

DARIUS KHONDJI, ASC, AFC  
THE LOST CITY OF Z

JAVIER AGUIRRESAROBE, ASC, AEC  
THE PROMISE

PRACTICAL OPTICS:  
INTRO TO ANAMORPHIC

# American Cinematographer

Publication of the ASC

MAY 2017

## GHOST IN THE SHELL

JESS HALL, BSC  
PUSHES DIGITAL BOUNDARIES

PLUS:

GALE TATTERSALL ON GRACE AND FRANKIE  
LUCA BIGAZZI ON THE YOUNG POPE





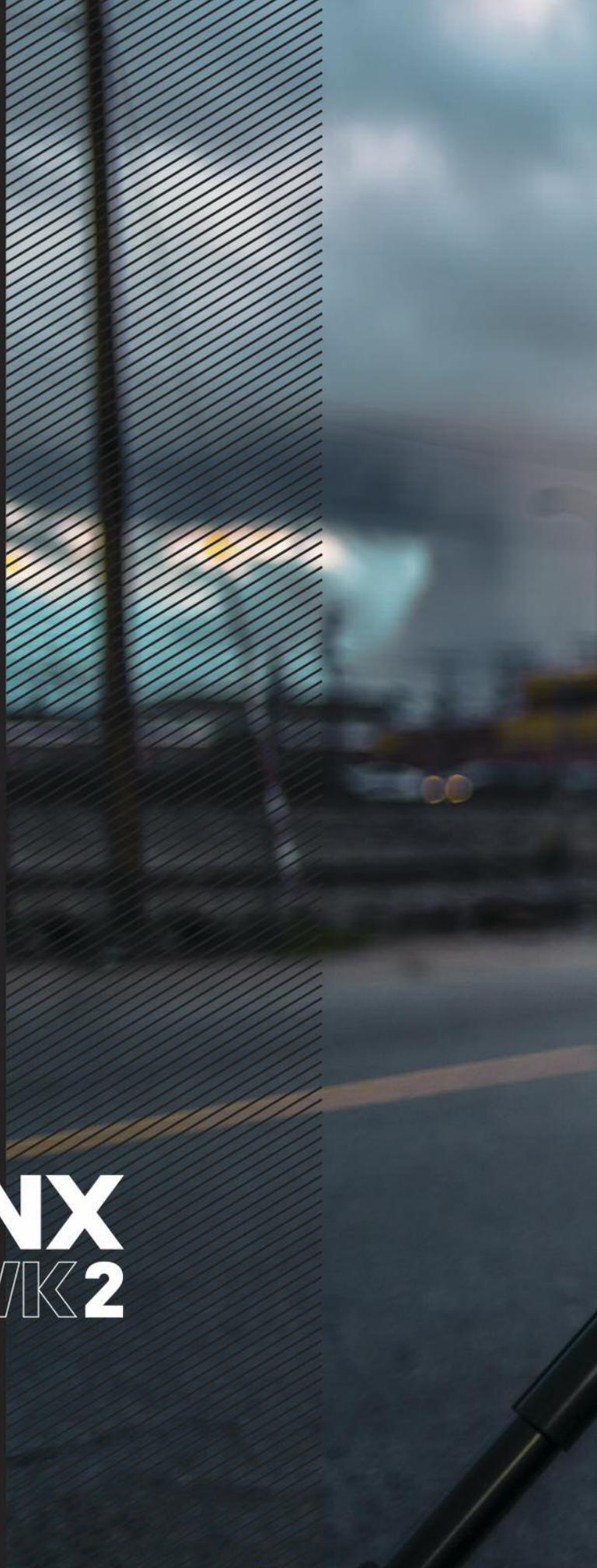
# PARALINX TOMAHAWK 2

LONG RANGE **WIRELESS HD**

SMALLER, TOUGHER, SMARTER

[WWW.PARALINX.NET](http://WWW.PARALINX.NET)

\*SEE WEBSITE FOR DETAILS





# Great Cinematography Starts with Great Glass.



For over a century, Schneider Kreuznach has been making superb glass to fulfill the requests of cinematographers. And today, partnered with Chrosziel's precision camera accessories, Schneider specializes in elegant, in-camera solutions. From popular Cine Xenar III and Xenon FF-Prime lenses to precision glass filters, to the world's finest matteboxes, Schneider offers tools to help put the artistic control in the hands of shooters worldwide.

#### Fine filters & lenses including:

- Xenon FF-Primes
- Xenon FF-Prime Cine Tilt lenses
- Classic Soft®
- Black Frost
- Hollywood Black Magic
- Split and full Diopters
- True-Pol®
- 1-Stop, 3-Stop, 4-Stop Circular Pols
- True Streak
- Introducing: RHOdium ND filters

And Chrosziel camera accessories

[www.schneideroptics.com](http://www.schneideroptics.com)

Phone: 818-766-3715 • 800-228-1254 • email: [info@schneideroptics.com](mailto:info@schneideroptics.com)

 **Schneider**  
KREUZNACH



# American Cinematographer

An International Publication of the ASC

**On Our Cover:** The Major (Scarlett Johansson) takes aim as she seeks answers about her pre-cyborg past in the feature *Ghost in the Shell*, shot by Jess Hall, BSC. (Photo by Jas in Boland, SMPSP, courtesy of Paramount Pictures and Dreamworks Pictures.)

## FEATURES

- |    |   |  |
|----|---|--|
| 30 | <i>Ghost in the Shell: Not Quite Human</i><br>Jess Hall, BSC visualizes the live-action feature adaptation of the popular manga and anime series              | <br><b>44</b>   |
| 44 | <i>The Lost City of Z: Time Immemorial</i><br>Darius Khondji, ASC, AFC and director James Gray reteam for the true period tale of exploration and obsession   | <br><b>54</b>  |
| 54 | <i>The Promise: Survival Story</i><br>Javier Aguirresarobe, ASC, AEC and director Terry George welcome <i>AC</i> to the Catalonia set                         | <br><b>62</b> |
| 62 | <b>Practical Optics: Introduction to Anamorphic</b><br>Benjamin B examines four aspects of anamorphic lenses: angle of view, depth of field, bokeh and flares | <br><b>68</b> |
| 68 | <b>The ASC's Big Night</b><br>A pictorial tour of the 31st ASC Awards and its related events  |  |

## DEPARTMENTS

- |    |  |  |
|----|--|--|
| 10 | Editor's Note  | <br><b>68</b> |
| 12 | President's Desk   |  |
| 14 | Short Takes: <i>La Femme et le TGV</i>                             |  |
| 20 | Production Slate: <i>Grace and Frankie</i> • <i>The Young Pope</i> |  |
| 75 | Filmmakers' Forum: Shooting <i>Going in Style</i>                  |  |
| 78 | New Products & Services  |  |
| 80 | International Marketplace  |  |
| 81 | Classified Ads   |  |
| 82 | Ad Index   |  |
| 84 | In Memoriam: Gerald Hirschfeld, ASC                                |  |
| 86 | Clubhouse News   |  |
| 88 | ASC Close-Up: John C. Flinn III                                    |  |

# American Cinematographer

An International Publication of the ASC

New digital outreach  
by *American Cinematographer* means  
more in-depth coverage for you.

## STILL WANT MORE?

After digging into our award-winning production coverage in *American Cinematographer* magazine, click over to our site for additional, Web-only content. Recent posts include:

In the latest edition of the *AC* Podcast, Oscar-winning cinematographer Anthony Dod Mantle, ASC, BSC, DFF discusses his inventive visual approach to director Oliver Stone's political thriller *Snowden*, which details the real-life story of whistleblower Edward Snowden.

[theasc.com/site/podcasts](http://theasc.com/site/podcasts)

Commercial cinematography — especially car work — is a distinct specialty, and in this short Web Exclusives video created for Friends of the ASC, leading commercials cameraman Bill Bennett, ASC details his basic lighting approach to a classic automobile hero shot.

[theasc.com/site/blog/web-exclusives](http://theasc.com/site/blog/web-exclusives)

In his blog *The Film Book*, longtime *AC* contributor Benjamin B details his two-day visit to the Pinewood Studios set of *Rogue One: A Star Wars Story* and his subsequent discussions with Greig Fraser, ASC, ACS. Don't miss the in-depth detail in this two-part post.

[theasc.com/site/asc-blogs](http://theasc.com/site/asc-blogs)

Recorded at the ASC Clubhouse during a Friends of the ASC "Coffee & Conversation" event, a new multi-part video of Seamus McGarvey, ASC, BSC discussing his work in the thriller *Nocturnal Animals* is now online.

[theasc.com/friends\\_of\\_the\\_asc](http://theasc.com/friends_of_the_asc)

Get all this and much more via [theasc.com](http://theasc.com) and our social-media platforms.



You'll find all this and more at  
[www.theasc.com](http://www.theasc.com)



## CONGRATULATIONS TO ALL WINNERS AND NOMINEES

We'd like to sincerely thank all winning and nominated productions that worked with ARRI equipment and services. We salute your extraordinary successes at the Academy, ASC, DGA, BAFTA, César, Berlinale and Golden Globe Awards.

INSPIRING YOUR VISION

May 2017 Vol. 98, No. 5

An International Publication of the ASC

# American Cinematographer

Visit us online at [www.theasc.com](http://www.theasc.com)

---

## EDITOR-IN-CHIEF and PUBLISHER

Stephen Pizzello

---

## WEB DIRECTOR and ASSOCIATE PUBLISHER

David E. Williams

---

## EDITORIAL

MANAGING EDITOR Jon D. Witmer

ASSOCIATE EDITOR Andrew Fish

TECHNICAL EDITOR Christopher Probst

### CONTRIBUTING WRITERS

Benjamin B, Rachael K. Bosley, Mark Dillon, Michael Goldman, Simon Gray, Jim Hemphill, Jay Holben, Noah Kadner, Debra Kaufman, Iain Marcks, Matt Mulcahey, Jean Oppenheimer, Phil Rhodes, Patricia Thomson

### PODCASTS

Jim Hemphill, Iain Marcks, Chase Yeremian

### BLOGS

Benjamin B; John Bailey, ASC; David Heuring

IT DIRECTOR/WEB PRODUCER Mat Newman

---

## ART & DESIGN

CREATIVE DIRECTOR Marion Kramer

PHOTO EDITOR Kelly Brinker

---

## ADVERTISING

ADVERTISING SALES DIRECTOR Angie Gollmann

323-936-3769 Fax 323-936-9188 e-mail: [angiegollmann@gmail.com](mailto:angiegollmann@gmail.com)

ADVERTISING SALES DIRECTOR Sanja Pearce

323-952-2114 Fax 323-952-2140 e-mail: [sanja@ascmag.com](mailto:sanja@ascmag.com)

CLASSIFIEDS/ADVERTISING COORDINATOR Diella Peru

323-952-2124 Fax 323-952-2140 e-mail: [diella@ascmag.com](mailto:diella@ascmag.com)

---

## SUBSCRIPTIONS, BOOKS & PRODUCTS

CIRCULATION DIRECTOR Saul Molina

CIRCULATION MANAGER Alex Lopez

SHIPPING MANAGER Miguel Madrigal

ASC EXECUTIVE DIRECTOR John Krasno

ASC EVENTS COORDINATOR Patricia Armacost

ASC PRESIDENT'S ASSISTANT Delphine Figueiras

ASC ACCOUNTING MANAGER Mila Basely

---

*American Cinematographer* (ISSN 0002-7928), established 1920 and in its 97th year of publication, is published monthly in Hollywood by ASC Holding Corp., 1782 N. Orange Dr., Hollywood, CA 90028, U.S.A.

(800) 448-0145, (323) 969-4333, Fax (323) 876-4973, direct line for subscription inquiries (323) 969-4344.

**Subscriptions:** U.S. \$50; Canada/Mexico \$70; all other foreign countries \$95 a year (remit international Money Order or other exchange payable in U.S. \$).  
**Advertising:** Rate card upon request from Hollywood office. Copyright 2017 ASC Holding Corp. (All rights reserved.) Periodicals postage paid at Los Angeles, CA and at additional mailing offices. Printed in the USA.

**POSTMASTER:** Send address change to *American Cinematographer*, P.O. Box 2230, Hollywood, CA 90078.

●RENT

# ARC

ADORAMA RENTAL CO



**ZEISS**

MASTER & ULTRA PRIMES



**COOKE**

S4i & MINI S4i PRIMES



**CELERE**

CINE PRIMES



**FUJINON**

CABRIO SERVO ZOOMS



**CANON**

CINE PRIMES & ZOOMS



**ANGENIEUX**

OPTIMO ZOOMS

## PROFESSIONAL CAMERAS, LENSES, LIGHTING & GRIP RENTALS

**CAMERAS** X ARRI - CANON - PANASONIC - RED - SONY    **LENSES** X ANGENIEUX - ARRI - CANON - COOKE - FUJINON - LEICA - LOMO - RED - SCHNEIDER TOKINA - ZEISS    **CAMERA ACCESSORIES** X AJA - ALPHATRON - ARRI - ATOMOS - CHROZIEL - CARTONI - CONVERGENT DESIGN - DENECKE - DJI - EASYRIG ELEMENT TECHNICA - FLANDERS - LECTROSONICS - MATTHEWS - METABONES - MILLER - MYT WORKS - O'CONNOR - PRESTON - REDROCK MICRO - RODE RONFORD BAKER - SACHTLER - SANKEN - SENNHEISER - SHAPE - SCHNEIDER - SMALL HD - SOUND DEVICES - TERADEK - TIFFEN - TV LOGIC - WOODEN CAMERA ZACUTO - ZOOM    **LIGHTING** X ARRI - CHIMERA - CINEO - DEDOLIGHT - FIILEX - K5600 - KINO FLO - LITEPANELS - MOLE RICHARDSON - SOURCE FOUR

# ASC MASTER CLASS

LEARN FROM THE BEST



Photo courtesy of the ASC Archives

ASC Master Class with Jim Denault, ASC

**REGISTER NOW!**  
**June 12-16**  
**September 11-15**  
**October 23-27**



Photo courtesy of the ASC Archives

ASC Master Class with Karl Walter Lindenlaub, ASC, BVK



## American Society of Cinematographers

*The ASC is not a labor union or a guild, but an educational, cultural and professional organization. Membership is by invitation to those who are actively engaged as directors of photography and have demonstrated outstanding ability. ASC membership has become one of the highest honors that can be bestowed upon a professional cinematographer — a mark of prestige and excellence.*

## OFFICERS - 2016/2017

Kees van Oostrum  
President

Bill Bennett  
Vice President

Lowell Peterson  
Vice President

Dean Cundey  
Vice President

Levie Isaacks  
Treasurer

David Darby  
Secretary

Roberto Schaefer  
Sergeant-at-Arms

## MEMBERS OF THE BOARD

John Bailey  
Bill Bennett  
Curtis Clark  
Richard Crudo  
Fred Elmes  
Michael Goi  
Victor J. Kemper  
Stephen Lighthill  
Daryn Okada  
Woody Omens  
Robert Primes  
Cynthia Pusheck  
Owen Roizman  
John Simmons  
Kees van Oostrum

## ALTERNATES

Roberto Schaefer  
Mandy Walker  
Karl Walter Lindenlaub  
Oliver Bokelberg  
Dean Cundey

## MUSEUM CURATOR

Steve Gainer

**ULTRAHD 12G SDI**

Blackmagicdesign



## The new Blackmagic URSA Mini Pro is the world's first digital film camera with the features and controls of a high performance broadcast camera!

The new URSA Mini Pro is a true digital film camera with a 4.6K image sensor, 15 stops of dynamic range and a wide color gamut that delivers amazingly rich skin tones, natural color response and incredible detail. You also get built in ND filters, dual C-Fast and SD card recorders, an interchangeable lens mount and more! URSA Mini Pro works in both film and video modes, so it's perfect for digital film or broadcast use all while delivering better image quality!

### Built in ND Filters

Built in ND filters with IR compensation reduce the amount of light entering the camera. The filters are designed to match the colorimetry of the camera, providing additional latitude so you can use different aperture and shutter angle settings for shallower depth of field, and specific levels of motion blur even in bright conditions.

### Powerful Features and Controls

Like the world's best broadcast cameras, URSA Mini Pro features tactile control buttons, switches, knobs and dials on the side of the camera, giving you direct access to important settings. They're laid out logically, making them easy to remember so you can change settings without having to look at the buttons or take the camera off of your shoulder! Plus, every control is redundant!

### Interchangeable Lens Mounts

With URSA Mini Pro, you get a single camera that works with virtually all professional lenses! You can work with high quality EF photographic lenses, large PL cinema lenses, and even B4 HD broadcast lenses, all with the same camera! URSA Mini Pro comes with an EF mount and you can purchase optional PL and B4 lens mounts separately.

### Record to C-Fast or SD Cards

You get both dual C-Fast 2.0 and dual SD/UHS-II SD card recorders so you can choose the media that works best for you. C-Fast cards are ideal for full resolution RAW recording, while common, inexpensive SD cards are perfect for ProRes or RAW HD. With non-stop recording, when one card is full recording automatically continues onto the next!

**Blackmagic  
URSA Mini Pro  
\$5,995**

Includes DaVinci Resolve 12 Studio  
for editing and color correction.



Learn more at [www.blackmagicdesign.com](http://www.blackmagicdesign.com)

Viewfinder, lens and accessories shown, can be purchased separately.

## THIS MONTH'S CONTRIBUTORS

### **Benjamin Bergery**

(a.k.a. Benjamin B) is the senior European correspondent for the magazine ("Practical Optics: Introduction to Anamorphic," p. 62).

### **Rodney Charters, ASC, CSC, NZCS**

has been a member of the American Society of Cinematographers since 2004 (Filmmakers' Forum, p. 75).

### **Jim Hemphill**

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

### **David Heuring**

is a freelance writer ("Not Quite Human," p. 30).

### **Iain Marcks**

is a filmmaker and a New York correspondent for the magazine ("Time Immemorial," p. 44).

### **Jean Oppenheimer**

is a Los Angeles correspondent for the magazine (Production Slate, p. 20).

### **Fred Schruers**

is a freelance writer ("Survival Story," p. 54).

### **Patricia Thomson**

is a New York correspondent for the magazine (Production Slate, p. 24).

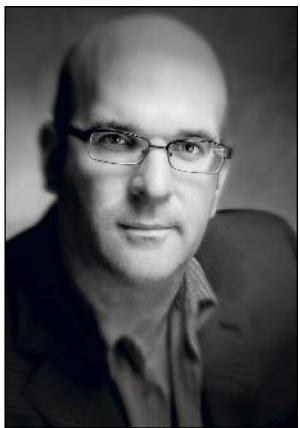
### **David E. Williams**

is the Web director and associate publisher (In Memoriam, p. 84).

### **Jon D. Witmer**

is the managing editor (In Memoriam, p. 84).

# Editor's Note



Each month, the cover of our magazine touts AC as "an international publication of the ASC," and we've certainly lived up to that globe-trotting commitment in this issue, covering productions shot in Hong Kong and New Zealand (*Ghost in the Shell*); Colombia and Northern Ireland (*The Lost City of Z*); Spain, Portugal and Malta (*The Promise*); Italy, the U.S. and South Africa (*The Young Pope*); and France (*La Femme et le TGV*).

*Ghost in the Shell*, a sci-fi crime thriller starring Scarlett Johansson ("Not Quite Human," page 30), is based on the iconic Japanese manga and anime series. Cinematographer Jess Hall, BSC says one of his goals on the show was "to transport the audience into a world that feels recognizable, and yet unfamiliar. Like Hong Kong —

which combines old and new, Asian and British, the past and the future — and like Scarlett's character, the Major, who is not quite human and not quite machine."

Shooting with Arri's Alexa 65, Hall says he "was looking to imbue *Ghost* with an amazing amount of detail and texture, but also a real painterly quality — akin to the anime. I like taking a camera that is extremely sharp and sophisticated, like the Alexa 65, and modifying that resolution with a particular type of intervention. The quality of the light, a particular softness or imperfection in the lens, a shallowness in the depth of field, or a certain quality of atmosphere can be combined to create a unique look."

*The Lost City of Z*, shot by Darius Khondji, ASC, AFC ("Time Immemorial," page 44), was inspired by the true-life tale of British explorer Percival Fawcett (Charlie Hunnam), who vanished in 1925 while searching obsessively for an ancient lost city in the Amazon. The project required the crew to endure some grueling conditions, especially in Colombia. "We all lost weight in the jungle," says Khondji. "Ninety to 100 degrees Fahrenheit, 100-percent humidity. Snakes and spiders and mosquitos. A hard shoot."

AC contributor Fred Schruers paid a visit to the set of *The Promise* ("Survival Story," page 54), an "indie epic" that follows its characters amid the last days of the Ottoman Empire and through the Armenian genocide, while the production was shooting in the Catalonia region of northeastern Spain — the native country of Javier Aguirresarobe, ASC, AEC. Noting that Aguirresarobe is "very well-respected in Spain," executive producer Ralph Winter says he found the cinematographer's technique intriguing. "It's interesting to watch him light; it's mostly from the floor level and not much overhead — a kind of old-fashioned lighting that's beautiful and painterly, but he's fast and the crew loves him."

This month's issue also includes another installment of Benjamin B's ongoing series of instructional optics primers, "Practical Optics: Introduction to Anamorphic" (page 62), as well as our annual pictorial featuring photos from the ASC Awards and related events ("The ASC's Big Night," page 68). If you weren't there, suffice it to say that the Society's 31st celebration pushed the limits of "max capacity" on all fronts.

A handwritten signature of Stephen Pizzello.

Stephen Pizzello  
Editor-in-Chief and Publisher



# The Cooke Look®

## One Look. All Speeds



Photo by Gordon Segalov

"After testing many combinations of cameras and lenses and having to work on 4K for *The Crown*, we chose to use the Sony F55 and vintage Cooke Speed Panchros. It was always my intention to fight against the high resolution and ultra sharpness you get from the modern camera sensors and by using the Cooke Speed Panchros I achieved a very romantic, filmic look with an incredible range of latitude for beautiful highlights and detail on the shadows.

I have always enjoyed working closely with the production and costume designers. On *The Crown*, choosing a muted palette, lighting through big diffused sources and using the Speed Panchros helped me to achieve a nice period look. It's ironic that after achieving such high resolution from the camera sensors we had to go back to vintage lenses made for film cameras to get the beautiful warm feel I was looking for.

In spite of their age, the original Cooke Panchros match nicely with the Cooke zooms and even with the modern Cooke S4s.

I'm very pleased with the look I achieved on *The Crown* and much of that is due to the lens choice."

Adriano Goldman  
Cinematographer, ASC, ABC  
*The Crown*, TV series, Netflix



### PANCHRO/8 Classic

Modern redesign of the original Cooke Speed Pancho.  
Available Spring 2017



S4/8 T2.0

Anamorphic/8 T2.3

Anamorphic/8 SF



5/8 T1.4



MINI S4/8 T2.8

**CookeOpticsLimited**

British Optical Innovation and Quality Since 1893.

[cookeoptics.com](http://cookeoptics.com)

T: +44 (0)116 264 0700

Canada, South America, USA:

T: +1-973-335-4460

# President's Desk



## The Black Cat and the White Cat

When I was a cinematography student, my classmates and I enjoyed learning from a rather eccentric teacher. He was supposed to illuminate the technical aspects of cinematography: f-stops, depth of field, basic optical principles, etc. Rarely, though, did he ever get around to that. Instead, our afternoons were usually occupied with his obscure cinematic experiments or his short films in which he appeared as a blind man wandering through the world.

I was recently reminded of one of his technical experiments. On a sunny afternoon, he arrived at the school with an animal carrier that contained two cats, one black and one white. These were his pets Noir and Blanche, their names meaning "black" and "white," respectively, in French. The question for the afternoon was how to deal with them in shadow and sun while retaining detail in their fur. And the challenge, of course, was that we were shooting on black-and-white reversal film, with an effective latitude of maybe 4 stops.

The photographic solution was to put Noir in the sun and Blanche in shadow — which might sound easy but was no simple feat to realize. Who has ever met a cat that takes orders? But after a few sardines and a handful of scratches, we accomplished the task and excitedly rolled some film. When we screened the footage the next day, it was a revelation: Both Blanche and Noir showed up with nice detail in their fur.

This was my introduction to Ansel Adams' "zone system," a particular method of determining what you want to see reproduced in a photographic image in order to create an impression and tell a story — almost like a painter using a brush. The zone system allows us to relate a subject's various luminances with gray values ranging from black to white that will be represented in the final image. This forms the basis of the visualization process, whether the photographic representation is intended to be literal or a departure from reality.

What brought these memories back to me was a recent encounter with a digital-capture system that boasts a 15-stop latitude and a great variety of postproduction controls for manipulating density and color in selected areas of the frame, taking advantage of that extended latitude to retain maximum detail from the shadows through the highlights. With this system, Noir and Blanche could be photographed peacefully eating their tuna in sun and shadow — and then made to look like identical gray cats!

In today's world of greatly extended latitude and super-sensitive capturing systems, you can, in most cases, shoot in available light. You can walk out into the world, photograph it, and come home with an image. But the question remains whether that image fully expresses or uses to a great extent your abilities as a cinematographer.

How we light a scene is one of the most important choices we make in the expression of our artistry. It deals with density, color contrast, and the photographic reproduction of black and white. I am fully aware that we can arrive at these choices in post, but there is much to be said for making these decisions in the moment of creative inspiration, which largely exists on the set.

In the end, I don't think we want to visually portray our world in a blend of gray where everything is visible. I don't think Ansel Adams went about his craft that way. And I don't think Noir and Blanche would rest in peace knowing they might possibly both be gray today.

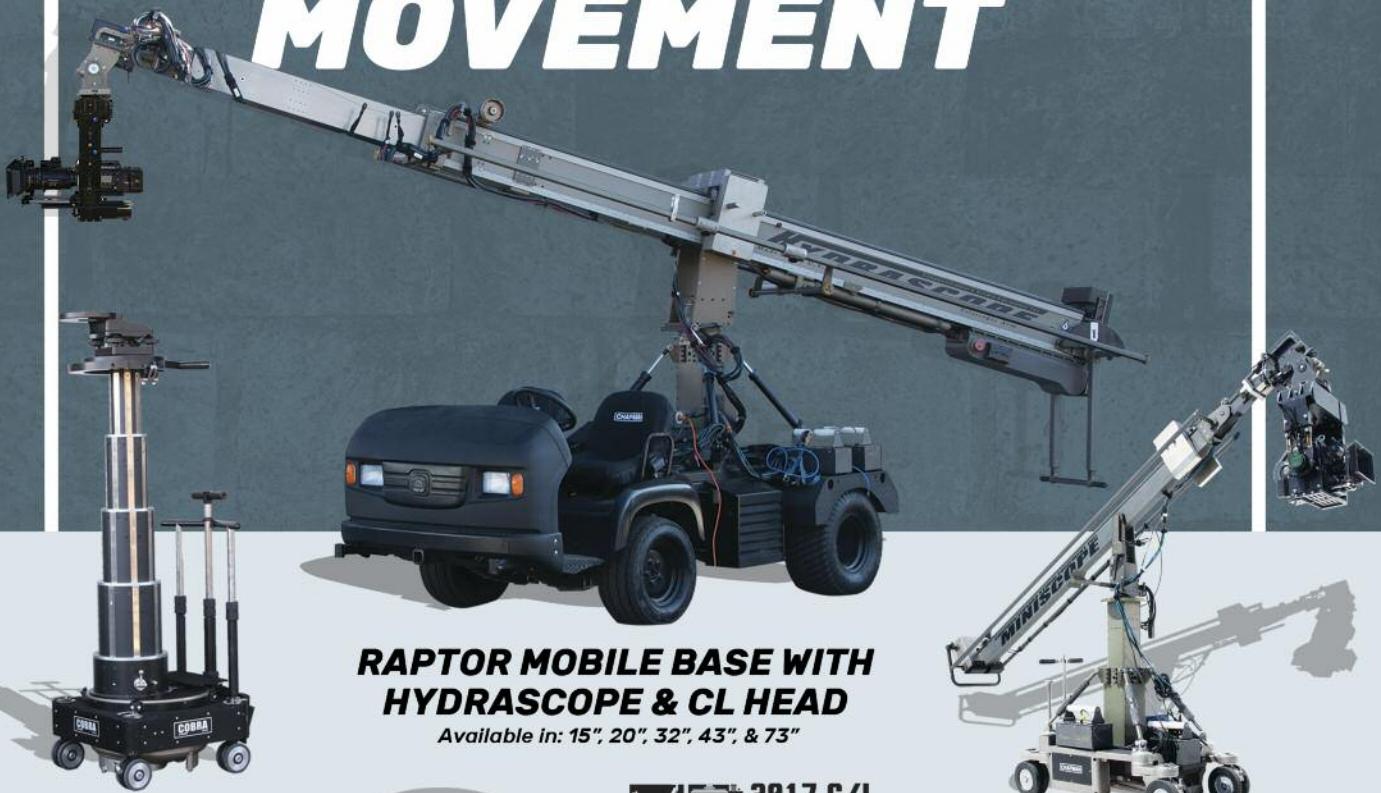
A handwritten signature in black ink, appearing to read "Kees van Oostrum".

Kees van Oostrum  
ASC President

**CHAPMAN/LEONARD**  
STUDIO EQUIPMENT INC.  
—EST. 1945—



# **CREATING MOMENTS THROUGH MOVEMENT**



## **COBRA VT 22-61**

Chapman/Leonard's smallest  
pneumatic lift dolly.  
Cobra track available.



June 1 - 4, 2017



May 7th 10am - 4pm

## **MINISCOPE 5 & 7**

Electric Telescoping Jib Arm &  
capable of single man operation.

