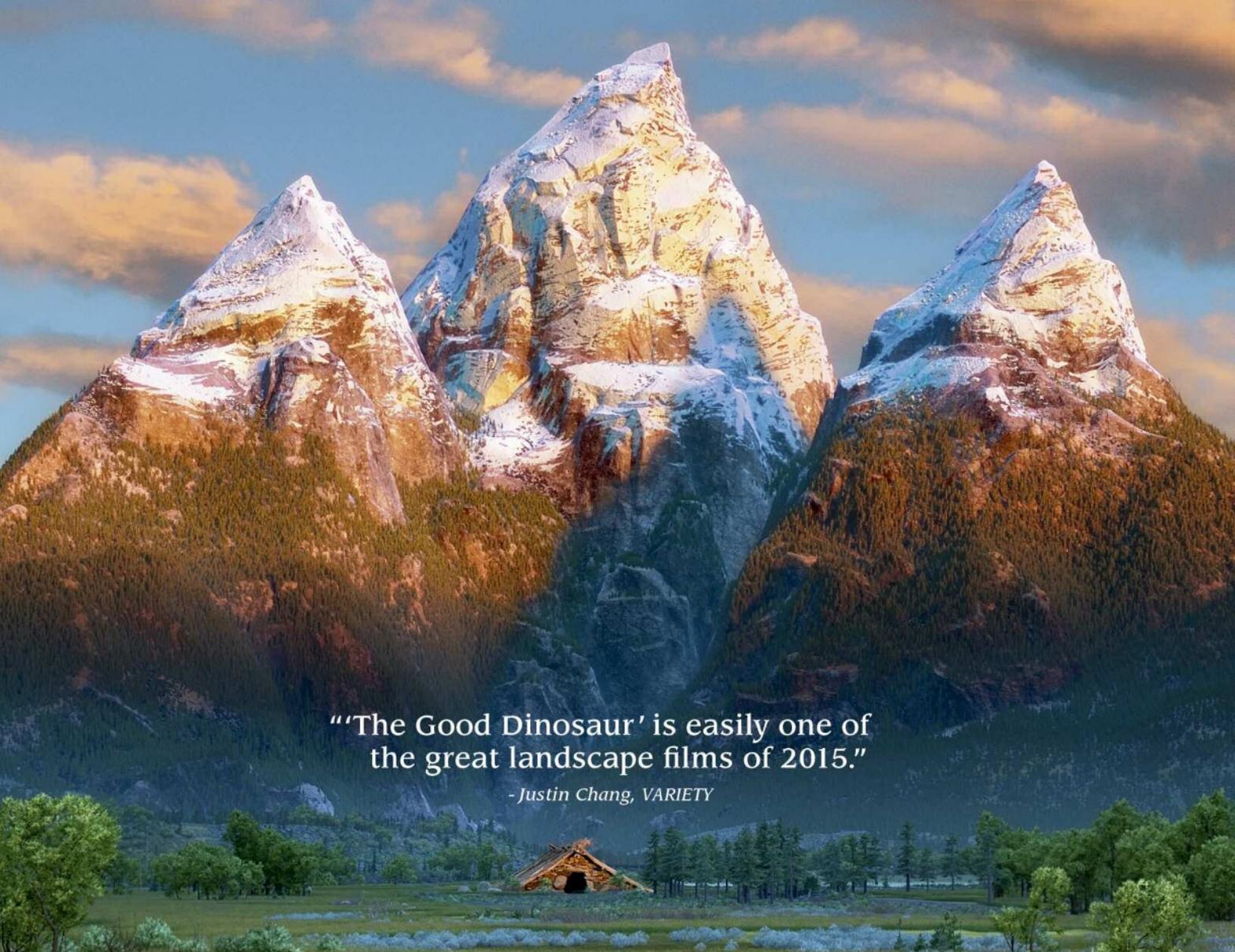
Camerimage hands out a huge variety of honors to students, educators, actors, directors and other industry figures who have demonstrated a particular facility or appreciation for cinematography. It also draws attention to the collaborative nature of our work by bestowing the unique Duo Award. This honor is reserved for cinematographer-director teams that, as termed by the organizers, have shown a "special sensitivity" to the image. Past winners have included some of the greatest combos in history. For a complete listing of winners and honorees, I refer you to the official festival website: www.camerimage.pl. You will be astonished!

But I would be remiss if I didn't single out the granddaddy of them all: the Lifetime Achievement Award. There's not much I can add that will make it seem a bigger deal than it already is. Just consider, if you will, a partial list of previous awardees: Sven Nykvist, ASC; Vittorio Storaro, ASC, AIC; Vilmos Zsigmond, ASC; Laszlo Kovacs, ASC; Owen Roizman, ASC; Freddie Francis, BSC; William A. Fraker, ASC; Witold Sobocinski, PSC; Haskell Wexler, ASC; Conrad Hall, ASC; and Caleb Deschanel, ASC. This year, Chris Menges, ASC, BSC took the prize; I can tell you, he deserves that much and more.

And did I mention the nightly string of parties that redefine the meaning of fun? If you're a cinematographer, you haven't lived until you've been absorbed into the generous bosom of so many people who truly appreciate you and what you do. I'm not exaggerating when I compare the feeling to something one of the Beatles might have experienced circa 1964.

If you ever have an opportunity to attend, I cannot urge you strongly enough to do so. Poland is a beautiful country and is home to some of the warmest, most welcoming people on Earth. No one else in the industry celebrates cinematographers in as significant a way. Thanks to Marek and his crew for providing a thriving platform for just such celebration. We all should salute them for it!

Richard P. Crudo
ASC President



“‘The Good Dinosaur’ is easily one of the great landscape films of 2015.”

- Justin Chang, VARIETY

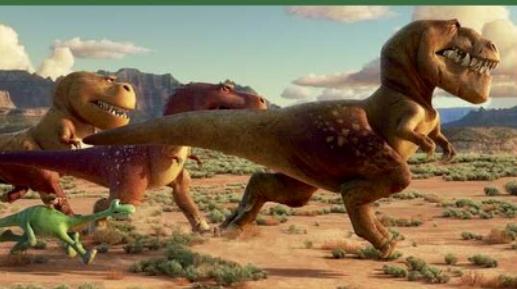
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Short Takes

An alien spacecraft invades World War II Los Angeles in the short film *UFO Diary*.



Re-Creating the Battle of Los Angeles

By Jason Apuzzo

It began with something mysterious appearing in the night sky. In the early hours of Feb. 25, 1942, an unidentified flying object flew through the dark skies of wartime Los Angeles. The intruder set off a public panic and triggered a massive artillery barrage — yet nothing in the sky was hit, and no wreckage was ever recovered. The object looked eerily similar to a flying saucer, and eventually disappeared off the coast, never to be seen again. The incident came to be known as the Battle of Los Angeles. It also became a rewarding and nerve-racking challenge to re-create for a short film I directed called *UFO Diary*, which debuts this January.

Indeed, what began as a simple concept for a sci-fi action comedy soon became an epic adventure involving more than a hundred World War II re-enactors, a tank, a half-track and a troupe of dancing pin-up girls — with visual-effects artists from ILM, Weta Digital and Digital Domain along for the ride. In the process, my filmmaking partner Govindini Murty and I learned how to make an effects-heavy short without having visual-effects backgrounds, and how to simulate a World War II combat documentary without photographing actual combat.

Shot found-footage style, *UFO Diary* depicts the Battle of Los Angeles from the point of view of two rambunctious Women's Army Corps officers who set out to film a trail of mysterious clues, only to be trapped at a remote coastal bunker by a menacing alien spacecraft. The plucky WACs chase the UFO back to Fort MacArthur and then confront the wily invader during a wild nighttime air raid.

Visually inspired by color World War II documentaries like John Ford's *The Battle of Midway*, our goal with *UFO Diary* was to evoke the look of 16mm Kodachrome combat footage while using modern digital cameras. Like the Bell & Howell combat cameras of old, our cameras would have to be small and rugged. "We designed all of these fluid, handheld shots in which we're running around the fort, jumping into jeeps, firing anti-aircraft guns — all while handing the camera back and forth to capture different POVs," says Murty, *UFO Diary*'s lead actress and producer, who also helped shoot the film. "This wasn't feasible with a big camera, but worked very well with DSLRs."

For such all-purpose duty we chose the Canon EOS 7D, outfitted with a Canon L-Series EF 24-70mm (f2.8) zoom lens for maximum flexibility. We also used a Nikon D3100 with a Nikon 18-55mm (f3.5) VR lens, and Murty even carried a tiny Canon PowerShot ELPH 330 HS in the pocket of her World War II jumpsuit, often grabbing extra POV shots between takes. "We wanted the audience to have an immersive, first-person experience, as if they were there in World War II-era Los Angeles witnessing this fabled UFO incident for themselves," explains Murty.

With Naveen Choubal, Murty and I handling most of the cinematography, the air-raid sequence was shot over three hectic nights at Fort MacArthur in San Pedro — challenging shoots due to the low-light conditions. Practical lights like vintage military searchlights, sodium-vapor lamps, gun-muzzle flashes (created by gas jets) and flares were supplemented with LED flashlights and bounce boards. The scarcity of fill light made these shoots tense, yet the results were often spectacular, especially when colorful pyrotechnics

UFO Diary images courtesy of the filmmakers.

“The Martian’ is phenomenal.
The story is crystal clear, and the aesthetics
are so understatedly beautiful that you
might forget to marvel. A true accomplishment.”

Matthew Jacobs | HUFFINGTON POST

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BEST CINEMATOGRAPHY
DARIUSZ WOLSKI, ASC

THE **MARTIAN**

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Top: Background fog, flares and searchlights were used during the air-raid scene when the alien spacecraft attacks. **Bottom:** In a scene after the air raid, Govindini Murty (as a WAC officer) was lit by a sodium-vapor streetlight and LED flashlight, which were diffused with fog.

lit up the sky as coastal fog added a layer of diffusion.

Chaubal used Technicolor's CineStyle Profile for the Canon 7D to boost dynamic range, giving us greater detail in the mid-tones and shadows. This also helped the color-grading process later on. "We just tried to push the 7D to the limit, knowing the footage was going to be heavily treated to give it a vintage look," recounts Chaubal.

For a warm, nostalgic look, we shot the daytime sequences at the fort and the coastal bunker during magic hour. This severely restricted our shooting schedule, but we felt the results were worth it. "Magic hour is always a blessing and a curse to rely on for light," notes Chaubal, who was assisted on these shoots by the

versatile Jeff Fukuhara. "Mostly, it's a blessing."

Because we planned to "create" the movie in the editing room — like an actual documentary — getting proper coverage was critical. Shooting 23.98 fps at 1080p using the H.264 codec, we captured about 750GB of footage for the roughly 16-minute film. Tasked with assembling this footage into a cut was Emmy-winning editor Mitch Danton, ACE, who worked in Avid at Timeline Editing Systems in Burbank. "Editing reality shows like *Survivor* and the large-scale docudrama *The Path to 9/11* gave me the confidence to tackle the found-footage, documentary-style project *UFO Diary*," says Danton. "The goal was to find the images that looked the most realis-

tic. That's why I think the film is so good, because the performances are believable. From the principal actors to the extras, it feels authentic."

Editing would ultimately require a group effort on *UFO Diary*, with Murty, editorial assistant Sarah French and myself also contributing. "The effort was worth it," Murty attests, "because this initial cut of *UFO Diary* — supervised by Mitch Danton — played a crucial role in recruiting top-level visual-effects talent to the project."

A key early recruit was Kiel Figgins — notable for his animation work on *Avengers: Age of Ultron* and as a Digital Domain veteran — who came on board as an animation supervisor after seeing *UFO Diary's* rough cut. "I'm personally a huge sci-fi fan," relates Figgins. "What drew me the most to this project was the scale and scope of the shots and assets, which seemed doable and had a clear direction and goal.

"The heavy lifting of shooting the live action had already been done," Figgins adds, "so it was less of a 'Hey, I have an idea for a short,' and more of a true collaboration with people serious enough about the project to meet halfway before bringing on more talent."

Figgins brought other colleagues onto the project, including animators Delano Athias and Bren Wilson, and concept designer Justin Albers. Figgins also built the saucer's animation rig, based on the 3D model designed primarily by artist Shun Kim in Maya. "The rig allowed the animators to manipulate the model and create the animation," Figgins says. Rini Sugianto — a veteran of ILM and Weta Digital who has served as an animator on such projects as *The Hobbit: The Desolation of Smaug* — also joined the team as an animation supervisor, bringing along animators Antony Pringorahardjo and Okki Tanaya. Before long, visual-effects artists as far afield as London, Jakarta, San Francisco and Montreal were rallying to bring our saucer to life.

Before animation could begin, though, an enormous problem had to be overcome: 3D match-moving. Our night-sky shots provided almost no visible geometry to track, and our daylight "hero" shot — when the saucer first arrives at the

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ELLE

“RAPTUROUS FROM ITS FIRST BEAUTIFUL FRAME TO ITS LAST... ENTIRELY INTOXICATING
IN THE WAY IT FORGES ITS IMMENSE VISUAL RICHNESS, MUSICAL INTENSITY, ACTORLY PRECISION AND UNPRETENTIOUS APPROACH
TO THEMATIC CONCERNS. IT'S LIKE A GREAT SPA TREATMENT FOR THE CINEMATICALLY FATIGUED.”

Todd McCarthy, *Hollywood Reporter*



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Top: An alien spacecraft attacks Fort MacArthur. Bottom: Shot at magic hour, the WAC officers (Murty and Rachel Newell) uncover the otherworldly mystery at the fort.

bunker to threaten the WACs — was a whopping 45 seconds long, with the camera in constant motion. Plus, we hadn't used physical markers while shooting.

The problem was solved in two ways. Using no tracking data whatsoever, a young effects prodigy named Antony Vannapho — whose credits include *The Twilight Saga: Breaking Dawn – Part 1* — hand-animated the saucer in 20 of our 33 visual-effects shots while also handling lighting, rotoscoping, pyrotechnics, particle effects and compositing. Although many shots were brief, it was a bravura effort that inspired the whole team. "I knew from the start that we wouldn't be able to track the night sky, so I was already minded to animate everything manually, frame by

frame, to match the live footage," says Vannapho, who used Maya and After Effects to complete the shots. "I love the style of found-footage and the challenge of visual-effects integration attached to it."

The remaining longer shots — including the hero shot — were tracked using SynthEyes software by former Weta Digital match-mover Sean Dollins, who'd once tracked shots down to the sub-pixel level for Ridley Scott's *Prometheus*. A task that Dollins attests was "just as difficult, but in a different way" from those he'd taken on at Weta, *UFO Diary's* hero shot pressed him to the limit. He explains, "When you're always going to make shots hard to do: long [takes], being handheld, having a lot of

fast motion, being in particularly low light, or not having a lot of features to track or lock onto." He adds drily, "This shot happened to have the perfect combination of all of those things."

Once match-moving was complete, our animators could finally bring the saucer's menacing personality to life. "The animators, Bren and Delano, are both very talented and capable artists who brought their own flare to the character," notes Figgins. "What I'm most pleased with is that they used all the controls available to make the ship feel alive, from the tiny flaps, air vents, swinging hoses, eye rings and so on. These smaller details make the ship feel that much bigger. The design of the saucer allowed a lot of personality to come through."

One final visual challenge remained: creating *UFO Diary's* distressed 16mm Kodachrome look. Color documentaries from World War II have a very particular color profile, with saturated primary colors but an otherwise limited spectrum. They also tend to fade to blue as they deteriorate. With Sarah French I crafted a custom look for *UFO Diary* using Avid's color-grading tools in 2K, real film grain scanned at 4K, and a host of third-party plug-ins and elements (dirt, scratches, light leaks, film leader). Keeping a modern 1.78:1 aspect ratio and Rec 709 color space, we boosted the primary colors, especially blue in the shadows, outputting the result to a 1080p QuickTime file. It's a unique look intended to evoke an era rather than imitate it.

Ultimately, everything about *UFO Diary* — from its story to its technology — was a mixture of old and new. "It's a historic mystery brought to life with cutting-edge visual effects," affirms Murty. Danton adds, "It's a fantastical tale, but we wanted to present it in a way that felt believable. I think we walked that tightrope really well."

For *UFO Diary* details and updates, follow @UFODiary on Twitter. ●

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BEST CINEMATOGRAPHY
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Production Slate

In the Italian feature *Youth*, longtime friends Fred Ballinger (Michael Caine, left) and Mick Boyle (Harvey Keitel) reflect on their past and ponder retirement while vacationing in the Swiss Alps.



Time and Age

By Neil Matsumoto

Post World War II Italian cinema brought us some of the finest works in film history, from neorealist pieces such as Roberto Rossellini's *Rome, Open City* and Vittorio De Sica's *Bicycle Thieves*, to 1950s and '60s auteur productions by Federico Fellini, Luchino Visconti, Michelangelo Antonioni and others. Over the past few decades, however, there has been a bit of a drought in terms of world-renowned Italian filmmakers. But that has begun to change with the emergence of a new crop of directors — including Paolo Sorrentino, whose film *The Great Beauty* won the 2014 Academy Award for Best Foreign Language Film.

Youth is Sorrentino's second English-language film, and stars Michael Caine and Harvey Keitel as Fred Ballinger and Mick Boyle, respectively — best friends vacationing in the Swiss Alps at a luxury spa and resort. Fred is a retired music composer who has been asked to conduct his most popular composition for the queen of England. Mick is a director working with a group of young writers on a screenplay for his next film, which will star his muse, Brenda Morel (Jane Fonda). In a lyrical style lush with painterly compositions and vivid hues, *Youth* deals in life's reciprocals — devotion and infidelity, youth and old age, life and death.

For the project, Sorrentino enlisted the expertise of longtime

collaborator Luca Bigazzi, who has shot six of the director's features. The cinematographer got his start working in commercials as an assistant director in Milan, but he "didn't like it at all," Bigazzi tells *AC* in a phone conversation from Italy, where he is back to work with Sorrentino on the HBO miniseries *The Young Pope*. "I wanted to make cinema, not commercials."

Bigazzi shot promotional spots for several years, until his friend Silvio Soldini came back from New York University, and the two decided to finance and shoot their own black-and-white film, 1983's *Landscape With Figures*. "I had no camera background at all," reveals Bigazzi. "I [knew] nothing about fill light, key light or backlight. At that time, there were no fast film stocks or high-speed lenses, so shooting was much tougher. We mainly used practical lights, fluorescent bulbs and small lights. I tried to light a set in a much more realistic way that is closer to the feeling of the story, and not in a classical way."

The imagery that informed the look of *Youth* included two Swiss resorts where most of the film was shot — the Hotel Waldhaus in Flims and the Schatzalp Hotel in Davos. Bigazzi was inspired by the mix of the beautiful ambient light in the Swiss Alps and the comparatively sterile tone of the hotel's fluorescent lighting. "It was a beautiful season, with mountains and blue skies in the background, but we didn't want to shoot all beautiful skies," Bigazzi says. "But toward the end of shooting, we changed our minds

Youth photos by Gianni Fiorito, courtesy of Twentieth Century Fox Film Corp.

FOR YOUR CONSIDERATION

BEST CINEMATOGRAPHY YVES BÉLANGER, C.S.C.



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“A simple, intoxicating beauty.

HANDSOMELY SHOT AND BEAUTIFULLY CONSTRUCTED BY YVES BÉLANGER.”

Travis Hopson, **examiner**

“GORGEOUSLY SHOT, WITH RICH, CRISP, NATURALISTIC COLORS.

It feels a bit like a colorized historical photograph.”

Katie Walsh, **Chicago Tribune**

Right: Fred is an acclaimed composer and conductor with no intention of resuming his musical career. Below: Cinematographer Luca Bigazzi (wearing glasses) lines up a shot with director Paolo Sorrentino.



Bigazzi operates the A camera “because I don’t want to lose contact with the actors,” he says. “This relationship with the actors is part of the photographic work, and it’s a wordless way of relating. The second camera in *Youth* was operated by my long-time collaborator Daria D’Antonio. The Swiss Steadicam operator was Ariel Salati.”

For interiors, Bigazzi usually suspends lights from the ceiling or places units outside to illuminate through windows, thus letting actors feel more comfortable moving freely throughout the set. “It’s quite difficult sometimes, because I have to guess how high my lighting can be without it being in the frame,” he says. “Thanks to Paolo, I learned how to light a set so my lighting is invisible. Sometimes the actors will ask me, ‘Where is my light?’ For me, it’s better for them not to know. I only hope it’s better for people watching the movie, as well. It’s a realistic way of lighting, but it’s not at all flat-looking.”

In shooting a night-exterior sequence at a garden party with a band playing on a rotating stage, Bigazzi didn’t have any space for lights, since the camera would rotate along with the musicians on the relatively small platform for shots of the band. He also didn’t want to use distant lighting balloons or Condors, because it would spill light across the set. Instead, he

because it was just too beautiful. Why go against it?”

As Bigazzi tells it, he and Sorrentino know each other so well that they rarely discuss framing or lighting, which makes for a faster and more efficient shoot. “This is a great quality,” the cinematographer says, “because you don’t lose time, you don’t lose the moment, you don’t lose the acting or the reality.”

Bigazzi’s lighting techniques also contribute to a speedy production. “We

light the set not knowing exactly where the actors will be, where the camera will be, or what the camera movement will look like,” he reveals. “After the set is lit, the actors [arrive] and then we decide how to shoot. The light is more for the overall ambience than for a single shot. That means the camera can move 360 degrees, we can use three cameras at the same time, and we won’t change the light between shots in the same sequence.”

On all of the films he works on,

“BY FAR, THE BEST MOVIE THIS YEAR.”



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BEST CINEMATOGRAPHY
Masanobu Takayanagi

“Tom McCarthy and camera wizard Masanobu Takayanagi track the grinding work of real reporting.”

ROLLING STONE, Peter Travers

“Working with ace d.p. Masanobu Takayanagi, McCarthy directs in a clean, fluid style as he traces the story from the Boston Globe newsroom (the camera often following staffers through the corridors in lengthy tracking shots) to the city’s low-income margins, where priests reliably went after the most vulnerable kids they could find.”

VARIETY, Justin Chang

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SPOTLIGHT

With the lighting suspended from the ceiling, Bigazzi and crew prepare to roll three cameras simultaneously.



had production designer Ludovica Ferrario construct a translucent stage floor with lights placed underneath it, so his camera could remain fixed onstage, with lighting coming from below.

"We used very thin and powerful LED light tubes from Viabizzuno, an interior-design Italian lighting factory," Bigazzi explains. "[These] allowed us to shoot with powerful lighting hidden [within the set]. We first used them on *The Great Beauty*, and I really fell in love with them because they're powerful, yet small. Throughout my career I've always used strange or unusual lights — anything and everything."

Another big scene that Bigazzi lit unconventionally was the finale, in which Ballinger conducts for the queen. It was shot on location in a concert hall in Greenwich, England, where a translucent white backing was placed behind the orchestra. "Paolo had this idea for a soft-white look for the scene," says Bigazzi. "Most of the frame is backlit. There were some ellipsoidal spots for the violin, conductor and singer from the top of the theater, but mostly it was lit from the background." Bigazzi lit the white backing from behind, using 50 Pallas Groundrow lights — each fitted with a 625-watt linear tungsten halogen lamp — placed on the floor backstage.

The lit background simultaneously enabled Bigazzi to illuminate the audience in the theater without setting up additional fixtures.

Bigazzi does make use of more traditional tools like Kino Flos and HMLs, but only to augment natural light or to enhance his practicals. "If you don't learn how to light in school or from anybody else, you'll feel more free to find unusual solutions," he opines. "The great thing about shooting with Paolo is that he's so flexible; he's not rigid or conventional. If we need or want to, we can change our ideas very quickly, and that's a much better way to work."

The cinematographer shot *Youth* in 2:39:1 with a Red Epic Dragon and Arri/Zeiss Ultra Prime lenses. Although the Dragon is capable of 6K capture, Bigazzi chose to shoot in 4K for day and 5K for night. "To be honest, the images are so sharp that I don't need [any more detail], because I don't want to see all of the actors' skin defects," he says. "The only problem with digital is that it's too sharp. I like softer images [because] our eyes are not always super-sharp. I'm not a fanatic about lens sharpness, either."

Bigazzi is also not romantic about film negative, and will always opt for digital if given the choice. "I feel more free creat-

ing crazy kinds of lighting setups with digital because it's more sensitive in reading into the shadows," he explains. He adds with a laugh, "Apparently, I'm alone in this opinion."

For high-contrast environments, Bigazzi has also embraced Red's HDRx technology, which records two tracks simultaneously — a normal exposure (A frame), and an exposure that protects your highlights (X frame) by using an adjustable shutter speed that is up to 6 stops faster. When working in RedCine-X, the tonal levels from the X frame can be blended with the A frame to produce extended dynamic range. "It gives you much more of an advantage when you're shooting with natural light, especially for interiors," explains Bigazzi. "If you don't need to read into your highlights, you don't need HDR. But if you need to, it's great to extend your latitude while looking more realistic. I'm sure my way of thinking about lighting on set has changed radically since this double-exposure technique came out. Now, I feel freer and braver."

According to Bigazzi, 80 percent of *Youth* was shot using HDRx. "For example," he says, "in the scenes shot in the breakfast hall, [the need for] this device was really undeniable because of the



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The lighting is rigged high above a walkway for a dream sequence in which Fred approaches a concert hall for a performance but is thwarted by rising waters.



tal in Rome on a DaVinci Resolve system by Bigazzi's longtime colorist Andrea Orsini. According to Bigazzi, it is important to pay increased attention to contrast and chroma when shooting on digital. "Many scenes, especially those shot at night, get their true atmosphere in the lab," he says. "Making actors come further from the background with masks, [adding] more contrast, or letting shadows become readable is the only solution to getting rid of the 'set tyranny' of [tight] schedules or problems with the actual scenic area."

