Jon Fauer, ASC www.fdtimes.com Sept 2012 Combined Issues 50-51

FILM AND DIGITAL TIMES

Art, Technique and Technology in Motion Picture Production Worldwide

Worldwide Edition

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Art, Technique and Technology

Film and Digital Times is the journal and guide to technique and technology, tools and how-tos for Cinematographers, Photographers, Directors, Producers, Studio Chieftains, Camera Assistants, Camera Operators, Grips, Gaffers, Crews, Rental Houses, and Manufacturers.

It's written, edited, and published by Jon Fauer, ASC, an award-winning Cinematographer, Director, and author of 14 bestselling books (over 120,000 in print—famous for their user-friendly way of explaining things as if you were right there on location with him). With inside-the-industry "secrets-of the-pros" information, *Film and Digital Times* is delivered to you by subscription or invitation, online or on paper. We don't take ads and are supported by readers and sponsors.

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Sony F65 on Taylor Swift

Like Rashomon, *our story of Taylor Swift's latest music video is told by four of the participants, above, left to right: Director Declan Whitebloom, Camera Operator Gustavo Penna, Cinematographer Paul Laufer, and off-screen, First Camera Assistant Shasta Spahn.*

Photo above and cover: Nigel Barker

Declan Whitebloom, Director

Our music video was Taylor Swift's lead-off single "We Are Never Ever Getting Back Together" on her newest album "Red." The song is about 3 minutes, 14 seconds long. It's the story of a break-up between a girl and a guy. I've always wanted to do a single-take piece. It's a filmmaker's dream: one continuous take.

We had 5 sets with varying degrees of complexity. Her apartment with a trick wall that backed away, leading to a live "split-screen" type scene of her on the phone. Boyfriend on the phone in a bar. A cardboard cut-out car with rear projection. A walk through a park where the seasons change at the same time. Then we end up back where we started.

With many one-take videos, people usually stay in the same wardrobe. But we tackled it with Taylor's team who do her quick-changing on tour. They were able to change her seamlessly while moving from set-up to set-up. There were so many moving parts and balls in the air I wasn't sure whether we could pull it off. But everything clicked and it ended up working like a charm.

We had these areas on set that they called the "car wash" where Taylor was meant to change. I'm not sure she ever went into one of these car washes. She just changed on the fly while everything else was moving. Taylor literally would run. There would be a person on each arm and each leg putting stuff onto her. Whether Velcro or whether she was wearing three outfits and one of them would come off to reveal the next, it was all meticulously designed with the costume designer. He was involved from the get-go. When people see it they will ask, "How did they do that?"

We used Leica Prime lenses. The Leica's really played into the scope of the camera, the Sony F65. Sony is a brand partner of Taylor's. We heard from the beginning that they wanted to be involved in a more organic way with a Taylor project. And rather than just showing product placement, like a Sony TV or a Sony phone, they decided to come at it in a smarter way, use the Sony facility in Culver City, all their equipment and, of course, their new camera to shoot it on. So Sony is embedded in the look, in the feel, in everything to do with the project. It's not in your face and actually more organic, which is what Taylor is all about.

I was prepping for about six weeks. Having done two other videos with Taylor, I was one of the directors considered. I wrote a treatment and ultimately we ended up getting the job. I think it was the one-shot idea that sold her on it, because she is somebody who wants to try something different, wants to be adventurous. And that did it for her. It's a new single. They wanted to make a splash with the video. And she said to me yesterday that she thinks this is her best video to date.

Gustavo Penna, operator of the camera stabilized rig, was fantastic. He nailed it time and time and time again. Obviously everything was on audible cues. What really helped was that he is actually a classically trained pianist, and therefore his timing and understanding of music and changes really played into that. He is also a ballroom dancer, which he says works incredibly well with his rig. It is like dancing with the rig. He sees the camera as a dance partner. He was definitely in the zone the whole time.

On set, we were watching on 4K Sony monitors. It looked amazing. You could see every single detail. With so many parts moving, we had to be very meticulous. The 4K monitor really played into that, really helped us see every single pixel and determine whether that frame or setup worked.

We then worked at Colorworks and got to see it in Sony's screening room on a massive screen in true 4K and Taylor was blown away. I was very impressed working in the 4K color space. It is definitely, noticeably different and you have more control. It held up and it didn't look video-like. I think this true 4K is a force to be reckoned with.

It becomes a real passion and quite the obsession, the one-taker. Because there were so many people watching the monitors, I felt like we were all rooting for it to work out. Everyone knew where things could go wrong. We got past that and I heard a collective sigh of relief as we moved on to the next hurdle. It was like watching the Olympics, like wondering whether Michael Phelps was going to get his 19th gold medal. I really felt it was a collective of people rooting for the same team, which was really a pleasure.

After our shoot day, I did another 50 takes in my sleep later that night. And I kept on doing them. I have no fingernails at this point. They are gone and my hair is a little grayer. But maybe Colorworks can fix that, too.

Paul Laufer, Cinematographer

On the project for Taylor Swift, we used the new Sony F65. Our director, Declan Whitebloom, came up with the idea of a one-shot video. We had Gustavo Penna doing the continuous shot with an MK-V body-mounted camera stabilization rig. It was a really ambitious concept where she is going from set to set, changing clothes, and the same characters reappear in little vignettes in different clothes, different scenarios. It involved an incredible amount of coordination with lighting cues, costume changes, people running around each other and a lot of choreography, a lot of timing, and it came off wonderfully.

Since Taylor Swift is a spokeswoman for Sony and the face of Sony, that's why the F65 played an important part. I was very interested to use it, especially with the support and feedback of the Sony team. I was not disappointed. It was very interesting. I'm a film guy. I'm coming to digital cameras from that point of view. I thought it was very good. The 4K image—I hesitate to use "film look" because I think digital is digital and film is film—but there is a certain grain quality to it that I actually liked. It's got enormous latitude. There's a highlight and shadow button so that you can actually see what you are getting in the shadows and in the highlights on a normal monitor, which I thought is a great innovation. The low light performance is fantastic. I thought that the color space is very good. They've really achieved something.

I used the Leica Summilux-C 25 mm lens. The Leica's a very, very sharp lens. I think that the challenge is becoming how to control the sharpness of the image. And what's old is new. I'm finding myself going back to diffusion filters and in this case I used a black net on the back of the lens, just to take the edge off it and to blend the image slightly. I think it worked very well. One of the nice things about the Leica lens is that it has a net holder in the back. You've got to be a little bit careful if you are getting big sun flares because you will likely resolve the pattern of the net in the flare. It's not for everything. The nice thing about the Leicas, from what I understand, is they've designed the lenses so that the light coming out the back, the exit pupil, is the same for every lens and the net is in the same point optically on every lens so that it doesn't matter which lens you are using, wide of telephoto, the net will have the same effect. From what I know that's the only set of lenses that actually do that.

We shot in 4K, and the general public will be able to see it actually projected in theaters in 4K, which is pretty exciting. We shot on Stage 24 at Sony. The one-take scene took about six hours. Not too long because Taylor is so good. I don't think she made a single mistake, which is incredible when you see the costume changes and her performance. It's uncanny, because she was staying in the moment where her performance was right on and committed. And then a split second later, the camera would be off her and she would have to drop out of frame, change clothes, run around the back of the set and appear in character in the next scene. And I'm talking split seconds—it is all done practically. What you see is real. There are absolutely no camera tricks.

As heros, if you had to single anybody out it would be Gustavo Penna, Camera Operator, and the wardrobe people who had the hardest job on the whole shoot. Shasta Spahn is an amazing Camera Assistant—she brings great skill and wonderful energy.

Going back to the camera, I think that the camera is a step forward, certainly in terms of the feel of the image. A few things I would like to see changed. Of course, we camera people by nature are ungrateful and cynical and the moment we get incredible tools we want something more. I rated the F65 at 800 ISO. That set the pace for all my lighting. The lights were all run through a dimmer board for the cues, and it was very easy to set the levels. The stop of the day was T4 – 5.6.

Above, Shasta Spahn pulling focus of Leica Summilux-C 25 mm lens with Preston FIZ, Gustavo Penna operating Sony F65 on MK-V rig with Transvideo CineMonitorHD6. At left: Gustavo Penna and rig.

Gustavo Penna, Camera Operator

On the Taylor Swift music video, I used my MK-V body-mounted camera stabilizer.

We had the Sony F65, Sony 4K onboard recorder, Leica 25 mm Summilux-C lens, Preston Cinema Systems wireless lens control, Cinematography Electronics CineTape, Transvideo CineMonitorHD6 SuperBright, HP HD transmitter, audio wireless receiver, and timecode sync box,.

We were totally self-contained—no wires. It was like a ballet. Everyone was totally involved.

Shasta Spahn, First Camera Assistant

Focus was a challenge.

The entire music video was done in a continuous, single 3 minute 14 second take.

Every take was slightly different in terms of focus. I was pulling from 17 feet right up to 1'6".

The camera package came from Otto Nemenz International. We used a 25 mm Leica Summilux-C. Paul used his special, secret net behind the lens. The Leicas have a very helpful behind-the-lens net holder, which stretches the net nicely. It's much better than using snot tape.

We had a Preston FIZ2. I prefer this to the FIZ3 because I know how to fix it if anything goes wrong. I know how to take it apart. I know the FIZ3 is programmed and pre-set for the Leica lens focus barrels, but I was fine marking my own focus disk for the 25 mm Summilux-C. The Leica was a beautiful lens.

I had a Cinematography Electronics focus tape as a quick reference because there was no time to run a tape measure. But I was always watching the action, because I find if I look at the readout, it's sometimes too late on fast-moving scenes.

This was a fun project, so challenging, we never stopped thinking. Everyone was so...focused. It was different from many jobs because no one could make a mistake, everyone had to be involved, every department paid attention all the time. ❐

Rembrandt's Grip

Clockwise from top left: Drawing made by Rembrandt of his studio, showing white bounce cloth above window.

The same view in his house today, now the Rembrandthuis.

Panoramic view of Rembrandt's studio. (Photos by Bill Bennett, ASC).

Rembrandt Harmenszoon van Rijn. 1641
The Mennonite Preacher Cornelius Claesz. Anslo and his wife Aaltje.
Oil on canvas. 176 x 210 cm.
Berlin Gemaeldegalerie.

by Bill Bennett, ASC

Here in *Film and Digital Times*, I have often enjoyed Jon Fauer's stories about how various Renaissance painters depicted directional light so beautifully in their work. On a recent trip to Amsterdam, I explored Rembrandt's restored house and studio, now a museum at Jodenbreestraat 4.

His studio was a large room on an upper floor, with a high ceiling and several rows of large windows down one side, facing North. I stood there for quite a while, marveling at the fact that I was standing in the same room where all those wonderful works were created by this master of light over 370 years ago.

Then I made a startling discovery. Rembrandt depicted light in a beautiful manner not only by imagining the nature of that light for his paintings, but also by actually controlling the light in his studio and how it fell on his subjects. Rembrandt was quite possibly the earliest Key Grip and Gaffer, all rolled into one.

In one corner of the studio, the museum had recreated one of Rembrandt's lighting setups, based on a sketch he himself made at the time of that very same corner. He would close the shutters on the lower windows, leaving the upper windows open, to raise the direction of the light source, and then most interestingly, he would hang a white bounce cloth overhead to reflect and "wrap" soft light down from above.

The Mennonite Preacher and his Wife, painted in 1641, during the time Rembrandt lived and worked at this house, could have been created using this lighting setup.

www.rembrandthuis.nl ☐


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Roger Deakins on *Skyfall* with Alexa Studio

Above: Andy Harris (Camera Assistant) and Roger Deakins, ASC, BSC (Cinematographer) on location in Glencoe, Scotland for MGM Pictures/ Columbia Pictures/EON Productions' *Skyfall.* Photo: François Duhamel

Opposite, top: Roger Deakins, ASC, BSC on location in the underground MI6 shooting range on Skyfall. Photo: François Duhamel (Leica M9)

Opposite, bottom: Judi Dench (center) and Director Sam Mendes (right) on *Skyfall.* Photo: François Duhamel (Leica M9)

Interview by David Heuring

Cinematographer Roger Deakins, ASC, BSC reunited with Director Sam Mendes for *Skyfall*, the 25th James Bond film. Their previous collaborations, *Jarhead* (2005) and *Revolutionary Road* (2008), had both been photographed on 35mm film. Deakins had used ARRI Alexas on *In Time.* This time, on *Skyfall,* he used two new ARRI Alexa Studio prototypes as his main cameras. In the following discussion, Roger Deakins explains camera choice and how he used them on this major production.

Tell us about the decision to go with the ARRI Alexa.

Sam and I talked about the script and the look, and what the story would involve. It seemed like there would be a lot of low light photography and situations where I'd want to work with practicals. I suggested he look at the tests I had done and some of what I had shot on *In Time*. He was quite impressed, and we decided that would be the way to go.

What were your initial impressions of the Alexa Studio model?

We had two prototypes of the Studio on the movie, literally the first ones out of the factory. The optical viewfinder makes a huge difference. I think that over time you get quite a lot of eyestrain off the electronic viewfinder. But apart from that, I like to be able to look through the camera without anything interfering. I've always lit through the viewfinder, and nothing's changed that way. I do look at the monitor from time to time, but I still basically work the same way as if I were shooting film.

What can you tell us about the look you created for the film?

I can say that it's got a lot of variety, from very hot, bright, day exteriors to very dark, underground, cavernous areas lit with little practicals we made up. There's a huge variety, even more than you'd find in a typical Bond film, I think.

You're known for operating yourself. How did you find the Alexas for handheld work?

It's a good balance. The problem is, at the moment, if your camera goes too light, the heaviest thing becomes the lens on the front. Lenses seem to be getting heavier and heavier, so you need a good balance, and in that regard, I think it's very good. It could be a bit lighter. I found I couldn't really do an extended amount of handheld with the Studio because of its weight. But ergonomically, it's very well designed to sit on the shoulder. I would shoot with the Plus when I was doing handheld, and then the Studio when I was on a dolly or whatever.

Were you using the Codex recorders onboard?

It varied, actually, depending on the shot. We had it onboard a lot of the time if I was doing handheld. But usually I would set it up with the cable connected to the DIT station so that I could check everything before we shot. It's nice to be able to see the image and feel confident in it before you shoot, really. I do that most of the time.

The lenses were ARRI Master Primes?

Yes. It was mostly what I normally do. We usually shot on the primes, and probably the most-used lenses were the 35, the 32, the 27 and the 40 mm. I did one shot on a zoom, and the second unit used a zoom a couple of times, but I wish they hadn't. I see the difference, the way the camera moves, and the feel of the lens.

You extracted a widescreen, 2.40:1 frame from the 16:9 sensor, correct? Why not shoot anamorphic?

I thought about it. I'm waiting for the new ZEISS anamorphics to come out. I tested one a few years ago and it was really stunning quality. Frankly, I like the quality of widescreen done flat. I don't know that I want much higher quality than that. The only hesitation I had was when I found out they needed to release the film in IMAX. I quickly did some tests to see if the resolution and everything would hold up. I was a little nervous, but I've seen enough now to realize that the quality in IMAX is quite stunning, actually. I saw them using DMR, and I didn't like it, so I stopped them doing it. Maybe if you shot film, you need to enhance it, but you don't need to enhance with an ARRIRAW file from the Alexa.

You said that you're not sure you want much higher quality. Can you elaborate?

Well, there comes a point where everything starts looking, frankly, anemic and kind of synthetic, and has no life to it. And I'm very impressed by the image quality the Alexa gives. You do have to get it right. You can't be cavalier and overexpose willy-nilly. You can't just point and shoot, and not care about where your exposure is and what you're shooting. It's just as if you had been shooting film. For the most part, I think there are one or two shots in the movie that quality-wise, I don't like. But I don't think it would have been any better on film. I'm not quite sure what "better" is. I like the image better than if I'd shot it on film, put it that way. Really it's just sensibility.

We heard rumors of a 19-camera shot...

We did some big stuff. A lot of times, we'd just shoot two cameras or even one. Often we'd shoot handheld, and I would do the main camera, and my friend Pete Cavaciuti (B Camera Operator/Steadicam Operator) would do the second camera, and we'd maybe have another camera somewhere.

But for just about all the drama and the dialog, we probably shot with one camera. We'd shoot a lot of the action handheld, or on all sorts of different equipment depending on the shot. There was one big stunt where a big set had been built and we had one go at it. I think we set 11 cameras, all Alexas. It was a one-off, and it went fantastically well. They used every camera angle, and the action that takes place within it is extended, because every camera actually worked really well. That was quite successful.

Did you also use the Alexa M?

Yes. The Alexa M is the small camera that is basically the sensor and the lens, and the actual body of the camera is at the end of a fiberoptic cable. We used it on some car shots and in a few situations where we were in tight spaces, and I did use it for some handheld work. A company in England manufactured a little geared remote head for us that was really fantastic. But in the end, we didn't use the M as much as I thought we might.

What were your arrangements for on-set color and a DIT?

We did basically what we did on *In Time*. The DIT was Josh Gollish, who'd done *In Time*. He does a fantastic job. He is so experienced. And his equipment—he really sort of strips it down to a very small, mobile system. It has an EFilm Colorstream system. Basically, we set one Look-Up Table on it, and everything went through the one LUT. There were a few scenes, not that many, where I wanted to change the color. You can change the color on the camera, but sometimes I would tweak it on the Colorstream, maybe change the contrast a little bit, especially if it was an exterior, and that data would then go to the timer who was working at Deluxe 142 in London, which is an EFilm affiliate.

And the DI?

I did a first pass, rough-cut timing at 142 in London with Adam Glasman, who has been really good. Now I've been doing some work here in Los Angeles at EFilm with Mitch Paulson, and I'm going back in a couple weeks' time to do the final grade in London. Then we'll be doing the timing for the IMAX version as well. We're timing in 2K, but the DI is basically 3K, and then it is uprezzed to 4K for the DCP. Most of the effects shots have been done at 2K, which is a bit of a drag as far as I'm concerned, but that is the reality. So the timing will have been a group effort between Adam and Mitch.

You've been quoted as saying that the monitor facilitates communication with the director and can result in the ability to take the image a bit further than you otherwise might.

I think that was really true on this Bond film, too. Sometimes Sam would be watching another monitor, and he would make a comment. I'd take him over to Josh's station and say. "Well that's it, basically, that is what the camera is seeing, and I can change it here or in post." I think that was very advantageous, and also I think it was nice for Sam—I think he enjoyed working that way, where he could see exactly what the camera was seeing. Obviously, Sam is very much an actor's director, and he likes the ability to run the camera longer than a magazine length. It's a real advantage, as is not having to wait for the dailies and the lab. The whole process of going through to the edit suite was much smoother, really. ❐

Opposite, top: *Skyfall* Scottish moor scene with ARRI Alexa suspended on cables. CineTape sticking out in front.
Photo: François Duhamel (Leica M9)

Opposite, bottom: Ben Collins driving from pod on top of Land Rover, with Naomie Harris at the wheel, and Alexander Witt (2nd Unit Director) strapped to the side, on Metro-Goldwyn-Mayer Pictures/Columbia Pictures/EON Productions' Skyfall. Photo: Jasin Boland (Nikon D4)

Cover Photo by François Duhamel: Director Sam Mendes and Cinematographer Roger Deakins, ASC, BSC in the Old Vic Tunnels on *Skyfall*. (Leica M9). This is François Duhamel's second FDTimes cover shot—he photographed the cover of FDTimes Issue 44 as well.

Jerusalem 3D IMAX

Left to right: Writer and Director Daniel Ferguson, Producers George Duffield and Taran Davies with the Sony F65 cameras on a beam splitter rig in Jerusalem. Photo © Jerusalem 3D US LP.

Opposite page: View of Old City from rooftop. Photo by Doug Lavender.

Credits. Director: Daniel Ferguson
Producers: George Duffield and Taran Davies
Director of Photography: Reed Smoot, ASC
First AC: Doug Lavender
DIT/Stereographer: Francis Hanneman

The IMAX production *Jerusalem 3D* was shot in several formats over several years: IMAX MSM 9802 Camera (65mm film, 15-perf horizontal), Sony F65 single camera, twin Sony F65 cameras for 3D on the CC3D rig, and RED Epic 3D on Steadicam.

Radiant Images outfitted *Jerusalem 3D* with 3 Sony F65 cameras supplied by Amnon Band's Band Pro Film & Digital, a CC3D Rig from Marty Mueller's Converging Concepts 3D LLC, ARRI/ZEISS Ultra Prime lenses, Fujinon 18-85 T2.0 Premier Zoom, and all the ancillary equipment necessary for a one-month 8K/4K IMAX digital production on location.

Jerusalem is a complicated, competitive place, sacred to the world's three major monotheistic religions, Judaism, Christianity and Islam, where the Church of the Holy Sepulchre is maintained by rival Roman Catholic, Greek Orthodox, Armenian Orthodox, Coptic Orthodox, Syrian Orthodox, and Ethiopian Orthodox priests, but the front door is opened by a member of the same Muslim family that has held the keys since 638 AD. That's just a hint of the complexities involved in the fascinating IMAX production *Jerusalem 3D*, as told by its articulate protagonists.

George Duffield - Producer

We are aware that we are at the cutting edge of a production and post-production pipeline on this project (combining IMAX 15/65 motion picture film, Sony F65 3D, F65 2D, RED Epic 3D). It is going to be interesting to look back eight or nine months from now and find out how it went because, honestly, we're in uncharted territory.

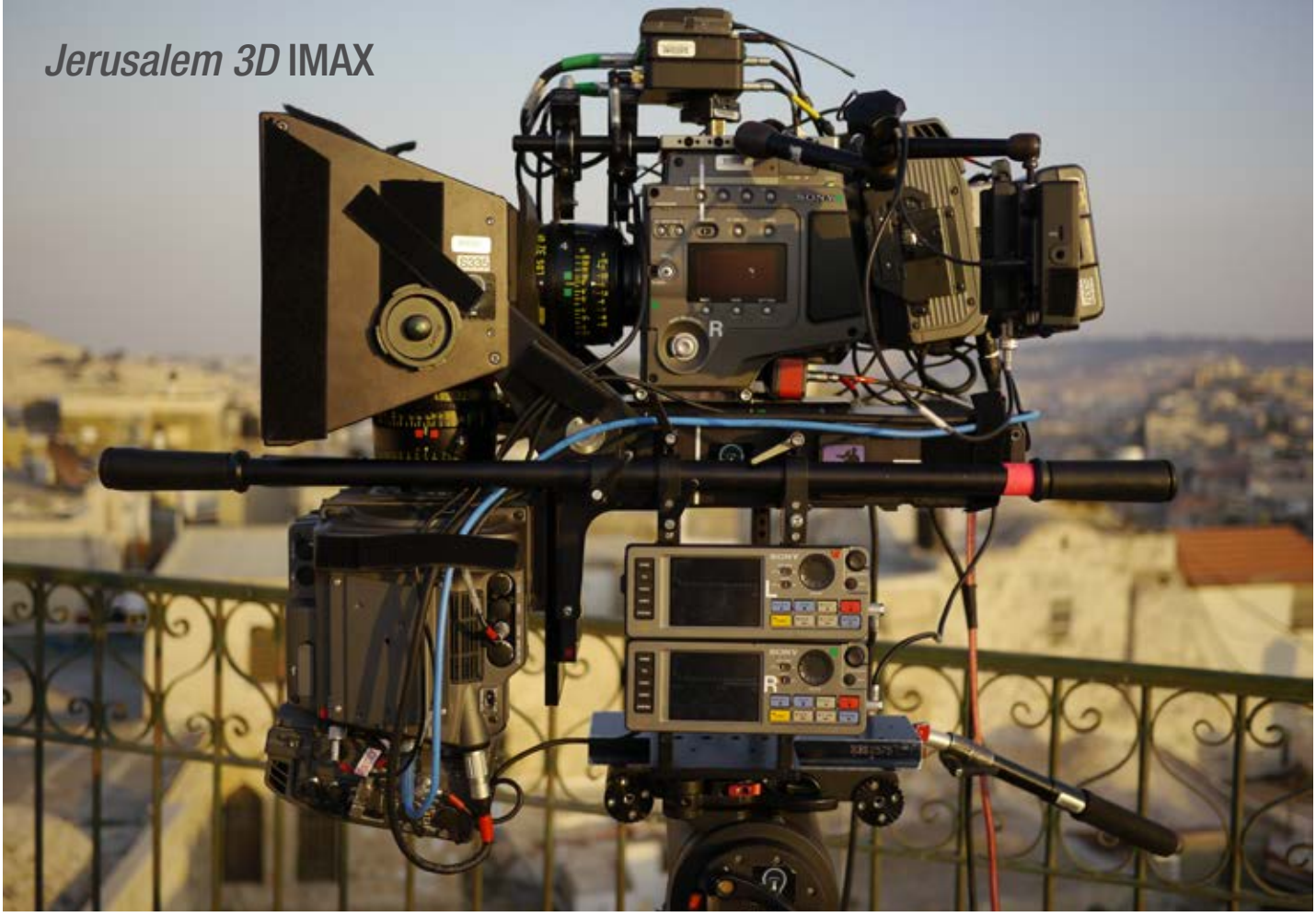
We only wrapped a few weeks ago. We had an absolutely brilliant data wrangling team on location in Jerusalem. They rendered out 2K proxies so that we could see what we had. And it was stereoscopic as well.