[CHAPMAN-LEONARD.COM](http://CHAPMAN-LEONARD.COM)

Hollywood, CA (888) 883-6559 • LA, NM, TX, GA (888) 758-4826 • Florida (888) 337-8243 • UK & Europe +44 1727 838424

@CHAPMAN\_LEONARD #CHAPMANLEONARD Ask about our Orlando Sound Stages. Made in the USA

# Short Takes



Elise (Jane Birkin) is a lonely widow who is energized by the daily passage of a train next to her home, and by correspondences with its driver.

## Railway Romance

By Jim Hemphill

The Swiss film *La Femme et le TGV*, which was nominated for an Oscar in the Best Live-Action Short Film category at this year's Academy Awards, tells a subtle, romantic story of a lonely widow (Jane Birkin) whose spirit is reinvigorated by her correspondence with a driver whose train passes by her home each day. It's a delicate and life-affirming story that uses light and color to chart its heroine's progression, but it wasn't an obvious fit for cinematographer Nausheen Dadabhoy — at least as far as director Timo von Gunten was concerned.

"I wasn't his first choice," Dadabhoy says, laughing. "I went to school with one of the producers, Giacun Caduff, and had shot his first feature as a director. That film was a broad comedy like *Superbad* — nothing like *La Femme et le TGV*." Thanks to their successful working relationship, Caduff kept pushing for Dadabhoy, and ultimately von Gunten was won over by Dadabhoy's enthusiasm for the project and a look book she put together to convey her vision. "I had a really great interview with Timo, and we saw that our vision for the film was aligned," she recalls.

Dadabhoy and von Gunten's initial conversations revolved around references such as Roger Pratt, BSC's work on *Chocolat*, which had a sense of whimsy that they wanted to emulate, and cinematographer Eduard Grau's use of blue and yellow in *A Single Man*. "My look book was filled with old Kodachrome photos with satu-

rated colors that had yellowed over time," Dadabhoy explains. "But the funny thing is that while the director and I exchanged all these photos and watched a bunch of movies, by the time we got to the location we tried to forget about all of them. We just wanted to let the location inspire us."

Dadabhoy had the luxury of four weeks of prep in the actual location, which was in the Rhône-Alpes region in France. "It's a Swiss film, but we chose the location because it just happens to be where we found the perfect house — a little house next to a passing train," Dadabhoy recalls. "The house was close to a quaint village where we found all our other locations."

Living at a campsite near the town for four weeks allowed Dadabhoy to precisely plan each shot, a necessity given the amount of second-unit work on the project. "The script grew once the budget and production schedule were locked," Dadabhoy says. "We had a second unit working simultaneously with us every single day of the seven-day shoot, so it was vital that I give them a very specific plan. During prep I scouted all the locations where the second unit would be shooting and gave them precise times of day during which I wanted to capture certain angles, with instructions for what lens I wanted and so on. I took photos of everything we were scouting and created a bible for the film so that everyone would know what they were doing." Bela Böke and Senso Stampa shared 2nd-unit cinematography duties during principal photography, after which workflow manager Janis Huber stepped in for additional photography. ➤



## DUCT TAPE AND CARDBOARD WON'T SURVIVE THE SET. UNCOMPROMISING CASES.

While you're covering the best angle, Pelican is protecting your vital gear from the unexpected. Like fire sprinklers going off, or a precision driver that's less than precise. It's why we developed Pelican Protector Cases more than 40 years ago, and why the film industry still trusts us today.

In fact, the brightest packaging engineers in the world are on our team. So give us a **call us at 855-279-0587** or visit **pelican.com/custom** to learn more about Custom Case Solutions from Pelican.

**CUSTOM CASE SOLUTIONS:  
PELICAN.COM/CUSTOM**

**NAB BOOTH #1330**

Las Vegas Convention Center,  
April 24-27



Pelican Products, Inc.  
23215 Early Avenue, Torrance, CA 90505  
Tel (310) 326-4700 • Toll Free (800) 473-5422 • Fax (310) 326-3311

**PELICAN.COM**

MADE IN  
**U S A**

Right:  
Cinematographer  
Nausheen  
Dadabhoy (far  
right) and crew  
capture a scene  
with Birkin at a  
train station.  
Below: The crew  
readies two 1.8K  
HMIs outside a  
location.



For her A camera — an Arri Alexa Classic that recorded ProRes 4:4:4 files at 2048x1152 resolution to SxS cards — Dadabhoy elected to work with Zeiss Super Speed primes. “I love those lenses,” she enthuses. “If I could, I’d use them all the time. I wanted a very soft quality for the film, particularly on the actors’ faces, and I didn’t want to use filtration. Those lenses were essential in this regard.”

Because the production couldn’t afford two sets of the Super Speeds, Dadabhoy relied on a Canon Cine-Servo 17-120mm (T2.95-3.9) for the second unit’s Sony PMW-F55, which recorded 4K files to SxS cards and was only the second of eight cameras used on the production. “Our use of different cameras was mostly

rigging-dependent,” the cinematographer explains. “We had a Blackmagic Pocket [Cinema Camera] for a lot of the smaller driving material, and a GoPro for some stuff on the train. Then we had a Blackmagic [Cinema Camera] 2.5K with Rokinon cine primes for the train, but also a Blackmagic [Production Camera] 4K because that has a global shutter and the 2.5K doesn’t. We used the 4K on the train tracks because there would be fewer problems with moiré and things like that.” Dadabhoy adds that von Gunten had his own Sony a7S with a Sony 24-70mm (f4) E-mount zoom that he would use to grab shots on the fly. “We had so much footage to get that he would grab up inserts at lunch,” she remembers. Additionally, a pickup shoot employed a

Sony NEX-FS700 camera, which was paired with a Convergent Design Odyssey7Q recorder and fitted with Zeiss medium-format lenses.

“I owe my amazing camera department, led by first AC René Benning, for helping me juggle so many different cameras on set,” Dadabhoy says, “and Janis Huber, for keeping things smooth in post.”

Unifying the material from all of these different cameras was largely a matter of postproduction work. “During the production, at some point I had to let the idea of matching go because there were so many people shooting,” Dadabhoy says. “I just tried to make sure they got the right frame and shot it at the right time of day with the flattest profile possible so that I could match it in post.” The final color grade was performed at production company Arbel, where colorist Jürgen Kupka worked with Blackmagic Design’s DaVinci Resolve.

Luckily, Dadabhoy was able to collaborate closely with production designer Salome Jermann and costume designer Catherine Schneider during prep to establish a strong control over the palette. “There’s a lot of blue and yellow, which are the colors of the train,” the cinematographer explains. “We incorporated those colors into the sets, such as the blue shutters on the house, and the yellow door. The palette changes as the lead character



Russell Carpenter, ASC

## RELAX. THEY'VE WORKED TOGETHER BEFORE.

Canon cinema cameras, lenses, and 4K reference displays are designed to match industry standards, so you know they'll work seamlessly with your existing equipment. And when used together, you can rest assured your image is being captured with Canon quality every step of the way. Your story deserves no less.

LEARN MORE AT [USA.CANON.COM](http://USA.CANON.COM)





Left: Dadabhoy frames up with a Blackmagic camera. Right: Executive producer and 2nd-unit co-cinematographer Bela Böke readies a jib shot.

learns to embrace life; her wardrobe starts off cold and blue, and eventually gets warmer so that at the end she's wearing a mustard color."

Once the colors were established, Dadabhoy didn't alter them during the shoot. "When we were shooting, I was mostly concerned with the lighting — with the amount of contrast, specifically," she recalls. "The image has more contrast at the beginning and becomes brighter and happier as the story progresses."

Dadabhoy adds that her approach to the lighting was extremely simple. "I wanted something that would be broad and easy to manage, so in the house you're often just looking at two 1.8K HMLs outside the window, with a little negative fill or a bounce board [inside]." In this regard Dadabhoy was influenced by Bruno Delbonnel, ASC, AFC's work on *Big Eyes* (AC Jan. '15). She explains, "I saw that movie on the plane on the way to the shoot, and was struck by the nice way the light came into the apartment and only hit Amy Adams in certain parts of the frame. I felt I'd be really happy if I could emulate that."

For all of her preplanning, Dadabhoy

acknowledges that at times she had to adapt her design to the practical limitations of production. "All of Jane's scenes in the house were shot according to which wardrobe she was wearing, and what time of day it was supposed to be for that wardrobe," the cinematographer notes. "I was adding CTO on the lights or ND to knock down the light coming from outside — we were doing a lot of day for night."

Bicycle-riding scenes, which required a body double for Birkin, also called for careful consideration. "There was only one set of wardrobe, so there was a lot of coordinating between the second unit with the double and the first unit with Jane, and I was very particular about what time of day I wanted certain exteriors to be shot at," Dadabhoy says, adding that she chose to embrace the circumstances and let them inform the visual style. "I knew that I could control the frame and I could control the lenses, and the other things I had to keep simple and fast because I didn't want to be cutting into the director's time with the actors. The challenge was making sure the lighting was still beautiful under those conditions."

Composition and movement were

also influenced by practical considerations. "Our locations were really, really small, and that's why a lot of the film was shot with the camera locked-off," Dadabhoy says. But this wasn't a limitation so much as a reality that comfortably fit the plan she already had. "As the lead character gets more active and the story evolves, we add more movement and go from locked-off compositions to handheld shots and a crane, and for the last scene where she goes to Zurich, we hired Steadicam operator Lukas Franz so that the footage would have energy but not feel chaotic."

Ultimately, the intersection between Dadabhoy's meticulous planning during prep and the energy generated by the necessity of responding to the moment during shooting gave rise to *La Femme et le TGV*'s blend of visual elegance and spontaneity. "The whole look of the movie was born out of the conditions under which we shot it," she admits. "It goes back to the idea of all the visual references we had and all the things the director and I talked about. You can plan and plan, but in the end you have to let the locations and the actors tell you what the movie's going to be." ●



Your creativity knows no boundaries.



FESTIVAL DE CANNES  
Official Partner

# 44-440 Optimo A2S, the Renaissance of the Long Range Anamorphic Zoom.



**IRO** Interchangeable  
Rear  
Optics  
Technology™

"The creative virtues of anamorphic lenses have become even more important in the digital age, where cinematographers are seeking for distinctive look to enrich every project. The Optimo 44-440 A2S zoom lens using the traditional 2x horizontal squeeze, yet minimizing breathing and distortion, with a fast aperture of T:4.5, gives a more controlled background, creating a unique aesthetic and adding a dimensional character to your image. Complementary to a set of primes and to the short Optimo A2S zooms, the 44-440 modern optical design brings speed and flexibility of the long range zoom for your production shot in anamorphic format."

To discover our collection, visit [www.angenieux.com](http://www.angenieux.com)

# Production Slate

In the Netflix comedy series *Grace and Frankie*, free-spirited Frankie (Lily Tomlin, center) and the disciplined, imperious Grace (Jane Fonda) move in together after their husbands reveal that they are in love with one another and plan to marry. Actor Peter Gallagher (right) guest stars in season three.



## Living Situation

By Jean Oppenheimer

The Netflix series *Grace and Frankie* stars Jane Fonda as disciplined, imperious businesswoman Grace, and Lily Tomlin as free-spirited Frankie. Polar opposites, the two are forced to live under the same roof after their husbands of 40 years (played by Martin Sheen and Sam Waterston) announce that they are gay, have been deeply in love with one another for years, and — now that same-gender marriage is legal in California — plan to divorce their wives and marry each other. The show's third season streamed in late March, and season four is currently in production.

When director of photography Gale Tattersall was hired to shoot season one, he knew what his first task would be. Netflix mandates shooting 4K, but he felt that none of the 4K digital cameras available in 2014 — a mere three years ago, but practically the Mesozoic Era in technological terms — was suitable for showcasing the iconic actresses around whom the half-hour episodic comedy series was specifically built.

"It is in everybody's interest to make Jane, Lily, Sam and Martin look wonderful — and of course the rest of the cast — but 4K cameras back then were probably the worst choice because they produced images [so crisp that] they were almost medically analytic," says Tattersall during a conversation with AC at Paramount Studios.

"High resolution and contrast are the last things you want when shooting actors of such distinguished stature. What you want is the forgiveness of film."

Accompanied by gaffer Luke Miller and 1st AC Tony Gutierrez, the British-born cinematographer — known for his work on *House*, *From the Earth to the Moon*, *Ghost Ship* and *The Commitments* — discussed how he and his crew create the soft, cinematic look the show demands.

For the first two seasons, Tattersall used the Red Epic Dragon, relying on French silk stockings as rear lens netting, and an innovative lighting concept he and Miller developed to obtain the aesthetic they desired. For season three, they switched to Canon's Cinema EOS C300 Mark II.

Canon had introduced the camera in the fall of 2015 and Tattersall fell in love with it. The new Super 35mm CMOS sensor produced a filmic look without the need for filtration, while its dynamic range of 15 stops provided plenty of opportunities in post.

When capturing with either the Red or the Canon, 90 percent of the show has employed 17-80mm (T2.2) and 24-290mm (T2.8) Angenieux Optimo zooms. A Steadicam is pressed into service a few times per episode — more frequently when the production goes on location — and it is usually paired with one of two Angenieux lightweight zooms: a 15-40mm or a 28-76mm (both T2.6).

Four cameras are always on hand: the A and B, which are

normally on dollies; a third one that remains on Steadicam; and a fourth body — the only one with an EF mount rather than a PL mount — that Gutierrez stripped down to its bare bones so it could fit into unusual spots, such as the inside of a refrigerator. The latter camera, christened the "Ninjacam," "is usually fitted with a Canon still lens and is often used on a bazooka," he notes. "The Canon still-lens catalogue is huge, so Gale has a lot of different lenses at his disposal." Gutierrez reports that the production carries several Canon EF lenses specifically for use on the Ninjacam, including "a 15.5-47mm and a 30-105mm [Cinema Compact Zoom, both T2.8], plus a hodgepodge of Canon primes. Whenever we needed a specialty shot or employed Ninjacam for extra footage, it used the Canon EF lenses."

"We must put in a 'hurrah' for Keslow Camera," Tattersall interjects. "They are the most awesome rental house. They have a machine shop and make special parts for us. From CEO-owner Robert Keslow and chief operating officer Dennis McDonald on down, they are just terrific."

The production's lighting package is provided by Paramount, and the watchword on *Grace and Frankie* is "soft sources." Tattersall says, "Luke and I designed a plan that, in a sense, turns every shot into a photographic studio. We put Jane and Lily *inside* the light by [surrounding them] with light. Jane once asked me where the key light was. Well, a lot of the time there isn't one — or, rather, the whole thing is a key light."

Open-faced traditional tungsten units — "1K Redheads and 2K Blondes," Miller specifies — serve as the main interior light sources. Hung at angles from above, they are bounced into large pieces of bleached muslin that cover virtually every inch of wall that isn't in the shot. "Key grip Jerry Deats came up with the idea of hanging rolls of muslin that could be rolled up or down the wall, depending upon our needs," says Miller. "Pull two down next to one another and suddenly you have a 12-foot-wide soft source."

"Our primary light is almost all indirect," he continues. "Because the sources are large and soft and as far back as possi-



Cinematographer Gale Tattersall studies a scene.

ble — which isn't all that far, given that the sets are built right up to the fire lanes — characters can walk from the living-room sofa to the dining-room table without going in and out of a key light. We try to avoid shooting opposing angles because that can compromise the lighting. We usually have a few floor units that we move around per shot."

Finally, nine-light fays are positioned a few feet behind 12'x12' diffusion rags, to create a large soft source. "The units are very shallow, work well in confined spaces, and spread the light really well," explains Tattersall. "They are directional, rather than bounced, but go through diffusion — Light Grid, Quarter Grid, and sometimes double-diffused with an additional Opal or 250 to soften things even more."

Grace and Frankie live in an elegant beach house ostensibly in La Jolla, Calif., for which the practical exterior and surrounding neighborhood are actually shot in Malibu, while interiors are shot on the Paramount lot, where three stages are reserved for the show. The beach house is quite open, with many windows, and double glass doors leading out to a back patio, which is also a set, and the ocean beyond. Originally, a Rosco backing provided the view of the ocean; these days, however, the ocean is added entirely in post with the aid of bluescreen. Bigger tungsten units — including 10Ks and 20Ks — push light into

the house through windows. "If we aren't looking directly out toward the water, we usually put big diffusers on the patio — Light Grid 12-bys — and blow even more light in," Tattersall notes.

Asked to describe the look of *Grace and Frankie*, the cinematographer replies, "It's easy on the eye — Jane's quote — and looks very natural. The lighting is not making a statement." And as to camera angles on the production, he remarks, "Comedy is about action and reaction; somebody says something and the other person reacts. Singles don't work that well in comedies; two-shots are much more common. We tend towards wider over-the-shoulder shots rather than close-ups. Similarly, wide shots don't have an awful lot of value in comedies. The viewer isn't really interested in the architecture; they want to see Jane and Lily."

Miller recalls the episode in which both Grace and Frankie throw out their backs and are crawling around on the floor, writhing in pain. The scene required shots that were low and moving. "Jerry made a rig with a piece of carpet on the bottom of the cheese plate, so it would slide on the woodwork like a dust mop. It had a long pole with a camera mounted on the bottom — it actually looked like a mop — and you just rested it on the ground and pulled it. It enabled us to get wonderful shots of Jane's and Lily's faces as they

The camera rolls for a scene between Tomlin and Sam Waterston (playing Frankie's ex-husband, Sol).



crawled on their stomachs."

"Even though *Grace and Frankie* has a half-hour format, in terms of lighting it has a single-camera look, as opposed to [the look of] a live three-camera show," Gutierrez adds. "I consider our way of shooting to be a throwback to how shows used to be made: we do rehearsals, lay marks, then send the first team away. Gale does his lighting, we rehearse with the second team, the actors come back, rehearse again [until] everybody feels comfortable, and then we shoot."

The production, which is framed for a 1.78:1 aspect ratio, averages 40-50 setups a day. The C300 Mark II captures in Canon Log 2, and the cameras record internally to CFast cards.

The fact that Canon's C300 Mark II can shoot at a much higher ISO without introducing grain has been a huge plus on many fronts, including the ability to use less-powerful lighting fixtures at night. "The two extra stops we get when we go to 3,200 ISO is just awesome," Tattersall enthuses, "although we have found that our optimum situation is 400 ISO; we discovered there is a tiny reduction in noise compared to shooting at 800 ISO." Most of the show

is shot between T2.8 and T4.5.

"Until season three, we didn't have a color-correcting monitor at video village," the cameraman acknowledges. "All we were able to see there was Rec 709 and there was a lot of concern among producers and directors, who urged us to light to the monitors. All we could do to correct what they saw on the monitor was to turn down the brightness. Thanks to Canon, we now have a fantastic Canon 4K monitor and an [on-set color-correcting methodology] for the A camera." The B-monitor remains Rec 709.

"Our wonderful [final-grade] color timer over at Technicolor is Roy Vasich," Tattersall says. Vasich performed the final grade at Technicolor with Blackmagic Design DaVinci Resolve at 4096x2160 (4K) resolution.

Tattersall notes with admiration that "showrunner Marta Kauffman has a fantastic eye for style, which art direction, set dressing and wardrobe bring to life. Marta and Howard J. Morris created the series and write the season opener and season finale. And then there is my extraordinary crew, which works seamlessly together. I worked with my remarkable A-camera operator

Chris Murphy on *House*, Randy Nolen is B-camera and Steadicam operator, and Deats is key grip. And then, of course, there's Luke and Tony. It is rare that one is lucky enough to work with such iconic actors, but we are blessed by having created a wonderful family of talented people. Our producer Randall Winston and unit production manager Joan Van Horn go all the way to help us make the best show that we can, and our other main producers, Robbie Tollin and Hannah K.S. Canter, inspire us to do our best work."

Tattersall is an avid champion of Canon and is looking forward to trying out the company's new Cinema EOS C700 at some point on season four. "I think this is a really defining moment for Canon," he says. "With the C300 Mark II — and now the C700 — this really is the company's coming-of-age in Hollywood."

## ◀ TECHNICAL SPECS ▶

### 1.78:1

Digital Capture

Canon C300 Mark II

Angenieux Optimo, Canon Cinema Compact Zoom

# VOYAGER

Full-color simple to control softlight, with an unparalleled output.



Digital Sputnik introduces Voyager - a new product which expands on Lightgrading toolset by providing control of individual LEDs in the fixture giving the user a new level of creative freedom.

The Voyager softlight has a wide range of white 1500K-10000K and is color adjustable, battery powered, waterproof and modular. The Lightgrading software is built into the light, allowing for complicated effect sequences without an external controller.

Pre-Order yours today! [digitalsputnik.com/voyager/](http://digitalsputnik.com/voyager/)

14700 Ventura Blvd, Sherman Oaks, Los Angeles, CA 91403 / Phone: +1 818 262 9284  
[info@digitalsputnik.com](mailto:info@digitalsputnik.com) [www.digitalsputnik.com](http://www.digitalsputnik.com)

 **Digital Sputnik**  
Creative Freedom

Lenny Belardo (Jude Law, center) takes the name Pius XIII when he becomes the first American Bishop of Rome in the HBO drama series *The Young Pope*.



## A New Pope

By Patricia Thomson

Italian writer-director Paolo Sorrentino was at work on his Oscar-winning feature *The Great Beauty* in 2012 when he first conceived of *The Young Pope*. He'd long been fascinated by the Vatican — so when Wildside producer Lorenzo Mieli approached him about doing a series, possibly about the venerated saint Padre Pio, Sorrentino countered with the idea of a show about the pope himself.

The main character coalesced after the real-life election of Pope Francis, the most liberal and open-minded pontiff in recent memory. Sorrentino wanted a foil, a Pope who'd never been seen before. What he created was Lenny Belardo (Jude Law), aka Pope Pius XIII, a young, chain-smoking, Cherry Coke Zero-loving American man of the cloth — one who is personally devout and rigidly dogmatic, capable of Machiavellian maneuvers but also vulnerable, insecure, and suffering from a midlife crisis of faith. Sorrentino's script follows the upheavals in Vatican City after the pope's election, and offers enough intrigue, scandals, big life questions and visual splendor to keep viewers hooked for 10 episodes — all shot by Sorrentino's longtime director of photography, Luca Bigazzi.

The two — neither of whom had formal film training — have been on a roll. They first teamed up in 2004 for *The Consequences of Love*, then continued with *The Family Friend*, *Il Divo*, *This Must Be the Place*, *The Great Beauty*, and *Youth* (AC Jan. '16), earning piles of awards along the way.

"I work with Luca on all my films," Sorrentino says via email. "We get along well; we're fond of each other; and we have an immediate understanding without having to talk too much, which I detest." For his part, Bigazzi considers Sorrentino a genius and a good friend.

*The Young Pope* — a coproduction of Sky, HBO and Canal+, that debuted in the U.S. on Jan. 15 — was Bigazzi and Sorrentino's first foray into television. Their approach was to treat the 10-hour series like a very long feature. "Paolo and I wanted to make a TV series as similar as possible to a movie, both in terms of frames and the visual look — with no fear about using wide shots and decisively extreme contrasts," notes the cinematographer via email.

Still, *The Young Pope* was on a whole different scale. It was shot over 24 weeks, "so half an hour of edited material each week," Bigazzi says. "A terrifying pressure." The 122 days of production resulted in 2,777 shots and 189 terabytes of

footage, and London's Double Negative created around 900 visual effects. The fixed crew numbered 131, with 464 daily crew added as needed. Locations spanned Italy, the U.S. and South Africa.

The settings were big, too: St. Peter's, the Sistine Chapel, the pope's expansive office. During prep, "our main preoccupation was undoubtedly the vastness of the environments," Bigazzi says. "Working with Paolo is a source of great gratification, but his requests are often the source of nightmares! Extreme speed, the use of several cameras at the same time — often alternating wide-angle and telephoto lenses — which means finding a light that will work both for the close-ups and the more extreme full shots."

No cameras can be placed on Vatican soil, so Vatican City had to be conjured from scratch. At Cinecittà in Rome, production designer Ludovica Ferrario — another Sorrentino veteran — supervised the creation of a full-scale, in-studio replica of the Sistine Chapel, measuring 581,251 square feet. Other sets included the pope's private office, the Vatican balcony, and the balcony of Saint Mark's Basilica cathedral in Venice. The rest were practical locations in and around Rome: Santi Luca e Martina standing in for St. Peter's Basilica; Villa Doria Pamphilii and Villa Medici for Castel



# SUMMICRON-C NEW LENSES

Order Now

15



18

21

25

29

35

Available Now

40



50

75

100

135

# CW SONDEROPTIC

CW Sonderoptic GmbH  
Wetzlar, Germany | Los Angeles, USA

[www.cw-sonderoptic.com](http://www.cw-sonderoptic.com)  
[sales@cw-sonderoptic.com](mailto:sales@cw-sonderoptic.com)



Multiple cameras are put into position around Law.

Gandolfo, the pope's summer residence; Villa Lante for the Vatican Gardens; and Palazzo Venezia for the Vatican's passageways and stairwells. "Rome is a city where every corner hides environments historically connected to the Church," Bigazzi notes.

When picking locations, Sorrentino says, "I wanted a great deal of half-lights and the sun entering the windows with a beautiful light. Priests always live in places with a wonderful orientation and an enchanting light."

The play of extreme light and dark was key to the show's look. "From time to time, I wanted Jude to be struck by a glow reminiscent of sainthood," the director notes. Bigazzi adds, "From the very beginning, we said that our pope should have an evident opalescence; his very white clothes had to be a source of light. The Pro-Mist filter [in 1/8, 1/4 and 1/2 densities] was extremely useful for this. In the bright scenes, I often had to overexpose the image. In other scenes, we verged on the deepest darkness — an attitude far removed from the style of TV, and one I could assume only thanks to the courage of a director like Paolo."

As in their previous project, *Youth*, Bigazzi and Sorrentino employed Red's Epic Dragon camera, shooting mostly 4K — sometimes 5K or 6K. "This allowed us to

sometimes use medium lenses and obtain a wide-angle effect without suffering the distortions typical of extreme lenses," Bigazzi says. Two cameras were always deployed, and often three, with LTO 6 tape drives for data storage. The production carried a double set of Leica Summicron-C primes, a 10mm Arri/Zeiss Ultra Prime, and Canon zooms (14.5-60mm [T2.6] and 30-300mm [T2.95-3.7] Cinema Zooms, and 15.5-47mm [T2.8] and 30-105mm [T2.8] Cinema Compact Zooms). Pro-Mist filters were used throughout.

Bigazzi also made frequent use of the Dragon's HDR settings "to selectively increase the exposure latitude without losing detail with bright lights," he says. "This also allows me to use exclusively natural light on the set without being forced to worry about overexposure from the windows or other light sources. It's a system that has once and for all freed me from the constrictions linked to light balance, and represents for me a definitive turning point that has convinced me about the superiority of digital shooting techniques."

The series' overall look is signature Sorrentino: long, winding camera moves as sinuous as calligraphy, and grid-like configurations as geometric and symmetrical as Renaissance one-point perspective. Except

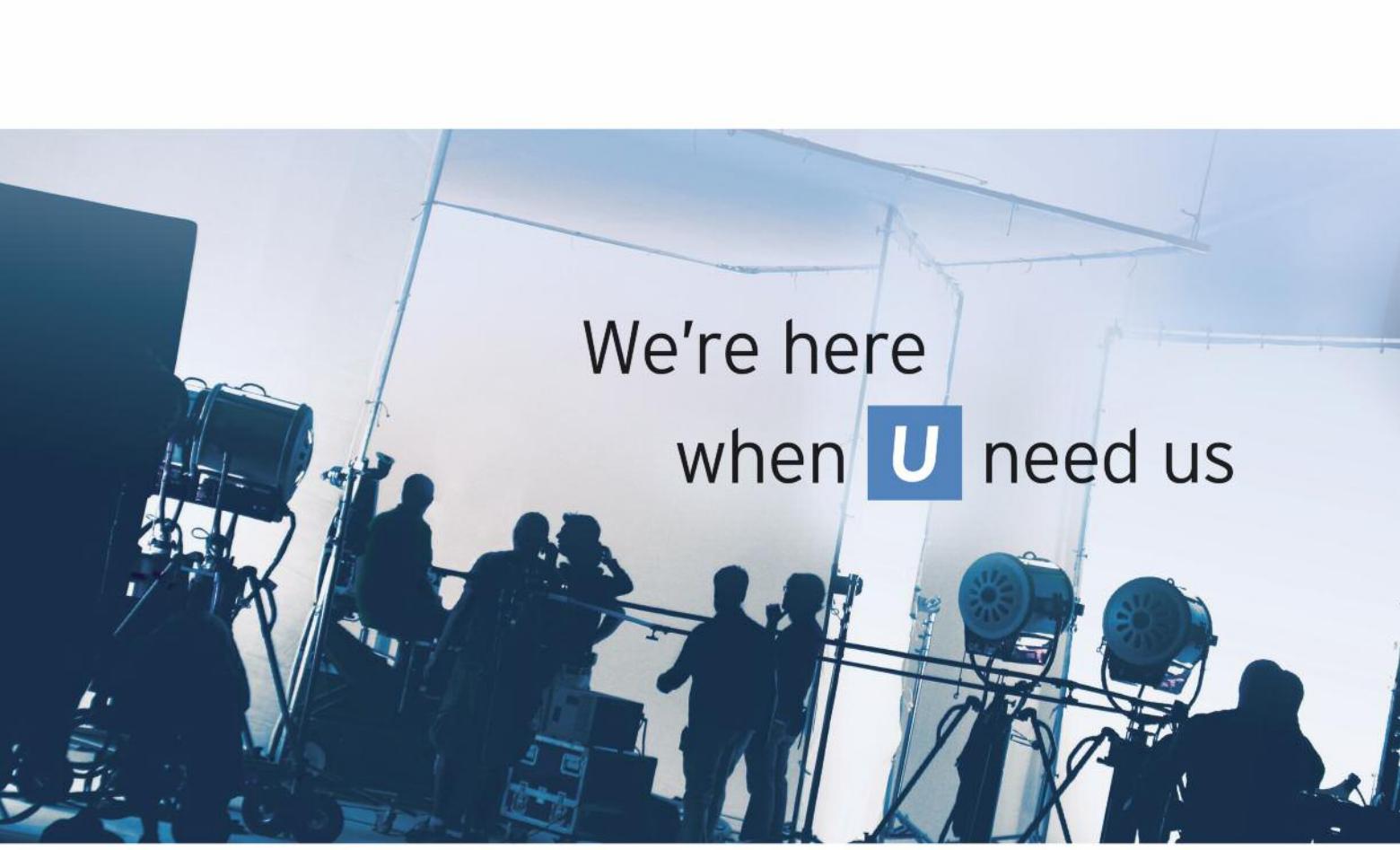
for dialogue-heavy scenes, the camera is always gliding, floating, probing. "I'm a curious person, and to satisfy my curiosity, the camera needs to investigate," Sorrentino says.