Apropos of the themes explored in the film, Bigazzi concludes: "I'm getting older now, but I don't want to be considered an 'experienced' cinematographer, because any time I learn something, I [lose] my chance to improvise. I know how to light, but I really don't want to know. You feel closer to the subject and the script when trying to find new solutions."

[extremely] big windows — so we shot with HDRx and [used] very few lights, maintaining the opportunity to see the panorama through the windows."

Because the process essentially doubles the data stream, Bigazzi shoots at

a higher compression rate when employing the HDRx system than he would for normal Red files. "I can't really see much of a difference between 5:1 and 7:1 compression," he says.

Youth was graded at Margutta Digi-

◀ TECHNICAL SPECS ▶

2.39:1
Digital Capture
Red Epic Dragon
Arri/Zeiss Ultra Prime



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4K

In the Holocaust drama *Son of Saul*, Auschwitz-Birkenau prisoner Saul Ausländer (Géza Röhrig) becomes obsessed with hiding the body of a boy he believes to be his son, determined to give the child a proper Jewish burial.



A Guided Tour of Hell

By Jean Oppenheimer

Shooting on 35mm stock is rare enough these days, but color-timing photochemically is almost unheard of. Yet, that's the path cinematographer Mátyás Erdély, HSC and director László Nemes insisted on for the Hungarian film *Son of Saul*. The harrowing Holocaust drama won four awards at the 2015 Cannes Film Festival, including the Grand Prix, and is Hungary's submission for this year's Foreign Language Film Academy Award. The film also screened at the recent Camerimage festival, where Erdély was awarded the Bronze Frog.

Son of Saul is set in the Auschwitz-Birkenau death camp in October 1944. Both dramatically and visually, the film focuses on a single individual, Saul Ausländer (Géza Röhrig), a member of the Sonderkommando work unit — Jewish prisoners who were forced to remove corpses from the gas chambers and transport them to the crematoriums. One day Saul spots the body of a boy he believes to be his son. He becomes obsessed with hiding the body and giving the child a

proper Jewish burial.

Saul's single-minded quest leaves him oblivious to everything else around him, and his psychological fog is mirrored in the film's visual concept. "The lens remains focused on Saul, almost always in close-up or tight medium, while the horrors unfolding in the background — inmates herded into gas chambers, dead bodies being dragged away — are out of focus," Erdély tells *AC*, speaking by phone from his home in Budapest. "By shooting close to wide-open [T2 on interiors and T2.8½ for exteriors] and focusing the lens approximately 2½ feet from the film plane, objects [beyond those 30 inches] are still visible, but blurry. László's genius was in using this very basic photographic tool for dramatic purposes."

Nemes started thinking about *Saul* more than a decade ago, and initially mentioned the project to Erdély in 2007, after the cinematographer shot the director's first short film. Over the years, even while working on other projects, they established a set of rules to follow: the entire film would be shot handheld, using a single lens and a single stock.

As to the film's unusually narrow

aspect ratio, the cinematographer explains that initially "we were concerned that 1.37:1 wouldn't give us enough of the environment. But once you move the camera — which we do constantly on *Saul* — you can reveal as much as you like.

"This film absolutely could not have been made without focus puller Gergely Csepregi," Erdély adds. "He was remarkable."

Son of Saul was shot predominantly on an Arricam Lite (with an HD video assist to ensure high-resolution preview images). An Arriflex 235 was substituted when confronted with especially tight spaces; when running with the camera was required; and when the camera was placed in an underwater housing unit, even as the lens remained above the water line.

Far more significant for Erdély than the camera selection was the choice of lens and film stock. "One of the most important aspects of choosing the right lens was how the out-of-focus images would look," he submits. "The film's whole visual approach relies on what is revealed, how it is revealed, and the infor-

Son of Saul production still by László Nemes. Additional images by Gergely Csepregi. All images courtesy of the filmmakers.

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Right: Best boy Szabolcs Galgóczi (far left), cinematographer Mátys Erdély (wearing hoodie) and camera grip László Egyedi (far right) move with Röhrig as he carries a body through the death-camp set. Below (from left): First AC Gergely Csepregi, Egyedi, Erdély and boom operator Sámuel Csóka on the move during the physically taxing, single-camera project.



coverage, we were editing in-camera," says Nemes, who sat down with AC in September, during a brief stop in Los Angeles. Noting that editor Matthieu Taponier was on set every day, Erdély adds, "The three of us were constantly discussing the pacing of the scenes, because once we shot it, we couldn't change it."

The concentration-camp scenes were staged in an abandoned military barracks in Hungary, with sets built into the practical structure. Three of the building's four levels were used. "The gas chamber and undressing area had to be rooms without shadows, suggesting there is nowhere to hide," says Erdély of the ground-floor set. Working with gaffer József Simon, he adds, "we used bare, 500-watt tungsten bulbs in the ceiling. The bulbs had to be hidden, so production designer László Rajk designed fake ceiling beams."

The doctor's office on the second level had table lamps and surgical lights, while the crematorium area — located on the same floor — was darker and moodier, lit by wall practicals and flames leaping from the ovens. One oven contained a real fire, while the other two had Blondes on custom-made flicker boxes, bounced into "small poly boards," Erdély says, "and a metallic bounce material used in construction for insulating chimneys. Both ovens

mation that is kept from the audience. If you show a dead body, how much of it is hinted at and how much is actually [seen]? We wanted a very precise recording of reality, and Zeiss makes the most precise lenses out there: super-sharp, very clean and no artifice. I opted for [Arri/Zeiss] Master Primes, which I consider the most pristine."

The same reasoning lay behind the choice of focal length. "Approximately 85 percent of the film was shot on a 40mm and the rest was on a 35mm," Erdély says. "We wanted a focal length that would translate reality onto film in the most precise way — one that didn't

distort or magnify, and was neither too wide nor too long. I believe the 40mm is the closest to how we see the world."

For his film stock, Erdély explains, "I shot everything on Kodak Vision3 500T 5219. I wanted the levels of grain and contrast to be consistent throughout the film." He rated the stock at 320 ASA during the day and pushed it one stop for night exteriors. A Tiffen Ultra Contrast 2 was always on the lens, and ND filters were used to keep the T-stop consistent.

The camera was constantly on the move, and scenes play out in extended, continuous takes — often two to three minutes long. "Because we didn't have

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Egyedi guided Erdély as the cinematographer closely followed Röhrig during the carefully choreographed shoot.



had two to three lights [with] a mixture of orange and red gels.”

The third floor, where the Sonderkommandos lived, was lit with candles and a few bare 60- and 100-watt bulbs. “I tried to keep all the light pretty much white,” reports Erdély. “The most important thing was to avoid any flattering light. This film could *not* be pretty.”

Nemes spent the better part of a year choreographing and mapping Saul’s every move on his iPad, creating a floor plan with a circle representing Saul and a triangle indicating the camera. “László wanted a feeling of chaos and unpredictability,” says Erdély, “but to achieve that, we had to lock down every detail. Each shot required an enormous amount of concentration from everybody. It was very rewarding, but also physically taxing. László and I went to a personal trainer for months in order to get into the best possible shape.”

The physical demands on Erdély were especially onerous, with the camera sitting on his shoulder at least eight hours a day. The lens always remained at Saul’s eye level, whether he was on his knees scrubbing the floor, bending over to drag a corpse, or simply moving from room to room. Sometimes Saul would be walking forward, only to abruptly reverse step. “I knew from blocking and rehearsals that Géza would take 15 steps before turning

on the 16th, so I counted my steps,” says Erdély. The cinematographer was never actually tethered to the actor; instead, a grip — László Egyedi — was assigned to help guide him, which was especially important when Erdély was walking backwards across a floor littered with corpses.

“Géza understood that if he didn’t stop where he was supposed to, or if he made a sharp turn unexpectedly, the shot would be ruined,” says Erdély.

Toward the end of the 28-day shoot, Erdély tripped and badly sprained his ankle, and two other operators filled in for the final few days. György Réder shot the last two scenes of the film, while Zoltán Lovasi shot the nighttime sequence of Jews being shot and thrown into open pits.

As the latter scene depicts, prisoners are marched into the woods, where three pits have been dug, and Saul joins the line, searching for a rabbi to bury his son. Chaos erupts when the inmates arrive at the pits, where they are pushed in and fired upon. This especially long scene consists of multiple shots. To light the sequence, “a very old, period 10K tungsten Fresnel light,” Erdély describes, was placed atop a military truck parked on the path, which appears on screen as a giant searchlight. Electricians, dressed as prisoners and placed among the

extras, held flashlights to provide additional illumination.

Two more pits lie beyond the first, with huge flames leaping out of them and silhouetting much of the action. The flames were produced by “a custom-made system,” Erdély says, “[fueled by] a combination of gas and petrol, [and] provided by our special-effects team — Gyula Krasnyánszky and Barna Princz.” Truck headlights on the far side of the pits offered additional light, as did small spotlights held by individual Nazi soldiers as they watched the slaughter.

Day exteriors relied exclusively on natural light. “László really understands light and was willing to sacrifice certain things in order to get the best light for the scene,” Erdély attests. At one point Saul is outside the compound when a commotion suddenly allows him to veer off and jump into the back of a pickup truck that is transporting inmates to a work area. The actor jumped easily onto the tailgate — but Erdély, with the heavy camera on his shoulder, had to move quickly to keep up. A small dolly, with a short platform on it, was placed next to the truck for Erdély to step onto, and crewmembers Egyedi and János Csikesz guided him onto the truck bed and secured him to a railing before the vehicle departed. The entire scene was done in one continuous shot.

Only one cinematic reference was

Javier Aguirresarobe ASC, AEC
POLTERGEIST

John Bailey ASC
A WALK IN THE WOODS

Charlotte Bruus Christensen
FAR FROM THE MADDING CROWD

Daniel Cohen BSC
ROOM

Ben Davis BSC
AVENGERS: AGE OF ULTRON

Jim Denault ASC
PITCH PERFECT 2

Anthony Dod Mantle ASC, DFF, BSC
IN THE HEART OF THE SEA

Robert Elswit ASC
MISSION IMPOSSIBLE:
ROGUE NATION*
INHERENT VICE*

Cary Fukunaga
BEASTS OF NO NATION

Eduard Grau
SUFFRAGETTE

Jakob Ihre FSF
THE END OF THE TOUR*

Matthew Jensen ASC
THE FANTASTIC FOUR

Andrew Lesnie ASC, ACS
THE WATER DIVINER

Emmanuel Lubezki ASC, AMC
THE REVENANT

John Mathieson BSC
THE MAN FROM U.N.C.L.E.

Seamus McGarvey ASC, BSC
PAN
FIFTY SHADES OF GREY

Daniel Mindel ASC, BSC
STAR WARS:
THE FORCE AWAKENS*

Amir Mokri
GOOD KILL

Kramer Morgenthau ASC
TERMINATOR: GENISYS

Rachel Morrison
DOPE

Tim Orr
Z FOR ZACHARIAH
OUR BRAND IS CRISIS*

Robert Richardson ASC
THE HATEFUL EIGHT*

Tobias A. Schliessler ASC
MR. HOLMES

John Schwartzman ASC
JURASSIC WORLD*

John Seale ASC, ACS
MAD MAX: FURY ROAD

Dean Semler ASC, ACS
THE LAST WITCH HUNTER

Masanobu Takayanagi ASC
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David Tattersall BSC
THE LONGEST RIDE

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Mandy Walker ASC, ACS
TRUTH

Jo Willems ASC, SBC
THE HUNGER GAMES:
MOCKINGJAY PART 2

Dariusz Wolski ASC
THE MARTIAN

Steve Yedlin
SAN ANDREAS

Robert Yeoman ASC
LOVE & MERCY*

Haris Zambarloukos BSC
CINDERELLA*

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*Shot on film

Top: Erdély captures the scene in which Saul, searching for a rabbi to bury his son, joins prisoners being marched into the woods. Bottom: Natural light was utilized for day exteriors filmed at an abandoned military barracks in Hungary.



used for the film: Elem Klimov's 1985 Soviet war drama *Come and See*. "It is different in many ways, but it is also a very personal journey and a very immersive experience," says Nemes. "We even contacted Aleksei Rodionov, who shot the film."

Son of Saul was processed at Magyar Filmlabor in Budapest, and Erdély's only instruction was to push one stop for night exteriors. Printed dailies were screened every day. "I have worked with that lab, and with color timer Viola Regéczy, for years," he reports. "They are absolutely amazing."

Regéczy was the colorist on both the dailies and the final film grade. The photochemical finish was completed at

the Hungarian film lab Filmlaboratórium. No digital intermediate was performed in the generation of the final analog deliverable, for which Kodak Vision Color Print Film 2383 served as the print stock.

A 4K FilmLight Northlight scanner, aided by The Pixel Farm's dust-busting technology, was employed to generate the digital version of *Son of Saul*. The digital color grade was performed by László Kovács with FilmLight Baselight Four, and the final digital deliverable was a 2K DCP. "We also did a 4K film-out on an Arrilaser to create an interneg for additional prints," Erdély says. And though digital projection is the predominant theatrical display method, it is Nemes' strong preference that audiences seek out theaters

projecting *Son of Saul* on film.

As part of their prep, Erdély notes that he and Nemes drove to Auschwitz and explored the site for a couple of days. "I have such huge respect for László," he concludes. "And he is so generous; he has shared the film's success with all of us. It's a strange thing to say, given what this movie is about, but the shoot was the most satisfying I have ever worked on, both professionally and personally."

TECHNICAL SPECS

1.37:1

35mm

Arricam Lite, Arriflex 235

Arri/Zeiss Master Prime

Kodak Vision3 500T 5219

ERRATUM

In our coverage of *Everest* in the October 2015 issue, we misidentified the digital-imaging technician who was with the production on location. Kerr Loy served as DIT — with Ash Daniyan as the lab technician — for the location filming in Nepal and Italy, and for a portion of the stage work in London. Jody Neckles then stepped in as DIT for the remainder of the work in London.

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Left for Dead

Emmanuel Lubezki, ASC, AMC and Alejandro González Iñárritu brave extreme conditions while shooting *The Revenant* on location in the Canadian wilderness.

By Michael Goldman



Director Alejandro González Iñárritu and cinematographer Emmanuel Lubezki, ASC, AMC are keenly aware that their method of shooting *The Revenant* last fall and winter — in sequence and relying almost exclusively on natural light in the harsh Canadian wilderness — has been controversial. Now, after nearly five years of planning and a brutal, extended production and post schedule, the filmmakers are eager to explain why they believe the undertaking was worth enduring such punishing conditions.

Adapted from author Michael Punke's 2002 novel, *The Revenant* is based on the real-life survival and revenge story of Hugh Glass. The 19th-century explorer (played by Leonardo

DiCaprio) was mauled by a grizzly bear during a Missouri River expedition in 1823, and after declaring him beyond hope, his companions took Glass' weapons and fled. In the movie, Glass awakens wounded and unarmed in a shallow grave, but rises up and steels himself to track down the men who had left him for dead.

Iñárritu and Lubezki readily concede that the production was numbingly difficult. Filming took place primarily in the remote Rocky Mountain region surrounding Calgary, Alberta, Canada — with certain sequences captured at the Squamish River in British Columbia, north of Vancouver, as well as the Kootenai River in Libby, Montana. The final



In the feature *The Revenant*, after Hugh Glass (Leonardo DiCaprio, opposite) is mauled by a grizzly bear, he seeks revenge against John Fitzgerald (Tom Hardy, this page, top, far left), who had left him for dead. Middle: Cinematographer Emmanuel Lubezki, ASC, AMC lines up a shot for a wintry scene. Bottom: Director Alejandro González Iñárritu discusses a scene with DiCaprio.

scenes were shot in Ushuaia, Tierra del Fuego, Argentina. Iñárritu calls the project “a once-in-a-lifetime experience,” and Lubezki describes it as “the roughest and hardest thing I have ever done in my life.”

“It got so intense and so challenging, but we all knew when we signed up that it would be this way,” Iñárritu says. “We discovered that when you are exposed to the weather and these conditions every day, you have to adapt. I had to shoot the movie chronologically, because that is how it is written — it starts in autumn and moves into winter. And the character goes through a very real physical experience of being in the middle of nowhere for months. So we couldn’t do it on a set, under normal Hollywood rules, and bring in snow and put in bluescreens. I wanted to absolutely kill any artifice. In keeping with that truth, we had to go through a true natural process, and challenge ourselves.”

At the center of it all, Iñárritu attests, was “the Chivo element,” referring to Lubezki by his nickname. “I could not have done this movie without him,” the director says. “His knowledge of natural light, the complexity of it — there could never be a better creative partner.” Indeed, Iñárritu insists that



Left for Dead



Top: In a flashback sequence, Glass observes a pile of buffalo skulls. Bottom: Lubezki moves the camera in for a close-up on DiCaprio and Grace Dove for a flashback of Glass and his wife.

Lubezki did “by far his most superb work ever” on *The Revenant* — which is high praise, considering Lubezki entered the production after winning two consecutive Academy Awards for *Gravity* (AC Nov. ’13) and Iñárritu’s *Birdman* (AC Dec. ’14).

As Lubezki explains, he realized from the beginning that shooting in harsh weather amid woods, mountains and prairies, with constantly shifting skies and short windows of daylight, would only work if the entire crew performed “as true filmmakers” — a hearty band of collaborators on their own adventure, mirroring the saga they were putting onscreen. He describes the

colleagues who made it through, from grips to camera assistants to fellow operators, as “indispensable” and “my right hands” on the project.

The original plan for the production had been to shoot a film/digital hybrid, and while the production did carry film cameras early on, no film footage appears in the finished cut. *The Revenant* ultimately relied on a combination of Arri Alexa cameras: the Alexa XT, which was used primarily for Steadicam and crane shots; the Alexa M, which was designated as the primary camera; and the new Alexa 65 system, an early version of which Arri made available to the filmmakers in

January of 2015, several weeks into production.

Though the Alexa 65 was originally carried primarily for vistas and more expansive shots, the filmmakers ended up using the new large-format camera “more and more and more,” according to 1st AC John Connor, and for all sorts of applications, including crane work for entire scenes and some Steadicam. Connor notes that the Alexa 65 was commandeered for “long takes [that progressed] from wide shots into close-ups, usually to [the minimum focus of] 15” on the widest [24mm] lens.”

Lubezki explains that he was initially attracted to the idea of “including the dynamic range of a film negative. I wanted to shoot a combination of 35mm and 65mm film, and then use Alexa for dusk and night. But the tests weren’t turning out the way we wanted — we were having [logistical problems] with X-rays in airports and labs — and I was already [impressed with] the Alexa tests when Arri called and said the Alexa 65 was available.

“Once we started testing that camera, we decided to switch to all-digital,” he continues. “In the weather conditions and the short windows [of sunlight], the Alexa did great work. Even if the dynamic range is not exactly the same as film, what the Alexa was able to do in the low end was something



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Left for Dead

Glass and his companions escape an attack in a crucial early scene that was shot in one take.



we could never do with film. In these conditions, with lots of shadows and limited time with sunlight, it was a very good decision.” According to Lubezki, approximately 13 percent of *The Revenant* was shot with the Alexa 65.

Lubezki describes the procuring of cameras and lenses as “the most

bizarre rental story.” When the production returned the film-based package to Panavision, they found themselves in a substantial hurry to obtain the necessary digital equipment. Various rental houses worked to fulfill *The Revenant*’s needs — primarily Panavision and Arri Rental, the latter of which provided the

Alexa 65 and its associated Arri Prime 65 lenses. “We were kind of stranded, and the rental houses were very helpful,” Lubezki recalls.

The Alexas all recorded in uncompressed ArriRaw to Codex 512GB XR Capture Drives. The XT and M cameras captured at 3415x2198 resolution and the 65 at 6560x3100.

Due to the nature of the story — a mountain man fighting for survival, primarily outdoors, in an era when sun, moon, stars and fire would have been his only possible light sources — Inárritu says it was essentially a no-brainer to shoot exclusively with natural light. He concluded it was the only way to achieve the level of realism he craved, despite the difficulties the approach would entail.

Lubezki notes that this method did not contribute to the production’s extended schedule. “In reality,” he says, “shooting with natural light allows us to shoot faster, because we didn’t have to drive lights into mountains and bring more people to set up. The film fell behind because it was [unseasonably warm winter] and we lost the snow early, so we could not shoot the end of the movie, and had to shut down [for four months] before we could finish in



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Top: A Steadicam mounted on an ice sled was used to capture Glass' trek through the snow. Middle: A wide shot conveys Glass' isolation in the wilderness. Bottom: Lubezki worked with natural light in order to underscore the realism of Glass' fight for survival.



Argentina. Beyond that, the big issue was that in the woods in the winter in Canada, the natural window to shoot each day was short. The sun came out at about 9:30 or 9:45 every morning and was sinking by about 3:45, which is a

short shooting day.”

The other complexity involved implementing Iñárritu's preferred style of extremely long takes with few cuts, an approach that loosely followed the methodology employed on *Birdman*.

“We weren't shooting *Revenant* in [a one-take style],” Iñárritu explains. “But I would say there was a beautiful development here from what we learned on *Birdman*, in terms of the value of wide lenses, and how to sustain long shots and why. For instance, in the scene in which [a trapper encampment is attacked], I wanted to cover [the action] without lots of chopping or trying to show every angle. I wanted to show one point of view to allow the audience to experience personally what it must feel like to be attacked in that way. That was very challenging, because we had to shoot the sequence straight for about an hour and a half. It was like a live performance.”

Operator Scott Sakamoto describes the attack as “a long, choreographed sequence starting with an arrow coming out of nowhere and hitting a trapper in the neck. The camera continues to a guy coming down a hill, bloody and injured, then pans back to our terrified trappers, who are hearing and seeing arrows coming from all directions, and then follows them through combat. [It was] all achieved with a Steadicam and handheld camera — and finished with a Technocrane —



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Top: Fitzgerald and Jim Bridger (Will Poulter, background) are on the lookout as they make their way through a raided village. Bottom: Hardy takes direction from Inárritu.



in one seamless flow with minimal cuts.”

Virtually the entire movie is shot with a moving camera, tracking actors in one of “three different modes,” as Sakamoto explains: either handheld by Lubezki, or on a Steadicam or Technocrane operated by Sakamoto. “Inárritu challenged us to move the camera with the actors,” Sakamoto says, “sometimes covering 360 degrees of view and often at eye level, then going to ground level and back up again, all within one shot.”

Given *The Revenant*’s shooting conditions, exposure challenges were constant. In this regard, Lubezki’s partnership with digital-imaging technician Arthur To was crucial. “One of the aspects that needed to be in sync was exposure and iris pulling,” To explains.

“Chivo pushes the limits of any medium he is shooting on. He may often shoot toward the sun and execute long takes that move from the inside of a dark room to a blazing sun outside — and then back through a dark group of trees. The range is always pushed to what the camera can handle. On top of that, he is extremely critical regarding exposure, and aims to put the image at an exact stop. On many movies, I may just help set the exposure from shot to shot or occasionally do an iris pull, but working with Chivo involves riding the iris to his desired exposure on almost every shot as we move through forests, cabins and the bright outdoors.

“Working only with natural light made the job more complex,” he adds. “While I was constantly chasing the exposure, I was also chasing continuity

of the depth of field between takes — not scenes, but takes. So, there was also a rush of changing ND filters every one or two takes in order to have a depth of field and f-stop that matched the previous take.”

“My preferred lenses are the [Arri/Zeiss] Master Primes and Leica Summilux-Cs,” Lubezki says. “A very small range of lenses.” His main lens was a Master Prime 14mm, with 12mm and 16mm used on occasion. He notes that the Leica lenses — of which the production employed the 16mm, the widest focal length available for that series — were particularly useful when a lighter-weight lens was warranted. The cinematographer explains with a laugh, “As I age, certain equipment becomes very heavy for all the handheld work, so the weight of the lenses does matter. The Leica lenses are light, but [retain] an incredible image.”

The production encountered an ongoing back-focus challenge with its extensively used Master Prime wide lenses whenever the temperature dropped to near 0°. The problem wasn’t fully sorted out until a few weeks into production, when Lubezki and Connor teamed with Panavision to find a solution. According to Connor, neither he nor the Panavision team had seen this phenomenon before on other shows shot in similar weather.

“The problem,” Lubezki says, “was that in Alberta, they have Chinook winds that can raise the temperature at any time, in a matter of minutes, by as



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Production designer Jack Fisk created sets that allowed natural light to stream in through windows and doorways. Interior scenes were staged near or adjacent to these entryways, as evidenced in these photos of Poulter (top) and Domhnall Gleeson (bottom).



much as 15 to 20 degrees.”

“When that happens,” Connor adds, “the lenses contract and/or expand. The [Master Prime] lens elements are affected and focus marks can shift, making the marks incorrect to the point where infinity can’t be reached.”

Connor consulted with ASC associate Dan Sasaki, Panavision’s vice president of optical engineering and lens strategy, to conduct tests, during which they bracketed different focus distances on the lenses versus actual object distances. “We saw a pattern in which everything was focusing disproportionately close — more than could be explained by a depth error or miscalibration,” Sasaki relates. “That pointed to a thermal shift. The finding made sense due to some of the exotic types of

glass that were inside the lenses in question. Unfortunately, the shifts were not linear, so the best solution was to set different lenses of the same focal length to work within their best [respective] temperature zones.”

