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American Cinematographer



Horror Spotlight

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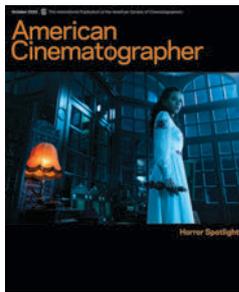


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Evie (Nathalie Emmanuel) confronts a sinister predicament in *The Invitation*, shot by Autumn Eakin. (Photo by Marcell Piti, courtesy of Screen Gems.)



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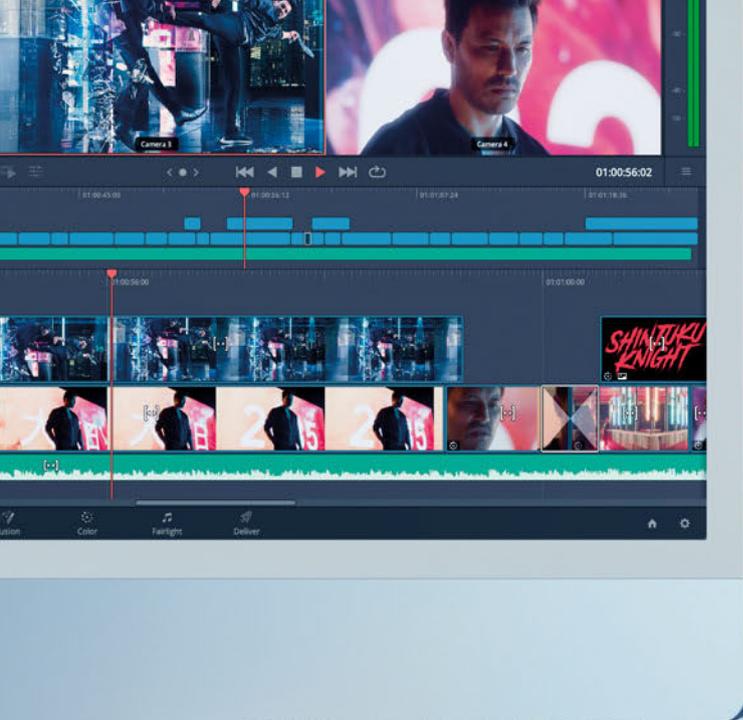
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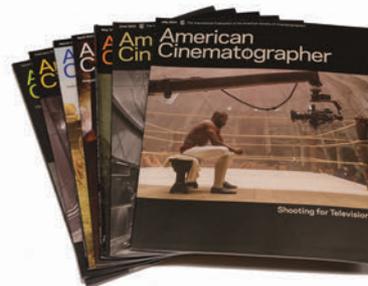
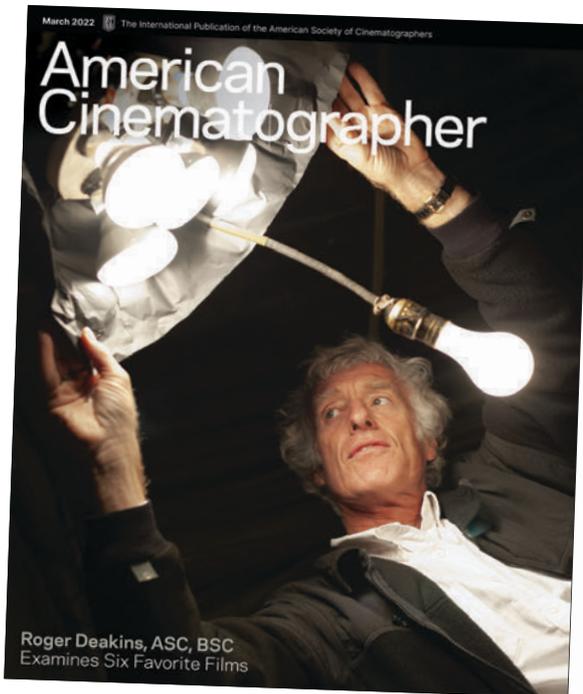
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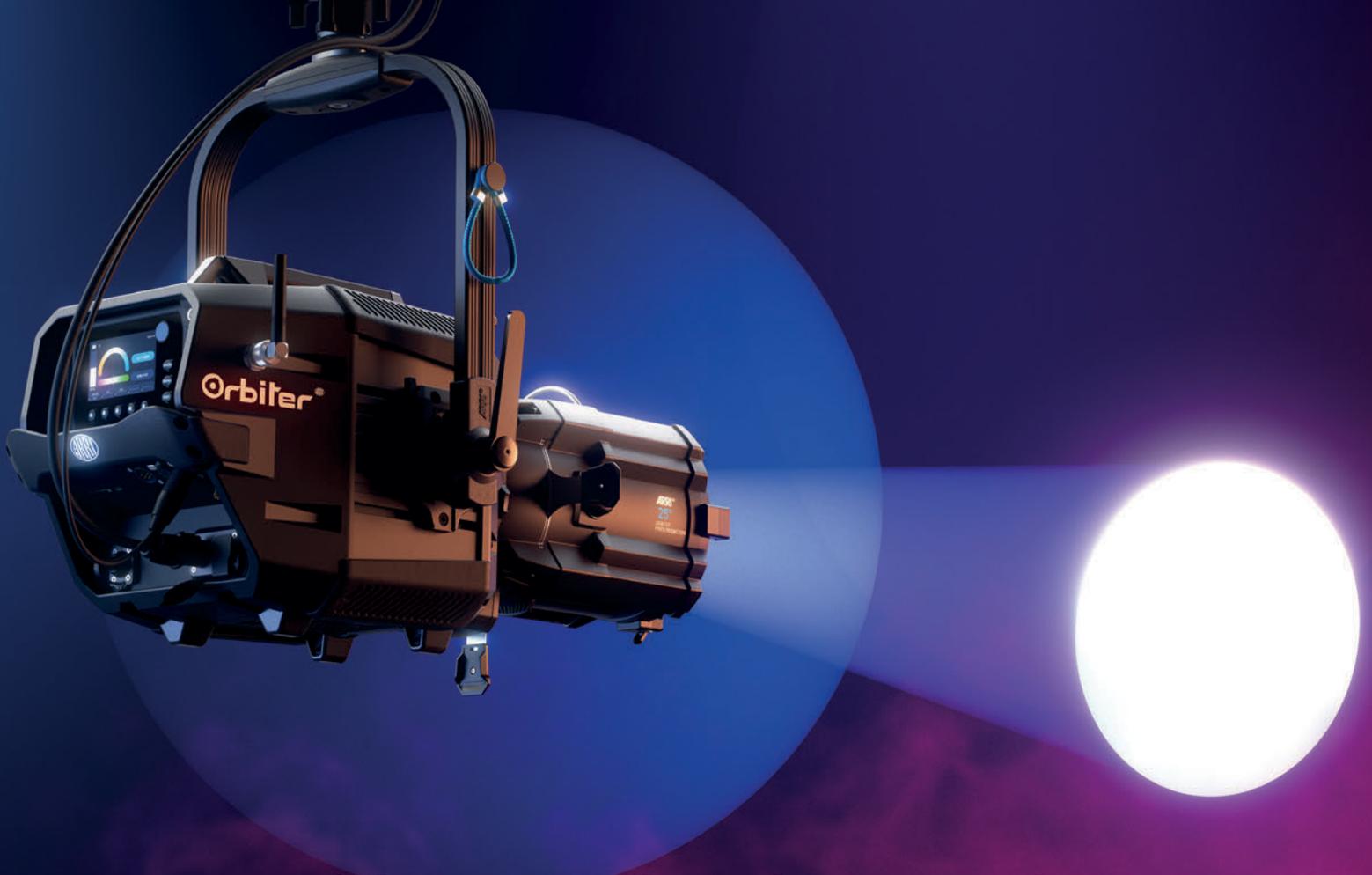
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Letter From the President



PORTRAIT BY MICHAEL M. PESSAH, ASC.

A Quartz D lighting kit — from Lowel-Light, founded by Ross Lowell, who wrote the book *Matters of Light and Depth*.



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EMERGING FROM THE SCARY — the uncertainty of a years-long health crisis — boundaries and ground we thought were solid have shifted. Protocols we worked with through the pandemic have morphed into a never-ending rigid structure of tests and separation. Productions ready to shoot are canceled on the first day of production. A major studio — Warner — has changed owners. Entire streaming programming is canceled (see CNN Plus) just weeks after going live. Scary enough?

Think of Poland: Over the last 120 years, their country has been controlled by entities including Austria-Hungary, Germany and Russia. This is the ugly, scary past — right? Right? Horror of horrors: Coveting someone else's land is still with us. The ground may not be as solid as you thought.

The subject of this issue of *AC* is horror — or, in a word, jeopardy from something or someone. The world is scary sometimes, and if it isn't scary enough, *AC* has different kinds of horror to scare you.

Cinematographers are used to being alert to where the shifting boundary of their work lies, while some directors and/or producers have different needs or attitudes toward what a cinematographer can contribute. What is expected to be a cinematographer's responsibility on one production may not be the same on another, and what should be reserved for another collaborator to tackle is necessarily a variable boundary.

Technological boundaries are in constant movement, too, and cinematographers are aided in staying abreast of change by this magazine — and, of course, the *American Cinematographer Manual, 11th Edition*, which came out this year after superb editing by David Mullen, ASC and associate member Rob Hummel. Another favorite is ASC member David Stump's *Digital Cinematography*, just revised with a second edition, as well as the *Cine Lens Manual* by ASC member Christopher Probst and associate member Jay Holben, who also writes this magazine's monthly Shot Craft column. The shelf of cinematography books where knowledge is shared is a long one. At the very beginning is a book by inventor Ross Lowell, the founder of Lowel-Light, called *Matters of Light and Depth*. Ross managed to write a book about lighting that's both funny and informative. So, when worried about your next production, read this book. It may keep the scary away.

A handwritten signature in black ink, appearing to read "Stephen Lighthill".

Stephen Lighthill
President, ASC



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Halloween Horrors



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Somewhere lurking in the shadows is the essence of true terror — whether it be a snarling beast, a raging killer or a supernatural specter. For the cinematographer, however, the true terror is opening the script and reading: *In complete darkness, our hero struggles ...*

When visualizing the terrifying images of the horror genre, the cinematographer can be faced with many challenges, but the tools at hand — the shape, texture and color of the light; composition; and camera movement — enable a powerful creative voice that can create edge-of-the-seat suspense and heighten the overall impact of the story.

Lurking in Darkness

One of the most common

challenges when shooting suspense or horror is having a character in “complete” darkness. How do you create an image when there is no light? One of the keys is to embrace the conceit that you can operate in edge light and sell a “no-light” look. If you keep the face in deeply underexposed, soft fill light and shape the character with a strong edge light, you can create a feeling that they are in the dark while they and their actions are still somewhat visible to the audience. More importantly, depending on the placement of your edge, the blocking of the actor and the amount of underexposed fill, the audience can clearly see the actor’s performance and emotions.

Setting your key source behind your subject at a position around

10 o’clock or 2 o’clock will give you a sharp, edge-defined shape for the talent while keeping light out of their eyes and off most of their face. You can fill the face to bring out subtle details with a soft bounce that is well underexposed — 2 stops or more. That way, the audience can make out basic details but still believe the character is in darkness.

Room Tone

Another method of conveying darkness in a scene is control of your “room tone” — the base level of exposure — which, when seeking to accomplish the goals discussed here, would come from a source that just brings up shadow detail (aka the “toe”) to an observable level. This is often achieved with a large, soft, overhead source that

can be well underexposed. Often described as “shadowless” and “directionless,” this type of source can be a fixture bounced into the ceiling; a large soft box or balloon; or, on stage, a series of space lights — and the source should generally be dimmed down to a level of 2 or 3 (or more) stops under your key exposure. This source can also be at a higher color temperature compared to your subject lighting, as we often associate cooler light with night or darkness. (See “Color of Night” section, page 13.)

Separation Light

Another approach is to completely silhouette the character in the environment. By placing light on the background, especially in selective or carefully controlled areas, you

Opposite: Edge light defines the faces of actors Brett Hargrave (left) and Becka Adams, to varying degrees, in a dimly lit environment. This page: Actor Doug Langdale is placed in silhouette with sharp edge light.



can position your talent in front of these background areas and get a clear silhouette to show they're in the dark.

There's a lesson to be learned from animators here. Traditional animators are taught that the story is in the silhouette — you should be able to remove all detail from your animated character, see only their silhouette, and still get a clear idea of what's happening in the story. Sometimes this requires the subject to turn their head or body so that the profile of their face is clearly outlined in silhouette. This can be a powerful cheat! Keep this concept in mind, as it truly aids in visual storytelling, especially in dark situations. If the audience can get the pertinent story information from a character's silhouette, that will sell the concept that they're in darkness quite beautifully.

Moving Through Pools

The character doesn't need to be clearly visible at every moment in the scene. There can be times when they fall into complete blackness or be only partially visible in edge light, silhouette separation, or even patches of front or side light. Mixing it up can add interest and intrigue. If the

character moves through pools of light, enabling us to see what we need to see at specific moments, then it's fine that we don't see the character at other moments.

Also, consider the parts of the body that must be seen for the story to be clear. If someone is lurking in the dark and picks up a knife, it may not be necessary to see their face when they grab the weapon, but it is necessary to see their hands. A selective pool of light right at the hands will do.

Adding Texture

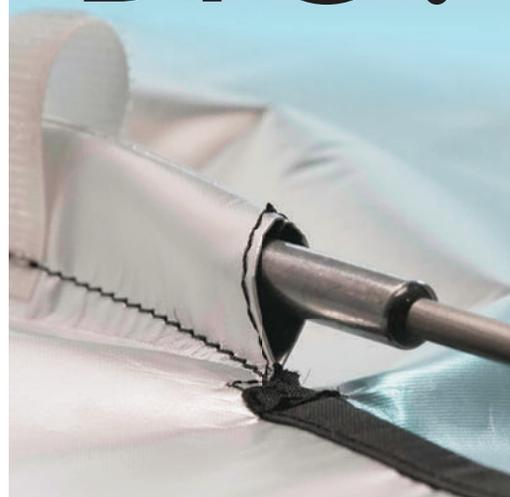
Some things that can help in designing these pools, and motivating them, are various textures of light. Whether the illumination is coming through windows, sheer drapes or tree leaves — and perhaps motivated by moonlight or streetlights — the textured pattern of chiaroscuro light/shadow effects can justify the pools and add interest when the subject does come into some light.

Falling rain on windows can create a moving pattern of light and shadow. Even abstract slashes, breakups or patterns of light and shadow can

You can operate in edge light and sell a “no-light” look.

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Actor Andrea Fellers appears in a frame with significant negative space — a composition designed to suggest that something might appear in that space.



Don't be afraid to have overexposed elements in dark scenes.

accentuate these effects — and realistic motivation (i.e., where the pattern itself is “actually” coming from) isn't always necessary. So, feel free to add a little taste of the abstract into your night sequences. These patterns also help to conceal details from the audience, accentuating suspense.

It's All a Cheat!

Almost all of these approaches have a degree of conceit. If we were to depict the character in *true* blackness, then the audience would have no idea what's happening except for what they can discern from sound. So, we must cheat a bit

to provide *some* light so that we can see what's occurring and understand the important story details. However, the key to keeping things visually interesting is in the mix of highlights and shadow. An overall underexposed image is hard on the eye and tends to look muddy. A brighter edge or background helps to refine the look and make it more visually acceptable, even though it's an entire cheat. Don't be afraid to have overexposed elements in dark scenes; these little hits of bright light also help to keep your audience's pupils closed down, which creates the perception of crisper blacks in your image.

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The set design and actor Edward Schofield's flashlight yield discrete points of light, which assist in the viewer's perception of crisper blacks.



Color of Night

Cinematographers have debated the color of moonlight since color film was introduced. Moonlight is actually sunlight reflected off the surface of the moon; this falls at about 4,100K, which is warmer than typical daylight — yet it is an accepted convention that moonlight is bluish in tone. If you've ever been out in the wilderness (far away from light pollution) during a full moon, you may have been surprised by how bright the cloudless night can be. Though moonlight itself is often cheated in movies, there is truth to the idea that you often can see reasonably well when moonlight is

the only illumination.

The perception that moonlight is cooler may be due to the limitations of human vision in dim light, or scotopic vision. In very low light, only the rod cells in the eye are activated, and they are most sensitive to the blue-green spectrum (a phenomenon known as the Purkinje effect). So, this lends some credence to the concept that moonlight has a blue quality. Whether or not you happen to agree with this concept, giving a cooler color to your nighttime light can help sell the idea of night, as it is a well-established component in the language of visual imagery. I've found that the

cooler the fill, the darker the look feels. When the fill is more neutral or warm, it tends to feel more comfortable or romantic.

Framing for Frights

The compositional choices the cinematographer and director make can also accentuate the drama or suspense of a given moment.

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Actor Debbie Diesel is partially visible in edge light, with soft bounce “return fill” bringing some detail into her face. The fixture in the background creates both contrast and the source of the bounced fill.



Any unbalanced composition can create tension.

Psychologically speaking, any unbalanced composition can create tension; asymmetry or atypical framing can create discomfort in the viewer. Two highly effective choices in framing for suspense are leaving excess negative space in the frame to suggest something will appear there, and short-siding, or placing the subject’s eyeline at the edge of the frame to give a sense of claustrophobia and entrapment.

Shooting through objects — that is, having obstructions in the frame — can create a sense of mystery and even cause the audience to lean to the side to try and see around the object in the frame.

Further, movement to the frame — especially slow, deliberate movement that may be out of sync

with the characters — can create a sense of dread and suspense. A slow pan with a character moving in and out of frame creates a sense of anticipation, especially when the audience is expecting to be frightened or surprised. Asynchronous movement can even be more effective if it *doesn’t* result in that fright or surprise. Circumvention of expectation is a wonderful tool in the creation of suspense.