One bravura example opens episode nine: The Pope and his mentor, Cardinal Spencer (James Cromwell), are alone in the Sistine Chapel, engaged in a complex theological dialogue about abortion. The shot goes for seven uncut minutes, during which the camera travels behind and over the cardinal, across the vast room towards the pope, then around them in loops, going in and out of two-shots. The scene ends when the pope mentions his mother, who abandoned him at an orphanage. As he exits, the camera pushes in on the faces of the damned in Michelangelo's *The Last Judgment*.

"This is a long sequence shot that Paolo conceived as a complex Steadicam movement, which in my opinion is surprising and successful," says the cinematographer. "Sequence shots force everyone into a remarkable concentration."

Bigazzi continues with another example. "One of the most effective scenes from the choreographic point of view was Jude Law entering the Sistine Chapel in episode five — an entrance reminiscent of ancient Egypt. It's powerfully formal, but also full of meaning in the way it illustrates the complex personality of Lenny Belardo. We shot it using a Technocrane, with lighting balloons suspended on the ceiling because the shooting field, as always with Paolo, was 360 degrees. The scene was very complex and required several frames, so we decided to use four cameras. Of course, we had to reconstruct the ceiling of the Sistine Chapel using special effects, and this allowed me, in the most extreme full-shots, to frame the lights, counting on the fact that they'd be erased in visual effects — a great advantage in terms of speed and light quality. It was a long scene with a lot of extras, and we managed to shoot it in a single, very tiring day."

Remarkably, Sorrentino and Bigazzi do not choreograph their shots in advance. "I used to storyboard when I was younger, but not anymore," Sorrentino states. "I don't know why. I prefer going to the set, hanging around there for 10 minutes on my



We're here  
when **U** need us

## Office hours to fit the hectic life of the entertainment industry

UCLA and MPTF working together means you can see a network of great UCLA Health specialists at the times that work best for you. We understand that the entertainment industry doesn't just work 9 to 5, Monday through Friday – and neither do we.

Our extended hours, seven-day schedules and our Health Wheels mobile office make it easy to keep your health in check and keep working. That's care the entertainment industry can count on. And care that begins with U.

### **Woodland Hills**

Jack H. Skirball Health Center  
MPTF Wasserman Campus  
23388 Mulholland Dr  
(818) 876-1050  
M-F, 7 am - 9 pm / Sat, Sun, Holidays 9 am - 5 pm

### **Toluca Lake**

Toluca Lake Health Center  
4323 Riverside Dr  
(818) 556-2700  
M-F, 7 am - 6 pm / Sat, 8 am - 4 pm

### **Santa Clarita**

Santa Clarita Health Center  
25751 McBean Pkwy #210  
(661) 284-3100  
M-F, 8 am - 5 pm / Sat, 8 am - 4 pm

### **West Los Angeles**

Westside Health Center  
1950 Sawtelle Blvd #130  
(310) 996-9355  
M-F, 8 am - 6 pm

### **Los Angeles, Hollywood, Mid-City**

Bob Hope Health Center  
335 N. La Brea Ave  
(323) 634-3850  
M-F, 8:30 am - 5 pm / Sat, 8 am - 4 pm



1-800-876-8320

[uclahealth.org/mptf](http://uclahealth.org/mptf)



From left: First AC Scott Lipkowitz, director Paolo Sorrentino and cinematographer Luca Bigazzi line up a shot.

own, and in those 10 minutes invent all the frames for that day's shooting."

Sorrentino presents Bigazzi with very precise ideas, whether conjured that day or earlier. "Every day he brings a secret list of frames that he keeps jealously hidden," the cinematographer attests. "And this, I think, is very fair, because it forces those working with him to be ready for any occurrence."

A 360-degree lighting strategy was maintained throughout the series, leaving actors and camera free to roam. "I light starting from the environments, being aware of the kind of look the scene requires, but never favoring technique or elaborate light positioning. Above all, I try to never change the position of the lights during one sequence."

Contrary to common practice in Italy and elsewhere, Bigazzi operates camera. The other primary operators were Daria D'Antonio and Luan Amelio, plus Alex Brambilla on Steadicam.

"Throughout the 24 weeks of shooting, we used every possible medium: dolly, cranes, Technocranes, Steadicam, drones, aerial and underwater shots," Bigazzi says, "but also handheld camera, slider, mini jib, everything you could think of. It was a conclusive experience—I could say I authentically learned the job of cine-

matographer only after completing *The Young Pope*."

Likewise, nearly every kind of light was deployed. Bigazzi explains that the production used helium balloons quite often "because of their soft quality and to tackle the hugeness of the environments. Then, as always, [we used] HMI and fluorescents, lightbulbs, candles. Throughout the series, in the daytime the light of the window had to be the main light, often a blinding one [which was frequently produced by 18K HMI Pars]. Even if it was daytime, the large Vatican practicals [fitted with standard bulbs] were on, and this gave us those warm tones that contrasted the cold lights of the exteriors.

"I must admit that in recent years I've been using the new LED lights more and more," he adds. "They're particularly well-suited to digital filming, which requires a very delicate use of lighting because of its great sensitivity in reading shadows. Today, any light risks being too invasive. Lightness, softness, speed — this is what digital cinema requires. I tried working [with this degree of detail] in the past, but with great difficulty, because film stock wasn't sensitive enough. Now it's finally possible. I feel liberated and able to be much more daring."

Color timing was performed at

Margutta Digital in Rome, with two colorists, Andrea Orsini and Paolo Verrucci — the latter of whom oversaw the final — devoted to the series. The grade was performed with Autodesk Lustre in 3840x2160 UHD resolution. For Bigazzi, "it's a decisive moment of my work," he says. "Digital printing makes it possible to render the true sense of a scene and to correct every single defect that speed sometimes forces you to accept. It's a thrilling phase, and my relationship with the colorist is a source of great confidence and comfort even [while we're shooting]."

Maintaining their feature-production standards for a 10-part series wasn't easy. As Sorrentino says, "Being Italians and this being the first time we tried our hand at such a huge production, the whole series was a challenge."

Bigazzi's lingering memory is of the relentless pace. "The speed at which Paolo works, the concentration he requires from everyone, make the set an electrifying but extremely tiring experience," the cinematographer notes. "Twenty-four weeks at a ceaseless rhythm was the limit of the humanly possible. Only today can I say that I 'survived' *The Young Pope*."

## ► TECHNICAL Specs ►

1.78:1

Digital Capture

Red Epic Dragon

Leica Summicron-C, Arri/Zeiss Ultra Prime, Canon Cinema

### Erratum

In AC's April 2017 coverage of *The Path*, the caption for the bottom photo on page 26 misidentifies the crewmember behind the camera. Pictured is B-camera operator Arthur Africano. AC regrets the error.



# Capturing unique moments.

ZEISS LWZ.3  
21-100mm

## ZEISS Lightweight Zoom LWZ.3 21-100mm/T2.9-3.9 T\*

The new ZEISS Lightweight Zoom LWZ.3 21-100mm/T2.9-3.9 T\* strikes the perfect balance between weight, size and optical performance. Combining a rugged, splash-proof housing with a weight of just 4.4 lbs, it truly embodies the best combination of high-end performance in a light-weight housing. Its outstanding optical performance and color matching is ideally matched to all ZEISS cine lenses – Master Prime, Ultra Prime and Compact Prime, delivering razor-sharp detail, vibrant colors and excellent contrast.

The nearly 200-year-old eponymous hero (played by Hugh Jackman) of the feature *Logan* summons his strength and lets out his claws to defend a new generation of mutants.



## Last Action Hero

By Phil Rhodes

At nearly 200 years old, Logan (Hugh Jackman) isn't as agile as he used to be. The adamantium-clawed warrior once known as Wolverine walks with a limp, has a chronic cough, and can only tear into a bloodthirsty rage when absolutely necessary. And under Logan's guardianship at their bedraggled desert hideout is powerful telepath Professor Charles Xavier (Patrick Stewart), former leader of the long-defunct X-Men, who in 2029 is now in his 90s and afflicted with seizures capable of temporarily paralyzing everyone around him. With the bulk of the world's mutant population having been rounded up and dispensed with years ago, and the birthrate of new ones down to zero, Logan and Professor X are trapped without recourse, clinging to a dream of someday buying a "Sunseeker" and heading out to sea.

Enter a young girl named Laura (Dafne Keen) with powers remarkably similar to Logan's, who is being pursued by a cadre of unsavory operatives. And so the timeworn heroes head once more into the breach, embarking on a perilous road trip to save the next generation.

*Logan*, directed by James Mangold

and shot by John Mathieson, BSC, is a raw, brooding meditation on mortality that pits fear against hope as it looks to the future—with a photographic style to match. Mathieson, for his part, was initially cautious about becoming involved. “[Executive producer] Joe Caracciolo asked me a couple of times to do it,” he says. “I said no. I was hoping to do a film in the desert, a really low-budget film.” But when the other job fell through, “Joe said, ‘Come and meet Jim [Mangold].’ And I said, ‘Okay — fine, great.’”

Less than a week and a half after returning to his home in London, Mathieson “got a visa sorted out and started prep,” he relates. “That was March 10 [2016, when photography began]. It’s been quite a fast film. That’s the way films should be.

“It wasn’t a big film to prep,” he continues. “It was a case of getting ‘round the locations. We took private planes and flew around — New Mexico, Mississippi.” Main-unit photography consisted of a 73-day shoot and was based predominantly in New Orleans, La. The largely exterior nature of the film simplified things, as Mathieson explains. “When you’re prepping something like that, it’s usually the lighting that’s the big issue,” he says. “I never really light exteriors; I never got the hang of that. I wasn’t too

worried about dragging 12 18Ks up a mountain. You can do far more with silks and 12-by-12 blackouts.”

The photography is designed to emphasize the rawness and heat of the desert locations. “We wanted to make *Logan* look rough,” Mathieson notes. “A diamond, but rough. Deserts are hot and horrible — none of the sweeping soft dunes, *Lawrence of Arabia* stuff.” References, he says, included “road movies. *Two-Lane Blacktop* [1971], *Thunderbolt and Lightfoot*. I was going to make a great American road movie, [with the characters] starting in Mexico, moving up through New Mexico, Utah, Wyoming, Montana, and escaping into Canada.”

Equipment included three Arri Alexa XTs and one Alexa Mini, which were mainly paired with Panavision’s E Series anamorphic lenses. In certain instances, such as when visual effects required it, spherical Zeiss primes were used, and the cameras were set to Open Gate mode to maximize resolution when cropping to match the final 2.39:1 aspect ratio. The production also carried two anamorphic zooms: a Panavision AWZ2.5 37-85mm (T2.8) and a Cooke MK2 Super Zoom 50-500mm (T5.6). Spherical zooms included a Technovision Cooke Varotal and an Optica Elite 120-520mm (T2.8).

Panavision's Frazier Lens System was something that Mangold "got quite excited about," Mathieson recalls. "We used it to 'study' Hugh when he's popping bullets out of himself. It increases the depth so you can see the background. It [has to do with] getting the lens away from the camera body — they do have a weird optical quality." (For more about the Frazier Lens System, see AC Feb. '99.)

In *Logan*'s opening night-exterior, a large LED billboard — supplemented with modular 2'-square LED units — drove the lighting for the scene, emitting images with 5,600K daylight color temperature in addition to magenta, blue and violet. "We supplemented and bent that source with high-power lights including 20Ks and Jumbos," Mathieson explains. "It is a tribute. Prince died during the shoot. I lit the sequence with a purple color — I used to use that on him. Purple with Chrome Orange coming through. When a light has a color on it and it's up in the air, you think it must be some sort of industrial vapor light. By coloring it, you can hide a few sins."

The production built key sets at New Orleans' Big Easy Studios, which is located at NASA's Michoud Assembly Facility. "They had these huge stages where the side opened up like gigantic garage doors," Mathieson says. "Our collapsed-water-tank [interior] set was this huge circular construction. With the studio door open, you'd go past it and see this big circular thing being built and think, 'They're making a spaceship out of plywood? They'll never get to Mars!' The set must have been 35 or 40 feet across. [The water tank is] fallen over and it's ruptured, so there's a big crack of light. I wanted to give the thing some shape. There were two or three 20K Molebeams at any one time, with a bit of smoke — not to make it smoky but to make the beam stronger. [The set] was 'perforated,' so we had to wrap it in silks."

Shots depicting Keen's character as the group drives into a city would have proven prohibitive on location, so instead Mathieson and co. devised a solution wherein on-set LED video panels would simulate passing lights. "The car was in the studio with blacks around it," the cinematographer describes. "We put the screens up around Logan's Chrysler E8 limo — one behind her, one in front of her, one



**Top:** Director James Mangold works through the feature's opening sequence alongside Jackman. **Middle:** Cinematographer John Mathieson, BSC frames up an Arri Alexa XT camera. **Bottom:** Logan squares off against the villain Pierce (Boyd Holbrook).



Top: Inside a fallen water tower in the desert, Logan helps his erstwhile mentor and father figure, Professor Charles Xavier (Patrick Stewart). Middle: Logan and Caliban (Stephen Merchant) see trouble on the horizon. Bottom: The arrival of the enigmatic Laura (Dafne Keen) leads Logan on an unexpected journey.

lower down. Basically, it's a little close-up of her looking out of a window — with raindrops. I always put raindrops; it makes it sparkly." As background plates would be needed to play on the LED screens, "I took a Sony a7S II and rode down Canal Street on a bicycle, looking left, looking right, forward, back."

Another special technique was required to depict the professor suffering his telekinetic seizures, which produce a deafening sound and physically immobilize everyone nearby. "How do we [visualize] this resonating, crippling, earsplitting sound?" Mathieson wondered. "'How do you do something like that with the camera? [Visual-effects supervisor Chas] Jarrett said, 'Shake it, shoot it slightly wider, and I'll stabilize it.'" The result is a twitching, restive motion-blur effect that relied on a 358-degree shutter angle, produced manually on an EasyRig by camera operator David Luckenbach and finalized by Jarrett's postproduction techniques.

All Alexa material was recorded in ArriRaw. Digital-imaging technician Daniele Colombera explains that the workflow included dispatching "the pristine camera mags to Technicolor to create dailies. In order to preserve data integrity and safety, we used a Codex Vault 2 for on-set verification and backup, and the actual camera rolls were shuttled to the Technicolor On Location Services mobile lab, which was in New Orleans, New Mexico and Los Angeles when we were shooting there."

Colombera used Technicolor DP Lights 2.0 and Colorfront On-Set Live, referring to footage on several Sony PVM-A250 calibrated displays. "Every time we did a film break, I exported EMD [Express Metadata Dailies] folders, which are packets of information that include all camera metadata, the grading color pipeline, ASC-CDL values, and uncompressed stills for each camera," Colombera explains. "There are lots of advantages compared to the standard ASC-CDL workflow because the dailies operator is not applying the look based just off CDL values, but can see exactly what John and I saw on set, as well as extract each camera's metadata and settings for redundancy." Per Mathieson's intentions, the cameras were set at 800 ISO. "We also rated the Alexa XTs at 1,000 and 1,280, except for

a couple of night shots, for which 1,600 ISO was necessary," Colombera adds.

Material intended to represent video shot clandestinely on a cell phone was recorded with Canon's FS20, a deliberately low-res option that Colombera describes as "a consumer [grade], super-compressed, standard-definition camcorder with a 1/6-inch sensor." Where this material depicted superpowers that required visual effects, Blackmagic Design's Pocket Cinema Camera was used. "It had a much smaller sensor than the Alexa — actually Super 16 sized — and it could match a little bit better with the FS20, but it produced high-quality raw footage appropriate for visual-effects work," Colombera notes. With visual effects added, this material was re-photographed with the FS20 as it played on a high-resolution monitor in order to match the appearance of the FS20-originated material.

Postproduction took place at Technicolor in Los Angeles. Mathieson credits colorist Skip Kimball — with whom he had worked on *Gladiator*, *Kingdom of Heaven* and *47 Ronin* — with a straightforward approach. "He's very much an RGB guy," the cinematographer says. "He works with the primaries. Once you start noodling with the image, taking the mid-tones, the black levels, the highlights, putting windows over everything, suddenly your photography looks very confused. If something's burned out and a bit over-the-top, he won't just say, 'Oh, we'll put a window on that.' Rather, he'll say, 'Maybe this shot doesn't look so good, and the next one, but these three together. ...' He sees the film as a whole."

Considering *Logan's* overall visual style, Mathieson muses, "There are a few moments of respite where things ease up, but in large part it's oppressive and [the characters are] on their own. I had to follow the locations. I couldn't just light what I wanted to light. It wasn't a pretty-looking film."

## ► TECHNICAL SPECS ◄

2.39:1

Digital Capture

Arri Alexa XT, Mini

Panavision E Series, Frazier Lens System;  
Zeiss; Cooke MK2; Technovision Cooke  
Varotal; Optica Elite



Top: Laura, Charles and Logan seek respite in the midst of a harrowing road trip from Mexico to North Dakota. Middle: The crew prepares to shoot with Logan's limousine on a greenscreen stage. Bottom: Logan carries Laura to safety — at least for the time being.

# Not Quite Human

A large-format digital capture photograph of actress Scarlett Johansson as the character Major from the movie Ghost in the Shell. She is shown from the waist up, wearing a form-fitting, light-colored, futuristic suit that appears to be made of a liquid or semi-transparent material. She is running towards the camera through a spray of water, with droplets visible in the air around her. The background is a dense, modern city skyline with numerous skyscrapers and buildings, some with glowing windows and signs. The overall aesthetic is cyberpunk and futuristic.

For the cyberpunk thriller *Ghost in the Shell*, Jess Hall, BSC employs large-format digital capture and multi-camera “motion photogrammetry” to help create a dystopian world that blurs the line between human and machine.

By David Heuring

•|•

**G**host in the Shell is a live-action take on an iconic Japanese manga series by Masamune Shirow. The source material is a cultural phenomenon that has been described as a cyberpunk meditation on design, philosophy, technology,

identity and consciousness. In a dystopian, mid-21st-century Japan, the Major — the story’s main character, played by Scarlett Johansson — is a highly developed human-cyborg hybrid whose brain is vulnerable to hacking, and who is haunted by snippets of memory from her human childhood. The production worked mostly in Hong Kong and at Stone Street Studios in Wellington, New Zealand, and the cast includes Michael Pitt, Pilou Asbæk, Chin Han and Juliette Binoche.

Director Rupert Sanders and Jess Hall, BSC led the team of highly skilled pros who brought this tale to the screen. The duo had previously collaborated on a hyper-real commercial for Microsoft’s *Halo 5: Guardians*, a sci-fi video game for Xbox One. That experience showed Hall the potential of Arri’s Alexa 65. He had previously been known for shooting on film, as he did on *The Spectacular Now*, *Creation* and *Transcendence* (AC May ’14) — the latter with a full photochemical finish.

“As someone who is drawn to anamorphic, working with the intrinsic shallow depth of field on the 65mm sensor



Opposite and this page, top: The feature *Ghost in the Shell* follows the Major (Scarlett Johansson), a cyborg designed to be a perfect soldier devoted to stopping the world's most dangerous criminals. Above: Cinematographer Jess Hall, BSC (left) and director Rupert Sanders plan a shot.

was very appealing to me," says Hall. "Also, I'm a big fan of the Alexa because I like the way it renders color. The color space has a naturalism and subtlety that, if lit correctly, is very pleasing for a digital camera. The large format came out of our need for something subtle and sophisticated enough to rival film in terms of color reproduction, and the spatial resolution to work well with all the different distribution types, including 2D, 3D, Imax 3D, and [2D and 3D Dolby Vision laser-projection format]."

Hall's drive for precise and refined color influenced his decisions in-camera, lenses, lighting and post, and

drove his collaborators to develop custom tools and techniques along the way. That began with a desire to pay homage to the visual qualities of the manga in a way that would work in live-action cinema.

Hall elaborates, "I wanted to honor the visual style of those forms in a way that moved it forward without being deferential — a way that observes the depth of tradition there, going back, in some extent, to the traditions within Japanese visual art, with its compressed perspectives, controlled palette, symmetrical compositions and repetitive forms."

The cameras were set up to capture data at a resolution closer to 5K, instead of employing the units' 6.5K Open Gate maximum, which saved a significant amount on data wrangling and associated costs. Alexa 65 footage was recorded to Codex Capture Drives.

"We originally thought we'd shoot certain scenes on the 65, but once we started testing, we wanted to shoot 90 percent of the movie that way," the cinematographer says. "So my idea was to shoot in [5K] 65mm mode, which records in 1.78:1. I wanted to frame in 1.85 anyway, because anime is traditionally 1.85, and Hong Kong is such a

# ► Not Quite Human

With her brain as the only remnant of her human existence, the Major is haunted by memories of her previous life. The character, Hall notes, "exists between two worlds. She's part machine and part human. The narrative is driven by her seeking her place within that."



vertical city. In testing, it felt like we were getting a more impactful image in 1.85. It felt very strong and lent itself to what I wanted to achieve compositionally. Ultimately, on this production it made the difference between an affordable format and an unaffordable format."

"Across two units we had five Alexa 65s [fitted with modified Panavision Sphero 65 lenses], and two [Codex] Vault 65s for downloading," notes digital-imaging technician Michael Urban. "We also had two Alexa Minis shooting ArriRaw Open Gate, which were used as crash cameras or for tight spaces that were too small for the Alexa 65. The Minis used the modified Panavision Sphero 65s as well. We also had a [Vision Research] Phantom Flex

4K, which used Leica Summilux-C [lenses] for the 1.4 T-stop."

The main-unit operators were Peter McCaffrey on A camera and Patrick Loungway on B. (Loungway also served as 2nd-unit director of photography.) For second unit, Cameron McLean and Richard Bluck served as A- and B-camera operators, respectively.

The large format and rich image were in tune with the filmmakers' plan for longer, more classical shots. "The danger with a very sharp image is that you begin to see things you might not want to see," Hall notes. "That's where the right lensing helps."

Hall and ASC associate Dan Sasaki — Panavision's vice president of

optical engineering and lens strategy — developed the set of modified Panavision Sphero 65s, which delivered a classic, slightly softer look, with T-stops of mostly T2 and under. Hall owns a set of restored vintage Cooke Speed Panchros, the characteristics of which he liked for this project, but those lenses can't cover the larger image diagonal of the 65 sensor. Sasaki therefore translated some of their traits to the Spheros. The cinematographer was looking for a certain patina and texture reminiscent of watercolor painting.

"In the anime, there's a certain painterly quality, as well as a subtle bloom or halation around highlights," Hall says. "The compositions are so beautiful, and they tend to flatten the perspective, but they often employ a wide-angle lens, thus creating layers of depth in the background. I needed very high-speed and high-performance lenses because we planned to shoot in Hong Kong and maximize on the potential of available lighting. The correct perspective — flatter and wide-angle, with a wide field of view but without distortion — was important. Color consistency across the range was also critical to me, and this is something that is difficult to achieve with vintage glass."

"Selecting the Alexa 65 wasn't just about resolution, color and speed — it



The filmmakers sought to honor the style of the manga and anime tellings of *Ghost in the Shell* that preceded this live-action version. "In the anime, there's a certain painterly quality," says Hall. "The compositions are so beautiful, and they tend to flatten the perspective, but they often employ a wide-angle lens, thus creating layers of depth in the background."

was also about perspective," Hall continues. "The optical compression [achieved by using longer focal lengths with a larger format] means you're effectively flattening the perspective, which was perfect for the aesthetic that I was pursuing. It meant that we could construct some wide-angle lenses that had a flatter, more compressed perspective. Dan built a unique 29mm that could accommodate the 65mm format, and this lens, the only one of its type in the world, became very effective for us. The 35 and the 40 were also great lenses, but the 29mm became the lens that really created what, for me, are the signature shots.

"We built an entire set of prime lenses—24mm, 29mm, 35mm, 40mm, 50mm, 75mm, 100mm, 135mm and 135mm macro," Hall details. "There were also three high-speed lenses: a 50mm, 75mm and 100mm that all had T-stops below T2. We experimented with a couple of zoom lenses in testing, but these were never used, and the entire film was shot on the custom-built primes."

In regard to combining CG artistry with footage from the Alexa 65, visual-effects supervisor Guillaume Rocheron notes that the camera's sharp,

detailed image leaves little place to hide. "It has been especially challenging on the shots in the film that we dubbed 'ghost cam,' which are long, continuous floating shots traveling through cityscapes," he notes. "The first one in the film is our first look at the world. It's about a minute and a half long, mostly CG, and it connects to a shot of Major on a rooftop. The viewer has plenty of time to study the details and the image definition, and the quality had to be on par with the practical 65mm photography. The larger sensor proved to be challenging as well for some exterior sequences shot on a greenscreen stage, because we had to work around the shallow depth of field and cheat a bit in order to make our composites look more like an f11 and provide a sense of scale."

Hall developed a specific, coordinated color palette of 28 hues to be used prominently in the lighting and design. "You can take almost any frame in the original anime and see that color is used in a very harmonious way," he says. "If it's not, there's a reason. I wanted to bring a detailed, analytical approach to color without necessarily attaching obvious meaning to each color."

Hall extracted colors from the

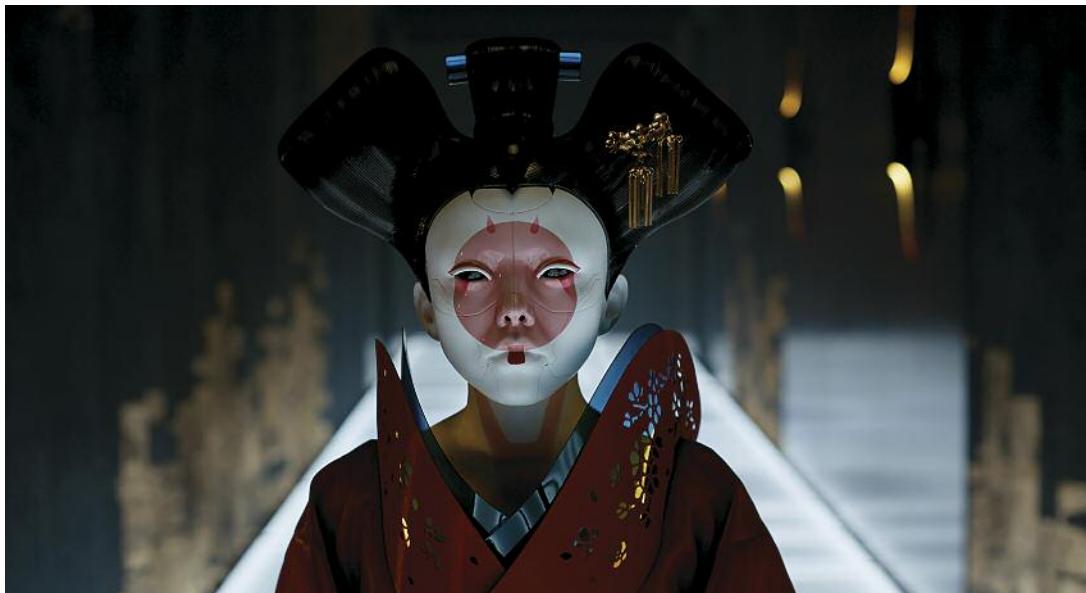
anime and from stills he took on the Hong Kong scout, which were captured mostly at night. He noticed that the neon and LED lighting was mediated by the humid atmosphere, which creates an ambience and contributes to the watercolor feel.

"I became interested in using colored light and trapping and mixing it in the atmosphere to create other colors," the cinematographer says. "The colors I was seeing were very subtle. In moments of the anime, the Major has an extraordinary skin tone that I called a warm gray. It's something I've never really seen before on film, and one question was how to go about actually producing this color on Scarlett's skin."

With his 28-color palette, Hall set about tweaking the RGB values on LED lamps and seeing how the camera would interpret them. He had success with Digital Sputnik fixtures that offer 16-bit, four-channel control, but he knew those lamps wouldn't serve every function, especially in practically lit interiors with integrated lighting. Those situations would require smaller fixtures, and other RGBW systems weren't giving him the nuances and secondary colors he wanted, especially in the yellow

# Not Quite Human

Reprogrammed to act as an assassin, a hacked geisha android stalks its prey.



and violet ranges. He approached Mike Bauman of LiteGear, who built a prototype six-color lamp, which featured additional channels for tungsten and amber.

Bauman says that much of the film has an amber feel, or uses colors that depend on accurate amber elements. "We had been working on a six-color system emitter mix we called 'Cine 6,' and when Jess and I started talking in the early stages, it became clear that this would be the perfect tool for him," Bauman recalls. "That certainly accelerated our development process of that product. Jess also had specific size needs and our team made some custom panels using Cine 6 with very rudimentary controls, which allowed him to achieve

the color mixing he was looking for."

For LiteGear's Cine 6, each segment is a six-chip package — four colors of red, green, blue and amber. Immediately adjacent are high-CRI (color rendition index) daylight and high-CRI tungsten emitters. "Jess wanted to desaturate an amber source, and the ability to do so with a high-CRI tungsten emitter gave him the best results in our testing," says Bauman. "Especially in the digital sphere, light values are so low, using the Cine 6 chip mix allowed Jess to use much lower foot-candle levels and maintain color consistency."