“Dan set the back focus on each wide lens for specific temperature ranges: minus 15 degrees [Celsius], minus 5 degrees and plus 5 degrees,” Connor explains. “Then we had a laser temperature gauge, and we would measure the temperature of the back of the lens — near the camera, which puts off heat — so we could determine a common ground to establish our table of temperature, so it wouldn’t be random, and we could transfer that to our daily shooting. We then had our warmer lenses and our colder lenses. We ended up with three different sets of

lenses for 12mm, 14mm, 16mm and 18mm; we colored them as our ‘yellow’ lenses, our ‘blue’ lenses and our ‘red’ lenses.”

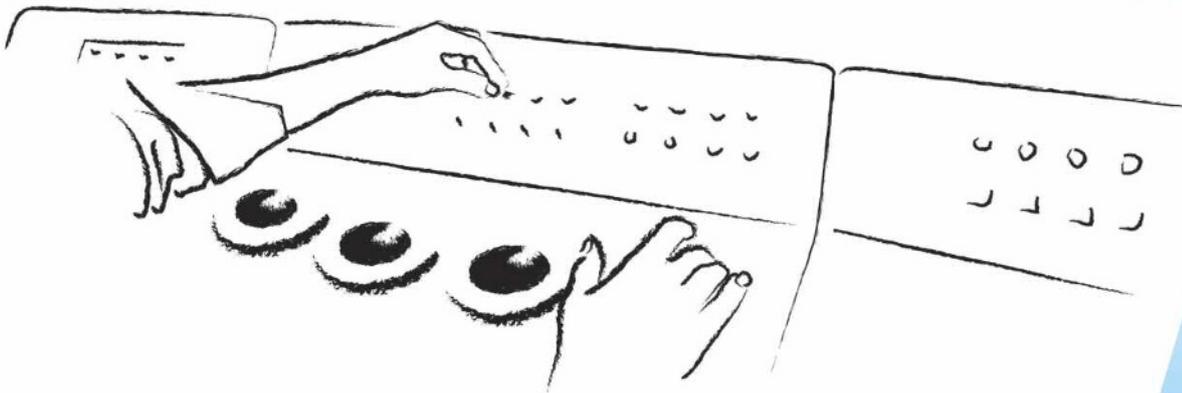
As to the Alexa 65’s Prime 65 lenses — which utilize optics from Hasselblad HCs — the 24mm was the main lens, and a 28mm was used occasionally.

In terms of pulling focus, Connor attests that *The Revenant* was “the single most difficult movie I have ever done.” Noting that he uses a combination of classic and modern focus-pulling techniques, he says, “I still like to be close to the camera, with a wireless focus and monitor in hand. About 20 years ago, I took the Preston wireless focus system off the Steadicam and used it on ground cameras to give me an advantage with ever-challenging styles of shooting and extremely long lenses. It’s comprised of a small 8-inch HD monitor with built-in LUTs and real peaking. Chivo only has Log C coming out of the camera, and doesn’t like to see peaking on his monitor or the director’s. The small HD monitor allows me to apply any LUT, as well as its own peaking. Along with a Paralinx wireless transmitter mounted on the focus unit, [the rig] gives me complete mobility to move through the set terrain and see the scene develop or change.

“Chivo uses wireless headsets so that the timing of focus racks can be called out,” Connor says, “or [so] I can let him know when we are at minimum focus, which is where we were a lot on this show. [To] also pulls the iris live, so these styles allow Chivo to move wherever and whenever he wants — organically throughout the scene, without any limitations. There was a lot of pressure to get each take all the way through — and at last light, it had to come together. There had to be synergy.”

Connor is keen to add that working alongside Lubezki made “a difficult situation enjoyable.” He also notes that both he and Lubezki are grateful for the hard work of their crew, “specifically how amazing the crew from Canada was.” ➤

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Top: Lubezki lines up a shot of Glass' son, Hawk (Forrest Goodluck).
Bottom: A Technocrane was utilized to finish off the filming of the attack on the trappers' encampment.



According to Lubezki, interior light was accomplished with the help of production designer Jack Fisk, whose crew built a fort and two Native American villages in such a way that firelight, moonlight and sunlight could enter and illuminate to maximum effect. Interior scenes were staged near windows or doorways, or the production would cut out sections of the set to allow ambient light to stream in.

“For interiors, we built the fort with the windows facing south, because we knew we would have direct sunlight at certain times,” Lubezki explains. “Beyond natural sunlight, we used only fires and candles for illumination. Jack built smartly designed sets that basically lit themselves.”

Lubezki also praises gaffer

Martin Keough, who lent his expertise despite the lack of motion-picture lighting rigs. Among other duties, Keough performed the crucial task of lighting wilderness trails so crewmembers could maneuver safely after dusk, and helped with the HME headset communication system and other electronics. In addition, some night scenes with real fires were augmented by Keough with light-bulb clusters or 6" tubes filled with household bulbs, used to mitigate frequency changes caused by the fire's flicker in windy conditions.

According to key grip Ray Garcia, the production also carried a collection of bounces, diffusion and negatives that were painted as needed to resemble naturally occurring environmental colors. Lubezki notes that the

way Garcia “prepped and supported the movie under these conditions was something I had never experienced before.” Sakamoto adds that Garcia “was responsible for engineering the placement and execution of the Technocranes — and on many locations that were not near roads or even access trails. Our dolly grip, Ryan Monro, worked the back or front end of the cranes like a surgeon, threading them between people, horses, trees and branches, or scraping them along the ground. That allowed us to have our camera dance around our actors with flow and intent.”

Garcia explains that much of the challenge involved finding ways for his rigging team to transport cranes to various locations where movement was restricted. “We had to disassemble a 23-foot [Servicevision] Scorpio telescopic crane and high-line each piece to the location, because we were not allowed to walk in the stream that ran up to the set,” he recalls. “A series of towers were made out of truss at every redirect point until the crane finally arrived at its position. Decking was also high-lined to build a platform and ramp for the crane position. No off-road vehicles were allowed in the area, and the use of heavy-lift helicopters was also prohibited because of the impact to wildlife, so the use of high lines became the norm in these instances. On other occasions, we built rafts to ferry Technocranes across rivers.”

Garcia adds that “the tools necessary to achieve what Alejandro and Chivo described” included the 23' Scorpio telescopic crane; a 35/45 MovieBird on a CineMoves Extreme Gator with a Libra 5 remote head; a Mini Libra; a selection of Technocranes and Chapman/Leonard Hydrascopes, the latter of which were employed in combination with Raptor and Maverick tracking vehicles; various cable-cam rigs; a GF Jib; a Performance Filmworks Edge Crane mounted on a Toyota Tundra, operated by Allan Padelford Camera Cars; an Allan Padelford Camera Car Biscuit rig; an

Edge Arch Head; an Edge Head; a “T90” Edge Head variation custom designed by Lev Yevstratov; and an electric Polaris camera car.

Meanwhile, on the data side, To says he had to “adapt my normal process [and become] extremely mobile in order to be flexible enough to cater to the run-and-gun nature of the show. Since much of the show involved moving quickly across large distances and difficult terrain, I built what I called ‘Mission Control’ [to serve as a mobile DIT station]. Mission Control contained [Boxx Meridian, Paralinx Tomahawk and Teradek Bolt 2000 units] that gave me the ability to receive an image from multiple cameras; distribute the image in raw, Log or colored with our show LUT; analyze the image with false color; and transmit waveform and false colors to my iris handset. It operated off the same [Anton/Bauer Dionic 91 onboard camera] batteries we all used as a department, and could operate with the case closed in order to recirculate heat and be fully weatherproof.

“Then, if I had the chance,” To continues, “I would also set up an ice-fishing tent with a small — but still mobile — DIT station inside. This unit consisted of a larger [17" Sony PVM-A170] OLED monitor calibrated by Technicolor; it could do everything Mission Control did, but in a more stable environment. It was wired so it could run off of block batteries, since power was not always available, and could be linked to Mission Control to handle multiple cameras.”

After shooting, To’s team would download one copy of the footage to a 48TB RAID media station on a camera truck as a backup, and then ship the XR mag itself in a Pelican case, via the transportation department, to Technicolor staff — including Kenny Vicent, Chris Van Duyn and Chris Giuffrida — at the film’s production office in Calgary. There, To explains, Technicolor “colored and manufactured dailies, which were projected for us using their mobile on-site projection lab.”

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Top: Glass vents his rage. Middle: The director and cinematographer flank DiCaprio. Bottom: Lubezki sets the camera on location.

the] front end to grade dailies,” says Michael Dillon, senior producer at Technicolor, “utilizing full DI color and controls on a 2K projector, which was set up in our Technicolor trailer near the production office, [which was the case] in both Calgary and Squamish. For the back end, we used Frame Logic to render out deliverables — DNxHD 36 and 175 for edit, H.264 for Pix, and HDCam SR for studio marketing requests. We also archived LTO backups. In addition, we set up a dailies screening room for editorial and creative in the production office. Chivo would grade in the trailer in 2K and then go to the screening room for nightly screening sessions. [Dailies engineer] Kenny Vicent helped support [in the field].”

Iñárritu recounts that when warm weather melted the snow, causing the winter environment required for the movie’s climactic scene to disappear, his team “scouted the world, chasing ice” in places with topography resembling that of the Alberta Rockies. The filmmakers finally settled on Argentina. When production resumed in South America, the methodology was identical — as was the grueling nature of the work. Yet according to both Iñárritu and Lubezki, the hardship and sacrifice has been worth it to achieve “objective intimacy” with their camera, as Lubezki puts it.

“There [was a] constant tension between the objective and the subjective,” the cinematographer explains. “That made it very difficult for camera operators and actors, and that is what made it a dance. Sometimes, we were very close to Leo because we were using [extremely] wide lenses — [at times] even the 24mm with the Alexa 65. We got so close to him, inside minimum focus, sometimes touching his cheek, actually. That let us feel his breath and perspiration, and get the subtlest movements of his eyes. Then we allowed him to move away, and the camera watched more from the objective ‘audience’ point of view.”

A prime example of segueing between objective and subjective

perspectives within the same sequence comes at a key moment when Glass discovers that John Fitzgerald (Tom Hardy) has murdered an ally. Glass discovers the body and mourns in cold, silent rage, just as an actual avalanche commences on the mountain behind him, seemingly in sync with his fury — a sequence achieved without the use of digital effects. With cooperation from Canadian authorities, the production safely triggered an actual avalanche on a mountain in the distance with the aid of a helicopter that dropped explosive charges in precise coordination with DiCaprio's reactions. Due to the enormity of the undertaking, it was strictly a hit-or-miss maneuver.

"We had the Alexa 65 on a little crane arm with the 24mm lens to get a close-up on Leo, while incorporating the landscape in the background," Lubezki says. "The entire crew was 100-percent concentrated on all elements, from the AD cueing Leo to communication with the helicopter. We knew we had only one chance, and we didn't want to blow it. Usually, you would have at least two [crewmembers] for something like this — the guy who operates the crane and the guy who operates the extension. But in this case, Ryan Monro was able to operate both by himself, like an octopus, while communicating with us by headset as we told him 'go up,' 'go left.' The digital camera let us shoot that at 1,200 ASA for more depth of field, while keeping Leo and the mountain sharp. The detail in the background is exquisite. We never could have done that with a film camera."

As Lubezki experimented with ultra-close focus, he inadvertently discovered a technique that would serve to provide a trio of defining moments in the film. "We wanted to get close to Leo," he recalls, "but the closest we could get was 7 inches, and I wanted 4 inches, so we needed a diopter [on the 14mm lens]. But one wasn't enough to achieve that, so I asked John Connor for two diopters." The result was an image that was only in focus at the center of



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Left for Dead

Lubezki wades into position to shoot an action sequence.



the lens, “and the sides of the image fell apart,” he explains. “It was very distorted. As a cinematographer you’re trying to find a consistent language, and this was [disrupting] that language, [making it feel] like it was from another film — but it was such a powerful and iconic image that we used it anyway.

“It was the kind of thing a good cinematographer would plan,” he says with a laugh. “And the kind of accident

you always hope will happen.” The filmmakers reserved the effect for only two other scenes, for a total of three — when Glass awakes to discover the fate of his son, when he emerges from the carcass of a horse that had kept him alive through a terminally frigid night, and the film’s closing scene — which, as Lubezki enthuses, each embody the definition of “revenant,” a person who returns after death. “The image is like a

punctuation mark,” the cinematographer opines, “[denoting] that he’s either coming back to life again, or that something else is happening. It’s ambiguous, and it has a syntactic power that we found by pure accident.”

At press time, Lubezki and Iñárritu were deep in the digital-intermediate process at Technicolor Los Angeles with their longtime collaborator, and ASC associate, Steve Scott — Technicolor’s vice president of theatrical imaging and supervising finishing artist — color grading with Autodesk’s Lustré 2015 Extension 3, using a Christie 4K projector, and conforming the movie in the 2.39:1 aspect ratio and generating a 4K DCP.

“I have been ‘growing up’ with Steve Scott,” Lubezki says. “He’s one of my teachers, and all of the knowledge [I’ve gained] from working with him through the years was useful in finishing the movie the way we did.” Lubezki, in fact, had predicted that this project

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would be “the most complicated DI I have ever done.”

And according to Scott, this complexity was integral to Lubezki’s overall strategy of using the DI tools to enhance the natural light of his on-set work. “The extra ‘toolset’ Chivo brings with him to any set,” Scott says, “is his thorough knowledge of what options and capabilities await him in the DI. He plans ahead of time — and while he’s shooting — what he is going to need down the line.”

By way of example, Scott points to the particularly complex “roto” work performed throughout *The Revenant* for individual faces. “For each shot we went through,” he explains, “we would hand-animate mattes to conform to the natural contours and shadings of a moving face or body. Sometimes Chivo would want to lift a whole face and sometimes he would want to create more of a directional key light, so we would make a couple of mattes — one

for the shadow side of the face and one for the highlight side.” Scott makes a point to emphasize that this process is “by Chivo’s design. For months in advance of us ever doing the DI, he insisted that we work on the raw footage to help develop the mattes. He always shot with that process in mind.

“The cliché that ‘it takes a village’ is certainly applicable here,” Scott adds with good humor. “No single artist could have ever accomplished what we did here.” He points to the efforts of his fellow finishing artists Mike Hatzler, Charles Bunnag and Ntana Key; Dillon, his finishing producer; Doug Spilatro, who led the roto team; and Bob Schneider, who headed the DI-specific editorial work, and concludes, “That’s another way Chivo has pioneered this whole process — the idea of coordinating the efforts of so many talented artists for a single DI.”

Iñárritu describes the digital intermediate work on *The Revenant* as

the “final touches” on Lubezki’s expert use of natural light. “The light is the sauce on the plate — what is poured over the whole thing,” the director says. “It’s about Chivo’s use of light, and also his knowledge of the light. That is what he brings here, and why I needed him to shoot the movie, and why he is doing such great work in the DI right now.”

Additional reporting by Andrew Fish.



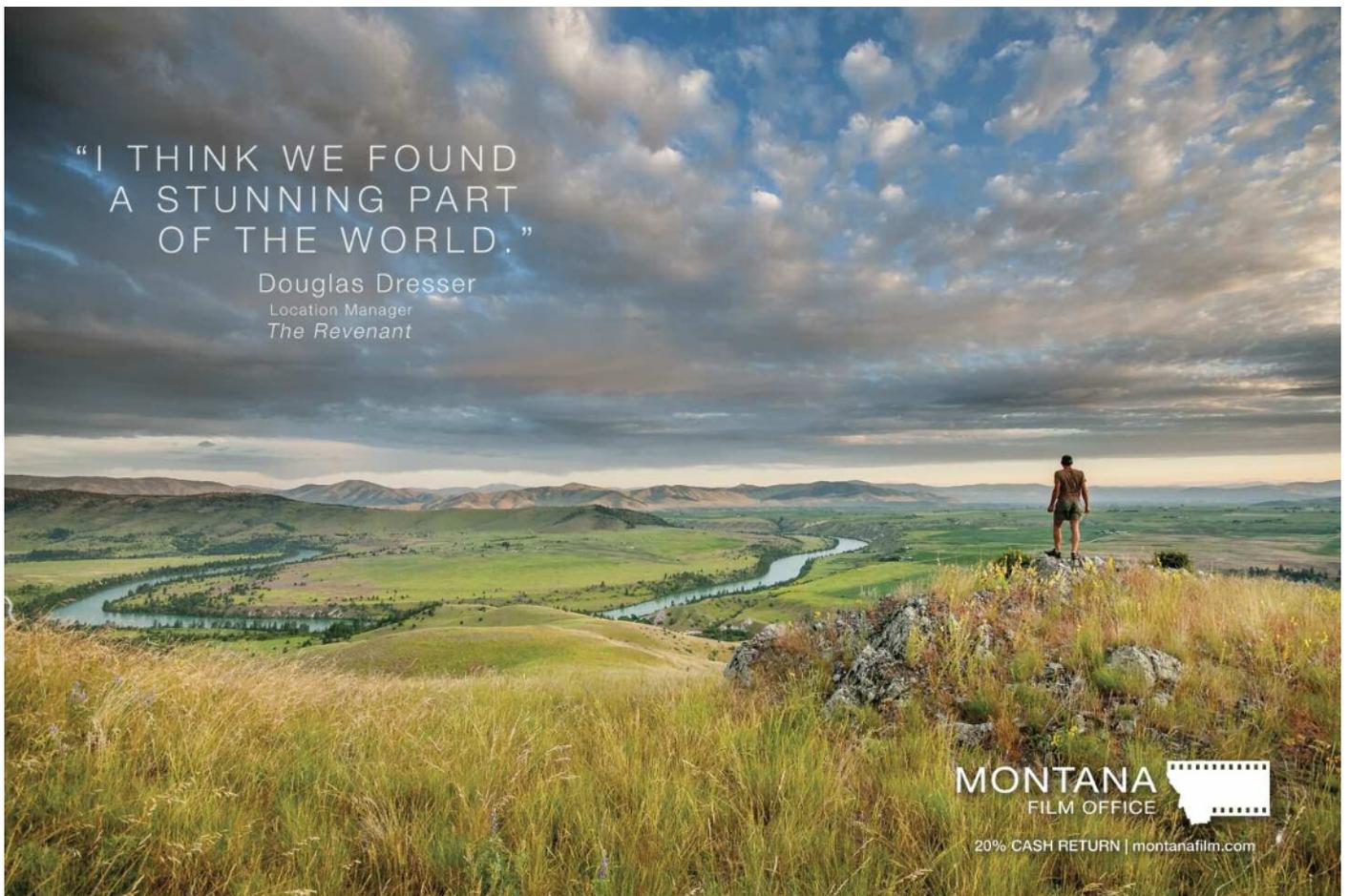
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2.39:1

Digital Capture

Arri Alexa XT, M, 65

**Arri/Zeiss Master Prime,
Leica Summilux-C,
Arri Prime 65**





Savage Sea

Cinematographer
Anthony Dod Mantle, ASC, BSC, DFF
hits the deck with director Ron Howard
for the period adventure
In the Heart of the Sea.

By David E. Williams





When the New England whaling ship Essex is attacked by a massive whale, the surviving crew — including first mate Owen Chase (Chris Hemsworth, opposite, right) — must resort to the unthinkable in order to survive in the feature *In the Heart of the Sea*. Below: Director Ron Howard (left) and cinematographer Anthony Dod Mantle, ASC, BSC, DFF discuss a scene.

Herman Melville's 1851 adventure, *Moby-Dick*, has been adapted to the screen numerous times, most famously in 1956 by director John Huston and cinematographer Oswald Morris, BSC. Yet the factual tale that inspired the novelist was not well known until Nathaniel Philbrick's well-researched account, *In the Heart of the Sea: The Tragedy of the Whaleship Essex*, was published in 2000. That book formed the basis of the Warner Bros. release *In the Heart of the Sea*, directed by Ron Howard and photographed by Anthony Dod Mantle, ASC, BSC, DFF.

The film begins in 1820, as the Essex — led by inexperienced captain George Pollard Jr. (Benjamin Walker) and fiery first mate Owen Chase (Chris Hemsworth) — sets sail from Nantucket toward the rich hunting waters off South America. After early success in taking their first whale, the ship is crippled by a violent storm and later sinks after being attacked by a massive, enraged cetacean. The survivors, marooned on a rocky isle, are forced to resort to the most desperate measures before their eventual rescue.

"This is an interesting tale because it's a true story, but it's also



about the power of creating a myth — the writing of *Moby-Dick*," Howard explains, taking time to speak with *AC* while cutting the thriller *Inferno*. "And the attack itself is so cinematic in the way it was described by Melville and in the journals written by some of the Essex survivors. That scene alone was a huge jumping-off point for me."

An Academy Award and ASC Award winner for his camerawork on director Danny Boyle's *Slumdog Millionaire* (*AC* Dec. '08), Dod Mantle had previously collaborated with Howard on the period Formula One racing drama *Rush* (*AC* Oct. '13).

The director notes, "I brought this project to Anthony because I was interested in his take on the script, especially [given that] there are classic elements to the story but also very modern ideas. I wanted a modern cinematic aesthetic — not in a pretentious, rock 'n' roll way, but in a style that would make it personal and interesting and memorable. That's what modern photography offers — subtle meanings that go beyond the literal to work on a subconscious level that's immersive and emotional. And Anthony immediately connected with that. There's still a painterly

Savage Sea

Whaleboat action, the storm sequence and the sinking of the Essex were filmed at the outdoor D Stage water tank at Warner Bros. Studios Leavesden.



quality to many of the images — ones that would remind you of a 19th-century work hanging in some gallery — but others are so personal and immediate, much like what we were able to do on *Rusb.*”

Speaking to *AC* from Munich, Germany, where he was prepping to shoot Oliver Stone’s political drama *Snowden*, Dod Mantle offers, “This film was an orgy of interior and exterior studio work, water-tank shooting, location shooting, second- and third-unit work, underwater photography, aerial work and visual effects. Fortunately, we had a long prep phase, and all the department heads — including production designer Mark Tildesley and visual-effects supervisor Jody Johnson — broke the script down with Ron to determine exactly how to shoot it. It’s all about the methodology, because if you don’t get that right on a film like this, you’re stuffed.”

These preproduction talks resulted in a shooting schedule that called for the production to do all the stage work first, and then match that footage while out on location. “It went against logic,” admits Howard, “but we had special considerations because of the controlled-starvation diets our actors were on in order to



Left: Dod Mantle chose to shoot major scenes aboard the Essex night-for-day. To create a base “daylight,” the crew used balloon lights rigged in scaffolding cages suspended from cranes above the tank. Below: For directional sunlight, the crew placed 20Ks and 12-lights on cherry pickers behind the bluescreen that encircled the tank.

appear thinner and thinner and, finally, emaciated during the final act.”

Dod Mantle’s key crewmembers included a number of veteran collaborators, such as gaffer Thomas Neivelt, key grip Rupert Lloyd-Parry and 1st AC and operator Telfer Barnes, as well as 2nd-unit director of photography Michael Wood. The cinematographer also expresses gratitude to B-camera and Steadicam operator Alastair Rae and Rae’s 1st AC John Watters.

The production’s primary camera was the Arri Alexa XT (delivering ArriRaw files), but he also employed an array of secondary systems, including Canon Cinema EOS-1D C DSLRs, and Cinema EOS C300s and C500s. His selection of lenses was equally diverse, including Panavision Primos, as well as Arri/Zeiss Ultra Primes specifically for the PL-mount Canon cameras. “My favorite lenses were the close-focus 21mm and 27mm Primo series,” Dod Mantle enthuses.

Assessing this camera selection,



the cinematographer says, “I think of them as thick, medium, thin and minute paintbrushes. This mixing of formats is much more about a camera’s form, for physical and ergonomic reasons. I don’t want the audience to be conscious of those choices, but for me to use the right tool for the job. In this case, I wanted to embed the audience in this story, to get them closer to the characters,

to feel the scenes and remove the distance that’s sometimes there in period movies.

“Part of that was also the depiction of the sea,” he continues. “I wanted to capture that look of J.M.W. Turner’s paintings, in which the density of the water in the lower part of the frame is the same as the sky — that moody mysteriousness. And that’s unusual in landscapes,

Savage Sea

Bluescreen-surrounded water tanks were utilized for shooting scenes in which the Essex crew row their skiffs, chasing down whales.



because generally the sea has a density of blue-green to it but the sky just goes *pop*, maybe [with] some clouds, a bit of blue or a sunset. But I wanted to go further, and Ron was on board with that.”

Helping to achieve this goal was a set of 40-year-old grad filters that let Dod Mantle add up to eight or 10 layers of ND to the top of the image. “They took me in the direction of making the first half of the film darker,” he describes. “So after the Essex crew departs Nantucket — a grimy place consuming the whale oil they are seeking — and survives this godforsaken voyage down the coast of South America and around Cape Horn, opening up into this blistering-hot South Pacific, we have a real contrast.”

This also led Dod Mantle to shoot in 1.85:1, as he “wanted to compose the shots a little looser and always have the sea and sky tied together in the frame. If I were shooting widescreen, I’d constantly be tilting up and down. I needed the height of 1.85.”

Key to the visual approach was the blending of classical compositions with almost avant-garde, subjective perspectives, often fleeting and captured in extreme close-up.

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Savage Sea

Right: Captain George Pollard (Benjamin Walker, right) and select crew board one of the three Essex skiffs in search of whales. Below: Dod Mantle operates a watertight Indiecamlens IndieGS2K for close-ups on actor Cillian Murphy.