We shot the last part of the film in two parts. We shot Epic on Steadicam in the spring and F65 in the summer. Epics because it's impossible to carry 2 F65s on a Steadicam, and besides the F65s weren't available at that point.

In June 2012, we ended up taking three F65s: one F65 for the wides with the 8 mm lens and two F65s on a 3D mirror rig.

Getting all the proper permissions is one of the reasons why we have taken four years to get this far. We have been working very closely with all the important stakeholders—not just the government of Israel, but also representatives of all the religions. When we were filming over Al-Aqsa Mosque and the Dome of the Rock, we actually had to go and explain to the local mosques what we were doing so they wouldn't be alarmed by this helicopter hovering overhead. It was a multiyear process to get permission to fly low over the Old City.

Many IMAX films about Jerusalem have been attempted. We



were told that nobody will give you permission. You can't fly over the Old City. Everybody will block you out. And so the very first thing we did were the aerials to prove that we could do it and show the industry we were serious. We worked closely with Highlight Films in Israel and with Duby Tal of Albatross (based in Tel Aviv), who was our Aerial Director and helped secure the permissions.

My fellow producer Taran Davies produced an IMAX film about Mecca called *Journey to Mecca*, which is a fantastic film. In fact, Daniel Ferguson worked on that with him, as line producer. It was Taran's idea to do *Jerusalem*. He came to me and said, "Let's do Jerusalem." I know Jerusalem well. I've made documentary films there before. I lived in Jerusalem for a year when I was in university in the States. So, I love Jerusalem. It's in my bones.

Funding came from multiple sources. It was our idea to make this film as a not-for-profit. It is something I've had experience with before. And it can be very interesting if you do it right. We set this up so the profits from the film will go back to charities that will benefit all the inhabitants of Jerusalem. It's important that we stress this because we are absolutely pro coexistence and understanding between the three faiths, which is, in fact, the purpose of the film.

We are going to take the audience to Jerusalem in a way they would never be able to do, even in person. I think it is going to be absolutely extraordinary, with wonderfully rich visuals. Our Director of Photography, Reed Smoot, said to us that in all his time making IMAX films he's never seen one with such visual diversity.

There is a story. It's a documentary that follows three Jerusalem girls and has some history to it. It is a non-political film about Jerusalem and the Holy Land.

Daniel Ferguson - Director

I worked with Taran, who is the other producer along with George, on *Journey to Mecca*. People started saying, "Well, what are you going next?" I was approached in 2008 to write and then later to direct the *Jerusalem 3D* film. People had always tried to do it in IMAX. But because of political instability or difficulty financing it, those projects had always collapsed.

It was Taran's idea. And then Taran brought in George. I had studied theology and comparative religions at McGill. I knew a little bit about Jerusalem. I read everything I could get my hands on. And then I flew out there for the first time in the summer of 2009. I made about fourteen trips in three years to Jerusalem. We wanted to do something that was balanced and had multiple viewpoints: Jewish, Christian, Muslim, secular, something for the world of informal science education and museums. We tried to figure out how to tell the story in an inclusive way. We stumbled on this idea of telling it through the eyes of three or four young people to guide us through the city, above ground, underground, from different perspectives. Hopefully we have come up with some kind of winning combination. It's been a wild ride.

We ate the mountain in small bites. We talked to people in Israel, the West Bank and in Jordan. You have to approach everything in Jerusalem from multiple angles. We went through the police, the government, the municipality. We worked with the individual churches, with the Muslim custodial body, the Hashemite Kingdom of Jordan, the Ministry of Religious Affairs, the Royal Court and more. George is very well connected in Jerusalem.

We got public relations companies on board and took out articles

in the local newspapers to explain to the public what we were doing, especially during the aerial shoot. Ron Goodman was our aerial DP with Spacecam. We shot that in IMAX 65mm.

I've done a lot of IMAX films in very sensitive areas. To be able to fly 500 feet over the Old City, which hadn't been done in at least 20 years—it's a strict no-fly zone in Jerusalem—we had to have a police escort. Thanks to Albatross and their long-term connections we did it.

None of these films for the giant screen world are ever easy. They are always difficult because you are trying to put cameras in places where they should never go. You are trying to give the audience such a unique experience. That means you are always asking for things to which people will say no. Jerusalem is no different. People there have a long history of saying no.

I'm a firm believer in thinking any no can become a yes if you work the right angles and if you are persistent enough, passionate, and give yourself enough time to make your case. That's what we did. We began filming in 2010. We raised the rest of the money. George and Taran carried the burden there.

Going digital was a really grueling decision for me. I'm a film purist and all of the IMAX films that I've done have been in 65mm.

However, the IMAX 65mm film magazine load is three minutes. Doing pure documentaries in IMAX has always been hard. For example, you want to film a procession in Jerusalem, you want to film something spontaneous. Forget it. Three minute magazine. It runs out, change mags, magic moment gone. IMAX film, processing, workprint and post probably costs about $5,000 dollars a roll for three minutes. That's really inhibiting.

I wouldn't say that digital is coming to the rescue in terms of cost, because I think any of the savings that we are seeing on the production side are coming back to bite us on the post side. We still have to deliver in film. We have to deliver in 2D 15-perf 70mm film, we have to deliver in 3D film, IMAX digital, and non-IMAX digital. We have to make all these DCPs.

Early on, I sent Reed Smoot the scripts. I always wanted to work with him. I think he is definitely one of the best in the IMAX world, a real artist. He has so much knowledge. I can't say enough about Reed. He was perfect for this job. He had shot in Jerusalem before. He responded well to the material. But the key, to me, was that Reed really believes in using the right tools for the job. He puts the content first, without compromising the resolution. I said to Reed that I wanted to shoot all the wide shots in 65mm. I wanted to do the vistas in 65. The aerials, of course, had already been done in 65.

For *Jerusalem*, we made the decision to try and do as much as possible in 65mm 2D because we have so many dome markets and because we wanted the highest possible resolution. I wanted Steadicam. I've had great luck with Steadicam. I worked on a film about the Tour de France where we made great use of Steadicam. We used Steadicam in Mecca as well. I think it's an amazing tool that's underused in the IMAX world, especially because you can just turn and pivot, and get another angle. For Steadicam, we had Scott Hoffman. He was absolutely heroic.

The Sony F65 cameras weren't ready for our first shoot in April of this year. That's when we were able to get all the big ceremonies related to both Easter and Passover, also a lot of "fly on the wall" material: a bunch of kids playing in an alley, old women buying groceries, aspects of daily life. We were really spontaneous and mobile, which I never thought we could do in the world of IMAX.

Whatever we gave up in terms of resolution, I think we really gained in terms of spontaneous human behavior, the intimacy of the city. After all, it's a human story. I wanted to balance the big spectacle shots with some nice intimacy. I decided not to shoot anything wide with the REDs and to always keep the cameras moving. Reed also did a lot of very specific lighting for the REDs. So far, I am really happy with the results.

Then, when it came to the summer, we could not afford to take both an IMAX 65mm camera and two digital cameras for 3D. So we agonized. We tried to make deals. In the end, we just couldn't afford the film stock and processing, to be blunt. Michael Chauvin, the Line Producer, said to me, "Pick one package that's going to work for everything." So we threw our heads together. We talked to Marty Mueller about the rig that he had built, his Converging Concepts CC3D rig. He said, "Yes, I can make it work for the Sony F65s."

Then Reed ran into Denny Claremont on a flight. And Denny said, "You've got to check out this ZEISS Ultra Prime 8R 8 mm rectilinear lens." So Reed did and said, "This could be amazing for us. We should use it on a Sony F65 2D body. We should use that for the dome shots—really, really wide."

We used the F65 with 8 mm lens for our 2D scenes wherever we thought it would really make a huge difference. But we shot everything else with the 3D rig. We shot archaeology sites, underground tunnels, Ramadan night scenes in very low light conditions. We got locked inside the Church of the Holy Sepulchre for a night. We filmed all the off-limit parts of that church, including underground burial caves, all the reasons that archaeologists feel that it is the most likely site of the crucifixion and tomb of Jesus.

I have to say that the F65 on the CC3D rig was the best system for the job. I think the film will be better for it because we were able to react quickly to changes in the schedule. We were able to say, "We've got this great muezzin who's willing to do a beautiful call to prayer on a rooftop at dusk."

Normally we might not have gotten away with it, with 250 daylight film. We rated the F65 around 800 ISO (we lost half a stop in S3D). It had exceptionally good range. I was really happy with the night material, the underground stuff, scenes in low light.

We did interviews as well. I wanted to do some traditional talking head scenes. I don't like the detached "Voice of God" approach. I wanted to do some nice 3D interviews in a widescreen 2.35:1 aspect ratio (IMAX is 4:3). Marty's CC3D rig with two F65s was a perfect tool. We were fortunate to be the first ones to use it, but it was a little scary as well. I feel that we really put the pair of Sony F65 3D cameras through their paces and we field-tested them. I would highly recommend them to anyone in a similar situation.

We are trying to meet a July 2013 deadline for the IMAX dome markets and the 2D markets. We have an October deadline for the 3D markets. That's what we're working towards with David Keighley of IMAX. We have big launch in Boston, accompanying the Dead Sea Scrolls exhibition there.

Reed Smoot, ASC - Director of Photography

Great visuals were possible because there were so many opportunities to explore themes and symbolism on both a very large scale and also a human scale. I'd shot in Jerusalem maybe a dozen times before, but this was a dream come true because I really felt we had never captured the city itself and the diversity of its imagery quite like we did this time in large format and 3D.

I knew we wanted to have the highest resolution possible and the Sony F65 certainly gave it to us. The camera's 8K image quality is extraordinary. I tested the F65 earlier this year on another project and it held up seamlessly against 8-per Vistavision on the DI screen at Fotokem. For those reasons, we felt very good about the compatibility of Sony F65, RED Epic, and 15-perf 65mm IMAX film on this production. We are very eager to see it on a large screen.

Whenever we could we tried to use natural light. On many interiors—inside Al-Aqsa Mosque, the Dome of the Rock, Church of the Holy Sepulchre, and in Bethlehem, we did very specific lighting. We were supported by a terrific local crew, electricians and gaffer. One real advantage of our digital capture and its high ISO was the ability to use significantly less wattage than would have been required with film, because of the sensitivity of the sensors and the speed and quality of the lenses we were using. That allowed us to do some pretty creative things in low light conditions.

For the Church of the Nativity in Bethlehem, we used a pretty big package because it was such a large interior. Basically it was a combination of HMI and incandescent in addition to taking advantage of a shaft of natural light coming in through the back window.

The Church of the Holy Sepulchre in Jerusalem has a long-standing provision where they lock it up at 9 pm each night, presumably the one and only door, with the one and only key, and they open it up at 5:30 the next morning. Anybody who's inside doesn't go out. We enhanced the mood, tone, and atmosphere with a combination of HMI, incandescent, and balloon lighting for the dome of the church. We had a lot of freedom—much more so than during the daytime when there are thousands of tourists throughout.

Dragging equipment around Jerusalem was a huge challenge. We hand carried it or had little delivery carts normally used for deliveries to all the shops in the old city. Logistics had to be very well thought out, especially with the processions. Daniel's research and groundwork was invaluable because he had spent so much time scouting the various locations. During prep we came up with a strategy and our local support was very helpful as well. We took back alleys and shortcuts, especially during Ramadan when parts of the city were closed at certain hours of the day.

Some scenes required preparation well in advance. When we did the Palm Sunday procession down the Via Dolorosa, we had a crane up on a rooftop that we had to set up the night before.

I'd like to praise our Steadicam Operator Scott Hoffman and his AC, Scott Smith, and also Sean Phillips, a brilliant DP, stereographer and 3D supervisor who collaborated with Marty Mueller on the design of the CC3D rig.

So much research, so much homework went into this production, and we had lived with the subject so long— I think its going to be a terrific film. I'm very excited by it.

Above: 3D in Church of the Nativity Bethlehem. Photo: Doug Lavender.

Below: Two F65 cameras on CC3D Rig in Alleyway in Muslim Quarter of Jerusalem's Old City. Photo: Francis Hanneman.

Director of Photography Reed Smoot, ASC rides the dolly while the camera crew, including Francis Hanneman, Doug Lavender and Ian Levine, complete a 3D camera alignment check in front of the Tomb of Benei Hezir in the Kidron valley. Photo © Jerusalem 3D US LP.

Below: Reed Smoot, ASC looking through IMAX 15-perf 65mm camera. First AC Doug Lavender in blue shirt. Photo© Jerusalem 3D US LP.

Doug Lavender, 1st AC

We used three Sony F65 cameras: two for 3D, and one for wide and tight shots with an ARRI/ZEISS Ultra Prime 8R/T2.8 Rectilinear lens (extremely wide angle of view without fisheye distortions) and a Fujinon Premier 18-85 T2.0 zoom.

The CC3D Rig itself weighed less than 15 lb. Total with 2 F65s, 2 SR-R4 recorders, lenses, and accessories was 65-70 lb. Our 4 lens motors (focus/iris) were wirelessly controlled by a cmotion unit.

The CC3D Rig had its own internal motors for convergence, height, and interaxial built in and were also controlled wirelessly. Lenses on the 3D Rig were mostly 16 and 20 mm ARRI/ZEISS Ultra Primes.

Francis Hanneman, Stereographer and DIT

The two 3D Sony F65s recorded to two SR-R4 decks. We had 11 SRMemory cards. We synced the two Sony F65s with an Ambient ACL204. Genlock was confirmed with our Transvideo CineMonitorHD 3D genlock tool. The Transvideo was an extremely robust and user-friendly monitor, a really helpful tool in the field with grids for stereography.

Sometimes we averaged about 4.5 TB of data per day, and close to 40 TB for 2 weeks. Our Light Iron Outpost mobile processing station had a 48 TB RAID, with 10 GbE cards networked to wrangle data at 170 Megabytes per second. We transcoded to DNX115 for Avid editing, created iPad dailies, cloned, and archived to LTO.

Marty Mueller, Designer of CC3D rig

The F65s fit nicely on the rig due to its open architecture. We made 26 mm riser blocks for the mirror box to accommodate the higher lens centerline and added a compensating spring to deal with the large overhung (taller + heavier) load on the vertical camera platform. Telescoping handles helped move it around between shots. The same rig shot several weeks of Steadicam earlier with Epics. ☐

Below: MSN IMAX camera mounted on a crane, filming the Birkat Kohanim (priestly blessing) at the Western Wall during Passover. Photo © Jerusalem 3D US LP.

Zsigmond & Goodich on "Kickstart Theft"

"Kickstart Theft" is a 7-minute movie-trailer/narrative short commissioned by Band Pro Film & Digital. Frederic Goodich, ASC directed. Vilmos Zsigmond, ASC was cinematographer. Gib Jaffe, ACE edited. "Kickstart Theft" will premiere at IBC and Cinec.

The story is inspired by Vittorio de Sica's neo-realist film *Bicycle Thieves* (1948), shot in bleak black-and-white on an Arriflex 2C by Carlo Montuori. For "Kickstart Theft", Vilmos Zsigmond used a Sony F65 for the first time, with Leica Summilux-C primes and a Canon 30-300 zoom.

Frederic summarized the story and concept. "It's about a homeless family living in very makeshift circumstances. Victor (the main character) finds some jewelry, pawns it to buy a motorcycle, and starts to work as a messenger. The motorcycle is stolen, he and Kierky (the boy) search for it, some tense things happen along the way. There's a climatic confrontation with the thief's motorcycle buddies.

"We chose locations for both story and the light. We wanted to work in available light as much as possible and would augment only when necessary. We were surprised we could get such rich exposures even at low light levels of less than a foot candle. We were learning the camera and I believe we came away with a great appreciation of what it is capable of. The Leica lenses were very sharp and at the same time there's increased detail and a friendly smoothness about the Leicas that I adore."

Vilmos said, "We were very happy to work with the good new F65 camera combined with these new Leica lenses. People are sometimes worried about overly harsh digital images, but with the Leica lenses we don't have this. We loved the look of the Leica lenses. The Leicas are wonderful for women we want to look beautiful, and audiences always enjoy seeing beautiful faces.

"As you know, we are both cinematographers. We worked well together, and we managed to stay good friends right up to the end. The Director-Cinematographer relationship is important, and there was a great relationship between the two of us. We complemented each other's ideas very well. I was operating most of the time, even when Fred got so excited that I could feel he wanted to grab the camera out of my hands during the end shot.

"There were times when my lightmeter didn't even register, and we rated the camera at 800 ISO. We used the F65, Sony's latest camera,

Above, L-R: Vilmos Zsigmond, ASC; Frederic Goodich, ASC. Leica lens, Sony F65.
Below: 4K framegrab shot with Leica 50 mm Summilux-C. TIFF provided by Light Iron.

and probably their best camera so far with its 8K resolution. But lighting and composition are the most important things for me, and when we are talking about quality of camera, quality of lenses, that's almost secondary.

"When you look at the movie you will notice the difference because the way we shot it in certain circumstances, the lighting took over, composition took over, and that's the way it should be anyhow. We wanted very soft highlights, contrast, shadows, and we wanted to show how this camera functions under difficult circumstances.

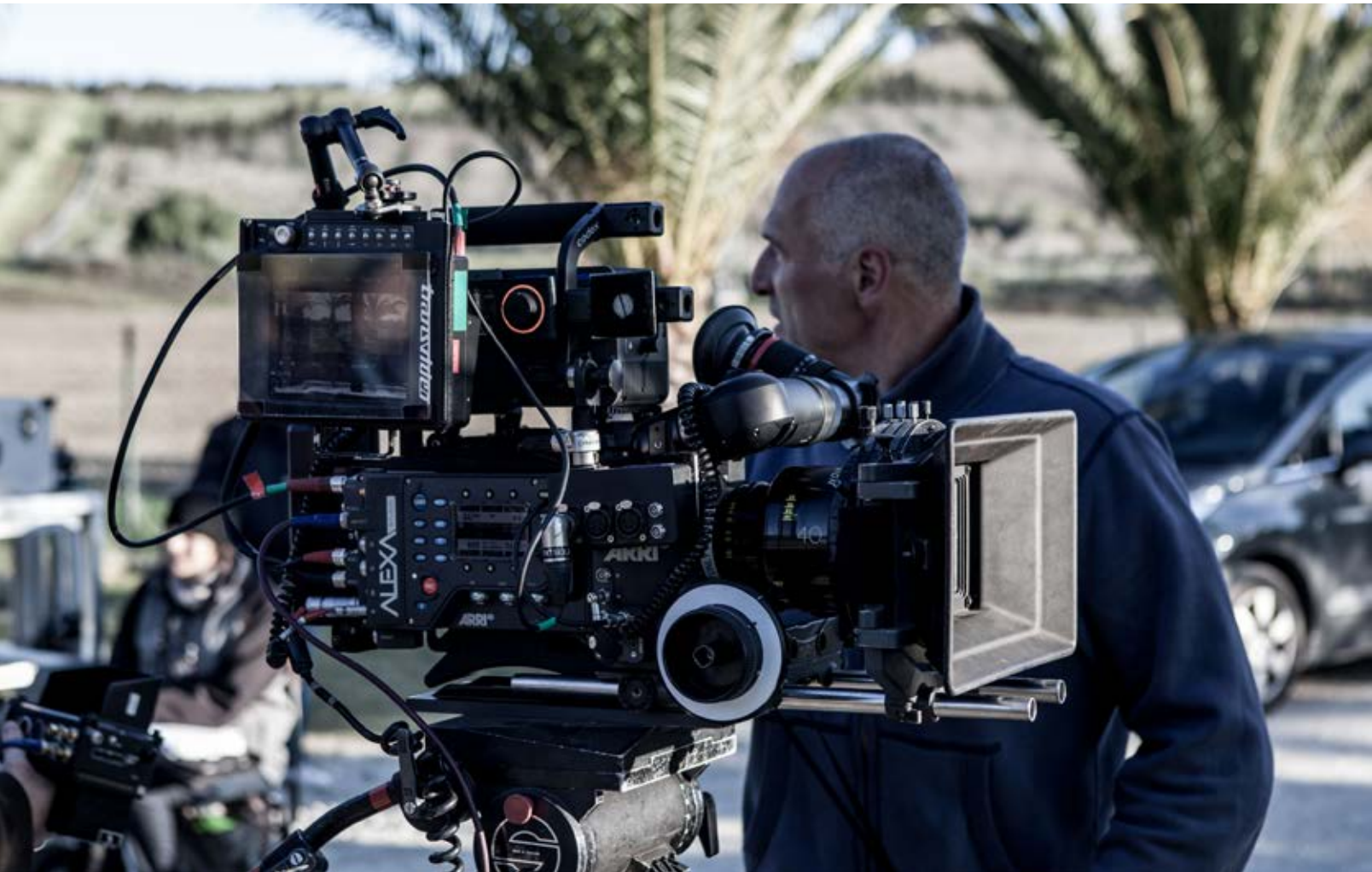
"Good cinematographers usually like to work early in the morning or late in the afternoon and we tried to do the important shots with that in mind. We tried to avoid those hours and things that we could not control, or we would shoot a scene in shade or in silhouette. But you'll see in this movie that we selected good lighting and it's going to really add to the enjoyment of seeing it.

"We didn't have big lights. We had NILA LED lights. LED lights are very good because they give you a lot of light for a very little wattage. For the future of movie-making people are going to do that a lot—use smaller units with less wattage. That and smaller grip equipment will let us move faster."

Speaking of moving faster, Frederic said, "ACES was the main reason post went so smoothly at Light Iron. Thanks to ACES, the digital grading process has never been as easy for cinematographers." ❐

Gibraltar

Gibraltar — Directed by Julien Leclercq
Cinematography by Thierry Pouget
Cameras: Two ARRI Alexa Studio cameras
Lenses: Panavision G Series Anamorphics
Starring: Tahar Rahim, Gilles Lelouche, Riccardo Scamarcio
Photos: Copyright Chapter 2 - Mika Cotelon



Alexa Studio 4:3 Anamorphic on *Gibraltar*

by Thierry Pouget, Cinematographer

Gibraltar is the real story of a man named Marc Fievet in the 80's. He was a French guy who tried to start a new life in Gibraltar. The French customs and border patrol got to him and asked him (less "asked" and more "blackmailed") to be an official informant: he will warn them about all the deals going on around Gibraltar.