Bauman, Hall, digital-imaging technician Michael Urban and GrandMA programmer Matt Ardine

experimented in Los Angeles and generated spectrometer readings for each of Hall's 28 colors. Arri's newer SkyPanel fixtures allow for punching in X-Y coordinates to generate a specific color. Outsight Creamsource LEDs were also mapped. Bauman and a team later flew to New Zealand and worked with gaffer Dave Brown and fixtures tech Warwick Peace, dialing everything in, given voltage and other variables.

In general, the lighting in *Ghost* tends toward atmospheric and environmental, which allowed Sanders to block scenes freely in the space. The vast majority of the illumination was accomplished with DS 6, DS 3 and DS 1 Digital Sputnik units; L10, L7 and L5 Arri LED Fresnels as well as Arri SkyPanel units; Creamsource Sky units; and LiteGear's custom-built, six-channel LiteMats, as well as RGBW and Cine 6 LiteRibbons integrated into sets and also constructed into a number of custom fixtures. The filmmakers likened the ability to blend and desaturate with color, warmth and coolness to color-timing on the set.

"This project really pushed all the manufacturers," says Bauman. "Everyone had to up their game, because Jess insisted on maintaining consistency all the way down the workflow line. It's an impressive goal. As a company, we really value that collaboration with cine-

matographers who are interested in pushing the envelope."

Supervising lighting-desk operator Chris Craig used his favorite GrandMA2 console networked through to a tablet for remote access, which allowed Hall to assign a programmed color and intensity to any unit on the set. Hall enthuses, "It's an amazingly flexible system, and it worked very well — not just for individual colors, but for how the colors could combine and change during a shot. Sometimes I'd use three different colors within a single source and animate them, with changing light coming from different directions motivated by a character's interaction with the environment."

"This combination of tools offered incredible control and flexibility," Craig attests, "with levels bright enough to wash large stages with gorgeous, saturated colors, down to 1/2-percent intensity, making a visible difference in eyelight. Fabulous!"

Halon Entertainment helped with previs and postvis on more than 150 shots. "We shared the light-color palette that Jess had created so we could use it on our CG lighting," says Rocheron. "Our general rule was to try to capture the mood of real places and locations, like Hong Kong for example, even though we knew we would replace much of it in order to create the more futuristic version required for the movie. Jess could craft the ambience for each scene, which then gave us a fantastic base to work from in postproduction."

John Dykstra, ASC joined the *Ghost in the Shell* team as a visual-effects supervisor during postproduction. "John did amazing work," Hall says.

\* \* \*

A notable component of the movie's narrative is the appearance of hologram-like apparitions, dubbed "solograms," that appear in cityscape shots and function as futuristic commercials. Rocheron — an Oscar winner for *Life of Pi*, who worked closely with Hall to effectively combine effects and practi-

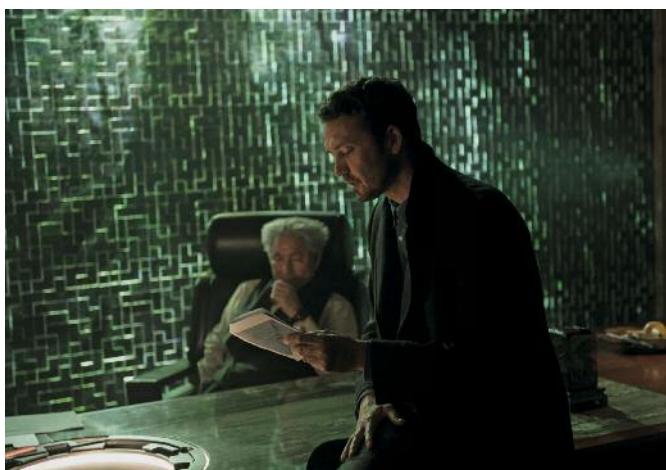


Cast and crew work through action in which the Major descends from a rooftop (top), smashes through a window (middle) and takes aim at her targets (bottom).

# Not Quite Human



Above: The Major meets with Aramaki (Takeshi Kitano). Right: Sanders and Kitano discuss a scene.



cal photography — calls these images “giant volumetric advertising projections,” and says that creating them was one of the main challenges for the visual-effects team at MPC.

“It’s a bit like what you would see with augmented reality, but without the glasses,” Rocheron describes. “A person in these volumetric ads could be as tall as a skyscraper. Unlike holograms, which are reproductions of a subject in a different environment, solograms represent these figures but integrate them within the environment they’re projected into.”

In realizing the sologram imagery, the filmmakers made use of a “motion photogrammetry” system developed by camera-array designer Dayton Taylor.

“We needed to be able to film the actors from many different angles, with preprogrammed camera moves and

lighting scenarios in order to integrate them later into our cityscape,” says Rocheron. “But I thought that would be not only impractical but very limiting. If we could find a way to capture those actors’ performances and create a moving CG representation of them using [motion] photogrammetry, we could position them in our cityscapes, from any angle, in any size and under any lighting conditions. Unlike with traditional CG characters, the idea here was to digitize a performance so it could be [digitally] ‘rephotographed’ from any point of view. The character had to be relit in CG because of the restrictions of lighting within the dome design, but the origin of the shot remained real photography captured at 24 fps.”

“Elements from this technique were used for almost every exterior city

shot,” Hall adds, in that nearly every cityscape-shot in the movie features sologram imagery. “When I first discussed this idea with Dayton, I had wanted to use the technique for some of the Major’s action or fight scenes, but the resolution was not sufficient and the quality lent itself to the more degraded video texture we required for the Solograms. We created and processed 20 minutes of Sologram footage. [Given that] the technique generates a complete 3D scan of the actor per frame, we processed around 30,000 3D scans to generate all the moving clips.”

Photogrammetry is used extensively in video games, because a single static texture map can be loaded once and animated to look as though it’s moving, but that is also why it lacks photorealism in filmmaking. Taylor, who had first crossed paths with Sanders and Hall while working on a Nissan commercial in 2006, avoids this problem in part by making static photogrammetry scans at 24 frames per second.

Rocheron and Taylor devised a dome of 80 Point Grey Grasshopper cameras featuring Sony ICX625 global-shutter CCD sensors, a rig that shot 2.5K uncompressed frames. “The cameras recorded their images directly into 20 computer servers, with eight terabytes of storage per server — 160 terabytes total,” says Taylor, the founder and president of visual-effects and camera-array-technology company Digital Air. “The data was written to the servers’ hard drives as numbered frame sequences in DNG — Adobe’s Digital Negative — format.”

Digital Air’s software pipeline used Capturing Reality’s photogrammetry software. The hardware that Taylor designed allows perfect synchronization at 24 fps, which was key to the endeavor’s success, according to Rocheron.

As Taylor explains, “The Point Grey cameras have an auto-synchronization feature that perfectly synchronizes the timing of the shutters in all of the cameras. This is important because the photogrammetry software relies on the temporal consistency of all of the image data in order to reconstruct an accurate 3D model of the subject — all the images have to be



FW  
3.0

Lighting Effects.  
No console required.



## 12 amazing effects programmed into every SkyPanel.

SkyPanel Firmware 3.0 includes a powerful new feature: lighting effects. With SkyPanel Lighting Effects users can now choose and manipulate 12 effects without the need for a lighting console or hours of programming. The lighting effects include: candle, clouds passing, club lights, color chase, cop car, fire, fireworks, light strobe, lightning, paparazzi, pulsing, and television.

SkyPanel Lighting Effects changes the game for on-set lighting effect generation.



Download SkyPanel Firmware 3.0:  
[www.arri.com/skypaneleffects](http://www.arri.com/skypaneleffects)

**SKY PANEL**<sup>®</sup>  
SOFT LIGHTING | REDEFINED

100 YEARS  
**ARRI**<sup>®</sup>

# Not Quite Human

Right: The Major speaks with a prisoner (Daniel Henshall) whose mind has been hacked by a shadowy adversary, while (from left) Aramaki, Ladriya (Danusia Samal), Togusa (Chin Han) and Batou (Pilou Asbæk) observe. Below: Hall regards a setup.



exposed at exactly the same time, because the software triangulates the depth data by matching image features down to the pixel level. For this same reason, motion blur results in a loss of depth detail, so the cameras also have to be set to very short shutter speeds.

"We would record the performances inside this dome of cameras," Taylor continues, "and the synchronized images allowed us to re-create a perfect moving version of the actors in the computer. We captured not only their movement but their volume, face, skin, clothes, and all the details."

"Each frame of the resulting

sequence is a new representation of the subject based on the 80 still images that it is derived from," he adds. "Every frame consists of a completely new 3D model and a completely new texture. This was expensive in terms of data and processing, but it saved time and labor downstream in the workflow because it eliminated the need for motion capture or having animators rig and animate static scans. Of course, doing it this way also ensured that the final results were entirely performance-driven."

The cinematographer adds that the multi-camera capture technique lent a real photographic weight and texture to

the holograms, as compared to a standard CG element. And the movement he designed into the shots brought all the elements together.

MPC used the mesh-plus-texture output sequences produced by motion photogrammetry to drive the animation for the holograms — the idea being that the enormous holograms in the movie are digital creations within this fictional world, as opposed to giant physical figures. Hall and Rocheron refer to this look as "videogrammetry," because it creates a volumetric digital-video aesthetic.

"I felt that *Ghost in the Shell* presented an opportunity that might not come again," Taylor opines. "Now, as a result, we're ready to seamlessly insert actors into the next film with a much better understanding of the technology and pipeline required to do so."

"We were able to capture [the actors as they performed] and then place them within virtual-camera moves in three dimensions," Hall attests. "We didn't want the film to be completely dominated by greenscreen process work. We were looking for a very tactile feel, with as much done in-camera as possible. That's why I like this idea so much. It goes to the essence of what the story is about. Scarlett's character, the Major,

# ProGlass CINE IRND



“The main advantage of these filters is their neutrality, especially when using 4 stops (1.2ND) or above. When I use other IR ND filters I normally have to compensate for a color shift in the grade, but with these I haven't seen any noticeable color shift. They are by far the best front of camera ND filters I have used.”

John Lee – Director of Photography

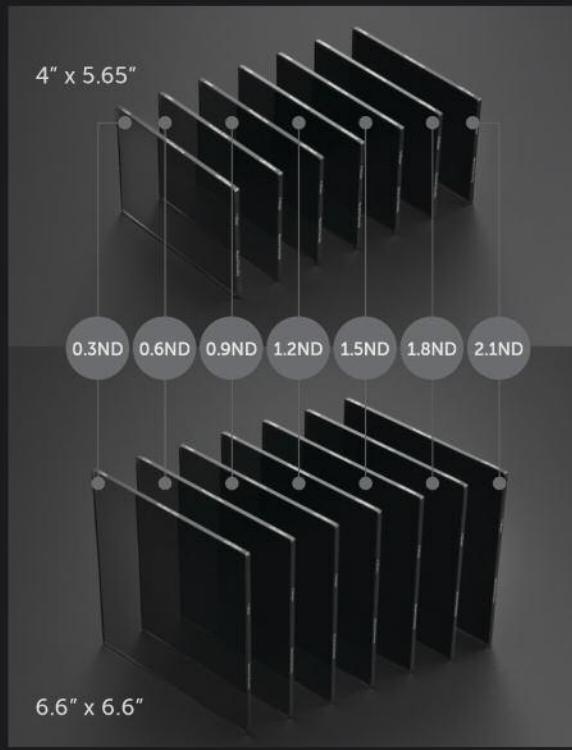
## A NEW standard in neutral-density filters for cinematography

Our ProGlass Cine range of neutral-density filters has been designed to meet the exacting needs of all cinematographers – whether shooting digitally or on film. Their neutrality ensures all colors remain accurate and true, saving you time and simplifying your workflow.

- Durable and long lasting
- Manufactured from 4mm thick optically flat glass
- Scratch resistant and edged with a metal rim
- Available in two sizes and seven densities

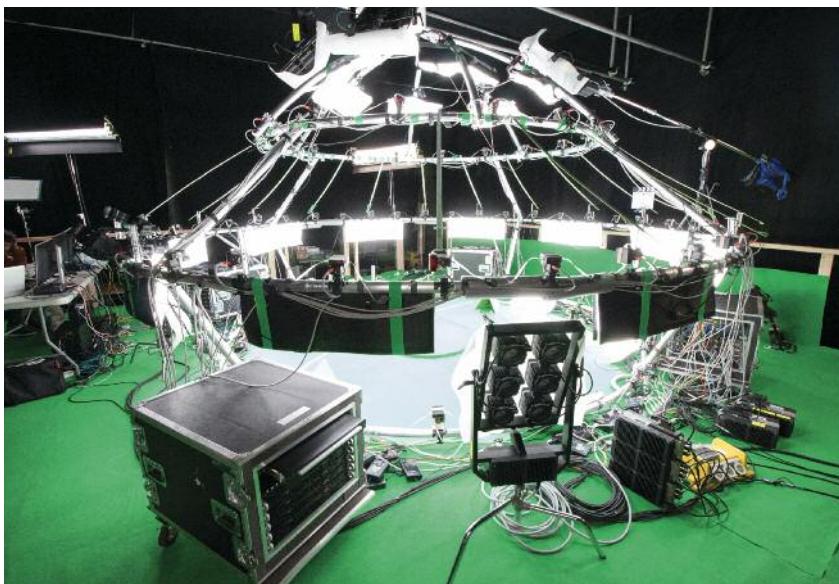
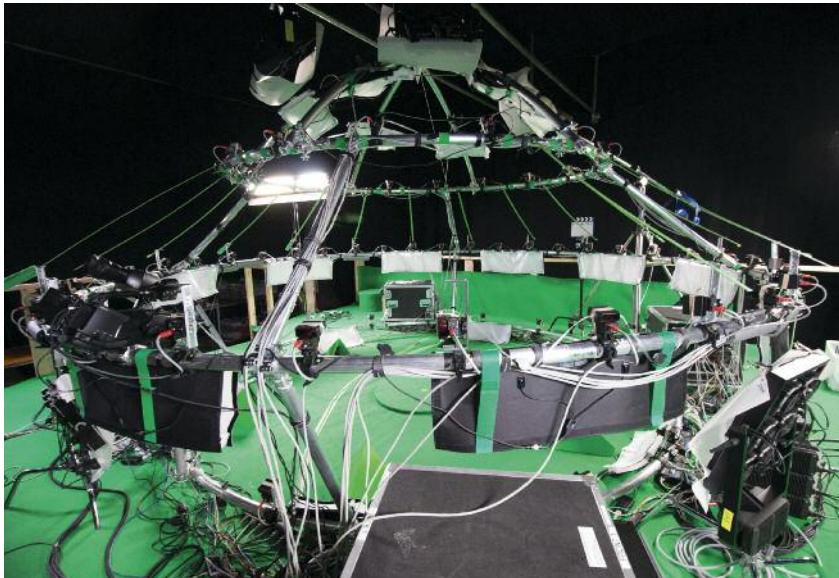
Full range available **now**

Visit us at Cinegear



50 years  
**LEE Filters**  
[leefilters.com](http://leefilters.com)  
Est 1967

# Not Quite Human



Giant holographic apparitions dubbed "solograms" were captured with a "motion photogrammetry" camera-array system developed by Dayton Taylor.

exists between two worlds. She's part machine and part human. The narrative is driven by her seeking her place within that. I like the idea of expressing this third space she inhabits with a traveling camera that is somewhat ethereal, exploratory and unsettled."

\*\*\*

During preproduction, Hall worked with Yvan Lucas at Shed to develop a show LUT, which was used

throughout the shoot. On the set, he worked in D65 P3 color space, in part to help maintain color accuracy. The colors in *Ghost* were designed for the camera to read, and they were controlled through the LUT to maintain consistency.

"I've always found Rec 709 to be a somewhat crude way to view things," says Hall. The cinematographer collaborated with Ian Bidgood, technical director at Park Road, to implement an on-set P3 monitoring system, which meant the production could go with

standard color gamma and push these colors farther. "Park Road Post set up the workflow so that I was monitoring P3 on set and projecting in P3 with my dailies, without shifting the LUT," Hall notes. "The result was a seamless workflow in a unified color space, which required little or no color correction."

Urban worked with the team at Moxion, "an online dailies application, to accept and display DPX frames correctly," he explains. From there, he created a secure online database to share between shooting units, post and eventually pick-ups in L.A. He also used Moxion to collate all the metadata using ALEs from editorial. "This enabled the DITs, post and the camera department to go back and check T-stop, lens, color temp, LUT, CDL, etc. in a still-frame database organized by scene and setup," he says.

Urban's company, The Rebel Fleet, supplied identical DIT carts in New Zealand and Hong Kong for main and second unit that included two Sony 25" OLEDs, a 17" Sony OLED, Fuji IS-Mini LUT boxes, Pomfort LiveGrade, Blackmagic Design DaVinci Resolve, Tangent Devices Element Panel, AJA Kumo routers, Teradek's Bolt 2000 and Decimator's DMON-6 splitter.

Arri's Alexa 65 requires the use of the Codex Vault 65 for initial processing of the raw camera acquisition. "Having Codex Wellington, L.A. and London on call meant we were covered around the clock, which helped, and meant they could pull in gear or expertise when needed," says Urban. "Having so many pixels meant that the noise floor was drastically reduced when going from a 5K resolution to 2K screenings. Jess based [his camera settings] at 800 EI, but we knew we could call on 1,000 EI or 1,280 EI without noticing a jump in noise." Hall confirms that he occasionally employed 1,000 and 1,280 EI "when more depth of field was required."

Park Road has been moving toward the use of one seamless color space on set, in dailies grading, in visual effects, and for the final online DI mastering for some time. The company's workflow architect Anthony Pratt notes

# ZERO DELAY WIRELESS VIDEO

UP TO 3000FT

MULTICAST 4 RX

VISUALLY LOSSLESS QUALITY

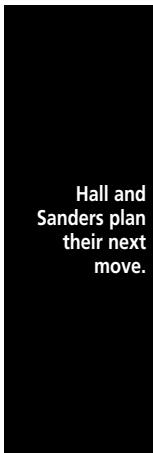
\* ALL IMAGES ARE FOR ILLUSTRATIVE PURPOSES.



[cinema.teradek.com](http://cinema.teradek.com)

BO<sup>L</sup>T

# Not Quite Human



that the advantages of a single color space show up in consistency, communication, efficiency, creativity and trust.

"Jess orchestrated an approach that leveraged the full gamut of the camera — and which clearly defined a completely unique world," says Pratt. "On set, Jess had absolute confidence that the full gamut of the images captured in-camera tracked through,

enabling rapid creative color decisions. Jess could prelight with confidence, as the correct P3 color space was used when passing a CDL/still through to the dailies suite. Back at Park Road, we could then offer further look development using the full power of the SGO Mistika grading platform — and the looks offered tracked accurately when sent back from Park Road to the set."

With the production based at nearby Stone Street Studios, a private fiber-optic connection direct from Stone Street to Park Road facilitated data management. Park Road's pipeline ensures the availability of the underlying raw image. Pratt used an optimized GPU de-Bayer approach in the Mistika platform, without compromising the images. After de-Bayering, the ArriRaw media was presented as Log C wide gamut and scaled into a 2K dailies environment.

Hall and Sanders graded the final DI master at Technicolor Hollywood with supervising digital colorist and ASC associate member Michael Hatzler. Hatzler and his team used multiple Flame Premium workstations to assist him in delivering various 2K DCP packages in 2D and 3D xenon, in addition to 2D and 3D Dolby Vision laser-projection format, that benefited greatly from the P3 pipeline.

"As we began, fundamentals like overall exposure and balance, and the

## FRIENDS OF THE ASC

Featuring content created by ASC members, Friends of the ASC is a premium subscription that gives you exclusive access to instructional videos, detailed Q&As with contemporary cinematographers about their work, archival interviews with ASC greats, discounts on equipment and services, and much more.

### SEE WHAT YOU'LL GET...



John Seale's Interview on *Mad Max: Fury Road* and more...



### LATEST FRIENDS FEATURES

**Exclusive Video Interviews**

**Exclusive Tech-Tip Video Tutorials**

**Digital Subscription to AC**

**Exclusive Discounts**

**Friends Discount Card**

For details, visit us at [www.theasc.com](http://www.theasc.com)

general level of highlights and shadows were in a very good place,” says Hatzler. “The initial overall grade fell into place quickly, which allowed us to spend more time earlier in the DI on details like matching Jess’ color palette, skin-tone variation, selective highlight halation, articulated shapes, and the light-to-dark contour from scene to scene. The LUT was very subtle, and while it did set the image up to some extent, it was never limiting or difficult to work around. The LUT didn’t feel like an add-on, but rather one component of a very well-thought-out workflow that allowed me to guide each scene right to where Jess wanted it to land, at the same time making sure to protect it from the tendency of a lot of modern films to become overly cooked or pushed in the grade.”

Hall says that one of his overarching goals was to create a texture he hadn’t seen before. “I felt that with digital cinematography, there is a danger that things can become homogenized, without

enough experimentation and pushing of the boundaries,” he notes. “I really wanted this film to look unique, and with this intellectual property, we had every right to explore a unique aesthetic. I was looking to imbue *Ghost* with an amazing amount of detail and texture, but also a real painterly quality — akin to the anime. I like taking a camera that is extremely sharp and sophisticated, like the Alexa 65, and modifying that resolution with a particular type of intervention. The quality of the light, a particular softness or imperfection in the lens, a shallowness in the depth of field, or a certain quality of atmosphere can be combined to create a unique look. I wanted to transport the audience into a world that feels recognizable, and yet unfamiliar. Like Hong Kong — which combines old and new, Asian and British, the past and the future — and like Scarlett’s character, the Major, who is not quite human and not quite machine.” ●

## ► TECHNICAL SPECS ►

### 1.85:1

### Digital Capture

**Arri Alexa 65, Alexa Mini;  
Point Grey Grasshopper; Vision  
Research Phantom Flex 4K**

**Panavision Sphero 65 (modified),  
Leica Summilux-C**

## SELECT LED 30/20 DMX

Now with Gel presets & Dial-in 360° Colors



2840 North Hollywood Way, Burbank, CA USA [www.kinoflo.com](http://www.kinoflo.com)



# Time Immemorial

Darius Khondji, ASC, AFC  
and director James Gray reteam in  
search of *The Lost City of Z*.

By Iain Marcks

•|•

There's a scene early in *The Lost City of Z* in which Percy Fawcett (Charlie Hunnam), a confident and capable — albeit undecorated — lieutenant in the British Army is commissioned by the Royal Geographic Society to journey to Bolivia. The year is 1906, and Fawcett is portrayed as a loving husband and doting father who enjoys the comfortable life of a provincial English socialite; an "unfortunate choice of ancestors," however, has prevented him from penetrating the aristocracy's inner circle. This assignment, he is warned, is far more than survey work. This is exploration in the jungle, and it may cost him his life — but success would change his lot considerably, and for the better. Fawcett reluctantly accepts the commission, and though he returns, he brings with him an

obsession from which there may be no escape.

This obsession is the essence of the film, says cinematographer Darius Khondji, ASC, AFC, who reunited with director James Gray after their first collaboration on *The Immigrant* (AC June '14). Fawcett, Khondji notes, "was like Don Quixote, reaching for a grail that was always just out of his grasp. This was a key idea we could pursue."

"The story is about the nature of obsession, with fits and starts because that was the rhythm of Fawcett's life," Gray adds. In adapting author David Grann's book *The Lost City of Z* — which carefully recounted the history of Fawcett's multiple journeys to the heart of the Amazon — the filmmakers focused on the episodic nature of the true tale. "We wanted to dramatize the emotion [of] coming and going," says Gray, "and what kind of toll that obsession would take on the hero."

Reviews of the resulting motion picture tend to regard it as classical in execution and straightforward in style. "James has a very modern sensibility, but the result is classic," Khondji affirms.

But, Gray adds, that only describes the movie's form. "Some films are made with a modern stylistic twist but are completely conventional beneath the surface," the director notes. "Then there are the films that are made with a very traditional style, but they challenge our belief systems, our



Opposite: British explorer Percy Fawcett (Charlie Hunnam) manages to block a native's arrow while journeying down the Amazon River in *The Lost City of Z*. This page, left: Following his first expedition to Amazonia, Fawcett addresses the Royal Geographical Society, including RGS President Sir George Goldie (Ian McDiarmid, right). Below: Cinematographer Darius Khondji, ASC, AFC checks his light meter on location.

awareness of what's true, and present a more complex world of motive and desire."

Where *The Immigrant* had been the result of inspirations such as opera, cinema, photography and classical painting, Khondji and Gray wanted to be less reliant on outside references for *The Lost City of Z*. They focused primarily on the actual photographs from Fawcett's expeditions, with additional inspiration found in the Naïve paintings of Henri Rousseau and the Baroque paintings of Claude Lorrain. "Rousseau's paintings of the jungle have, we say in French, *image d'épinal*," Khondji describes. "It means a very lush and almost childish image, filled with hidden things. It was more an inspiration for the idea of the jungle rather than the image itself. Our aesthetic inspiration came from the work of Claude Lorrain, who painted mythical images of skies filled with gold and red and blue."

Khondji and Gray once again elected to shoot on film, using Kodak Vision3 500T 5219 stock — color-corrected in daylight with a Tiffen 812 Warming filter — for the majority of



the production, with some sequences captured on Vision3 200T 5213 and 50D 5203.

"I'm a fan of digital, and I've played the devil's advocate for digital in the past if I thought it was right for the production," says the cinematographer. "It's at least important to bring up the option of shooting digitally, but I'm a film-lover. It's a modern medium, I'm excited to shoot on it, and I will defend

it when we want it."

Early on, though, Khondji did consider shooting night exteriors in the jungle digitally. While prepping the first half of the shoot in Belfast, the cinematographer shot firelight tests with both Arri's Alexa digital camera and 5219 film, pushing the film stock up to 2 stops. "There was hardly any difference at first glance, but when we got closer on the skin we saw little things

# ► Time Immemorial

Right: Fawcett shares a moment with his wife, Nina (Sienna Miller). Below: Director James Gray (gesturing) discusses the scene with Hunnam outside the minimal, blacked-out set, which enabled the shot's silhouette effect.



that we liked better on film," Khondji recalls. "Working with film feels more organic. I can push the negative, I can flash it like we did with *The Immigrant* — and we took flashing much further this time."

Khondji's film flasher of choice is Arri's VariCon, a peripheral unit that occupies two filter slots in an Arri MB-14 matte box. The VariCon uses a variable color and intensity light source to illuminate a glass filter that fogs the image, raising detail and sensitivity in the shadow areas without affecting the midrange or highlights. Khondji knew a large portion of *The Lost City of Z* would

be lit by warm firelight, and he used the VariCon for the film's night exteriors as well as day and night interiors to cool the shadows, giving the negative a blue record that colorist Yvan Lucas could later manipulate in the digital intermediate.

As preproduction continued, Khondji shot his own anamorphic tests. "You're talking to a lens fanatic," he admits, then proceeds to outline his philosophy for selecting optics. "When you choose anamorphic lenses you have to choose the nicest ones, which aren't necessarily the cleanest and the sharpest — they're the most atmospheric. If you

were to photograph the same face with five different 50mm anamorphic lenses, you'd see what I mean. The face will be thinner or fatter, or shrunk or expanded."

For *The Lost City of Z*, Khondji wanted to shoot his close-ups using a wide-angle lens, but without deforming faces, so he asked ASC associate Dan Sasaki — Panavision's vice president of optical engineering and lens strategy — to optimize a 50mm C Series prime for close focus. First AC Eric Swanek worked with Panavision London's Charlie Todman to round out the lens package with stock C Series, 135mm and 180mm E Series, and assorted USG anamorphic primes, as well as an AWZ2 40-80mm (T2.8), an ATZ 70-200mm (T3.5), and an anamorphized Angenieux 25-250mm HR (T3.5) zoom. Panavision London also provided the production with its cameras, including an Arricam ST; two Arricam Lites; and, as a backup camera set to a 172.8-degree shutter, an Arriflex 435 Advanced.

The lenses had to be fast to accommodate shooting by firelight, and Khondji's preference for working at or close to the widest aperture. "With anamorphic I always shoot between T2.5 and T2.8," he comments. "With



The crew shoots with a handheld camera for a scene in which Fawcett and Henry Costin (Robert Pattinson) navigate a raft deeper into Amazonia.

my first movies — *Delicatessen*, *The City of Lost Children* and *Alien: Resurrection* — I was working with Jean-Pierre Jeunet, who loves deep depth of field. But James and I like having backgrounds that aren't very sharp; [it creates] a feeling of 3D in a way, because of the various levels of depth."

As prep gave way to principal photography, the filmmakers quickly realized that they had a very small budget with which to make a very big movie. "*The Immigrant* was good preparation for a movie like *Z*," Khondji offers. "It was a period movie set in New York, and we made it for 12 million [dollars]." Though the budget for *The Lost City of Z* was closer to 30 million, the filmmakers had to make it look like twice that amount on the screen. "Our budget runs out about halfway through the script," the cinematographer quips. The production was forced to cut costs wherever they could in order to channel much-needed time and resources where they were needed most. As a result, the filmmakers would shoot in Northern Ireland instead of England, and Colombia instead of Brazil. Furthermore, Gray's script reduced Fawcett's eight

Amazonian expeditions to three.

With *Game of Thrones* also filming in Northern Ireland, lighting-equipment rentals in Belfast were extremely limited, so U.S. gaffer Frans Weterrings supplied a portion of the gear from his company Red Herring Motion Picture Lighting in Massachusetts, and Irish gaffer Seamus Lynch coordinated the rest with Pinewood Studios, outside London. Principal photography was scheduled for 55 days, beginning with practical interiors around Belfast, which stood in for London at the turn of the 20th century. (The only shot made in London was an exterior of the Royal Geographical Society headquarters.) All the scenes set in Devonshire, in the south of England, were shot in the countrysides around Belfast.