“Finding these shots is something Anthony has a particular attention for and understanding of,” says Howard. “I’ve always loved detail shots because they draw you in — they create a poetic insight. Once you see this material coming in, it starts to become really exciting. It’s like casting a net, and you can be surprised by what you find.”

An essential tool in this shooting approach was the Indiecamlens IndieGS2K, a tiny — 40mm x 40mm x 100mm — 2K camera with a 2/3" CMOS global-shutter sensor. The

cinematographer had previously used Indiecamlens units to shoot portions of *Rush* and the crime drama *Trance*. Numerous saltwater-proof tube housings were built for these C-mount cameras — fitted primarily with Kowa 5.6mm, 8mm and 12mm lenses — which could be easily hidden on set and operated remotely for additional in-shot coverage, with the data streams stored by offboard recorders.

Dod Mantle explains, “Getting these unique Indiecamlens shots just became a part of our coverage

approach, sometimes with me plopping one of them in the sand or behind a shrub or rock or in a boat, with objects in extreme foreground while our character is in the distance, and the focus falling off. We’d just let them roll and see what we’d get. The wide, fixed-focus lenses we had for them were a bit brutal, so I’d add a little diffusion to it, and diffuse even further in post. It’s hard to communicate the value of these Indiecamlens shots — especially on a studio picture — until people see them, since they usually have the actors out of focus way off in the background. But Ron saw the potential for this on *Rush*; he got it straightaway.”

Another inspiration for the filmmakers was the 2012 documentary *Leviathan*, directed by Lucien Castaing-Taylor and Verena Paravel and largely shot with GoPro cameras. “It’s an absolutely horrific film about the fishing industry,” Dod Mantle says, “with these breathtaking images of these fish swimming in their own blood — truly disturbing. Ron and I watched a few scenes, and it was about understanding what we felt while watching these often abstract

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Cinematographer Emmanuel "Chivo" Lubezki ASC, AMC
on the set of THE REVENANT (2015)

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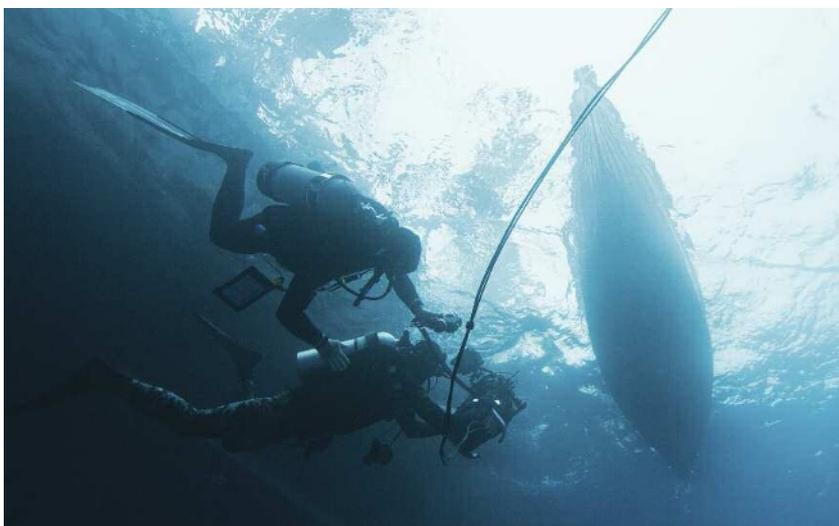
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Savage Sea



Top: The crew preps a scene while shooting in open water on location in the Canary Islands. Bottom: Underwater cinematographer Peter Zuccarini and his underwater assistant, Peter Manno, frame a whaleboat from below.

images captured with tiny cameras.”

Howard adds, “We also watched a lot of Greenpeace documentary footage, sailing footage on YouTube, Ridley Scott’s *White Squall*, and episodes of *Deadliest Catch*. There were a lot of influences on how we could remain real, but be creative.”

The production began filming in September 2013 outside London at Warner Bros. Studios Leavesden in Hertfordshire, where the Nantucket scenes and ship interiors

could be captured on stage, while whaleboat action, the storm sequence and the sinking of the Essex would be photographed in the facility’s outdoor D Stage water tank. Due to the short daylight hours and unpredictable English weather, Dod Mantle chose to shoot major scenes aboard the Essex night-for-day.

“It was two weeks of nights, shooting from dusk until the sun was coming up over Heathrow Airport,” the cinematographer says. “Our base ‘daylight’ mainly comprised three sets

of balloon lights with 24K in each set, rigged in scaffolding cages suspended from cranes above the tank. Then, for directional sunlight, we had 20Ks and 12-lights on cherry pickers behind the bluescreen that encircled the tank. We were outside, still subject to wind, rain or snow, but we could absolutely control the [color] temperature, contrast and angle of the light, which gave us an advantage. When you’re dealing with things like woodwork and white sails, changes in the color temperature and intensity of the light can make a huge difference as the day goes on.”

As the production would require extensive wet camerawork both in the studio and on location, Dod Mantle turned to underwater specialist Peter Zuccarini (see sidebar on page 64), whom he had first worked with on Boyle’s harrowing drama *127 Hours* (*AC* Dec. ’10). For *In the Heart of the Sea*, Zuccarini explains, “With the main unit in the tanks at Leavesden, I was doing bluescreen shots with the Essex crew in boats, chasing the whales and then being tossed from the boats into the air — a lot of stunt work. And on the days I wasn’t with the main unit, I was with second unit getting elements, like harpoons plunging into the water or ship debris hitting the sea or boats being destroyed, and finally the sinking of the Essex after [the whale stoves the boat].”

Like Dod Mantle, Zuccarini also employed a blend of Alexa and Canon cameras. “The main advantage of the EOS-1D C was the small form factor,” Zuccarini opines. “It’s a 4K camera, but compact. The Alexa is pretty big, and it’s *really* big once you get it into a watertight housing. But with the EOS-1D C, I could spin it around fast to come across the bow of a small boat, or jump off the gunwale with it in my hands while still operating — it’s just a great size.

“We were primarily using Primo lenses, but with the Canon EOS cameras, we were also using



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"We shot a 5 minute documentary and TV spot in very harsh, uncontrolled conditions across South Africa with a mixed style of a lot of run and gun shooting, super

high speed, drone and helicopter shots. Shooting in dark shacks, often with the lens wide open or at T2.8 they performed beautifully without having to think about it too much. The Cookes were thrown around a lot and put through dirty, dusty situations for two weeks straight without a single problem. We really pushed these lenses. They are mechanically superb but the sharpness was the best thing. They're pin sharp when you need it but have a wonderful fall off to creamy softness in the out of focus regions.

Other anamorphics that I've used were too clean cut, the lines were too straight. If you want to embrace realness, Cookes have more character and texture without going overboard. When you try to flare them they're subtle and beautiful—just a subtle glow, not overbearing like you see in vintage anamorphics. Anamorphic lenses can get a lot of distortion, particularly the wides, but these have the right balance of character and cleanness.

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RUSSELL AND SANDGREN BRING JOY TO THE BIG SCREEN



In *American Hustle*, Linus Sandgren, FSF and David O. Russell forged imagery that evoked the glitz of the 1970s. That film struck a chord, earning 10 Oscar® nominations, including a nod for Best Picture. Now Sandgren and Russell have reteamed for *Joy*, the story of a family across four generations that centers on the girl who grows up and establishes a powerful business dynasty. Like much of Russell's work, *Joy* is impossible to pigeonhole. It is a drama with quirky, dark humor and a unique humanity. The cast includes Jennifer Lawrence as Joy, and reunites her onscreen with Robert De Niro and Bradley Cooper.

As they did with *American Hustle*, Sandgren and Russell shot *Joy* on 35mm film. But the similarities end there. This time around, they devised a more classically cinematic approach with more specific lighting and deliberate framing. Taking inspiration from older black-and-white movies, the production design was often muted in color and contrast.

"We lit more for a single direction, rather than a 360 lighting, which was our approach on *American Hustle*," says Sandgren. "It was more of a noir approach, this time."

Two Steadicam operators helped with that. Even static shots were often accomplished with the camera on the rigs, which allowed for quick push-ins, for example. A 1.85:1 aspect ratio was used to compose more painterly, classic frames. The lenses were Zeiss Ultra Primes with special vintage coatings developed by CamTec to enhance flares and veiling.

Sandgren worked mostly with KODAK VISION3 500T Color Negative Film 5219. A few exterior scenes were done with KODAK VISION3 200T Color Negative Film 5213. Testing revealed the right exposure/development recipe for the film. The 500T was rated at E.I. 200, and the 200T was rated at E.I. 80.

"We pull processed the entire film, and I overexposed everything one and a third stop," Sandgren says. "I thought this gave the film much more beautiful highlights and blacks, and a richness in the details of the sets and costumes. The colors are slightly muted and the grain is finer. We lit with harder light to maintain strong contrast. The result is a smooth, soft image where you see all the details."

Shooting film didn't interfere with Russell's proclivity for a fast, flexible shoot.

"Although we were shooting in a more traditional manner, David still wanted to maintain the flow and energy," says Sandgren. "He values extensive quality time with the actors during the shoot. He



likes to keep the film alive and adapt as we are making it, so we did a lot of pre-lighting and ran everything through dimmers to allow for flexibility."

"Shooting 3-perf gave us about six minutes between reloads," he says. "By the time David talks to the actors, the camera is reloaded. Also, when the film is rolling, it intensifies the moment. There's more concentration around a take, which results in more magic moments. Add to that, our mutual love for the texture of celluloid."

Silhouettes and partial silhouettes are a key visual motif in the film. "David wanted to visually dive deeper into character's soul," says Sandgren. "We felt the silhouettes symbolized the interior of the person, making us feel more like we are with them or inside them, seeing the world around them. Often, we put ourselves in shadow, with the light on the other side of the subject or modeling them from the side."

On day one of the 42-day shoot, production was cancelled due to a blizzard. But over the course of the project, shooting on Long Island in winter helped take the film in a monochromatic direction.

"Joy learns that achieving her dreams is difficult, and it was nice to let the beautiful, snowy landscape work as a metaphor for the obstacles she faces. With the white snow and the black trees, it becomes graphic and black and white. Other worlds that Joy finds along the way, are more colorful, as a visual contrast to where she comes from."

Film's ability to resolve subtle shades of white was a major advantage, he says. "With a contrasty lighting, the pull processing brings the range together, and the entire scene is exposed within that range. It looks very different than it would if we had shot on digital."

"When film is rolling, it intensifies the moment. There's more concentration around a take, which results in more magic moments."



Photos: Previous page: (Top) Jennifer Lawrence in *Joy*. (Right) DP Linus Sandgren on set. Photo by Merie Weismiller Wallace. This page: (Top) Lawrence and Bradley Cooper. (Bottom) Edgar Ramirez, Lawrence and Robert DeNiro. (All photos TM & © Twentieth Century Fox Film Corporation. All Rights Reserved.)

FILM CAPTURES THE SPIRIT IN BOY



The short film *Boy* follows the ghost of a boy who is killed in a bicycle accident, and then follows a classmate home after school. The film, which premiered at the Toronto International Film Festival (TIFF), was written, produced and directed by Connor Jessup. Best known as an actor for his roles in *Falling Skies*, *American Crime* and *Closet Monster*, the film is Jessup's second turn at the helm.

"I kind of fell backward into acting before I knew what it was," notes Jessup. "I have come to love it on its own terms, but as soon as I was old enough to be taken even mildly seriously, I knew I had to start making (movies)."

For *Boy*, Jessup enlisted cinematographer Bobby Shore, CSC – an American Film Institute graduate and Montreal native. He and Jessup had worked together on director Stephen Dunn's *Closet Monster*, a coming-of-age drama that won the 2015 Best Canadian Feature at TIFF. Shore was so adamant about shooting certain segments of that feature on film that he bought his own stock and borrowed an ARRIFLEX 435.

Given the supernatural elements of *Boy*, the two filmmakers wanted a natural palate, subdued and restrained.

"We spoke a lot about the films of Hirokazu Koreeda and Edward Yang," explained Shore. "Connor has an almost encyclopedic knowledge of Asian cinema. I had tested (KODAK) VISION3 500T (Color Negative Film 5219) and tended toward the additional texture I got with the 5219 when it's underexposed by two or three stops. The image becomes slightly lifted and almost creamy, but with a lot of texture as the inherently tighter grain structure of the VISION3 stock starts to degrade a bit."

They used a set of Ultra Speeds and a Panaflex Millennium XL from Panavision Toronto. They shot entirely on (KODAK VISION3) 5219 with an ND 6 filter in front of the camera the whole time, but metered as if Shore was rating the film at 500. "It was a bit nerve-wracking sometimes when the light levels were already so low that they'd barely register on the meter," he said. "But understanding the latitude of the stock with prior testing, I knew it would result in the looks we were going for."

Both Jessup and Shore lauded the workflow on set, where spending time to rehearse, finesse, refine, and discuss shots even before rolling was par for the course. "Film's a living medium," offered Jessup. "You can feel film going through the camera. It's something with texture and breath that has a heartbeat to it."



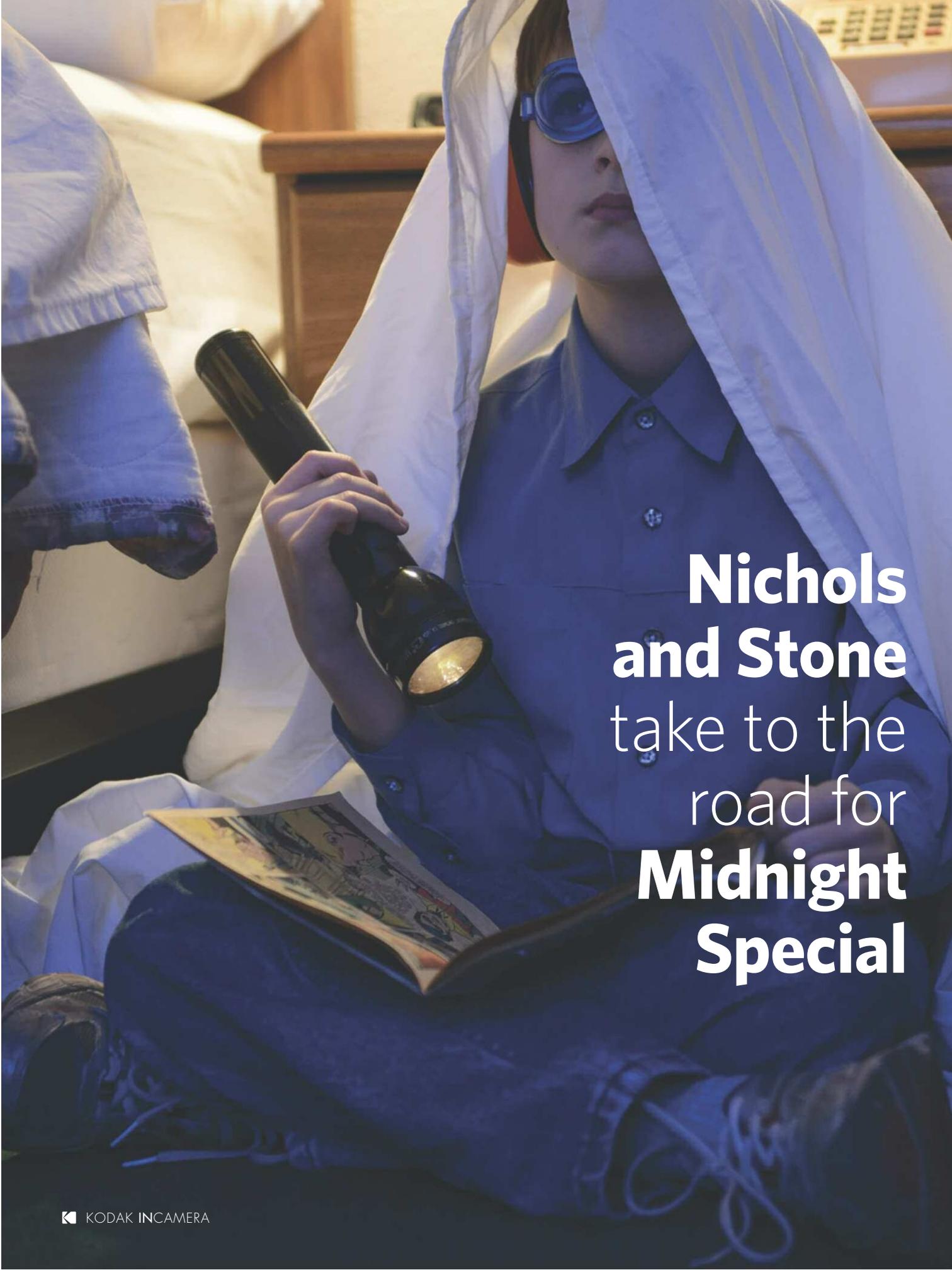
"You can feel film going through the camera. It's something with texture and breath that has a heartbeat to it."

"It felt like true filmmaking again, where we trusted and respected the process," added Shore. "Because a lot of the scenes play out as static singles or with just a few shots, we really took the time to scrutinize every frame and make sure it was exactly to taste."

Jessup adds that he feels there's a difference in the richness in film compared to digital that is key to storytelling. "I was kind of raised a purist. All the movies that I love and I grew up on, that have changed me and are a part of me, were shot on film."

Photos: Top and Bottom: Kyle Hentschel as Daniel in *Boy*. Center: Director Connor Jessup, left, checks a shot. Photos by Calvin Thomas



A young boy is sitting on a bed, partially covered by a white sheet. He is wearing blue goggles and a blue button-down shirt. He is holding a black flashlight in his right hand, which is lit. In his left hand, he is holding an open comic book. The scene is dimly lit, with a warm glow from the flashlight and the background. The text 'Nichols and Stone take to the road for Midnight Special' is overlaid on the right side of the image.

**Nichols
and Stone**
take to the
road for
**Midnight
Special**



The director-cinematographer team of Jeff Nichols and Adam Stone has produced four films over the past nine years – *Shotgun Stories*, *Mud*, *Take Shelter* and now, *Midnight Special*. Over that period, Nichols has quickly earned a reputation as a deft and original filmmaker. *Mud*, which starred Matthew McConaughey, earned a Palme d’Or nomination at Cannes and took home the Robert Altman Award at the 2014 Independent Spirit Awards. *Take Shelter* also won three prizes at the 2011 Cannes Film Festival, and was nominated for five Spirit Awards.

Nichols, who first met Stone at the North Carolina School for the Arts, credits the DP as a key part of his success as a director.

“We have a tight-knit crew that works on all our films; they are truly great artisans and most importantly great friends,” says Stone. “We have a lot of fun together. Everyone contributes and we all learn from one another.”

Midnight Special has a measure of writer/director Nichols’ trademark poetic realism, but as his first foray into the sci-fi thriller realm, it differs from the previous films in its darkness, both literal and figurative, and in its technical complexity – there are more than 300 visual effects. It was also Nichols’ first studio production, with a budget

under \$20 million. The cast features Kirsten Dunst, Joel Edgerton, Adam Driver, Michael Shannon, and Sam Shepard as the leader of an extreme religious sect who hunts down a uniquely gifted child.

The 44-day shoot was based in New Orleans but stretched from west Texas to the Florida panhandle. The weather was often uncharacteristically wintry, with sleet and cold temperatures working against the filmmakers. Much of the action unfolds at night, in old motel

“Shooting on film is second nature to us. We feel comfortable in the medium. It’s beautiful and mysterious.”

rooms or on drab and desolate stretches of road. In keeping with the story, the look includes a camera that is almost constantly on the move. Steadicam operator Matt Petrosky played a crucial role.

The filmmaking duo prefers to shoot film, often in a widescreen format, as they have on all their previous collaborations. *Midnight Special* was no exception. Stone shot the majority of the picture on 35mm anamorphic film, using Panavision XL2 cameras and G

Series lenses. He says the format did not slow them down.

“The first film we did together, *Shotgun Stories*, was anamorphic,” explains Stone. “The crew was me, Jeff, a few friends, and his parents. Shooting on film is second nature to us. We feel comfortable in the medium. It’s beautiful and mysterious. It contains gorgeous aberrations and has an intrinsic beauty digital has yet to replicate. If it were up to us, we’d shoot on film forever.”

The vast majority of *Midnight Special* was filmed on two stocks – KODAK VISION3 500T Color Negative Film 5219 and KODAK VISION3 250D Color Negative Film 5207 – with a few scenes shot on digital cameras for technical reasons. Stone spent a week and a half of preproduction testing various lenses in every scenario, but settled on the G Series glass. They tested some digital formats as well, but, “Film always wins,” Stone adds.

One scene that plays out in a 1970s ranch house bedroom was filmed partly in a practical house and partly on a built set. The ceiling of a dimly lit bedroom separates through a marriage of practical and visual effects, and a strong beam of light, representing the sun, smashes through the exposed ceiling joists illuminating the darkness.

“We shot the scene wide open on 5219,” says Stone. “It was a big practical effect and we had only a few chances to capture it. The camera burst into the bedroom, lit by practicals, and the ceiling rips away allowing an array of M-90s to light the room. There was a 5-stop difference from the beginning of the scene to the end of the scene. We never adjusted the iris. The end result is amazing. The look could never be replicated by a digital sensor. The areas that are blown out fall off gracefully. Film is very similar to how the human eye sees the world – realistic and elegant.”

Photos: Left page: Jaeden Lieberher as Alton in director Jeff Nichols’ sci-fi thriller *Midnight Special*. Photo by Ben Rothstein. This page: Sitting (l-r) Stephen McBride (A Cam 2nd AC), Darius Shahmir (2nd unit director), Kenneth Neil Moore (2nd unit DP). Standing (l-r) David Regan (A Cam 1st AC), Matt Gaumer (B Cam 2nd AC), John David Devirgiliis (loader), Steve Early (B Cam 1st AC), Alex Nystrom (camera utility), Dylan Conrad (2nd unit 1st AC), Matt Petrosky (A Cam operator/Steadicam), and Adam Stone (DP). (*Midnight Special* is a presentation of Warner Bros. Pictures in association with Faliro House Productions, released by Warner Bros. Pictures.)

EDITING THE STUNNING
70MM 1:2.76
ASPECT RATIO OF

THE HATEFUL EIGHT

Quentin Tarantino has shot all of his films on 35mm, only experimenting with digital when he guest-directed a scene in Robert Rodriguez's *Sin City*. The Oscar®-winning *Pulp Fiction* director's eighth full-length feature sees him revisit the Western genre after *Django Unchained*, which was his first collaboration with editor Fred Raskin, ACE (*Guardians of the Galaxy*, *Fast & Furious*).

Set in 1870s Wyoming, *The Hateful Eight* traps a rogue's gallery of characters in an isolated location during a snowstorm, with no certainty as to who can be trusted. Shot by Robert Richardson, ASC, and widely distributed in 70mm, the look of the film helps define the period.



"Shooting digitally was never going to be an option, as it would automatically add an element of phoniness to the proceedings," observes Raskin. "The warmth and the tight grain of the film stock contribute to the reality of the era. And of course, Bob Richardson's lighting and the 1:2.76 compositions combine to make this an absolutely stunning picture."

The visual style of the movie is classical Hollywood, but with that unique Tarantino imprint. Many of the director's signature shots pop up: the split-field diopter and the hard profiles of the actors talking to each other, for example.

"I think we probably held wide shots longer than ever before thanks to the 70mm format and its 1:2.76 aspect ratio," says Raskin. "When the image is that striking and well-composed, cutting away when

not absolutely necessary seems somewhat criminal. The handheld shaky-cam that dominates modern Hollywood cinema is nowhere to be found here. If the camera moves, it's on a dolly. This visual style contributes to the atmosphere of tension and dread that builds up over the course of the movie."

"Shooting digitally was never going to be an option, as it would automatically add an element of phoniness to the proceedings."

The footage was sent to FotoKem in Burbank for processing. The 65mm negative arrived daily for processing, printing, transfer, and creation of dailies files. All transfers matched the film print color timing, as a custom LUT was created to emulate the 70mm print. FotoKem also restored a decommissioned 70mm Prevest flatbed from the Academy of Motion Pictures Arts and Sciences to assist in the rare process of syncing 70mm print dailies, adding DV40 audio sync playback on the flatbed.

"Whenever I finished working with Quentin for the day, I would go over the work that we'd done and make a handful of tweaks and adjustments," explains Raskin of the workflow. "Then I would turn the sequence over to my first assistant so that the following morning, the film crew could start conforming the section we'd completed the day before. We had to keep the film crew conforming, so that when we finished a pass on the entire movie, it would only take an extra day or two before we were able to screen the work picture."

The photochemical finish, including time for negative cutting and color-timing, meant that Raskin and Tarantino had to have the cut locked before beginning to mix the film. "The upside, obviously, is that we were able to spend more time focusing on the mix," says Raskin. "The downside is that our time to cut the movie was forced to be a month shorter."

While on location in Telluride, Colorado, the production installed a 70mm projector at the Mason's Hall — one of the venues used for screenings during the Telluride Film Festival. When the footage came back from FotoKem, film assistants Paula Suhy and Michael Backauskas would sync it up.



"At the end of every shooting day we'd head to the Mason's Hall to screen the material shot two days earlier," he relates. "Everyone from the cast and crew was invited to watch. One of our producers would announce at the beginning of every screening, 'Welcome back to the Greatest Show in Telluride!' It was a nice way for everyone to end their day.

"Back in Los Angeles while we were working on the director's cut, the editorial team would prepare a weekly screening of recently completed scenes at the Directors Guild of America (DGA) to get a sense of how it played in 70mm.