In his bar, he is supposed to hear about drug deals and dealers. Quickly, he finds himself in a "war" between French, English and Spanish customs departments. He becomes a very close friend of the biggest Italian Mafia boss. He makes some mistakes and delivers drugs by himself with his own boat and gets arrested by Canadian customs. He stays in jail for 10 years, and the French customs never recognize him as an advisor.

The director was Julien Leclercq. (*Chrisalys, L'assaut*). I worked with him on *L'assaut*. On that film, we decided to be handheld, to be very nervous with the camera (as if the camera were a hostage inside a plane). For *Gibraltar*, we decided to use the camera completely differently. Opposite. The camera is very static, very calm. Framing is completely graphic, precise, *millimetrique*. Of course, anamorphic was the obvious choice.

Anamorphic was the best format to film the locations. The sea, for example, is a very important character in the movie. Also, filming the main character, Marc Fievet, in anamorphic format was a good way to show how much he will lose, alone, in the events he finds himself. Everything is too big for him. He didn't expect, never imagined, what would happen to him. The deal is too big for him.

From the beginning we decided to shoot real anamorphic. We first made tests with the RED Epic with a Panavision mount and anamorphic lenses. The out of focus bokehs were very important for me, because of digital, of course. But in France, at that time, nobody was able to process the RED RAW file (That was November 2011; now that has changed!) I was also a bit worried by the viewfinder. I love the Epic, and I love to use it by framing with a good monitor, but for this project (very bright sun in Spain and on the sea) it was not possible.

Then, in January 2012, my friends at Vantage Prague told me they had the Alexa Studio. I was excited to be able to shoot 4:3 format with anamorphic lenses, with a mechanical shutter, and with a viewfinder I know from film cameras. The optical finder brings you a fantastic comfort: no delay, clear, bright, live. This is extremely pleasant and safe.

I called Vantage Paris and Panavision-Alga to find out about their deliveries of the Alexa Studio. Vantage Paris was fantastic and they got me a camera for testing with Hawk lenses. The result was really interesting. The quality of the motion blur, because of the mechanical shutter, was really amazing. I think that's why people want to shoot with Alexa Studio even without anamorphic lenses. Mechanical Shutter and Real View Finder: these are 2 very good reasons.

Then Alga Panavision also got an Alexa Studio. And from that time on I was able to choose which lenses I would like to use. I decided to use Panavision G Series lenses on this show. I love the "sensuality" of the image they create, soft but contrasty, deep, the quality of the out of focus bokehs. Panavision G series anamorphic lenses include: 25, 30 35, 40, 50, 60, 75 mm T2.6 and 100 mm T3.0. Close focus is under 3 feet.

The references for the look of the film were *American Gangster* and *Zodiac*. *American Gangster* had the color we liked: brown, dark images, you never feel the lighting. Everything seems simple and natural. I come from the commercial business and it was important for me to lose my "usual" way of working. I work for beauty, and often use a lot of lights. *Zodiac* influenced us in a wider way. Locations, art department, camera movements, lights—we looked at this movie quite a lot, let's say.

I shot the entire movie with a chocolate filter n° 3 (exterior), and chocolate n° 2 (interior). For nights, I used an "antique" filter. I used on the set the rush management system that Patrick Leplat from Panavision France built for us. So I was able to work on the grading of the image on every sequence, at each locations, immediately on set.

I decided to buy my own camera during prep. Because the Alexa Studio was very new, it was going to be difficult to get 2 cameras on set, and we needed 2 bodies because we were shooting abroad (Spain and Canada). Panavision and Vantage were ready to rent us an Alexa Plus for the second body. But for me, it was not a good compromise. I knew that the second body would be used as the "B" camera, the second camera (for helicopter, stunts, sunset, sunrise) and I didn't want to have some images in 4:3 anamorphic and some images 16:9 spherical. (That was before the Alexa Plus 4:3 came out.) This was not the project to make such a compromise. So I decided to buy my own camera. I have to say it was already in my mind to do so. Natasza Chroscicki from Imageworks had already prepared a price quote for me in September, and now I was ready.

Digital today is a new way to work. We have lost some parameters that film had offered, for sure. But with digital, I also won some things. You can work directly on set and check your continuity (we shot our exteriors in Spain and our interiors later on in Canada), and I felt more free to try, to be playful, to explore.

A big point: I developed a very strong working relationship with my gaffer, Daniel Chretien. This was the first time I worked with him. He was really involved, and he was in front of our monitor all the time, because the quality of digital can offer this. He was my visual memory. Because of digital, it was easier to explain my point of view for each scene. Daniel quickly understood what I liked, and to where I wanted to go. ❐

ARRI/ZEISS Master Anamorphic Primes

Focal Length	T-stop	Close Focus (2)	Magnifica-tion Ratio (3)	Length fr Lens Mount (4)	Length fr Image Plane (5)	Front Diameter (6)	Maximum Barrel Diameter	Weight (Kg) (lb)	Entrance Pupil (7) (mm)	Entrance Pupil (6) (inch)	Angle of view H - V Super 35 'Scope (8) ID = 29.26 mm (9)
35 mm	T1.9	0.75 m 2'6"	H: 1:32.3 V: 1:16.1	182 mm 7.2"	234 mm 9.2"	95 mm 3.7"	114 mm / 4.5"	~3 ~6.6	178.7	7.040	65.47° - 29.91°
40 mm	T1.9	0.75 m 2'6"	tbd	182 mm / 7.2"	234 mm 9.2"	95 mm 3.7"	114 mm / 4.5"	~3 ~6.6	tbd	tbd	58.72° - 26.31°
50 mm	T1.9	0.75 m 2'6"	H: 1:22.2 V: 1: 11.1	182 mm / 7.2"	234 mm 9.2"	95 mm 3.7"	114 mm / 4.5"	~3 ~6.6	171.5	6.75	48.46° - 21.18°
60 mm	T1.9	0.90 m 3'	tbd	182 mm / 7.2"	234 mm /9.2"	95 mm 3.7"	114 mm / 4.5"	~3 ~6.6	tbd	tbd	41.11° - 17.71°
75 mm	T1.9	0.90 m 3'	H: 1:19.6 V: 1: 9.8	182 mm / 7.2"	234 mm 9.2"	95 mm 3.7"	114 mm / 4.5"	~3 ~6.6	136.7	5.380	33.40° - 14.21°
100 mm	T1.9	1.20 m 4'	tbd	tbd	tbd	tbd	tbd	tbd	tbd	tbd	25.36° - 10.68°
135 mm	T1.9	1.50 m 5'	tbd	tbd	tbd	tbd	tbd	tbd	tbd	tbd	18.92° - 7.92°

All lenses have PL-LDS 54 mm diameter stainless steel lens mount with Lens Data System (LDS) contacts. Flange focal depth 52 mm.

All lenses have apertures of T1.9-T22.

(2) Close focus is measured from the image plane.

(3) Magnification ratio (eg: 1:32.2) is the relationship of the size of an object on the image plane (the first number, eg:1) to the size of that object in real life (second number, eg: 32.3) at the close focus setting; Horizontal (H) and Vertical (V). So in the example of 1:32.2, the horizontal image in real life is about 3 times smaller than the size of the camera's sensor or aperture.

(4) Length measured from the lens mount to the front of the lens barrel.

(5) Length measured from the image plane to the front of the lens barrel.

(6) Diameter of the lens barrel where it comes in contact with the mattebox. This is the measurement of the lens donut you will use.

(7) The distance from the entrance pupil to the image plane at infinity focus. Positive numbers indicate an entrance pupil in front, negative numbers indicate an entrance pupil behind the image plane.

The entrance pupil is the center of perspective. Panning or tilting the camera/lens system while centered around the entrance pupil prevents parallax shifts. Useful to know for special effects work.

(8) Horizontal (H) and Vertical (V) angles of view for a Super 35 'Scope camera aperture (dimensions 22.5 x 18.7 mm / 0.8858" x 0.7362")

(9) Image diameter (ID) is 29.26 mm. This is also known as the image circle.

MA Master Anamorphics 2.39:1

ARRI lens product manager Thorsten Meywald is racking up lots of frequent flyer miles lately. He called in from Beijing hours before we went to press with some eagerly-awaited and partially unexpected information on new anamorphic lenses. For the past year, Film and Digital Times has been harping on—belaboring—the rapid resurgence of anamorphic cinematography on 4:3 sensors. And suddenly they appear to be affordable.

ARRI/ZEISS anamorphic prototypes have been seen for the past three years, as Marc Shipman-Mueller, Thorsten Meywald and others grilled many of us on look, feel, myth and reality of the legendary anamorphic look. But there prevailed a sense of gloom and doom because the projected numbers of potential customers were puny while the estimated costs were prohibitive, even for the most powerful potentates of the world's rental kingdoms.

You can therefore imagine the loud crash of my telephone dropping to the floor when Thorsten announced the targeted price. More on that later. Film and Digital Times is supposed to appeal to the loftier ideals of technique, technology and damn the price. The price will be around 30,000 Euros (currently $37,500) each for most lenses. There. That's said.

Several things have changed in the past three years to make anamorphic more affordable: more 4:3 digital cameras and ARRI's announcement, at this IBC, of 4:3 ProRes anamorphic recording onto its internal SxS PRO cards.

The new ARRI/ZEISS Master Anamorphic Prime Lenses are a combined effort of the long-time design, technical and marketing partnership between Munich and Oberkochen. ARRI will handle exclusive marketing worldwide, and retains the official brand name, "ARRI Master Anamorphic," as they do with ARRI Master Prime and ARRI Ultra Prime. The lens barrels show the partnership: ARRI and ZEISS.

At IBC, both ARRI and ZEISS will have working prototypes of the new 50 mm T1.9 Anamorphic lens on ARRI Alexa Studio cameras in their booths. The new lens is smaller and lighter than the blue-barreled concept model we saw at NAB. We'll also see mockups of the new 35 mm Anamorphic.

The look of these lenses is also a nice surprise. Thorsten explained, "We designed these lenses completely from scratch. Bokehs are determined by optical design, contrast, and other factors. Sometimes the out of focus area is more important. These lenses have a pleasing anamorphic oval bokeh. The Master Anamorphic lenses do not look clinical. In addition to superb design, they have optimized anamorphic bokehs: oval highlights. To get a perfect oval, you need a lot of blades. The Master Anamorphics have irises with 15 blades. Master Primes have 11 blades."

Thorsten worked for many years at Schneider, so he's no slouch at explaining optics. "When you have an odd number of iris blades, the light rays are doubled. So a 15-bladed iris gives us 30 light rays. A 14-bladed iris will only give us 14 rays.

"With our Master Anamorphics, there are no lines or patterns inside the bokehs. These can occur when you polish aspheric elements. The MRF (Magneto Rheological Finishing) process that ZEISS uses is able to eliminate these textures.

"Designing anamorphics is like putting two different lenses into one barrel. For example, a 50 mm anamorphic will have the vertical characteristics of a 50 mm spherical lens and the horizontal characteristics of a 25 mm. When you think about designing such a lens, there are essentially two completely different focus mechanisms. Both have to be combined. A new focusing mechanism has been designed to travel different distances at the same time; it is mechanically quite advanced.

Many anamorphic lenses in the past were made from a prime lens with a cylindrical element added in front. This creates oval bokehs. Most anamorphic zoom lenses have cylindrical elements at the rear. With a rear anamorphoser, you get round bokehs and the depth of field is the same as a comparable spherical lens.

Thorsten continued, "The ARRI/ZEISS anamorphic primes are color matched with the rest of the family: Master Primes, Ultra Primes and Alura Zooms. The anamorphic squeezing is done by 'spreading' the cylindrical element around throughout the lens—not in front, not in back, but in several places. They are not based on existing lenses."

And they have streaks. BLUE STREAKS!

Thorsten provided some blue streak history. "C-series lenses provided the most classic blue streaks. G-series lenses give you a blue line, but it's sometimes reduced. These streaks come mostly from reflections off the front cylinder." You can enhance or add blue streaks with Blue-Vision filters from Vantage, Tiffen Streaks, and Optefex Blue Streak filters.

Master Anamorphics have a blue line, but because the cylinders are spread inside the lens, you can control the effect more precisely. You will be able to create a blue line evenly across the frame when a point source is aimed at a pre-determined angle. You won't get uncontrolled flares. You can also get a predominantly horizontal streak along with a reduced vertical one.

Geometric distortion will be low—around the same level as the Master Prime spherical lenses. Anamorphic distortion typically has been 6 - 12%.

Anamorphic lenses have often gone to great lengths to avoid severe image breathing and mumps. Mumps are vertical distortions. For example, when you focus from infinity to 4 feet, a person's face tends to become fat as you focus closer. These Master Anamorphics are expected to be as good as Master Primes when it comes to breathlessness and lack of mumps.

The Master Anamorphics were designed with digital cameras in mind. They are nearly telecentric (parallel rays) with minimal color fringing and shading (vignetting) at the corners.

There are rumors of work or partnerships on a zoom or zooms.

Here's the current road map. Prototypes of the 35, 50 and 75 mm Master Anamorphic lenses at NAB 2013. Delivery by Cine Gear 2013. Prototype of 100 mm around Cine Gear. Introduction of 40, 60 and 135 mm at IBC 2013. Delivery of full set by end of 2013.

The lenses will be available to purchase from ARRI and their distributors worldwide.

They will be ready to rent from the usual suspects, who, I suspect, will no longer have any reason to complain about the price. Did we mention price? ☐

Alexa Studio 4:3 and Hawk Anamorphics on *Miserere*

Miserere Cinematographer: Denis Rouden, AFC. Key grip: Bruno Durand. Focus puller: Marie-Laure Prost. 2nd Assistant: Juliette Castanier.

Opposite: Director Sylvain White. Eric Bornes, 2nd Unit camera operator with Hawk 250. Photos Copyright Liaison Films - Roger Do Minh.

Denis Rouden on Anamorphic

by Denis Rouden, AFC

Miserere*, starring Gérard Depardieu, Thierry Lhermitte and Joey Starr is a supernatural thriller about a policeman, about to retire, who searches for the murderer of a Paris church choir leader. Denis Rouden, AFC was the cinematographer. Sylvain White directed.* Miserere *had a budget of approximately €15 million.*

We shot for 12 weeks in Paris, 1 month in Belgium, and 1 week in Morocco. When I first met with director Sylvain White, I said that I wanted to shoot with the new Alexa 4:3 and with Hawk 2x (4:3) anamorphic lenses. I like to shoot movies with Hawk anamorphic lenses: they are my current favorites.

The big breakthrough in digital cinematography was about using the 2x Hawk anamorphics on the ARRI Alexa with its 4:3 sensor. It permits "real" 2x anamorphic and not 1.3x, which is what we had to use with previous 16:9 sensors.

I was very interested to test this combination. I shot some tests and the images looked great. They were very different from what I had experienced with the Alexa Standard and Plus 16:9 sensor cameras. I showed the tests to the producer and director, and worked with Didier Le Fouest, the colorist at Digimage. The tests were lovely. The possibilities in color grading were great because the definition is better, there are more pixels being used with the full sensor, and you have the true anamorphic effect. So I asked Danys Bruyère and Thierry De Segonzac at TSF to buy 2 Alexa Studios for our production. I have a long history with TSF. We have been working together for a long time. I like Danys Bruyère: he is a friend, a very nice guy, he knows everything about all the equipment in the world, he knows cameras and grip and everything else. He's a good guy when we need advice.

Alexa Studio was real progress. It was already a real revolution in digital cinema shooting with Alexa. For me, Alexa has been the best digital cinema camera. It provides my favorite picture. But, when you shoot in 16:9, with a 16:9 sensor, it's a TV-size format. It's OK, but it feels a little bit video-like. But when you shoot with a 4:3 sensor with anamorphic lenses, it's wonderful, it's real cinema like 35mm. You have more definition and the depth of field of 35mm anamorphic—it's the same with 4-perf film and 4:3 Alexa digital. I find that composing the frame is better. I'm heading to Cape Town, South Africa to start my next feature, Zulu, and I will use the same combination again: Alexa and Hawk 2x anamorphic lenses.

Since June, you can use Alexa Plus with EVF and a 4:3 sensor. I think I will use both the Studio 4:3 and the Plus 4:3 cameras, and anamorphic Hawk lenses. It's very nice to see the actors directly through the lens, through an optical viewfinder, like in 35mm, it's more sensual. As opposed to an electronic viewfinder, which is like a small TV that lacks good color, good contrast: so I think the best for me is to have one each. One optical, one EVF, and sometimes an Alexa M.

I like the optical viewfinder, but you need to keep the shutter running—if you turn it off, you don't have an image on the monitors. That's the only problem for me. When the shutter is spinning, you lose a little light in the optical viewfinder. So sometimes, at night, it's a little bit dark. For the next movie, I prefer to have a choice of OVF and EFV, because in the dark, I'd like to see all the details.

On *Miserere* I had 2 Alexa Studios most of the time. Natasza Chroscicki lent me the Alexa M camera for a week. I wanted to try it for shooting action fight scenes. It's very light.

Production of *Miserere* started in beginning of January 2012. We started scouting and shooting tests. We screened some of those tests at Micro Salon in February. Those were the ones with Alexa Studio and Hawk lenses. And that was the first time I used Alexa with Hawks. After that, right before starting the film, we shot more tests around Paris with the actual Alexa and Hawks that we had on the movie, and also to show the Director and Didier le Fouest in the lab some ideas on color grading.

I think I made one movie with Panavision G-series anamorphics. It's a different kind of look. The Hawk has a definition, a precision, that is very sharp, and flares that are very specific. It's not the same flare as Panavision's.

I used the Hawk V-Lite 45, 80 and 110mm; V-Plus 35, 50, 60, 100 and 135 mm; V-Series 30, 180 and 250 mm.

Also the Hawk 300-900 mm anamorphic zoom.

And, we used the 50-500 T5/1 (25-250 Angénieux with Kish Optics rear anamorphoser.)

But mostly the 50 mm Hawk—my favorite lens.

To match the 25-250 anamorphic with the Hawk primes, I needed a stop of T5.6 - 8 on the zoom, but not less, otherwise the picture would go a little soft. So I used the zoom mainly outside in daylight. For interiors, I used the Hawk V-Series 250 mm T3 anamorphic prime and the 180 mm T3. For my next movie, I will use the 48-580 T4 (24-290 Angenieux Optimo with rear anamorphoser.) ☐

Above: Director Sylvain White
Below: 2nd Unit Camera Operator Eric Bornes with Hawk 250 mm

Why We Make Hawks the Way We Do

In the middle ages, the "Golden Street" was a major road between Paris and Prague, by way of Nurnberg. One of the major stops was Weiden—these days, the home of Vantage Film. That's apt, since Vantage has offices in Prague and Paris, with headquarters in Weiden—about 2 hours north of Munich, 2 hours west of Prague, 3 hours south of Berlin.

Peter Märtin (left) and Wolfgang Bäumler are the owners of Vantage, the camera rental company and manufacturer of Hawk lenses. They both began as camera assistants and cinematographers, so they know a thing or two about lenses, cameras, cases, shipping, organizing and above all, the ingredients of the anamoprhic look.

by Peter Märtin

If you want to design new lenses, you have to consider the characteristics of the format for which it will be used. You have to separate problems from the things you want to protect or enhance. For example, if you are renovating an old church, you probably don't want to do it too perfectly. Maybe you see an old stone wall or an old gate and you say, "It's not perfect—but of course, that's the beauty of it." We are very deliberate about where there is room for improvement. Perhaps speed, close focus, size of the lenses, definition at the top, bottom and the corners, matching lens sets, and so on. There is always room to improve, but we also recognize what not to touch and what to leave alone so as not to lose character.

The idea behind Hawk Anamorphic Lenses

We design and build Hawk Anamorphic Lenses. Most lenses today are really good. For us to have followed the same path of just making new lenses sharper and better was not sufficient. A sharper lens on its own is not automatically a nice, new tool for a cinematographer. Of course, sharpness is good to have, and our Hawk lenses have very good definition and sharpness.

When we started in the '90s, more than 40 years had already gone into development of anamorphic lenses. Panavision did the major part of that. But things were still lacking. Lenses did not focus close enough, they were too big, and you could see focus falling off quite easily. we wanted to improve those things. For us, it was more important to make smaller lenses than faster ones.

An anamorphic lens, with its "squeezing" cylinder, develops a "fingerprint" which is unique. We try to keep that in our designs. When we see elliptical bokehs or slightly curved geometry, we don't regard them as defects that have to be eliminated. On the contrary, we understand that those are part of the language of anamorphic.

If you photograph with spherical lenses, the image can seem flat and without surprises. So if you want to build a new spherical lens, maybe you design it to be sharper in the corners, or faster. When you put an anamorphic lens on a lens projector, you think, "Ah, we have curvature here, and look at those corners. They are softer."

There's a difference between what rental houses do and what most cinematographers do. The first thing a rental house does is to take a new anamorphic lens, put it on their lens projector and then start looking for the aberrations. But what does the image look like?

It's similar to a painter worrying more about buying the canvas or paint. In our world as a manufacturer of anamorphic lenses, we are in contact with the cinematographers, and most of them just do the tests. They rarely look at the lens on a projector. The assistants do because they want to check the focus scales and want to hand-pick some lenses. But the cinematographer wants to see the results.

Anamorphic is like a roller coaster. When watching an anamorphic film you probably would not be obsessing over line pairs in the very far corners of the screen. You are, hopefully, immersed in the story and the dazzling widescreen cinematography. You would just be embraced by the image.

Hawk Anamorphic Lenses

We have to recognize and accept that audiences love the famous anamorphic films out there. Those were all made on classic anamorphic lenses. We applaud those pleasing qualities. Maybe it's the curvature or a little bit of fall-off in the corners. As a designer, if you try to improve it, you have to be careful not to improve everything. Otherwise you risk losing the anamorphic fingerprint.

The Anamorphic Look

If I were to define the anamorphic look, it's emphasizing the in-focus part of the image because there's a bigger separation of the out-of-focus. So it automatically looks sharper and crisper. It's very appealing to the eye. The eye likes to be cued what is in-focus and what's not. If it's Super35 and shot in spherical, then the eye may start to search, looking for the area of maximum sharpness. Maybe you cannot find that area easily. It's not always a pleasant experience. But in anamorphic the in-focus area is easy to see.

The second characteristic is how the out-of-focus areas look. The bokeh is completely different. These out of focus highlights are oval; they are created by the curvatures of the anamorphic lens element. A spherical lens would be photographing everything as it is, trying to reproduce it as faithfully as possible. The anamorphic lens interprets reality. It tells us how the reality might look, but it's not recording the reality.

It's the same as if you make a sketch with a pencil. You decide what to enhance and what not to. You interpret the reality with your tools. You enhance important things and you don't show unimportant things. If you want to add dynamic shape to a sketch, for example, you might change a straight line into a curved line. Let's say you're doing a sketch of a powerful producer at his desk. You might make the desk curved to give it more dynamic shape—but in reality it was really straight.

The anamorphic lens works similarly. It's interpreting reality in a very cinematic way. Because of the mistakes, drawbacks or problems in the design of the cylindrical anamorphic lens, you wind up with "happy accidents."

Why does everybody loves this format? Because of the organic look—not because things have been corrected the way we expect them to be on spherical lenses. When we make the Hawks, we improve certain parameters which we feel are lacking. But we do not try to "improve out" some of the original characteristics like curvature.

Making Hawk Lenses

Most of our lenses focus down to two feet, which is remarkably close for anamorphics. And we have three lenses where you can focus to the front glass element: 45 macro, 65 macro, and 120 mm.