*The Lost City of Z* opens on one of those countrysides, with a scene in which Fawcett takes the trophy in a grand stag hunt. It's the film's first example of Gray's objective correlative, a statement that Western European life accommodates brutality under the pretense of civility. To that end, "James wanted the hunt scene to feel rough and organic," explains Khondji, "not clean or beautiful. Very medieval and raw."

The scene is also one of the film's key set pieces. "It was absolutely crazy to shoot," Gray recalls. "At the time you write the script, you're in your home and you write a line — 'Exterior, Irish countryside, hunt' — without really thinking about what it's going to take, and the next thing you know, you're standing in the middle of some field with dogs and horses." A full-scale mock hunt was staged by some locals, and it took five days to film, with three cameras on the ground and one camera, an Arriflex 35-III, in the air, rigged to a helicopter-mounted Wescam system.

Shortly after this hunt, Fawcett makes his first journey to South America. On this expedition, rumors of an ancient golden city deep within the jungle mingle with the concrete evidence of archaeological finds in remotest Amazonia, leading Fawcett, upon his return home, to publicly suggest the possibility of a lost advanced culture — and with it a lost city, which Fawcett dubs "*Z*" — that predates Western civilization. This notion of an advanced "savage" alternately amuses and offends the public, but also garners interest enough to support a second voyage, this one with the sole purpose of

# ► Time Immemorial



Working on location in Colombia, Hunnam (far background, wearing red poncho) prepares to traverse some rugged terrain as the crew rigs a camera for a high-angle shot of the action.

finding Fawcett's lost city.

The second expedition is cut short after one of its members, James Murray (Angus Macfadyen), succumbs to the jungle's torments, his mind and body alike threatening to break, and lays waste to his fellow explorers' supplies. Fawcett returns to England, where the outbreak of World War I pulls him back into active service, and he goes on to take part in the decisive Somme Offensive of 1916. "It was another way for us to show that the righteousness of Western civilization and civilized behavior was open to question," Gray notes.

According to Khondji, "A lot of the Somme was shot handheld, running with the camera, very down and dirty. We didn't want to do any big crane shots or big camera moves." The cinematographer was inspired by Georg Krause's camerawork in Stanley Kubrick's *Paths of Glory* as well as a visit to London's Imperial War Museum, where he, Gray and production designer Jean-Vincent Puzos researched weapons, uniforms, equipment, diaries and letters, keepsakes and trinkets, photographs, film, and art related to one of the bloodiest wars in human history. "It was more like a horror museum," the cinematographer

remarks. "It showed us how to render a battle scene, to make it look sad and deadly: desaturated, with lots of gray, like charcoal."

The bunkers are dark and damp, with holes scraped into their sides, permitting shafts of light to break up the background. The soldiers sneak a Russian fortune-teller into one of these grim foxholes, where she seems to read Fawcett's thoughts of Amazonia, which she describes as "a vast land bejeweled with peoples." Fawcett replies, "Our world has set itself afire. I must look elsewhere to quench the blaze" — apt words to describe the filmmakers' depiction of the Western Front, blasted and smoky and shimmering with the heat of battle thanks to flame bars that special-effects supervisor David Roddham placed beneath the lens.

All three of Fawcett's visits to the "vast, bejeweled land" were filmed in the Colombian department of Magdalena, along the north slope of the Sierra Nevada de Santa Marta mountains and close to the Rio Don Diego. Puzos and his art department built all of the Colombian locations' sets, including the villages, the rubber plantation Fazenda Jacobina, and the British Embassy.

It was in the jungle that the filmmakers simplified their approach. "We had lenses, sticks and a dolly, but no cranes or big lights," says Khondji. "Because we shot film, we didn't have all of these monitors and workstation cables and things. We just had film stock, a couple of cameras, and lenses."

Natural light was augmented with rentals from Equipment & Film Design in Bogotá and Quixote Boston. Because the Colombian government would not allow the production to airlift generators into the jungle, Khondji and Weterrings had a dozen small 6,500-watt generators trucked in with MacTech LEDs, Octobanks, K 5600 Joker-Bug 800s and 400s, and home-made LiteGear LED assemblies.

The jungle sequences were filmed all along the Rio Don Diego. A normal commute from the equipment truck involved taking a half-dozen 14' boats up the river — sometimes through rapids — to a base camp, and then humping the gear to the set. "If we could get a 6,500 [generator] near set we could bring in the M40 HMI, which enabled me to extend our day with soft light," says Weterrings. "If not, the [battery-powered] MacTechs were used." The production was structured in the European fashion, with key grip Benoit Theunissen in charge of moving the camera and dolly, and Weterrings and rigging gaffer Josh Dreyfus in charge of rigging bounces and overheads.

Along with Rousseau's *images d'épinal*, the Royal Geographic Society's photos from Fawcett's expeditions inspired Khondji to take an extreme approach to photographing the Colombian jungle. "There's a photo of the explorers sitting in a group in the middle of the trees, with beards and big hats, and they're covered in filth — they look completely destroyed by nature," Khondji describes. "That made me think that in the jungle we should try to destroy the negative, to make it feel like they're in the s---. I underexposed in some scenes, and overexposed up to 2 stops in others, so the grain starts to

# YOUR STORY DESERVES TO BE SEEN



## TRY BEFORE YOU BUY

PROFESSIONAL PHOTO, CINEMA & VIDEO EQUIPMENT

Test drive gear for free up to a week. [adorama.com/renttobuy](http://adorama.com/renttobuy)

\*Refund on rental fee applies only to items that Adorama rents and sells. Does not apply to Canon Cinema Line.

For more information or to purchase visit [www.adorama.com](http://www.adorama.com)

Adorama Pro is your complete resource for professional tools,  
in-depth knowledge & product support.



**FREE 1-3 DAY SHIPPING**  
on most orders over \$49\*  
\*details at [adorama.com/shipping](http://adorama.com/shipping)

42 W 18TH ST NYC  
888.582.3900  
[adorama.com](http://adorama.com)

**ADORAMA PRO**

# ► Time Immemorial

Right: Fawcett and his son Jack (Tom Holland) flee from a tribe that's displeased with the explorers' incursion. Below: Gray (standing in front of cameras) offers direction as cast and crew prepare to shoot the scene.



really blow up and you lose detail."

The filmmakers suffered their own struggles with Colombia's balmy equatorial elements. "We all lost weight in the jungle," says Khondji. "Ninety to 100 degrees Fahrenheit, 100-percent humidity. Snakes and spiders and mosquitos. A hard shoot."

Magdalena's rainy season takes place between April and November. *The Lost City of Z* filmed there for six weeks, from September to October, with half of that time spent on the river shooting

raft to raft. There were days when the production had to walk their rafts down the river because the water was too shallow, and days when massive thunderstorms would roll down off the mountains and the river would rise as much as 10', damaging and sometimes completely washing away base camps and sets.

Khondji and producer Anthony Katagas attempted to convince Gray that a Steadicam would make it easier to endure the jungle's uneven terrain and

unpredictable weather, but the director held firm to his commitment to dolly moves only. "Benoit laid tracks everywhere, and the movie looks very different than it would have if we'd shot with a Steadicam," says Khondji. Gilbert Lecluyse, a.k.a. "Berto," was the production's A-camera operator.

One of the sets hit hardest by inclement weather also required the most resources: the sprawling Fazenda Jacobina, home to a powerful Spanish rubber baron (played by Franco Nero) to whom Fawcett and attaché Henry Costin (Robert Pattinson) must appeal for assistance. It's nighttime when Fawcett and Costin arrive at the remote plantation, and they're greeted with an open-air Spanish opera staged upon a makeshift platform and illuminated by firelight. "The idea was to design a red jungle, a fake jungle, inside a real green jungle," says Puzos. "The backdrop of the set is painted with trees and leaves. The idea was that it's part of a hallucination, to guess what is real, what is not." Using space lights, flame bars and strips of MR16 LEDs, Khondji matched Puzos' colors with his own gold and red tones.

When the crew wasn't evacuating under the threat of torrential thunder-

WHERE BEHIND  
THE SCENES  
**IS THE SCENE**



Creative Categories Open May 15!

**Recognizing Excellence in:**  
Color Grading, Editing, Sound, and  
Visual Effects

**And Special Awards for:**  
Engineering Excellence, Creativity &  
Innovation, and Lifetime Achievement

**Mark Your Calendars**  
HPA Awards Gala, November 16, 2017,  
Skirball Cultural Center, Los Angeles,  
California

CELEBRATING  
talent, craft, and innovation  
for 12 years.

THIS IS YOUR MOMENT  
to step into the spotlight. But you  
have to enter to win.

CREATIVE CATEGORY  
entries accepted until July 10, 2017

ENTER NOW!

For information or to enter visit:

[hpaawards.net](http://hpaawards.net)

Foundation Members:



Corporate Sponsors:



# ► Time Immemorial



**Khondji (left, standing on platform) surveys the scene for the torch-lit ceremony that marks the end of Fawcett's explorations.**

storms, Khondji lit the nighttime locale with everything they had on hand, including flame bars, Octobanks fitted with LiteGear LEDs, MacTech LED units, covered wagons, Jem balls, and nine-lights. Wide shots of the

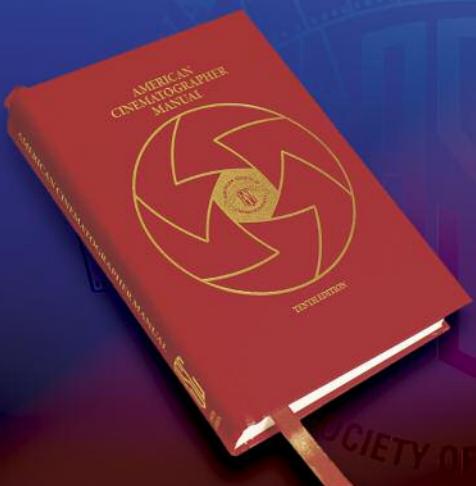
compound were lit with 12-light Maxi-Brutes on a Genie Z-135 cherry picker, and a 20K atop a 40' scaffolding.

Each venture into Amazonia further ossifies Fawcett's determination to locate his lost city, and as his search

for the truth of Z takes him farther from home, his connection to the realities of Western life becomes increasingly tenuous. The filmmakers reflected this change with a gradually increasing sense of poetic detachment. As examples, Gray points out scenes such as the one where Fawcett watches his elder son Jack (Tom Holland) hunt a rabbit to the strains of Gabriel Fauré's "Requiem," or the idealized depictions of Amazonian natives welcoming Fawcett on the occasion of his fateful third expedition, on which Jack has joined him. "All of that was an attempt to introduce a lyrical aspect into the film as it progressed," explains Gray. "As Fawcett's life unfolded there was a level of understanding that he seemed to come to, especially towards the end."

Fawcett and Jack's earthly journey reaches its terminus in an isolated village of headhunters, who capture the two explorers and, in a nighttime torch-lit ceremony, carry them down from the

## The 10th Edition of the American Cinematographer Manual



- Digital capture and workflow terminology
- The explosion of prosumer cameras in professional use
- Previsualization
- 3-D capture
- LED lighting
- The Academy Color Encoding Specification (ACES)
- Digital camera prep and more!

- 6" x 9", Full Color
- Hardbound edition – 998 pages
- Two-Volume Paperback  
Volume One – 500 pages  
Volume Two – 566 pages
- iPad ebook
- Kindle ebook

The AC Manual is available in a hardbound edition, iPad and Kindle editions, and a two-volume print-on-demand paperback.

available at [www.theasc.com](http://www.theasc.com)

mountain to the river “to find a home for their spirits.” The scene was designed by Khondji and Puzos after they discovered there was no manner of road by which to bring a generator into the area. As a result, Khondji reveals, “We designed the scene to be lit entirely with fire and torches. No electrical light at all.” Weterrings and Roddham held flame bars offscreen to accentuate the torches held by on-screen actors.

The VariCon, Swanek notes, “was not used during these final scenes. The humidity was so high that the filters were fogging and the photo-black tape used to hold the filter pack together wouldn’t stick.” Instead, Khondji simply pushed the film 1 stop to boost its sensitivity. “It doesn’t have that distressed look to it,” the cinematographer observes. “It was smoky so you see there is a texture, but with 5219, when you have deep blacks and high contrast, you don’t see so much grain. I pushed all of the jungle day [scenes] 1 stop, and the

nights sometimes 2 stops.”

Getting the production’s dailies out of the jungle was an expedition all its own. Footage traveled from Santa Marta to Bogotá, then to the U.K. every two days for processing at Cinelab London, followed by coloring with Alex Gascoigne at Technicolor London. Yvan Lucas performed the final digital color grade at Shed in Los Angeles, by which point Khondji was shooting his next film, director Bong Joon-ho’s *Okja*.

Reflecting on the journey he and his collaborators undertook for *The Lost City of Z*, Khondji suggests that, essentially, they were after the same thing as Fawcett — the rediscovery of a lost time — although they went about their pursuit in a far different manner. “I could’ve never done this without James Gray,” the cinematographer stresses. “We entered this film on another level. On an adventure like this, you have to go with someone as crazy as you are.”

## ► TECHNICAL SPECS ◀

**2.39:1**

**Anamorphic 35mm**

**Arricam ST, Lite; Arriflex 35-III, 435 Advanced**

**Panavision C Series, E Series, USG, AWZ2, ATZ; Angenieux**

**Kodak Vision3 500T 5219, 200T 5213, 50D 5203**

**Digital Intermediate**





# Survival Story

AC visits the Catalonia set of *The Promise*, where Spanish cinematographer Javier Aguirresarobe, ASC, AEC shoots Terry George's "indie epic" about love and survival amid the Armenian genocide.

By Fred Schruers

•|•

The Sant Ferran Castle is a stone fortress planted on a hilltop in picturesque Figueres, Catalonia. More stronghold than royal estate, it's a series of blocky bastions planted within a rectangular perimeter of about two miles. Massive as it is, tourists are warned that given its many cramped interior spaces, the guided tours are not for claustrophobes.

Though crammed behind an Arri Alexa XT in one of a row of 250 stone horse-stalls that line a jam-packed set, cinematographer Javier Aguirresarobe, ASC, AEC seems comfortable enough this evening during the making of *The Promise*. He's admiring what his team, along with the set dressers and costumers, have done for this scene, which is meant to convey the infamous evening of April 24, 1915, in Constantinople — a night that's been compared to Nazi Germany's Kristallnacht — when the roundup and massacre

of the Armenians who shared space with Turks in the former Ottoman Empire commenced in deadly earnest.

"We lit the entire hallway," Aguirresarobe says, gesturing to the left where a horde of fictional ruffians — looking real enough as they stamp their feet in the chill and covertly suck the odd cigarette — are gathered. "We used fluorescents, hidden behind people or the columns. We helped diffuse that with a little bit of haze for ambiance, and the camera can discover that aged façade behind the shops."

That waiting mob of extras dressed and designated as Turks will, seconds from now, storm through a grand bazaar. "Action" will be signaled with a whistle, and the rampage will commence down the densely packed shops full of Armenian merchants' food, rugs, kitchen goods and tchotchkies. They'll chase the B-camera operator down a dolly track and rage toward a retreating Steadicam, passing by Aguirresarobe's own camera position en route — as the three Arris intermittently overcrank to 50 fps — finally reaching an impressively prosperous rug shop at the hallway's end. There they'll set upon the proprietor, who is uncle to the screenplay's main protagonist, Michael Boghosian (Oscar Isaac).

[Editor's note: This account of AC's set visit contains spoilers.]

In an anteroom just beyond the rug shop, director Terry George is camped out near video village. As a practice, Aguirresarobe would visit him there and also stop by the tent where the DIT, Ariana Bonavia, stays busy, but tonight they're more or less trapped at their stations on the chockablock set.

George offers his thoughts on the movie's cinematographer: "I would say Javier is a director of photography in the European tradition, in that he's controlling the overall look of the picture itself, painting the scene and then letting the operators do their work. I think that's more of a European thing. We had great operators." Graham Hall, David Dominguez and David Hamilton-Green served as A-camera, B-camera



Set against the backdrop of the Armenian genocide, the feature *The Promise* focuses on a love triangle between Armenian medical student Michael Boghosian (Oscar Isaac, opposite), Armenian artist Ana Khesarian (Charlotte Le Bon, top left) and American journalist Chris Myers (Christian Bale, top right).  
Above: Cinematographer Javier Aguirresarobe, ASC, AEC hand-holds an Arri Alexa XT camera.

and Steadicam operators, respectively.

Asked if his statement relates to the British term "lighting cameraman," the director responds, "Yes, that's a good description of it. I think American directors have a more collaborative [process with] the operators, the cinematographer and the director."

This, George adds, is anything but a criticism of his director of photography. Given the pace of the production,

which had just 72 shooting days in order to stay within a reported estimated \$100 million budget — and to sandwich in lead actor Isaac between his work on the franchise behemoths *Star Wars: The Force Awakens* and *X-Men: Apocalypse* — the company needed to set a brisk pace right down to the number of takes, which was generally kept to under six. "Even in our enormous scenes, Javier was up to the task," George says. ➤

# ► Survival Story



Top: Michael arrives in the cosmopolitan hub of Constantinople, little knowing the city will soon be engulfed in chaos. Bottom: A secret romance blossoms between Michael and Ana.

This evening marks day 61, and except for brief stops in period-friendly outposts like Lisbon and Malta, most of the production has been shot in Aguirresarobe's home country of Spain, and logically enough with a crew consisting mainly of his fellow natives. "He's home in his backyard," says producer Mike Medavoy, who brought his experience of more than 300 pictures to *The Promise*, which was co-written by the director and Robin Swicord.

To mount and finance a picture with the unusual tag of "indie epic,"

Medavoy teamed with neophyte producer Eric Esrailian — a high-ranking UCLA physician who brought not just surprising film savvy, but a sizable production war chest bequeathed by fellow Armenian Kirk Kerkorian, who died in mid-2015. Medavoy adds that the benefits of Aguirresarobe's birthright were augmented by "Javier's great sense of light and where the camera belongs to tell the story."

Aguirresarobe was born in 1948 in the small Basque city of Eibar — 400 miles northwest of this fort, where Salvador Dali was once quartered as a

soldier. After getting his feet wet as a still photographer, Aguirresarobe launched into a steady stream of largely Spanish productions before winning his first wide notice in Hollywood with Alejandro Amenábar's brooding 2001 psychological thriller *The Others*. Admired for his innovative schemes to keep the largely room-bound *The Sea Inside* visually intriguing, he did his first Woody Allen picture, *Vicky Cristina Barcelona*, in 2008; got a couple of *Twilight Saga* franchise productions under his belt; and was lauded, along with Allen, for the director's acclaimed comedy-drama *Blue Jasmine*.

Even during a turbulent filmic challenge like tonight's, says George, there's a calmness to how the cinematographer organizes his department. The vibe fits the show's cinematic style. "We've always wanted [the production] to have a classic look, without shaking the camera or moving it around a lot," the director notes. Other than some of the film's bigger action scenarios, he adds, most sequences were not extensively storyboarded, and even for a Constantinople street brawl that occurs onscreen soon after tonight's depiction of the riot in the bazaar — a sequence featuring Isaac and co-star Charlotte Le Bon — the action beats would often unfold ad hoc, rapidly blocked on set.

"Normally you would get in and choreograph," George says, "but we didn't have the time for the choreographing of, particularly, the fight scenes and so forth. You'd break them down, but we just didn't have the luxury of time, so basically you trust the actors, say 'Go,' and hope you got it — then it's off to the edit room. Given our schedule, it was more, 'Go for it, guys.'"

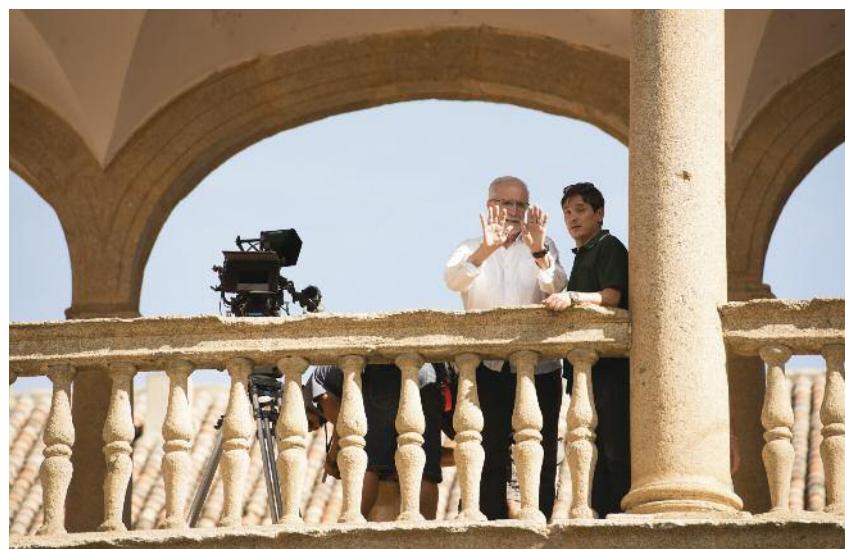
Aguirresarobe gives the film's three principal actors top marks for aiding that process. Christian Bale plays American Associated Press journalist Chris Myers, who reports on and protests the Turkish atrocities amid dangerous conditions — while also becoming entangled in a love triangle. Even given Bale's extensive experience, Aguirresarobe says he was struck by the

actor's level of craft. "It was a great luxury and enormous luck to work with such skillful actors on set," the cinematographer says. "Christian was incredible in terms of his emotion, his movements, hitting marks.

"Surprisingly marvelous," he continues, "was Charlotte Le Bon's performance. Her ability to express complex feelings in delicate scenes; how she grew when faced with difficulties; and her generosity in confronting scenes that were physically demanding — for example, the scene in the water tank — were extraordinary. There was a great relationship and collaboration between the three actors and in the vibe they created for the whole movie, even and especially on the tough days."

Informed of the cinematographer's praise, Bale seems almost flummoxed: "It's very nice of him to say that — but maybe there was a translation problem there. He probably thought you asked who was the *least* savvy." Bale laughs and adds, "It's really funny because I never pay attention to any of that. Like, I remember the first day of filming and a camera operator, who is a friend of mine from way back, kept saying, 'Christian, are you even looking to see if I have marks on the ground?' I never ask what lens it is, I never care if it's a close-up or wide shot. I know it matters to a lot of people and it changes what they do. To me it doesn't change anything, so I never ask about it. I don't think about it; half the time they come up to me and go, 'You know the camera is *this* way, [but] you're doing everything *that* way.'

Executive producer Ralph Winter, who came up the producing chain with a row of pictures from the *X-Men* series to his credit, confirms that Bale's being overly modest. He adds that the actors' good will was matched by their director of photography's. For various scenes shot in old-fashioned towns that stood in for period cities, he says, "We wanted the tight streets, but those are tough, and Javier's done a great job of that. It's interesting to watch him light; it's mostly from the



**Top:** Aguirresarobe takes in the courtyard of the Hospital de Tavera in the Spanish city of Toledo. **Bottom:** The cinematographer lines up a shot from the courtyard's second level.

floor level and not much overhead — a kind of old-fashioned lighting that's beautiful and painterly, but he's fast and the crew loves him. He's very well respected here in Spain."

*The Promise* employs Arri Alexa XT cameras, notes Winter, who pays close heed to the gear. The production generally has three cameras on — usually one as Steadicam. The XTs are paired with Arri/Zeiss Master Primes, as well as Angenieux Optimo 24-290mm (T2.8) zooms. The cameras shoot in Open Gate mode, capturing to 3.4K ArriRaw and framing for a 2.39:1

aspect ratio.

"We use a drone every once in a while," Winters continues. "I was a little skeptical, but it turned out better than I thought. Ours had eight rotors, and it's about 5 feet square. It holds a Red Epic Dragon camera with all the gear, so it's got to have a lot of lift to pick up that camera, and it has a little gyro to keep it stable. Drones tend to be flitting around a little more as compared to helicopters, which feels like an unnatural camera move — but if you slow down and start to drift or push in slowly, the shots start to look more cinematic. It feels like

# Survival Story

Right: Michael and Ana reunite after a long time apart. Below: Aguirresarobe and crew ready a village set.



you're saying something important now. It will be interesting to see how many [of those] shots get in the movie." The drone-mounted Epic Dragon camera captured at 5.5K resolution.

Tonight's free-of-aerials set, he adds, exploits half of what was once space for more than 400 horses. "The stable allows us that wonderful colonnade look you wouldn't get otherwise," he enthuses. "That's thanks to our production designer, Benjamín Fernández, who worked on *Lawrence of Arabia* and *Doctor Zhivago*; he and the set decorator, Pilar Revuelta, have done a great job putting that together." Surrounding the stable are sprawling barracks that once housed 6,000 troops,

with a huge reservoir of drinking water beneath. "Napoleon destroyed the other stable," Winter remarks.

Fernández is both modest and quick to share a recollection of how he came to be something of an iconic figure, in a career stretching from his early days with David Lean through multiple jobs with Ridley Scott. For *Gladiator* (2000), one of his creations was the dusty provincial arena where the fighters first trained, and he was responsible for similarly large-scale settings for *Exodus: Gods and Kings*. He joined the world of cinema early in life. "I was 17, studying architecture," he says, "and my father was a carpenter on different sets, doing flats. When *Lawrence* came to

Spain, I got some work on that film ..." The rest, his shrug would denote, is history.

He extends an invitation to pay a followup set visit the next morning for a crucial scene: Myers' jail-cell conversation with his and Boghosian's rebellious Turkish friend, Emre (Marwan Kenzari) — a sequence that depicts Myers' refusal to compromise his stance even at the risk of his own life. The sequence will be the onscreen lead-in to a scene shot the previous day depicting Emre's execution, following his defiance of the generals and politicians who ultimately led what the Turkish government has long refused to call a genocide.

The whistle sounds and tonight's rampage plays out convincingly. Despite the bedlam that fills the crowded colonnade, the action won't play onscreen as the noisily kinetic riot it feels like in the moment. In fact, George's motive for overcranking is to provide some slo-mo footage that intercuts, with dark irony, with the simultaneously unfolding scene of a classical voice recital elsewhere in the city in an ornate Armenian church.

Moments after the sequence is completed, co-producer Edward McGurn, another industry veteran, is en route to the trailer where Medavoy is installed. Having just witnessed the powerful scene being shot, he wants to share his thoughts about the cinematographer. "He has done an amazing job — a painter of light," McGurn says. "In the passion he has for his work, he really is an artist. We were so enthusiastic about working with him, especially having seen his work on *The Others* — all that haunting imagery — and similarly on *The Road* and *The Sea Inside*. To make those enclosed spaces so interesting, and to do what he can do with exteriors, and marry those two is impressive. Then there's his entirely different vocabulary with Woody."

In the near distance, the production army — with Aguirresarobe in the lead — is on the move to take a last look at the terrain where tomorrow's action will unfold. "The crew loves him," McGurn continues, "because he's so

open and so willing to share what he's learned and what his approach is. He's got a very rare passion for what he does, and he's very attuned to the emotional beats of a scene and a film. [It's great] to get in the tent with him and watch him tweak — the image is always evolving." McGurn pauses and makes an admission not every busy producer would: "Sometimes I just go in there and hang out with him and watch."

Aguirresarobe, satisfied with what he's captured this evening, is anticipating the morning's work, conferring with his camera department to determine which gear would be optimal for shooting the intense face-to-face dialogue in the confines of a jail-cell setting. Despite a slight, barely noticeable fatigue — "at this stage everybody's tired," he admits — he closes with a typically warm smile and says, "We'll see."

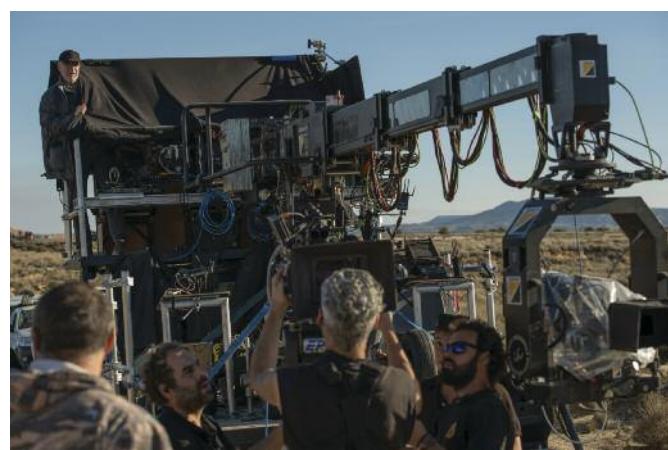
\*\*\*

Crew call for this early-December day is 8 a.m., one minute after sunrise, and the weather is headed for a sunny 52 degrees. The monumental fortress is once again closed to tourists, and grips and electricians scurry about preparing an interior.

"This fort was conquered by the French in 1794," notes the amiable Fernández. The French apparently nicknamed it "useless beauty," but were willing to quarter there for several years. Today the location will be used to shoot the prison scene between Myers and Emre.

George and his cinematographer huddle for a few minutes at the entryway to a dauntingly small room in which Emre must try to convince Myers to sign a life-saving document that contradicts all the courageous reporting of his recently filed AP stories. Aguirresarobe studies angles and gets some readings.

"I switched it from the room we originally scouted," George says of the setting. "The walls were too flat and just didn't give the sense of the time period, the sense of it being almost like a dungeon in a military headquarters. But also, to show the passage of time, we



Above: Chris reports on the mounting geopolitical tensions while attempting to aid his friends.  
Left:  
Aguirresarobe supervises from behind a 23' Scorpio telescopic crane as the crew readies multiple cameras.

needed to create morning light, for which Javier is always great. You want depth, you want texture, but at the same time the bulk of the scene plays in the close-up. I didn't want to move the camera a lot — we didn't really have the space to do that — so it was all about light, texture, background, and capturing those close-in moments."