"Quentin and I would sit in the fourth row of Theater 1 at the DGA with huge grins on our faces, immersed in the grandeur of the 70mm images," recalls Raskin. "The color of the film was generally richer than that of our Avid dailies, and the detail was astonishing. Sitting that close created the greatest difference in the viewing experience between screening on the Avid and screening in a theater. If we could follow the action sitting that close, we knew the sequences hadn't been cut too quickly."

The shoot required certain sequences to be filmed while snow was falling. Therefore the cast (including Kurt Russell, Channing Tatum, Samuel L Jackson and Jennifer Jason Leigh), had to have the entire script memorized from day one. If they got snow they'd be shooting one scene, and if they didn't, they'd be shooting another.

"Since everyone knew the script so well it gave Quentin the ability to shoot 11-minute-long takes if he wanted to, which ended up being great for the performances," says Raskin. "I was watching some terrific theater on a daily basis. This also informed some of the editing choices; there are a handful of shots in the movie that are a couple of minutes long thanks to this, and of course, the trick has been to find an appropriate and effective time to return to the coverage.

Raskin continues, "In other, digitally-shot projects, I might want to take performances from two separate takes and fuse them, but

Quentin wants to keep as much of the movie as untouched, original negative as possible. Quentin is not into digital trickery. Instead the goal becomes to make the best version of the movie using the footage as it was shot, as opposed to using visual effects to 'Frankenstein' the movie together."

With the picture complete and in cinemas, Raskin recalls viewing it for the first time with an excited yet unsuspecting crowd. "At that point it is no longer about watching the movie, it's about seeing how the audience reacts to it," he says. "With a good crowd, it's a blast. Hearing them laugh, shout, applaud — knowing that they're with the film and enjoying it — it makes all of the hard work and the long hours worth it."



Photos: Left page: Fred Raskin, ACE. Photo by Andrew Eisen. This page: (Top) Samuel L. Jackson stars as Major Marquis Warren. (Bottom) Kurt Russell, Jennifer Jason Leigh, and Bruce Dern. *The Hateful Eight* photos by Andrew Cooper (SMPSP)/©2015 The Weinstein Company. All Rights Reserved.)

Super 8

GETS A TICKET TO HOLLYWOOD ON

American Idol



You probably had no idea that when you were watching *American Idol* at any point over the last 14 seasons, that you were witnessing the nostalgia of Super 8. It would take a trained eye indeed to notice that all those winter evenings spent in front of the tube with your family, ready for the next Carrie Underwood or Kelly Clarkson, were actually a throwback to many family's home videos.

Cinematographer Owen Smith, who's been with the show since 2006, has been capturing Super 8 footage that is interspersed throughout the road show portion of the series.

"My dad shot Super 8," the St. Augustine, Florida, native reminisces. "His dad had shot Super 8 too. More than photography, it is a history of people. When my dad was using it, it was to document the life around him. Everybody had one of those cameras, so a lot of people can identify with it as sitting around watching home movies."

Smith had been doing a lot of travel documentary work earlier in his career, and got to work on shows like *Survivor* and *The Deadliest Catch*. When he started on *American Idol*, an already huge, well-oiled machine, he asked himself what he could do to make his contribution unique.

"I'd just joined the Union and was getting into bigger productions," he explains, "and I realized that my strength could come from something that I've always done - Super 8."

Smith was on a schedule that had him and his team up at 4 a.m. shooting thousands of screaming people in lines in a different city every few days. During his off time, he'd take a bike or go walking with his Canon 814 and shoot B-roll of the cities. He'd end up using 24 to 36 rolls of Super 8, which would equal about an hour's worth of footage.

It was never a fight for Smith to shoot the footage, but he would have to usher it through the post-production phase, making sure each editor who already had a million tasks to complete was aware that Super 8 footage was available. Smith says once the producers — namely Charles Boyd, Patrick Lynn and Megan Michaels — began to see the value it added, they asked for more Super 8 shots.

Smith has shot a variety of Super 8 negative and reversal film stocks since his first season with the FOX show. He frames it for 16:9, and Pro8mm in Burbank scans the film in 1920x1080 with 3:1 color correction on a Millennium 2 HD scanner. The film output is a ProRes HQ codec, downloaded to a hard drive for editing of the digital files.

"Owen wanted to create a unique look for the *American Idol* sequences, and he chose Super 8 because it combines a classic film look with a modern application for stunning results," offers Rhonda Vigeant, VP of Marketing at Pro8mm. "We provide a one-stop solution with KODAK Super 8mm film, lab processing and HD scanning with just a two-day turn around."

Smith always felt his Super 8 footage would mimic a dad following his kid as they audition and make the trip across country to compete in the iconic *American Idol*. He never put it on a jib or a Technocrane, but lately, he has been using it in a more stylized way.

"Now," he says, "we talk about how we're going to compose the frame and how it fits into the bigger show. I relate to this medium through travel and a nostalgic emotion of family, friends and adventure. I'll always use it."



Photos: Top: Cinematographer Owen Smith. Bottom: Thousands line up for a chance to become the next *American Idol* at Mariucci Arena in Minneapolis, Minnesota. Photo by Adam Bettcher. (FOX. Copyright 2014 FOX BROADCASTING Getty Images for FOX Broadcasting)

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Peter Zuccarini, *In the Heart of the Sea's* underwater director of photography, developed his skills while growing up in the seaside community of Key Biscayne, Fla. "It was a marine culture of free diving, spearfishing, lobster catching, and everything else you could do underwater," he says. "My dad had a waterproof Super 8 camera and I had a waterproof Pentax still camera, so I started shooting when I was just 11 years old, photographing everything that was going on. Years later, when I went off to school in the 1980s, I started making water-themed short films."

Scuba-certified at the age of 12, Zuccarini later gained professional experience working for established experts, including wildlife documentarian Bob Talbot; photographer-filmmaker Bruce Weber; underwater cinematographer Pete Romano, ASC; and Imax specialist Greg MacGillivray. He also learned on the sets of such projects as *Sea of Sharks* and *The Everglades: Home of the Living Dinosaurs* — both of which were installments of Disney's *New True Life Adventures* — and *Dolphins* (2000). "I have always endeavored to make images that are new and unfamiliar, while being open to learning and seeing every new collaborator as a sort of mentor," he says.

During prep on *Pirates of the Caribbean: The Curse of the Black Pearl* (AC Aug. '03), Zuccarini's name came up when the filmmakers were discussing the picture's extensive underwater needs, and he was put in contact with director of photography Dariusz Wolski, ASC. "I took Dariusz to an Imax theater in Miami to see *Ocean Men: Extreme Dive*, which I'd shot with Bob Talbot, and that got me on the picture. That was probably my big break into Hollywood filmmaking, and I went on to do the underwater photography on all three *Pirates* sequels."

Part of what made Zuccarini's photography stand out was best showcased in the adventure drama *Into the Blue* (2005), a show on which he shot and directed elaborate underwater sequences. "Because I came from a free-diving background," he explains, "we tried to be more



bold with the camera movement, to really explore that feeling of motion and dimension. Avoiding the traditional 'epic'-but-static seascapes, we tried to continually move the camera fast with the action. That, coupled with the ability to direct these scenes, allowed me to work in the fantastic colors and light available in the Bahamian waters. The rippled seafloor provides a creamy bounce, and as a background it beautifully catches the patterns of refracted sunlight."

Has the immediacy of shooting digitally increased the appetite for underwater photography? "Absolutely," Zuccarini confirms, "and I'm saying that as somebody who's had a hard time letting go of film. To my eye, the way light transmits through water is just better recorded by film. Looking into the sun from underwater, or into another strong light source, still looks better on film, so it was hard to embrace digital at first. But now we're delivering a full-resolution HD image to our director and topside director of photography, so they can instantly see and understand what we're getting, which is very beneficial for what we do. With film, there was always a gap in that understanding, but now that gap is gone, and that helps me communicate

better and helps my collaborators on the surface be more creative about how they want to use the underwater camera team."

Still, underwater photography has its idiosyncrasies. For instance, the choice of optics is a different consideration when shooting underwater. "Most of what you know about using a particular lens on dry land doesn't apply when using it underwater," Zuccarini says. "The one constant is how they handle flares when you look into a hard source, but in terms of contrast or color aberration, they respond very differently underwater. Also, shooting through a foot of what looks like very clear water is like putting diffusion in front of your lens. So someone who favors a certain lens because of contrast or color characteristics might enjoy testing lenses in different qualities of water before making final decisions."

Digital cameras may also perform differently, says Zuccarini, particularly in terms of contrast, but there are ways to deal with the issue: "For instance, with the Alexa, due to its dynamic range, you can reduce or increase contrast while retaining the color that you were intending. Even in a tank, where you have a lot of control over the water, the image may be very different

day-to-day due to the chemistry or particulate matter. On the open ocean, there is no control. But having that range adjustment can help you get close to matching day-to-day and shot-to-shot even with variations in the water's color. So I feel confident with the Alexa in that regard, and also in that the camera itself has been incredibly reliable, which is vital for underwater work. If a camera goes down and you have to pull the housing out of the water to put in a replacement, that's a lot of lost time."

The cinematographer relies on custom watertight camera housings supplied by Zuccarini Watershot, a partnership with Steve Ogles, whose San Diego-based company Watershot also offers an array of support for "custom and production waterproof enclosures, including tablets and smartphones," Zuccarini says. "Our professional motion-picture housings are made of aluminum, carbon fiber and other composites, and we support all the major film and digital systems." As he notes, variations in the Alexa line alone — from the XT to the Mini to the Alexa 65 — can require new custom housings or modifications for each iteration, as they often have slightly different controls or add-on modules. "One nice thing about having a partner company that can support me is that even with new cameras being introduced every year, we can stay ahead of our needs."

Zuccarini most recently wrapped work on the upcoming feature *Deepwater Horizon*, shot by Enrique Chediak, ASC. "I remember the first time I got paid to shoot. I was working with a biologist doing a study on sharks, thinking it was my big breakthrough. I got that job in part because I could do the job, but also in part because I would swim with the sharks. Finding that balance, between minimizing risk and maximizing reward, is always a big part of this work."

— David E. Williams

some PL-mount, super-wide Zeiss Ultra Primes for certain shots, especially to get the whole ship in frame when the Essex was going down. Ultra Primes tend to look very sharp — but underwater, the inherent diffusion softens the lenses in a very complimentary way.

"Anthony put me on a dry camera for the first week I was there [at Leavesden] — I think he wanted to infuse me with his coverage approach," Zuccarini continues. "One of the things I observed was that for almost every scene — after the master and all this incredible coverage — Anthony would use a handheld-camera setup with a 21mm or 27mm lens, wide open, and shoot several more passes through the whole scene right up in [Hemsworth's] face. It was like a moving master. So, once I started doing underwater work, I made a point of trying to get right up into Chris' face. In doing that, you force yourself into the action a bit to get those gritty, personal moments. That coverage breaks the more traditional feeling that a film like this might otherwise have, making the story and characters feel more immediate and contemporary."

A primary challenge was recreating deep-water oceanic conditions in a studio tank. "I wish we could have done the location portion of the shoot first; we would have had a better reference for the swells and waves and wind and spray," says Dod Mantle. "But that wasn't possible, so we had to rely more on instinct. I was always calling for it to be rougher, and Ron was supportive of that."

"The sinking of the Essex came to look quite apocalyptic once we got through the DI," the cinematographer adds. "It's not bad enough that the whale has ripped open the ship and that it starts sinking, but it also catches fire. And then these men are literally in the middle of nowhere on these three little boats. I get goosebumps thinking about it."

In this sequence, Chris

Hemsworth's character dives back down into the already submerged vessel. "To simulate the ship rocking back and forth, sinking while he's going through it, we had these powerful water jets working on the boat, some blowing just water and some water and air," Zuccarini describes. "Chris was swimming through the hull of the Essex and getting pushed and slammed into parts of the set — while I was in front of him, being pulled backwards while trying to control my movement and speed with my fins. It was a dynamic situation, and took a lot of cooperation between the special-effects [crew], grips and camera team to make sure it was safe."

As the scene continues, the Essex explodes, littering the sea with burning whale oil and debris. "The thing about fire on water is that just below the surface, you're safe," says Zuccarini. "But if you break the surface, you're fried. Because we only had a few possible takes, preparation was important, but it came down to applying past experience in dealing with fire effects — how to expose properly — because you can't do complete tests. But we were able to roll during rehearsal and make some adjustments with the light underwater, and the Alexa has the latitude to help deal with it."

Location shooting largely took place on- and offshore of the islands of La Gomera and Lanzarote in the Canary Islands chain off the coast of Spain — not far from where Huston and Morris shot portions of their version of *Moby Dick* some 50 years prior. Shooting with the full-size, seaworthy replica of the Essex in open water, Dod Mantle relied on everything from aerial photography and jib arms to a telescoping crane with gyro-stabilized three-axis remote head, but simpler approaches and techniques also added an unusual power to these sequences.

"To emphasize the size of these whaling ships, we did some shooting

Savage Sea



Top: Scenes of the Essex crew marooned on a rocky isle were shot onshore in the Canary Islands chain off the coast of Spain. Bottom: The crew shoots aboard one of the skiffs using a camera crane placed on a production-constructed dock platform.

at water level with a floating camera rig as this 100-ton boat sails by at speed,” Zuccarini says. “I’d be literally inches from the boat with the lens just slightly submerged and the hull scraping by. These were incredibly powerful vessels in their day, and we wanted the audience to feel that. Given the speed and mass of the vessel and the mere inches we were from it, that’s not a shot you could do safely with a remote at the end of a 30-foot telescoping crane, which would have a lot of its own inertia and be subject to the movement of the barge it’s mounted on. You can

only get that feeling of proximity by being right there in the water.”

While shooting aboard the ship and its smaller whaling skiffs, Dod Mantle employed a dedicated camera and lighting boat featuring an 18K Arrimax and an Arri M90 HMI for fill; the fixtures were powered by an onboard 125K generator that could also power video village and all other camera, grip and electric needs.

“For me, the essence of these scenes after the sinking of the Essex is to get the audience into the boats with our surviving characters,” Dod Mantle says. “I was also trying to

suggest a certain point of view from one of the characters, so the audience would have a more direct connection and be able to empathize with that character later in the film. I didn’t want to be too on-the-nose about it, though, because it’s quite an ensemble piece at that point and we don’t know the fate of these men. It’s this kind of visual language — the shots and compositions that lead the viewer and create mood — that I find much more interesting than exactly what lens was used to shoot it or lamp was used to light it. That’s where creative decisions are made.”

The waters around the Canary Islands are “photographically extraordinary,” notes Zuccarini. “The area of these volcanic islands is dark, as opposed to the white sand you have in a typical coral reef; the sand here is basically disintegrating basalt and other volcanic rock, so you have this dark-gray bottom, which adds a primal mood that was perfect for this film. Shooting up toward the surface, you could see the ships and boats, but you didn’t have that cheery, tropical feeling you might have had if we were shooting in the Caribbean — we didn’t have a bright bounce fill from a white sand bottom. This was a perfect place from an underwater standpoint.”

These conditions also inspired Howard and Dod Mantle. “For instance,” Zuccarini recalls, “Ron asked, ‘Why don’t we try an angle from below the ship, the way the whale would see it, from 100 feet down?’ And then he asked, ‘Could you also swim the camera up from 100 feet down, toward the ship?’ So we designed that shot, which meant not only dealing with the photographic needs — focus, exposure, composition and such — but the timing of the ascent and the movement of the full-size whaling ship under sail, which was a logistical challenge.”

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Savage Sea

Shooting in a water tank, Zuccarini gets an underwater angle for one of the whale-chasing action sequences.



effects shot. And you also could not do this using scuba gear due to the rapid ascent, which would kill you. It had to be a free-dive shot. But once you're out on the ocean, and everyone can see the potential of what can be done out there, the opportunities to try amazing shots can happen."

The Canon EOS-1D C was called into service for a scene in which the Essex survivors wash up on the shore of a rocky isle. "They're going ashore in the archipelago, right there in the surf zone," Zuccarini recounts. "I was able to go into those waves with [Hemsworth], handholding that EOS-1D C, duck diving to avoid the big ones, but getting in there close to the rocks and making it feel real. It was hazardous, and I could not have done it with a bigger camera. Ron and Anthony were truly willing to embrace getting that camera in there, and Chris was super-comfortable in the water, which was

shot, Zuccarini's underwater assistant, Peter Manno, was positioned 100' beneath the water's surface with an Alexa, to which a buoyancy bladder was attached. Zuccarini would then free-dive down from the surface to take the unit to operate. At the call of action, with the ship underway, he

would gradually inflate the bladder with air, rising up with it at increasing speed to "crash" into the bottom of the craft just as the whale would.

"Now, this is not the kind of shot that you design while in a studio," Zuccarini notes. "There, it would almost automatically be an

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Well after principal photography wrapped, "there were a few days of pickups that I just absolutely could not do," Dod Mantle notes, "so it was the most obvious thing to suggest that Sal Totino [ASC, AIC] cover for me, given that he's done so many other pictures with Ron and works so closely with him. They were quite complicated scenes in terms of lighting, so he had a chance to review what we'd done and he paid us the biggest compliment by saying the line between studio and location work was absolutely seamless. That's perhaps the biggest compliment one can get from another cinematographer!"

Dod Mantle oversaw the digital intermediate at Technicolor London with Jean-Clément Soret, who worked with FilmLight Baselight for a final 2K master. "The DI process

was a matter of putting color back into the footage after the visual-effects work had been done," Dod Mantle says, noting that visual-effects supervisor Jody Johnson kept in close communication throughout the lengthy post schedule. "So, for instance, in our storm scene, I put a lot of tungsten back into the clothes and the ship's sails so it wasn't this crisp white and cold marine blue. And I encouraged Jody to put more of our saturation back into the images — the film's palette was always aggressively saturated. It's extroverted, and brave in a way. And I hope audiences see that.

"Collaborating with Ron is such a positive experience because he never pushes," the cinematographer concludes. "Instead, he brings you on this ride — this extraordinary, physically difficult, challenging journey — and I'm so glad I was able to take it with him."

"This *was* a journey," Howard adds, "and a special one for me, like *Backdraft* and *Apollo 13* and *Rush* — one of the most difficult, yet meaningful. These men were the astronauts of their time, working with cutting-edge technology and risking their lives to fuel what was then a very modern world. They were finding their fortunes, and I think we captured that feeling." ●

◀ TECHNICAL SPECS ▶

1.85:1

Digital Capture

**Arri Alexa XT;
Canon Cinema EOS-1D C,
C300, C500;
Indiecam IndieGS2K**

**Panavision Primo,
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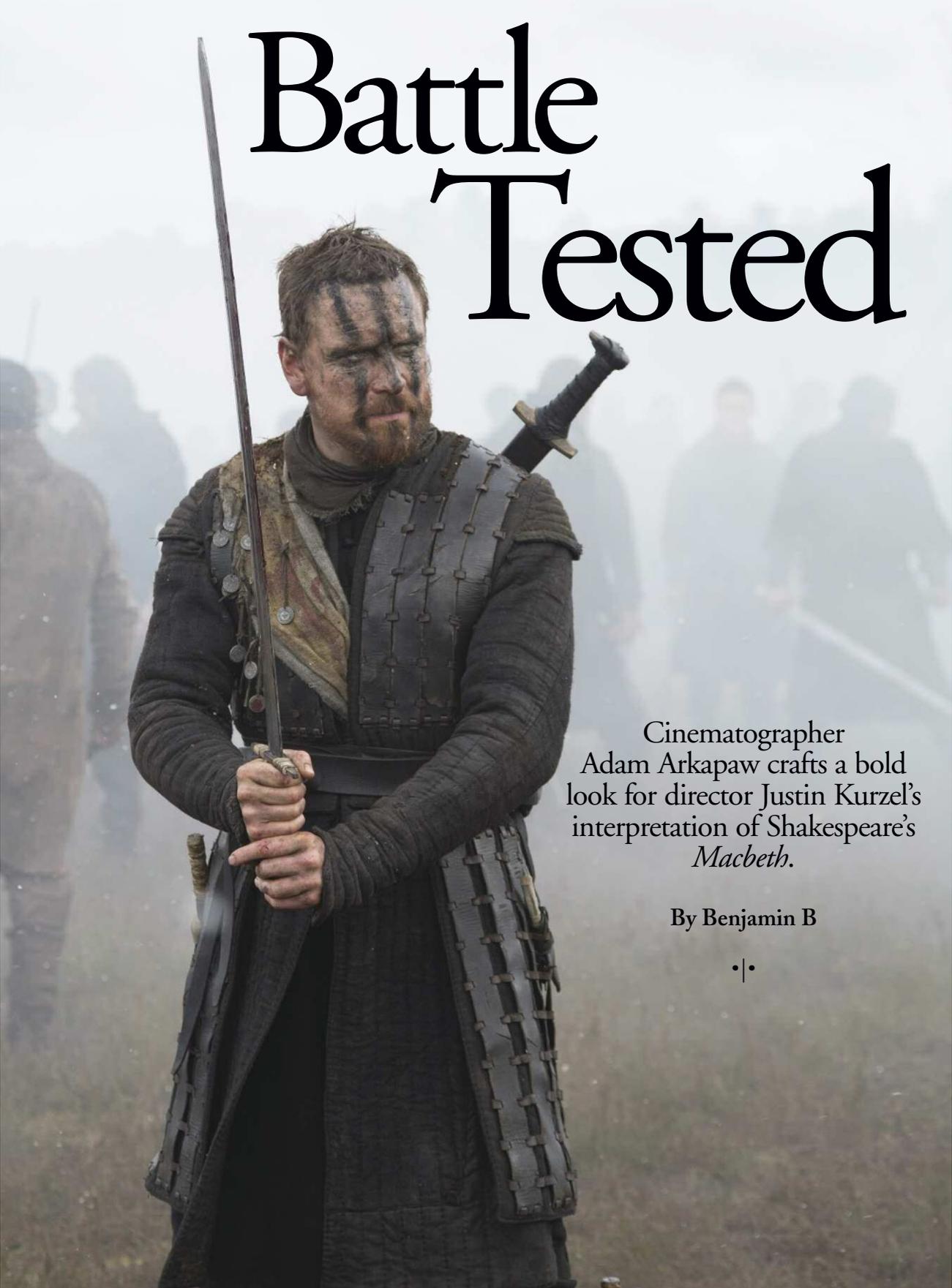
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A man in medieval armor, likely a warrior, stands in the foreground holding a long sword. He has a beard and dark markings on his face. In the background, several other soldiers in similar armor are visible, though they are out of focus. The scene is set outdoors in a misty or overcast environment.

Battle Tested

Cinematographer
Adam Arkapaw crafts a bold
look for director Justin Kurzel's
interpretation of Shakespeare's
Macbeth.

By Benjamin B





Opposite: The titular hero (Michael Fassbender) steels himself for battle in the opening sequence of *Macbeth*. This page, top: Macbeth becomes king, with his wife (Marion Cotillard) by his side. Middle: Macbeth's ascension to the throne comes after he's murdered King Duncan (David Thewlis, left). Bottom: Cinematographer Adam Arkapaw utilized an Easyrig for handheld shooting.

Offering an original take on William Shakespeare's Scottish play and featuring powerful visuals from cinematographer Adam Arkapaw, director Justin Kurzel's *Macbeth* premiered during the Cannes Film Festival as part of the prestigious Official Competition. The film's director and cinematographer have worked together regularly since their time together at the Victorian College of the Arts in Australia, collaborating on commercials as well as the feature *The Snowtown Murders*.

Arkapaw also shot the distinctive Australian features *Animal Kingdom* (AC Oct. '10) and *Lore* (AC March '13). The cinematographer has received Emmys for his work on the series *Top of the Lake* and the first season of *True Detective*. AC reached Arkapaw in London, where, at press time, he was shooting Kurzel's third feature, *Assassin's Creed*.

American Cinematographer: How did it feel to shoot such a classic story?

Adam Arkapaw: My dad was an English teacher in Australia. I never really understood how great literature was, or why my dad loved it, until high school when my dad took me away for



All images courtesy of Studiocanal.

Battle Tested



The filmmakers shot with multiple Arri Alexa XT Plus cameras, as well as a Vision Research Phantom Flex, to capture the battle. "The obvious choice would have been to use film because it's a period piece, but we wanted the movie to look more contemporary," says Arkapaw.

two weeks to study *Macbeth*. He showed me the art behind the words, and the various meanings that could be deduced from the text. It was an inspiring and eye-opening experience for me as a teenager — the genesis of my love of literature and storytelling. So, many years later, it was really meaningful to have an opportunity as a cinematographer to give back to this play.

Why did you and Justin Kurzel choose to shoot digitally?

Arkapaw: The obvious choice would have been to use film because it's a period piece, but we wanted the movie to look more contemporary. We didn't want it to feel nostalgic. So we shot with the Arri Alexa XT Plus in ArriRaw.

Why did you choose to shoot in anamorphic?

Arkapaw: The aberrations of anamorphic help create an expressionistic and painterly effect. And they also play against the sharpness of [digital capture]. Anamorphic sits the aesthetic somewhere in between a softer film look and a harder digital look. We mostly used Panavision C Series [lenses], and also the E Series. We also carried a Panavision ATZ 70-200mm [T3.5] zoom and an Angenieux [Optimo] 48-580mm [T5.6] zoom.

The anamorphic look varies with the T-stop. Many old-timers liked to shoot between T4 and 5.6.