Generally, the more unease and unpredictability you create in the image, the more suspense the audience will feel, provided you present the requisite frightening or surprising “payoff” from time to time.

Through the Eyes

The varying of subjective and

omnipotent points of view is a powerful tool for creating scares and suspense. The subjective point of view can mean a literal POV (seeing through a character’s eyes), but it is more often a POV that the camera follows to establish the emotional context of a character in a scene. When adhering to the subjective narrative POV, if a character is unaware of a piece of information, we, the audience, are often also unaware. In this way, the subjective POV can provide our jump-scares — but it is the omnipotent POV, which reveals information the characters don’t know, that creates suspense.

To paraphrase Alfred Hitchcock, if you have two characters talking at a table and the restaurant suddenly explodes, that’s *surprise*. If, however, during the conversation, the camera cuts to under the table and we see a bomb with a timer

counting down — but the characters continue their conversation unaware — that’s *suspense*. While those two concepts refer to the editorial structure of a scene, the same can apply to composition, shot selection and coverage of a scene. It’s important for the cinematographer to understand how the scene might be constructed later by the editor and director; this will provide invaluable information regarding lighting, framing and camera moves.

Disorientation Through the Lens

When choosing lenses to shoot a suspenseful scene, there’s no right or wrong, as it depends on creative interpretation. However, wide lenses close to a subject can evoke a claustrophobic and uncomfortable invasion of personal space that can create discomfort in the audience. Inversely, a long, tight lens that only reveals a tiny component of a character’s face or hands can also be unsettling. Specialty optics such as fisheye lenses, a Mesmerizer and split-field and custom-shaped diopters can all add an unnatural feel to a scene.

When you’re on location and don’t have full control over the lighting, a set of graduated neutral-density filters can come in handy for dark scenes to help drop portions of the location into deep shadow. Experiment with ND grads and you’ll be surprised how often they can literally shape the look of your shot.

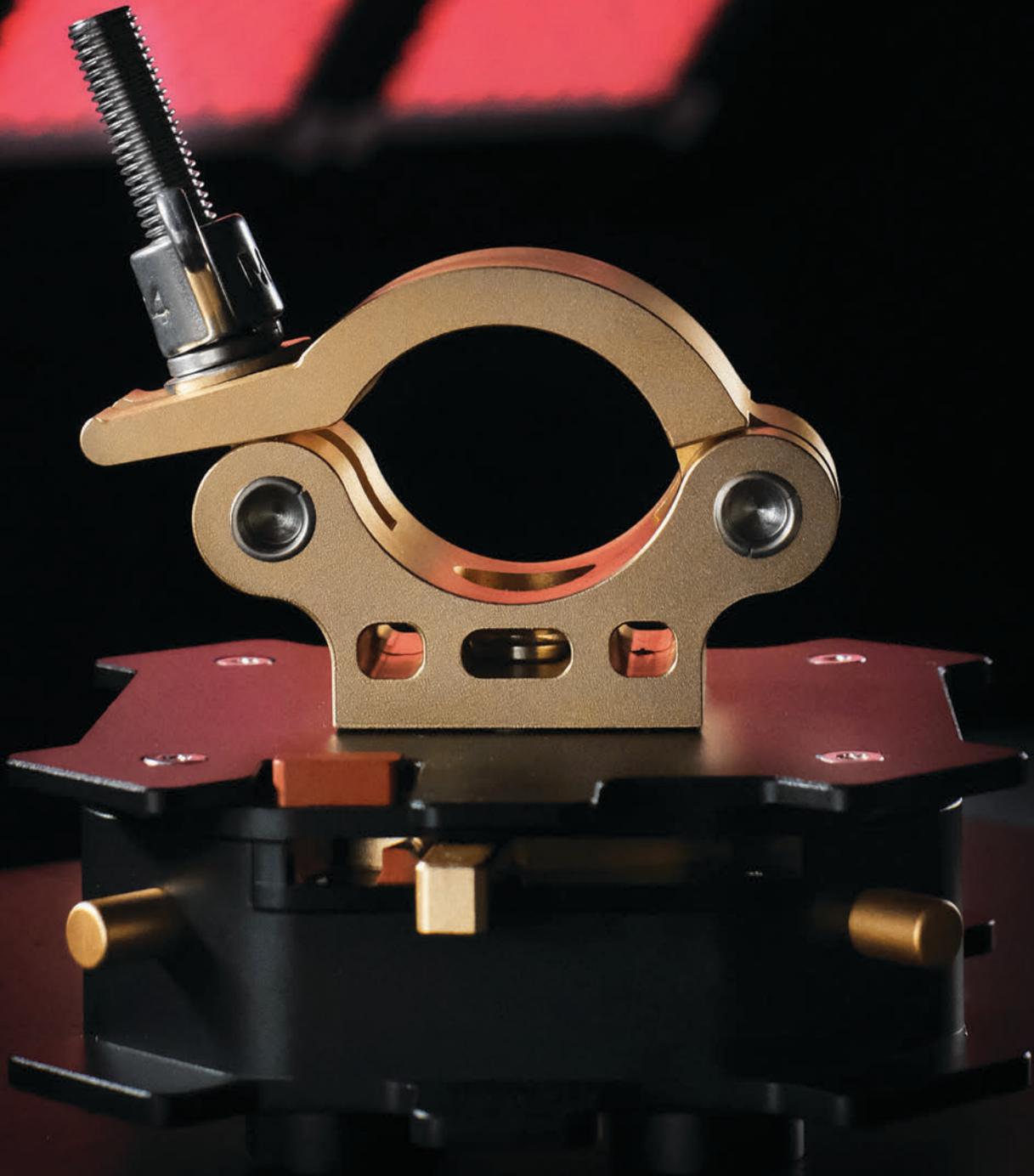
Perhaps these tips will give you courage on your next terrifying production. We don’t always have to be afraid of the dark!

Jay Holben is an ASC associate member and AC’s technical editor.

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Scare Tactics

Three cinematographers dissect the chilling imagery they created for *The Invitation*, *Men* and *Crimes of the Future*.

Introduction by Michael Goi, ASC, ISC

“A horror movie requires the cinematographer to tap into very primal emotions.”

Horror is personal. It’s a genre that relies on the filmmaker forming a connection with the viewer in a way that exposes the deepest parts of both their fears. More than any other form of filmmaking, a horror movie requires the cinematographer to tap into primal emotions — the kind we normally suppress as being irrational. But it’s the irrational that lies at the heart of true horror, the deviation from what we know and accept as real and controllable. Therein lies the key element of horror: dread.

Dread as a visual device can take many forms. Director-cinematographer Mario Bava often used the image of children smiling outside dirty windows to invoke a feeling of dread. Also, Bava’s groundbreaking use of color as a motif for the presence of evil was never more effective than in the segment of his anthology film *Black Sabbath* titled “The Drop of Water,” in which the increasingly garish color scheme portended the arrival of gruesome death.

It’s not enough to be visually audacious when you’re shooting a horror film. The kinds of visual pyrotechnics that might work in an action film will ring hollow in a horror movie if they’re not connected in a very insular way with the characters. So, the cinematographer must be faithful to reality — not the reality of what something would logically look like, but the reality of what it would *feel like* in the character’s mind. That goal requires the cinematographer to recognize and accept what they felt during traumatizing events in their life, and to work up the courage to put that experience onscreen. Those real, lived, firsthand experiences are where the true horror comes from.

For example, in one episode of *American Horror Story: Asylum* that I shot, there is a sequence in which Sarah Paulson’s character, Lana Winters, wakes up in a room with white tile floors, stainless-steel operating instruments and plastic curtains stained with blood — the lair of the multiple murderer “Bloody Face.” The crew assumed I would light that room with heavy shadows and pockets of threatening darkness, but instead, I chose to light it entirely with bright fluorescent lights in the ceiling. The idea was to make viewers feel as if they were taking a trip to their dentist’s office to have a painful procedure performed. I felt this strategy would make the experience of watching the scene more deeply personal for the audience, because they might associate it with their own experiences.

The pages that follow detail how three innovative cinematographers put their own stamp on the horror genre. Perhaps their thoughts and observations will inspire you to put your own nightmares onscreen for the world to experience.

— M.G.



Opposite: A horrifying image from the feature *Men*, shot by Rob Hardy, ASC, BSC. This page: Michael Goi, ASC, ISC on the set of *American Horror Story*.



The Invitation | At the Table

By Sarah Fensom

Cinematographer Autumn Eakin maintains that a sense of authenticity is essential to horror filmmaking. “The jump scares and things like that have to work,” she says, “but you also have to showcase the story, the characters, and their chemistry in a way that the viewer deeply cares about, too.”

To that end, Eakin feels that her experience in documentary work helped inspire her creative approach to the horror feature *The Invitation* — and her dynamic with director Jessica M. Thompson (*The End, Unstoppable*), whose résumé also includes a substantial number of nonfiction credits. “Jessica and I are both big proponents of having an authentic feel when it comes to capturing actors and their performances,” Eakin says. “So, even with a movie like *The Invitation* — a fantastic, fictional story — I think having a doc background can inform that narrative work.”

The movie’s plot follows Evie (Nathalie Emmanuel), a young woman living in New York who has just lost her mother — her last known family member. After taking a 23andMe-type DNA test, Oliver (Hugh Skinner), a long-lost second cousin, pops into her life as if by magic. He invites her to a family wedding at a sprawling estate in the English countryside, and suddenly Evie has relatives, a brighter future ahead, and a romantic interest in Walter (Thomas Doherty), a mysterious family friend. But the event and its participants turn sinister, leaving Evie to fight for survival and make sense of her predicament.

Bending Genre

“We wanted the film to create a sort of genre-bend,” says Eakin (*Someone Great*, *Modern Love*), who spent about nine weeks shooting the film

in Budapest, Hungary. “Most of the movie is really a fairy-tale with Evie falling in love, but it becomes this Dracula story with an old-world visual sense.”

The gothic influence on the film’s narrative inspired vintage trap-pings. “The story is set in England, so there are castles and lots of luxury,” Eakin says. “It’s this ideal world — a kind of ‘period piece’ that’s actually set in modern times.”

The film’s departure from the rigid constraints of genre and period proved creatively fertile for Eakin. In the past, she’d shied away from shooting horror, but *The Invitation* changed her perspective on such material, and she’s currently shooting another scare-filled feature, *Insidious: Fear the Dark*. “I’ve found that I like shooting horror films, because you don’t have to stick to the ‘real world’ — you get to explore things visually that don’t have the same limitations as everyday conversations, or a modern dinner party.”

In fact, a “beautiful, epic dinner party,” as Eakin describes it, is a pivotal scene in *The Invitation*. It’s at this lavish dinner that Evie learns the dark truth about the wedding she’s attending, and the fairy-tale tone of the film descends more completely into horror.

Ominous Optics

Recognizing the importance of the scene — which was shot on location in a partial set built over the course of three days — Eakin approached the sequence with a thoughtful yet dramatic approach. “Normally as a cinematographer you think, ‘Okay, cool, dinner party: We’re going to have 12 people sitting around a table, there’s a main key light over the top, and then you just get coverage, coverage, coverage,’” Eakin says. *The Invitation*’s dinner party, however, required something more: The cinematographer estimates that the setup included about 25 to 30 guests, all

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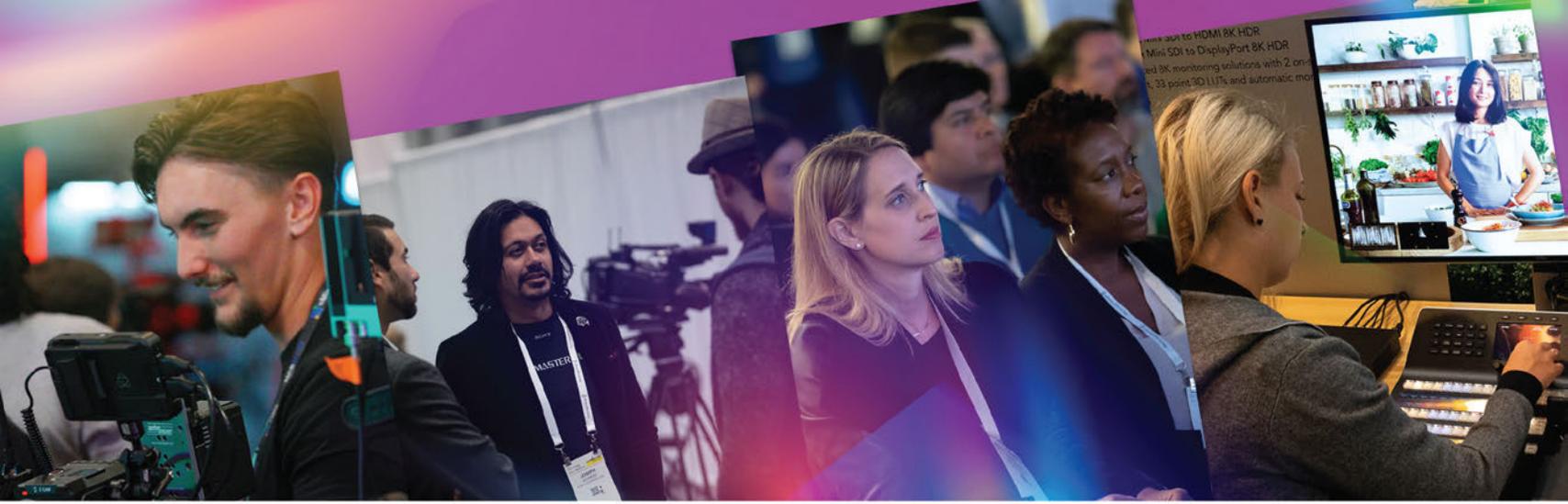
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Opposite: Evie (Nathalie Emmanuel) walks a dark path in *The Invitation*. This page: Walter (Thomas Doherty) and Evie find romance.



in intricate costumes and masks, surrounded by elaborate production design that begged to be seen. “I just wanted to get out over the table,” Eakin says. Doing so led her to use “a lot of jib arm, and specialty lenses — particularly a Lensbaby.”

Throughout the film, Eakin used the Arri Alexa Mini LF as her A camera and a standard LF as her B camera, in combination with Arri Rental DNA LF lenses. “I was looking for something that had a clean quality but still had character,” Eakin says. “I like the way the DNAs render faces, and the falloff as well.” She also used the Lensbaby Composer Pro — a 35mm and 50mm — at various points during shooting, including “the moment when Evie realizes she’s trapped in a nightmare of false pretenses.”

Doherty’s character, Walter, undergoes a significant transformation during the dinner party. “Up till that point, we want you to believe that Evie is falling head over heels for this guy, so I wanted to shoot Thomas — this very chiseled, handsome gentleman — in a way that would help the audience feel him making a transition visually,” says Eakin. “So, we shot him with a wide lens and went tight on his face — using a 29mm DNA lens.”

Throughout the film, Eakin adopted the somewhat unorthodox strategy of using wider lenses when capturing close-ups of Emmanuel. “Because of the beauty of the locations and production design, I wanted to be able to see around her, even in close-ups,” Eakin says. This choice also furthers the sinister fairy-tale tone of the film, making Evie seem surrounded — at times, even dwarfed — by her ominous environment.

Shadows and Darkness

In dressing the set for the party scene, the production-design team installed an enormous elk-horn chandelier over the dining table. One of Eakin’s major innovations was to rig the chandelier to serve both a



practical and decorative purpose. “It spanned most of the table, which was probably about 15 feet long,” she recalls. “I had production design and my electricians work together to hang something that could be seen on camera and still work as my main lighting source. Gaffer Gábor “Hevke” Hevesi worked with production designer Felicity Abbott and set decorator Zsuzsi Sipos to rig seven or eight LiteMat Plus 2L units within the long chandelier, and the art department embellished the edges with garish garnishings to help add visual interest while hiding our units.”

To enhance the dinner’s ambience, Eakin also deployed Jem Balls for underlighting, as well as SkyPanel S60s positioned “only on the ground since we were shooting at a historic location,” she says. “In general, I wanted soft, soft lighting for the film that would then get harder when we were less in the fantasy world,” she says, “but the dinner party is a transitional point. I wanted the lighting for the dinner to make that scene feel like it was wrapped in a velvet blanket. I just made a choice to

Tech Specs: *The Invitation*

1.85:1

Cameras | Arri Alexa Mini LF, Alexa LF

Lenses | Arri Rental DNA LF, Lensbaby Composer Pro

Top and middle: A long table serves as the centerpiece for an elaborate dinner sequence. Bottom: Cinematographer Autumn Eakin on set.



double- and triple-break with frames of muslin and 250, even though the SkyPanels and Jem Balls we utilized were already soft sources.”

Eakin’s cinematic references for *The Invitation* helped guide her bold vision for the film. “I always come back to *No Country for Old Men* — a completely different kind of movie, but a great reference for not being afraid of shadows and darkness,” she says with a laugh. “I also looked at *Gretel & Hansel*, because it’s a great interpretation of the Brothers Grimm folktale that didn’t shy away from implementing bold colors.”

Recent horror films like *Ready or Not* and *Don’t Breathe* further influenced Eakin’s low-key approach. “They made me think, ‘Don’t be afraid to go too dark.’ You just need a little highlight in the eye and it’s fine!”

Often, the key light Eakin used on Emmanuel was simply a bi-color or Jem ball that was double-diffused or double-broken, with two stages of diffusion frames in front of a fixture. “Shooting horror and shooting darker, you don’t actually need a lot of punch,” the cinematographer says. “In fact, a lot of times we were bringing our light levels way down — like going down to two percent on the Astera tubes.”