"At the start of production, Terry and I had a long conversation about lighting the night scenes," Aguirresarobe says. "Terry commented that even though electric lighting existed at the time — mainly in the cities, both inside and outside — his preference was not to use it, thus affording the film a more authentic and dramatic atmosphere of shadows and nocturnal semi-darkness.

"For the many scenes we had with dark interiors," Aguirresarobe continues,

"[when we worked] with just candlelight and firelight and things like that, the Alexa at a T-stop of 1.4 can see more than the human eye. Under those kinds of circumstances, the use of the light meter is not necessary. The challenge with these scenes in dark environments comes when you have any kind of highlights, because any highlight that goes above the ambient light you're using — whether candle or fire — becomes something you have to control and be very, very careful about. Sometimes you have to elevate a little with a key light in order to control those bits that can become a very hot spot in the image. You need to take great care to find the right balance in those dark environments."

George credits Aguirresarobe with masterfully capturing "all the information we might need," which was

# ► Survival Story



Aguirresarobe and crew set the camera for a shot overlooking the Spanish town of Albarracín.

essential — since when it came time for digital-intermediate work, the cinematographer was already off in Sydney, Australia, to work on Marvel's *Thor: Ragnarok*. Much of the DI — which George closely oversaw — was assisted by visual-effects supervisor Mark Russell and his team, with Aguirresarobe getting a late-stages look to sign off. "The DI is helpful to achieve a greater depth and intensity in the image," the cinematographer notes, "because it allows you to work on areas in the frame that cannot be so precisely defined on set when shooting quickly."

Sixteen19's senior colorist Andrew Francis completed the final grade at the XT's 3.4K, 12-bit native resolution with Blackmagic Design DaVinci Resolve, for a 2K DCP final theatrical deliverable.

One of the most complicated scenes of the movie took place "in what is the biggest water tank for film shoots," Aguirresarobe says, located in the noted modern film-mecca of Malta. The cinematographer had to light the film's three principals amid complex action in that giant, darkened tank, where mechanically churned waves simulated a choppy ocean shoreline. "The scene required a moonlit night," he says. "The boats approached from the background into

the foreground — a real challenge when it comes to set lighting. I opted for back-lighting with an 18K HMI Fresnel as the main source to re-create the moon, and added a softer lateral lighting along the entire side of the tank. For that, I used bounced lighting, normally with 12K and several 9K HMIs. Once the boats were close to camera, we used a softer and more diffuse lighting."

To further complicate matters, Aguirresarobe adds, "normally when you shoot a scene like this, the boat our actors were in would be static — with the water and cameras moving — and that will create all the tension and all the movement. But in this case, because we wanted to create an environment where the actors can clearly communicate and express profound emotions, we underscored the situation by moving the boat, which was much more difficult for lighting."

The cinematographer reports that for a sequence involving a fatal immersion that one of the principals would enact, "we used the Technocrane 50 with an Amphibian Remote Head. The Alexa camera was protected by a Scubacam, with the possibility of immersion up to 4 feet. Much of the time the characters were far from the light, so you know you'll need to rely on the DI at some

stage. In these cases, you want to be sure you have the full information from the camera, so you can be sure you can use it all later in the DI phase."

Le Bon, a French Canadian, impressed all with her moxie during repeated dunkings. "We worked with Mike Valentine [BSC], who's a really good underwater [director of photography]," she says. "He did all these James Bond movies. He works with his wife; they talk to you underwater with signs, and to answer, you just do signs. We did lots of takes; they'd give me oxygen and then take it back. It's very 'Zen' — you have to focus on your breathing."

In concert with the shooting challenges, determining just how to portray the death of a central character during the drowning scene — and that death's aftermath — would bedevil the filmmakers all through the late-editing stages. Editor Steven Rosenblum, who was steadfastly cutting in Madrid all through the shoot as it roamed to its various locations, purposely kept to his normal practice of avoiding the set.

"If I'm going to cut something that took them a hard half-day to shoot, I'd rather not know that," Rosenblum says. Indeed, for another sequence — depicting Boghosian riding a donkey from his picturesque rural village into the hills, as he forges ahead to his new life in Constantinople — Rosenblum used "roughly half" of an elaborate crane shot, which he then mixed with a low angle on man and beast.

\*\*\*

Of all AC witnessed on the set of *The Promise* — a movie steeped in the study of survival amid human cruelty — the ominous image of the words "Emre faces firing squad" on the call sheet still stands out. For the scene, George had set Aguirresarobe the task of helping to compose a shot that wouldn't be shocking enough to knock the film out of its much-desired PG-13 rating, but would nevertheless "always, always [strive for] a sense of realism and something authentic," says the cinematographer. "Mostly what I want to show for this man is

extreme isolation. To get the isolation of the character, Terry suggested two looks. The first was very wide — a 14mm lens and a side angle of him against the wall facing the firing squad.”

George adds, “I wanted to open with that long shot. It’s a scene that’s been done in hundreds of movies, but at the same time you need to set the context of it, and the loneliness. We stuck some soldiers way back on the top of a parapet, so that with so much depth of field we could really feel it. Then we move to the close-up on Emre’s face and slowly push in on it, just to see the realization of what he was about to face, and played the rest of the scene pretty much on his face as you wait for the squad to fire. Then you pull back very quickly. I wanted that wide shot to fall back on, because I really wanted the PG-13 rating, and at the same time you’re trying to convey the loneliness, the horror, the fear. By having that wide shot where you can use the special effects of the dust coming off the wall behind him, and the fact that Emre had no shoes on — all these things just to convey the loneliness of [his situation] without going for blood-splatter or anything like that.”

With that key high-drama sequence now in the can; a brutal night of destruction aptly captured; and the successful shooting of Bale and Kenzari’s intense, enclosed performance — scenes that exemplified both the story’s social consciousness and its emotional core — the company seems to collectively exhale. ●

## ► TECHNICAL SPECS ►

**2.39:1**

**Digital Capture**

**Alexa XT, Red Epic Dragon**

**Arri/Zeiss Master Prime,  
Angenieux Optimo**



**Come visit our showroom or call for our latest Magliner product catalog**  
We are the largest retailer specializing in Magliner customized products and accessories for the Film and Television Industry in the world

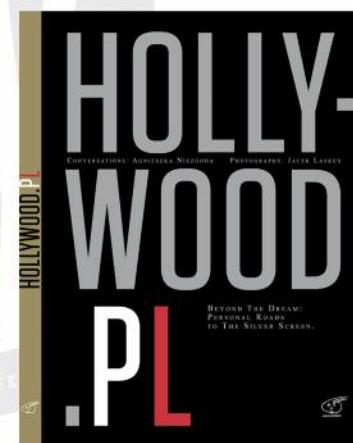


See us at Cine Gear Expo • The Studios at Paramount • June 2 - 3, 2017 (Booth #92)

Backstage Equipment, Inc. • 8052 Lankershim Bl. • North Hollywood, CA 91605 • (818) 504-6026 • Fax (818) 504-6180 • backstage@eol.com • www.backstageweb.com

## HOLLYWOOD.PL Beyond the Dream: Personal Roads to the Silver Screen

The incredible stories of 23 acclaimed Polish filmmakers that collectively reveal a nuanced narrative about the immigrant experience, finding happiness and making dreams come true.



Each filmmaker has left an indelible mark in Hollywood. They are winners of Academy Awards, Golden Globes and Emmys; visionaries, luminaries and undeniable talents. Among those featured are directors Agnieszka Holland (*In Darkness*), Roman Polanski (*Chinatown*) and Zbig Rybczynski (*Tango*); composers Jan A.P. Kaczmarek (*Finding Neverland*) and Abel Korzeniowski (*A Single Man*); directors of photography Adam Holender (*Midnight Cowboy*), Slawomir Idziak (*Black Hawk Down*) and Dariusz Wolski (*Pirates of the Caribbean*); production designers and costume designers Allan Starski (*Schindler's List*), Waldemar Kalinowski (*Leaving Las Vegas*) and Anna B. Sheppard (*Inglourious Basterds*); and many more.



**THE ASC STORE**  
WWW.THEASC.COM



# Practical Optics: Introduction to Anamorphic

*AC* continues its series of introductory articles about optics with this primer on four of the fundamental aspects of anamorphic lenses.

By Benjamin B

•|•

The aim of this ongoing series of articles is to share a simple and practical investigation of optical topics by shooting tests that can be easily reproduced by students. In my first article (*AC* April '16) and its associated blog posts (at *thefilmbook* on [www.theasc.com](http://www.theasc.com)), we addressed the changes in perspective created by different sensor sizes. This article offers an introductory comparison between anamorphic and spherical lenses.

I must stress that anamorphic cinematography is a rich and complex topic, and our tests here only address four very basic aspects: angle of view, depth of field, bokehs and flares. Note too that this article is addressed to students of optics more so than experienced filmmakers.

## 1. Anamorphic, Briefly

Unlike ordinary spherical lenses, anamorphic lenses include an additional optical element that either squeezes the image horizontally, without changing the image vertically, or stretches the image vertically, leaving the horizontal alone. In traditional anamorphic the ratio of this horizontal squeeze is 2:1. Note that there are other squeeze ratios; for example, Vantage offers Hawk V-Lite lenses with a 1.3:1 squeeze — separate from the company's traditional 2:1-squeezed V-Lites — while Ultra Panavision 70 involves a 1.25:1 squeeze.

The traditional 2x anamorphic squeeze was popularized in Hollywood in the 1950s at a time when television was starting to threaten movie attendance. The idea was to get an optically squeezed wider frame onto 4-perf film with a squareish negative image area. The image was then un-squeezed at



the theater by the film projector's lens. Initially the anamorphic aspect ratio was 2.35:1, but evolved to 2.39:1, or 2.40 for short. The aspect ratio of the squeezed image is half that — at 1.196, or 1.2:1 — and fits snuggly into the 1.37:1 negative area of sound film.

When cinema made the transition to digital at the turn of this century, it was far from clear that anamorphic would survive as an important format, because the initial digital cameras had sensors targeting a 1.78:1 ratio, which was a poor fit for the 1.2:1 anamorphically squeezed image.

One of the important innovations of Arri's Alexa camera was a "4 by 3" sensor mode, which was specifically designed to accommodate anamorphic, with an imaging area similar to 35mm film. Thanks to this and efforts from other digital-camera manufacturers, digital anamorphic is a vibrant standard today. Indeed, some filmmakers are even using anamorphic lenses on 1.78:1 sensors, with a tighter angle of view than traditional anamorphic.

The ideas in this article are the result of my collaboration with two friends: Patrick Leplat, director of operations and technical marketing at Panavision Alga in Paris, and cinematographer Pierre-Hugues Galien, AFC. Patrick was one of the early



promoters of using anamorphic lenses with nontraditional sensor sizes and shapes, notably with Red cameras. Patrick kindly loaned us the equipment and let us shoot in Panavision's rental facility, where I used to work many years ago.

## 2. Test Setup and Crew

In our tests we shot with traditional 2x anamorphic lenses on an Arri Alexa XT, and compared them to spherical lenses framed for 2.39:1 on the same camera. We were fortunate to shoot with Panavision anamorphic lenses: Primo Anamorphic Primes, an E Series 135mm, an ALZ11 48-550mm (T4.5) 11:1 Primo Anamorphic Zoom, and an AWZ2.3 37-85mm (T2.8) anamorphic

zoom. For spherical lenses we used Primo primes. Our ArriRaw frames were timed, selected and transferred to TIFF using the Panavision Rush Management system developed at Panavision Alga.

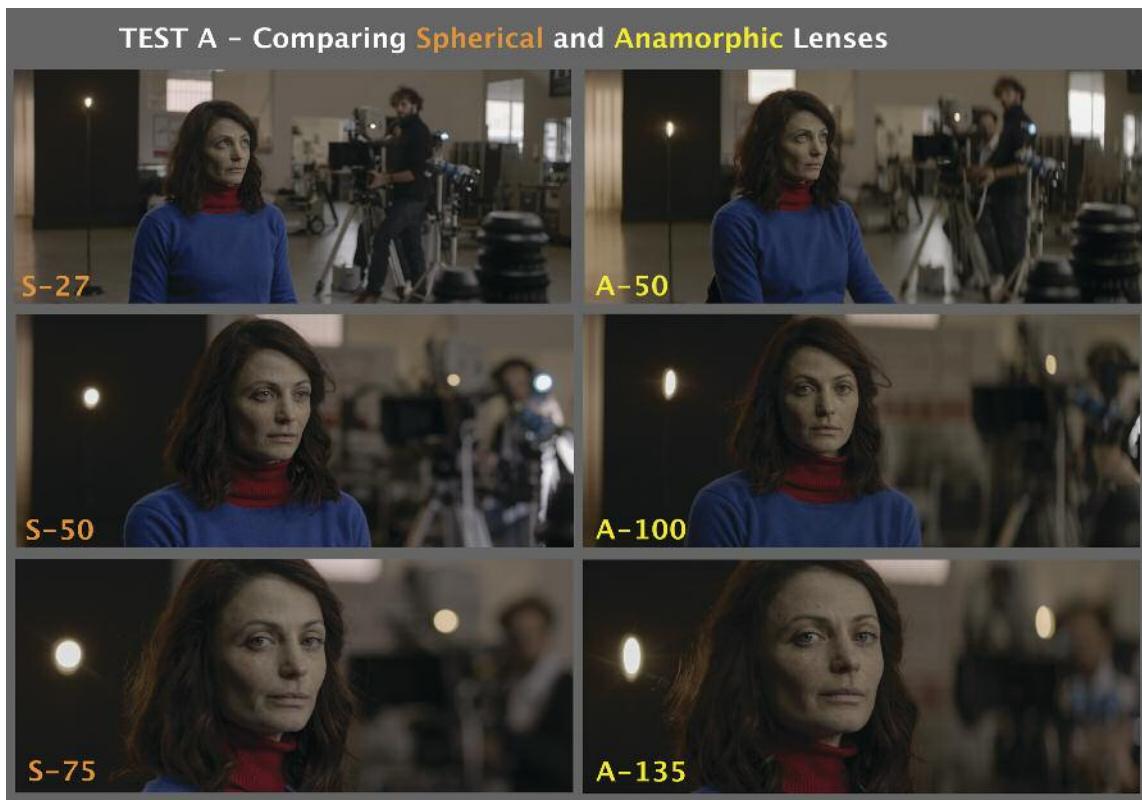
Pierre-Hugues Galien is an up-and-coming cinematographer whose credits include *Maintenant ou Jamais* (*Now or Never*, directed by Serge Frydman), *Tout Pour Être Heureux* (*Dad in Training*, by Cyril Gelblat), *Au Plus Près du Soleil* (*Too Close to Our Son*, by Yves Angelo) and *Jour J (D Day*, by Reem Kherici). Pierre-Hugues shoots both film and digital, and his work involves a special focus on emulating 35mm looks with digital images.

Pierre-Hugues gathered a

**Opposite:** Benoît Meignan (left) and Emmanuelle Vivier, shot with a 50mm Primo Anamorphic prime at Panavision Alga in Paris. This page, clockwise from far left: Cinematographer Pierre-Hugues Galien, AFC; 1st AC René-Pierre Rouaux; Meignan; Vivier; camera assistant Adrien Guillaume; and Panavision Alga's Patrick Leplat.

# ► Practical Optics: Introduction to Anamorphic

Right: Test A compared spherical lenses (designated with an "S" in the left-hand column) and anamorphic lenses (designated with an "A" in the right-hand column), and illustrated the different bokehs of each. Below: Test B examined the differences between rear and front anamorphs.



## TEST B – Anamorphic zooms: rear versus front anamorphs

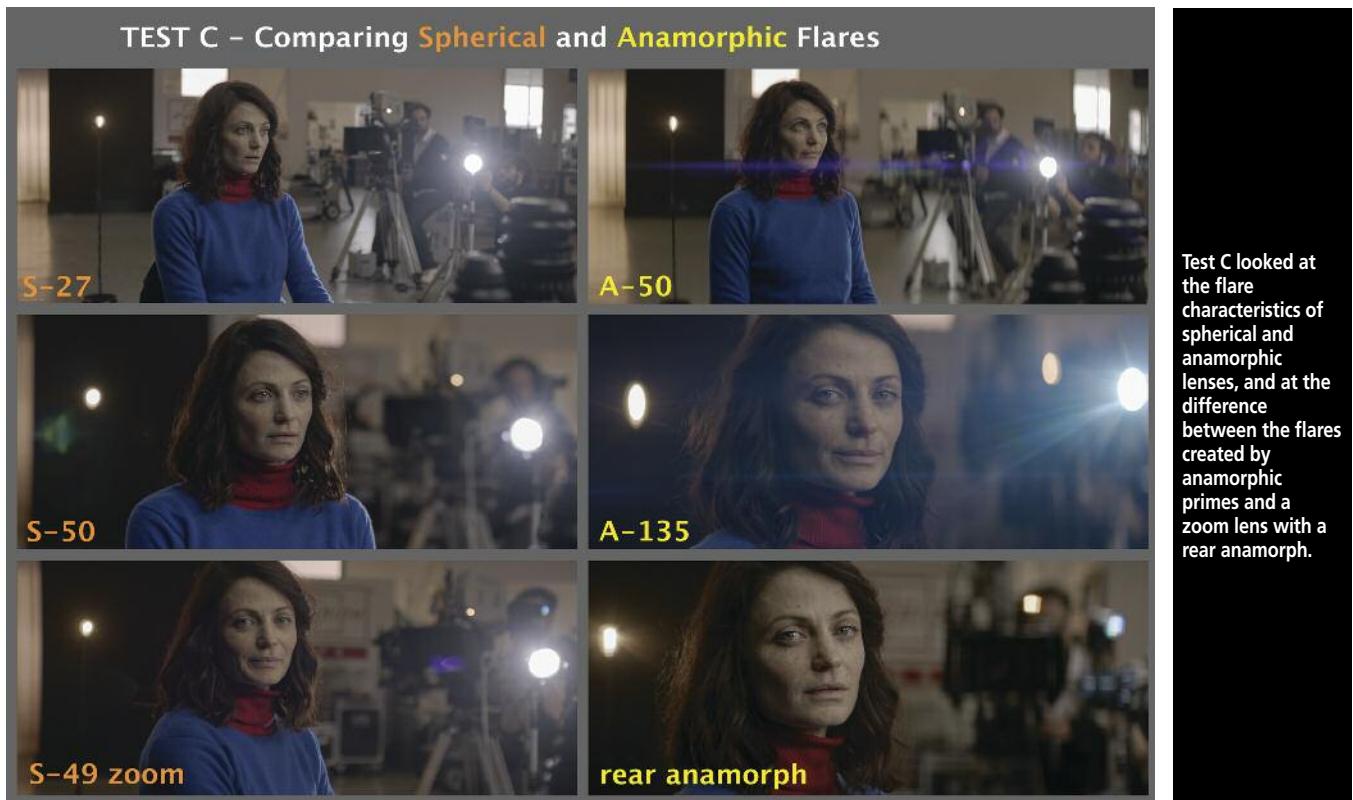


talented crew for the shoot at Panavision Paris. Our tests were prepped and shot by 1st AC René-Pierre Rouaux and 2nd AC Benoît Meignan. René-Pierre's credits include the Luc Besson films *Lucy* and *Valerian*, and *Florida*, by Philippe Le Guay. Benoît also worked on *Lucy*, and other films including *Wine Wars*, by Leon Lai. On the day of the shoot our on-camera talent included Emmanuelle Vivier (an emerging cinematographer who has worked as an electrician and camera assistant), camera assistant Adrien Guillaume, and Benoît.

We set up in Panavision Alga's grip area for the test. We placed a person in the foreground (first Emmanuelle, then Benoît) at about 4' from

camera. Because we wanted to evaluate the out-of-focus image, we put Adrien in the background, operating a Millennium XL 35mm film camera, about 18' away from the Alexa. A third person (first Benoît, then Emmanuelle) then ran a focus tape between the background and foreground. You can evaluate the depth-of-field changes in more detail by viewing the video footage on the associated blog post.

Pierre-Hugues' lighting complemented the ambient daylight in Panavision Paris; my thanks to Yann Blitte and my friends at Panalux France for providing the gear. Pierre-Hugues placed a DMG Lumière SL1 Switch LED fixture as a key on the foreground person, and a Mini Switch at the XL camera; he added a K 5600 800-watt Joker-Bug to cover the entire scene. All three sources were outfitted with Chimeras to create soft daylight. We also added a bare lightbulb on camera left and a Panalens light on the XL camera to create luminous bokehs. We shot every lens wide open to create soft-focus areas.



### 3. Test A, Part 1 – Spherical vs. Anamorphic

In our first test we compared three sets of spherical and anamorphic lenses, all at the same distance to our subjects. (The spherical shots are on the left, indicated by an orange “S,” and the anamorphic are on the right, indicated by a yellow “A.”)

Because of their twofold squeeze, anamorphic lenses have a horizontal angle of view that is twice as wide as a spherical lens of the same focal length at the same camera position.

This bears out in our first test. The spherical lenses have angles of view similar to anamorphic lenses with twice the focal length. For example S-75 (a 75mm spherical lens) has about the same horizontal angle of view as A-135 (a 135mm anamorphic lens). Note that we started our comparison with prime lenses and didn’t have access to a 150mm anamorphic.

One way to think about an anamorphic lens is to say that it combines the properties of two different spherical lenses:

- A depth of field similar to that of a spherical lens with the same focal length (admittedly, this is an oversimplification, but a useful one given the narrow scope of this particular test; in fact, anamorphic lenses display different depths of field vertically, horizontally and diagonally — in other words, it’s complicated)
- An angle of view similar to that of a spherical lens with half the focal length

In this example, the anamorphic 50mm has an angle of view similar to the 27mm spherical; however the 50mm background is closer to the 50mm spherical in terms of depth of field — Adrien, in the background, is soft.

Put another way, with the same horizontal composition from the same camera position, anamorphic has less depth of field than spherical. The result is that a character in the same frame will appear more isolated from the environment in anamorphic than in spherical. In some circumstances this apparent isolation can also convey greater intimacy.

There is another aspect to the dual qualities of anamorphic lenses. As Pierre-Hugues pointed out to me, he feels it’s natural to shoot a close-up with a 50mm anamorphic, but less so with a 27mm spherical. In other words, the reduced depth of field of the anamorphic composition offers a unique combination of a close-up feeling with a wide-shot frame.

### 4. Test A, Part 2 – Bokehs

Note that, while the depth of field is similar between S-50 and A-50, the quality of the out-of-focus image is not. This is evident in the luminous bokehs of the lightbulb on the left and the lens light on the right. Bokeh is derived from a Japanese word that has been adopted in discussions of optics to denote what’s out of focus in an image. The soft-focus lightbulb on the left is circular in the spherical images, but it becomes a tall oval in anamorphic.

The luminous bokehs are an obvious indication of what’s happening to the entire soft-focus image. Everything that is out of focus is elongated.

# ► Practical Optics: Introduction to Anamorphic



Vivier is seen here in an anamorphic image cropped for the 1.78:1 aspect ratio.

gated vertically. The more things are out of focus, the more they are stretched vertically, from Benoît standing at the camera in A-50, to the Millennium camera in A-100, to Adrien's face in A-135, where it becomes almost abstract.

This asymmetric elongation of soft-focus objects in the frame is a key feature of certain anamorphic lenses. The bokeh is an aesthetic quality that creates a feeling and mood that is difficult to describe objectively. Look at image A-135. To my eye, the vertical distortion of tall soft images creates a magical cinematic world that surrounds Emmanuelle, but for some filmmakers this quality may seem unnatural and artificial.

A related cinematic artifact is the anamorphic focus shift, which can change an object in frame from an oval to a circle, or the other way around. Some filmmakers find this transformation distracting; for others it can be a very satisfying cinematic transition when accomplished by a talented 1st AC like René-Pierre. This can be evaluated in the video footage on the website.

## 5. Test B – Rear vs. Front Anamorphs

The second test we shot was a comparison of rear and front zoom anamorphs — the optical element in the lens that squeezes the image. With

prime lenses, this component is usually added in front of the spherical portion of the lens. With zoom lenses, a front attachment sometimes would result in too large an overall lens size or would impose other optical constraints; therefore many manufacturers place the anamorphosizing element at the back of an existing zoom lens — a modification that does somewhat change the bokeh.

In our test we shot similar frames from the same position with a 27mm Primo and zooms with rear and front anamorphs. The bottom image, created by a front anamorph on the AWZ2.3, is familiar; it has the same bokeh qualities that we saw in the first test.

The middle image with a rear-anamorph ALZ11 is something else. The luminous bokehs of the light bulbs have a distinctive rectangular shape, and the out-of-focus areas are closer to spherical lenses than anamorphics.

Note that the depth of field of the middle image is deeper than the 27mm prime lens. That is because we chose to shoot every lens wide open, to heighten bokehs. The ALZ11 is made by adding an anamorphic element to the back of a spherical SLZ11, which opens to T2.8. The addition of the rear element reduces the maximum aperture to T4.5.

## 6. Test C – Flares

Our last test explored flares. We positioned a 200-watt Arri HMI Par and a Donner Spotlight LED, and then rotated each one to see what flares they created as they shone into the camera. Our results reflected the unpredictability of flares created by the complex interactions of light with a lens' coating, elements and iris.

Anamorphic lenses are subject to flares partly because the glass in the front element offers a target for light-beams on the set. The anamorphic squeeze also tends to give flares a horizontal shape. This is evident in image A-50, which exhibits a horizontal, purplish "blue line" that is characteristic of the Primo anamorphic lenses.

On the spherical lenses, we found that our lights tended to create an overall glare, with occasional flare shapes. The anamorphic lenses tended to give us more lines. The final image is from a rear-anamorph zoom, with its characteristic square bokeh.

## 7. Anamorphic is Not Exclusively 2.39:1

As noted earlier, 2x anamorphic was initially created to frame a widescreen image with a 2.35:1 aspect ratio — later refined to 2.39:1 — which was squeezed horizontally to fit snuggly in the area of the projected 35mm film print.

The advent of digital media, however, has eliminated the traditional space constraint of the film print, and the use of an un-squeezing projection lens. This means that anamorphic is no longer necessarily tied to the 2.39:1 aspect ratio.

Today there are many examples of anamorphic photography in television series and commercials framed in 1.78:1. Rodrigo Prieto, ASC, AMC put an anamorphic image in a 1.85:1 frame for the multi-format *Biutiful* by Alejandro González Iñárritu (AC Jan. '11). In the era of digital cinema and elastic frames, anamorphic has become an optical system that is no longer tied to a specific frame shape.

## 8. Conclusions

Our conclusions from this basic comparison of spherical and anamorphic lenses are simple:

- From the same camera position, and with the same horizontal frame, anamorphic lenses can offer less depth of field than spherical lenses, enabling filmmakers to isolate a character from the environment.
- Anamorphic lenses allow filmmakers to achieve shots that combine a close-up isolation with a wide-shot composition.
- Anamorphic bokeh has a progressive vertical elongation that creates a distinctive and mysterious aesthetic, which can be seen as magical or unnatural, or both.
- Zoom lenses with rear anamorphs do not have the same bokehs as lenses with front anamorphs, and the depth of field of rear anamorphs is closer to spherical lenses.
- Anamorphic lenses tend to have more linear flares than spherical lenses.
- Anamorphic is an optical process that is no longer necessarily tied to a specific aspect ratio.

These tests mark only the beginning. We hope to continue to explore this complex cinema format in future installments.

To see video footage of these tests, visit thefilmbook blog on [www.theasc.com](http://www.theasc.com).



# V2

NILA

LIGHT  
SMARTER

THE FIRST COLLECTION OF STILL PHOTOGRAPHY BY MEMBERS OF THE ASC

45 IMAGES

BY

RUSSELL P CARPENTER  
JAMES A CHRESSANTHIS  
DAVID DARBY  
STEPHEN GOLDBLATT  
JACEK LASKUS  
PHEDON PAPAMICHAEL  
JOHN SIMMONS  
JOHN TOLL  
THEO VAN DE SANDE



Curate a custom portfolio of outstanding photos created by nine of the world's finest cinematographers, delivered to you complete with a museum-quality ASC presentation box.

You'll find everything in the ASC Gallery at  
[store.ascmag.com](http://store.ascmag.com)

Limited-edition large prints are also available.

# The ASC's Big Night

Photography by Alex Beatty, Herman Jimenez, Mikhail Kharlamov, George Leon, Alex Lopez, Kim McBride, Danny Moloshok, Hector Sandoval and Michael Zito.

The ASC held its 31st Awards for Outstanding Achievement in Cinematography on Saturday, Feb. 4. Some 1,600 attendees filled the Ray Dolby Ballroom in Hollywood for the celebration.

The week prior, on Saturday, Jan. 28, the Society kicked off the Awards activities with the Honorees and Nominees Breakfast at its Clubhouse in Hollywood, followed immediately by the Open House, which was sponsored by Cinelease. Later in the week, the Clubhouse provided the setting for the Sponsors Breakfast on Thursday and the Nominees Dinner on Friday; the latter event was co-sponsored by Kodak and Panavision. Panavision also sponsored the official afterparty, which brought a capacity crowd back to the Clubhouse immediately following the Awards ceremony.

For the third year in a row, ASC member Matthew Libatique and ASC president's assistant Delphine Figueras co-hosted the Awards gala, and John Simmons, ASC again served as the event's offstage announcer.

The Lifetime Achievement Award was presented to Edward Lachman, ASC, who accepted the honor with his typical grace. "The thing for me in receiving this recognition," he offered, doffing his trademark hat, "is the opportunity to acknowledge the people in the industry that supported and believed in me."

Also honored during the gala were actor-director Denzel Washington, who received the Board of Governors Award; Nancy Schreiber, ASC, who received the Presidents Award; Ron Garcia, ASC, who received the Career Achievement in Television Award; Philippe Rousselot, ASC, AFC, who received the International Award; and associate members Bruce Berke and Frank Kay, who received the Bud Stone Award of Distinction. Additionally, the ceremony saluted Emmett Sutherland and Andrew Jeric, the recipients of the ASC Vilmos Zsigmond Student Heritage Awards, and



Lifetime Achievement honoree Edward Lachman, ASC.