Hawk is a family of lenses. Everything is assembled in our facility in Weiden, which is about 1.5 hours north of Munich. We produce a lot of parts for our lenses. All the parts come from Germany—most from within 100 miles.

Iris and focus rings are all in the same position. We have internal focusing: cams and cam followers. There are basically two front diameters, one for the wide lenses in the V-Lite series, and one for the medium and long ones. You can easily attach clip-on matte boxes. Even if you tighten the mattebox way too hard, it will still not bind the internal elements (as it does with some other lenses).

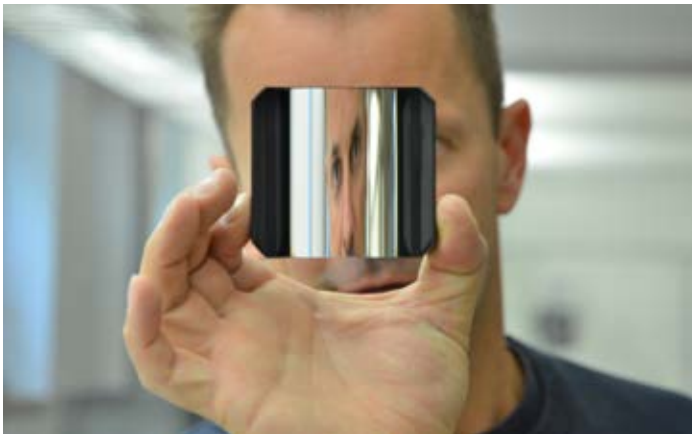
You can interchange the focus scales very rapidly, easily, and precisely. The connection of the PL mount to the lens is unique in the Hawks. We don't have any screws going into the lens body. We screw the PL mount into an L-shaped stainless steel part. It's held by a ring to the lens, so it's very solid, without mini screws like PL screws.

The Hawk design, as far as I know, is the only design that has parallax-free witness marks on both sides. The focus ring and the barrel with the witness mark is on the same plane.

We use a unique paint on the lens, which is a matte finish. It's a special industrial paint that is baked on after glass pearl blasting and anodizing. And, we apply high-contrast highly visible yellow paint into the engraved lens markings. Even the serial number is in a prominent position, because you have to always write the serial numbers on the delivery notes, so it's good to find them easily.

We have plaques on both sides showing the focal length very prominently so you quickly can identify each lens.

We tried to minimize lost time for the assistants. You can find your lens in seconds. We also design cases for our lenses—containing



Clockwise from top left: 1. Wolfgang Bäumler assembling anamoprhic cylinder. 2. Hawk lenses. 3. Parallax-free, yellow witness marks and special matte finish. 4; Plaques ready to be mounted on new Hawks.

the lenses and accessories. We have designed very small cases for location, studio and camera truck. They don't take up too much room on an assistant's cart. These cases then go into larger, tougher cases for shipping. Camera crews want small cases, but shipping requires more foam, more protection, hence larger cases. We use A&J Cases in Los Angeles. So far, they have built 3500 cases for us.

A rental house is not a laboratory. If you have to open up a lens, it should not be sealed. A lens designer should consider parameters appropriate to our business—and avoid making overly complex lenses that are difficult to service. You should not have to send it back to the factory for repair just to maintain tight tolerances. My partner Wolfgang Bäumler once completely disassembled our 150 to 450 zoom at ARRI Media in 10 minutes—right down to the focusing system and the zoom section. He had put the lens on the lens projector before starting. He then dissembled it down to the individual components, and then re- assembled it again. They put the lens back on the lens projector and were impressed. It was just as sharp. They did not have to re-shim it. The point is, we don't want to have to say, "Do not open it. Send it back to us in Weiden." That would not be a successful product. Our mechanical design ensures that maintenance is easy for rental houses even with limited possibilities.

In addition to primes, we make front anamorphic zooms. Rear anamorphic zooms (and primes) do not have oval bokehs or the classic look. Because the cylinders are at the rear, they are just stretching the image vertically, in a process similar to using a 1.4x or 2x extender—but only on one axis. The image is already made by the taking lens, it's an aerial image. You cannot influence it any more because stretching takes place after the lens. The depth of field and the bokehs have already been created. You cannot influence how the bokeh or distortions look from the back.

Matched sets

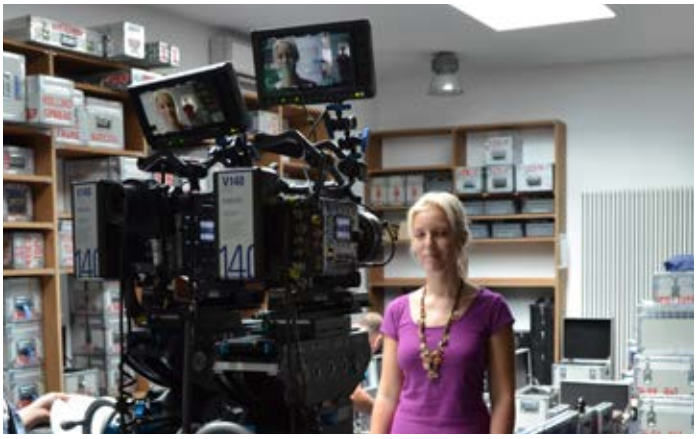
We doubled our lens-making capacity two years ago. Hawks are all the same family of lenses. They are made by one company—and one group of designers—us. That's why they match very well. Camera crews do not have to hand pick our lenses so they match each other. Problems in matching happen with sensitive designs and when lenses suffer from wear and tear. But the Hawk design is very robust. So every 50 mm lens will be the same. Every 60 mm as well. And so on.

Digital Cameras

For the next generation of digital cameras, we worked hard on the points that we felt were important: back focus, good contrast, less color fringing and relatively bright corners. But we don't touch the curvature or the bokeh. We use the classical front anamorphic design in order to get the traditional anamorphic look.

We consider cinema lenses as tools for a rental business. Lenses are constantly shipped forth and back. They have to be serviced by the rental houses. We took that into consideration and made a very robust, not over-designed, simple mechanical concept. Once the lens is manufactured and assembled, it will maintain its quality over its lifespan. We did not want our Hawks to look good on paper but give us trouble in manufacturing. We also did not want our lenses to run into problems later on, while on productions, because they could not be serviced. We were careful to prevent down-time or anything that might cause delays on a movie.

Hawk at Vantage, cont'd

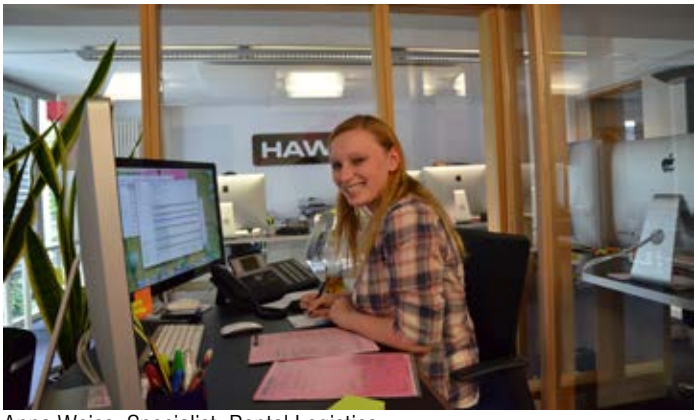


Sabine Schlosser, Executive Administrative Assistant, testing ARRI Alexas

Sylvia Gössner, Executive Administrative Officer

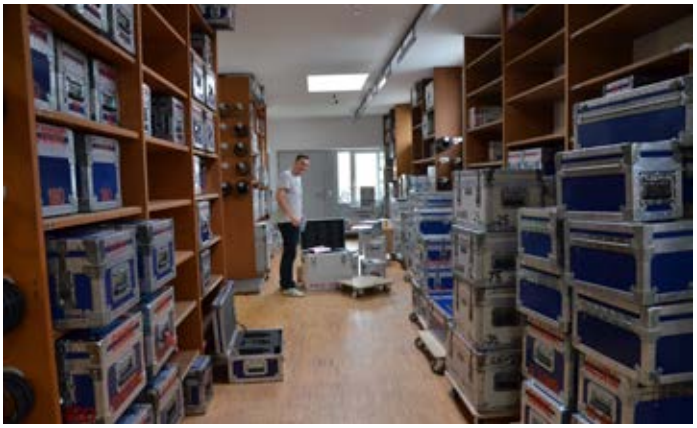
Marion Wild, Head, Client Contacts, Rentals (left) and Barbara Weiss, Senior Consultant, Client Contacts, Rentals

Peter Märtin and Wolfgang Bäumler



Anna Weiss, Specialist, Rental Logistics

Albert Rath, Senior Specialist, Camera Operations



50 of 3500 cases holding Vantage equipment

Oana Apostol, Consultant, Client Contacts, Rentals (left) and Alexander Schwarz, Director, Digital Systems & Key Accounts

Hawk Vintage ‘74 Anamorphic Lenses

Hawk V-Lite 65 mm T2.3 Vintage ‘74
Shown approx actual size
Front diameter: 104 mm
Length: 160 mm
Weight: 2 kg
MOD: 3.25’
Squeeze: 2x and 1.3x

1974 was a good year. For anamorphic films, not Bordeaux. In 1974, John Alonzo, ASC shot *Chinatown*. Now, Hawk lenses take us back to that era.

New Hawk Vintage '74 Lenses provide the lower contrast, chromatic characteristics and flares of older, 1970s anamorphic lenses—but with precise, modern mechanics and the dependability, sharpness and consistency of all the current, modern Hawk lenses.

Cinematographers who seek the signature 1970s anamorphic look, complete with low contrast, flares, color aberrations and other “flaws,” can now achieve that look with new lenses that incorporate state-of-the-art optics and mechanics, and work seamlessly with the latest accessories.

After listening to customers, Vantage noticed the strong interest in older lenses due to their unique “defects.”

Peter Märtin explained:

“We realized that these so-called defects are tools used by cinematographers to subtly communicate a certain feeling or mood to the audience. For example, some of these older lenses, prized for beauty work, deliver a low contrast image with creamy skin tones. With today’s glossy digital formats, the right lens can add a certain authenticity or aesthetic to the image by way of these traits, which in many cases were originally limitations – flares, reflections, certain contrast and color characteristics and more – that are put to use by cinematographers as storytelling tools.”

The idea was to update these lens traits in lenses that come with all the upgrades in design and ease-of-use that camera crews have come to depend on over the last 40 years.

Vantage researched the types and methods of coatings used in these lenses from the 1970s, and undertook a series of experiments designed to recreate the effect. Modern optics meant that the “new recipe” varied from the older lenses, which often used only one or two layers of coatings. Modern coating techniques often employ as many as 14 layers. After two years of tests, Vantage arrived at a combination of coatings and lens elements that achieved the goal: a thoroughly modern lens that delivers the recognizable patina of those films we love from the 1970s. These new lenses will be thoroughly compatible with motor-driven follow focus devices, clip-on matteboxes, and other modern lens mechanics.

Hawk Vintage ‘74 Lenses will initially be ready as a set consisting of 35, 45, 55, 65, 80, 110 and 140 mm. They will be available with 1.3x and 2x squeeze, starting with 2x, and eventually cover all the Hawk focal lengths. They have clear, legible markings. They are more durable—more resistant than actual 1970s lenses to the physical punishment of today’s far-flung shipping and production realities. And, should they need repair or replacement, their up-to-date design makes it possible—which was not always the case with older, 70s-era lenses.

Hawk Vintage '74 Lenses could be the best of both worlds: the signature aesthetic of older 1970s lenses, combined with the latest and greatest in modern lens design and construction.
www.vantagefilm.com ❐

"Did I Say That?" Danys Bruyère on Anamorphic

For insight, we often look to Danys Bruyère, TSF Deputy Managing Director of Operations and Technologies, despite his famously funny disclaimer, "Did I say that?" Danys is shown, anamorphically composed, above left, with Howard Preston in the TSF Cine Boutique in Paris.

by Danys Bruyère

There has been a strong demand for anamorphic productions in France for a long time. Between TSF, Panavision and Vantage, we probably do about 25 anamorphic films a year in France. People have been extremely interested in the Alexa Studio for proper anamorphic. There is, however, a cost reality. The Alexa Studio camera costs around 60% to 80 % more than the normal Alexa. People look with starry eyes at doing anamorphic until they see the cost of the cameras and the cost of the lenses. The Hawk lenses, currently the only anamorphic lenses you can go out and buy, are also the most expense lenses in the world. So that has repercussions on the rental prices. The price of anamorphic still remains high, prohibitive for some. So you have an expensive camera with a short life cycle, expensive lenses, a Codex – and the final price tag for rental is significantly higher. Shooting anamorphic will remain an obvious choice for the top tier films that can afford it.

Alexa ProRes or DNxHD 4:3 will help lower costs. Certainly when we have competition as far as lenses go, that could help drive prices down. Hopefully anamorphic can become more widespread. Certainly the new Alexa Plus 4:3 will help.

Having been involved in anamorphic for some time, and having done a lot of tests—the optical aberrations, the way the flares happen, the way you perceive depth of field, the wrap-around feel you get on faces—the anamorphic look is unique. If you look at a face with a 100 mm spherical lens, it can feel kind of flat. When you shoot in anamorphic, it stands out. You're not concentrating on the background. There is subconscious information that the background is feeding you and you get this ovalizing of the pixel content. The actual pixels remain square, but the content is being redistributed from 2880 pixels across to 2048 pixels for 2K finish, and then de-squeezed from a 1.2:1 package to a 2.4:1 DCP "spherical" master, or put through an optical de-squeezer which will add its own set of aberrations.

Digital capture of skin tones and textures, especially with Alexa, can sometimes give you a sort of waxy feel with sphericals that you don't get with anamorphics—due to the increased resolution at acquisition, and most certainly the 12-bit Codex recording.

These are handmade lenses. They are unique. Every lens is slightly different in a nice way. When you have a 100% digital chain in a good projection room, you sometimes get the illusion that you are looking at theater, or further, that the scene is happening before you, that there is no mediation between yourself and the set, the characters. With film, you always had this veil on the screen plane, bringing grain texture and diffusion, which could also be a good thing. With digital anamorphic you're not putting diffusion in between the images and the viewer, or a layer of grain as we have with film—where you see the same layer of grain in the sky and on the actor—anamorphic gives all the elements in the scene their own sense of depth, which is not objective reality. Your eyes can see much sharper than the lens which is selective in a strange way, reacting differently to foreground and background elements, and dependent on positioning and movement in the composition. Anamorphic takes some of the hyper-reality away from digital. Grain is not necessarily a plus, but we are used to it—much the way that the texture of paint or canvas can enhance or detract from a painting's emotional charge.

The extremely rigid structure of single sensor cameras gives the images a very specific feel. Anamorphic is incredibly subjective. It gives you a warped impression of depth, instead of a linear impression as you do with spherical lenses. It changes your perception. Since you're choosing focal lengths on two different criteria, one is height and one is width, you get an image that is structured very differently than a spherical image at an equivalent angular field of view or image height.

You get a perception of depth cues from soft focus, highlights that start to glow because of the optical distortion that the anamorphic element brings in. The bokehs are oval. Even on a set where you just have 2 people talking, with little additional depth information, the obvious anamorphic depth cues aren't necessarily in your favor but you still have this sense of roundness. Lines are not perfectly straight. Instead, you have miniscule aberrations with different shapes that are different from the incredibly sharp and perfectly corrected spherical lenses that we are working with now.

With anamorphics, you compose differently. As a cinematographer, you are more aware of the edges, because that's where more aberrations occur, especially spherical ones, but also chromatic. For example if you have a high frequency leafy image at the edges—you tend to center things a little and let the sides fall off and look a little more natural, as opposed to TV, where you really want to use all of the viewer's real estate. The anamorphic cinema experience is more immersive, where part of the screen can be out of your critical viewing area of focus so it falls off naturally the way your eyes would.

This is speculation about why anamorphic looks so good, especially in digital. You don't have any of the legacy film unsteadiness aberrations, no grain coming into play, etc. Shot in digital, everything seems more transparent. It turns a new page in the book.

We've had some spherical requests for Studios from cinematographers who are really insistent on optical finders. The optical viewfinder pleases a lot of the more established DPs who are used to composing and judging contrast, whether anamorphic or spherical. They're thrilled to get the optical finder, even if there's a drawback of having the mirror spinning all the time if you want video village to see it on the monitor while you're rehearsing. That's a necessary evil, in a way, because then of course the director wants to have a good video image on his big 25" monitor while the DP is working in the finder—and I think the DP would prefer to see it without flicker like on a film camera. Today the possibility of turning off the video, the way you used to be able to turn off the video tap on a film camera, may no longer be possible.

You go from either really good video to no video at all, there's nothing in the middle. Which was interesting with the D-21; you could put a video assist on it—you could put an IVS on it with a beam splitter, so you could park your mirror and still have a video image.

With the Alexa you can't. I'm not saying that's a good idea, because it's adding another piece of glass in the light path, which may not be good for low light. At 1200 ASA, 30% is an awful lot of light loss—but we were pleasantly surprised how bright the optical viewfinder on Alexa is – it's really nice, because it doesn't have the beamsplitter we were used to on Arricams and 435s and 235s. We gain almost a stop of light, and its incredibly bright. We have the high brightness groundglasses. Looking at the equivalent of ISO 1600, you can still judge colors and focus and it has a lot of information. And the color rendition is really accurate—the red dress on an actress really is the same color red in the finder. ❐

A Cooke Look Back

Timeline of Cooke Cine Lens History

by Barbara Lowry

The recent surge of interest in Cooke Series II and III and other classic lenses suggested the time was right for this article.

There is a short list of prolific Cooke optical designers who were responsible for major innovations that helped define the look of motion pictures for the past 118 years.

William and Thomas Smithies Taylor were mechanical and optical geniues. They opened their first workshop while still in school. In 1885, they moved to Slate Street in Leicester, England to set up a business as "Manufacturers of Optical Instruments." In 1887, William Hobson joined them as sales manager. The firm was named Taylor, Taylor & Hobson. They built the first Cooke lens in 1894, after T. Cooke & Sons of York (makers of telescopes, but not interested in photography) offered Taylor, Taylor & Hobson the manufacturing rights to a Triplett photographic lens that solved the problem of edge softness. The 3-section lens was designed by Dennis Taylor (not a relative).

William Taylor invented, among other things, the standardized screw thread for photographic lenses (1892), the dimpled golf ball (1905), engraving machines, and many devices for making lenses at tolerances that can still compete with contemporary equipment.

William Taylor hired optical designer Arthur Warmisham 1912. Warmisham filed 70 optical patents from 1922 through the late 1930s—more than any other person or company. His designs included the Cooke Varo, a 1931 zoom lens for cinematography.

Warmisham hired Horace W. Lee as an optical designer shortly after—in 1913. Rudolf Kingslake, head of the Optical Design Department of Eastman Kodak in 1937, among other distinctions, said, "Horace Lee was one of England's foremost and most original lens designers." Lee was responsible for the first f/2.0 lens, the subsequent Cooke Speed Panchro design, and the telecentric (reverse telephoto) lens design for use on 3-strip Technicolor cameras.

In 1948, Warmisham hired Gordon Cook, who was responsible for many Cooke zoom lenses. His 1971 Cooke Varotal 20-100mm was innovative and breathtaking: it did not breathe at all. This was a first. The Varotal was also the first zoom lens for 35mm cinematography with a sealed and fixed front element. It had excellent performance and was easy to service—innovations incorporated in all Cooke zooms ever since. In 1988, the Academy honored him with the Gordon E. Sawyer Award for his lifetime contributions to the motion picture industry, the first time this award went to someone outside the United States.

In 1998, Les Zellan, then U.S. distributor of Cooke lenses, bought the Cooke lens division of Taylor-Hobson. The existing factory where Cooke lenses had been made was so run down that seagull feathers would float down through holes in the roof. Les built a new 21,000 sq. ft. factory about 4 miles away, and moved all the equipment, machines, and existing personnel, including Mark Craig Gerchman, who became chief optical designer. The Cooke brand continued under a new company name: Cooke Optics Limited.

Here's a timeline of events and inventions as Cooke lenses became a standard in the motion picture industry for most of the 20th century and into the 21st century. Note that up through the 1940s, these were uncoated lenses.

1914: Cooke Series IIa, f/3.5 Cinematograph Lenses

From a 1914 Cooke Catalog of the Taylor-Hobson Company, 1133 Broadway, New York: "Designed specially for the exacting requirements of Cinematography. . . we furnish a 2 inch f/3.5 lens at $30.00 and a 3 inch f/3.6 lens at $36.00.

A Cooke Look Back...and the Original Panchros

1914-1917: Shackleton Expedition

Ernest Shackleton sent the following letter to Taylor, Taylor & Hobson: "Dear Sirs, Now that the affairs of my late expedition to the Antarctic have all been settled…..it was largely through the excellent quality of lenses you supplied, and the care and interest taken by your firm that Capt. Hurley was able to achieve the first-class photographic records we obtained."

1920 – 1924: Cooke, Series I, f/3.1 KINIC Lenses

Cooke literature from the period says, "These lenses are of new and improved design: our object being to produce a lens with even larger aperture than previously made by us. These lenses can be readily used on Motion Picture cameras at a moderate extra charge for fitting. For motion picture film: 40mm, 51mm, 58mm, 76mm, 90mm. From $43.50 to $69.00."

1922 and 1924: Mt. Everest Expeditions

Captain John Noel, the expedition's photographer, used a Newman Sinclair camera, designed to hold 400 feet of 35mm film and a specially made 20 inch (508 mm) Cooke Series VIII f5.6 Telephoto lens to document the Mt. Everest expeditions in 1922 and 1924 and to take pictures of the climbers from a distance of two miles away.

Captain Noel donated his Newman Sinclair camera to the Science Museum in London, where it was on display without lens. When asked what happened to the missing Cooke lens, Captain Noel's daughter replied, "He donated the camera, but he wanted to keep the lens."

1924: Cooke Series O f/2.0 OPIC lens

Horace W. Lee designed the Cooke OPIC lenses (British patent 157,040) to be the first to combine an f/2.0 aperture with a fully corrected color and geometry.

In 1924, Sweet, Wallach & Company, Inc., an Eastman Kodak Company in Chicago, was sole distributor in the U.S. for the Cooke Series O, f/2.0 OPIC lens – which were sold by another Eastman Kodak company, the Robey French Company of Boston.

1925: Bell & Howell 35mm Eyemo Cameras introduced

Every Eyemo camera was supplied with Cooke lenses made in Leicester, England. Bell & Howell wanted high-end, quality lenses at a reasonable cost and Taylor, Taylor & Hobson became Bell & Howell's main supplier.

The British Journal of Photography wrote on May 28, 1926, "Taylor-Hobson Cooke lenses, fitted to Bell-Howell Eyemo cinematographic cameras, have been used with great success upon many recent expeditions to remote parts of the globe. On May 9, Lt.-Commdr. Richard E. Byrd reached the North Pole by aeroplane and Capt. Amundsen's airship 'Norge' passed over the North Pole on Wednesday, May 12. Both these aerial expeditions carried Eyemo cameras fitted with Taylor-Hobson Cooke f/2.5 lenses."

1926: Kinematograph Weekly, The Observation Window column September 9, 1926, writes, "Over a hundred Taylor-Hobson Cooke lenses of various focal lengths are used by the photographic department of the Famous Players-Lasky studios. Frank E. Carbutt, Famous' Director of Photography, adds that these lenses have, without, exception, given perfect satisfaction and that they have yet to find a poor Cooke lens."

The Famous Players-Lasky dominated the industry through its (monopoly) ownership of production, distribution, and exhibition. As owners of Paramount Pictures, they had the largest exhibition chain in the world and were releasing two features a week.