Eakin is quick to note that she had a great DIT, Dávid Vécsey, who would let her know “if things might be getting a little too crunchy.” If so, she and her crew would raise the levels slightly, knowing she could bring them back down later in the final grade. “David kept me in line and wouldn’t let me get too ‘blocky in my blacks,’ as he liked to say,” she describes. “He would watch my contrast levels, and if he was worried, I knew I should be, too. So, I would raise the lighting levels slightly to protect myself.”

Lasting Partnership

Eakin had a great ally in Thompson. The filmmakers met a decade ago while working on Liz Garbus’ 2012 documentary *Love, Marilyn*. On that project, Eakin served as a camera operator for her mentor Maryse Alberti, while Thompson was an associate editor. “Unbeknownst to me, Jessica had been kind of stalking me since we first worked together on *Love, Marilyn*,” Eakin recalls with amusement. Thompson closely monitored Eakin’s career, and in 2016, she enlisted her to shoot *The Light of the Moon* — the writer-director’s debut feature, which had its world premiere at SXSW 2017 and went on to win the festival’s Audience Award.

“We tend to have the same sensibilities, so on *The Invitation* I never had to fight hard for a different kind of angle, or anything that was a bit weirder,” Eakin says. For example, Thompson was open to changing her mind when Eakin suggested other ideas, such as shooting in the 1.85:1 aspect ratio instead of in 2.39:1, or anamorphic. “Usually, it’s the cinematographer pushing for a wider aspect ratio, but I lobbied for 1.85:1. We had such beautiful sets and builds that it felt like we would lose some of the film’s grandness and production value if we had less verticality in the frame.”

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Men | Birthing a Horror Scene

By Mark Dillon

The British feature *Men* takes the viewer into a strange and visceral place through a combination of old-school prosthetics, visual effects, and the careful lighting plan of cinematographer Rob Hardy, ASC, BSC.

Men is the latest collaboration between Hardy and writer-director Alex Garland, following the recent sci-fi series *Devs* (AC July '20) and features *Ex Machina* (AC May '15) and *Annihilation* (AC March '18). The psychological horror film follows Harper (Jessie Buckley) as she grieves the sudden death of her husband, James (Paapa Essiedu) — whom she intended to divorce — and rents an English country home from its nattering owner, Geoffrey (Rory Kinnear).

The idyllic setting is spoiled by Harper's disturbing encounters with various men, including a strange naked man in the woods, an unsympathetic police officer, an aggressive nine-year-old, and a vicar who blames Harper for her husband's passing. (Adding to the weirdness, each of these characters is played by Kinnear — with visual-effects studio Framestore replacing young actor Zak Rothera-Oxley's face with Kinnear's, and adjusting the features to match the boy's head shape and complexion.)

Another Realm

One particular scene takes the story into another realm of surrealism. At night, Harper is attacked at the house by a figure that shifts into the

forms of the men who have confronted her. She tries to escape, but finds herself being chased by her own car until it crashes into a stone pillar on the estate grounds.

The naked man — now transformed into a demonic, foliage-masked “Green Man” — emerges from the hedges and, right before Harper's eyes, plops down with a suddenly gigantic belly. From an orifice, he births the boy seen earlier ... who, in turn, births the vicar ... who crawls after Harper into the house and births Geoffrey ... who finally births James.

“Everybody loved the idea, so it [became] a case of exactly how to do it,” Hardy recalls. “We were shooting nights, and May nights in the U.K. are short. Each night had six hours to shoot this complex sequence. We knew there would be a hand-off between special effects and VFX, or a fusing of the two. So, there was always something physical for the actor to interact with and for VFX to hang onto.”

Imposing Entrance

The Green Man's entrance was backlit by Fiilex Q8 Color LEDs motivated by the car headlights. Gaffer Jonny Franklin notes that the units “could match the color of the headlights using x, y coordinates,” and could also match the headlights' hard beams, since the Q8 is a Fresnel-style fixture.

The crew used three suspended light boxes containing Creamsource Vortex8 LEDs to create ambient moonlight using a combination of the units' daylight and tungsten hues.

“We would turn on one light box at a time depending on the camera



Opposite and this page, top: Actor Rory Kinnear portrays multiple characters, including this sinister figure, in *Men*. Bottom: Harper (Jessie Buckley) defends herself.

angle,” Franklin says.” Close to the camera, the crew used the Vortex8s through Full Grid Cloth frames — or, more rarely, Astera tubes through diffusion — “to help lift the actors faces,” but try and maintain as much contrast as possible.

Frightening Exteriors

After the Green Man drops to the ground, the scene cuts to a close-up of his belly (made by prosthetics designer Tristan Versluis), out of which the boy emerges, crawling across the shadowy lawn. As he stops and gets to his knees, the house security lights flash on, revealing his face and another very pregnant belly.

Providing that source were a combination of 650-watt, 1K and 2K tungsten floodlights, which were “standard hardware-store-bought security lights,” Hardy says. “I liked the authenticity of them.” When the camera faced away from the house, Vortex8s were used for enhancement. “My idea was to have a different ‘light state’ for each birth,” the cinematographer notes. “The harshness of the backlight moves into something moodier, then opens up into the white light from the security lights — something so stark that the viewer can’t look away.”

For the vicar’s birth, Kinnear, covered in K-Y Jelly and fake blood, stood in a trench underneath the boy’s supine prosthetic belly, from which the actor surfaces. (Visual effects added detail to augment the gruesomeness.) For Hardy, capturing this sequence recalled the golden era of practical effects in such films as John Carpenter’s *The Thing* (1982, shot by Dean Cundey, ASC; see page 44) — a movie he calls a key influence — and also reminded him of how challenging working with practical effects can be. “The hole was too deep, so when Rory stood up, [only] his head would appear from the belly,” Hardy says. “The belly was also too small. We had to cut into it, fashion a larger version, and cover it with blood — real seat-of-your-pants kind of stuff.”



As the vicar appears, the security lights dim. “Now, he’s a bit more backlit and there’s a much softer light coming from the house,” Hardy notes. “It felt more elegant for another quick transition.”

In the House

The filmmakers wanted each birth to top the previous one. The next one occurs in the house — its red-painted walls illuminated by practical lamps and sconces — as Harper retreats inside, dumbfounded, and the vicar slowly crawls after her.

Hardy framed Buckley sharp in the foreground and Kinnear soft as he crawls through the doorway behind her, to draw viewers’ attention to our hero as she processes these inexplicable events.

The vicar stops and, on all fours, births Geoffrey through the back of his neck — an effect that was largely achieved with VFX. Designing this segment required close collaboration with visual-effects supervisor David Simpson of Framestore. “I remember a lot of Zoom calls with VFX

Tech Specs: *Men*

1.85:1

Cameras | Sony Venice, a7S III; Phantom Flex4K (for slow-motion work)

Lenses | Panavision H Series, Normal Speed



Top: As *Men* progresses, bucolic settings give way to a creeping sense of menace. Bottom: Rob Hardy, ASC, BSC on location.



collapses behind the doorway in the hall and out of Harper's view. After a pause, a fully formed James appears and walks into the room toward her — a clever way to not show the complete birth.

For this segment, the filmmakers obscured the action to keep audiences guessing. As the birth of James commences, "I wanted [Kinneer] to be in shadow, and as he moves forward, he would lean into light being emitted from the living room," Hardy explains. "He'd move back and forth, so you aren't quite sure what you are watching, and it would slowly reveal itself." Franklin recalls that the crew had to be inventive within the cramped location, precisely placing practical lamps and mounting inter-connected LED panels to the ceiling between its wooden beams.

Due to the logistical constraints of practical effects, Hardy notes, this birth was the most VFX-heavy section of the sequence. "There were some prosthetic feet we could hold up as a reference for light, but we never shot them. We just had Rory acting as if something was emerging from his mouth."

Quiet Reflection

The result is a sequence that will likely have viewers talking for a long time — or perhaps, Hardy suggests, not at all.

"At the beginning of this process, Alex said to me, 'I want to make the kind of horror movie that, when a young couple leaves the cinema, they vow never to speak about ever again,'" the cinematographer recalls with a laugh. "He said, 'If we can achieve that, then for good or bad, we've achieved something.'"

back in London in preproduction and the references that were coming out," says Hardy — who shot *Men* primarily with Sony's Venice, paired with Panavision H Series lenses (the 35mm and 55mm being his go-tos), and used the Rialto option when employing a Stabileye rig.

Slow Reveal

The final phase of the scene is the breach birth of James. A pair of feet and shins emerges — from Geoffrey's mouth — after which Geoffrey

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Crimes of the Future | Deep Cuts

By Iain Marcks

For cinematographer Douglas Koch, CSC, creating the dysfunctional dystopia of David Cronenberg's *Crimes of the Future* on location in Athens, Greece, was a matter of selective framing, imperfect lighting and carefully controlled color.

Koch first worked with Cronenberg when the director, who also acts, was playing a role in Don McKellar's 1998 feature *Last Night*, an experience that ended with the cinematographer standing over the bloody, lifeless form of Cronenberg's character. Nevertheless, Koch was surprised when, 23 years later, the veteran filmmaker called to ask if he was interested in shooting *Crimes of the Future*. Peter Suschitzky, ASC, Cronenberg's regular collaborator since *Dead Ringers* (AC Dec. '88), was unavailable, and the director had been impressed by Koch's recent work on McKellar's *Through Black Spruce*. "It was a fairly serious film with a heavy tone," notes Koch.

Classical and Controlled

To prepare for his meeting with Cronenberg, Koch rewatched several of the director's films. "You pick up a lot of stuff, and it gives you some common ground to talk about things," he says. Koch describes Cronenberg's visual style as "classical," with a preference for spherical lenses and controlled, deliberate camera moves. "You won't find handheld shots in any of his work, not even POVs," says Koch. "He said to me, 'I don't want the camera to be so self-conscious.'"

"Two of my favorites of his are *Naked Lunch* and *Spider*," the cinematographer continues. "I went back to those because I liked the way they were shot, and I thought they might be close in tone to what *Crimes of the Future* could be. One thing I really loved about *Spider* was the use of

wider lenses in close-ups; you can read the actors' expressions, and you can also feel their body language and a bit of the environment. *Naked Lunch* has these really interesting narrative tones that shift throughout the film. It's funny, then it's freaky; it's science fiction, then it's a detective story."

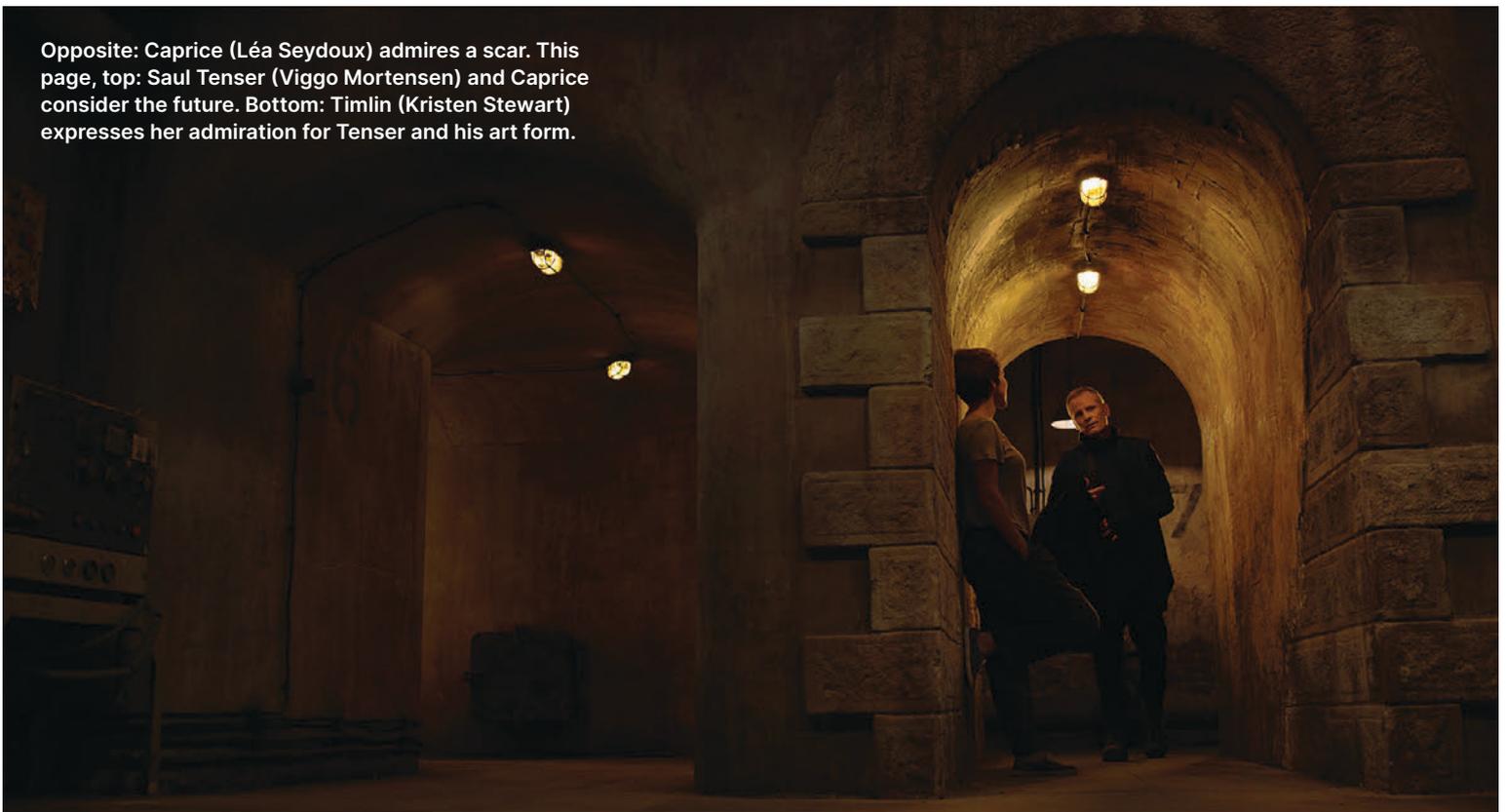
Return to Sci-Fi

Crimes of the Future marks Cronenberg's return to science fiction after his long hiatus from the genre following *eXistenZ* (AC May '99). The story is set in a future wherein climate change and biotechnology have significantly advanced, and humans' vulnerability to pain and infectious diseases has all but disappeared. Some people, like performance artist Saul Tenser (Viggo Mortensen), have begun to evolve new internal organs with mysterious functions. Others, known as "evolutionists," have modified their organs to digest toxic waste. Tenser and his partner, Caprice (Léa Seydoux), take advantage of his mutation by staging public surgeries to remove presumably vestigial organs, and when they are approached by Lang (Scott Speedman), the leader of an underground evolutionist cell, with a grim request, they are drawn into a game of intrigue.

The film was shot mostly on location in Athens and at Kapa Studios 2 in Markopoulo over the summer of 2021. "The reason Greece was initially suggested was purely financial," Koch says. "Then David was shown some films that had recently been made in Athens — in particular, the excellent *Pari* by Siamak Etemadi — and this convinced him our film could be done there. The place has a neat vibe to it, a combination of classical architecture and industrial decay."

Selective Views

Cronenberg wanted the world of the film to appear dysfunctional and dystopic, devoid of slick technology and skinned with low-resolution



Opposite: Caprice (Léa Seydoux) admires a scar. This page, top: Saul Tenser (Viggo Mortensen) and Caprice consider the future. Bottom: Timlin (Kristen Stewart) expresses her admiration for Tenser and his art form.

industrial and biomechanical textures. One way to achieve this, says Koch, was to limit what the camera saw without calling viewers' attention to any elements that were missing. "It was a matter of getting rid of things that didn't fit in the world," he explains. "In fact, we weren't even going to see a lot of people. There's the audience that shows up for the performances; there's the evolutionist cell; and there are the people cutting themselves and each other in the alleyways. That's it."

In the decrepit boat graveyard where Tenser has a furtive nighttime rendezvous with government agent Cope (Welket Bungué), Koch found himself framing out anything that hinted at the slightest functionality. "There was this gigantic, *Blade Runner*-esque oil refinery off to the right when you're facing the sea, and the ships were all in silhouette," he says. "We could have staged those scenes beautifully with the two men under the ships, but as tempting as that was, David thought it would have looked too functional for the world we were creating."

Lighting for Dysfunction

Koch also had to consider how lighting could underscore the strangeness of this world. For instance, an early scene in the script described a character in her room, staring into the distance by the light of a television. This prompted Koch to explore a moody TV glow that Cronenberg ultimately vetoed, as it implied a normally functioning broadcast signal. "Instead," Koch says, "I created low-level lighting motivated by a few practical lamps in the space."

Likewise, Tenser and Caprice's industrial performance space, filmed on location at Athenian University, needed to look "found" rather than bespoke. Koch recalls, "I asked David about this in prep, and after he thought about it a little bit, he said, 'You should light the scene, but it shouldn't look like they have their act together.'"

Koch made it a point to avoid obviously theatrical lighting, "although,

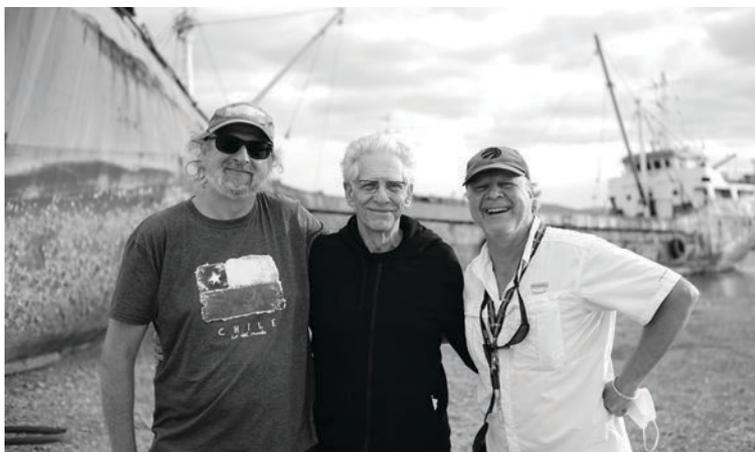
ironically, some of this look was achieved with carefully focused ETC Source Four ellipsoidal fixtures and gobo patterns to create warm tungsten spots on the audience in the galleries," he says. "The main performance area was lit by dimmed overhead soft boxes, and Caprice was to look as if she were lit by the glow of the SARK, Tenser's strange surgical pod. For that effect I used a mixture of units depending on the setup; sometimes we used diffused LED strip lights hidden in the SARK, but really I was just using more conventional lighting techniques."