Arkapaw: At that stop, you [no longer see] the aberrations. I was more between T2.8 and 4 — wide open is a bit much for me. It's also about depth of field. In general, I like having some depth so you can enjoy the textures behind the actors; I like to see the design in the background of shots. However, I will draw out the actor from the background for a powerful close-up when it's the right time to do it.

How did you and Kurzel define the vivid looks of *Macbeth*? Did you talk about looks ahead of time, or did you propose things on set?

Arkapaw: Justin and I met in film school, and we've known each other for 12 years. We've probably done 20 commercials together, as well as his two



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Battle Tested



Arkapaw complemented the film's candle- and firelit scenes with Showtec Sunstrips, which incorporate a DMX chase system to create an effect he describes as "the best I've come across."

features. So over time we have developed a lot of trust in each other, and we definitely have a shorthand. I know what he likes and doesn't like. He's very trusting with me about coverage, lighting and color, to the point where I don't really need to run a lot of what I'm going to do by him. On occasion, if he was expecting something else, he might say, 'Why don't we try this or that?' Otherwise, I just know him so well from our shared aesthetic and long history that he trusts me to do what I think is best.

One of Kurzel's key decisions was to shoot almost entirely on location in Scotland, sometimes in very difficult conditions.

Arkapaw: Yeah, even the locals thought we were crazy! They would stay at home and we would trek in. A lot of exteriors were hour-long walk-ins, often on mountaintops. It was super windy, up to 40 miles an hour. My memory of Scotland is having three layers of waterproof jackets on, with my hood on and my back to the wind, and just watching hail come sideways across my body.

Because we were up in the mountains, you could see the storms coming. You'd say, 'Oh, that looks like it's 20 minutes away. Let's quickly get a shot off.' You would shoot something and then you'd pull your hood up and wait another 20 minutes until the hail had gone through, then go, 'That other storm looks like it's half an hour away. We'll get another shot off.'

You don't sense that extreme weather on the screen.

Arkapaw: That was a comment from Olly Tellett, my first AC. He said, 'I love the film, I love how it looks, but you can't see how hard it was. I wish it looked harder, because it was!'

One of Kurzel's original premises for the film is that Macbeth [played by Michael Fassbender] suffers from post-traumatic stress disorder. How did you represent that?

Arkapaw: When I was 23, I did a documentary in the Middle East and I met some guys in Israel who had been in the army and were discharged because they suffered from PTSD. I asked them to describe it. They told me it's as if every moment lasts an eternity, everything is in slow motion, that it's almost like a banality, a stillness that you can't escape — which is terrible. That's what we explored as Macbeth crashes into his madness.

There's a moment like that during the battle in the beginning, when Macbeth is immobile and everyone around him is moving in slow motion.

Arkapaw: That battle went through different versions. At first we were scheduled to have 10 days to shoot it, which became six, which became three! [Laughs.] So we had to simplify it, but sometimes restrictions can be the best thing for your movie.

Art is made of constraints?

Arkapaw: Yes, that was sort of the main slogan in my film school. Chris McGill, the head lecturer, used to quote T.S. Eliot: 'When forced to work within a strict framework, the imagination is taxed to its utmost — and will produce its richest ideas.' ➤

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 **Digital Sputnik**

Battle Tested



"As the film progresses, we decided to be more classic with the cinematography," Arkapaw notes. Here, a crane keeps the image stable as Macbeth rides for the castle.

We had to simplify the battle to one charge, where Macbeth went through a number of kills, saw the witches and then had a second run. We cross-shot it running with him from three different angles, and we also had a [Vision Research] Phantom Flex camera, which gave us about 10 seconds to keep [per take]. We used our anamorphic lenses on it.

What frame rate did the

Phantom record?

Arkapaw: I think we shot at 800 fps, but some of it was sped up to about 400 fps in the film. We didn't have a lot of extras — I think we had about a hundred — and the Phantom helped us in the wide shots of people charging. If we had shot them charging in real time, you'd quickly realize that there weren't any other people behind them!

When shooting the battle, were

you thinking at all about John Toll, ASC's work in Mel Gibson's *Braveheart* [AC June '96]?

Arkapaw: It was a touch point for me, yeah. *Braveheart* is a beautiful picture. It's pretty timeless.

One thing that distinguishes this film is the phenomenal amount of smoke in the outdoor battles, especially the final one.

Arkapaw: When we started prepping, Justin was saying, 'I want to be surrounded by smoke.' I thought that was a bit ambitious out in the open. But we had the right effects supervisor, Mike Kelt, who surrounded the set with these huge, very long smoke tubes. The smoke was always 360 degrees around us. There were also eight guys running around with different types of smoke machines, adding more smoke the entire time.

We did a little testing in preproduction to see if the smoke would work out. I guess it wouldn't have worked if it had been too windy, but we got lucky on those shooting days.

How many cameras did you use on the film?

Arkapaw: We shot with two cameras about 50 percent of the time. I operated the A camera and Simon

Tindall operated the B camera. When I operate digital cameras, I never really use the viewfinder, because the digital image looks so crappy that it's a bit depressing. So I look at the monitor; we can also get a LUT on the monitor, and it's nice to see what the image is going to look like. I light off the little onboard monitor as well.

Given the colors on this movie, I imagine that the LUT image could look quite different from the set.

Arkapaw: Yeah. [Laughs.]

You're pretty fearless in terms of color variations.

Arkapaw: Like I said earlier, there's so much scope for expression with Shakespeare. And in the case of Macbeth, you really are getting inside the character's head — he's seeing apparitions. Once you're inside someone's head, it's a dreamscape; there really are no boundaries to what you can do. So one liberty we decided we would take was to not be restricted to matching every shot in a sequence.

Yes — as we go from the soldiers fighting, to the witches, to Macbeth, the image goes from greenish, to yellowish, then magenta.

Arkapaw: That was another subversion that we tried to do. You might expect the witches to be colder or more macabre, but we wanted them to be warmer. We tried to use the sun and flares to make the image sort of heavenly — more angelic than witchy, I guess.

The battle shots aren't all matching, which evokes Macbeth's PTSD. We tried to be inside his mind and see all the gruesome, traumatic things he would have seen in battle. Being a great commander, he would have been through many battles; in Justin's interpretation, that took its toll and made him descend into madness.

Do you create these colored looks with LUTs you've prepared ahead of time?

Arkapaw: Yes, I like to create a range of LUTs in preproduction — a range from cold to warm, and a few LUTs for specific scenes. For example,



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Battle Tested



Top: Macbeth isolates himself as he descends into madness. Director Justin Kurzel posited that the character suffered from PTSD after experiencing the horrors of war and committing murder. Bottom: Lady Macbeth tries to keep her husband's rule from crumbling.



when Lady Macbeth [Marion Cotillard] goes back to Inverness, I used a specific LUT where the mid-tones are really lifted and there's a cyan wash into the shadows, so the scene has a more heavenly look than the rest of the film. And the climactic fight with Macduff [Sean Harris] also has a particular LUT.

That final orange, smoke-filled duel has a dreamy, almost hallucinatory ambience.

Arkapaw: It's a great way to end the film, a crescendo. The wood is set on fire and that motivated the whole color spectrum, leading us to this warm glow. We came at it a few times from scratch to find the right levels of orange, yellow and red.

Approximately how many different LUTs did you use on the film?

Arkapaw: I'd say about 10. In addition to the LUTs for specific scenes, I'll do a high-contrast and low-contrast LUT with cool, neutral or warm looks. The high contrast is for the sun, and the low contrast for the clouds. Then I will flick through the LUTs before I shoot the scene, and find the one that feels just right with the design and the performance.

I definitely like to go for a look as much as possible when I'm shooting. I prefer to go even too far on set rather than to try to be subtle about it, because then, when you get to the grade, the

idea is already burned into the director's head. Once the director gets used to the footage in the editing room, you can never really do anything too extravagant in the DI.

How did you create these LUTs?

Arkapaw: I made the 3D LUTs with colorist Greg Fisher at Company 3 in London using [Blackmagic Design's DaVinci] Resolve. We tried a few different versions of the LUTs before we settled on our favorite [options]; we shot tests out at our location to test them under various lighting conditions. I did the final grade at Goldcrest in London with Adam Glasman; the final deliverable was a 2K DCP.

There's a real mixture of handheld and dolly shots in the movie.

Arkapaw: For handheld, I'm a big fan of the Easyrig. I like how it spreads the weight for your body. I often like to shoot from below the eye line; if you're shooting handheld, you're crouching down all day long, but with the Easyrig you can change the height very easily during the shot. In some of the scenes I was actually running around with the Easyrig and swinging the camera about. I have a lot of fun doing that.

As the film progresses, we decided to be more classic with the cinematography. In the beginning Macbeth's life is quite vibrant, and he is a great commander, so we gave the camerawork a lot of life and vitality. Then, as he gets crazier, the camera becomes more lifeless, either static or just slow dolly moves, almost as if he couldn't escape this sort of stillness.

In some scenes, we might start with a wide shot that would clearly fit the whole action, letting the actors do what they wanted. Once Justin had a take that he was happy with, I could figure out how to cover the closer shots, knowing where [the actors] had moved.

A key scene takes place in a small candlelit church, where Lady Macbeth seduces her husband and plots the murder of King Duncan [David Thewlis]. How did you light that night interior?

Arkapaw: It was a small space, so we created a wedge light. We started

with an 8-by-4 poly up against a wall, and then placed a light on the ground at a 45-degree angle pointed into the poly. Then we draped a Grid Cloth from the top of the poly to the ground, surrounding the light. This creates a compact source in the shape of a wedge.

What was the fixture inside the wedge to simulate candlelight?

Arkapaw: We used [Showtec] Sunstrips. My gaffer, Lee Walters, had just come off *Fury* [AC Dec. '14], where he used them for firelight at night. They're strips of 10 little tungsten bulbs, the same that are used as spots in people's homes. We put together panels with five Sunstrips, so you've got about 50 of those hard little lights. Someone has done a very clever job of putting a DMX chase system into the Sunstrips, so all the little globes are glowing on and off. It looks pretty convincing, the best I've come across. So we used Sunstrips for all of our firelight and candle scenes.

How did you balance the Sunstrip wedge with the real candles in the church?

Arkapaw: I was using the candles as fill, so I would just walk around and light them or blow them out depending on how much I needed.

I did explore just using candles, as a lot of classic films have done, but for me the candlelight is just a little too orange. Also, candlelight is quite hard, unless you have dozens of them. So I prefer to have just one key light and then let the candles do the rest of the work.

And that means that the candles determine your T-stop?

Arkapaw: Yes.

Can you talk about the banquet where King Macbeth sees Banquo [Paddy Considine], the ghost of the man he had murdered?

Arkapaw: That's my favorite scene. Macbeth is coming apart in such a public place. I love how Banquo fits into the scene. Instead of doing something really ghostly, he's still sort of real.

The scene has a faded look to it.

Arkapaw: There's a sepia tone. It

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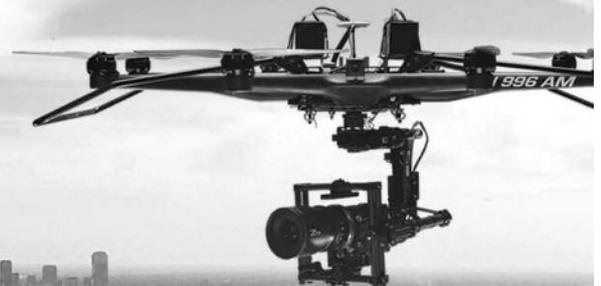
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Battle Tested

Cast and crew prepare for action on "The Scottish Film."



looks like an old Japanese samurai film. [Laughs.] I underexposed so far that my DIT, Peter Marsden, wondered about the dark areas. He said, 'I don't know if there's anything in there,' which was sort of scary. But I love that look on [digital], when you expose it under and then you have to crank it up, having to lift the shadows. You increase the contrast, because you end up stretching

the file a lot when you push the highlights. I think it's a really interesting look, similar to paintings when they age a lot.

Which painters were you influenced by?

Arkapaw: With a film like this, which is quite macabre, I think of Rembrandt and Caravaggio.

How did you light the banquet?

Arkapaw: We put LEDs up in the arches on the back walls to bring out the architecture. We had four tungsten balloons overhead, but we had to keep their level very low so that the highlights in the background and the candles in the room stood out enough. That's how the underexposure worked out.

We ran the whole scene through from a number of angles. We just started to dolly with a stabilized head — something I love to do — which freed us to take the camera anywhere on the set, and luckily the floor was flat enough for the stabilized head to take out all the bumps. Because the scene is really centered on Michael Fassbender's performance, we started on a tight shot of Michael, and he played it through, doing eight-minute takes of the whole scene. As the takes went on, we figured out a shot that covered his whole performance. It was really fun to choreograph, figuring out how to work the dolly around and fit in all the places in the room.

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So you then added a continuous take of Lady Macbeth, and so on?

Arkapaw: Yes, we added in the other pieces. We repositioned the camera for the cuts we needed but tried to let the whole thing flow. The shot of Michael was the spine of the scene, and we just figured out what the pieces that supported that needed to be.

Something I pride myself on is allowing the actors to get in the flow, rather than breaking [a scene] up into lots of coverage. Starts and stops make it so hard for actors to get in the flow.

It sounds like Justin Kurzel's approach also favored the actors' processes.

Arkapaw: With Shakespeare, you can take the interpretation so many different places. Instead of plotting out scenes with pen and paper, Justin was really keen to explore it on set with the performance. So he could do 10 takes of a scene, and every take would be markedly different. I've never been

more excited or inspired on set, because you never really knew what Michael or Marion would bring to it. It was so interesting and inspiring to see the range of interpretation that's possible with such a great piece of literature.

It's great to see that Justin Kurzel also allowed you all this freedom to create, and you certainly weren't afraid to go to extreme places in terms of colors and looks.

Arkapaw: Justin definitely inspires that freedom. He likes to subvert the general rules and create something new. He wants to be provocative, and he's not afraid to take risks. Justin would prefer to make a movie that people either love or hate, rather than a movie everyone thinks is okay. ●

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Leading Lady

Danny Cohen, BSC reteams with director Tom Hooper to tell the story of transgender pioneer Lili Elbe in *The Danish Girl*.

By Mark Dillon



Adapted from David Ebershoff's novel, the feature *The Danish Girl* presents a fictionalized version of Lili Elbe's remarkable life story. The film opens in Copenhagen in the 1920s, when Lili Elbe is still known as the landscape painter Einar Wegener (played by Eddie Redmayne). Although born with male physical attributes, Einar begins to feel more comfortable dressed and presented as a woman, dubbed "Lili" by ballerina friend Ulla Paulson (Amber Heard). Although Einar's wife and fellow painter, Gerda (Alicia Vikander), initializes this role-play when she asks her husband to pose as a woman for one of her paintings, she is



hurt when Lili decides to permanently abandon her previous male identity. Gerda seeks solace from Einar's childhood friend, art dealer Hans Axgil (Matthias Schoenaerts), but when Lili embarks on groundbreaking and dangerous gender-reassignment surgeries under Dresden physician Kurt Warnekros (Sebastian Koch), Gerda returns to Lili's side.

The project underwent a long gestation before Tom Hooper finally signed on to direct, and while the intimate film may seem small-scale following Hooper's lavish adaptation of *Les Misérables* (AC Jan. '13), its timing is uncannily in the year of Caitlyn Jenner and as transgender issues have come to the fore. Hooper again teamed with director of photography Danny Cohen, BSC, who has shot the vast majority of the director's projects since the 2006 telefilm *Longford*; the cinematographer received Oscar, BAFTA, ASC and Camerimage nominations for his work on Hooper's *The King's Speech* (AC Dec. '10).

"Tom's got a fantastic eye," Cohen says from his home in London. "He knows exactly what he likes, which makes things simpler. Whether you have a frame that is or isn't working for



Opposite: Danish painter Einar Wegener (Eddie Redmayne) transforms into Lili Elbe, embarking on a journey of self-discovery and becoming a transgender pioneer in *The Danish Girl*. This page, top: Einar models for his wife and fellow painter, Gerda (Alicia Vikander). Bottom: Cinematographer Danny Cohen, BSC positions the camera for a close-up of Redmayne.

him, he'll tell you. The more ideas and options, the better, because you can throw stuff away and you don't stand around scratching your head."

Their schedule on *The Danish Girl* was tight. The cameras rolled in February 2015, starting in London's Elstree Film Studios followed by location work around the city. Cohen then

took full advantage of urban and natural landscapes over several weeks in Brussels and Copenhagen, and a day in Norway. There was also a second-unit day of pickups in Dresden before photography wrapped in April.

The production met its goal to premiere in September at the Venice International Film Festival, followed a

Leading Lady

Top: The Wegeners' Copenhagen apartment set was designed to evoke the paintings of Danish artist Vilhelm Hammershøi. Middle: Einar works on one of his landscape paintings. Bottom: Director Tom Hooper discusses a scene with Redmayne.



week later by a screening at the Toronto International Film Festival. Cohen had three more titles showing at the latter event: director Rufus Norris' murderous musical, *London Road*; Stephen Frears' Lance Armstrong biopic, *The Program*; and Lenny Abrahamson's *Room*, which nabbed TIFF's People's Choice Award. "It's pretty staggering," Cohen acknowledges, reflecting on his recent output.

Coming straight off principal photography for *Room*, Cohen had a condensed three weeks of preproduction for *The Danish Girl*. He recalls finding a few precious moments to brainstorm with Hooper, and looking mainly at the paintings of Danish artist Vilhelm Hammershøi, a contemporary of the Wegeners whose work was featured in a 2008 exhibition at London's Royal Academy. The catalog from that exhibition served as a major reference guide. "Hammershøi's palette is a very specific range of blue and gray," Hooper comments in the film's production notes. "Once you're into his world it's amazing how rich it is; you find beauty within constraint."

Cohen adds, "He painted people in rooms, often from a back or side view — never flat-on. He was doing stuff that was not the currency of that time. We could see how his paintings could instantly turn into film sets."

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Left, top and bottom: Einar has an epiphany as he models a woman's dress. Above: Einar accompanies Gerda through a dance company's costume storage.

ment/studio where Einar and Gerda live, constructed at Elstree, looks as if it could have been lifted right out of Hammershøi's 1904 work *Interior With Young Woman From Behind*. "Production designer Eve Stewart did an amazing job putting that together," says Cohen. "We were trying to pull out features of Hammershøi's paintings: lots of doorways, how different rooms contrast against each other, and where the windows are in relation to the door."

Cohen also worked closely with costume designer Paco Delgado. "Paco had a lot of fun with those amazing period costumes," the cinematographer recalls. "He was always offering contrasting textures. It was a big, round conversation among Paco, Eve and me. We didn't want the costumes to fit awkwardly against the walls. We wanted it to look spot-on."

Additionally, there is an arc to the

color palette as Einar transitions to Lili; Gerda's career takes off with Lili as her female model; and the couple moves to Paris, where Lili blooms into her true self. While their Copenhagen apartment is stark and limited in its color range, their French flat is filled with bric-à-brac and introduces a warm mélange of brown, red, yellow, gold, mauve, pink and orange.

The Danish Girl marks the first digital collaboration between Hooper and Cohen, a fact the cinematographer chalks up to the budget. Cohen shot *The Program* and *London Road* on Red Epic Mysterium-X cameras, and then employed Epic Dragons on *Room*. He opted to stick with the latter for *The Danish Girl*. "The Dragon gives more latitude," he explains. "If you have something exposed in the foreground and the background is bright, the highlights don't overexpose. You keep more infor-

mation. Also, the way the Dragon deals with skin tones is more sophisticated. It felt right because we wanted to get a lot of detail in Eddie's and Alicia's skin and facial expressions."

For optimal resolution, the filmmakers shot mostly in 6K full-frame (6144x3160) resolution, but dropped down to 5.5K or 5K for coverage on wider lenses. Knowing they would conform at a lower resolution, however, they framed for a 1.85:1 extraction at 93.29 percent of the full-frame 6K (1.94:1) image. "This gave the operators additional 'look-around' at the edge of frame and gave plenty of scope for any image stabilization and/or reframing in post," explains digital-imaging technician Anthony Bagley. The Redcode raw footage was recorded to 512GB RedMag 1.8" Mini SSDs.

During prep, Cohen and Hooper used costume and makeup tests with



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Leading Lady



Lights rigged outside the windows provided illumination for interiors in the Wegeners' Paris-apartment set.

Redmayne, Vikander and Heard to formulate a look-up table with digital colorist Adam Glasman at London's Goldcrest Films. This involved adjusting the Dragoncolor/Redgamma 4 color space for a distinct dailies look.

Cohen also tested an array of lenses but ended up shooting primarily with Arri/Zeiss Master Primes, which he felt best rendered the sets and Redmayne's evolving look. To achieve a shallow depth of field, Hooper insisted on shooting at T1.3 with the Master Primes; this is used to great effect in a scene in which Gerda, on deadline for a portrait, innocently asks Einar to model a dress for her. It is then that Einar has an epiphany, realizing how right he feels in women's clothing. The camera is tight on his hands caressing the dress, with the rest of the frame soft.

"The subject pops out from the background in an interesting way,"

Cohen says of the scene. "There's really one spot to look at. It brings more texture to the image and becomes more sensuous." This soft look made diffusion filters unnecessary, but 0.3 or 0.6 ND filters were used occasionally to keep the lenses wide open. Additionally, a Lensbaby would occasionally be used for this kind of selective focus.

The movie was shot with two cameras, which is how Cohen often works. Iain Mackay, a *London Road* collaborator, operated the A camera while Cohen manned the B camera, with a second monitor on his camera that allowed him to see Mackay's frame. First ACs Adam Coles and John Evans traded off on the A and B cameras. Because of the small margin for error and the proximity of the cameras from one another, they often pulled focus remotely while watching 9" TVLogic HD monitors. Coles recalls that shoot-

ing wide open "was very difficult, especially in the digital world, but as long as we knew Tom had all the moments he wanted, we were able to move on to the next shot."

The filmmakers didn't want to throw all their backgrounds out of focus, however, and so they frequently relied on wider 18mm, 21mm, 27mm and 32mm lenses. "If you stay wider, the viewer will feel there's more going on than just the actor plumb center in the frame," Cohen explains. "There's a whole world you can relate to. Eve and Paco do amazing stuff, so if you put up a 150mm and the background's mush, you're throwing away the work of the art and costume departments."

That said, there are long-lens moments, such as when Lili mysteriously leaves the Paris apartment and an anxious Gerda runs out to the balcony to watch her go. The crew shot from

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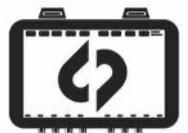


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Leading Lady



Top: Lili models for Gerda's painting. Bottom: Gerda is hurt by Lili's decision to permanently abandon her male identity.

ground level, looking up at and focusing on Vikander, with the building soft behind her. Such long-lens location shots were done with Nikon Nikkor telephoto lenses, including a 200mm (T2), while an Angenieux Optimo 24-290mm (T2.8) zoom proved handy for quick reframing of crowd scenes, for example when Lili, in her new identity, visits a Copenhagen market.

Cohen relates that Hooper particularly likes the Arri/Zeiss Ultra

Prime 8R 8mm rectilinear lens, which was used for shooting across a Copenhagen street as Gerda, grasping her portfolio, anxiously walks to a gallery for an interview; the lens captured the scope of the building behind her. Elsewhere, a 12mm Master Prime was used to register an old, sooty, textured 30'x200' wall on a street Lili passes on her way to a peep show — not to be aroused, but to mimic the performer. “The 12mm is not as wide as

the rectilinear, but it distorts more,” Cohen explains. “The design of the rectilinear is amazing. It doesn’t barrel the edges as much as you would expect. The 12mm feels slightly fisheye in comparison. These quirks of different lenses make things interesting.”

Throughout the shoot, the cameras mostly lived on dollies, with some Steadicam work by Mackay. “We were going to do more Steadicam but ended up moving the camera more subtly,” Cohen explains. Notable Steadicam moments include intercut shots of Einar and Gerda playfully walking through a dance company’s costume storage, searching for clothes that would suit Lili. Darker in tone and requiring several takes was a long shot in a Paris park (actually filmed in Brussels) in which a partially made-up Lili is brutally attacked by a pair of disapproving loiterers. Technocranes were also used on several days, but interior overhead shots, such as Lili on an operating table being anesthetized prior to surgery, were accomplished with a jib arm.

When on the dolly, the camera was optimally kept high on Redmayne. “It really worked in terms of Eddie’s

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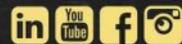
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Leading Lady



Top: Hans Axgil (Matthias Schoenaerts) and Gerda accompany Einar to the train station. Middle: Lili arrives at the Dresden clinic of Kurt Warnekros (Sebastian Koch) for a series of operations. Bottom: Lili begins her new journey.



bone structure and his look if the camera was slightly above his eye line,” Cohen notes. “For much of the film we were trying to get one or two inches above him. If we had worked at a more comfortable height, we would have missed a trick.”

Redmayne’s face is the movie’s central image, and the filmmakers’ primary challenge was making the actor’s subtle transition from male to female convincing. Says Cohen’s long-time gaffer Paul McGeachan, “When Eddie was Einar, we lit him like you would a man. But when he became Lili, we used big, soft sources and concentrated more on eye lights, as you would with a leading lady.”

Big, soft sources were ideal as the crew often had to light two “leading ladies” at the same time, with one camera in close on Vikander and the other on Redmayne as Lili. Backlight was mostly avoided, and, depending on the size of the set, sources included two or three 5’ 1K Dedoflex Octodomes, 650-watt Lowel Rifa lights, 1Ks or 2Ks directed through an 8’x8’ Grid Cloth, and a 2K or 5K bouncing off poly wrapped in muslin. Lights were often positioned low to avoid dark eyes, and Chinese lanterns provided additional eye light.