1927: *The Jazz Singer*, the first feature-length motion picture with synchronized dialogue sequences, was produced by Warner Bros. Cooke quickly adapted the design of their Series O f2.0 OPIC lenses for sound motion pictures. Sound films created a demand for faster lenses: noisy arc lamps could not be used, the lights that replaced them weren't as bright, frame rate increased from silent 16 or 18 fps to talkie 24 fps—a decrease of about 1/2 stop exposure. Studios snapped up the new Cooke f/2.0 (T2.3) lenses. The original f/2.0 OPIC design became the now-legendary uncoated Cooke Speed Panchros.

1930: Cooke Speed Panchro f/2.0 lenses

Cooke Speed Panchro f/2.0 were offered in 11 focal lengths: 24, 28, 32, 35, 40, 47, 50, 58, 75, 100 and 108 mm. The lenses were distributed in the USA by the Bell & Howell Company.

1931: Cooke Telecentric lenses for Technicolor

Horace W. Lee was the optical designer (British patent 355,452).

Technicolor's 3-strip camera used a beam-splitter between the lens and 3 separate rolls of film. This required a longer flange focal depth than before. The challenge was to provide lenses, and especially wide angle lenses (short focal lengths), with a wide relative aperture and having the long back focal distance necessary to clear the prism while maintaining high resolution.

Because Horace W. Lee's 1931 design for the inverted telephoto lens had a high degree of correction for chromatic aberration, it was very suitable for color photography and contributed to the success of the Technicolor process. "The most notable feature of these lenses is the inclusion of what might be called the inverse telephoto principle, whereby the back focal length is considerably longer than the equivalent focal length." (The Technicolor Process of Three-color Cinematography, by J.A. Ball, vice president and technical director, Technicolor Motion Picture Corp., Journal of

Motion Picture Engineers, Vol. XXV, August 1935, No. 2, pp. 127-138.)

Most Technicolor pictures were made with specially modified Cooke Speed Panchros until the early 1950s.

1932: Cooke Varo 40-120mm "Zoom" Lens

Arthur Warmisham was the optical designer (British patent 398,307).

One of the first commercially manufactured variable focal (zoom) lenses for cinematography was the Cooke Varo 40-120mm for 35mm format. The lens was made and sold by Bell & Howell. It came equipped with a special cradle that held the Varo lens and the camera together to ensure correct alignment. Focal length was changed by rotating a crank.

1935: Cooke Speed Panchros

Cooke Speed Panchros for cinematography were introduced in 8 focal lengths, all f/2.0: 24, 28, 32, 35, 40, 50, 75 and 108 mm. They covered the standard format of 0.631 x 0.868 inch. These are now known as Series I. They are uncoated. (16.03 x 22.05 mm, Standard Academy film format, 27.2 mm image circle— British Patent 377,537; U.S. Patent 1,955,591-1931.)

The Head of Metro-Goldwyn Mayer's camera department wrote, "All of our productions are made with the Taylor-Hobson Cooke Lenses and at least 50% of our productions are made with Speed Panchros. This Studio is practically 100% Cooke equipped."

A 1938 Bell & Howell brochure says, "Paramount, Metro-Goldwyn-Mayer, and Warner Bros. use Cooke Speed Panchros almost exclusively. Fox, R.K.O., United Artists, Columbia, Universal, and other studios are using them increasingly. In England, all film producers, including British Gaumont, British & Dominion, London Films, and British International Pictures, use these lenses. In other countries, Cooke Speed Panchros are used by the leading studios.

1939-1945: The Bell & Howell Eyemo, fitted with Cooke lenses, was standard issue for World War II combat cameramen.

1945: Cooke Speed Panchro Series II Lenses

Gordon Cook was the optical designer. The Cooke Series II lenses were designed to cover the 0.723 x 0.980 inch format (18.36 x 24.89 mm). They came in 6 focal lengths: 18, 25, 32, 40, 50 and 75mm.

1946: 100mm, f/2.5 Cooke Deep Field Panchro

This was a six-element, four-component lens of extended Speed Panchro construction that corrected all aberrations and was used with both color and b&w film stock.

1954: Cooke Speed Panchros, Series III 18mm and 25mm

Gordon Cook was the optical designer. The 18mm f/1.7 and 25mm Cooke Speed Panchros were redesigned to address the use of larger negative areas—especially CinemaScope and VistaVision. VistaVision was 1.6 times as wide as the conventional picture.

Gordon Cook wrote, "The lenses used in motion-picture cameras are almost invariably of wide relative aperture and the sharpness of the recorded film images must permit very considerable magnification on to large viewing screens. These and other factors present a series of optical problems which are more severe than those encountered in other branches of photography. In recent times this situation has been aggravated by the demand for wider angles of view at the camera and even larger magnifications for bigger screens and wider screens. . . . [The solution had to] achieve a larger angular depth of field while balancing spherical aberration, astigmatism, coma and more." (from paper, "Modern Cine Camera Lenses," by G.H. Cook, Senior Lens Designer, TT&H, Leicester, *British Kinematography*, Vol. 27, 37-52.)

The Series III 18mm design achieved an angular field of 80 degrees, a wide relative aperture on the 18mm of f/1.7. The Series III lenses corrected for all aberrations and maintained good definition and resolution for widescreen presentation.

1953-54: Cooke Anamorphic optical systems

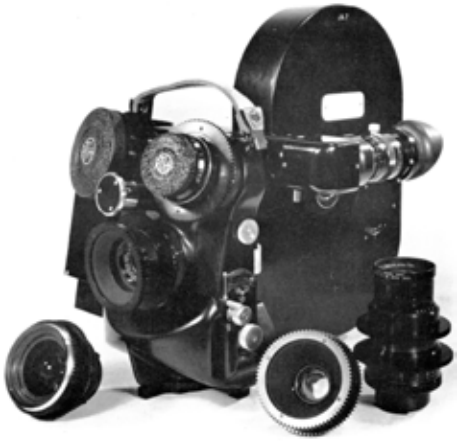
Gordon Cook worked on "anamorphotic optical systems" to squeeze the image horizontally during photography and to expand it in projection. His work on anamorphotic systems gained

him the Fellowship of the British Kinematograph Society and a silver metal in Rome.

1958: Bell & Howell 8mm and 16mm cameras were sold on the amateur photography market with Cooke lenses of various names and focal lengths.

1959: Cooke Telepanchro Lenses for 35mm Motion Pictures

Gordon Cook designed lenses to supplement the Cooke Speed Panchro range for shooting close-ups from a considerable camera distance. The Cooke Telepanchros came in focal lengths of 152mm, f/2.8; 203mm, f/4.0; 318mm, f/4.0; 406mm, f/4.0; 558mm, f/5.6. The lenses were offered unmounted or in "basic" focusing mounts for adaptation to a variety of cameras: Newall NC, Mitchell NC, Arriflex and Éclair Cameflex (CM3 picture below).



1959 – 1960: Cooke Kinetal Lenses for 16mm Production

The Kinetals (optical design by Gordon Cook) were built in response to increased demand for 16mm format documentary, industrial and scientific production. By the early 1960s, the Kinetals for 16mm professional motion picture cinematography were offered in 9 focal lengths: 9mm f/1.9; 12.5mm, f/1.8; 17.5mm, f/1.8; 25mm, f/1.8; 37.5mm, f/1.8, 50mm, f/1.8; 75mm, f/2.6; 100mm, f/2.6; 150mm, f/3.8. They were supplied in Arri Standard Mounts.

1960s. Cooke Speed Panchro lenses were supplied in a range of unmounted (neutral) optical units. Mounted versions were supplied for almost every camera used in the motion picture industry: Newall, Mitchell, Éclair Cameflex and Arriflex.

In 1960, Director of Photography Russell Metty, ASC used Cooke lenses with a Delrama anamorphic adapter to film *Spartacus* in Technirama. The 35mm negative was converted via Panavision printer lenses to a 70mm print.

1971: Cooke Varotal 20-100mm, T3.1 zoom lens

(Gordon Cook, optical designer.) This was the first high-quality zoom designed for professional motion picture production with a new design concept that remained the basis for all Cooke zooms subsequently produced. The lens had a sealed front focus unit and fixed front element that eliminated the risk of dirt and moisture being drawn into the lens, did not rotate or trombone in and out, and allowed for easy fitting of matte boxes. The lens used an anti-reflective wide-band Varomag high-performance coating. This increased shadow area definition, light transmission and durability, and reduced ghosting and flares.

1975: Cooke Varokinetal (CVK) 9-50mm
For standard 16mm format.

1978: Cooke Super Cine Varotal 25-250mm

With an aperture of f/2.8, it was attractive for special effects and was used to shoot the original *Superman* film in 1978.

1980: Cooke Super 16mm Varokinetal (CVK) 10.4-52mm

The Super16 version of the 9-50. This lens was first used by Cinematographer Curtis Clarke, ASC to film *The Draughtsman's Contract*, the first technically and commercially successful Super 16mm feature to be made. The Cooke Varopanchro helped filming under difficult lighting conditions in 16mm and Super 16mm formats.

1981: Cooke Varopanchro (CVP) 20-60mm, T3.1

Optical performance comparable to prime lenses. Jon Fauer, ASC bought one of the first models and used it to shoot the second unit of *All the Right Moves* with Tom Cruise in 1983.

1983: Cooke Varopanchro (CVP) 10-30mm, T1.6. The CVP offered advancements in filming under difficult lighting conditions in 16mm and Super 16mm formats. It began production in 1983. The Cooke 20-60mm was the 35mm equivalent of this lens.

1983: Cooke Cine Varotal 25-250mm, Mark II, T3.9

There were 2 versions of the Mk II 25-250: focus in front, and zoom in front.

1986. Cooke Wide Angle Varotal, 14-70mm, T3.1

During the development stage in the mid-1980s, customers' input prompted the company to incorporate a curved front cover glass and a noise isolator. This lens was unique in the zoom series because it included a wide angle aspheric element.

1987: Cooke Varotal 18-100mm

A Cooke Look Back, cont'd

Design was initiated at the beginning of 1987 and the lens was exhibited for the first time at Photokina in 1988. It included refinements prompted by extensive suggestions by cinematographers and camera operators, and became very popular.

1992: Cooke Cinetal 25-250mm, Mark III, T3.7

1995: Cooke S4, T2.0 Prime lens series. Discussions began between Denny Clairmont, Otto Nemenz, Paul Duclos and Cooke lens designers Mark Gerchman and James Moultrie about characteristics to include in the next series of Cooke lenses, based on the requests and needs of cinematographers. After many conversations, especially with Denny Clairmont and Paul Duclos, the new Cooke S4, T2.0 Prime lens design included a cam movement and a novel, open window with opposing focus scale design that has since become an industry standard.

Gerchman designed the Cooke S4 T2.0 lenses and was part of the team that developed the illuminated focus ring on the new Cooke 5/i T1.4 Prime lenses.

March 1998: Les Zellan entered the Bank of Scotland's main branch at Trafalgar Square, opened a carrying bag, plunked down two Cooke lenses on the desk of a bank officer, and announced he intended to buy the company. The planned 30-minute meeting lasted for more than two hours. "We were surprised that an American, or anyone overseas, had so much knowledge of Cooke," Mr Wighton, the banker involved, said. "He had a clear knowledge of the market and a clear vision of the company."

July 10,1998. 7 pm GMT: Les Zellan bought Cooke.

July 13, 1998: After purchasing Cooke, Les was in Leicester the following Monday. Work began on a new custom-designed factory, complete with clean rooms, modern CNC machines, a canteen for the staff and plenty of free parking. Lens designs were completed and production began on the Cooke S4 T2.0 lenses.

Lord Richard Attenborough, the Oscar-winning director of *Ghandi* who grew up in Leicester, presented a plaque at the opening ceremonies of the new factory. Orders flowed in for the new S4 lenses, and within two years, the company had nearly doubled its staff.

Cinematographers loved the look. Camera Assistants loved the mechanics. Cooke S4 lenses were a breakthrough because their design made focusing much easier. Most lenses focused by rotating at a constant speed on interlocking or helical threads, much the way a toothpaste cap is raised or lowered on the tube. The S4 lenses use cams that follow an elliptical track, which is smoother and doesn't become stiff at low temperatures. These were breakthroughs that became industry standards.

Cooke S4 lenses won a Cinec Award in 1998.

1999: The Academy awarded Sci-Tech plaques for "the Cooke S4 range of fixed focal length lenses for 35mm motion picture photography" to James Moultrie for the mechanical design and to Mike Salter and Mark Craig Gerchman for the optical design. In 2000, Cooke S4 lenses were awarded a Technical Emmy from the Academy of Television Arts and Sciences. By 2012, the Cooke S4 set consists of 18 or 20 lenses, depending on whether you count the two SF (Soft Focus) attachments: 12, 14, 16, 18, 21, 25, 27, 32, 35, 40, 50, 65, 65SF, 75, 75SF, 100, 135, 150, 180 mm T2 and 300mm T2.8.

2005: Cooke /i Technology

In February 2005, Cooke developed /i Technology and began incorporating this digital protocol into every Cooke S4 Prime lens made from then on. Cooke's /i "Intelligent" Technology enables both film and digital cameras to automatically record important lens and camera data (focus, iris, serial number, etc) for every film or video frame. The data can be viewed live on set, saved as metadata with the picture, and used in post-production to streamline editing, effects work, saving time and money.

2007: Cooke SK4 Prime lenses for 16mm/Super16

The Cooke Look Today

The 6mm, 9.5mm and 12mm wide angle T2.0 lenses were designed as an adjunct to the Cooke S4 range of 35mm lenses for shooting in 16mm/Super16.

2009: Panchro/i by Cooke T2.8 Prime Lenses

Cooke S4/i

The new "Mini S4" T2.8 range of 35mm lenses were announced at NAB 2009 in Las Vegas. These prime lenses were designed to provide a smaller, lighter weight and lower cost option for professional filmmakers, while maintaining familiar optical quality and "Cooke Look." Panchros currently come in seven focal lengths, 18, 25, 32, 50, 75, 100 and 135 mm. More coming—including the new 65 mm T2.8, previewed here, to be announced at IBC 2012. All lenses are /i Technology equipped.

Cooke Panchro/i

2009: Cooke 5/i T1.4 Prime Lenses

The new Cooke 5/i T1.4 35mm format Prime lenses were introduced at IBC 2009 in Amsterdam. The 5/i lenses come in 9 focal lengths: 18, 25, 32, 40, 50, 65, 75, 100 and 135mm. More are in the works. For the 5/i, Cooke's designers developed and incorporated an illuminated and dimmable focus scale into its fastest lens designed to date (U.S. patent 8079723). All lenses are /i Technology equipped.

All Cooke lenses, for both photography and cine use, have been designed and made substantially by hand in Leicester, England since 1894.

Taylor-Hobson currently manufactures fine metrology instrumentation, while Cooke lenses are made exclusively under the company name Cooke Optics Limited in Leicester, England. ❐

Cooke 5/i

Angénieux 19.5-94 and 28-340 Optimos

Optimo 19.5-94 mm T2.6

The new Angénieux Optimo 19.5-94 mm T2.6 and 28-340 mm T3.2 zooms are based on the same design as the venerable Optimo 17-80 and 24-290 mm, but have a newly expanded image circle of 31.4 mm. This will cover Super35 and RED 5K formats.

The 12x Optimo 28-340 mm T3.2 zoom has more than 70 focus witness marks (available in choice of feet or meters) and a 327° focus barrel rotation. It weighs 24.4 lb / 11.1 kg. Front diameter is 162 mm, and it is 454 mm long with PL mount. Close focus is 4' 0.5" (1.23m).

First deliveries in the US of the 19.5-94 began in August, which was ahead of schedule. The 4.7x Optimo 19.5-94 mm T2.6 zoom has more than 50 calibrated focus witness marks (available in choice of feet or meters) and a 329° focus barrel rotation. It weighs 12.3 lb / 5.6 kg. Front diameter is 136 mm, and it is 335 mm long with PL mount. Close focus is 2' 0.5" (0.62m).

Both zooms are available in PL mount (Panavision PV mount on request) and are compatible with Angénieux's 1.4x and 2x extenders.

For more information: www.angenieux.com

Optimo 28-340 mm T3.2

Angénieux at IBC and Cinec

Thales Angénieux's stands at IBC and Cinec will include the now-famous Optimo 45-120, Optimo 19.5-94, Optimo 28-340, Optimo Servo Unit and the Angenieux Data System incorporating /i metadata. Servo Units and ADS/i fit all lightweight Optimo zooms.

Deliveries of the Optimo 45-120 S35 zoom began regularly in April of this year. It weighs less than 2 kg, has a zoom ratio of 2.7x, and opens to T2.8. The long zoom range can be increased to 240 mm at T5.6 with the addition of 2x extender (double the distance, two stops of light loss, and still very sharp).

Angénieux now has a line of 5 lenses with a 31.4 mm image circle for film and digital cameras with (and without) optical viewfinders:

- 3 lightweight Optimos: 15-40 T2.6, 28-76 T2.6, 45-120 T2.8.
- 2 Studio Optimos: 19.5-94 T2.6 and Optimo 28-340 T3.2.

Note: The 2 lightweight Optimo DP zooms (Optimo DP 16-42 T2.8 and 30-80 T2.8) also cover a 31.4 mm image circle, but cannot be used on cameras with spinning mirrors.

ADS/i

Angénieux's ADS module (Angénieux Data System) incorporates the /i protocol to allow monitoring and transfer of key lens data. The technology streamlines both production and post and is specifically designed for all Optimo lightweight zoom lenses.

ADS/i (Angenieux Data System)

Optimo Servo Unit

The crowds at Angénieux's NAB booth confirmed the growing shift to lightweight single chip 35mm format digital cameras. A Handgrip /Servo Unit is now available for Angénieux Optimo handheld lenses to help bring ENG-style shooting to the hand-held cine world.

The Optimo Servo Unit provides camera operators with motorized control of zoom and iris, and fits all Optimo lightweight zoom lenses:

- Optimo 15-40, Optimo 28-76, Optimo 45-120
- Optimo DP 16-42 and Optimo DP 30-80

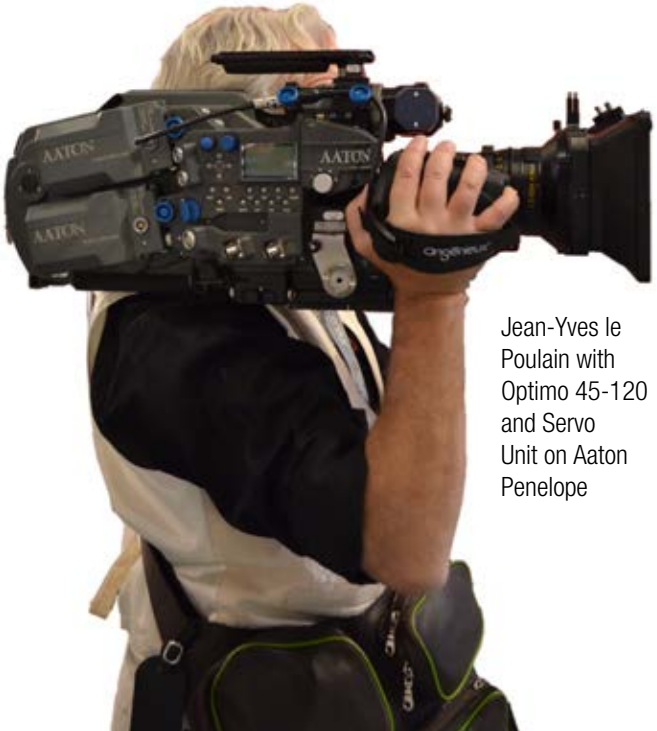
Focus control will be available on specific versions.

IBC and Cinec

The large Angénieux booth at IBC will in at its usual location in Hall 11 - Booth F31 — directly across from Transvideo and Film and Digital Times.

At Cinec in Munich, Angénieux will share space with Cartoni: booth 3-E08.

Optimo Servo Unit on Optimo 45-120



Jean-Yves le Poulain with Optimo 45-120 and Servo Unit on Aaton Penelope

Optimo Servo Unit

A Canon Conversation

Canon EOS C500

Canon EOS C300

Flash back a mere five months ago. During the introduction of Canon's new C500 at NAB 2012, Jon Fauer met with executives from Canon: Mr. Edakubo, Mr. Hosoya, Mr. Hirasawa, Ken Ito, Jun Hosoya, and Haruki Sekiyama.

Ken Ito: Mr. Hirasawa is responsible for all the R&D of our video camera group, from consumer to professional. He starts with Vixia and runs all the way up to the C500. The C300 and C500 are done by his group. The DSLRs are a separate engineering group.

Mr. Edakubo heads up the whole business area, so we all report to him. He is also responsible for planning.

Mr. Hosoya is responsible for the all of the broadcast businesses and, as of January 1, our network and robotic video cameras.

Jon Fauer: Cinema lenses stay as a separate division?

Ken Ito: Correct. We actually have five individual groups and there's a big umbrella that connects all of that together. Mr. Maeda is at the tip of the umbrella looking over everything. Mr. Hosoya and Mr. Edakubo report to Mr. Maeda, who oversees all of that. It gets tied together in the end, but the lens group is still separate. And the lenses that you see now, the cinema lenses that we're developing, are all under Mr. Hosoya's responsibility.

Jon Fauer: What about the still lenses?

Ken Ito: The original EF lenses are a separate group. There's a DSLR engineering group that is also separate.

Jon Fauer: Is the C500 made in the factory that I visited a few years ago in Oita? The thing that impressed me when I visited was how quickly you can turn around an assembly line from one product to another. Is this what happened with the C300 and C500, or did you have to build a separate area or a separate factory?

Mr. Edakubo: The professional cameras, XF and above, and the C300 and C500, are all built in a clean room environment. It's separate from the area that you had viewed. It still uses the same concept, the cell concept, so switching between models is fairly easy to do. It still works that way, but we needed an even cleaner environment—so it's done separately.

Jon Fauer: Does the sensor come from your sensor factory nearby?

Mr. Edakubo: There are several processes and they are done in different factories. There are several Canon Sensor Fabricating Facilities nearby--of course, all Canon factories. The sensors end up in Oita to be assembled with the cameras.

Jon Fauer: Is the C500 different from the cameras that you've built before in terms of technology? Was it more difficult? Was it harder in terms of the research and development or was it pretty much an extension of the things that you were already familiar with?

Mr. Hirasawa: There is some similarity with the C300 and the body is very similar, but the area that needed a lot of new development was the speed of the processing. Of course, the amount of data that we're actually processing needs a lot of "heavy lifting." Those are the areas that did take a lot of extra work on the R&D side. But as you see, there are some similarities in the system also.

Jon Fauer: Going back even further, was the C300 totally different from what you've done before, or was it an evolution of products that you were already familiar with?

Ken Ito: I think Mr. Hiasawa liked that question because he realizes how difficult it was to design.

Mr. Hirasawa: The C300 was totally different. We were able to find a way to create a much better sensor, with higher sensitivity side and better performance than any sensor we had before. We had to take advantage of all of the aspects of that sensor in processing the signals and the color, and all of that was really brand new.

That's why I am smiling. It was a very difficult challenge for us. A lot of new work. All of the know-how that we've built up with our prior development in video cameras was used in this new camera, and we did take advantage of all of that. It was a fairly big gap to go from where we were to the next step. All of that knowledge was part of getting to the point that we got to with the C300.

Jon Fauer: When you decided to make the C300 or C500, were there different groups who decided on parameters for the sensor, certain colors, certain color space, what should it look like? Was there experimenting going on? How did you decide on the look of the image and how did you actually implement this?

Mr. Edakubo: We learned quite a bit from the Canon XF video cameras and through commerical advertising production and how they wanted the looks for that. We actually had some feature sets built into other video cameras that we labeled Cinema Look, and from there we created C-log. We listened to a lot of feedback that we collected from professionals on what they wanted. Out of this came ideas on the 800 percent dynamic range, usability, building the C-log into it, and creating a much better look overall for the camera.