For some of the surgery sequences, the filmmakers employed endoscopic cameras purchased by the production's prop builders. "We played with them and liked them, so we got our DIT and AC to figure out how we could record with them. We experimented with different high-end LEDs that we could put on the front of the surgical arms to create the kind of shadowless work light used in endoscopy."



Tech Specs: *Crimes of the Future* 1.85:1Cameras | Alexa Mini, endoscopic medical cameras
Lenses | Arri/Zeiss Master Prime

Top: Mortensen and the crew prepare to shoot a medical-exam sequence. Bottom: Douglas Koch, CSC poses at the film's "ship graveyard" location with David Cronenberg and gaffer Edward "Fast Eddy" Mikolic.

**Lighting for the Future**

This selective approach extended to the use of color as well. Production designer Carol Spier adopted Athens' structural palette of neutral colors for the film, adding earth tones inspired by the Grecian landscape, sea blues after the Mediterranean waters, and the rusty amber of post-apocalyptic ruin. Koch's methodology was based on the tungsten, fluorescent and high-pressure sodium lights extant in the locations, but highly controlled, with the goal of refining the look in the final grade with senior colorist Bill Ferwerda at Company 3 Toronto. "The sodium-vapor streetlights were either turned off or sometimes modified with cinefoil to shape their spread," Koch explains.

"A lot of the film was shot at 400 and 500 ISO on an Arri Alexa Mini in Super 35 mode," says Koch, who chose Arri/Zeiss Master Primes as his lenses. "I knew a lot of scenes were just going to be black on black on black, and I'd found in testing that deliberately overexposing by about one stop on average would get you up off the noise floor. We would lower the ISO of the camera from its native 800 down to 400-500, effectively recording more detail in the shadow regions. That way, when you go hunting for details in post, you end up with a lot of information to work with."

Koch and Ferwerda have a 30-year relationship going back to their music-video days, and Koch describes their collaboration on *Crimes of the Future* — which included direct input from Cronenberg — as "a very enjoyable" process.

"Color-grading tools have become so unbelievably powerful," he says. "What I find really amazing now is that while I'm shooting, I can light for the future, and in the grade I can do things I didn't have the time or the ability to handle on set with real light. Sometimes it's just as simple as floors; when I light a scene with top light, the floors often end up brighter than I'd like, and that can be hard to control. But now, it's easy to go in and pull it down tastefully, and the viewer is unaware of it. The trick is knowing what to spend your time on."

The experience of making *Crimes of the Future* still feels like a dream for Koch. "I've never worked on something that was created from the ground up on every level," he says. "When you have that degree of control over the production design, lighting and composition, you can really create your own weird world." ◉



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Yellowjackets: Hunger for Survival

ASC member C. Kim Miles shoots the Showtime series, alternating episodes with Trevor Forrest and building upon the pilot shot by Julie Kirkwood.

By Tara Jenkins



For many teenagers, social life in high school feels like a matter of survival. The Showtime series *Yellowjackets* takes that sentiment a step further — exploring the harrowing survival tactics of a fictional girls' soccer team that crash-lands in the middle of a remote Canadian forest. The show jumps between the '90s and the present day, alternately following the stranded teens, and the adult selves of the team members who made it out alive as they try to keep hidden the dark secrets of what happened in the woods. With carefully designed imagery, *Yellowjackets* illustrates how the traumatic ordeal affects the young women in the moment and far into the future.

The *Yellowjackets* pilot was shot by cinematographer Julie Kirkwood for director Karyn Kusama (see page 34). When filming resumed following pandemic-related delays, C. Kim Miles, ASC, CSC, MySC came aboard as lead cinematographer, alternating episodes with Trevor Forrester.

Power of Composition

Upon viewing the pilot, Miles was quickly taken with the writing and the performances, and with the work of Kirkwood and Kusama. "It was full of challenges and opportunities," he says. He notes that Kirkwood's "approach and decisions laid all the groundwork upon which we built," and adds that she and Kusama "were very conscious of composition, and were very focused on building really interesting frames. Toward the end of the pilot, there's this pair of shots that is so simple that I just loved. The airplane is empty, nobody's boarded it yet, and the camera pushes

down the aisle. It's cut against the empty hallway of the school as the camera pulls back. For me, that's the whole series in two shots. While no one is in them, the shots have so much context — it's the perfect blend of where they're coming from and where they're going. We tried to always keep that kind of power of composition in mind throughout the show."

Optical Decisions

For the shoot — which would employ two Arri Alexa LFs, each framing for a 2.39:1 aspect ratio — Miles tested and chose lenses for three different time periods: before the plane crash, in the 1990s; in the forest after the crash, while the young women were stranded; and the present day.

Lens choice and color became crucial to differentiating each time period. "The present day is more lush and neutral in terms of color reproduction," Miles says. "The past in the forest is more warm, with lots of greens and browns that are created by that world and influence the story."

Miles opted to shoot the present-day scenes with Arri Signature Primes. "They are nice, clean lenses — very forgiving and modern-looking, and flattering for our adult cast," he says. For scenes that depict the characters' past — before the crash — the cameras were fitted with a

Top: A frame capture featuring actor Kevin Alves as Travis. Middle: Natalie (Sophie Thatcher, second from left) and Jackie (Ella Purnell) face off in the woods. Bottom: Miles and director Deepa Mehta at work.



“We shot in a perfectly normal forest, but at times it seemed that even the breeze going through the leaves had meaning.”

combination of Arri Rental DNA LF and Prime DNA lenses, “which have a little less contrast. They’re a bit ‘dirtier’ and have more character to them. We had a couple of them tuned so that the edges would fall off in focus, to give that time period a sense of identity.”

The lens package used to shoot the forest scenes was a set of Atlas Orion anamorphics, which sharply contrasted with the spherical optics used for the past- and present-set scenes. The lenses “ended up becoming a character in the show,” Miles says. “They gave the woods a surreal sensibility that the other two worlds didn’t have. When the characters are in the forest, everything’s ‘squeezed’ and everything has that classic anamorphic bokeh [see top photo, at left], which gave the forest this surreal identity and a sense that it was somehow alive.”

Miles credits some of this effect to the wide (32mm and 40mm) lenses that he used on close-ups — with the actors therefore quite close to the camera — so “the characters are rarely, if ever, isolated from the environment,” he says. “It’s a combination of getting into the actors’ emotional space, but at the same time, juxtaposing that emotional space against this creepy, all-encompassing world. We shot in a perfectly normal forest, but at times it seemed that even the breeze going through the leaves had meaning. This sense of foreboding in the show kept building on itself over and over again, getting stronger and stronger.”

Lighting in Darkness

The forest exterior scenes — as well as the downstairs of the cabin the stranded team uses for shelter — were captured outside Vancouver, Canada, at a wooded “airsoft battle range,” Miles notes. The location was on level ground, “with access roads and space between the trees. It was an ideal ‘back lot’ for us to shoot in, and we were able to get equipment in there.” He notes that this was especially useful for nighttime scenes.

“It’s always tricky in the woods at night,” Miles says. “You want it to feel moody, but you also want to see their faces. Luckily, most of the time when we were outside, there was a fire or somebody had a flaming torch — or something that would give us motivation to light their faces. Our philosophy on the wides at night was to try to keep hard light off of the cast as much as we could and confine our hard-lighting sources to the deep background.”

The cinematographer describes a scene at the team’s campsite, where the crash survivors are “all around the campfire and we’re looking back toward the airplane wreckage in the background.” Working with gaffer Burton Kuchera and key grip Sean Jobin, and using a combination of Mole-Richardson and Arri units, “we’d have a lift way off to the right, probably with two 20K [tungsten Fresnels] in it, and a lift maybe just a little bit to the left, in the center frame — 120 feet up with another two 20Ks — and then another one to our left with a 20K and a 12K in it. And they were all doing different things [to light the deep background].” He adds with a laugh that the goal was to pick out “different sections of the woods, and try to do it in a way that doesn’t look like the cone of a 20K pointing at trees. We were always trying to break up the light — panning them around until they did something lucky, and then, you know, ‘Stop!

MIDDLE PHOTO BY MICHAEL COURTNEY. BOTTOM PHOTO BY COLIN BENTLEY.

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Designing the Pilot

By Tara Jenkins



Left: For the forest scenes in the pilot, the filmmakers integrated small costume elements with saturated colors. Right: Cinematographer Julie Kirkwood on location.



PHOTOS ON THIS PAGE AND OPPOSITE BY PAUL SARKIS.

Director of photography Julie Kirkwood found a home in horror long before shooting the *Yellowjackets* pilot. “I was always trying to find scripts that would let me shoot dark, strange things, and I was having a hard time finding a good match,” she says. “People would say, ‘Oh, this is too dark.’ Then, when I got into the horror world, people were saying, ‘This isn’t dark enough — go darker!’ That’s how I found my world, where I could go as far as I wanted with the darkness.”

Kirkwood first honed her horror skills while shooting director Oz Perkins’ 2015 feature *The Blackcoat’s Daughter*, then worked on his subsequent film, *I Am the Pretty Thing That Lives in the House*, and on *The Monster* alongside writer-director Bryan Bertino.

Continuing Collaboration

Kirkwood’s collaboration with *Yellowjackets* pilot director Karyn Kusama began on the neo-noir thriller *Destroyer*, which they filmed just a year prior to principal photography on *Yellowjackets*. “Before that, both of us had been working in horror. So, when Karyn connected with the showrunners of *Yellowjackets* about the pilot, she called me and said, ‘It feels like it’s time for us to do something horror-related together,’” Kirkwood recalls. “With *Yellowjackets*, everyone knew that we were doing a show about trauma and PTSD — the effects on these women from what happened to them when they were young. It could have been a grim, bleak, depressing show. That was always something we were talking about from the beginning: While we were going to have these grim elements, we didn’t want to have a show that was completely depressing and hard to watch. We had to find that balance.”

Color Motivations

The pilot posed some unique challenges, from juggling comedic and horrific tones to covering multiple time periods. While horror can often lean into muted color palettes to convey a grim tone, Kirkwood eschewed this strategy. “One thing Karyn and I talked about a lot is color. She doesn’t love an aesthetic where it’s just all desaturated. She’s always trying to find some way to get color into the image, and with a group of teenage girls, that became an obvious choice. We also

wanted to bring these colors into the present-day look as well — so that the two time periods would blend seamlessly, as if these memories of their past are just part of their daily life.”

Kirkwood had weekly meetings with Kusama, costume designer Marie Schley and production designer Catherine Smith to determine how color would be integrated thematically across departments. Says Kirkwood, “We went through scene by scene, asking, ‘Where’s the color coming from?’ Cat worked with Marie to create different palettes for different characters — Misty (Samantha Hanratty) and Christina (Ricci), Shauna (Sophie Nélisse and Melanie Lynskey) and the others — from their teenage selves to adulthood. We could say, ‘Okay, the color in the scene is really coming from the wall in this location,’ or, ‘The color in the forest needs to come from costumes.’ To make some colors in the wilderness very intense, while keeping the forest a bit desaturated and eerie, we used small costume elements that were extremely saturated, such as the pink sneakers worn by the hunter in the opening. We also boosted the saturation of that pink in the color timing with Natasha Leonnet at Company 3. We kept that color, even in their most difficult moments, because the standard look for a dark, remote winter story is the opposite. It was important to have a reminder that, months earlier, they had been teen girls with normal high-school lives.”

Selective Visuals

Yellowjackets doesn’t shy away from showing the bleak realities of survival, but it does rethink the ways in which horror violence is often depicted. The series’ opening scene — in which a woman runs for her life through the woods, only to be trapped and killed by a group of masked hunters — is a prime example.

“Karyn and I have talked a lot over the years about how violence is shown on TV, especially when women are involved,” Kirkwood says. “When we were planning the opening scene of the pilot, Karyn said, ‘It can’t be remotely titillating.’ That was our starting point. We knew that we were going to be showing violence against women, and that it had to be somewhat brutal. But we didn’t want to make beautiful images

“The set would tilt up and down and side to side while our ‘sun’ remained in one spot.”

of women suffering. So, anytime we do show violence, it happens out of focus, in the background, or it’s a very tight shot on a hand, or of a woman out of breath from running.”

This visual language also helped play into the mystery of the pilot. Many flashbacks in *Yellowjackets* are ambiguous — so much so that Kirkwood herself didn’t know which character’s death was foreshadowed in the opening scene while filming it. Misty is unmasked, but the identities of the rest of the hunters and the victim herself are kept concealed.

“There were things that we couldn’t show fully in the pilot because of events that happened later in the season,” Kirkwood says. “For example, when we were shooting the girls getting on the plane, we couldn’t show a wide shot of a plane full of people, because we didn’t want to restrict ourselves in terms of the actors who would play the rest of the team.” (Some characters seated on the plane were shot later on by cinematographer Trevor Forrest.)

For the interiors during the plane-crash sequence, “we put a section of a plane-interior set on a large gimbal,” Kirkland says, adding that the gimbal was built by special-effects coordinator Jimmie

Jackie (Ella Purnell) and Shauna (Sophie Nélisse) moments before their plane’s crash landing.





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Lorimer and crew. “I wanted to see the swaying of the oxygen masks and the girls’ hair, and even [Ella Purnell’s character] Jackie’s necklace. It also helped with the lighting, as the set would tilt up and down and side to side while our ‘sun’ remained in one spot. We had to keep our shots relatively tight and put a lot of thought into which characters sat near each other. I think it was these restrictions that led to the idea of shooting the ominous wide shot of the empty plane before the girls board. I’m certain that putting all of our actors on a moving plane set on a gimbal also helped them in the scene.”

Starting From Scratch

For Kirkwood, the filming of the *Yellowjackets* pilot was — like the show itself — full of questions begging to be answered. “It really was like prepping and shooting a feature, because we started from scratch,” she says. “There were no scripts for the rest of the season. It was a true pilot. And when the show came out, I was waiting, myself, to see pieces of the story. I was watching it as a fan.”



Top: A young woman flees pursuers in this frame capture from the pilot. Bottom: In a scene from the present day, Taissa (Tawny Cypress, left) meets with Shauna (Melanie Lynskey).

“ For this scene from Netflix’s *Resident Evil*, I fell in love with the Tiffen Chocolate filter because it gives a beautiful warm look while still appearing natural and preserving the different tonalities in the image without being overpowering.

Carmen Cabana
Cinematographer



Photo: courtesy of Netflix

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Resident Evil
Director of Photography
Carmen Cabana

Actor Sophie Nélisse in a horror-themed sequence shot by Trevor Forrest.



Lock it off there!’ In that way, we created that far ‘ring’ of set around us.”

In the intermediate layer, he says, the production would bury 5Ks in the ground, “sending light across the mid-ground a little bit, just to give us another layer in the middle; that was a little bit darker than the deep stuff, so that you’d have a sense of depth.”

For the closest layer, within 30’-40’ of the camera, the crew used hybrid tungsten/HMI elliptical balloons with a Steel Green skin to emulate moonlight. “They’re kind of a ‘backy’ toplight wrapping around. And then we’d have [units such as] Astera Titan Tubes and [Arri] SkyPanels to emulate the firelight on their faces. There were also some times, though, when we didn’t even [supplement the firelight]— we just let the fire itself do the work!”

Haunted by the Past

As the series progresses, more of the backstory in the woods unfolds — letting the audience in on some of the horrors the girls experienced — while the enduring effects of this trauma on the surviving teammates is gradually revealed in the present day, especially in the case of Taissa (Jasmin Savoy Brown as a teen and Tawny Cypress as an adult). Miles collaborated with production designer Brian Kane to allow the woods to creep into Taissa’s present-day life.

“Brian wanted to imbue a sense that the forest had never really released its grip on the characters — that no matter where their journeys took them in life, the forest was there, looking over their shoulder. Taissa’s house is all greens and browns. The forest occupies her home more than any other character’s. Staying wide [with 25mm and 29mm Signature Primes] in her home was a way that we could remind the audience that even though her life is seemingly perfect, it’s not. Something’s always wrong.”

Conveying Dread

The sense of unease, says cinematographer Trevor Forrest, “was something we wanted to feel in both timelines, which meant our approach was more ‘psychological thriller’ than ‘horror film’ at this stage of the storytelling; the horror story begins at the end of the first season and will unravel over the multi-season [story arc]. You might see a few skulls, a few dead bears — but no one is sneaking out of the basement to cut someone’s head off.”

Trevor notes that he did shoot the Episode 9 “denouement,” however, which is firmly rooted in the horror tradition. “Mushroom hallucinations during a ceremonial gathering, with their impending deaths in the hands of the wilderness, was the theme,” he says. “We chose to link [time] periods by using the Atlas anamorphics in both, rather than just in the wilderness. I added a homemade rotating 138mm shimmer filter in front of the lens as the hallucinations began. I operated and rotated the filter with a Micro Force to match the beats as the actors went through the experience of their dark, natural trip. This was perfect for the unease we wanted to inject the whole show with — and this was the expressive crescendo we needed.

“This was perfect for the unease we wanted to inject the whole show with.”