Colin F. Shepherd, the recipient of the ASC Haskell Wexler Student Documentary Award.

Here are the nominees in all of the evening's competitive categories, presented in alphabetical order, with winners highlighted in boldfaced type:

**Commercial Television Series Award:** Tod Campbell, *Mr. Robot*, “eps2.0\_unm4sk-pt1.tc.”; John Grillo, *Preacher*, “Finish the Song”; Kevin McKnight, *Underground*, “The Macon 7”; Christopher Norr, *Gotham*, “Wrath of the Villains: Mr. Freeze”; Richard Rutkowski, *Manhattan*, “Jupiter.”

**Non-Commercial Television Series Award:** John Conroy, *Penny Dreadful*, “The Day Tennyson Died”; David M. Dunlap, *House of Cards*, “Chapter 45”; Anette Haellmigk, *Game of Thrones*, “Book of the Stranger”; Neville Kidd, *Outlander*, “Prestonpans”; **Fabian Wagner, BSC**, *Game of Thrones*, “Battle of the Bastards.”

**Spotlight Award:** Lol Crawley, BSC, *The Childhood of a Leader*; Gorka Gómez Andreu, AEC, *House of Others*; Ernesto Pardo, *Tempestad*; Juliette van Dormael, *My Angel*.

**Television Movie, Miniseries or Pilot Award:** Balazs Bolygo, BSC, HSC, *Harley and the Davidsons*, “Amazing Machine”; Paul Cameron, ASC, *Westworld*, “The Original”; Jim Denault, ASC, *All the Way*; Alex Disenhofer, *The Exorcist*, “Chapter One: And Let My Cry Come Unto Thee”; **Igor Martinovic**, *The Night Of*; *Subtle Beast*.

**Theatrical Release Award:** Greig Fraser, ASC, ACS, *Lion*; James Laxton, *Moonlight*; Rodrigo Prieto, ASC, AMC, *Silence*; Linus Sandgren, FSF, *La La Land*; Bradford Young, ASC, *Arrival*. ➤



10



12



14



16

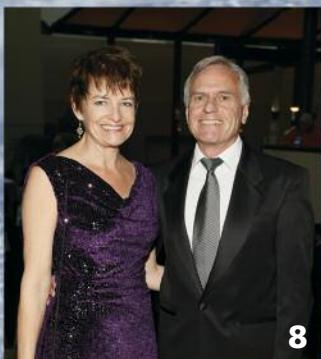


1. ASC Awards co-chairman Lowell Peterson greets the crowd. 2. Onstage hosts Delphine Figueiras and Matthew Libatique, ASC warm up the room. 3. Actor Patrick J. Adams introduces the category for One Episode of a Regular Series for Commercial Television. 4. Tod Campbell accepts the award for the "eps2.0\_unm4sk-pt1.tc" episode of *Mr. Robot*. 5. Samuel L. Jackson introduces the Board of Governors Award. 6. Jackson greets recipient Denzel Washington with a warm hug. 7. Washington thanks the ASC. 8. Jackson and Washington show off the award backstage. 9. Nancy Schreiber, ASC accepts the Presidents Award. 10. James A. Chessanthis, ASC, GSC introduces Schreiber. 11. John Schwartzman, ASC and actor Jason Schwartzman find the spotlight while introducing the nominees for Television Movie, Miniseries or Pilot. 12. Igor Martinovic enjoys his win for the "Subtle Beast" episode of the HBO limited series *The Night Of*. 13. Steven Poster, ASC introduces the Career Achievement in Television Award. 14. Ron Garcia, ASC reflects on his television accomplishments. 15. Robert McLachlan, ASC, CSC accepts the award for One Episode of a Regular Series for Non-Commercial Television on behalf of the winner, Fabian Wagner, BSC (*Game of Thrones*, "Battle of the Bastards"). 16. Actress Darby Stanchfield introduces the non-commercial TV nominees.

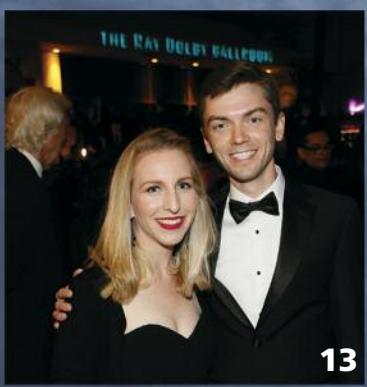


1. ASC President Kees van Oostrum presents one half of the Bud Stone Award of Distinction to associate member Frank Kay. 2. Kay's co-honoree, associate member Bruce Berke, takes a break from his duties as co-director of the awards show to accept his award. 3. Longtime friends Berke and Kay show off their plaques. 4. Actress Rachel Nichols presents the ASC International Award to her friend Philippe Rousselot, ASC, AFC. 5. Rousselot accepts his honor. 6. Nichols and Rousselot reunite offstage.

7. Actress Dakota Johnson introduces nominees for the ASC Spotlight Award. 8. Spotlight Award winner Gorka Gómez Andreu, AEC (*House of Others*) acknowledges the applause. 9. Andreu basks in the afterglow with Johnson. 10. Actor Giovanni Ribisi introduces the Theatrical Release category. 11. Greig Fraser, ASC, ACS takes the stage after winning the Theatrical prize for *Lion*. 12. Filmmaker Todd Haynes endorses his friend and collaborator Edward Lachman, ASC, who received the Lifetime Achievement Award. 13. Lachman regales the audience with personal anecdotes from his long and colorful career. 14. Emmanuel Lubezki, ASC, AMC congratulates Lachman.



1. Figueras and her husband, *American Cinematographer* editor-in-chief and publisher Stephen Pizzello, with the eldest of their three sons, 10-year-old Nicholas, during the awards dinner. 2. John Simmons, ASC squires his wife, Cynthia, and daughter, Sacha. 3. Victor J. Kemper, ASC with his daughter Florie. 4. John Toll, ASC and his wife, Oscar-winning makeup artist Lois Burwell. 5. Marek Zebrowski with ASC members Jacek Laskus and Garcia. 6. Associate member Alexander Schwarz with Irina Kostrykina and Richard Caleel. 7. Cinematographer Charlotte Bruus Christensen and Stefan Mørk. 8. ASC associate Grover Crisp and Janice Simpson. 9. Associate members Dana Ross and Carly M. Barber. 10. Levie Isaacks, ASC and his wife, Patricia. 11. Peter Moss, ASC, ACS and his wife, Kathleen (left), with filmmaker Sara Nesson and Steven Shaw, ASC. 12. Nominee Rodrigo Prieto, ASC, AMC (*Silence*) with fellow Society members Ellen M. Kuras, Schreiber and Lubezki. 13. Joston Theney and Romell Foster-Owens. 14. Cinematographer Blake McClure and Carrie Barr. 15. Associate members Glenn Kennel and Sarah Priestnall. 16. Bella Lachman lines up a shot.



1. Bella Lachman with her mother, Julia van Halsema. 2. ASC members Don McCuaig and Richard Crudo. 3. Cinematographer and AC technical editor Christopher Probst and his wife, Elena. 4. Honorary ASC member Larry Mole Parker with Robert Elswit, ASC and van Oostrum. 5. Stephen Lighthill, ASC and his wife, Veronika. 6. ASC associate Suzanne Lezotte and Ann Knight-Schwartzman. 7. James Neihouse, ASC and Washington pose with NASA astronaut Col. Terry Virts and his daughter, Stephanie. 8. Peter Martin and Roberto Schaefer, ASC, AIC. 9. David Stump, ASC with his wife, Jennifer Law Stump, and ASC associate Thomas Fletcher. 10. Associate member Denny Clairmont with ASC members William Wages and M. David Mullen. 11. Cinematographer Ed Wu with A.J. Crankshaw. 12. Mongolian singer and producer Altantsetseg Jarantai with cinematographer Angarag Davaasuren. 13. AC managing editor Jon D. Witmer and his wife, Corinne.



1. This year's honorees and nominees pose with ASC members on the steps of the Clubhouse after the Nominees Dinner. 2. Feature nominee James Laxton (*Moonlight*) with van Oostrum. 3. Award winner Martinovic shows off his nomination plaque with Peterson. 4. Nominee Jim Denault, ASC (*All the Way*). 5. Nominee Balazs Bolygo, BSC, HSC (*Harley and the Davidsons*, "Amazing Machine"). 6. Rousselot and his wife, Brigitte, with associate member Robert Hoffman and Curtis Clark, ASC. 7. Nominee Richard Rutkowski (*Manhattan*, "Jupiter"). 8. Bella with her father, Edward Lachman, ASC. 9. Jacqueline Zimmer and nominee Alex Disenhofer (*The Exorcist*, "Chapter One: And Let My Cry Come Unto Thee"). 10. Peterson with nominee Paul Cameron, ASC (*Westworld*, "The Original"). 11. Nominee Christopher Norr (*Gotham*, "Wrath of the Villains: Mr. Freeze"). 12. Spotlight Award nominees Juliette van Dormael (*My Angel*) and Ernesto Pardo (*Tempestad*). 13. Bill Bennett, ASC and David Darby, ASC flank Darby's wife, Pat. 14. ASC associate Kimberly Snyder (left) with Cecilia Sandgren and nominee Linus Sandgren, FSF (*La La Land*). 15. Peterson and his wife, Carol.



1



2



3



4



5



6



7



8



9



10



12



11



13



14

1. Witmer introduces a panel during the Honorees and Nominees Breakfast. 2. Rousselot responds to an audience member's question. 3. Lachman greets a guest during the ASC Open House. 4. Clark chats with visitors. 5. Sandgren answers some questions. 6. Charlie Lieberman, ASC (center) chats with guests Cody Coker (left) and Carlos Herrera. 7. Shelly Johnson, ASC (far left) with nominee Kevin McKnight (*Underground*, "The Macon 7"), associate member Stephan Ukas-Bradley, Lynn "Gus" Gustafson and Ross. 8. Prieto surrounded by admirers. 9. Suki Medencevic, ASC with Parker and Donald M. Morgan, ASC. 10. Steven Fierberg, ASC and Alec Jarnagin. 11. AC circulation manager Alex Lopez provides "more cowbell." 12. Isidore Mankofsky, ASC makes the scene. 13. AC circulation director Saul Molina poses for a selfie with cinematographer Carmen Cabana. 14. The ASC Clubhouse reaches "max capacity."

# Filmmakers' Forum



From left: Willie (Morgan Freeman), Joe (Michael Caine) and Albert (Alan Arkin) are lifelong friends who come up with a plan to rob a bank in the caper comedy *Going in Style*.

*Going in Style* photos by Atsushi Nishijima, courtesy of Warner Bros. Entertainment Inc. and RatPac-Dune Entertainment LLC.

## Switching in Style Between TV and Features

By Rodney Charters, ASC, CSC, NZCS

The opportunity to shoot the feature *Going in Style* came my way serendipitously after a number of years of shooting drama for television. The project is a remake of director Martin Brest's 1979 feature of the same name, but unlike the original, ours would have a happy ending, with a contemporary script written by Theodore Melfi that was both timely and moving.

Director and actor Zach Braff and I had done two television pilots together over the years, and when he asked me to do a small, four-day drama shoot for MTV, I was excited to renew our working friendship. The shoot passed effortlessly, and at the end of it, Zach told me, "If I work, you work." On that lovely note we parted company.

A few months later he called and told me he was short-listed as director of a Warner Bros. comedy, *Going in Style*, and he wanted me to shoot it for him. Two weeks after that he called and said, "I got it! And here's our cast: Michael Caine, Morgan Freeman, Alan Arkin and Ann-Margret!"

I've had a great career, but I've predominantly worked in television, and the prospect of doing a feature with such legends filled me with anticipation. It would be an opportunity to apply the skills I'd honed in tightly scheduled episodic productions to a movie's higher budget and more generous number of days.

Of course, the budget did not turn out to be quite so gener-

ous, and our scheduled days were dense with expectations. Most challenging was the knowledge that everyone would have to deliver exceptional work within tight, non-negotiable time frames, as our stars were almost all in their 70s and 80s and we would not be allowed any overtime. My own responsibility was to see that Zach had a generous amount of blocking and rehearsal time in order to make the most of his opportunity to work with such an exceptional group of actors. In other words, I had to light fast.

Zach moved to New York to begin prep, and I flew in for a two-day scout and to meet with producer Donald De Line and our brilliant production designer, Anne Ross. I then flew to New Zealand to shoot the final episodes of season one of *The Shannara Chronicles* for MTV. For that project, as on most of my recent shoots, I was using a set of Panavision G, C and E anamorphic lenses. Currently almost all broadcasters crop 16:9 images out of the 2.39:1 unsqueezed file, but eventually many more shows will just go to air in widescreen. Hands up: Who hasn't seen a car commercial broadcast in 2.39?

Zach and I absolutely adore the look of anamorphic lenses, and for *Going in Style* we chose to work with the G, C and E Series lenses, as well as a 150mm T Series lens, pairing them with Arri's Alexa XT Plus camera. (We also used spherical Zeiss Super Speed lenses with an Alexa Mini camera, which could not yet accommodate Open Gate mode.) We are both in love with anamorphic's magical depth of field, the way it defines where you want the audience to look, and the painterly bokeh at the edges of the frame.➤



Cinematographer Rodney Charters, ASC, CSC, NZCS (top left and bottom center) reteamed with director Zach Braff (top middle and bottom left) for the production.

Having chosen Panavision New York as our rental house, the rest of the personnel began to fall into place. Sal Giarratano, Panavision New York's senior marketing rep, suggested legendary 1st AC Bobby Mancuso, who was working on *Teenage Mutant Ninja Turtles: Out of the Shadows* with the only available set of lenses, which we would need to secure; that night, Bobby and I met in downtown Manhattan and became firm friends. Bobby brought his whole camera team to *Going in Style*, and I added two imports: my longtime A-

camera/Steadicam operator Michael Alba, and my daughter May, who worked as my assistant.

I also sought help from my friends in New York, including ASC members Ellen Kuras and Stuart Dryburgh, a fellow Kiwi. At their suggestion, I interviewed and hired Andrew Day as my gaffer and Richard Guinness Jr. as my key grip. My team had all grown up in New York's non-union independent-feature scene, and they knew how to work lean. Across the departments, I dare say, we had the best team in New York City.

The art department — where Anne Ross was assisted by art director Laura Ballinger and set decorator Sara Parks — was under great pressure to reduce the cost of our sets. Working together, we shared images, scouted, discussed palette and texture, shot tests, and Instagrammed our way through a lovely prep. Anne's sets were so lovingly lived-in, and there was no waste on this shoot.

Our biggest set, the Williamsburgh Savings Bank Tower in Brooklyn, was a huge cathedral-like structure with three 50'-high stained-glass windows. This is the bank that Morgan, Michael and Alan's characters decide to rob. At the location, we elected to use three 45' scissor lifts with three Arri-Maxes on each. However, even with 162,000 watts of HMI, we were barely able to keep up with the sun as we tried to penetrate the warm, golden, leaded stained glass. When the sun shifted behind the building, we added a couple of large helium balloons to maintain a sense of bright daylight, and when we needed shafts of light, we added a 10K MoleBeam. We used a Freefly Movi M15 with an Alexa Mini on a cable rig to travel the length of the bank down to our heroes at the front door.

Ritchie Guinness was a prince. He managed to secure me a 32' Lourma 2 for most of the days when we needed a telescoping crane. This superb tool allowed us to do perfect tangential moves using its automatic controls. Our first crane shot involved Michael Caine walking off the stoop of Morgan Freeman's house on 14th Place in Astoria, across the road and up the steps to his own house on the other side of the road, with the Robert F. Kennedy Bridge lit up in the background. Michael sold the pain of old age, making the scene hard to watch.

We went into overtime only once. We had lit up the fountain at City Hall Park, and the three leads allowed us 30 extra minutes before their agents would have gotten on the phone to Warner Bros. It was a frantic scramble, but we finished the scene in the time allowed.

We chose to tow the getaway car, which was a wheelchair pickup vehicle and would have required an absolutely giant insert truck. After the first day on the road, though, with the temperature above 100

degrees, we elected to finish all the driving work on a greenscreen stage. My son Robin then came in to work on the stabilized 360-degree plates.

Andrew Day was into Lowell's Rifa soft lights with tungsten bulbs, and I was grateful for their pure color temperature. I had been using first-generation LEDs for some time, and it was reassuring on *Going in Style* to find the skin tones perfectly rendered.

Bobby and I tested a whole bunch of diffusion and effects filters and finally settled on a Tiffen Soft/FX ½ behind the lens, taking advantage of the Alexa's internal filter module. I shot the whole movie with that filter in place; it rounded and delicately bloomed the highlights. Occasionally I put an additional ½ on the front of the lens.

Zach and I shared a memorable eight hours, spanning day and night, doing helicopter work over Manhattan, Brooklyn and Queens. Al Cerullo piloted the N355AG TwinStar helicopter, and we shot with an Arri M—with the recorder in the cockpit so we could change cards—on a Shotover F1 six-axis gyro-stabilized platform and fitted with an Angenieux Optimo Style 25–250mm (T3.5) zoom.

We shot ArriRaw, and Myron Kerstein edited on an Avid using DNx 175 files. It was satisfying to be able to project DNx 175 at the test screenings and during the final mix; they looked amazing on the 40' screen. But how much better they looked in the raw file!

My three weeks of color timing at FotoKem ended up being four weeks due to footage traveling back and forth between final color and the visual-effects house, Shade VFX, which performed complex work. This extra time was a luxury that TV rarely affords. Colorist Kostas Theodosiou and I spent quality time exploring the challenge of having Michael Caine and Morgan Freeman sharing the same frame. Kostas worked in Blackmagic Design DaVinci Resolve and used power windows to track faces whenever necessary.

Back in prep, when I had attended the read-through and met the cast, I could hardly contain my excitement. Just to be in the room with Michael Caine, Morgan Freeman, Alan Arkin and Ann-Margret, and to know that in a week I would be helping



Charters takes in the atmosphere while preparing to shoot in the Williamsburgh Savings Bank Tower in Brooklyn.

them find their best light—it doesn't get any better. It was at that first meeting with the cast that Ann-Margret came to me and said, "So, you're the cinematographer." She took my finger and pressed it just beneath her left eye. "I had a fall," she said, "and I've never felt that the bones completely settled here underneath my eye. Please help me with this."

"Of course," I answered. "I will do everything I can to make it disappear."

As I looked around the room I was reminded of how vulnerable all actors are in different ways, and how much trust they place in all the heads of department—including wardrobe, makeup, hair, and the cinematographer—to take good care of them. So finally, when all the technology is taken care of, my main concern is how to foster and maintain a sense of tranquility and camaraderie on the set so that, guided by the director, they are free to create great performances.

During production, we were shooting in a supermarket, and I needed to close the gap between Michael and Morgan at a checkout counter. I asked Zach if I could ask Morgan to adjust his position a few inches, and then I asked Morgan, "Mr. Freeman, sir, could you land a few inches closer to Mr. Caine?" Looking down at me with his dark,

soulful eyes, he demanded, "What's in it for me?" I froze, my mind frantic. But then, remembering his generous greetings each morning, I ventured, "How about a hug?" A huge smile broke his stern countenance, and we hugged warmly—and, of course, he moved closer on the next take.

It went on like that for 40 days. Everyone agrees we made a great movie. Ann-Margret left me a voicemail that made me blush. Michael Caine said in his departure speech that it was the nicest working experience he had ever had, which made the crew very happy. Indeed, *Going in Style* stands out as one of the high points of my career. It was both an extraordinary creative experience as a cinematographer and one of the loveliest summers of my life. Time and cost can certainly be our adversaries in this business, but this production proved the adage that time stays long enough for the one who will use it.

# New Products & Services

## • SUBMISSION INFORMATION •

Please e-mail New Products/Services releases to [newproducts@ascmag.com](mailto:newproducts@ascmag.com) and include full contact information and product images. Photos must be TIFF or JPEG files of at least 300dpi.

### Fujifilm Launches MK Cinema Zooms

The Optical Devices Division of Fujifilm has unveiled the MK Series cinema lenses for Super 35mm-format E-mount cameras. Designed with emerging cinematographers in mind, the MK series boasts advanced optical performance in an ultra-compact and light-weight design. The first lens in this series is the Fujinon MK18-55mm (T2.9); the Fujinon MK50-135mm (T2.9) will be available this summer.

"Many independent shooters use DSLR lenses, which aren't designed for moving images," says ASC associate Tom Fletcher, director of sales for the Optical Devices Division of Fujifilm. "Our MKs have a seamless manual iris, zero breathing, no ramping or zoom shift, and



200-degree focus rotation. They maintain focus completely throughout the zoom range while covering Super 35mm sensors."

The MK lenses are designed to maintain consistent color temperature with all Fujinon cinema lenses. The series also inherits the Fujinon cine lenses' edge-to-edge optical performance and low distortion. The MK18-55mm and MK50-135mm weigh in at only 2.16 pounds, with front diameters of 85mm and lengths of 206mm. The MK18-55mm's minimum object distance is 2.78', while the MK50-135mm's is 3.93'; a macro function allows for a broader range of close-up shooting.

The lenses each contain a flange-focal-distance adjustment function to achieve optimal camera and lens matching. The short flange focal distance contributes to the lenses' compact size and light weight.

The lenses also feature three rings for manual and independent adjustment of focus, zoom and iris. The focus ring can rotate up to 200 degrees to facilitate precise focusing, and the iris supports seamless adjustment that is free of clicking. Gears for the three rings are positioned in the exact same place on each lens, eliminating the need to reposition accessories when switching lenses. Additionally, only one matte box and one filter size are needed between the lenses.

The MK lenses are compatible with E-mount cameras with a Super 35mm/APS-C sensor. X Mount versions of the MK lenses used in Fujifilm X Series digital cameras (with APS-C sensors) are being developed for launch by the end of this year.

For additional information, visit [www.fujifilmusa.com](http://www.fujifilmusa.com).

### CW Sonderoptic Grows Leica Cine MacroLux Family

Building on the success of the original Leica Cine MacroLux +1 diopter, CW Sonderoptic has introduced two new diopters in the

line, a +2 and a +0.5. In addition to utilizing the same Leica optics and coatings, the +2, +1 and +0.5 optics share the same mechanical housing, meaning that all three are compatible with 95mm front-diameter prime, zoom and anamorphic lenses.

The addition of the Leica Cine MacroLux +2 offers a greater macro effect for tabletop and close-up work. The much-requested +0.5 provides many more options for use with wide-angle lenses. "Close-focus wide-angle cinematography is a very popular trend right now," says Gerhard Baier, managing director of CW Sonderoptic, "and there is no easier way to bring that look to a large number of lenses than using the Leica Cine MacroLux +0.5. Plus, the falloff characteristics give a feeling of increased aperture to any lens, even very wide focal lengths."



"Adding the Cine MacroLux +2 was a must for completing this set," Baier continues. "Even though all of these diopters can be stacked and combined, our clients doing macro work needed more flexibility, and the +2 gives that to them because, optically speaking, combining two +1's does not exactly equal +2. It's closer to +1.7."

For additional information, visit <http://www.cwsonderoptic.com/leica-cine-macrolux/>.

### Cooke Adds Optics, Factory

Cooke Optics now offers uncoated front elements for its S4/i series of prime lenses. The uncoated front elements offer lower contrast, milkier shadows, flares, streaks and other aberrations for a "vintage" look. Cooke's MiniS4/i elements are also available uncoated.

The Cooke S4/i series currently features 12, 14, 16, 18, 21, 25, 27, 32, 35, 40, 50, 65, 75, 100, 135, 150, 180 and 300mm focal lengths. Uncoated S4/i front elements can be ordered individually for any or all focal lengths. Existing owners and rental houses can have the front elements swapped by trained lens technicians. Light loss is approximately 10 percent, so depending on the lens, the maximum T-stop is around T2.2 with the uncoated front. The lenses may need to be reshimmed, or the focus scale may need to be shifted to correct for a slight difference. Additionally, since the front element is unprotected, it may discolor or stain over time.

Cooke Optics also plans to open a second factory less than



two miles from its current Leicester premises in the U.K. in order to keep up with growing demand and to facilitate the development and manufacture of new lens ranges. Scheduled to open in June, the 700-square-meter factory will initially focus on building the new Cooke Panchromatic Classic range, which offers the original design and characteristics of Cooke's vintage Speed Panchromatic lenses with new housings and PL mounts for modern cameras.

For additional information, visit [www.cookeoptics.com](http://www.cookeoptics.com).

### Tiffen Expands Viewing Filter, ND Offerings

Tiffen has introduced the Variable



Viewing Filter (VVF), which incorporates the company's award-winning Variable ND filter to offer

indexed 2-8-stop variability. The VVF also accepts any 49mm ring filter from Tiffen's vast range — including Neutral Density, UV, polarizing, effects and diffusion filters — to allow users to easily previsualize a scene without the need to reposition the camera. The VVF also allows cinematographers and gaffers to spot strong lights and keep track of the sun as it moves in and out of cloud cover. The filter is manufactured to Tiffen's high specification and features a classic eyecup and a 1" handle with a quick-release lanyard.

Tiffen has also launched Natural Neutral Density Filters, which memorialize the achievements made by Tiffen's founder, Nat Tiffen. The Tiffen

Natural Neutral Density Filter line improves on neutral-density filtration, with perfect neutrality across the visual and IR

spectrum, resulting in natural skin tones and color fidelity. The glass filters are manufactured in the USA utilizing the patented Tiffen Color Core process.

For additional information, visit [www.tiffen.com](http://www.tiffen.com).



### Zero Optik Rehouses Baltars

Zero Optik has entered the motion-picture lens-rehousing market with new housings for Bausch & Lomb's original Baltar lenses.

Designed in the 1930s, Baltar lenses were sold as standalone optical cells that could be built into any focusing unit. Among the first cinema lenses to be offered with single-coated optics, they resist veiling glare, even with point sources in the frame. As a set, Baltars produce a unique aesthetic that is sharp and contrast-rich with gentle corner falloff on wider focal lengths.

The first seven focal lengths (25mm, 30mm, 35mm, 40mm, 50mm, 75mm and 100mm) have uniform T2.5 apertures, while the 152mm opens to T3.2. With the Zero Optik rehousing, this consistency is extended with common 95mm front diameters, expanded focus and iris scales, and identical gear placement across focal lengths.

Zero Optik rehouses the vintage glass in 7075 aerospace aluminum with 316 stainless steel PL mounts and reliable cam-driven focus mechanisms. Each lens has smart- and dumb-side focus and iris marks, as well as scales that can be delivered in metric or imperial units.

Customers must provide their own Baltar optics, as Zero Optik does not currently maintain an inventory of completed lenses. Pricing covers parts and labor; refurbishing, recoating, or any further service or repair is available for an additional fee.

For additional information, visit [www.zerooptik.com](http://www.zerooptik.com).

### Shape Turns 10

Camera-accessories manufacturer Shape, which this year is celebrating its 10th anniversary, has introduced a range of new products, including the Revolt VCT Universal Baseplate and Top Handle.

The Revolt VCT Universal Baseplate provides quick positioning of camera acces-

series for optimal adjustment of a camera's weight distribution. Two 15mm lightweight rod blocks can be fixed at the front and rear of the Baseplate, and the height of the blocks is adjustable to match the camera's optical center.

The Baseplate is built from robust components that prevent sliding and increase the strength of the overall rig. Safety ratchet knobs apply the optimal pressure to the rods, and safety pins — which prevent the upper plate from sliding — are located in strategic areas to maximize stabilization. The Revolt is also equipped with 1/4-20 and 3/8-16 threaded holes, allowing extra screws to be stored; a magnet at the back allows a hex key to be attached.



Shape's Revolt Top Handle can attach to most top plates and camera tops via 1/4-20 screws. The Top Handle features two cold-shoe mounts (one each in the front and back), one mount for a rod block at the front, and four mounts for Shape's Magic Stick monitor holder (two each in the front and back). Made of Canadian maple and CNC-machined 6061-T6 aluminum, the Top Handle weighs 0.75 pounds and measures 8.5" long, 2.5" wide and 2.9" high. The handle also telescopes 2.6" for fast balancing.

For additional information, visit [www.shapewlb.com](http://www.shapewlb.com). ●

# International Marketplace

**50 YEARS. STILL A CLASSIC.**

Super 8  
Cameras, Film,  
Processing &  
Scanning

**PRO 8 mm**  
UP TO 5K

2805 West Magnolia Blvd., Burbank, CA 91505  
Phone: 818-848-5522 • [www.pro8mm.com](http://www.pro8mm.com)

**Max-Out**  
**420mm/300mm**  
**16.5" & 11.8"**  
**Fresnel**  
**Lenses**

Heat strengthened  
lens replacement for  
most lighting fixtures  
now at super low prices!

*Lights.Action.Company!*  
MAXI Fresnel Lenses | MAXI HMI PAR Lenses | Flat Safety Lenses  
[lightsactionco.com](http://lightsactionco.com)  
818.881.5642 | [lightsactionco@earthlink.net](mailto:lightsactionco@earthlink.net)

Always Ask For  
MAXI  
Lenses

**SUPER16INC.COM**  
Top-notch camera and lens servicing

Anamorphic lens  
servicing!

T: 607-205-1001      [bernie@super16inc.com](mailto:bernie@super16inc.com)  
Toll-free: 877-376-6582      FREE ESTIMATES

**RELAMP**  
Relamp your halogen fresnels  
to LED in seconds

**VISIONSMITH.COM**  
(415) 371-1100

**CAVISION**

604-298-9053  
[www.cavision.biz](http://www.cavision.biz)  
[sales@cavision.com](mailto:sales@cavision.com)

Glass Filters,  
Strobe Light  
Slate, and  
Director's  
Viewfinder  
for Full  
Frame & all  
other  
Digital  
Sensor  
Sizes!