Canon EOS C100
(see next page)

Canon EOS 1D C

Jon Fauer: At the beginning of the C300 project, you asked many cinematographers these questions. I remember you asked me which size sensor I would prefer.

Haruki Sekiyama: We spoke with you and many of your colleagues.

Jon Fauer: You asked whether I preferred the motion picture 18 x 24 mm format or the 24 x 36 mm still format. I don't think I could decide. My question now is where do you think it's going to go? Will you concentrate on one format for motion picture production? A full frame still camera sensor size or the 35mm motion picture sensor? Because I cannot decide.

Mr. Edakubo: At this point, we believe the direction is not to decide on either/or, but to continue to handle both.

Jon Fauer: Your EF prime lenses cover the full frame 24 x 36 format and the zooms cover the smaller 18 x 24 Super35 format. Are you going to have cine zooms covering the whole full frame still format?

Jun Hosoya: The C300 and the C500 are mainly video movie cameras. I think we see that one of the features that is important for these cameras is mobility. You need to be able to move around with these cameras so size and weight are a big point within the design of the system. With that in mind, as we developed, we believed we needed some nice zooms with longer ratios.

In doing that, to maintain a size that was mobile, we decided that the Super35 frame size was a better fit. Of course, when you go full-size, in order to keep the compactness and light weight, we believe at this time, that the primes provide a better fit for the full-size area. So we want to continue to address both those formats.

Jon Fauer: Which you're doing with the Canon EOS 1D C.

Jun Hosoya: For the 1D C, yes. As we expand upon what we do, we want to make sure that we continue to look at the mobility side of things. At this point, we haven't really decided what the next step will be. We'll continue to look, consider and decide what the next step should be.

Jon Fauer: If you went to full frame, 24 x 36 cine style zoom, wouldn't it be very big? Maybe too big. I'm imagining, but could your next camera — a C600 perhaps — use both formats and crop to the frame size of the lens you were using? You could use small zooms or small primes, Super35 or full frame?

Jun Hosoya: In a sense, the EOS 1D C DSLR does that now: a choice of full frame or smaller size.

You have the 4K functionality actually a little bit cropped from full frame, and HD is covered in Super 35…but it's not exactly where you want it to be yet…

Jon Fauer: What other topics would be interesting for cinematographers?

Mr. Edakubo: The purpose of C500 and 1DC as 4K cameras is to be very compact. These are 4K cameras. Because of the light sensitivity that we have, lighting can be done very naturally. We believe the way that you'll be able to create images and describe the story will gradually change by having these functions and features. We've also been dealing with around six manufacturers on the recording side.

At this point, it's a lot of heavy processing that needs to be done, but working with these recording manufacturers, these partners. We'd like to find ways to make that processing lighter and work with them in order to achieve that.

Jon Fauer: Can you see a point where technologically it would be possible to be able to record 4K right inside the camera?

Mr. Edakubo: Yes, we're already considering looking at how to do that. Actually, a question for you. Is it important to be able to record internally?

Jon Fauer: I think it would be nice but I don't think it has to be inside the camera. If it were modular and part of the design, that would be helpful. Another consideration is how long it takes to attach and detach an external recorder. Often, it becomes very complicated. If an onboard recorder could be designed to just snap on and off without the need for a rig or a cage, integrated into the design, that would be simpler. It should have the elegance of a quick-change film magazine. I look forward to seeing the Canon C600, 700, 800 and 900. Are we allowed to talk about the future, what's coming next? What are you going to surprise me with next year?

Ken Ito: You're not talking about how many months ahead...

Jon Fauer: Well, here's what usually happens between Canon and Film and Digital Times. You almost always have amazing news every five months and you usually call me up about one week before we have to publish and we have to "stop the presses!"

Ken Ito: Five months from NAB is always IBC...but please wait.

Jon Fauer: I always look forward to stopping the presses for you. ☐

Stop the Presses. Canon EOS C100

True to our interview (see previous page), it's been five months from NAB and Canon has another press-stopping announcement.

Canon's 4th medium-format style Cinema EOS product, the new Canon EOS C100, will be shown at IBC.

It is smaller, lighter and more affordable than the C300. The C100 weighs 2.2 lb and comes in Canon EF mount only.

The camera portion is pretty much identical to the C300 and 500, using the same 8.3 Megapixel sensor. Image creation is the same.

C100 records HD only. Its AVCHD codec uses MPEG-4 AVC/H.264 compression with a maximum recording bit rate of 24 Mbps in full HD 1920 x 1080 and 4:2:0 color.

It records to dual SDHC or SDXC cards (class 6 and faster), not CF cards like the C300 and C500. At 24 Mbps, that's about 3 hours of recording onto a 32 GB SD card.

The C100 should be ready in time for your favorite DP's holiday shopping list this season, and at $7,999 (almost ½ the C300) the entry level prices of 35mm cine cameras continue to drop.

To get the cost down, Canon took out some of the C300's advanced features. There is no HD-SDI output—the C100 has HDMI connections. No genlock, no timecode in/out. Audio comes in via two XLR receptacles in the handle. There is also a stereo mike in the handle.

The EOS C100 digital video camera is approximately 85% of the size of the C300—the body is shorter and lower in profile. Good news: screw holes are in the same place on the bottom.

The C300 has a push auto iris, one-shot auto focus (or full manual focus and exposure control), 3.5" LCD control panel, built-in ND filters. The LCD monitor is slightly smaller, at 3.5" with about a million dots. The .24" EVF is also slightly smaller than the C300, with about 1.5 million dots.

The C100 has two things which its older siblings do not have: 1-shot autofocus and push auto-iris.

With 1-shot autofocus, you see a square in the center of the image. When you push the autofocus button, a frame at the center of the image will glow green when it is in focus. When you pan or tilt, hit the 1-shot autofocus again if you don't have a camera assistant at your side to pull focus. The Push Auto Iris adjusts exposure when you press its button.

These innovations make the C100 well suited for solo, run-n-gun style shooting. This is a mobile, high performance cine camera intended for low budget TV, documentaries, indies, corporate, wedding, event, film schools, museums, medical, journalists, law enforcement, government, and freelancers. That's a large swath of the population, and a sizeable segment of the 80-million EF lens owners in the cosmos.

What will Canon show us next? 5 months from IBC 2012 is close to NAB.

New Canon Cinema Lenses

Canon is showing two new cinema prime lenses at IBC. The 14 mm T3.1 and 135 mm T2.2 cinema prime lenses join the current Cinema EOS lens family of 24 mm T1.5, 50 mm T1.3, and 85 mm T1.3.

The lenses will cover Super 35mm Cine format, as well as EOS Digital SLR cameras with 35 mm full frame (24 x 36 mm), APS-H and APS-C image sensors. They come with Canon EF Mount.

The 14mm T3.1 and 135 mm T2.2 EF cinema prime lenses are expected to be available in the first half of 2013.

Update: Canon's compact 15.5-47 mm T2.8 and 30-105 mm T2.8 cinema zoom lenses will cover an image circle of 31.4 mm. That is significantly more coverage than the 29.6 mm diagonal I reported about the April 2012 NAB prototypes.

The Canon CN-E30-105mm T2.8 L S/SP is expected November 2012 and the CN-E15.5-47mm T2.8 L S/SP is expected to ship in January 2013, at an estimated list price of $24,500 each.

S=EF Mount SP=PL Mount	**CN-E 15.5-47mm T2.8 L S/SP**	**CN-E 30-105mm T2.8 L S/SP**
Image Circle (Diagonal)	31.4mm	31.4mm
Zoom Ratio	3.0x	3.5x
Focal Length Range	15.5 – 47 mm	30 – 105 mm
Maximum Aperture	T 2.8 (15.5-47mm)	T 2.8 (30-105mm)
Iris Blades	11	11
MOD Minimum Focus	1'8" / 0.5m	2' / 0.6m
Focus Rotation	300º	300º
Mount	PL (SP)/EF (S)	PL (SP)/EF (S)
Front Filter Size Diameter	105 mm	105 mm
Lens Front Diameter	114 mm	114 mm
Dimensions (WxHxL) (PL)	114 x 125 x 214 mm	114 x 125 x 210 mm
Dimensions (WxHxL) (EF)	114 x 125 x 222 mm	114 x 125 x 218 mm
Weight (approx.)	4.8 lb / 2.2 kg	4.8lb / 2.2 kg
Follow Focus Gear Pitch	0.8	0.8

Ron Howard and Canon

Last year, Ron Howard and his daughter Bryce Dallas Howard worked with Canon USA on a short film "when you find me" whose theme, script and look were influenced by winning entries from almost 100,000 submitted photos. It was called "Project Imagin8ion" (8 categories, 8 winners). The adventure continues this year with "Project Imaginat10n (directors, above)."

I spoke with Ron Howard about a favorite topic: technique and technology. Ron said he imagined that film schools might want to try this exercise of creating scripts from photographs.

We discussed Canon Cinema cameras. Ron said, "On the feature film that I directed, called *Rush*, which is coming out next year, Anthony Dodd Mantle, the cinematographer, used C300 cameras. Anthony has used Canon equipment a lot over the years. He's the guy who shot *Slumdog Millionaire* and *127 Hours*. He's a very cool, progressive cinematographer.

"Anthony wanted to use the Canon C300s for our movie because of the efficiency, the size, and the flexibility of the equipment. We wound up using the C300 a lot. We also had ARRI Alexas and other cameras—but we had four C300s on the movie and used them every day and they were great."

I asked whether there were certain scenes or shots on *Rush* that he and Anthony dreamed up because they said, "We have the C300 and now we can do this specific kind of shot."

Ron said, "On the one hand, it became our go-to handheld camera, but it also suggested a kind of a freedom where we would set shots and then we were even more aggressive and ambitious and experimental about tucking the camera away or going handheld with a longer lens from an off-position and using it as a way to capture something unexpected.

"In two very significant ways, it was very, very different. The hand-held shots were sometimes close-ups, creating an intimacy. The other shots were grabbing the unexpected visual possibilities of a scene. It became a great tool on both fronts."

I asked what he thought about the influence of this kind of new, breakthrough technology on technique and how movies would actually be perceived, imagined, and made.

Ron said, "I think it's democratizing the process and I think Canon discovered with the 5D just how great an appetite there was for independent filmmakers, students, semi-pros and professionals to be efficient and/or lean and mean. To actually apply this technology, as often happens, is that people who are really dedicated to their medium take a new technological idea and immediately push it, stretch it, to its limits." ☐

Tiffen Domke Olympic Vests

Tiffen covered the press photographers who covered the London 2012 Olympic Games. At top, Covering the Opening Ceremonies. Photo: Paul Drinkwater/NBC/NBCU Photo Bank via Getty Images)

While Ralph Lauren was busy supplying uniforms to the United States Olympic Team, Tiffen was busy outfitting the press team.

The Tiffen Company was selected by LOCOG (London Organizing Committee) to supply 4,000 official press photographers covering the London 2012 Olympics with Tiffen's Domke PhoTOGS Vests.

Domke PhoTOGS Vest are made of 100% machine-washable cotton, with mesh panels at yoke and back to provide cooling ventilation. No sweaty synthetics here. The vest is full-cut for well-fed photographers and has 18 pockets: cargo pockets, pockets with weather-tight zippers, huge back pockets, pen/pencil pockets, and a removable press pass pocket to prevent photojournalists from being mistaken for pretenders without proper passes.

"The London 2012 Olympic Games were filled with so many memorable moments, and capturing these moments is paramount for a photojournalist," said Steve Tiffen, president and CEO, The Tiffen Company. "The flexibility of the Domke PhoTOGS vest lends itself to quick, fluid movements, and an array of pockets means camera accessories are readily accessible, making the task of capturing moments that happen in the blink-of-an-eye easier than ever." The faster to grab a Tiffen filter, my dear.

Jim Domke, a staff photographer for the Philadelphia Inquirer, created the original Domke bag in 1975. Domke products are the choice of the White House News Photographers Association, and photojournalists worldwide. ❐

Christian Skrein on Leica Cine Lenses

Above: Christian Skrein's 1965 photograph of The Beatles arriving at Hamburg airport. BEA was the logo of British European Airways. Left: Christian Skrein near Wetzlar last month.

Christan Skrein was born in Vienna, Austria in 1945. When he was 17 years old, he bought a Leica still camera, a used car, and set up shop as a still photographer.

By the late Sixties, Skrein was photographing high fashion and high society. His pictures of actors, models and artists were published in Vogue, Elle, Harpers Bazaar, Stern, Quick, and Bunte. Memorable work included photos of The Beatles, The Rolling Stones, Joseph Beuys, Christo, Andy Warhol, Hundertwasser, Catherine Deneuve, Gina Lollobrigida, Sean Connery and Grace Kelly. In his late twenties, he began work as a filmmaker and opened Skrein Films. Small world: Otto Nemenz was one of his assistants.

After 25 years of doing award-winning commercials, he moved into corporate mergers and acquisitions. His companies made most of the world's Tyrolian Loden, the famous fabric from the Alps that found its way to the Rue du Faubourg Saint-Honoré, Karl Lagerfeld, and Chanel.

Christian Skrein's still photo collection is one of the largest in the world, with around one million pictures collected over the years. (www.christianskrein.com) He is a member of the Board of Directors overseeing the Leica Summilux-C project, developed by CW Sonderoptic Wetzlar, a 100% subsidiary of ACM Project Development Company, whose Managing Director is Dr. Andreas Kaufmann—Chairman of Leica Camera AG. Alfred Schopf is Managing Director of Leica Camera. Gerhard Baier and Erik Feichtinger are Managing Directors of CW Sonderoptic.

Jon Fauer caught up with Mr. Skrein near Wetzlar last month.

Jon Fauer: What was the concept behind building Leica Summilux-C cine lenses?

Christian Skrein: The concept was to be involved with Leica to develop a set of lenses that we cinematographers would like to use. For the 40 years that I worked in film, I was rarely satisfied with the equipment I used. I always wished our equipment could be intuitive, something we really cherished, like a fine machine, or an instrument that a pop singer might use. Remember, I'm a product of 60's. I was in the '68 revolution.

Where were you in 1968?

I was in Vienna, Frankfurt and Paris. Photographing the revolution and especially the silent revolution of artists.

Looking back, what was different and special about that era?

We young people wanted to be different from the adults.

Which is the same as now?

Which is exactly the same as now, and will always be so. But in 1968, that idea created a revolution. It was the time of flower power. It was embodied by the film *Blow Up*, an iconic movie for many of us. And the film and music of Woodstock. It was the time of The Beatles and The Rolling Stones. I was a friend of The Beatles, and I was the official photographer on Richard Lester's movie *Help*. I also shot the famous photo of the Beatles arriving at Hamburg Airport, coming out of the airplane.

What camera did you use?

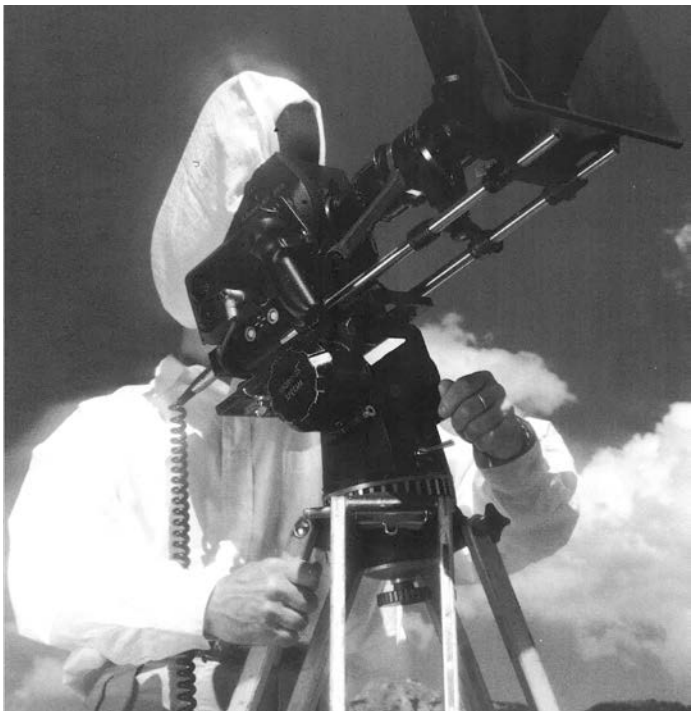
I always used the Leica M3. The M3 was the first bayonet-mount Leica rangefinder camera. It came out in 1954. The M2 came out in 1957—which is funny, because usually consecutive models have higher numbers. (About 220,000 M3 cameras were built by Leica. The M2 was intended to be a more affordable, simpler model; around 82,000 were made). Anyway, I had two M3s. One was loaded with Kodak TRI-X Pan film. And the other one had Ektachrome reversal slide film.

How did your experience in still photography relate to the development of Leica cine lenses?

I started as a photojournalist and still photographer, and "graduated" to become a filmmaker. Many of us started with still photography, and the iconic instrument was always the Leica camera and the Leica brand—with the so-called "Leica sharpness."

We think of the Leica system as lightweight, small, easy to handle and very sharp. That gets to your question about the concept. When you shoot motion pictures, wouldn't it be great to have these same qualities: light, small, easy to handle? Often, it was not possible. We had images that were reasonably sharp. But the motion picture camera we used for many years was not as light or small. It was the ARRI 2C (designed by Eric Kaestner, who originally worked at Leica.)

Christian Skrein with his Leica in 1964. Photo by Harry Weber.
© Christian Skrein
Right: Skrein in 1985 as Producer-Director-Cameraman with ARRI 35-3.



The ARRI 2C had a turret with small lenses. The handgrip was the motor. It had a viewfinder that was not always easy to look through when you were lying on the ground, jumping in the mud, moving up and down. The viewfinder was pretty dark.

For lenses, I used Cooke Series II and III "classic" Panchros. They were tiny and wonderful lenses. When they were new the barrels were black, but after using them a while the brass showed through; it was almost a badge of honor.

Was that the spark of the idea for Leica 35mm cine lenses?

Many cinematographers started more or less as photographers. I was not unique. Many others worked their way up, starting as camera assistants. The big difference in moving from photography to film was equipment—and picture composition. I was always thinking about my Leica still cameras and Leica lenses, and how there had to be something better than the cine equipment I was using. But I didn't know what. My horizons expanded when I was in Paris and met the nouvelle vague filmmakers.

Like Jean-Luc Godard: "Cinema is truth 24 frames per second?"

Or 25 frames per second. During the 1968 Documenta 4 exhibition in Kassel, Germany, we were sitting at one table: Godard, Günter Grass, Beuys and Christo. We spoke about film and film composition and that is when I realized what was missing. The ingredient that all my colleagues and I were missing: Leica optics.

Rolf Fricke of the International Leica Society researched Leica's early, limited interest in cine lenses.

That was limited and not high-end cinema. Also, many of us tried to modify Leica still lenses for cine cameras. It was not the same. These lenses were not constructed for film and for continuous follow-focusing. They were made for still photography. The tool of a painter is the brush. The tool of a carpenter is a saw. The tool of a cinematographer is the lens.

I did a lot of fashion photography. And then I had the possibility to produce my own commercials. I said to myself, "I'm a still photographer, I can shoot motion pictures." I was, of course, naïve. It was not as easy as I thought, because the film camera and film equipment is much more complicated to handle. But then I got a gift from heaven, and the gift was motion. Instead of a still image, I could move and my mistakes were not scrutinized so precisely. One thing I never could do as precisely as in photography was the picture composition itself. I found this more difficult in cinematography because of the additional elements of dollies, cranes, and smooth moves.

We talked about Godard and truth at 24 frames a second. When you see those 24 frames as a series of still photos, you are a little bit deceived because each photo must be considered in context, as a sequence, and not as a stand-alone still. Motion pictures have more dimensions. They are more like the work of an architect.

Since motion pictures are a series of images, you cannot interrupt the sequence with a mistake in focus, composition, exposure, movement. That would be what we call "Irrtum," an irritating mistake. You often cannot correct it in the editing room. You can cut the offending frame out, but will that distrupt the sequence?

In the still photographer's darkroom, you see sharpness and everything exactly. Each image stands on its own. On the cutting room table, you'll see images that are not 100% perfect. Sometimes the fact that the shot is moving can disguise the imperfections, but not always.

Back to the artist's brush. Why do many artists often use the same brand of brush? Why have directors and cinematographers, for the past 30-40 years, worked with the same brands? Panavision, ARRI, Aaton? Interesting. Of course, that is changing now.

And that gets to the philosophy of what I wanted to say about lenses. With Panavision cameras, you used Panavision lenses. They went perfectly together. When it was not Panavision, it was ARRI and Aaton with Cooke, ZEISS, and Angenieux lenses.

The Beatles in Obertauern shooting the movie '"Help!" in 1965 near Salzburg, Austria. Photo © Christian Skrein.

It was an assortment of brushes.

Still photographers love their Leica cameras. You can put it in the pocket; it has a special shape. It has tiny lenses that fit. I always missed this in cine equipment. And I was always thinking about the Leica brand in the film business.

The only lenses I loved in the '60s and '70s were the Cooke Series II and III. We loved these lenses because of their size, look, and feel. They had a special touch. Every inch was quality with a human touch.

The main concept for Leica cine lenses that I proposed in 2005, together with the vision and direction of Andreas Kaufmann and the help of Otto Nemenz, was, "How does it feel?" I wanted a lens that was friendly to the touch, believe it or not. I wanted it to have a special feel. It should be light, compact, and fit in the palm of one hand.

We had a long list of other criteria—titanium, special coatings, uniform focus scales, uniform size and weight, rear net holders, front threads, but the feeling was the most important for me.

How would you describe it?

The feeling is, "This is a lens I trust. This is a lens I like to have in my hand and this is a piece of glass, aluminum, metal and titanium that is in itself a small work of art." Our dream was confirmed by many enthusiastic cinematographers—who agreed that the lens is their best friend, their favorite tool, on the set and on location.

What is the secret? It is not the design only. It is the feeling and it is the brand that everyone likes and has trusted for 100 years.

More than 300 people or companies ordered these lenses without even having tested them. That's unheard of.

We have more than 350 pre-orders. This is a Leica set of lenses for filmmakers. Cameras come and go. Cameras change. But you could have a lens for 40 years. The lens is the most important component in the film business. It took me a very long time to understand this, because as a cameraman, the thing I was always touching was the camera—and the assistants were the ones touching the lenses.

The camera is a vehicle. The lens brings your artwork onto the canvas, onto the screen.

This was fascinating to me, and it was serendipitous to have Leica Camera's Dr. Kaufmann make it a reality. The team that make Leica Summilux-C lenses possible also included optical designer and project manager Iain Neil, mechanical designer Andre de Winter, Rainer Schnabel, Uli Schroeder, Bill McCreath, Otto Nemenz, and many others.

Is there a Leica Look?

That is a very good question. When you look at photos by Cartier-Bresson, Capa, the Magnum photographers, there is definitely a unique style and look. Somebody who is shooting still photos with a Leica is a sort of cameraman, a sort of DP, because often the action is fast-moving, and to get this, you have to shoot quickly—something to which the Leica camera is uniquely suited. Everyone will tell you this. Cartier-Bresson said that without the Leica he couldn't have shot the photos he did.

He could not have taken many of those famous pictures with a bulkier, heavier camera.

Cartier-Bresson, Magnum, there seems to be a brotherhood of Leica users. Many cinematographers have Leica Ms with them all the time.

With the Leica, you can do almost anything. This is more or less the philosophic view of what we are doing with Leica Cine Lenses.

Do you have a wrap-up summary statement about Leica Summilux-C Lenses?

How these lenses were made and why people are spending so much time, effort, development, and industrial know-how is a wonderful story. It's been a long process, and we are now seeing the extraordinary results of those efforts.

Where do you go from here?