“Most of the ‘horror’ in *Yellowjackets* is attached to the everyday, from menstrual blood to nursing homes, or killing game to survive and its relationship to killing a human,” Forrest adds. “This needed a much more Hitchcockian ‘play’ with the audience, with long, meandering shots that Norwegian director Eva Sørhaug and I would plan, in order to lead the characters and ‘you,’ the audience, into places you know are terrifying, while simply holding up a mirror to our own inner fears — which I hope was why so many people connected so strongly to the series.”

Breaking the Rules

In the last episode of the season, Miles also chose to deviate from the visual rules that had applied to most of the show’s episodes, and brought the Atlas Orion anamorphic lenses into the present day for a high-school reunion sequence. In the scene, the surviving soccer teammates have

Forrest eyes a shot.



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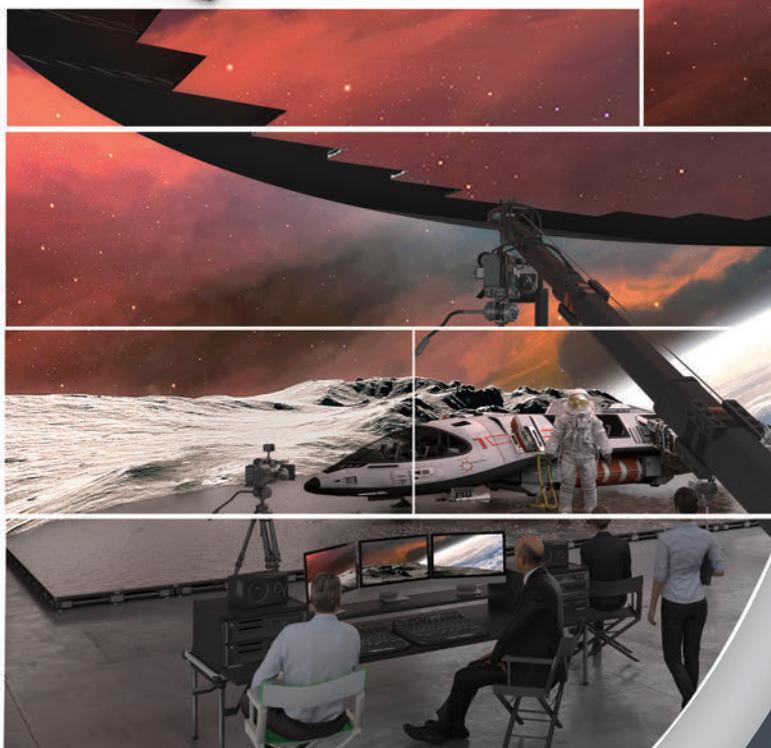
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Lighting and camera setups for nighttime exteriors shot by Forrest (top) and Miles (bottom).



TOP PHOTO BY KAILEY SCHWEMAN. BOTTOM PHOTO BY MICHAEL COURTNEY.



just disposed of a dead body of one of their members' ex-boyfriends, Adam (Peter Gadiot), before arriving at their old high school.

"It was a bookend to the season, being at the party," says Miles. "In a macabre way, we're in a moment of triumph, after the women have dealt with Adam's body and are still able to get to this party. We thought it might be a great time to harken back to the woods and bring that anamorphic bokeh into the present day — just to remind the audience, in a psychological, subliminal way, that the forest is still there. It's still influencing the things that happen in the present day."

In the end, this is where the horror of *Yellowjackets* truly lies: in the hold that trauma has over these characters, as their past perpetually haunts the world around them and how they perceive it. **O**

Additional reporting by Andrew Fish.

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Nightmare Fuel

ASC cinematographers recall how they created iconic horror imagery for 10 outstanding examples of the genre.

Curated by David E. Williams

Throughout the history of cinema, ASC members have made significant contributions to the horror genre, both aesthetically and in terms of the very grammar of the movies themselves. In the following pages, Society cinematographers who have made key contributions to the horror canon offer insights into their approaches to memorable films that continue to terrorize viewers.

The Exorcist (1973)

Owen Roizman, ASC

“There is a part during the exorcism scene when the demon causes the lamps to go a little crazy. They would flicker, dim, and do weird things, and the lighting pattern would change completely. The one fundamental lighting change occurs when the room shakes and one of the lamps falls over. From that point on, one lamp is on the floor and the other one is still on the night table. This gave the set an entirely different look for the rest of the exorcism — and added to all of the problems. At the very end of the sequence, [director] William Friedkin wanted the room to have a completely different feeling, even though the basic source lighting remained the same. He wanted it to have an ethereal quality — a very soft, glowing, cool sort of thing. At that point, we tried to work with absolutely no shadows in the room, using just bounce light — and I think we achieved the correct overall effect.”

From left: Actor Max von Sydow; Owen Roizman, ASC; and camera assistant Tom Priestley Jr. prepare to shoot the exorcism ritual. Priestley later also became an ASC member.



IMAGES COURTESY OF THE ASC ARCHIVE.

The Texas Chain Saw Massacre (1974)

Daniel Pearl, ASC

“[Director] Tobe Hooper and I talked about how less is more, in terms of lighting and what we should see. But there are three primary things that resulted in the realistic, almost documentary, look of the film. They were the compositions, which are sometimes more ambitious and creative, but generally simple; the basic lighting, because I was inexperienced and had very few lights to work with; and the photographic tools we had, which were an Éclair NPR 16mm camera and [Ektachrome 25T 7252] color reversal film. There was also the limitation of our [production] time, which was very tight.”

Suspiria (1977)

Luciano Tovoli, ASC, AIC

“A horror film brings to the surface the ancestral fears that we hide deep inside us. *Suspiria* would not have had that same cathartic function if I had utilized the consolatory sweetness of the full color spectrum. To make *Suspiria* an abstraction, compared to what we call ‘everyday reality,’ I used primary colors — which are usually reassuring — only in their purest essence, [rendering] them immediately, surprisingly violent and provocative. I relied on blue, green, and red to identify the normal flow of life, and then applied a complementary color — mainly yellow — to contaminate them. This brings the audience into the world of *Suspiria*. You say to yourself, ‘This will never happen to me, because I have never seen such intense colors in my life.’ You feel reassured and, at the same time, strangely attracted to [delve] deeper into this colorful journey.”



Halloween (1978)

Dean Cundey, ASC

“One of the things that [director] John Carpenter and I talked about [in prep] was the visual mechanics of scaring the audience — red herrings, double scares, misdirection — which had all been around long before, but we organized them as a set of techniques. One of the great things about the anamorphic frame is that there’s a lot you can do with the edges of compositions — creating ‘lurking space’ of shadows around the subject, like in darkened doorways where something might or might not be hiding — that are psychologically stressful and create tension. Audiences are more used to this grammar now, so it’s a matter of figuring out how to twist that a little bit.”



The Thing (1982)

Dean Cundey, ASC

“It was evident to me that [special makeup-effects supervisor Rob Bottin’s] work was so great that we needed to see the creature. I hated to relegate it to silhouettes or something like that, but I also knew that if we went too far, we could give away the fact that it was a lump of plastic with paint on it. I developed this idea with Rob that we would set up each encounter in an area where we could justify using a number of very small lights that would highlight areas, surfaces and textures. Then, I would light the back wall of the set so that you could see the shape of the creature. It became an interesting game of showing just enough for the audience to understand what was happening while still keeping the creature a little mysterious.”

Henry: Portrait of a Serial Killer (1986)

Charlie Lieberman, ASC

“Each night, before the next day’s work, I would try to figure out how to make the scene scary. I had no money, so I developed this method of revealing certain things in these long, seeking shots. I wanted the audience to think, ‘Please don’t go around that corner,’ and ‘Please don’t show me what you’re going to show me — *but show me!*’ It’s what’s around the corner that’s the scariest thing. The budget limitations meant that we couldn’t shoot ‘action horror.’ We didn’t have the time or resources for makeup effects, and, in most cases, we only had one costume for the actors, so getting fake blood everywhere was not practical. Instead, we created this way of slowly revealing the aftermath of a crime while hearing the audio of what had taken place. You hear the gunshots and screams as we gradually reveal these gruesome scenes. Our editor [Elena Maganini] did a fantastic job.”



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Seven (1995)

Darius Khondji, ASC, AFC

"I'd wanted to do a film like *Seven* for a long time. I grew up dreaming about it. I was introduced to cinematography by going to horror films. Films like *Dracula*, starring Christopher Lee, were very important to me when I was a kid. [Director] David Fincher and I believed that the film should be scary, but very modern. One of the first [visual examples] I brought with me was *The Americans* by Robert Frank. It became a bible for me. It's all black-and-white, but the photos have the spirit of modernity. You feel the dynamic in Frank's photography — which also helped me decide on the Primo lenses. The Panavision system is great, but I wanted the Primos that I knew would give me that same feeling. So, we shot the movie on Primo lenses in Super 35. We wanted to have this tough, handheld image mixed with some Steadicam — in the spirit of *The French Connection*, but also stylized and scary with spiritual lighting, like *Klute*."

Sleepy Hollow (1999)

Emmanuel Lubezki, ASC, AMC

"I was familiar with the most famous Hammer films, like their Frankenstein and Dracula movies, but I've never been as big a fan of them as [director] Tim [Burton] is. I don't think *Sleepy Hollow* resembles the Hammer films, except in the way that it was made. We did a lot of work on soundstages, and we tried to emulate that 'classic movie' feel. The Hammer films were made that way because the filmmakers didn't have a lot of money. We did it because Tim liked the idea of creating a synthetic, pictorial look. That also gave us control of visual elements, such as color and contrast, as well as seasonal elements, like fog and wind. We also wanted to control the amount of reality in the movie. It's not a historical reconstruction — it's a fantastic tale. Our biggest frame of reference was *Black Sunday* [1960, photographed by Mario Bava and Ubaldo Terzano]. That film is interesting because the images are clear and strong."



28 Days Later... (2003)

Anthony Dod Mantle, ASC, BSC, DFF

"You can't avoid the parallels [with other zombie outbreak films]. But we didn't pull out any genre movie of that kind and sit down like good boys and look at it. Looking at one piece of work of the same genre can send you off on a secondhand journey. It's best to create your own world."

The Descent (2006)

Sam McCurdy, ASC, BSC

"[Dean Cundey, ASC's camerawork in] *Halloween* has a graphic simplicity. [Director] Neil Marshall and I wanted that same feeling for *The Descent* — that simplicity. We didn't want any visual clutter, just a straight-ahead look that delivered the story. There was a quality to the horror films of the late 1970s largely based on suspense. They didn't use gore, fancy lighting, or overly clever camera moves — just strong images." ◉



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Innovations in Virtual Production on *1899*

AC takes a behind-the-scenes tour of the “turntable” LED volume built for this ambitious new Netflix series.

By Noah Kadner



The period mystery-thriller series *1899* follows a group of European migrants who leave London on a steamship to start new lives in New York City — a journey that becomes a nightmare when they encounter another migrant ship that appears to be adrift. The upcoming Netflix production was originally planned as an international location shoot on practical sets and massive back-lot builds in a water tank, but Covid-19 protocols necessitated a radical change.

In the effort to overcome this challenge, Netflix and its in-house virtual-production teams helped identify an opportunity through which virtual production would make the show achievable during the height of the pandemic. Dark Bay, a massive LED-volume facility, was constructed at Studio Babelsberg outside Berlin, which enabled the production to shoot *1899* almost entirely on stage — from May to November 2021.

Learning the Language

“The huge challenge was to produce a pan-European show during a pandemic,” says writer-producer-showrunner Jantje Friese, who co-created the show with producer-director-showrunner Baran bo Odar. “We slowly started to put on a different thinking cap. In the beginning, we didn’t know much about virtual production, apart from what we’d seen on other shows and what Netflix had shared with us about the storytelling possibilities of LED stages; they thought we’d be interested because we’re always into new technologies and challenging ourselves. So, all of these pieces of the puzzle came together.”

Collaborators on the series — whose international ensemble cast features Emily Beecham, Aneurin Barnard, Andreas Pietschmann, Miguel Bernardeau, Lucas Lynggaard Tønnesen and Anton Lesser, among others — included executive producer Philipp Klausning and production designer Udo Kramer. Nikolaus Summerer, who — like Klausning and Kramer — had worked with Friese and Odar on their prior Netflix series, *Dark*, served as director of photography.

“By the time I came aboard, the concept of the volume was already on the horizon,” Summerer says. “Before we did anything with a camera or lenses, we really needed to do our homework. When we started, the only show that had used the volume to the large extent we were planning to was *The Mandalorian* (AC Feb. ’20). So, there was relatively little material from which to research — but, fortunately, Greig Fraser [ASC, ACS] and Baz Idoine [ASC] had generously shared their experience via numerous podcasts and articles. After poring over those, I approached both of them with more *1899*-specific questions.”

Previous spread and this page: The Dark Bay LED volume with rotating platform at Studio Babelsberg outside Berlin.



PHOTO BY ALEX FORGE. ALL IMAGES COURTESY OF NETFLIX.

“The more we learned and the more intelligently we worked together across departments in the volume, the better the results.”

Virtual Visit: On-Set Innovations

The producers of *1899* arranged a virtual set visit for *AC*. Streaming, stabilized camera rigs and wireless mics enabled this writer, along with ASC CEO Terry McCarthy and *AC* editors Stephen Pizzello and Andrew Fish, to tour Dark Bay over Zoom. The team demonstrated how they strove to shoot with two cameras as much as possible. We saw the scene-dock where sets were constructed, as well as scenes filmed on the bridge of a ship sailing a virtual sea — with real water falling on the deck.

The team also demonstrated another innovation of the production: a 69'-diameter turntable built into the set. The circular platform enables quick turnarounds for coverage without having to reposition the camera, and allows directors to break down the scene however they feel it is appropriate in the moment. This workaround was developed by Odar and Summerer, and it ended up significantly broadening the functionality of the volume environment — a “game changer,” they say.

Summerer explains, “It was very important for director Bo Odar that the volume not restrict his way of filming a scene; he wanted to work in the same way as he would on location. That meant after the wide shots, [we could] move into closer shots and then turn around for the reverse direction. But if you have a fixed foreground set that only allows filming in one direction, the reverse can only be achieved if you basically flip the

Top: The ship's dining-hall set was partially created with imagery on the LED wall. Bottom: Digital doubles displayed on the wall served as background actors for scenes in the dining hall.



whole set 180 degrees. That's a very time-consuming process and you lose the chemistry in the scene. However, with our turntable — which turns a full circle in about three minutes — we were able to set up for the reverse shot in an instant, with the main lights and crane base already in position.”

“Once we started using the turntable, we wondered, ‘Why hasn't anyone thought of this before?’” Odar says. “Even if you have all the money to afford the downtime for a major set turnaround, it's still something everyone dislikes — from the producer to the director of photography. You have to shoot out everything in one direction, wait half a day for the turnaround, and then reshoot everything from another direction. In an ideal world, you'd have multiple volumes so you'd never have to wait between resets. But that would cost a fortune, so the turntable is the next best thing.”

Regarding full set changes, virtual backgrounds can easily be toggled from one environment to another within a few moments, but the physical foreground set must be changed as well, which can cost valuable production time. Capable of carrying 25 tons, the turntable offered the ability to swap modular sets in and out quickly.

For scenes that required practical pieces of landscape in the foreground, production designer Kramer came up with the idea to divide



the landscape volume builds into “pizza slices,” which were constructed by the art department. The slices would fit onto the turntable and could be wheeled in and out of the studio in minutes — the advantage being a relatively easy redressing of a set without the need to move large amounts of set-build material.

Because *1899* is set mainly at sea, the filmmakers sought creative ways to re-create the natural environment with realistic sea spray and rain. The LED panels used in the Dark Bay volume were not waterproof, however, so great care had to be taken. The solution involved a massive network of rain towers, plumbing and drainage. “The rain towers were



The volume's rain rig in action.

“The scenes set in the rain looked awesome, but they were also completely controllable.”

Modified Optics

For camera and optics, the team chose Arri’s Alexa Mini LF and customized Alfa anamorphic prime lenses. Initially designed in consultation with Greig Fraser, ASC, ACS for *The Batman* (AC June ‘22), the Alfas were refined for *1899*. “We wanted to go anamorphic,” cinematographer Nikolaus Summerer says. “Because we were using the Arri Alexa Mini LF, we needed large-format anamorphic glass. During early tests, I had the opportunity to get my hands on one of the prototype Arri Alfa lenses [that] Greig Fraser was using for *The Batman*. While I really liked the extreme look, for *1899* I wanted to go more subtle. Christoph Hoffsten, lens specialist and head of [the camera department at Arri Rental Berlin], helped me modify the lenses to my liking.

“Because I was to work in the volume for half the show, I wanted a lens that has a quick focus falloff, to support me [in blending] real sets and artificial screen backgrounds. Aside from technical needs, I also wanted a charismatic look with further vertically stretched bokeh, slight chromatic aberration and gentle soft edges, but only to the point where it wouldn’t compromise the VFX work. I’m pleased with what we achieved. Arri liked the result as well, and turned our subtle version into the Alfa lenses now available.”

achieved through a lot of persistence and a bit of madness on the part of Jantje and Bo,” Summerer notes with a smile. “I was concerned because it involved putting a lot of costly technology so close to water. But we had a great special-effects team that promised they could safely and reliably provide not just a dribble, but proper falling rain on the deck and on all of us. They could also get rid of the water and the humidity so quickly that it didn’t damage anything. Of course, you need to be sensible in using wind effects while using rain. The scenes set in the rain looked awesome, but they were also completely controllable. The rain rig and turntable are one of our biggest achievements with this studio.”

Digital Extras

Although virtual environments and lighting sources are staples of virtual production, digital doubles in the background are typically more challenging; the processing power required for achieving realistic movement and photorealistic appearances for virtual background extras significantly impacts system performance. But the *1899* team was determined to push the envelope and make it work in-camera. They achieved a lot of success with digital extras on the production’s dining-hall set, which included four practical columns and 14 tables on the physical stage and then an LED-volume background full of virtual tables and digital, motion-captured extras.