# CINE SADDLE

[www.cinekinetic.com](http://www.cinekinetic.com)

Tel: 212-202-0675

**USED FILM EQUIPMENT**  
from Germany

filmcameras, lenses, lighting & dollies  
[www.used-filmequipment.com](http://www.used-filmequipment.com)

Please visit our website

**Scooter Dolly**

best innovation

**NEW NEW NEW**

[www.movietech.de](http://www.movietech.de)

**WILLY'S STUFF**

Leveling Heads  
Pipe Dolly Wheels  
Pipe Connectors  
Euro Stuff  
Rotating Offsets  
Camera Risers  
Ball Head Adapters

and a bunch of other neat stuff

[www.willyswidgets.com](http://www.willyswidgets.com)

**1600W Tener LED**

**Mole LED™**  
[mole.com/TenerLED](http://mole.com/TenerLED)

mole.com | (323) 851-0111

NAB 2017  
booth #C8233

**P+S TECHNIK**  
Optics for Exceptional Images

**REHOUSING**  
for  
Full Frame Lenses  
Canon K35, Canon FD  
and Leica R

[WWW.PSTECHNIK.DE](http://WWW.PSTECHNIK.DE)

# A MUST HAVE

**THE ASC TREASURY OF VISUAL EFFECTS**  
BY LEADING MASTERS OF FILM WIZARDRY

**REISSUE OF A CLASSIC**  
COVERING VISUAL EFFECTS FROM 1895 TO 1982

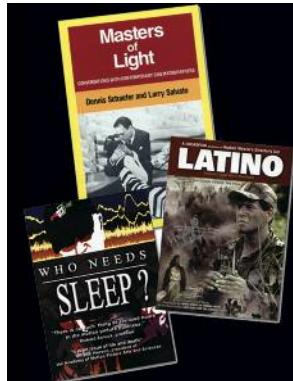
To order, visit our website:  
[www.theasc.com](http://www.theasc.com)

The **PANAVISION®**  
Camera Assistant's Bag

Beautifully designed. Carefully crafted.  
[www.alangordon.com/pvbag](http://www.alangordon.com/pvbag)

# DENZ

**PLC**  
Portable Lens Controller  
[www.denz-deniz.com](http://www.denz-deniz.com)



## Haskell Wexler 3-Pack

This package gives you two remarkable features directed by Haskell Wexler, ASC, and a copy of Dennis Schaefer and Larry Salvato's book *Masters of Light: Conversations with Contemporary Cinematographers*, which features interviews with Wexler and 14 other directors of photography.

**THE ASC STORE**  
[www.theasc.com](http://www.theasc.com)

# Classifieds

## CLASSIFIED AD RATES

All classifications are **\$4.50 per word**. Words set in **bold face** or all capitals are **\$5.00 per word**. First word of ad and advertiser's name can be set in capitals without extra charge. No agency commission or discounts on classified advertising. PAYMENT MUST ACCOMPANY ORDER. VISA, Mastercard, AmEx and Discover card are accepted. Send ad to **Classified Advertising, American Cinematographer, P.O. Box 2230, Hollywood, CA 90078**. Or FAX (323) 876-4973. Deadline for payment and copy must be in the office by 15th of second month preceding publication. Subject matter is limited to items and services pertaining to filmmaking and video production. Words used are subject to magazine style abbreviation. **Minimum amount per ad: \$45**

## OTHER

[www.thebridgesproductions.com](http://www.thebridgesproductions.com)  
DoP, Alexa Mini, Red Helium8k, Sony, Lighting truck.

## EQUIPMENT FOR SALE

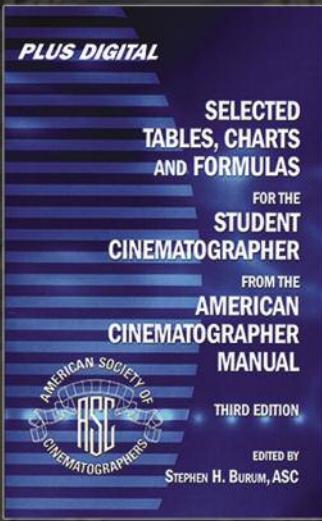
**4X5 85 Glass Filters, Diffusion, Polas etc. A Good Box Rental 818-763-8547**

**World's SUPERMARKET of USED MOTION PICTURE EQUIPMENT! Buy, Sell, Trade. CAMERAS, LENSES, SUPPORT, AKS & MORE! Visual Products, Inc.**  
[www.visualproducts.com](http://www.visualproducts.com) Call 440.647.4999

## WANTED

**PRODUCER OR DIRECTOR SEEKING A CLASSIC HEIST SCREENPLAY WITH ALL THE TRIMMINGS – ACTION, EDGE-OF-SEAT-SUSPENSE, MARVELOUSE ENDING.**  
212 243 8448

# NEWLY REVISED AND UPDATED THIRD EDITION



Edited by  
**STEPHEN H. BURUM, ASC**

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.

visit us at  
**www.theasc.com**

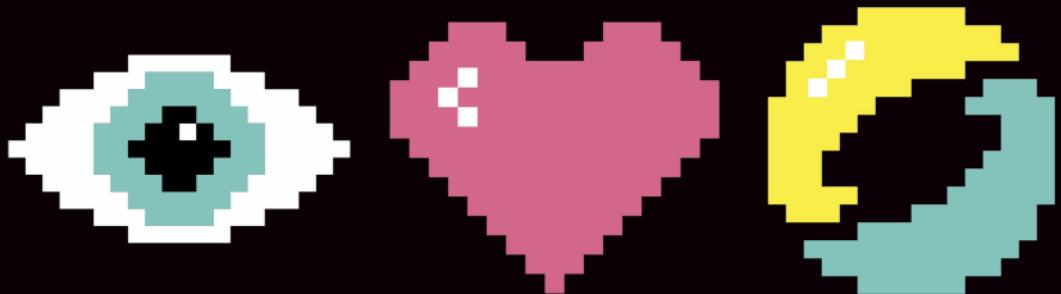
## Advertiser's Index

- AC 81  
Adorama 7, 49  
Alan Gordon Enterprises 81  
Arri 5, 37  
ASC Film Manual 52  
ASC Master Class 8  
ASC Photo Gallery 67  
B&H Photo-Video-Pro Audio  
C3  
Backstage Equipment, Inc.  
61  
Blackmagic Design, Inc. 9  
Canon USA 17  
Carl Zeiss 29  
Cavision Enterprises 80  
Chapman/Leonard  
Studio Equip. 13  
Cine Gear Expo 87  
Cinekinetic 80  
Cinematography  
Electronics 61  
Cooke Optics 11  
CW Sonderoptic GmbH 25  
Digital Sputnik Lighting  
Systems 23  
Eastman Kodak C4  
Friends of the ASC 42  
Hexolux/Visionsmith 80  
Hollywood PL 61  
Hollywood Post Alliance 51  
Kino Flo 43  
Lee Filters 39  
Lights! Action! Co. 80  
Mole-Richardson/Studio  
Depot 80  
Movietech AG 80  
Nila, Inc. 67  
P+S Technik Feinmechanik  
GmbH 80  
Paralinx C2-1  
PED Denz 81  
Pelican Products 15  
Pille Filmgeraeteverleih  
GmbH 80  
Pro8mm 80  
Schneider Optics 2  
Selected Tables 82  
Shape WLB Inc. 53  
Siggraph 83  
Super16, Inc. 80  
Teradek, LLC 41, C2-1  
Thales Components Corp. 19  
UCLA Health 27  
Vitec Creative Solutions C2-1  
Willy's Widgets 80  
www.theasc.com 81



# SIGGRAPH 2017

AT THE  of COMPUTER GRAPHICS & INTERACTIVE TECHNIQUES



## REGISTER TODAY and SAVE

REGISTER BY 9 JUNE FOR BEST SAVINGS!

30 JULY – 3 AUGUST

*Los Angeles, California*

[S2017.SIGGRAPH.ORG/REGISTRATION](http://S2017.SIGGRAPH.ORG/REGISTRATION)



Sponsored by ACM SIGGRAPH



# In Memoriam

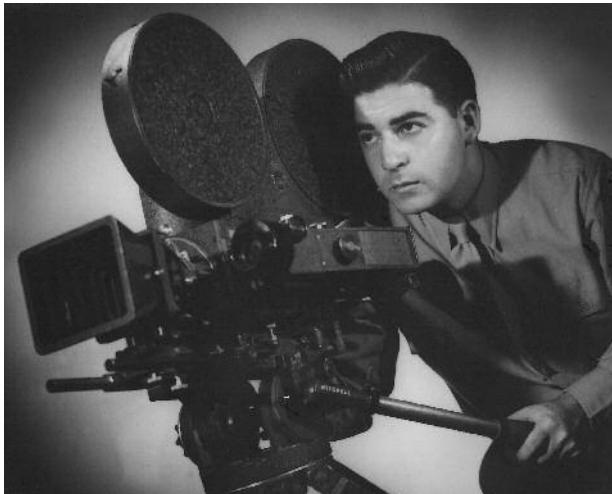
## Gerald Hirschfeld, ASC, 1921-2017

Gerald Hirschfeld, ASC, who compiled more than 40 feature credits over the course of a distinguished career that saw him become the most senior member of the American Society of Cinematographers, died on Feb. 13. He was 95.

Born on April 25, 1921, Hirschfeld grew up in New York City. He was an avid moviegoer as a boy and developed an early interest in photography. "My sister gave me a home developing kit, so I started with making my own pictures," he told AC for a career profile in the April 2007 issue. With his sister's help, he later began working as an assistant to a still photographer in the fashion industry, all the while continuing to teach himself everything he could about his profession. "There were no film schools in those days, so I was always looking for new books, new information," he said. "I was pretty much self-taught. By going to the movies, I gradually learned the photographic styles of all the top Hollywood cameramen, and I could walk into a picture that was halfway over and immediately know who'd shot it."

In early 1942, Hirschfeld enlisted in the Army. The technically minded recruit was originally selected to serve in a radar-surveillance unit, but was later transferred to the Signal Corps Photographic Center in Long Island City, N.Y. There he learned the craft of cinematography while working on training films and short entertainment movies for the troops, serving alongside ASC members Leo Tover and Stanley Cortez. "I'd never seen a motion-picture camera before, but I knew processing, composition, exposure and lighting," he recalled. "I entered the service as a still photographer and came out a cinematographer."

Tover became Hirschfeld's mentor. "After working for Leo on a few pictures, I became a camera operator," Hirschfeld said. "Working in New York, we had limited equipment and resources and had to improvise a lot of stuff."



Hirschfeld earned his first feature credit as a cinematographer with the 1949 low-budget crime film "*C*-Man," directed by Joseph Lerner and shot in just 11 days. He and Lerner reteamed for the equally hard-boiled *Guilty Bystander* (1950) and the wrestling comedy *Mister Universe* (1951). "I never looked back," said the cinematographer, whose early credits also included the influential documentary *With These Hands* (1950) and the children's television series *Johnny Jupiter* (1953).

In the mid-'50s, Hirschfeld focused his attention on commercials and began working as a freelancer for commercials-production house MPO Videotronics. "It was a great training ground because we encountered so many varied situations," he remembered. "We had limited equipment and were often working in available light."

The cinematographer's partnership with MPO was hugely successful, and before long he was made a vice president of the company. While working at MPO, Hirschfeld's crew often included operator Sol Roizman, whose son and future ASC member Owen would eventually join the crew as an assistant.

In 1963, director Sidney Lumet hired Hirschfeld to shoot *Fail-Safe*, which details the chilling scenario of a wayward B-52 bomber accidentally ordered to bomb Moscow, and the attempts of the U.S. pres-

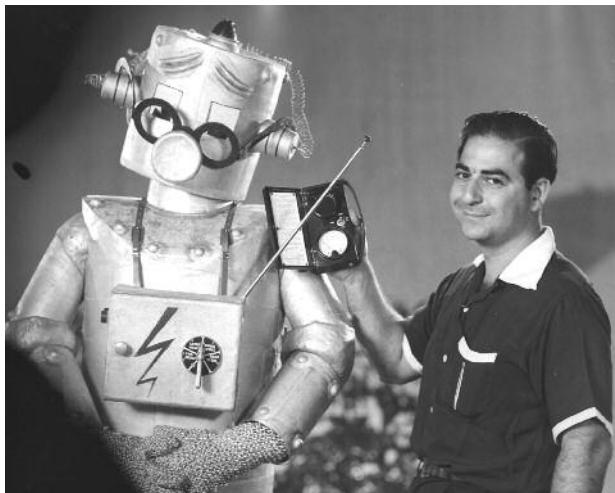
ident (Henry Fonda) to prevent a nuclear Armageddon. The cinematographer wrote about the experience in the August 1963 issue of AC: "The story demanded a stark photographic approach. After much thought, I decided all the feature characters should be filmed in extreme low-key light but the sets should be photographed normally." He noted that he believed *Fail-Safe* marked the "first time a feature film was photographed without the use of a single fill light on a face."

Hirschfeld and Lumet would work together again on the 1972 horror yarn *Child's Play*.

For the feature *The Incident* (AC May '68), Hirschfeld partnered with director Larry Peerce. The two would again team for the features *Goodbye, Columbus* (1969), *Two-Minute Warning* (1976), *The Bell Jar* (1979) and *Why Would I Lie?* (1980), and the telefilms *Love Lives On* (1985) and *The Neon Empire* (1991).

For Peerce's thriller *Two-Minute Warning*, the cinematographer explained, "I wanted to photograph the point of view of the sniper as he lifts up and looks through his rifle's scope." To that end, Hirschfeld designed an apparatus incorporating a real rifle scope that could be attached to the front of the camera and swung up into position by an assistant in the midst of a subjective shot. The clever device magnified the subject and also had crosshair markings, creating the illusion of the sniper's view. However, given the light loss created by the placement of the scope in front of the lens and the shift in magnification, another assistant had to simultaneously pull focus and stop precisely as the rig was swung into place. "There were three people working for each of those shots," Hirschfeld recalled.

Hirschfeld's drive for perfection cemented his reputation not only as a top-notch cinematographer, but also as one of the toughest to work for. "I was pretty



Opposite: Gerald Hirschfeld, ASC operates a camera during his Army days.  
Above: The cinematographer at work on the television series *Johnny Jupiter* (left) and the feature *Fail-Safe* (right).

tough, that's true," he acknowledged. "But it was only because I was always trying to push myself, to learn and be a better cinematographer, and I expected the same work ethic from everyone around me."

One of Hirschfeld's first Hollywood features was Mel Brooks' comedy *Young Frankenstein* (AC July '74), which stars Gene Wilder as Dr. Frederick Frankenstein, who attempts to re-create his grandfather's experiments. In a wide-ranging conversation with students at the American Film Institute that was moderated by Howard Schwartz, ASC and transcribed for the June and July 1978 issues of AC, Hirschfeld said of the production, "In order to capture the feeling that Mel Brooks wanted — of re-creating a bit of the old-time texture of films — he wanted it very contrasty. He wanted the backlights to really punch through and he wanted the shadows dark."

Hirschfeld and Brooks remained friends, and they later reteamed on the period comedy *To Be or Not to Be* (1983), which Brooks produced. The cinematographer would also join Wilder for *The World's Greatest Lover* (1977), which the actor wrote, directed and produced.

For director Frank Perry, Hirschfeld photographed the features *Last Summer* (1969), *Diary of a Mad Housewife* (1970) and "Doc" (1971); for Gilbert Cates, he shot the features *Summer Wishes, Winter Dreams* (1973) and *Dragonfly* (1976), and the telefilms *The Affair* (1973) and *Country Gold* (1982); and for John G. Avildsen, he

was behind the camera for the feature *Neighbors* (1981). Other feature credits included *The Gravy Train* (1974), *The Ultimate Warrior* (AC Aug. '75) and *My Favorite Year* (1982).

Hirschfeld was invited into membership in the ASC on Feb. 1, 1951. Fifty-six years later, in 2007, the Society presented the cinematographer with its Presidents Award, recognizing his exceptional contributions to the art and craft of making motion pictures. Speaking with AC about the award, Hirschfeld said, "I deeply appreciate the honor, and I also appreciate everything the ASC has done for me through the years." Hirschfeld was also honored, in 2004, with the Ashland Independent Film Festival's Lifetime Achievement Award.

In addition to his work behind the camera, Hirschfeld was a devoted educator. "I started teaching cinematography pretty early on at the Brooklyn Institute of Photography," he told AC. He later spent time as a filmmaker in residence at the International Film & Television Workshops in Maine. He also penned numerous articles for AC, and authored the book *Image Control: Motion Picture and Video Camera Filters and Lab Techniques*.

"When I was just starting out, in the 1940s, many cinematographers were very protective of their techniques," Hirschfeld offered. "They would never tell you exactly how something was done. But the ASC and *American Cinematographer* helped change that, and that example has been copied

throughout the industry."

Speaking with the students at AFI, the cinematographer emphasized, "You've got to know your business." He added that as a director of photography, "Your eyes are not only on the scene that is in front of you, but also on what's coming up on the schedule. You have to do a little bit of your own thinking. ... And you've got to watch the sky.

"My feeling is that as long as nothing is a distraction, you can get away with it," he continued. "What you have to do is take an adverse light condition and make it match as best you can. The better you do that, the more jobs you're going to have."

In the weeks leading up to his Presidents Award presentation from the ASC, Hirschfeld reflected on his many and varied feature collaborations, telling AC, "I enjoyed working on a picture when I wasn't given too much information. That put the ball in my court and made me feel even more responsible to do the very best I could."

Hirschfeld is survived by his wife, Julia Tucker; sons Alec, Marc, Eric and Burt; and six grandchildren.

— David E. Williams and Jon D. Witmer



# Clubhouse News



From left: New ASC members Jimmy Lindsey, Jules O'Loughlin and Thomas Yatsko.

## Society Hosts Photo Gallery

The Society recently hosted the opening for an exhibition of still photography by nine ASC members: **Russell Carpenter, James Chressanthis, David Darby, Stephen Goldblatt, Jacek Laskus, Phedon Papamichael, John Simmons, John Toll and Theo van de Sande**. Displayed at the Clubhouse in Hollywood, the temporary exhibit was curated by David Fahey of Fahey/Klein Gallery and features five images by each photographer, with prints available for purchase through the ASC's online store, [store.ascmag.com](http://store.ascmag.com).

## Members Participate in 2017 DCS Cinema Lighting Expo

The Digital Cinema Society (DCS) recently held its annual Cinema Lighting Expo at the IATSE Local 80 stage in Burbank. The event included a full day of presentations from cinematographers and a host of vendors exhibiting their latest technologies. **Russell Carpenter, ASC** and **David Stump, ASC** each gave presentations, and DCS founder James Mathers presented the group's first DCS Service Award to **George Spiro Dibie, ASC**, in recognition of his countless contributions to the industry as a whole, and in particular to the cinema-lighting community.

## Society Welcomes Lindsey, O'Loughlin, Yatsko

New active member **Jimmy Lindsey, ASC** became interested in photography and cinematography as a child, carrying a camera everywhere he went and finding inspiration from the films *Blade Runner* and *Raiders of the Lost Ark*. During his studies at the University of Texas, Lindsey accepted an internship with a local cinematographer and worked in the camera department. Taking additional workshops in Rockport, Maine, between semesters, Lindsey earned a bachelor's degree in film production and history in 1992, and then began working as a camera assistant and eventually as an operator.

Lindsey's credits include the television series *Timeless*, *Limitless*, *Revolution* and *Veep*, in addition to the features *Machete*, *Spy Kids 4* and *Good Kids*.

**Jules O'Loughlin, ASC, ACS** received his first still-photography camera at the age of 7. Seeing the film *2001: A Space Odyssey* opened his mind to the power of cinema, while the film *The Red Shoes* sparked his romance with cinematography. In 2001, O'Loughlin was accepted into the Australian Film, Television and Radio School (AFTRS) and graduated in 2004 with a Master of Arts, specializing in cinematography. He made his first feature, *Kokoda*, with a group of fellow AFTRS graduates. *Kokoda* played at Camerimage in 2006 and received

AFI and IF Award nominations. O'Loughlin went on to win a 2007 IF Award for best cinematography for the feature *September*, and ACS Awards for *I Am You* and *Dark Frontier*.

O'Loughlin's additional credits include *Wish You Were Here*, *James Cameron's Deepsea Challenge 3D* (AC Sept. '14), *Krampus*, and the television series *Black Sails*.

**Thomas Yatsko, ASC** headed to New York City with dreams of becoming a cinematographer after graduating from the University of Texas in Austin. Yatsko started his career working on the Panavision loading dock, making contacts and borrowing gear on the weekends to shoot films, and eventually working his way up to camera assistant. Yatsko relocated to Los Angeles and began operating for a television show that led to a 10-year stint of operating for numerous cinematographers, including ASC members Isidore Mankofsky, Ueli Steiger, Jerzy Zielinski, Jost Vacano and Michael Bonvillain. After two years of working 2nd unit on the television series *Alias*, Yatsko took his first 1st-unit cinematographer job on *CSI: Miami*.

Yatsko's additional credits include the television series *Brothers & Sisters*, *Fringe*, *Bates Motel*, *Almost Human*, *Gotham* and *Roadies*, in addition to the features *Into the Blue 2*, *The Call* and *Stonehearst Asylum*.



**Los Angeles**

June 1-4, 2017

Exhibits: June 2-3

**The Studios at Paramount  
Hollywood, CA**

[www.cinegarexpo.com](http://www.cinegarexpo.com)

[info@cinegarexpo.com](mailto:info@cinegarexpo.com)



# Close-up John C. Flinn III, ASC

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

1953's *Shane* — Alan Ladd, Van Heflin and Jack Palance. Loyal Griggs, ASC won an Academy Award for this movie, and George Stevens was nominated for directing. The look and direction were amazing. A great Western.

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

ASC members Robert Surtees, Conrad Hall, Bernie Guffey, Billy Fraker, Richard Kline, Richard Rawlings Sr., Monroe Askins Sr. and Freddie Young, Robert Morrison, as well.

## What sparked your interest in photography?

As a child, I had an Eastman Kodak Baby Brownie Special. I still have it! Then I got an 8mm Keystone three-lens-turret magazine camera, and then a 16mm Cine-Kodak single-lens magazine camera. I still have those as well.

## Where did you train and/or study?

My first day in camera was as a second assistant cameraman, and I knew nothing, so every day thereafter was school on the set. I took a lot of notes!

## Who were your early teachers or mentors?

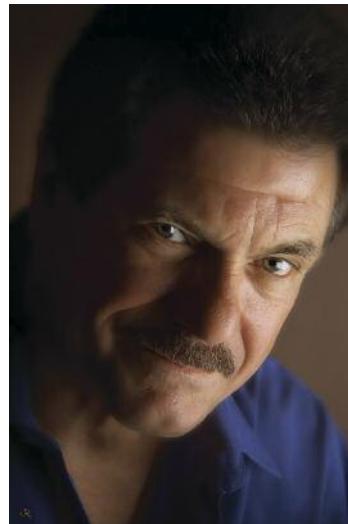
My teachers were the first-assistant cameramen I worked with. I was lucky to work at all the major studios at that time, and each studio had a different way of doing this or that, so it was a great opportunity to be able to learn from all those assistants. They were great.

## What are some of your key artistic influences?

[ASC members] Bernie Guffey, for *From Here to Eternity*; Conrad Hall, for *In Cold Blood*; William Fraker, for *Paint Your Wagon*, *Rosemary's Baby* and *Bullitt*; Vilmos Zsigmond, for *McCabe & Mrs. Miller*; Allen Daviau, for *Bugsy*; Gordon Willis, for *The Godfather*; and Richard H. Kline, for *Camelot*. I was working part-time as an usher at the Warner Beverly Hills Theatre when I first saw *Lawrence of Arabia*, shot by Freddie Young. It was one of the most beautiful films I had seen. Later came *Doctor Zhivago* and then *Ryan's Daughter*. Young's work made a big impression on me.

## How did you get your first break in the business?

My dad was director of advertising and publicity for Columbia Studios, and with his permission I went by and talked to camera-department head Bill Widemeyer, and told him that I really wanted to pursue this profession. About three weeks later, I got a call from him. He asked me if I could be at the Columbia Ranch in an hour, to be a second assistant cameraman. I said, 'Sure — do they know I don't know anything?' He said, 'They know you're new.' So I reported to the set, and the first assis-



tant director called out to cinematographer Fred Jackman [Jr., ASC], who was up on the crane. Fred said, 'Yeah?' I said, 'My name is John Flinn and I don't know a thing.' He said, 'Lower the arm.' And as it was coming down, he said, 'You're the first son-of-a-bitch that's told me the truth.'

## What has been your most satisfying moment on a project?

In 1993, I received the ASC Award for Outstanding Achievement in Cinematography in a Regular Series for *Jake and the Fat Man*, and Freddie Young received the ASC's International Award that same night. He got a kick out of it when I told him I was an usher at the theater when *Lawrence of Arabia* played. The two of us had our picture taken together holding our awards, 31 years after

*Lawrence of Arabia*. That was a huge moment in my life and in my career.

## Have you made any memorable blunders?

I have made quite a few, and learned from them.

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

Preparation is the key to success.

## What recent books, films or artworks have inspired you?

I really enjoy Ansel Adams' *The American Wilderness*. His black-and-white photos are beyond impressive. It never gets old looking at those great pictures.

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

I have had the opportunity to shoot a lot of Westerns, police shows, family shows and sci-fi shows — and I'm happy to still be out there shooting.

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

I really enjoy directing and acting.

## Which ASC cinematographers recommended you for membership?

Chuck Wheeler, Gene Polito and James Crabe.

## How has ASC membership impacted your life and career?

I remember printing the name of the director of photography on the slate and putting the 'ASC' initials after his name, and wondered if I would ever have those letters after my name. In 1987, I became a member. It was truly the biggest honor of my life, and still is. ●



Canon Cinema EOS C300 Mark II Body  
CAC3002EF | \$15,999.00



Apple 13.3" MacBook Pro w/ Touch Bar  
(Late 2016, Space Gray)  
APMBPTMLH12L | \$1,649.99



The Professional's Source™



Atomos Shogun Inferno 7" 4K  
HDMI/Quad Recording Monitor  
ATSGI | \$1,995.00



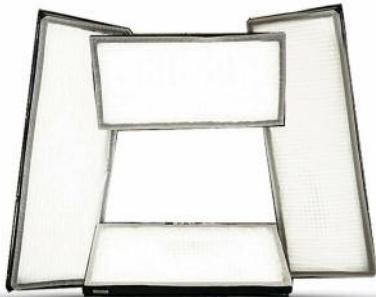
GoPro Omni (All Inclusive) Spherical Rig  
with Six HERO4 Cameras  
GOOMNI | \$4,999.99



JVC GY-HM620 ProHD Mobile News Camera  
JVGYHM620 | \$2,995.00



Orah 4i Live Spherical VR Camera  
OR4IVR | \$3,595.00



Westcott Peter Hurley Flex LED Mat 4-Light Kit  
WE7537 | \$5,500.00



Blackmagic Design URSA Mini 4.6K  
Digital Cinema Camera (EF-Mount)  
BLURSAM46KEF | \$4,995.00



YUNEEC Typhoon H Hexacopter  
YUNTYHBRUS | \$1,899.99

## TIPS & TECHNIQUES

*From the Pros*

### 1 Slate Like the Pros to Save Time

Consider using a slate while recording your video; they provide easily identifiable, time-saving visual and audio reference points for when your editor is wading through hours of recorded footage. Electronic "smart slates" feature a timecode or time-of-day digital display and are especially useful if you're using multiple recording devices. Less expensive acrylic or other lightweight board slates are available with or without clapper sticks and come in a variety of sizes.

### 2 Embrace the Cutaway

Continuity is one of the biggest challenges facing the editor. This is true in narrative production where takes are shot out of sequence, but also in documentary where unexpected hiccups can interrupt what would have been a useable shot. Cutaways—as cheesy as a detail shot of an artifact on a table—can save your life by giving you something to cut to. This can be where there was a brief camera problem such as the shot going out of focus or to patch two separate takes together seamlessly. As the shooter, give yourself as many alternate angles as you can, apart from the main subject, to maximize flexibility.

### 3 Don't Cross the Camera

There is a saying that if you must walk right in front of the camera you should call out "crossing" to warn whomever is looking through the lens that you are blocking their view. It is better not to walk in front of the camera if you can avoid it, but if you have no choice, then do so deep in shot, so you don't completely block the frame.

Shop B&H, where you will find all the latest gear at your fingertips and on display in our SuperStore.



[www.BandH.com](http://www.BandH.com)  
Where you will find information  
on over 400,000 items



Visit Our SuperStore  
420 Ninth Avenue, NYC  
877-657-9686



Free  
Expedited  
Shipping  
on orders over \$49\*

Cash in or Trade up  
Used Equipment  
We Buy, Sell, and Trade



\*Applies to In-Stock Items. Some restrictions may apply.  
See website for details. NYC DCA Electronics Store Lic. #0906712;  
NYC DCA Electronics & Home Appliance Service Dealer Lic. #0907905;  
NYC DCA Secondhand Dealer - General Lic. #0907906  
© 2017 B & H Foto & Electronics Corp.

Kodak

FOR REAL FILM – EVEN IN A DOCUMENTARY – THERE IS NO SUBSTITUTE.  
KODAK CONGRATULATES DIRECTORS JEDD AND TODD WIDER AND  
CINEMATOGRAPHER GERARDO PUGLIA FOR  
GOD KNOWS WHERE I AM



2017 AMERICAN CINEMATOGRAPHER AWARD  
FOR BEST CINEMATOGRAPHY  
DISTRIBUTOR: BOND/360

FILM MAKES A DIFFERENCE  
KODAK 7219 / 5219



#SHOOTFILM

©KODAK, 2017. KODAK IS A TRADEMARK OF KODAK.  
PHOTO CREDIT WIDER FILM PROJECTS