The future will bring us a combination of even more spectacular and complex films –in which almost anything you can imagine is possible. Let's compare *Metropolis* and *Iron Man 2*. On the other hand, the literary world will be more sophisticated and maybe that will influence some less "spectacular," but more personal films. Maybe I can compare *Trash* by Andy Warhol, or *The White Ribbon*, shot by Christian Berger.

What I also believe is that great filmmaking will always require a great screenplay. Technical development cannot change that idea. The screenplay and the book as ingredients to the making of a film will never change. It may change the trends, and this is a bit by way of background to your question. There are trends, even with lenses...

The classic look or softer look?

You can get a softer look by adding filters to the front of the lens or nets to the rear. This is a never-ending story, like 3D, widescreen, and so on. The never-ending story continues…with black-and-white...then very realistic sharpness…then very soft, and you are always in a dream. These are elements of creativity and trends. The future, as in the past, has always been the screenplay. I do not think that you expected this answer. The screenplay and how the director brings the story to screen—that is the future. Lenses are a big part of that future—and especially Leica lenses. ❐

Andreas Kaufmann on Leica

In May, Leica Camera introduced the new M Monochrom, X2, 50 mm Apo-Summicron-M f/2 Asph lens, and M9-P Edition Hermès. At the launch in Berlin, I spoke with Dr. Andreas Kaufmann, Chairman of the Leica Camera Supervisory Board (above right, with Hermes International CEO Patrick Thomas).

Jon Fauer: Please tell us more about Walter De'Silva.

Dr. Andreas Kaufmann: Walter de'Silva, designer of the Leica M9-P Edition Hermès camera, is one of the leading automobile designers in Europe. He started at Alfa Romeo and worked on the Alfa Romeo 156, 145, 146 and 147. He was part of the design team of the RZ, a fierce-looking car done at the end of the '80s that today still looks like a car from another world. He was famous for what you could call the rebirth of Alfa Romeo with the 156. Later on, Volkwagen's Mr. Piech sort of poached him from Alfa Romeo and put him into the Volkswagen group.

We got in contact with Mr. de'Silva around 2009. It had to do with a classic car event, Schloss Bensberg Classic, which we were doing for the first time. Leica was one of the key sponsors, along with Volkswagen. We met Walter de'Silva, and as he's one of those Italian design geniuses, we said, "Have you ever done a camera?"

He replied, "No, but it would be interesting."

In Autumn 2009, I was in Wolfsburg with Volkswagen Chairman Martin Winterkorn. He gave us his "te absolvo" – and gave us carte blanche. Walter de'Silva is on top of the whole Volkswagen group's design team, so he also oversees Audi design. His idea was to develop a unique corporate identity for the Audi. Nowadays Audi design is headed by one of his former pupils, Walter Egger, who was also with Alfa Romeo. Walter de'Silva is basically the pope. He looks over everything and says yes or no.

How did a car designer become a camera designer?

He initially showed us five designs. The Leica M9-P Edition Hermès is only number two. We also developed a really good working relationship with the special Audi design group.

The Leica M9 Titanium, launched at Photokina two years ago, was also designed by Walter de'Silva. The interesting thing about the automotive industry is that they work with completely different materials than we do. We both learn a lot from each other. They come from mass manufacturing, from different materials and applications. I think that's a great learning process for all of us.

Is there a relationship between the design and function of these cameras?

We learned a lot about Walter de'Silva's way of thinking, and the way of his designers. For instance, the strap. The strap of the camera is still awful. Sorry to say that. A company like ours shouldn't do a strap like this. One of the first questions from Walter de'Silva was, "Why, Andreas…why are you doing the strap this way?"

I said, "Because we always did it like this." And that's probably the problem. He also commented on the Hot Shoe. So on the new Hermès Leica, there is no Hot Shoe. Because he said, "Andreas, this looks ugly."

Without the Hot Shoe, the camera becomes a luxury item?

No, we are not a luxury industry. Hermès refuses to say we are a luxury company. Because the French verb is"manufacturer," meaning we craft things by hand, they say we are craftsmen. Hermès crafts something for a certain price. I think that's the connection to Leica. Because it's about knowing how to build cameras and lenses. They cost a lot of money to build. It's a complicated process. Which means lenses are highly priced. But they're not highly-priced because we use gold or silver or diamonds. That would be a luxury industry. The price is based on what we have to do to create this lens or produce this camera.

In the audience yesterday, I think I saw more limited edition, first edition Leicas than any other place on the planet. The photographers and collectors there were absolute fanatics. But does this improve the quality of the pictures they're taking?

You know, when you want to have something beautiful, it means you care about things. That means you would probably also care deeply about photography. It doesn't mean if you have a cheap camera you can't take great pictures. But these Leica users love what they're doing. And they love to individualize what they have. It also means they love to take pictures in a certain way. They love to learn from the great masters. I think it's about passion. Curious, when you translate passion into German, the word is Leidenschaft. This is a word that has a few different meanings. Because Leiden means suffering.

Leidenschaft has a little bit to do with suffering along with the passion. The German word is quite apt.

It's good to see that still photographers are just as obsessed as we cinematographers are about technique and technology.

At the moment, Leica is only a little bit connected to the cinema world. We have something called the Summilux-C lenses. I think, in the years to come, you will see more cinematography products from us. We know that cinematographers often started shooting still pictures. That has been one of several career paths. Cinematographers know how to capture light and paint with light. Whether still or motion, many of the tools or techniques are similar. To capture light in the right way and to use the light creatively means painting with light. I think that's what we at Leica also stand for. It's all very interconnected. We have delivered more than 30 sets of the Summilux-C series prime lenses. And we're ramping up production for more.

By the way, the M Monochrome you are holding at the moment will be on the way at 2:00 PM to Brad Pitt. He is a Leica user. ☐

Alfred Schopf at Leica

Braunfels castle, built in the 13th century, perches above Solms and the current manufacturing headquarters of Leica Camera. There is a good restaurant in Braunfels: Geranio, on the town square below the castle. (Try the veal with fresh mushrooms accompanied by a Barbera d'Asti.)

Alfred Schopf, Managing Director of Leica Camera, shows an O-series Leica (one of the first 25 produced in 1923-24) and still working. It is about the same size as the current Leica X2 camera.

Leica is approaching its 100th anniversary. Currently bursting at the seams in the Solms factory, construction is underway for a new headquarters at a new location called Leitz Park in Wetzlar. It is supposed to be ready by end of 2013.

A giant globe with a red dot locating Wetzlar sits in the roundabout next to the construction site. Turn right, and you'll be at the new headquarters. Summilux-C cine lens manufacturing is already in a completed building to the right, across the street. That's where we are headed next, as described in the next pages.

How to Build Leica Summilux-C Lenses

This is the front door of the new, "boutique" CW Sonderoptic assembly plant with the most advanced lens manufacturing techniques and equipment I have ever seen. It is located in Wetzlar's Leitz Park, across the parking lot from the construction site where work is now underway for the entire new Leica Camera headquarters and factory.

Gerhard Baier (shown above at entrance) and Erik Feichtinger are Managing Directors of CW Sonderoptic. Band Pro is the worldwide distributor. Please email them, not us, to check up on your delivery status. Nevertheless, it seemed to me that production has ramped up substanitally. While I visited, boxes of lenses were being picked up by the local Wetzlar UPS and JAS drivers, on their way to customers worldwide.

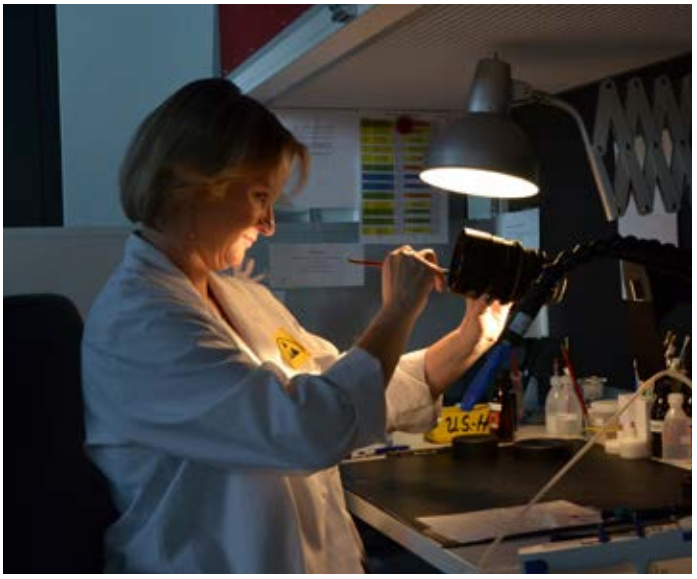
CW Sonderoptic Managing Director Erik Feichtinger, left, with Uwe Weller, head of Uwe Weller Feinwerktechnik, the precision machining fabricators located next door in Leitz Park.

Weller Feinwerktechnik is a sister company of Leica Camera AG and CW Sonderoptic. Weller makes most of the mechanical parts for the Leica Summilux-C lenses. The staff of more than 100 use 60 CNC machines working in titanium, aluminum and stainless steel to tolerances of 10 microns.

Gerhard Baier, Managing Director, leading the morning meeting with part of the CW Sonderoptic assembly team

Bernhard Kratzer, Production Manager, inspecting an aspherical element. You can tell it's an aspheric by the concentric rings.

Leica Summilux-C Cine Lens Factory Tour

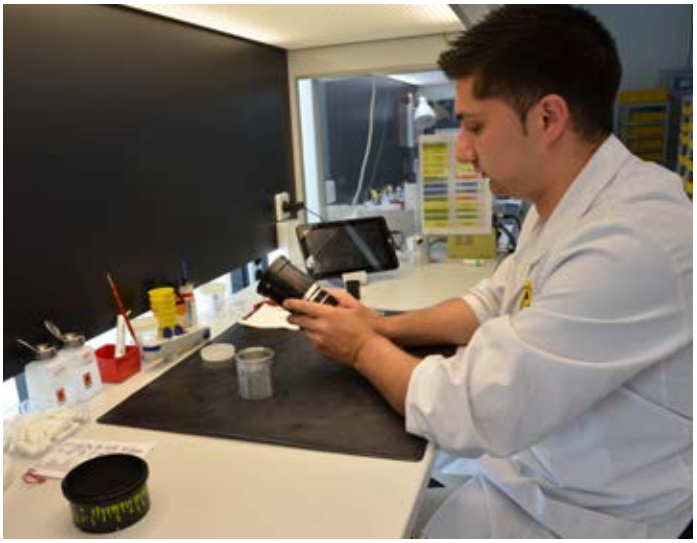


Cleaning optical sub-assemblies

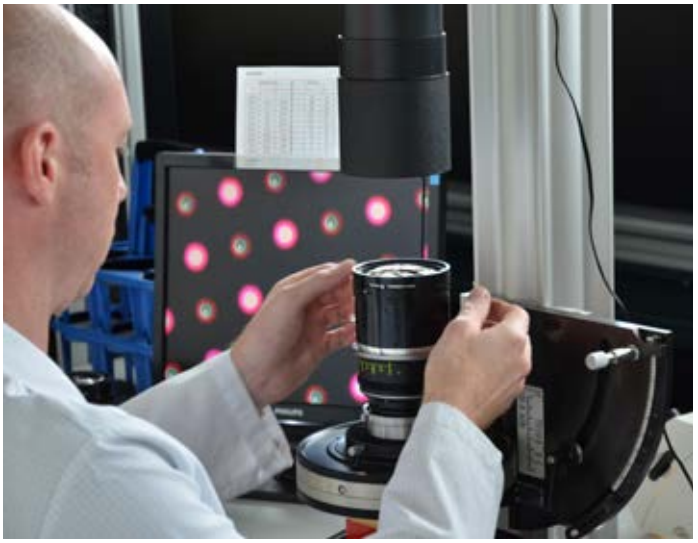
Cleaning and inspecting optical elements

Assembly begins: the mechanical focus components are prepared prior to installing the optical elements

Checking optical centering



Mechanical assembly



Testing is done at every step. Adjusting optical centering.

Notice concentric rings of aspheric element.

Leica uses some of the same test equipment familiar to all rental houses: here, a Chrosziel collimator.

Adjusting before measurement

Cleaning is done with natural products: real sponges and natural bristles.

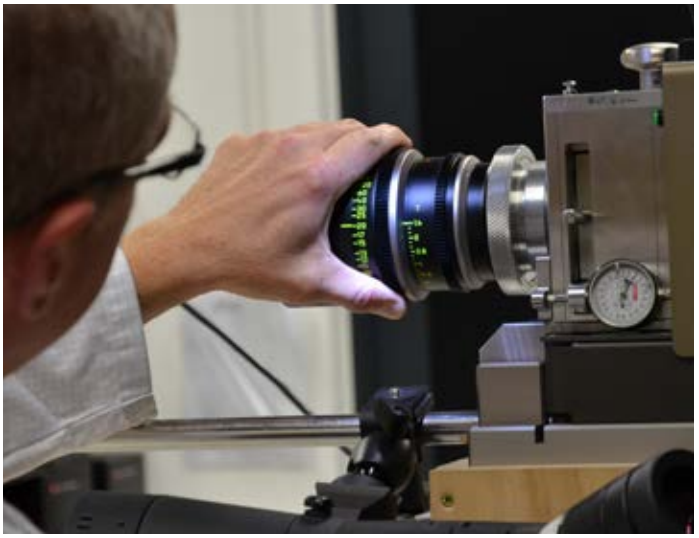
So many of you, dear readers, have been asking when your Summilux-C lenses will be delivered, I tried to lend a hand. I was fired a few minutes later. This kind of work takes several years of training.

Double checking the optical elements. A speck of dust will not diminish performance, but after spending a king's ransom on a lens such as this, most new owners will scrutinize it as carefully—knowing that after one or two rentals, things may not look as pristine.

Inspecting lens—quality control

Familiar lens projection tools: a Gecko-Cam lens projector and Leica APO-Televid 65 spotting scope to check image sharpness.

Lenses are checked on the lens projector at several intervals during the assembly process.



Each lens also undergoes a long period of mechanical wear-and-tear simulation: opening and closing the iris and racking focus

After mechanical wear-and-tear marathons, lenses are projected again.

Measuring air gaps of completed lens

Now it gets really interesting: a very high-tech focus-scale indexing system on a 60' long "railroad" moves an MTF target to each marked distance to be engraved on the focus barrel.

The target is controlled from the computer, moving to the pre-determined distance for each focus mark calibration.

Racking lens focus remotely while looking at a computer read-out of MTF contrast. When the optimum setting is achieved, he clicks "save," and the setting is stored. The data goes to a laser engraving machine. Each focus ring is therefore optimized for each lens.

Serial numbers and data from all tests are saved for each lens. This data can be recalled whenever a lens is serviced, or a focus barrel swapped from feet to meters and back.

Final assembly in clean room

All Leica Summilux-C lenses are the same length, diameter, with focus and iris scales in the same positions.

Another Leica Summilux-C lens is ready to be shipped. More than 50 sets have already gone out the door to destinations worldwide.

Gerhard Baier and Bernhard Kratzer, with set of 11 Summilux-C lenses right off the assembly "line:" 16, 18, 21, 25, 29, 35, 40, 50, 65, 75, 100 mm

Transvideo

Rainbow HD

Transvideo will be introducing new products and news in booth 11.F30 at IBC. Anyone missing IBC will find Transvideo in stand 3-A25 at Cinec.

At IBC, Transvideo President Jacques Delacoux will also promote Franco-American relations. He has invited Howard Preston of Preston Cinema Systems, Larry Barton of Cinematography Electronics, and Jon Fauer of Film and Digital Times to join him in the IBC booth.

On display will be:

- S3D with 3Dview on P+S Freestyle with Cooke Panchro/i and Preston wireless remote control.
- CineMonitorHD with Betz-Tools Remote Piano Head and Alexa equipped with Angenieux ADS/i.
- CineMonitorHD SBL on Alexa with Cooke 5/i, CineTape and Preston remote system.

RainbowHD

Transvideo RainbowHD is a new family of onboard monitors that are lighter, slimmer, and more economical.

Rainbow was the product name of the original Standard Definition onboard monitors that made Transvideo famous, first on Panavision cameras, and then on almost every camera that had video assist.

The RainbowHD is simpler to use, about half the weight and maybe half the price of a CineMonitorHD. It is intended for lower budgets, TV series, independent productions, and even big budget productions where, as Gaffer Sal Martorano used to say, "the only thing left in the budget is profit."

The first model will have a 7-inch diagonal screen. One version will have normal brightness. Another will have a superbright (SB) display with at least 1000 nits. The RainbowHD monitors use glass that is optically bonded to reduce reflection and special anti-reflective coatings.

The new RainbowHD design is very slim, rugged, has low power consumption, and dual HD-SDI in/out connectors with dual link capability. Existing CineMonitor battery brackets and handles will fit, with some new handles in development.

There are rumors of internal recording, USB connectors, and SD card slots by the end of the year.

Dimensions: 7.5" w x 1.4" d x 4.1" h. Screen is 7" diagonal.

CineMonitorHD

Improvements to the CineMonitorHD family of multi-format field monitors continue:

- New release of the /iReader with more accurate and smoother Cooke /i protocol integration.
- Integration of Larry Barton's Cinematography Electronics CineTape display for accurate distance measurement during a shot.
- VirtualHorizon2, a digital leveler with motion compensation and shock "filtering."
- FuelReader with Anton/Bauer batteries.
- FuelReader with PAG and SONY V-Lock batteries.
- Enhanced SuperBright for use under extremely bright and sunny conditions.
- New accessories and brackets for body-rigs and location use.

Transvideo Rentals UK

Transvideo is opening Transvideo Rentals UK with Tiffen at Pinewood Studios outside London. The full range of monitors, S3D systems and wireless units will be available to rent.

Tiffen International Limited – Transvideo Rentals
East Side Complex - Pinewood Studios
Iver Heath, Bucks
SL0 0NH - United Kingdom
T +44 (0) 870 100 1220 F +44 (0) 1753 652776

Transvideo Accessories

Transvideo *Accessoires*

Transvideo has a long history of machining helpful accessories for their monitors, transmitters and receivers. Now Transvideo is making accessories, brackets, handles, arms and mounts for cameras, including Canon C300, C500 and a new full metal jacket for Sony F3.

New worldwide 2+1 Warranty

Previously, Transvideo offered a 2 year warranty on their products.

Now, if you register online during the month of purchase, you can get an extra year of warranty. (Read the fine print.)

3 years is a long time—more than most—and normally the amount of time when many other products become obsolete.

/i and CineTape on CineMonitorHD

Transvideo CineMonitorHD Evolution monitors now communicate with Cinematography Electronic's CineTape. When connected, the monitor now displays a CineTape witness mark with measured focus distance in addition to /i lens focus data.

Transvideo's new software release of /iReader, with Cooke /i and Angénieux ADS/i protocols, provides more accurate and smoother data display.

The improved /i and CineTape functions are available on the CineMonitorHD Evolution beginning Aug 2012.

For upgrades to existing monitors, contact the factory.

www.transvideo.eu

/i and CineTape on CineMonitorHD

Cinematography Electronics CineTape

To attach a CineTape, Transvideo CineMonitorHD Evolution and /i Lens, here are the connections.

Connect the CineTape Measure:

POWER: 3-pin Fischer RS style connector (red jacket) plugs into camera's 9-36 VDC accessory receptacle.

SENSOR: 5-pin Fischer cable (blue jacket) to CineTape sensor horns.

REMOTE: 6-pin Lemo (orange jacket) goes to the Hirose connector on the back of Transvideo CineMonitorHD.

Connect a Cooke /i or Angenieux ADS/i lens:

Connect your /i lens to the CineMonitorHD Evolution. On Cooke 5/i and 4/i lenses, the 4 pin /i receptacle at the back of the lens goes to the **sub-D** connector on the back of the CineMonitorHD. Panchro/i lenses connect via the gold contacts in the mount—which Cooke 5/i, 4/i can do as well.

Explanation of the Transvideo CineMonitorHD display:

In the picture above and insert below left, the display shows the following, looking from right to left:

The white lettering shows that we have 5/i 32 mm lens, with an Entrance Pupil (EnP) of 3.5 inches from the film plane and an angle of view of 13.9 degrees.

The top horizontal yellow display shows the Cooke 32 mm focus scale graphically.

The red line with triangle on top shows that the Cooke 32 mm lens is focused just shy of 3'6".

The blue "C" and blue vertical line show what the CineTape suggests for focus: 3'6" exactly.

But not to worry, the green bar shows the depth of field is from 3'4" - 3'6". You will not have to do another take, because the green bar shows you are within acceptable depth of field.

The lower yellow bar shows the analog aperture scale.

On the left, in white letters, you have a digital readout of the Cooke 32 mm lens settings: 3' 5.5" focus and 16.43 iris. The blue numbers below "FOCUS" show the CineTape's exact reading: 3' 6".

Of course, if the CineTape is not connected, there will be no blue vertical line or blue numbers. You can, of course, use the Transvideo Monitor and CineTape without an /i lens.

Nikon AF-S DX Nikkor 18-300 mm f/3.5-5.6G ED VR

Smaller zooms with longer ranges are covering locations worldwide as cameras get smaller.

The new AF-S DX Nikkor 18-300 mm F3.5-5.6G ED VR zoom lens covers more focal lengths in a tiny package than any other lens in Nikon's inventory. (G=no aperture ring. ED=Extra-Low Dispersion. VR=Vibration-Reduction image stabilization.)

This 16.7x zoom lens is for APS-C (DX, 16 x 24 mm) format. It is a mere 4.7 inches long x 3.3" diameter (120 x 83 mm). That is only an inch longer than my current favorite, and the one you'll probably see with me at IBC, the Nikkor 18-200 f/3.5-5.6.

The Nikkor 18-300 mm lens is an excellent all-purpose lens for HD video, covering as much ground as the ever-popular 24-290 35mm cinema darling, though not as fast or cine-geared.

The AF-S DX Nikkor 18-300 mm f/3.5-5.6G ED VR lens has 19 optical elements in 14 groups, with 3 ED glass elements to help minimize chromatic aberration, even at the widest aperture settings, and 3 aspherical lens elements to remove aberrations at wide aperture settings. It has a 9-rounded-blade iris.

Close focus is 1.48 ft at 300 mm for a maximum ratio of 1:3.2x.

70 Million Nikkor Lenses

Nikon Corporation announced that total production of Nikkor lenses for Nikon SLR and Nikon 1 cameras with interchangeable lenses reached 70 million at the end of May 2012.

The first Nikkor was a large-format aerial photography lens in 1933. After that, Nikkor lenses for SLR cameras continued to evolve. Last year, the new Nikon 1 cameras with interchangeable 1 Nikkor lenses were released. The 1 Nikkor lenses (CX mount, 17 mm flange focal depth) are compact, lightweight, and share the optical technology of the DX and FX format lenses.

By October 2011, production of Nikkor lenses reached 65 million. So, that's about 5 million lenses in half a year. Nikon's FX-format (24 x 36 mm) Nikkor lenses cover the full frame of Nikon's new flagship digital-SLR camera, the Nikon D4, as well the new Nikon D800 and Nikon D800E which have image sensors with an effective pixel count of 36.3-million pixels.

30 Million SWM Lenses

Nikon has built 30 Million Nikkor lenses with Silent Wave Motors (SWM). The Silent Wave Motor (SWM) is an ultrasonic autofocus motor developed by Nikon that converts "traveling waves" into rotational energy to provide extremely smooth and quiet autofocusing. The Ai AF-S Nikkor 300mm f/2.8D IF-ED, released in 1996, was among the first lenses to use SWM technology. Since then, it has been adopted by more than ninety percent of Nikkor lenses currently manufactured.