The crew had to light the Wegeners’ apartment interiors to appear consistent with the exteriors they would later shoot in Copenhagen, where the sunshine would be limited and the light has what McGeachan describes as a “blue-gray” hue, just like the set design. “We didn’t know what the skies were going to be like, but I was in touch with our local crew in Denmark,” the gaffer recalls. “They told us where the light would normally be at certain times, but you can never legislate it. It can easily change, but they mostly were right.”

To allow the filmmakers to simulate various positions and levels of daylight, the apartment set had numerous lights — including a couple of 24K Dinos, 20K Molebeams and 10Ks — pre-rigged outside the main window and run through dimmers that could be

controlled by a handheld device. “A lot of the time we bounced three 20K Fresnels into 30-foot-by-12-foot white muslin,” McGeachan adds. On occasion, a clear-glass 10K would also be brought in to throw more light on the walls.

One reason Hooper wanted a 1.85:1 aspect ratio was so the taller frame would show ceilings. “What gives away a set is not seeing the ceiling, and light coming from where the ceiling should be,” Cohen elaborates. “You end up with a lot of unmotivated light, and it looks stagey. Tom got the carpenters to nail down the ceilings, and we weren’t allowed to lift them off. That meant all the light had to feel like it was coming from the real world — the windows or a door.”

Lili makes her public debut at an artists’ ball, which was staged in Copenhagen’s historic Charlottenborg Palace. The sun poured in from one side of the building, and the crew was restricted from placing lights on cranes on the busy street that ran along the other side. So, to control the sun on the windows and allow for Arri M90 HMIs to be bounced from underneath, the crew positioned five 12’x12’ windbags at 45 degrees, scaffolded onto Condors. Inside, actors were lit with bounced 2Ks, 5Ks and Octodomes, and highlights were provided by a pair of wall-mounted five-lamp practical fixtures at one end of the ballroom.

After arriving in Dresden for her procedure, Lili walks up the steps inside the hospital. The camera assumes her point of view, revealing nurses seated at the end of a bright, massive corridor, where her destiny awaits. The scene was shot in Copenhagen’s City Hall, where the back wall provided four practical lamps. The cavernous location also had a couple of balcony levels where the crew could place fixtures out of shot. “We had eight [Arri] M40s and a 6K up high, bouncing off silver foamcore and a couple of poly [boards],” explains McGeachan. “Some square sections of the floor were made of thick glass that we up-lit, again with M40s bounced off

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Leading Lady



Redmayne takes direction from Hooper.

poly, from the level underneath.”

DIT Bagley worked in an on- and near-set lab, where Redmags would be offloaded, checked and backed up to RAID storage for a working copy, and then onto 4TB hard drives that were archived to LTO-5 tapes. Images were evaluated in Rec 709 using Sony PVM monitors, and Bagley worked with Blackmagic Design’s DaVinci Resolve for color management and transcoding, since it also would be used for grading. At the end of the day, Bagley provided Cohen and Hooper with graded stills from each setup via e-mail or iPad download. Footage was also transcoded to 1920x1080 DNxHD36 MXF files with adjustments burned-in for editing by Melanie Ann Oliver on an Avid Media Composer. The cutting room was usually given the material on hard drive, and when the production was shooting out of town, it would be uploaded using Aspera file-transfer software. The offline-graded files were



synced and dailies were uploaded to Pix.

“The Dragon’s dynamic range gives greater sensitivity in the highlights, but also provides noise in the shadows, which adds texture to the image,” Bagley notes. “We aimed to create a slightly muted look for the dailies that took advantage of these factors without looking too crisp and ‘digital,’ while trying to subtly emphasize the Hammershøi-esque nature of the framing and production design.”

Cohen was on-hand for all three weeks of the final grade — in which Glasman worked with 2K DPX files — and Hooper joined for one week in August, shortly before the movie’s festival bows. “The intention was to create a gentle, subtle grade, particularly in the Danish scenes modeled on Hammershøi paintings,” Glasman explains. “The extra color in the Paris scenes was built into the lighting and production design, but I added saturation. Also, I had to be careful with the

skin tones of the two leads. Eddie has paler skin than Alicia. As Lili’s health deteriorates, this contrast became too much and required correcting.”

Looking back over his busy slate, Cohen is particularly excited that the period movie *The Danish Girl* came on the heels of *Room*, a claustrophobic modern drama about a mother and son in captivity. “I’m quite chuffed because they’re completely different stories, looks and sensibilities,” he says. “But when the audience sits and watches them, they won’t care about all that’s gone on to actually put those images on the screen. It’s the stories and the quality of the films they will focus on.” ●

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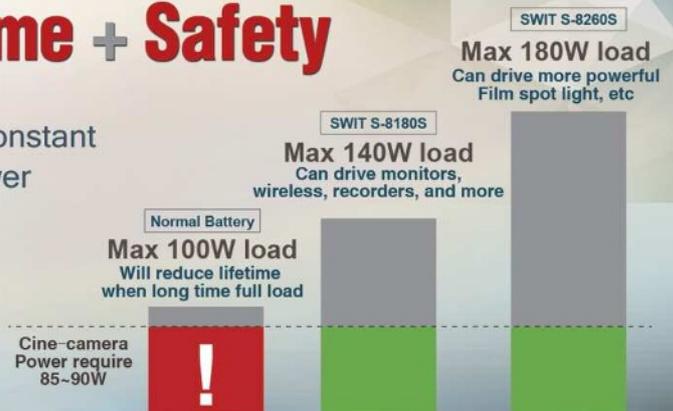
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Post Focus

ASC associate member and Hollywood Post Alliance President Leon Silverman accepts the Lifetime Achievement award during the 10th annual HPA Awards.



HPA Honors Silverman, Achievements in Post

By Neil Matsumoto

The Hollywood Post Alliance was born in 2002 when ASC associate and then LaserPacific President Leon Silverman helped bring together influential members of the postproduction community to form a trade association. In 2006, the group created the HPA Awards, whose main aim continues to be to promote creativity in post and to recognize talent, innovation and engineering accomplishments in the professional community. Now in its 10th year, the HPA Awards took place on Nov. 12 at the Skirball Cultural Center in Los Angeles.

With more than 80 industry experts serving as judges, the HPA recognized 12 craft categories — including color grading, editing, sound, and visual effects — for feature film, television and commercial work. There were also special awards for Engineering Excellence, a Judges Award for Creativity and Innovation, and the HPA Lifetime Achievement Award.

The award for Outstanding Visual Effects for a feature film was given to *The Hobbit: The Battle of the Five Armies* and the Weta Digital team of Joe Letteri, Eric Saindon, David Clayton, R. Christopher White and Matt Aitken. For television, the award was given to the Fire and Blood Productions team of Joe Bauer, Steve Kullback, Derek Spears, Eric Carney and Jabbar Raisani, for *Game of Thrones*, "The Dance of Dragons." For commercials, the award went to the Method Studios team of Benjamin Walsh,

Brian Burke, Ian Holland and Brandon Nelson, for their work on *Game of War*, "Decisions."

Jeffrey Jur, ASC and Salvatore Totino, ASC, AIC presented the awards for Outstanding Color Grading. "Everybody in this room thinks the colorist fixes, repairs, and takes all the credit for our work," said Totino to an amused audience. "And they do. But tonight we're here to celebrate you, since you deserve it." The color-grading award for commercials went to Company 3's Tom Poole, for Lincoln, "Intro," and the award for television went to Technicolor-PostWorks NY's John Crowley, for *Boardwalk Empire*, "Golden Days for Boys and Girls."

In accepting the award for Outstanding Color Grading for his work on *Birdman* (AC Dec. '14), ASC associate Steven J. Scott, Technicolor's vice president of theatrical imaging and supervising finishing artist, gave credit to the film's cinematographer, Emmanuel Lubezki, ASC, AMC. "Let's face it, he's the only reason I'm here," said Scott. "His work is endlessly inspiring and challenging. He makes me uncomfortable and unsure, and I learn the most that way. My great satisfaction is to help him explore where he wants to go."

Before presenting the HPA Judges Award for Creativity and Innovation, ASC President Richard Crudo took a moment to pay tribute to his co-presenter, ASC associate Beverly Wood, who is retiring after 35 years of working in post at Deluxe and EFilm. "Speaking from my own tribe, I assure you cinematographers have never had a better friend and advocate by their

Photos by Ryan Miller, courtesy of Capture Imaging.



Presenters Salvatore Totino, ASC, AIC and ASC associate member Beverly Wood pose with Silverman during the evening's festivities.

side," said Crudo. "Bev, thank you for all you've done, and we already miss you."

The Judges Award for Creativity and Innovation was given to ESPN for the creation of the ESPN Digital Center 2, which is considered to be the first large-scale, IP-based production facility of its kind. Accepting the award, Jonathan Pannaman, ESPN's vice president of content and production systems, said, "We decided to do the engineering of this facility in-house, and I want to thank all of the staff members who were involved. I especially want to thank senior management, who we went to fairly often with hair-brained schemes, and they continued to encourage us to try them out."

The HPA's Engineering Excellence Awards honor companies and individuals for creating high-quality support for the professional industry in such areas as content production, finishing, distribution and archiving. Awards were given to Canon, for the 4K Cine Zoom Lens; Dolby Laboratories, for the Dolby Vision Projector; Panasonic, for its 4K Camera Imagers; Quantel, for the Pablo Rio 8K; and Sony Electronics, for the BVMX300 Monitor. Additionally, Colorfront received an honorable mention for Interactive HFR Frame-Blending.

Tom Cross, ACE took home the

Outstanding Editing award for a feature for his work on *Whiplash*, which also earned Cross the 2015 Oscar for best editing. For television, Kristin McCasey of Therapy Studios won for *Foo Fighters: Sonic Highways*, "Nashville," and in the commercials category, Doobie White — also of Therapy Studios — won for GNP Seguros, "World Cup."

Outstanding Sound awards were presented to Alan Murray, Tom Ozanich, John Reitz and Gregg Rudloff of Warner Bros. Post Production Services, for *American Sniper*; Nello Torri and Alan Decker of NBCUniversal StudioPost and Craig Dellinger of Sony Sound Services, for *Homeland*, "Redux"; and Jon Clarke of Factory, for The Syria Campaign, "In Reverse."

After the technical awards had all been given, HPA board member Seth Hallen and ASC associate Michael Cioni, CEO of Light Iron, took the stage and presented Silverman with the HPA Lifetime Achievement Award. The award is given annually to an individual whose contributions have had a significant impact on postproduction. Indeed, Silverman — the general manager of Digital Studio for Walt Disney Studios and president of the HPA — is a towering figure in the era of digital post. Originally from Chicago, Silverman arrived in Los Ange-



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Top left: ASC associate member Steven J. Scott accepts the HPA award for Outstanding Color Grading for his work on the feature *Birdman*. Top right: Tina Eckman — the senior key accounts manager for Blackmagic Design, the title sponsor of the 2015 HPA Awards — greets the evening's attendees. Middle: ASC associate Michael Cioni presents the Lifetime Achievement award to Silverman. Bottom: Wood and ASC President Richard Crudo presented the Judges Award for Creativity and Innovation.



les and landed a job at Compact Video shortly after graduating from Indiana University Bloomington with a bachelor's degree in telecommunications. For the next 30 years, he was instrumental in reshaping the industry, having helped with the development of nonlinear editing, digital compression, the launch of high definition, and the growth of digital motion-picture finishing. In his time at Disney, he has received six Disney Inventor Awards for patent-pending inventions relating to theatrical motion-picture workflows.

"It's so great to see so many of my old and new colleagues here tonight," said Silverman in accepting the award. "There would be no way I would be here without your kindness, support, help and knowledge that you have generously shared with me along the way." With typical humor, he also joked, "It's kind of like being at your own wake. Do I look natural?"

To cap off the ceremony, Silverman led the crowd in singing "Happy Birthday" to his father, who was in attendance and celebrating his 86th birthday.



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Sony Expands Camcorder Line

Sony has expanded its line of large-sensor 4K technologies with the introduction of the PXW-FS5 compact Super 35mm camcorder. The new model fills a niche between cameras like Sony's PXW-FS7 and the NEX-FS700, and complements Sony's consumer a7R II and a7S II models.

The PXW-FS5 is ergonomically designed for handheld shooting. The lightweight body has excellent weight distribution for reliability and comfort. It can be used in an array of applications, including airborne on a drone. A one-touch rotatable grip allows for instant switching between low- or high-angle shooting. Users can also attach the 3.5" LCD panel to different positions on the handle or the compact camera body.

Capable of 4K XAVC high-definition shooting, the camera's Super35 Exmor CMOS sensor incorporates 11.6 million pixels and 8.3 million effective pixels. The high sensitivity and large size of the sensor enable out-of-focus backgrounds, increased low-light sensitivity and lower image noise. The camera also boasts 14 stops of latitude, as well as high-frame-rate cache recording at 10-bit 4:2:2 Full HD and a high frame rate of up to 240 fps in 8-second bursts.

The PXW-FS5 features built-in electronic variable-ND filters. The compact power zoom E lens PZ 18-105mm F4 G OSS (SEL18105G), provided in the PXW-FS5 kit model, enables zoom operation with one hand. The PXW-FS5's E-mount can take virtually any lens, such as SLR lenses via an adapter, as well as Sony's E-mount and A-mount lenses. The lightweight (1 pound, 13.2 ounce) camera's interfaces include 3G-SDI, 4K HDMI output, MI shoe, dual SD card slots, Wi-Fi and wired LAN terminal, supporting various system configurations and enhanced network functions such as file transfer and streaming transmission. A planned future firmware update will provide raw output.

For additional information, visit www.sony.com/fs5.

Convergent Design Launches Apollo

Convergent Design has introduced the Apollo, a portable HD multi-camera recorder/switcher. The Apollo can simultaneously record up to four HD video signals, along with a fifth channel of either a live-switch between the four or a quad-split reference view. The Apollo can also function as a four-channel live switcher while simultaneously recording the four isolated HD video signals.

All cameras stay in perfect sync with matching time code. A single SSD contains all of the multi-camera media, dramatically reducing turnaround time for post. Two SSD slots allow for twice the record time or mirror recording for safety backup. The Apollo utilizes industry-standard 2.5" SSD media, either manufactured by Convergent Design or qualified third-party models.



Using the new Apollo Media Manager app, recordings can be exported as separate Apple ProRes files or as a single multi-camera QuickTime file that drops directly into the timeline of supporting NLEs, such as Final Cut Pro X.

Additional functions are planned for release in the first quarter of 2016, including two-channel 4K/UHD video recording, DNxHD recording, and cascade interconnect between up to three Apollos for up to 12 HD-channel or six 4K/UHD-channel simultaneous recording. These and other functions will be made available via a free firmware update. A remote keypad control unit will be offered along with a rack mount and other accessories.

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

Keslow, Tilta Put Alexa Mini in Cage

Keslow Camera has introduced the Tilta Cage, a custom-made, lightweight cage accessory manufactured by Tilta and designed for the Arri Alexa Mini camera. The cage can be configured as a lightweight cage that works with shoulder rigs, gimbal systems, or in a traditional studio setup.

The Tilta Cage boasts integrated electronics and up to 10 12-volt power-output ports, allowing users to power accessories from modular junction boxes. The top plate and handle J-boxes each incorporate two three-pin Fischer ports and one two-pin Lemo port, and the battery plate incorporates two three-pin Fischer and two two-pin Lemo ports.

The battery plate also features a built-in HD-SDI distribution amp and a built-in adjustable-speed fan. Accommodating Gold Mount or V-Mount battery plates, the plate is also adjustable front-



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to-back and side-to-side for ideal weight distribution.

The cage can be used with both on-board and/or block batteries, allowing for hot-swapping. Additionally, a quick-release dovetail allows for easy transitioning from a studio to handheld setup.

For additional information, visit www.keslowcamera.com.



Band Pro Distributes IB/E Expander

Band Pro is now distributing IB/E Optics' S35xFF Expander. The super 35 to full-frame expander provides full sensor coverage — even with Red's 8K Weapon sensor — from any super 35mm lens.

For additional information, visit www.bandpro.com and www.ibe-optics.com.

Schneider-Kreuznach Adds E Mount for FF-Primes

Schneider-Kreuznach recently unveiled FF-Prime lenses with a Sony E mount. The E mount allows users to mount the full-frame lenses to cameras such as Sony's a7R II. FF-Primes — which have been on the market since 2014 — could already be used in combination with Nikon's F mount, Canon's EOS mount and PL mounts.

"With the FF-Prime lenses, we want to provide a genuine optical alternative [for] professional filmmakers and cinematogra-

phers," says Harald Barth, head of film and photo at Jos. Schneider Optische Werke GmbH. "We are delighted that we can meet the considerable demand for a combination with a Sony E mount and thus expand the scope for application."

With 4K resolution (4096x2304 pixels), the lenses were designed specifically for DSLR cameras with full-frame sensors and for professional cine cameras.

The homogeneous set comprises 25mm, 35mm, 50mm, 75mm and 100mm focal lengths (all T2.1).

For additional information, visit www.schneiderkreuznach.com.



Rokinon Highlights Xeen Lenses

Rokinon has introduced the Xeen professional-grade cine-lens system, which offers the professional optical quality, features, specifications and performance that are expected of a cine-lens system, but with a significantly lower price tag.

The initial three Xeen lenses comprise a 24mm, 50mm and 85mm. All three feature an aperture of T1.5 and full-frame coverage. They will be available in mounts



for Canon EF, Nikon F, Sony E, Micro Four Thirds and PL. Additional focal lengths are scheduled to be introduced throughout 2016.

Xeen lenses are tightly color matched and boast all-metal bodies. The entire range features a unified 114mm non-rotating front diameter; 40-degree iris rotation and 200-degree focus rotation with large, easy-to-read markings and dual-calibrated right- and left-side distance and T-stop scales; and

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unified focus and aperture gear positions. With proprietary X-Coating technology, the lenses also feature an 11-blade diaphragm. Additionally, the mounts can be shimmed and are interchangeable by a qualified technician.

All Xeen by Rokinon lenses are backed by a three-year limited warranty. For more information, visit www.rokinon.com.



Atomos Unleashes Ninja Assassin

Atomos has introduced the Ninja Assassin, which extends the legacy of the Atomos Ninja line into the realm of 4K UHD and 1080 60p. The Ninja Assassin combines professional 4K/HD recording; 325 ppi, 7" 1920x1080 monitoring; and advanced playback and editing in a compact, lightweight and affordable system designed for Apple, Avid and Adobe workflows.

The Ninja Assassin boasts the screen size, screen resolution, advanced recording capability and scopes of Atomos' premium Shogun model, but forgoes the 12G/6G/3G-SDI connectivity, raw recording functionality, in-built conversion, genlock and balanced XLR audio connections. With a 10-percent weight reduction compared to the Shogun, the Ninja Assassin is ideally suited for cameras such as the Sony a7s and a7R II, Canon XC10 and Panasonic GH4.

The Ninja Assassin has HDMI focused audio/video connections and ships with a vibrant-red Armor Bumper for increased protection. Other key features include anamorphic de-squeeze; easy-to-use professional monitoring tools, such as focus peaking assist, 1:1 and 2:1 zoom, false color, zebra and waveform/vectorscope; up to 8 seconds of HD or 2-3 seconds of 4K pre-roll cache recording; and 3D LUTs.

Atomos is based in Australia with offices in the USA, Japan, China and

Germany, and the company has a worldwide distribution partner network.

For additional information, visit www.atomos.com.

Miller Grows Fluid-Head Family

Miller Fluid Heads has unveiled the Compass 23 Fluid Head, an affordable entry model into the 100mm ball-leveling range. The Compass 23 is designed for use with medium-size large-sensor cameras and provides users with the portability, rigidity and professional features they need in a light-weight system.

This latest addition to the Compass line is designed for bare-bones rigging, with just a camera and a lens, as well as full rigging with monitors, wireless mics, batteries and more. To accommodate different setups, the Compass 23 is equipped with three selectable positions of high-performance drag (plus a zero position) and four counterbalance positions for payloads between approximately 8 and 30 pounds. The fluid head also features a 120mm sliding camera plate with 60mm travel for perfect balancing. The head incorporates readily accessible controls, an illuminated bubble level, pan/tilt locks that utilize disc brakes, and a replaceable tilt end rosette.

For additional information, visit www.millertripods.com.

Manfrotto Increases Support Offerings

Manfrotto, a Vitec Group company, has introduced 24" and 39" camera sliders that weigh only 4.8 and 6.17 pounds, respectively. The sliders offer a smooth and accurate sliding movement thanks to their eight high-precision steel ball bearings and machined surface. The coupling between the rails and the carriage can be easily



adjusted, as well as the friction on the carriage itself. Additionally, the sliders boast wheels made of PSU, a high-performance polymer used for its fluidity and silence.

The sliders' friction system allows users to adjust the feel of the tracking shot, and standard attachments enable the sliders to be combined with accessories such as arms. Both sliders are available in kits that come with flat-base Manfrotto 500 video heads.

Manfrotto has also added to its range of accessories with the launch of a new series of friction arms. The range comprises four arms available in two sizes: 5.5" and 9". The arms offer updated features — including an anti-rotation system that prevents the load from rotating — and interchangeable adapters, including a 5/8" spigot, 3/8" and 1/4" attachments, a hot-shoe attachment, and Manfrotto's anti-rotation adapter.

Manufactured using high-quality aluminum, the durable friction arms can carry a payload of up to 6.6 lbs. An ergonomic adjustable knob allows for maximum torque when securing the arm in place. All of the new friction arms feature a 5-year warranty upon registration on the Manfrotto website.

For additional information, visit www.manfrotto.us.

Benro Unveils Tripod Kits

Benro has introduced the A573TBS7 and A673TBS8 Video Tripod Kits.

The A573TBS7 marries the Benro S7 head with the Benro BV series twin-leg tripod to deliver sturdy, agile and dependable performance. Equipped with a 65mm base with a 3/8"-16 thread, the S7 flat-base head allows users to remove the 75mm half-ball adapter to mount the head separately on sliders, jibs or monopods. The S7 uses a 501-compatible QR6 plate. Other features of the head include: pan-and-tilt lock, pan-and-tilt drag, four-step counterbalance and illuminated bubble level.

Excellent stability is achieved with the integrated 75mm metal ball. The eighth-generation two-stage/three-section



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aluminum tripod features a double-tandem leg design that uses an adjustable, removable spreader, a metal 75mm bowl, oversized positive leg locks and dual-spike feet with pads, making this kit perfect for heavy loads.

The A673TMSB8 tripod kit combines Benro's S8 head and BV system twin-leg tripod. The S8 is a professional fluid pan/tilt head designed to support cameras weighing up to 17.6 pounds. The S8 head features step-less, continuous adjustment of both pan and tilt drag; this allows users to dial in the desired amount of tension for a given shot. It can pan a full 360 degrees, and can tilt forward 90 degrees and backward 70 degrees. The head also features a four-step adjustable counterbalance system.

The removable pan-bar handle can be mounted for left- or right-handed operation. Additionally, a second pan-bar handle, such as the BS04, can be purchased for zoom and focus remotes or two-handed operation. The sliding quick-release plate can be positioned up to 1.5" forward and 1.7" back of center, and the head also incorporates an illuminated bubble level.

For additional information, visit www.benrousa.com.

Prosup Motorizes Tango Track

Prosup has introduced the Camera Corps Q3 Mini Track, which is a motorized version of the popular Prosup Tango track. The result of a collaboration between the Prosup and Camera Corps engineering teams, the Mini Track was designed for use in sporting events, stadiums and studios alike. The system boasts an extremely low profile and works in an underslung mode.

The current version is designed to work with Camera Corps' Q3 remote camera, although subsequent versions will soon be available to work with other similar cameras. The track can be leveled on any surface and is available in lengths from 10m to 40m. It offers speeds of up to 3m/s.

For additional information, visit www.prosup.tv.