“The dining-room scenario was the one we feared the most because of the digital extras,” notes Friese. “The initial concept sounded weird, and I wasn’t sure it would work. When I finally saw the rushes, I was surprised because I couldn’t easily find the line between the real actors and the digital extras. It was one of those ‘wow’ moments.”

Odar adds, “The digital extras didn’t look too believable if you looked closely at them — you could see that they’re not super-detailed in their

Cinematographer Nikolaus Summerer at the camera.



facial expressions, etc. — but they worked perfectly when photographed deep in the background and slightly out of focus. The visual-effects team motion-captured several interactions for the digital extras — sitting down, drinking a cup of tea, things like that.”

In conducting some early research regarding the possibility of an “ICVFX” (in-camera visual effects) approach for 1899, Summerer had learned that digital doubles on LED volumes were historically troublesome. The cinematographer notes, however, that “about a year and a half later, we achieved it, which gives you a good indication of how quickly this technology evolves.”

“Everything Suddenly Clicked”

Speaking to AC while deep into postproduction, the filmmakers took a moment to assess their progress and the lessons they’d learned. “We had a very long prep time with a huge learning curve, especially in the beginning of production,” Odar recalls. “Then, about two weeks into shooting, everything suddenly clicked. We are super-happy with the results, and it looks so good. We’re also very pleased with scenes we didn’t

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Top: Capturing a crane shot on the ship's deck.
Bottom: A full view of the volume's turntable.



PHOTOS BY ALEX FORGE.

“[The director] wanted to work in the same way as he would on location.”

Building the Volume

The Dark Bay LED volume at Babelsberg was conceived as a self-contained virtual-production studio. Teams from the Arri Solutions Group and Faber Audiovisuals collaborated with visual-effects house Framestore to make the project happen.

Dark Bay features 4,843 square feet of filmmaking space, with 1,470 ROE Ruby 2.3mm-pitch LED panels — fed by Megapixel VR Helios processors — which yield a 23'-tall LED wall. The volume's revolving turntable is 69' in diameter, and a unique rain rig covers 3,230 square feet of the floor.

The volume has a height-adjustable LED ceiling with 383 ROE Carbon CB3 3.7mm panels supplemented with 73 Arri SkyPanels. A “floatable LED gate” with 140 ROE CB5 5.7mm panels is on hand for additional lighting effects.

think would work well in the volume, like smaller interiors, which also turned out great. The style and content we achieved feels like the future of filmmaking.”

“Everything that didn't work well in the beginning was more or less due to our lack of understanding of the volume and how to use its capabilities to our advantage,” says Summerer. “The team leaned into virtual scouting, previsualization and virtual lensing in order to test out and accurately prepare the staging, shots and angles that would work best for the scenes filmed in the volume. Creating successful work in the volume is a big team effort. The more we learned and the more intelligently we worked together across departments in the volume, the better the results. Particular attention must obviously be paid to the color- and lighting-match of the two realities. The virtual background, initially created many weeks before shooting begins, must be perfectly interwoven with the real set in the foreground to create a believable and realistic location. A lot of the final imagery came straight out of the camera without needing intensive fixes in post. Many things worked very well in-camera — it sometimes surprised us just how well.

“In the past, I found myself working on greenscreen sequences where I did not know what the background was going to look like,” the cinematographer adds. “[For] an overcast day, [for example,] what kind of sky would be placed there? What kind of landscape? Virtual production [puts] control of the final image back into the cinematographer's hand. I enjoyed controlling the lighting and the final picture, and also the liberation from greenscreen work.”

Eye on the Future

“The teams at Netflix have been incredible creative and producing partners, not just in helping us develop the volume for 1899, but also in supporting us and our partners with technical expertise,” Klausing says. “Without their continued collaboration from the beginning, the stage would not be a reality. They don't want to dictate to filmmakers how to create their shows, but they have a very collaborative virtual-production team ready to support productions wanting to use it. Their strategy also aims to empower local filmmakers and production ecosystems with the right technology to help elevate their stories.”

The 1899 team hopes their work will inspire other filmmakers to consider virtual production. They also stress that filmmakers and production teams who engage in virtual production should share what they've learned with others who are exploring these workflows.

“This is a new workflow, and we are happy to talk to anyone and give advice,” Klausing says. “It's a constant learning process, and that's our biggest tip: Don't be afraid to ask questions.”

Adds Summerer, “Filmmakers should not be scared about using virtual production and LED volumes. Be brave and enjoy the process. Soon you'll gain a better understanding of what's working well — and what isn't — and you'll quickly find yourself making bolder moves.”

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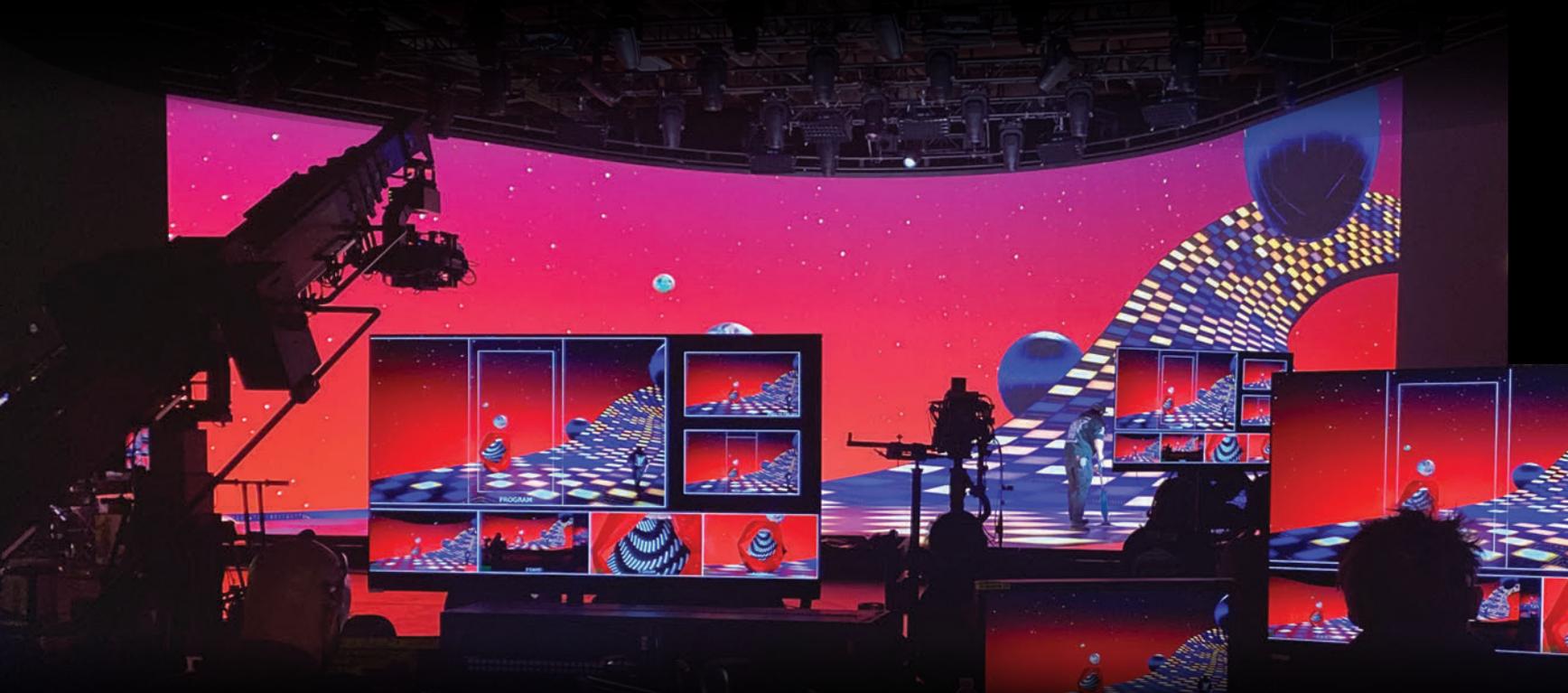


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Out of the Shadows



Actor Arohi Radhakrishnan as 8-year-old Nadi in the short film *Shadow Bird (Sonsi)*, directed and shot by Savita Singh, ISC.

Long before her directorial debut on the short film *Shadow Bird (Sonsi)*, cinematographer Savita Singh already felt at home as a storyteller. “Myths and fables are a big part of growing up in India,” she says. “You can’t separate them from reality.”

Born in Haryana and raised in Delhi by a banker and homemaker, Singh never even touched a stills camera until college. She went on to become the first woman to win a National Film Award for Best Cinematography — for *Kramasha (To Be Continued)*, her 2007 thesis film for the Film and Television Institute of India.

In *Shadow Bird*, she brings her passion for telling stories from a woman’s perspective, charting the journey of an “8-year-old girl in the wee hours of the morning, when the boundaries of dreams and reality are very thin,” Singh says. “She dreams of a person called the Time-Keeper, who crosses in front of her window every morning. In that little fraction of an

early-morning dream, she weaves a story of an imaginary bird that she secretly keeps — and that the Time-Keeper wants to steal.”

Singh’s work on the short won her a second National Film Award for Best Cinematography. *Shadow Bird* also won Best Film at the Bengaluru International Short Film Festival and Best Short Film at the Lady Filmmakers Film Festival. But her transition from success at the student level to professional filmmaking wasn’t a simple one.

Fighting for Representation

“When I started working, back in 2007, there weren’t many women cinematographers working in Mumbai — which is the center of filmmaking, especially for the Hindi-speaking audience,” Singh says. “People were really surprised to see a woman on set working behind the camera. I was wondering, ‘Am I the only one who is bothered by the under-representation of women? Is it only me who feels this casual

sexism on set? Or who is bothered about the pay gap?’”

Singh’s search for answers to those questions led her to become one of four co-founders of the Indian Women Cinematographers’ Collective, along with Deepti Gupta, Fowzia Fathima and Priya Seth. “The idea was to make a collective space which celebrates and showcases the work of Indian women cinematographers, and to provide a platform where everybody could come in and talk,” she notes. “We built a website that showcases everyone’s work in a non-hierarchical fashion.”

Making the Professional Personal

While still committed to cinematography, Singh realized that she wanted to expand her craft into

directing as well. “I’ve wanted to make something of my own for the longest time. I’ve wanted to make a fable-like film that experimented with time, space, dreams, and the loss of childhood.”

In order to finance *Shadow Bird*, Singh made a pitch trailer to show to her producer friends, who took a liking to the project. “They believed in the type of cinema I wanted to make. Once they came onboard, we had the money, but the film could not have been made without the help of friends. I had some great collaborators — some of the best of the industry, people who believed in me and were old friends. Hemanti Sarkar is a very senior editor in India who has done tons of work; Ashirwad Hadkar at Prime Focus is one of the most celebrated DI colorists

“I intuitively arrived at a slow, languorous rhythm for every shot to create a timeless sense of dream, memory and nostalgia.”

Top: Foggy forest scenes were captured in the middle of monsoon season to enhance the atmosphere.
Bottom: Singh on the set of her directorial debut.



in India. It was the same with our sound designer, Ajit Singh Rathore.”

For this project, Singh went back to her roots. “I wanted to shoot in a place which had a personal impact on me, so I went back to my film school and the areas around it. As a student, that’s where I formed my expression. I decided to shoot in the thick of monsoon season, because that’s when the weather transforms the place and everything becomes overcast and melancholic. The greens pop up, there’s moss everywhere, and it almost engulfs the place.”

Camework and Clockwork

Shadow Bird was captured on the Arri Alexa XT with Arri/Zeiss Ultra Prime lenses. Most of the film was shot at T2 to create a shallow depth of field, in wide and close lens perspectives to lend the story an eerie, fable-like quality. Another key aspect of the visual language was centered compositions inspired by Indian miniature paintings and



sculptures.

No filtration was used on the lenses, and 90 percent of the film utilized natural light alone, balanced with negative fill. Singh jokes that the natural fog that inundated the

location was more than enough filtration for the look she was striving for. She adds that since she was “trying to evoke a very timeless image, I felt that a very natural approach to this would be the most

ideal.”

Only a couple of scenes inside the bedroom made use of lights to supplement the natural look, and this was out of necessity to bring the light levels up. “Our approach

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Top: Clock-inspired visuals abound.
Bottom: Nadi feeds her magical Shadow Bird.



inside was very minimal, and we tried to make it as invisible as possible. To simulate the window light for the day-interior scenes, we used big, soft sources, such as Arri M90s and M40s through 10-by-10 Chimeras frames, along with negative fill. SkyPanels were used to create ‘fire flicker’ and ambient fill inside the rooms.”

As both a cinematographer and director, Singh recognized the importance of designing a visual style that would help create the mood of the piece. “The dream-within-a-dream narrative structure of the film was written, filmed and edited with the idea of a clock and its concentric loops in mind. So, I wanted to have circular movement, like how

the second, hour, and minute hands of a clock are intertwined. I very intuitively arrived at a slow and languorous rhythm for every shot, and the entire film in totality, to create a timeless sense of dream, memory and nostalgia.”

Singh used very slow, lingering movements — as well as slow motion — to evoke the sense that the audience is “moving around the story and past the action. It is a slow sink into your subconscious, to a time when you felt these emotions.”

Singh speaks to her work in the

forest to create this mood: “It’s a little fantastical, yet it’s supposed to be a little scary, too. So there are a lot of wide, close shots, and the camera is either very low or coming in from very high [angles], brushing past things and moving very slowly around them — exploring the textures on the tree, exploring very different angles that you maybe otherwise wouldn’t expect.

“The lenses we used most frequently were 16mm, 24mm and 100mm,” Singh continues, adding that the short was shot in the Super 35 format. “I used a large jib on tracks to achieve the dramatic high- and low-angle shots of the trees. In other scenes, especially the high-angle shots of the temple, we used a DJI Inspire 2. The drone footage cuts seamlessly with Alexa XT footage, as we had the advantage of the soft, overcast skylight of monsoons.”

Blurring Boundaries

The dreamlike, melancholic nature of *Shadow Bird* calls into question the nature of fable versus reality and examines whether a boundary between the two even needs to be drawn. Blurring these lines, Singh says, is a tradition long treasured in India, where “your grandma will talk about the story of Rāmāyana like it’s something that’s actually happening, and will embody it and live it.”

Singh is inspired by this melding of myth and reality that she grew up surrounded by “A child has wonder, amazement about things,” she says. “I saw this story from that childlike sense that it may be real. What happens in the fog is not just fog — it’s the soul of a warrior bird. With the way you shoot it, and the way you approach it, everything can become a character.”

“I saw this story from that childlike sense that it may be real. What happens in the fog is not just fog — it’s the soul of a warrior bird.”

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In Memoriam

Thomas Richmond, ASC
1950-2022



Thomas Richmond, ASC, whose affinity for working with first-time directors led to memorable collaborations with Keith Gordon, James Gray, Roger Avary and Ramón Menéndez, among others, died July 29 in New York City. He was 72.

Born in Bronxville, N.Y., on Jan. 18, 1950, Richmond studied architecture and photography at Harvard and earned graduate degrees from the UCLA School of Theater, Film and Television and the American Film Institute.

He started out with stints as camera operator, additional photographer and 2nd-unit cinematographer — working with director and fellow UCLA alum Alex Cox on the short *Edge City* and the features *Repo Man* and *Walker*, and with future ASC member Robert Richardson on Oliver Stone's *Salvador*.

His early credits as a director of photography included Cox's *Straight to Hell* and Menéndez's *Stand and Deliver*. The latter brought Richmond an

"His filmography is an inspiration."

Independent Spirit Award nomination and the Spirit Award for Best Feature.

Richmond shot five films for Gordon: *The Chocolate War*, *A Midnight Clear*, *Mother Night*, *Waking the Dead* and *The Singing Detective*. He helped launch other directors' careers with Keenen Ivory Wayans' *I'm Gonna Git You Sucka*, Avary's *Killing Zoe* and Gray's *Little Odessa*.

Richmond considered *Little Odessa*, about a hitman who returns to his Russian-Jewish hometown, a career highlight. He credited Gray's watercolor paintings of its Brooklyn locations with sparking his imagination. "[He'd painted] all his favorite moments in the film," Richmond told *Film-maker*. "They were from his heart. That kicked my ass. From that point on, I was his ally."

Gray tells AC, "In my hubris, I used to believe that I chose Tom to photograph my first film, and that it was one of my best decisions. Now, I see how lucky I was. It was *he* who chose *me*. His filmography is an inspiration, and the work reflects him: curious, bold, tasteful, free yet rigorous."

Little Odessa won the Venice International Film Festival's Silver Lion and earned Richmond another Spirit Award nomination.

Richmond's collaborations with first-time feature directors also included Tamara Jenkins' *Slums of Beverly Hills*, Rob Zombie's *House of 1000 Corpses* (with co-cinematographer Alex Poppas) and Ethan Hawke's *Chelsea Walls*.

Richmond won the Sundance Excellence in Cinematography award for Chris Gorak's directorial debut, *Right at Your Door*, a

thriller set in a hillside house overlooking Los Angeles. Juror Nancy Schreiber, ASC, noted, "Tom was incredibly inventive in making this house work in an emotionally diverse way. He did it with precision, skill and beauty — and on such a low budget."

Long known for mentoring young talent, Richmond had recently begun teaching cinematography at NYU's Tisch School of the Arts. "Tom loved photography as a form of expression, and he saw the potential for expression in others," says Jaron Presant, ASC, who was mentored by Richmond early in his career. "He gave those around him a precious gift: to not be afraid to try, fail, learn — and find joy in the process."

Richmond's feature credits also included Todd Solondz's *Palindromes* and Peter Sollett's *Nick and Norah's Infinite Playlist*. His music-video credits included Pearl Jam's "Jeremy" and promos for Foo Fighters, Neil Young, Emmylou Harris and Lisa Loeb.