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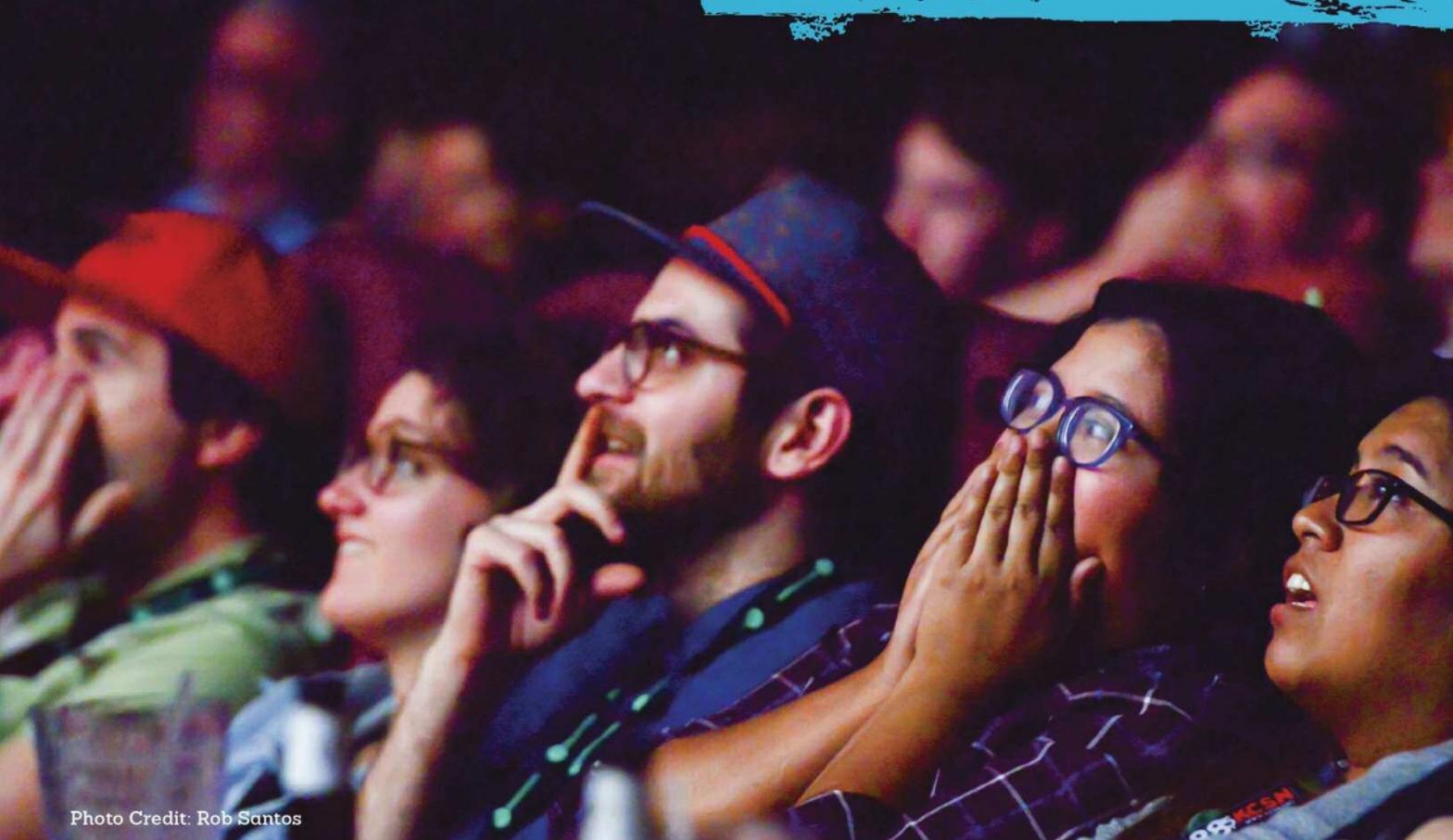


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THE CHRONICLE

Video Devices Offers Precision Monitoring, Recording

Video Devices — the video-products brand of Sound Devices, LLC — has introduced the Pix-E5 and Pix-E5H 4K recording monitors. The 5", 1920x1080-resolution, 441-ppi Pix-E5 comes packed with a full suite of precision-monitoring tools, SDI and HDMI I/O, and the ability to record 4K and Apple ProRes 4:4:4 XQ edit-ready files to affordable USB-based SpeedDrives with mSATA solid-state drives. The Pix-E5H features HDMI-only inputs/outputs for customers who do not need SDI capabilities; the unit records a range of Apple ProRes codecs from Proxy to ProRes 4:2:2 HQ.

Video Devices has also introduced the SpeedDrive recording and file-delivery accessory for the Pix-E Series. When connected to the rear of the monitor, the



SpeedDrive's USB 3.0 interface automatically switches to a SATA interface to record continuous, high-data-rate 4K video. As an added benefit, when a user is finished recording, no special card reader or docking station is needed; users can simply unplug the SpeedDrive from the back of Pix-E and plug it into any USB computer port to transfer data at fast USB 3.0 rates. Two SpeedDrive options are available: a 240GB SpeedDrive (mSATA drive in the enclosure) or an



enclosure-only version that allows the user to choose any approved, third-party 128GB to 1TB mSATA drive.

Additionally, Video Devices has announced firmware version 1.05 for the Pix-E Series. With this latest firmware update, the Pix-E Series recording field monitors will feature several standard look-up tables, the ability to utilize custom LUTs, and support for HDMI recording triggers for Panasonic cameras.

For additional information, visit www.videodevices.com.

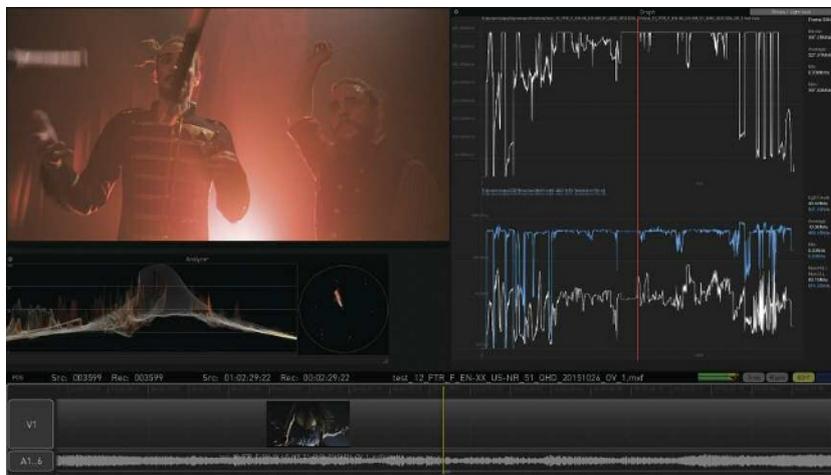
Colorfront Introduces 2016 Lineup

Colorfront, the Academy and Emmy Award-winning developer of high-performance on-set dailies and transcoding systems, has introduced its 2016 product range. Transkoder 2016 and On-Set Dailies 2016 incorporate Ultra High Definition (UHD) and High Dynamic Range (HDR) workflows.

Colorfront Transkoder and On-Set Dailies feature Colorfront Engine, the state-of-the-art, ACES-compliant, HDR-managed color pipeline, which enables on-set look creation and ensures color fidelity of UHD HDR materials and metadata throughout the camera-to-post chain. Colorfront Engine supports the full dynamic range and color gamut of the latest digital camera formats, and mapping into industry-standard deliverables such as the latest IMF specs and AS-11 DPP and HEVC, at a variety of brightness, contrast and color ranges.

The mastering toolset for Transkoder 2016 has been enhanced with new statistical-analysis tools for immediate HDR data graphing. Highlights include MaxCLL and MaxFALL calculations, as well as HDR mastering tools with tone and gamut mapping for a variety of target color spaces. New to Transkoder 2016's UHD toolset are unique tools to concurrently grade HDR and SDR UHD versions, cutting down the complexity, time and cost of delivering multiple masters at once. Additionally, On-Set Dailies 2016 introduces a multi-view capability, which allows concurrent, real-time playback and grading of all cameras and camera views.

For additional information, visit www.colorfront.com.



VER Acquires Aurora

VER, a global provider of production equipment and engineering support, has completed its acquisition of Aurora Lighting Hire Ltd., a U.K.-based lighting-rental specialist. The acquisition represents the latest step in VER's strategic plan to expand its lighting capabilities and equipment inventory throughout the U.K. and Europe.

"Over the next year, we will invest significantly to expand the equipment offering and other resources to support the tremendous demand for [Aurora's] service," says Steve Hankin, CEO of VER. "The combination of Aurora's knowledge and quality service with VER's broader product line will offer Aurora's clients a truly one-of-a-kind resource."

Chris Rigby, founding director of Aurora, adds, "I am delighted that Aurora is joining forces with VER. Combining the resources and strengths of our companies has created an unbeatable team with a shared passion for service and an incredible range of production solutions. I know this will be a huge asset to myself and other lighting designers, both now and for the future."

Aurora will retain its name, staff and services, with plans to move into a new state-of-the-art facility alongside VER.

For additional information, visit www.verrents.com and www.auroratv.co.uk.



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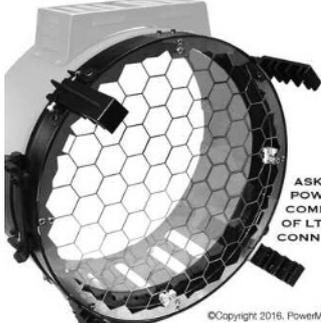
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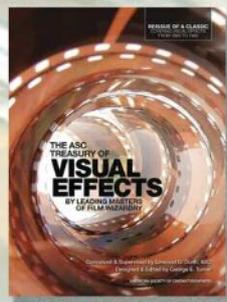
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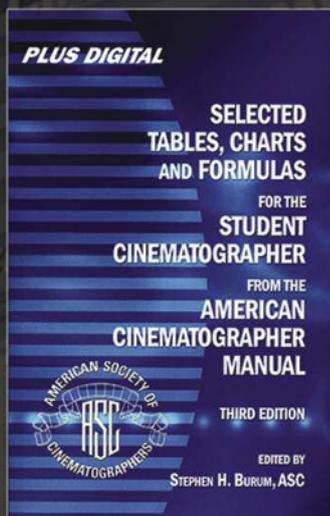
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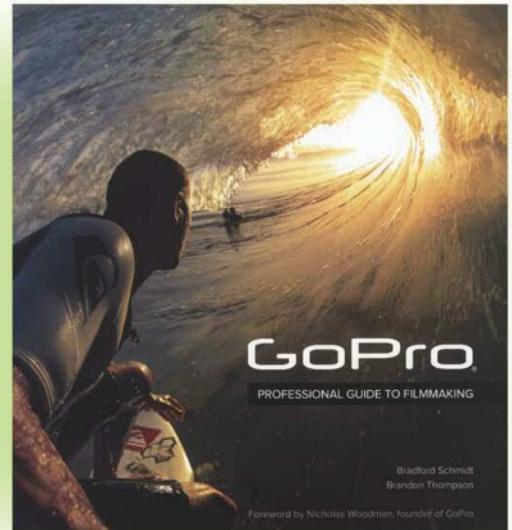
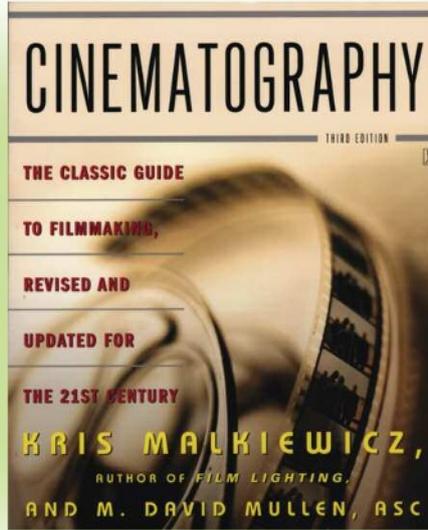
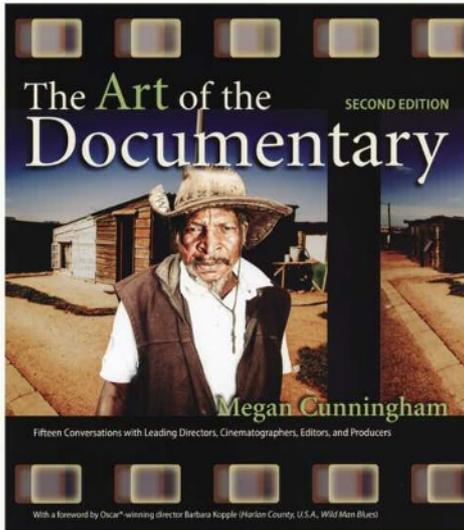
Selected Tables, Charts and Formulas for the Student Cinematographer comprises subjects from the *American Cinematographer Manual* that are most relevant and helpful to the student. This material reflects the basic concepts of the craft. Key areas have been carefully chosen that will enlighten and inform.

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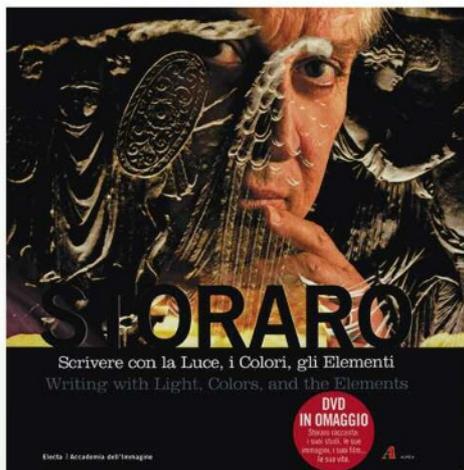
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Storaro: Writing with Light, Colors, and the Elements

This new book combines elements of Vittorio Storaro, ASC, AIC's recently published trilogy and features double-exposure images from the exhibition "Storaro: Writing with Light." Also included is a DVD of *In Omaggio*, an hour-long documentary in which Storaro explains his philosophy about cinematography and how he draws inspiration from poets, writers, painters and other artists.

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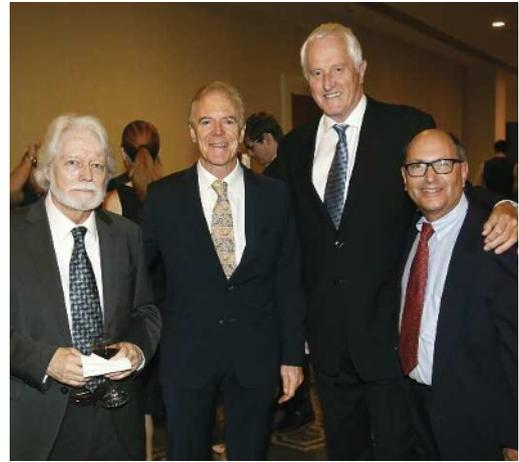
This book delves into the great figurative and psychological values that unite Storaro and painter Gino Covili.

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Clubhouse News



From left: Michael Barrett, ASC; James Neihouse, ASC; Society members Curtis Clark and Richard Crudo with associate members Garrett Brown and Mark Bender.

Barrett, Neihouse Accepted Into Society

New active member **Michael Barrett, ASC** was born in Riverside, Calif. He received a bachelor's degree from the University of California, Los Angeles, and a master's degree from Columbia University. He has since taught cinematography at both schools and at the Los Angeles Film School. He received two ASC Award nominations for his work on the series *CSI: Crime Scene Investigation*, and he won an ASC Award for the pilot episode of *CSI: Miami*. Most recently, Barrett shot the pilot for the series *Supergirl*.

Barrett received a Camerimage Golden Frog nomination for his work on the feature *Bobby*. His feature credits also include *Kiss Kiss Bang Bang*, *You Don't Mess With the Zohan*, *Bedtime Stories*, *Zookeeper*, *About Last Night* (2014), *No Good Deed*, *A Million Ways to Die in the West*, *Ted* and *Ted 2*.

Born and raised in Paris, Ark., new active member **James Neihouse, ASC** graduated from the Brooks Institute of Photography. Within months of graduation, he worked with Imax co-founder and co-inventor Graeme Ferguson on the Imax Dome production *Ocean*, filming underwater off the coast of Southern California.

Neihouse has since worked on more than 30 Imax projects, including all of the company's collaborations with NASA. Over the course of the NASA projects, he has trained more than 25 shuttle and space-station crews on the intricacies of large-format filmmaking.

His additional credits include *The Eruption of Mount St. Helens!*, *Blue Planet*, *Mission to Mir*, *Michael Jordan to the Max*, *Ocean Oasis*, *Jane Goodall's Wild Chimpanzees* and *NASCAR: The Imax Experience*. Neihouse has won two cinematography awards from the Giant Screen Cinema Association, for *Space Station 3D* and *Hubble 3D*. In 2010, he and four collaborators were honored with an Advanced Imaging Society Gold Award for the development of the Imax 30-perf single-strip 65mm 3D camera. Neihouse is also a member of the Academy of Motion Picture Arts and Sciences.

Morano, Varese, Seale Speak at Clubhouse

Reed Morano, ASC and **Checco Varese, ASC** recently participated in separate "Coffee & Conversation" events held at the Society's Clubhouse in Hollywood, and **John Seale, ASC, ACS** participated in a "Breakfast Club" event. Morano

discussed shooting and directing the feature *Meadowland*, and Varese was joined by his wife, director Patricia Rikken, for a conversation about their collaboration on the feature *The 33* (AC Dec. '15). Seale screened select scenes from his films and went into detail about the production of *Mad Max: Fury Road* (AC June '15). All three events were moderated by AC contributor David E. Williams.

Levy Teaches Maine Master Class

Peter Levy, ASC recently instructed the "Director of Photography Master Class" as part of the Maine Media Workshops and College's 12-week Cinematography Intensive program. The master class, which constitutes a one-week portion of the cinematography curriculum, was attended by students from all over the world.

Brown Receives Lifetime Award

Associate member **Garrett Brown** recently received the Charles F. Jenkins Lifetime Achievement Award at the Television Academy's 67th Engineering Emmy Awards, which were held at the Loews Hollywood Hotel. Also in attendance were ASC members Curtis Clark, Richard Crudo, Dean Cundey and Haskell Wexler. ●

Photo of Clubhouse by Isidore Mankofsky, ASC; lighting by Donald M. Morgan, ASC. 67th Engineering Emmy Awards photo by AP Invision.



In Memoriam

Charles Rosher Jr., ASC, 1935-2015

Society member Charles Rosher Jr. died of lung cancer on Oct. 14 at his home in Beverly Hills, Calif. He was 80.

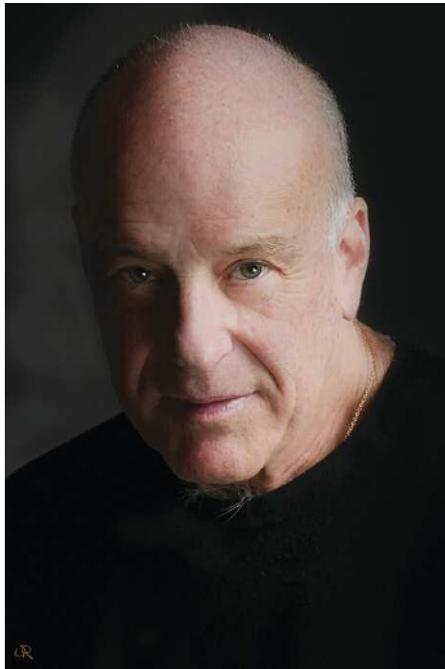
Known to all as “Chuck,” Rosher was born on July 2, 1935, to Charles Rosher Sr. and Odette Guazone. The senior Rosher joined the Static Club of America in 1915 and, four years later, helped reorganize the group as the American Society of Cinematographers. He was also a founder of Local 659, and he shared the first Academy Award for cinematography with Karl Struss, ASC, for their work on F.W. Murnau’s *Sunrise*.

Rosher Jr. graduated from Beverly Hills High School and then began climbing the ranks of the camera department. As a film loader, his credits included *Raintree County*, directed by Edward Dmytryk and shot by Robert Surtees, ASC; as an assistant, he worked on such features as *The Adventures of Huckleberry Finn* (1960), shot by Ted McCord, ASC. Future ASC member Conrad Hall served as camera operator on that production, and Rosher would go on to operate for Hall on the features *Incubus* and *The Professionals* (both 1966).

Appearing in *Visions of Light*, the acclaimed documentary about cinematography, Rosher recalled his experiences shooting for Hall. “I’ve shot with Conrad where [he] would use so little light that you’d barely see anything in a room,” he offered. “There was nothing safe — ‘safe’ was never the word with him.”

Rosher’s credits as an operator also included episodes of the popular television series *The Adventures of Ozzie & Harriet*, *Mission: Impossible* and *Mannix*. Additionally, he worked as an operator for future ASC member William A. Fraker at commercial company VPI Productions; when Fraker left VPI to shoot a feature for Universal, Rosher was promoted to cinematographer. He shot numerous commercials for production companies based out of Los Angeles, New York and Chicago.

His first feature credit as director of photography came with *Adam at 6:00 a.m.*,



directed by Robert Scheerer. More features quickly followed, including *The Baby Maker*, directed by James Bridges; *Pretty Maids All in a Row*, directed by Roger Vadim; *Time to Run*, directed by James F. Collier; and *Together Brothers*, directed by William A. Graham.

In 1977, Rosher was welcomed into ASC membership after having been proposed by Fraker and George J. Folsey, ASC. That same year saw the release of *The Late Show*, which Rosher photographed for director Robert Benton and producer Robert Altman. Rosher and Altman then reteamed for the features *3 Women* and *A Wedding*, both of which Altman directed. On the latter, Rosher hired future ASC member — and current president of the International Cinematographers Guild — Steven Poster as his camera operator. “He was a wonderful, sweet man,” Poster said in a statement from ICG. “It was a great honor to work with him.”

Rounding out the ’70s, Rosher shot such projects as the true-crime drama *The Onion Field*, for director Harold Becker; the horror film *Nightwing*, for director Arthur

Hiller; and the classic football comedy *Semi-Tough*, for director Michael Ritchie. The latter starred Burt Reynolds and Kris Kristoferson, both of whom had played football in college, and Rosher’s cinematography further helped lend the game scenes a high level of credibility on the screen.

The February 1981 issue of *American Cinematographer* featured Rosher’s work on the comedy *Heartbeeps*, which starred Andy Kaufman and Bernadette Peters as “companion-series” robots who run away from a factory and fall in love. Directed by Allan Arkush, the production presented more than its fair share of challenges both on and off screen, including significant dusk shooting, complicated makeup, an ill-timed actors’ strike, and Kaufman’s contractual 75 minutes of daily meditation. At one point, Arkush reportedly fired a shotgun in order to get Kaufman back to the set. Despite the chaos, when AC asked Rosher about the most challenging aspect of the shoot, he focused on the photography. “Fighting the sun constantly, and matching sunset lighting, and getting an enormous sequence shot in a very short time ... is definitely a challenge,” he offered. “But it’s also very fulfilling.”

Rosher’s credits through the ’80s and ’90s include the drama *Independence Day* (1983), for director Robert Mandel; the comedies *Young Lust*, directed by Gary Weis, and *Police Academy 6: City Under Siege*, directed by Peter Bonerz; and the telefilm *Runaway Father*, directed by John Nicolella. Rosher changed his membership status with the ASC to “retired” in 2002. Some of his last credits before doing so include the feature *Sunset Heat*, which reteamed him with Nicolella, and the telefilm *Jake Lassiter: Justice on the Bayou*, for director Peter Markle.

Rosher is survived by his wife, Sharlyn; daughter, Jenna; and grandchildren Olivia and Juliette.

— Jon D. Witmer





Close-up Peter Levy, ASC

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

When I was four or five I remember seeing 16mm prints of *Battleship Potemkin* and *Ivan the Terrible* projected onto my uncle's living-room wall. I had no idea what I was watching, but I'll never forget the power of those images and how the wall in that room became a portal to another reality.

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

Above all others is Gordon Willis, ASC, for his elegance, simplicity, bravery, precision and style. To this day, when in doubt, my mantra is: 'What would Gordy do?' I think Roger Deakins, ASC, BSC continues Gordy's legacy today. Robert Yeoman, ASC and Bruno Delbonnel, ASC, AFC consistently do interesting work. And who hasn't been influenced by the two great Hungarians, Laszlo [Kovacs, ASC] and Vilmos [Zsigmond, ASC]?

What sparked your interest in photography?

I was fortunate to grow up in a household where the arts and literature were both respected and present, and I was encouraged to pursue creative outlets. I didn't pick up a stills camera until I was 17, but then I found that putting a frame around the real world was a way of expressing myself. It very quickly became too expensive for a hobby, so I had to learn how to make it pay for itself.

Where did you train and/or study?

After I dropped out of high school, I freelanced as an assistant cameraman until I got a job at the Australian Commonwealth Film Unit — now known as Film Australia — where I was one of two assistants serving seven cameramen. Don McAlpine, ASC, ACS was chief cameraman, and Dean Semler, ASC, ACS was a staff cameraman. Five years later I left there to shoot a documentary series in Africa — and I've been attending the School of Hard Knocks ever since.

Who were your early teachers or mentors?

Michael Edols, ACS taught me all he could about documentary and handheld shooting while we were at the Commonwealth Film Unit, but since then I've had to learn from my own mistakes and glean what I could from the advice of others.

What are some of your key artistic influences?

J.M.W. Turner, for making light liquid; Caravaggio, for defining light by its shadow; Matisse, for being fearless with color; and Andy Goldsworthy, for showing us that beauty is ephemeral.

How did you get your first break in the business?

In 1983, a French director, Henri Safran, plucked me from the world of documentaries and music videos to shoot a very big-budget miniseries

about the Gallipoli Campaign and a young man's life leading up to it. Over the next eight months he trained me in the skills required for shooting long-form drama and patiently tolerated my naiveté.

What has been your most satisfying moment on a project?

When shooting *Cutthroat Island* in Malta, my Italian camera crew suddenly all quit after one of them was sacked. On a Tuesday, I put in two desperate SOS phone calls to the U.S. and, by Thursday, 14 of Hollywood's finest camera people turned up at the location ready to help me finish the film. I got a little teary at the airport when I saw them all arrive.

Have you made any memorable blunders?

More with my mouth than with my photography.

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

Don't get attached to anything — be prepared to turn on a dime at any time.

What recent books, films or artworks have inspired you?

Watching my bonsais grow, some of the brave new work being done on television, the way light falls in the natural world. I'm currently reading about the chemistry of cooking.

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

I'd like to shoot something bleak, noir-ish and existential — and a Western, of course!

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

Maybe a landscape architect — I like the idea of sculpting a piece of land and creating some beauty that lives and grows. I could have been a yacht jockey, too.

Which ASC cinematographers recommended you for membership?

John Alonzo, Russell Carpenter, Peter James.

How has ASC membership impacted your life and career?

Being a member is my proudest professional accomplishment. Walking through the doors of the Clubhouse always fills me with an equal sense of pride and humility. I'm aware of the great cinematographers and my heroes who have preceded me through those same doors, and I am reminded of the dignity of the artistic pursuits of our profession. It recharges my batteries. ●





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