Richmond became an ASC member in 2012 after being proposed for membership by Society members Steven Fierberg, Owen Roizman and Francis Kenny.

"His work stands out as a unique and strong vision on a wide range of independent films," Fierberg wrote in his letter of recommendation. "He has an inherently generous nature, always sharing time, advice and hospitality. His home, decorated with his fantastic photography, was always a welcoming environment and accommodated a wide range of acquaintances. This speaks to the breadth and humanity of this gentle soul."



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Clubhouse News

Society Welcomes New Members



After growing up in the San Francisco Bay Area, California native **Autumn Durald Arkapaw, ASC** attended Loyola Marymount University in Los Angeles, where she received a B.A. in art history, and went on to receive her MFA in cinematography at the American Film Institute in 2009.

After gaining experience while shooting music videos and independent features, Durald Arkapaw gained notice with writer-director Gia Coppola's drama *Palo Alto*, which had its world premiere at the 2013 Venice Film Festival and screened at the Telluride Film Festival.

She was selected in 2014 as one of *Variety's* "10 Cinematographers to Watch" and included in the publication's "Up Next" roster for its "Below the Line Impact Report," and also made *Indiewire's* "On the Rise 2014: Cinematographers to Watch" list.

Among other projects, Durald Arkapaw then shot *One and Two* for director Andrew Droz Palermo, which made its global premiere at the 2015 Berlin International Film Festival; Max Minghella's debut feature *Teen Spirit*, which premiered at

the 2018 Toronto International Film Festival; and *The Sun Is Also a Star*, directed by Ry Russo-Young.

Teaming with director Spike Jonze, she photographed the comedy special *Aziz Ansari: Right Now* and the documentary *Beastie Boys Story*.

After shooting Coppola's feature *Mainstream*, which premiered at the 2020 Venice Film Festival, Durald Arkapaw began work on the Marvel Studios series *Loki* for Disney Plus. She subsequently joined director Ryan Coogler for Marvel's anticipated superhero feature sequel *Black Panther: Wakanda Forever*, which is slated for release on November 11.

It was announced on July 12 that Durald Arkapaw had earned an Emmy nomination for her work in *Loki*, in the category of Outstanding Cinematography for a Single-Camera Series (One Hour).

Her husband is Emmy-winning Australian cinematographer Adam Arkapaw, ACS — who earned the 2016 ASC Spotlight Award for his work in the feature *Macbeth*.

After high school, **Wolfgang Held, ASC** left his hometown of Bonn, Germany, and spent two years hitchhiking around the world. On that trip, he picked up his first camera and never looked back.

After settling in New York City in 1991, Held met famed documentarian Albert Maysles and was hired to light and shoot several projects with him. Maysles became his early mentor for cinéma-vérité filming.

Held studied American Literature in Germany and holds an MFA in film from Temple University. In 2013, he co-founded the New York City Kamera Kollektiv Talent Agency, composed of like-minded cinematographers who share a passion for cinematic documentaries inspired by social justice.

Held is self-taught in narrative camerawork and learned his craft by trial and error, and by devouring issues of *American Cinematographer* cover to cover. He has always found himself inspired by the interplay of fiction and documentary.

He has worked on more than 100 films that have premiered at major international film festivals.

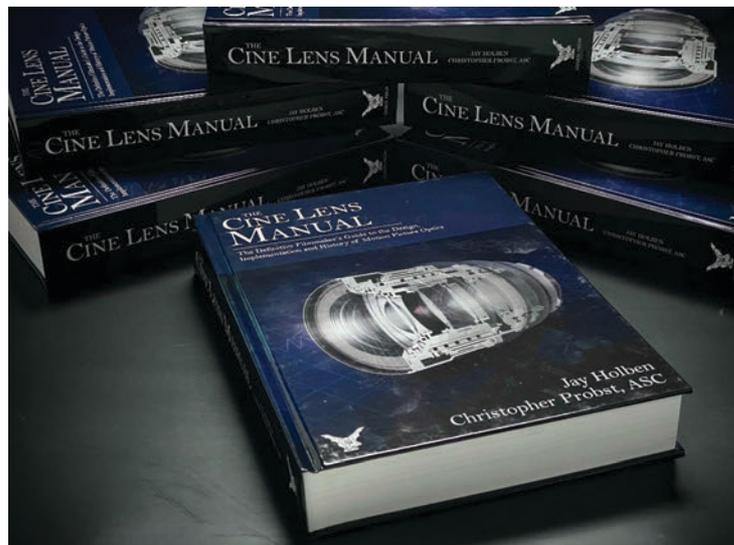
Individually, Held has won seven cinematography awards, including a 2008 Emmy for the miniseries *Carrier* in the category of Outstanding Cinematography for Reality Programming.

This year, Held earned his second Emmy nomination, for *The Andy Warhol Diaries*, in the category of Outstanding Cinematography for a Nonfiction Program.

He has shot films for directors that include Larry Charles, Ron Howard, Alex Gibney, Matthew Heineman, Liz Garbus, Sam Pollard, Joe Berlinger, Nanette Burstein and Gary Winick. Held spent months on the road with Sacha Baron Cohen as director of photography on the 2009 comedy feature *Brüno*, directed by Charles. Throughout his career, Held has worked on projects with his wife, documentary filmmaker Pola Rapaport.

Held is currently prepping two narrative features; two documentary series for Netflix and HBO; and three music docs, on Joan Baez, Jeff Buckley and The Black Keys.

He is also a member of the Academy of Motion Picture Arts and Sciences.



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— **Markus Förderer, ASC, BVK**

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Born in Nashville, Tenn., cinematographer **Blake McClure, ASC** got his first spark of inspiration from an unlikely source: the *Ernest* comedy movies (including *Ernest Goes to Camp* and *Ernest Scared Stupid*) as they filmed in and around his East Nashville neighborhood. Seeing production crews moving about and setting up lights revealed the world of filmmaking to McClure, who went on to attend and graduate from Watkins Film School.

His earliest on-set experiences include working as a PA on the 2000 period comedy *O Brother, Where Art Thou?*, directed by Joel and Ethan Coen and shot by Roger Deakins, ASC, BSC. He credits those two months on set with Deakins with teaching him as much about cinematography as he learned in film school.

McClure's television credits include the first four seasons of Comedy Central's *Drunk History*, which presents re-enactments of famous moments from history — narrated by a drunk person and acted out by a cast of famous comedians. Since the various segments of every half-hour episode take place during different time periods, McClure was tasked with creating an entirely new look and tone for each story — displaying his diverse skills with lighting styles, lenses and camera movement. In 2014, he won an ASC Award for his work on the episode "Detroit."

His other credits include the series *A.P. Bio*; *Still the King*; *You're the Worst* and *Big Time in Hollywood, FL*; numerous segments for NBC's *Saturday Night Live*; and the features *Listening* and *The Grace of Jake*.

Based in Los Angeles, McClure recently wrapped episodes of the Hulu limited series *The Dropout* and is currently in production on Season 4 of the TBS anthology series *Miracle Workers*. In addition, he's shot an episode for each of three shows produced by Ryan Murphy: *Hollywood*, *Ratched* and *American Crime Story: Impeachment*.

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Field-Testing Arri's Alexa 35

A cinematographer's role traditionally involves designing camerawork that will visually realize a narrative. However, for the *Encounters* short film series produced to showcase the new Arri Alexa 35, the challenge was reversed: Develop a narrative to demonstrate a camera. *The Siren* is part of that series — a short film directed by underwater specialist Mike Valentine, BSC, who collaborated with cinematographer James Friend, ASC, BSC on a production that incorporates everything from the stark grandeur of a bright oceanic sunrise to the shadowy depths beneath the waves.

The project began with an email sent to Friend by Arri's Milan Krsljanin. "Milan, whom I've known for a long time, asked if I would like to have a look at a new piece of equipment that was due to

be released," Friend says. "So, I went down to Arri in Uxbridge, [U.K.], and they unveiled this wonderful piece of hardware in front of me. It wasn't called the Alexa 35 at that stage — it had a code name — but it was something that's been anticipated in our world for a very long time.

"Arri's plan was to shoot about 10 films, all over the world," Friend continues. "Milan asked if I would take on the responsibility of the British production. I jumped in with both feet, thinking about what I wanted to demonstrate to fellow cinematographers and filmmakers." Friend's thoughts turned quickly to "including underwater as an extreme photographic environment. Mike Valentine and I have worked together a few times, and we were already collaborating on a project he's directing, so I said,

'I want to do an underwater element — but would you like to take on and direct the whole picture?'"

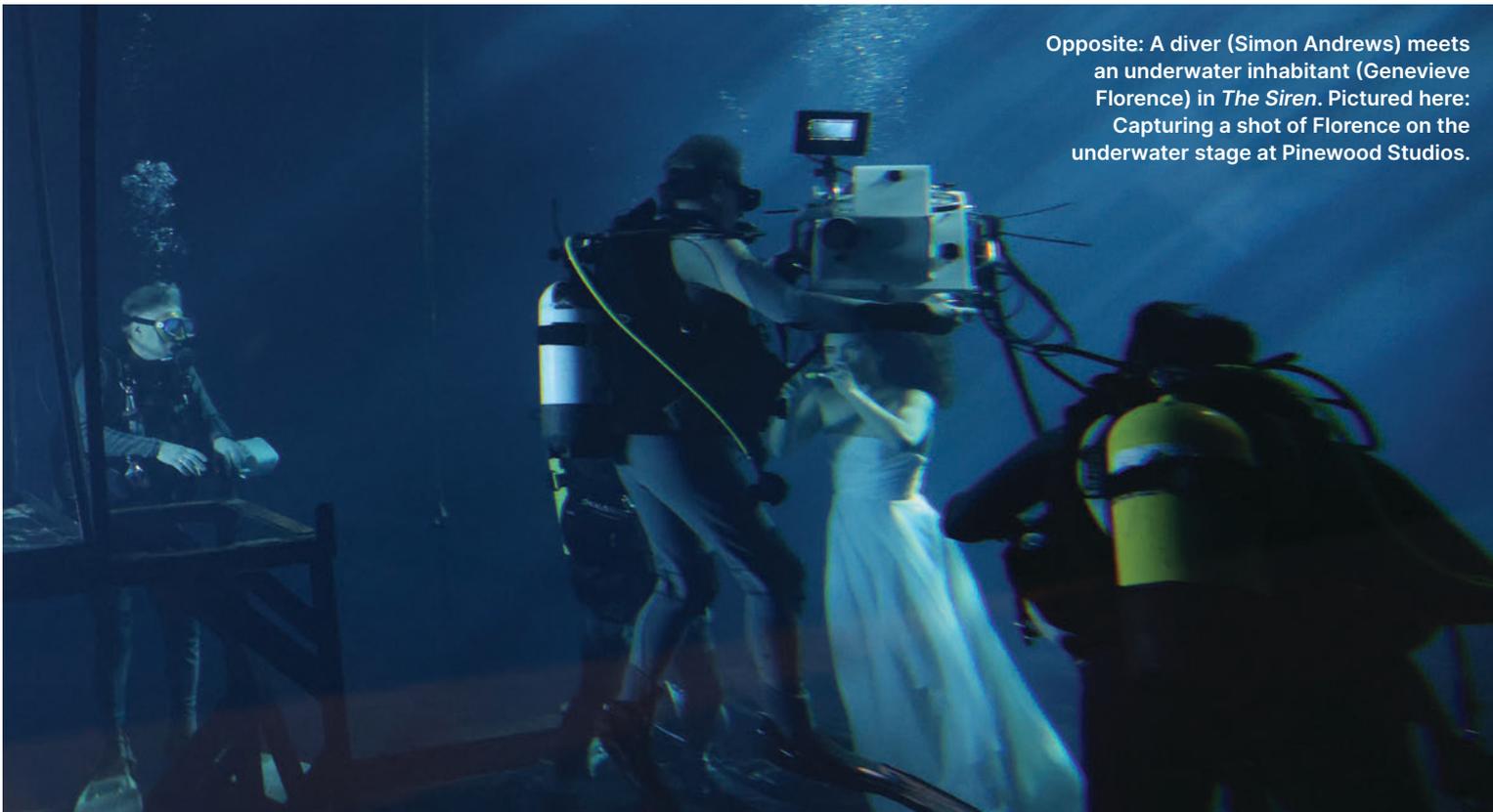
Before long, Valentine and Friend had planned a production that would more than satisfy Arri's desire to showcase the new camera's performance in a variety of shooting conditions. Valentine recalls the decision-making process: "Why not push it, so we're doing aerial [footage as well as sequences shot] on land, underwater, and at sunrise and sunset? That's when we came up with the [idea of shooting our aerials at the] fantastic sea forts off the north coast of Kent, which used to have anti-aircraft guns on them during wartime. I helped design U Stage at Pinewood, so we were able to get a fantastic deal to go and shoot our underwater footage there. Then we went to a beach about a mile west of

Dover to shoot in the afternoon and at night. With a good team around us, we'd be able to get everyone pulling together and achieve a lot in three days."

Logistics for such a remote location would be a challenge. "There's one company on the planet that does tours out to those forts, which are miles out to sea," Friend says. "We all got up at 1 a.m., I think, and started loading a boat with the drone kit and monitors."

Valentine notes that all the short's above-water shots were captured with Arri/Zeiss Master Anamorphic lenses, while underwater footage was shot with Arri Signature Primes.

In the stark light of dawn, the Alexa 35 and Master Anamorphics immediately began to shine, as Friend discovered in post, when he graded the image at Arri Munich with colorist Florian "Utsi"

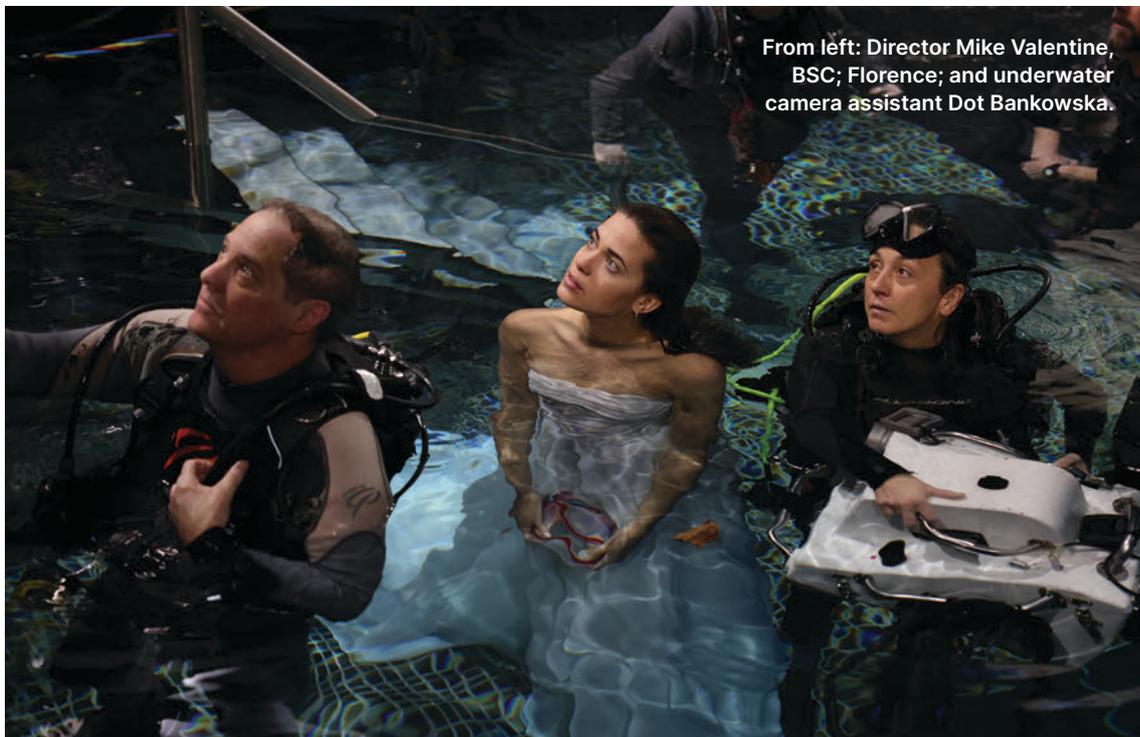


Opposite: A diver (Simon Andrews) meets an underwater inhabitant (Genevieve Florence) in *The Siren*. Pictured here: Capturing a shot of Florence on the underwater stage at Pinewood Studios.

Martin. “We graded [the image] down to create a silhouette, but the sun itself just wasn’t clipping, which is unheard of on digital,” Friend says. “All the highlights on the water, which are a direct reflection of the sun, weren’t clipping. It was a ‘Eureka!’ moment.”

Working underwater with the Signature Primes, Valentine noticed the same thing: “We couldn’t make [the images] clip. I was shooting an underwater scene where a guy is cutting into a piece of metal with a torch. There’s incredible brightness in that type of situation — and to be able to hold the same level of detail in his eyes, in the same shot, was ridiculous. We had waveform monitors on hand, and we almost lost shooting time sitting around the monitors, being amazed at what [the camera] could hold.

“Of course,” Valentine adds, “we already knew some of the Alexa 35’s amazing specs: 17 stops [of dynamic range], a 4.6K sensor, an EI up to 6,400. But at the end of the day, those are just numbers. That’s why I jumped at



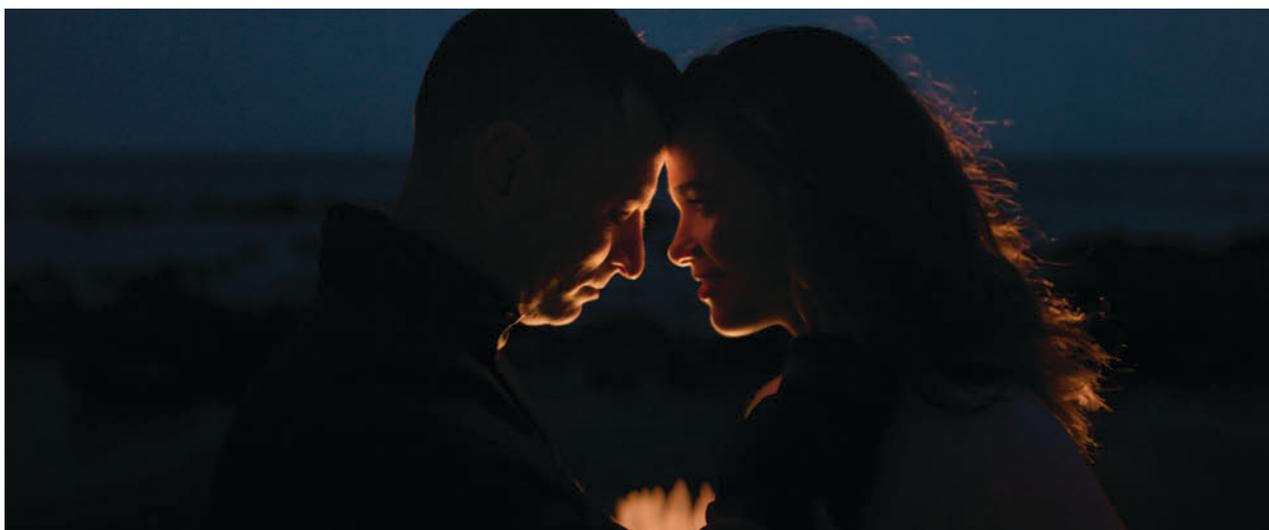
From left: Director Mike Valentine, BSC; Florence; and underwater camera assistant Dot Bankowska.

the opportunity to say, ‘Forget the camera specs. What does it look like in real terms, attached to a drone at sunrise? Will it overheat in an underwater housing, as some cameras do?’ But we never had a heating problem, even with

the camera in a tiny enclosed space.”

Friend employed lighting that was minimalistic, but deliberately designed to create potentially hard-to-manage contrast. “The underwater element mainly

comprised two colors and two sources I really couldn’t control in terms of luminance or color. One was the electronic red flare, and the other was the cutting tool — both of which are extremely hard to regulate, from a lighting





Opposite page: Day and night frame captures from *The Siren* demonstrate the Arri 35's exposure range. Above: James Friend, ASC, BSC monitors the shoot.

perspective. I wanted to be as unforgiving as possible in order to see how the Alexa 35 would react to that type of situation."

The filmmakers found that the camera's sensitivity and dynamic range made for an even less complex setup than Friend had anticipated. "When I've done underwater work in the past, I've used a 6K PAR or a 12K positioned above the water, to create rays of light coming down. I had all of that stuff on standby, and for fill I had a 12-by-12 soft box, with SkyPanels in it, positioned above the diver. That way, in case the contrast between the tool and the flare was too strong, I could fill in the shadows. But we never even turned those units on — the entire underwater scene was lit by one Orbiter coming straight down through the water. Whenever we needed to put something in [actor Genevieve Florence's] eyes, we used one underwater Kino Flo. [Actor Simon Andrews, who plays] the diver, was lit solely by the Orbiter positioned above the water, and whatever he had in his hand."

While shooting scenes in moonlight and firelight, Valentine leveraged the Alexa 35's sensitivity to create a look that combined natural skylight with a well-exposed foreground, with little or no supplemental lighting. "On the beach, we pushed the camera to 6,400 using the noise-reduction system, and the crew was literally stumbling over the pebbles on the beach because the

light level was so low. We used no additional lighting for those scenes — only what the camera could pull out. But that saved our bacon, because we were able to shoot scenes that couldn't be done any other way. If you do light the foreground subject, what do you do with the sky?"

Friend says his priorities were ably fulfilled by the Arri 35's design. "The things I'm interested in are sensitivity, dynamic range and color. Resolution, for me, has been more of a technical requirement — it's nice to have, and to know it's a tool in your box that can be used for reframing, but I've never been bogged down with resolution. It's great for the broadcasters, streamers and distribution companies."

Says Friend, "The anticipation for the Arri 35, and the rumor mill, has whetted appetites for what this camera can do. I'm about to start another production, and one of the first conversations I've had with the producers is to really champion this camera. It enables me to tell stories in a better way, with more freedom. The second you give yourself more technical freedom, you give yourself more creative freedom, and that, for me, is what cameras are all about."

For more information, visit arri.com/en/camera-systems/cameras/alexa-35.

— Phil Rhodes

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Expansion Marks 45th Anniversary for Cinelease

Established in 1977, Cinelease has supplied lighting and grip gear for nearly five decades, evolving with the motion-picture business as new methodologies and technologies have created new opportunities.

"We began as a family business and have managed to maintain that approach over the years," says Chris Rogers, Cinelease vice president of marketing — and an ASC associate member — who has been with the company for 32 years. "I started out as a driver and worked my way up from the floor, so I've done almost every job here."

Rogers was mentored by Joe Ball, the company's former marketing head, as the company expanded in the 1990s while serving independent productions, television series, and the burgeoning music-video and commercials markets.

Headquartered in Los Angeles, Cinelease has responded as production has diversified beyond Southern California, and it now serves 10 U.S. cities, among them Atlanta, San Francisco, Chicago, Austin, New Orleans and New York City. In July, the company opened a new rental facility in Vancouver (pictured above), its first in Canada; it had previously served the Canadian market through a partnership with Studio Toronto. A new,

stand-alone rental location will soon open in that city.

"We'd wanted to [launch in Canada] for some time, but Covid created a number of delays," says Rogers. "It's only natural that we would continue to follow and support production."

Harking back to the company's beginnings, Rogers notes, "We had one TV series when Cinelease started and we began doing a lot of work with [TV producers] Aaron Spelling and David E. Kelley back in the day, when other companies were leaning into feature production." TV series have smaller budgets, but they also present opportunities for the customer/client relationship to continue — potentially for years — if a show is picked up. "I believe we're on our 19th season of *Grey's Anatomy*," Rogers says.

Technological innovation has required change and investment. Rogers notes that before the move toward LED lighting, the company's offerings were "standardized," and "most rental companies all had the same gear. The return on investment was predictable." The transition to LED lighting over the past decade has been a challenge because the technology changes so rapidly. "What do we invest in?" Rogers says. "It's constantly

changing in terms of manufacturers and innovations, so there is a constant need to research, test, and talk to cinematographers and gaffers about what they have experienced in the field. It's about investing your capital in the right products." He adds that "customer service remains key to success."

The company's steady operational growth and investment — necessitated by increased demand from streaming-content producers — has been facilitated by parent company Herc Rentals Inc., which acquired Cinelease in 2012.

The establishment of Cinelease Studios, managed by Gannon Murphy, furthers the company's relationships with clients, offering stage facilities in Valencia, Calif. (outside Los Angeles); Brooklyn, N.Y.; Jersey City, N.J.; and Pittsburgh, Penn., among other locations. "We just purchased our first stage facility in New Mexico, which was I-25 Studios in Albuquerque," says Rogers, noting that Cinelease's nearby rental facility has supported that region since 2015. Featuring 104,000 square feet of refurbished stage space, Cinelease Studios Albuquerque recently opened for business.

For more information on Cinelease, visit cinelease.com.

— David E. Williams

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Presented in Italian and English, the 300-page book *Vittorio Storaro on Bernardo Bertolucci Movies* offers a candid look at one of modern cinema's most celebrated cinematographer-director working relationships.

In it, the ASC great recounts his personal experiences while making their nine feature films together: *Before the Revolution* (1964, on which Storaro served as camera assistant for Aldo Scavarda), *The Spider's Stratagem* (1970), *The Conformist* (1970), *Last Tango in Paris* (1972), *1900* (1976), *Luna* (1979), *The Last Emperor* (1987), *The Sheltering Sky* (1990) and *Little Buddha* (1993).

A limited number of copies signed by Storaro are available from the ASC Store.

Go to store.ascmag.com



P+S Technik Releases Technovision 1.5x Aproximas

P+S Technik has released four Technovision 1.5x Aproxima lenses. Designed for full format, PL and LPL mount, the anamorphic close-focus lenses are available in 40mm (T2), 50mm (T2), 75mm (T2.5) and 100mm (T2.5). The close focus is 1'6"-1'7". The lenses have a front diameter of 156mm.

For more information, visit pstechnik.de.



Aputure Releases MT Pro

Aputure has released the MT Pro, the company's first full-color mini LED tube light. The 1'-long, 13.8-ounce fixture features 36 ultra-fine RGBWW pixels and offers wireless CRMX connectivity. It includes CCT with G/M, advanced HSI, xy (available through the Sidus Link mobile app), and RGB tunability controls; pixel chases and effects are enabled by built-in System FX. Whether connected remotely using LumenRadio CRMX, externally via wired DMX, or directly through Sidus Link, the MT Pro ensures seamless integration into lighting workflows. The built-in lithium polymer battery is capable of 120 minutes at maximum power.

For more information, visit aputure.com.

Tiffen Unveils 39mm Filter Size

The Tiffen Co. has introduced a 39mm filter size to accommodate lenses with 39mm lens fronts for Leica and Fujifilm cameras. The first in the lineup is Tiffen's Black Pro-Mist, which is offered in strengths of 1/8, 1/4, 1/2, 1 and 2. Also available are a round 39mm UV Protector and a Circular Polarizer. Most Tiffen filter varieties can be made to order upon request.

For more information, visit tiffen.com.



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Digital Cinematography, Second Edition

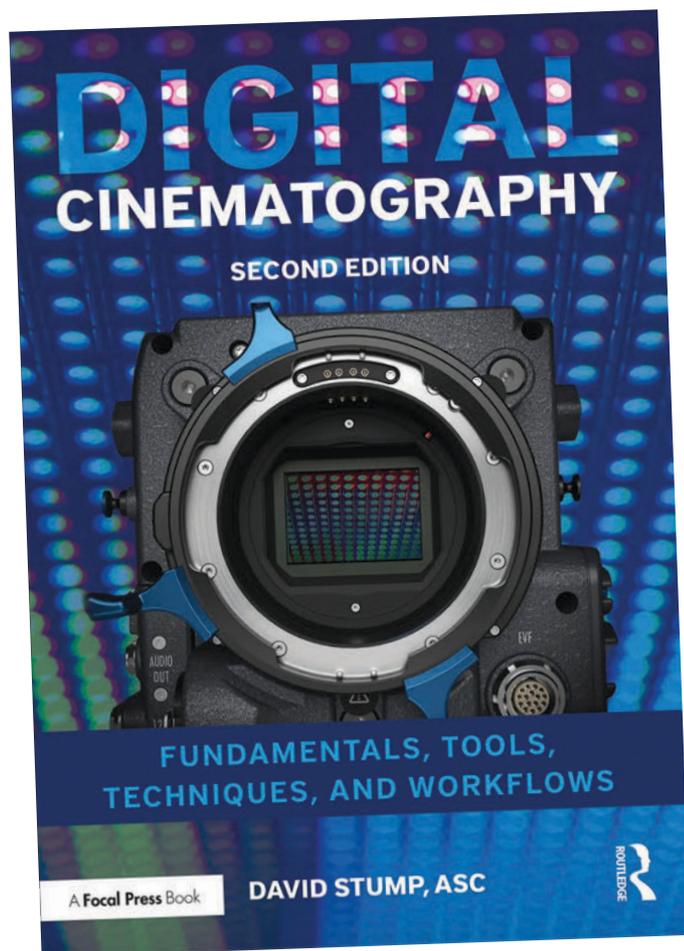
David Stump, ASC has released the second edition of his book *Digital Cinematography: Fundamentals, Tools, Techniques, and Workflows*, an updated primer for professionals that focuses on the tools and technologies of the trade, how digital cameras work, the ramifications of choosing one camera versus another, and how those choices help cinematographers tell a story.

The book empowers readers to correctly choose the appropriate camera and workflow for their project from today's incredibly varied options, and to understand the ins and outs of implementing those options.

Stump has updated this new edition with the latest technology for cameras, lenses and recorders, and has included a new section on future cinematographic trends.

Topics covered in the book's chapters include cameras, sensors, deBayering, sensitivity and noise; color and the "color-space conundrum"; MTF, resolution, contrast and Nyquist-Shannon sampling theorem; frame rates, aspect ratios, high dynamic range and wide color gamut; camera setup and operation; prep, testing and problem-solving; workflow, data and color management; displays and recorders; file formats, log encoding, data and compression; and the delivery and archiving of digital movies.

The book can be purchased through the ASC Store: store.ascmag.com/collections/books-videos.



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The revised 11th edition of this essential technical reference is now exclusively available for pre-order from the American Society of Cinematographers.

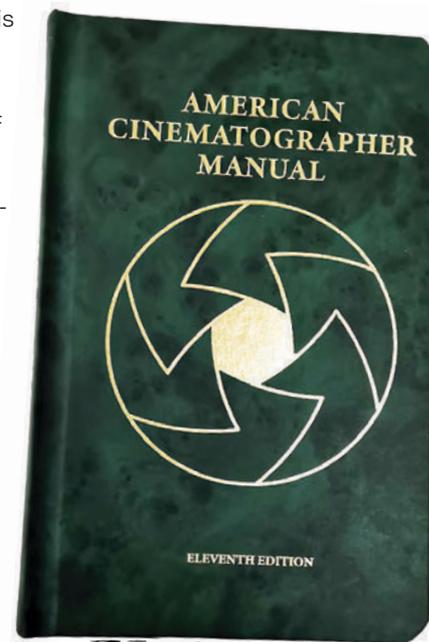
Containing entirely new chapters and substantial rewrites of entries from the previous edition, this hardback book designed for on-set use is a must-have for cinematographers and other motion-imaging professionals.

Edited by M. David Mullen, ASC and ASC associate member Rob Hummel, contributors to this edition include Society members Bill Bennett, Christopher Chomyn, Richard Crudo, Richard Edlund, John C. Hora, Levie Isaacks, Dennis Muren, James Neihouse, Sam Nicholson, Steven Poster, Christopher Probst, Pete Romano, Roberto Schaefer and David Stump.

Topics covered in this new edition of our "filmmaker's bible" include:

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Wrap Shot

Carrie (1976)



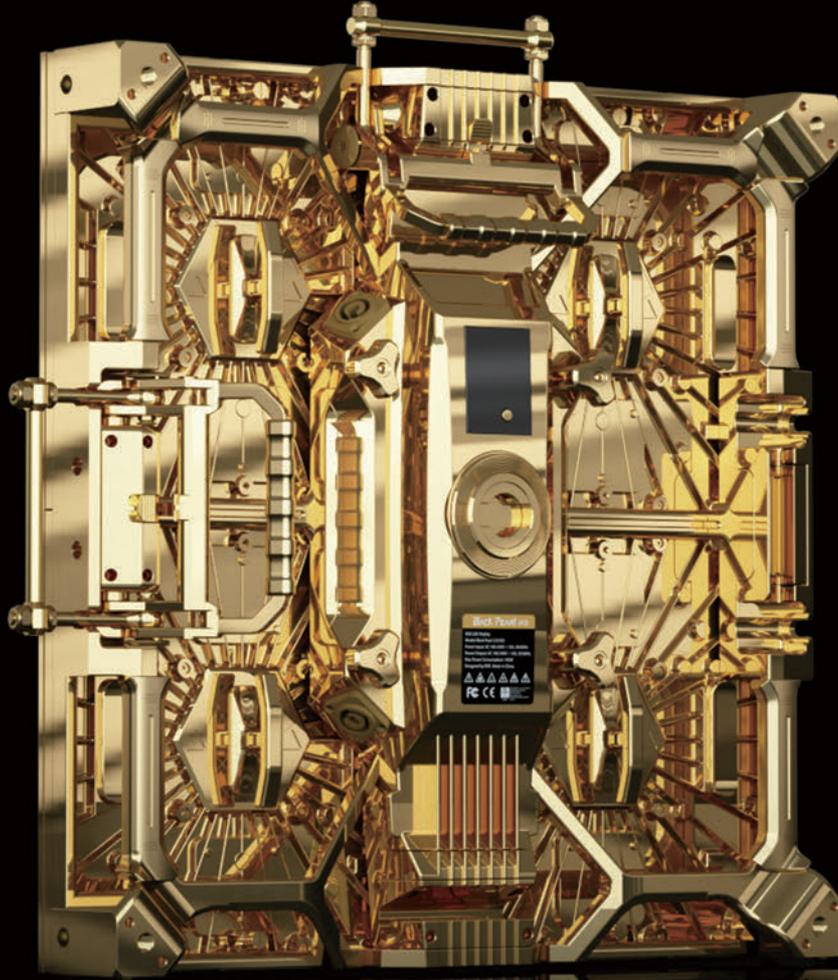
Based on the 1974 novel by Stephen King and stylishly directed by Brian De Palma, *Carrie* became a box-office hit and a horror classic. At right, cinematographer Mario Tosi, ASC poses between the film's two leading ladies — Piper Laurie (left) and Sissy Spacek — while shooting the suspense-filled supernatural thriller. Both actors earned Academy Award nominations for their roles — a rare honor for performers in genre films. (Spoiler alert: Amid the bloodstains, you'll notice a large prop kitchen knife protruding from Laurie's forearm.)

Tosi is also known for the imagery he contributed to films such as *MacArthur*, *Hearts of the West*, *The Betsy*, *The Main Event*, *Resurrection*, *Whose Life Is It Anyway?* and *The Stunt Man*. He passed on November 11, 2021, at the age of 86.

A complete remembrance can be found online at theasc.com/news/in-memoriam-mario-tosi-1935-2021.



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