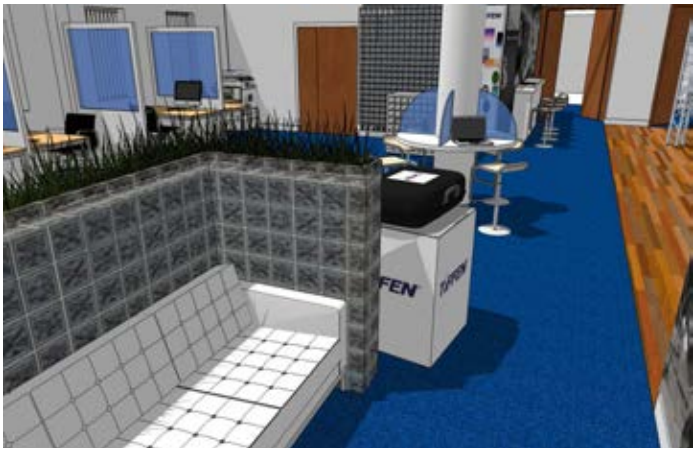
The current Nikkor brand offers a lineup of more than 70 lenses, from fisheye lenses, super wide-angle to super telephoto lenses, zoom lenses, Micro lenses, and tilt-shift lenses.

AF S Nikkor 800 mm f/5.6G

Nikon is working on a super-telephoto 800 mm f/5.6 FX-format lens . It will be the longest focal length of any Nikkor autofocus (AF) lens, and promises a high degree of dust and water resistance.

Tiffen at Pinewood

Pinewood Studios and architectural renderings of new Tiffen facility



Tiffen International has moved to Pinewood Studios, famous for 007 Bond films, the BSC Clubhouse and The Club Bar. Pinewood has developed into one of the world's leading centers for film, television and commercial productions.

Tiffen International was established in 2000 to handle all overseas sales, marketing and technical support for Steadicam, Tiffen Filters, Lowel Light, and other products in the territories outside of the Americas. Since then, Tiffen International has grown to the point where it accounts for almost 50% of the company's sales. Tiffen International also opened offices recently in Sydney, Australia and Hong Kong.

"The company has had exceptional growth in all product and geographical areas. We have outgrown our current office and the time has come to move to larger premises", said Terry Carey, Managing Director.

It was decided to bring all the operations—the head office in Bicester and the London Filter Company (who were in South London for 18 years)—under one roof.

The new location may be a short journey for many customers who are working at or near Pinewood. They will be able to purchase, rent or learn about items for their productions.

Once the interior construction is completed in a couple of months, this new facility will also become the Tiffen European Centre of Excellence for Steadicam and filter products. Robin Thwaites, International Director of Sales for Steadicam, and Carey Duffy, Technical Director for Filters—will be based at Pinewood.

Carey Duffy said, "Especially with digital cinematography, there are many new challenges which our customers are bringing to us, and our being on hand is a great benefit for them". Carey has a large and loyal following, and he's well known for his in-depth seminars and guidance.

Robin and his Steadicam team will be available to help existing and potential customers in their choice of the most relevant and appropriate Steadicam systems. They will also organize Steadicam Workshops in many UK and overseas locations. Robin said, "There is no let up in the many creative ways that our customers are using Steadicam and now we can react quicker to those demands."

The new Tiffen facility will also work with the Tiffen and Steadicam factories in the USA by coordinating feedback, suggestions and requests from cinematographers and camera crews.

Tiffen International invites all existing and potential customers to visit them at the new Pinewood offices. The interior will be completed soon. But meanwhile, stop by to watch construction or have a coffee—filtered, of course.

For more information on Tiffen: www.tiffen.com

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Sony NEX-EA50 35mm

In case anyone is still wondering which format is fomenting the attention of news, event, doc, wedding, sports or action shooters, Sony certainly isn't.

The latest NXCAM NEX-EA50 camcorder is Sony's first APS-C 35mm sensored, shoulder-resting, servo-zooming camcorder.

The "EA" part of the NEX-EA50 name designates it as what Sony calls "affordable entry level"—although the features are hardly mundane. The camcorder's Exmor APS-C (probably 23.5 x 15.6 mm) HD CMOS shoots 1080 progressive and interlace at 50p/25p/50i or 60p/30p (29.97p)/24p (23.97p)/60i.

In addition to video, this camcorder can also shoot jello-free 16.1 megapixel still pictures because it has a built-in mechanical shutter.

The NEX-EA50 uses Sony's E-mount interchangeable lens mount system, which enables auto focus, auto exposure and stabilization even while shooting video. With its short, 18 mm flange focal distance, you can use most 35mm format lenses on the planet with an equally staggering amount of available adapters, including PL, Nikon, Canon, Leica and an LA-EA2 for A-mount lenses.

The NEX-EA50 comes with a newly-developed E-mount 18-200 mm zoom lens. The long name is Power Zoom E PZ 18-200mm F3.5-6.3 OSS SELP18200. It has auto focus, continuous variable iris and Optical Steady Shot image stabilization. Zoom can be controlled a number of ways: rocker lever on the grip, or on the top handle, on the lens itself, or via LANC remote controllers.

A shoulder rest pulls out from the back of the camera, letting you quickly switch between tripod, handheld and shoulder-resting configurations. Retrofitters: a short eyepiece aftermarket accessory could become your next bestseller.

The NEX-EA50 comes with 2-channel XLR audio inputs, an ECM-XM1 Shotgun mic, timecode with user bits, and built-in GPS. Sony's HXR-FMU128 flash memory unit can dock directly to the camcorder for simultaneous back-up recording.

You can use Sony's new Mirroring Memory Stick (16, 32, and 64 GB), for dual recording (mirroring). The NEX-EA50 is planned for October 2012 at less than $4,500.

Sony PX Mirroring Memory Stick

Sony is introducing PX Series Mirroring Memory Stick recording media (MS-PX).

The new cards propose higher reliability and data security through a dual recording (mirroring) function on Sony NXCAM camcorders. Mirroring splits the recordable space of the PX series card into two sections, with simultaneous recording to both areas. It's sort of like a RAID array about the size of a Wheat Thin cracker. The idea is that if something happens to the content on one area, the other area should be OK for playback.

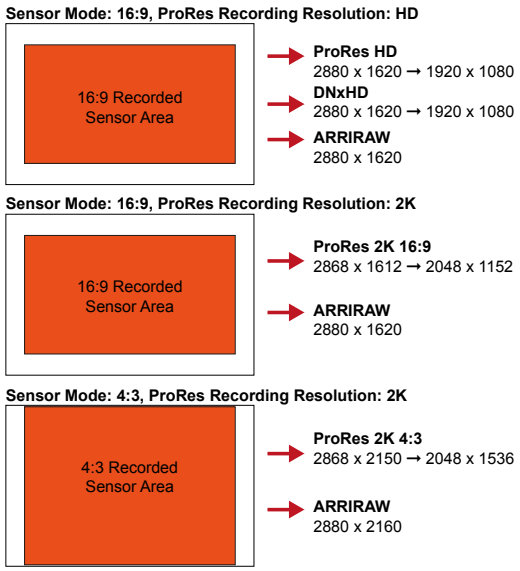
The PX series' Memory Media Utility software uses a Replacement Notice feature to alert users when the card is nearing its limit for overwrite cycles so they can replace the card.

Password-protection reduces the risk of unauthorized access. There is a high-speed writing mode to increase write speed up to 2x; a standard mode that allows users to turn off the mirroring mode and record longer using the card's full capacity; a back-up function that lets users copy recorded content on a PX series card to three locations simultaneously; and a formatting function to re-format a PX series card quickly.

The new Sony PX Series Mirroring Memory Stick should be available October 2012 in the following sizes:

- MS-PX16 card, 16 GB
- MS-PX32 card, 32 GB
- MS-PX64 card, 64 GB

ARRI Alexa Updates and AKS



Alexa Software Update Packet SUP 7.0

The ProRes 2K 4:3 part of SUP 7.0 will allow anamorphic 4:3 productions to record in ProRes 2K onto the Alexa's internal SxS PRO cards. Productions shooting ARRIRAW (anamorphic or spherical) will still record to a Codex Onboard Recorder.

"I think ProRes 2K 4:3 is going to change the game for anamorphic shooting, making it much more affordable. Previously, you had to use ARRIRAW with 4:3. Now it becomes as simple as using an HD SxS PRO card," said Marc Shipman-Mueller, ARRI Product Manager of Camera Systems.

ProRes 2K 4:3 also has advantages similar to shooting in 4-perf instead of 3-perf, but without any added cost. The extra headroom on top (and bottom) provide added space to repo your frame up or down. If a microphone boom dipped into your only good take, ProRes 2K 4:3 might save the day.

There are many more details to SUP 7.0. For further information, visit ARRI at IBC, Cinec, or online: www.arri.com

Lighweight Clip-On Mattebox LMB-25

AKS is short for "All Kinds of Stuff," as in Accessories:

Lightweight Clip-On Mattebox LMB-25

I like lightweight clip-on matteboxes. You can often avoid rods, baseplates, and save time. ARRI's new Clip-On LMB-25 accommodates up to 3 filter trays. Top and bottom flags clip on. It is compatible with all LMB-5/15 clamp adapters up to 143 mm diameter.

The front rectangular shade can be removed by loosening 4 captive screws—in case you're doing a macro shot and the shade is blocking your beautiful lighting but you still need the filters.

C300 Handgrip Adapter HGA-1

C300 Handgrip Adapter HGA-1

If you ever wondered whether you could move a Canon C300/500 handgrip forward for better balance, now you can. The new HGA-1 from ARRI lets you separate the Canon C300/500 electronic handgrip from the Canon body and mount it to any rosette/rod system. It includes Canon's Proprietary connector.

Baseplates

ARRI now has baseplates for Canon 1D C and 1D X cameras.

Universal Shoulder Pad USP-2

ARRI's USP-2 is longer than the previous version, and comes with straight and curved foam pads for operator comfort.

ARRI WCU-4

This is take 4 in the evolution of ARRI's Wireless Compact Units. The new WCU-4 hand unit is stylishly curved, adds new features, and continues to control focus-iris-zoom and camera functions.

The focus knob has adjustable friction. Pre-marked focus rings are backlit.

The unit is splash proof. A large 3" transflective display reflects ambient light and remains visible even in direct sunlight. It shows camera and hand unit status information, measured distances from ultrasonic devices, and lens data. (ARRI Lens Data Display is integrated.)

Focus, iris and zoom marks—as well as limits—are set by pressing one of the sealed, backlit buttons next to the display.

The slider's scale (usually used for iris) is mapped to the 3" display. The left-side handgrip includes a new pressure-sensitive zoom knob that also can also be used to quickly scroll through the unit's menus. A user programmable button underneath the handle provides quick access to functions like zap zoom, setting marks or entering the Alexa status and setup menu page.

After a future software update, it will be possible to control your Alexa camera with the WCU-4. An SD slot lets you save user settings and perform software updates.

The WCU-4 is powered by prosumer camcorder batteries. The wireless transmitter is compatible with existing ARRI motor controllers equipped with the white coded radio modem.

WCU-4 Estimated cost: 5950 €. Shipping maybe Feb 2013.

CLM-4

ARRI's new Controlled Lens Motor CLM-4 is available with various gear modules and 3 different mounting options. The CLM-4 lens motor is faster and quieter than the CLM-2. Gear modules can be mounted to either side of the motor.

The motor offers rod-to-rod mounting options, a Hill Bracket rosette, and a standard rod bracket. The clamp attachment is adjustable. Good news: the motor cable is detachable, allowing quick replacement or repair on set or on location.

CLM-4 basic set should cost around 2100 € and consists of the motor; standard 15/19mm rod clamp; 0.8, 0.6, 0.5, 0.4 gear set; and motor cable. Shipping planned for Nov 2012.

Alexa M D-Bracket

D-Bracket shown with new UAP-1 Universal Adapter Plate which also lets the camera quickly move from a traditional ARRI cine-style bridge plate to a Steadicam dovetail plate. It attaches to the front and back foot of ALEXA, ALEXA Plus, ALEXA Plus 4:3, or ALEXA M body (not Studio).

Does your Alexa M suffer separation anxiety? Does the camera whose head connects to its body with a fiber cable sometimes want to be treated as a single-piece camera like her 4 other Alexa siblings, Plain, Plus, Plus 4:3, and Studio?

ARRI probably heard so much whining about this that the D-Bracket was inevitable. Here it is. We can now attach the Alexa M body to the head in a 435 sytle configuration. Parts of the system include the new Alexa M Dovetail Bracket MDB-1, the Alexa M Dovetail Plate MDP-1, and the Universal Adapter Plate UAP-1.

The D-Bracket, named after its shape, should be ready next month, October 2012, and the price is ridiculously low—less than a train ticket from Amsterdam to Munich.

ZEISS Compact Zooms

Carl Zeiss will introduce a new Compact Zoom lens at IBC: the CZ.2 28-80/T2.9 (left). It shares many of the features of its sibling, the CZ.2 70-200/T2.9 and the Compact Prime CP.2 series, with full frame still format coverage, interchangeable mount, light weight and compact size. Available mounts are: PL, EF, MFT, F, E.

New Compact Zoom CZ.2 28-80/T2.9

Compact Zoom CZ.2 70-200/T2.9

Compact Zoom CZ.2 28-80/T2.9

Focal length:	28-80 mm
Aperture:	T2.9 – T22
Close focus distance:	0.83 m / 32.7 in
Length:	196 mm / 7.7 in
Front diameter:	95 mm / 3.7 in
Weight:	2.5 kg / 5.5 lb

Horizontal angle of view

Full-frame:	25-66°
APS-H:	21-57°
Super 35:	18-48°
Normal 35:	16-43°
APS-C:	16-43°
MFT:	12-34° (MFT is Micro 4/3)

Approximate price: €14,900 / US$19,900
Estimated delivery begins: April 2013

Compact Zoom CZ.2 70-200/T2.9

Focal Length:	70-200mm
Aperture:	T2.9 – T22
Close focus distance:	1.52 m / 59.8 in
Length:	250 mm / 9.8 in
Front diameter:	95 mm / 3.7 in
Weight:	2.8 kg / 6.2 lb

Horizontal angle of view

Full-frame:	10-29°
APS-H:	9-24°
Super 35:	7-20°
Normal 35:	6-18°
APS-C:	6-18°
MFT:	5-14°

Approximate price: €14,900 / US$19,900
Estimated delivery: November 2012

ZEISS Compact Primes

Compact Prime CP.2 25/T2.1

A new 25 mm ZEISS Compact Prime CP.2 lens will debut at IBC: CP.2 25/T2.1. (The current 25 mm Compact Prime CP.2 is slower: T2.9.) The new 25/T2.1 is not only faster, but also offers improved image performance. Special glass and two aspheric elements contribute to high contrast and elimination of almost all chromatic aberration.

CP.2 25 mm T2.1

Focal length:	25 mm
Aperture:	T2.1 – T22
Close focus distance:	0.28 m / 11 in
Length:	80 mm / 3.15 in
Front diameter:	114 mm / 4.5 in.
Weight:	0.9 kg / 2.0 lbs.
Horizontal angle of view:	
Full-frame:	72°
APS-H:	62°
Super 35:	53°
Normal 35:	47°
APS-C:	48°
MFT:	38°

Approximate price: €3,300 / US$4,046
Estimated delivery: October 2012

The Long and Short of It

ZEISS lenses introduced at NAB 2012 will have their European premiere at IBC: Compact Prime CP.2 15/T2.9 and CP.2 135/T2.1, below.

Also making their IBC debut: three Compact Prime Super Speed lenses, right: Compact Prime CP.2 35/T1.5 Super Speed, CP.2 50/T1.5 Super Speed, and CP.2 85/T1.5 Super Speed

CP.2 15 mm T2.9

CP.2 135 mm T2.1

Compact Prime CP.2 Super Speed Lenses

CP.2 35 mm T1.5

CP.2 50 mm T1.5

CP.2 85 mm T1.5

ZEISS 55mm f/1.4 Still Lens

First views of ZEISS Distagon 55 mm f/1.4 ZF prototype. Above, right: Winfried Scherle sitting next to Hiro's "Apollo Spaceflight Training Suits" 1978 Dye Transfer Print in Aretsky's Patroon, New York.

Certain portions of the following story have been embellished or exaggerated for dramatic intent.

"Psst...mister...want to see a hot, fast, new lens?"

Three men approached me on 46th Street between Lexington and 3rd Avenues.

They were Michael Schiehlen, Richard Schleuning and Dr. Winfried Scherle, General Manager of the Carl Zeiss Camera Lens Division. They had mischievous grins and a large lens on a Nikon D700. "We just landed in New York, and you are the first person in America to see the only prototype of our new ZEISS ZF 55mm f/1.4 lens for still cameras," Dr. Scherle said.

Alas, I only had an iPhone to take the spy pictures you see here. I wish Dr. Scherle had lent me his new Nokia 808 PureView mobile phone with ZEISS Tessar 8mm f/2.4 lens and 41 Megapixel sensor.

A New York sidewalk is no place to peruse a lens such as this, so we hastily took refuge in Ken Aretsky's Patroon, a clubby New York restaurant across the street. Patroon, whose walls are festooned with Mr. Aretsky's collection of famous photographs was a fitting location, dimly lit, wood paneled, perfect for f1.4 photography.

The prototype ZEISS Distagon 55/f1.4 will debut at Photokina 2012 in Cologne.

This will be a coveted lens. It brings ZEISS Master Prime technology from the cine lens world to still photography. The focus is silky smooth. There did not appear to be any breathing or distortion. It's a large lens; usually lenses of this focal length are slim as an Olympic Beach Volleyball player's stomach. What next? Cinematographers will probably be pounding on the doors in Oberkochen for a cine version with focus and iris gear rings.

A conversation with Dr. Winfried Scherle

What better place than Patroon Restaurant to grill Dr. Scherle for the latest scoops of optical news than over fine food (lobster and mango salad, grilled halibut with cippolini) and a Flowers Sonoma Coast Pinot Noir suggested by Sommlier David Autry?

Readers of FDTimes may remember that Dr. Scherle is a man who enjoys cooking and fine cuisine. During the ZEISS Cine Lens Days a couple of years ago in Aalen, he expertly demonstrated the analogies between culinary arts and lens manufacturing.

Our meeting in New York was seasoned by Dr. Scherle's insights into the state of motion pictures and still photography.

About business overall, he commented, "Despite overall indications of pressure on the worldwide economic situation, we are still facing a high demand for our products. Our business of lenses for still and motion pictures, instruments for industrial and medical applications, and systems for semiconductors is good. So, I hope everyone stays optimistic, because optimism is the main driver of ongoing healthy development in the near future."

I asked what he thought was the main reason for the huge success of the ZEISS Compact Prime and Zoom lines.

Dr. Scherle said, "Our main goal is the value protection (protection of investment) of a product when our customers buy lenses from ZEISS. With the CP.2 and CZ.2 our customers get products with a very good price-performance ratio. These provide the optical performance of a still lens—which can be even more critical than in motion pictures, because a still photographer has all the time in the world to scrutinize and judge the image quality of an image that is not in motion. With their interchangeable mounts, our lenses provide a high degree of flexibility because they can be used on different camera bodies. Every time a new camera type from a different manufacturer is introduced, we get positive feedback from satisfied customers about the fact they can use the same lens simply by exchanging the mount.

"Because our CP.2 and CZ.2 lenses cover the full 24 x 36 mm format, we think this is an important future-proof ingredient for expected sensor developments."

I wondered whether he thought high-end motion pictures were heading toward sensors larger than the 118-year standard of approximately 18 x 24 mm.

"We expect that sensors will get cheaper over time. The format will not be the limiting factor concerning cost. This opportunity in professional motion picture applications is already real—think about the new movies that are shot with DSLRs. We may still be in the disruptive technology phase, but we see a relevant future potential. For me this is part of the success of CP.2 and CZ.2."

It remains uncertain whether the challenge of even shallower depth of field with larger formats would be a hindrance. One thing is for sure. The demand for cine lenses continues to increase. I wondered how ZEISS was keeping up with demand.

"We are investing heavily in production capacities: 7-digit Euro amounts in the last months. We are also working on many development projects."

Winfried Scherle concluded, "I have been working for Carl Zeiss almost 30 years, and I'm very proud of this. It is great to work in a company that is owned by itself as a foundation and the profits are reinvested into the development of new products instead of being used by owners or investors for their private interests. Starting as an optical engineer and then being promoted to different management positions, I have gained understanding and insight that has helped me to do a professional job with a broad overview.

"I´m especially proud to see the creation of extraordinary products such as the STL *(Super Tele Lens—see picture above)*, the Master Primes and a new concept for DSLR lenses with no compromise in image quality. ZEISS has the platform to expand the boundaries in optics. That has been our DNA for over 160 years."

Marc Dando on Codex

Marc Dando is Managing Director of Codex Digital

ARRI Alexa with Codex Onboard Recorder

Jon Fauer: Can you explain Codex and your virtual file system—starting from what comes out of the camera?

Marc Dando: We record anything that comes out of a digital camera into a Codex intermediate format. Some other recorders will record only, for example, a DPX file. They're wrapping it in a header format, whether it's ARRI or whether it's DPX, and they're actually confining that data immediately to a file format. The problem is, if you want to make any modifications, you have to open and close every single file. With Codex, we basically capture metadata, picture data, and audio data into the Codex. When you want to deliver files, Codex creates the files on the fly.

Here's an example that shows why this is important. Invariably on set, in the heat of the battle, and let's face it, film sets can be like war zones and we all know that stuff goes wrong—a roll might be mislabeled. You might have two rolls labeled "52" for example. That may not get spotted on the set, but it has to be spotted by whoever's doing the QC. Somebody has to see it and fix it because it can have vast implications further down in post production. With some other systems, the only way to fix the roll number would be to open up every single file in the roll and change it. That could be thousands of files.

In the Codex environment, everything is editable until you actually write to tape or you actually commit to a standard file format. Dynamic metadata is probably one of our most powerful features. People don't realize how powerful it is until they don't have it. That's the most important thing about our file system. We have a transcoding engine which allows you to go to the standard formats—ARRI, Avid DNxHD, Apple ProRes, DPX, OpenEXR ACES files. We also have an XML file on a per-shot basis that contains all the metadata.

How did you come up with this idea?

It seemed like the most obvious way to manage these files. When you capture a vast amount of data, and bear in mind, when we started in 2004 or earlier, a terabyte of storage was a massive amount of storage. We don't even think about it anymore. Going back to those days, capturing frames that were 7 MB each, at 100 or 200 odd megs a second, was a lot of data. Now it's not, of course, and everybody's very blasé about how much data they have. It not only made sense to be able to able to edit the metadata, but also to create the deliverables on the fly, because why store all these different versions when you don't need them?

For example, with the virtual file system, if you had a visual effects shot, dealing with a 4K file for a compositing system could slow things down. Being able to make a lower resolution file would help. You can say, "I eventually want DPX 4K fully processed files, but I want a 1K version of that for visual effects so they can start working immediately."

The other benefit is if I've got a 50,000 frame shot, and I want frame number 37,015, I can just go there and get it. I don't have to render the whole thing up first. I think we could say the virtual file system is something that's one of the crown jewels of our IP.

Are you simplifying the way digital motion pictures are shot?

Everything we're doing at Codex right now is completely focused on trying to streamline production. We are not trying to add bodies to set. We're trying to make sure that it's not about taking people's work away. Digital cinematography has introduced a much higher level of skills than ever before. I'm not even sure now, a good five or six years into digital cinematography, that we have a set of standards in the same way that essentially we had one workflow for film. With film, you might have been shooting in 16mm or 35mm or 65mm, but you were using a format and medium that was a universal standard for more than a century, and at the end of each day you sent that film to a lab, and they processed it, and made dailies. That was the "workflow." Even when we started with Digital Intermediates back around 2000, it was still a standard. You had an Edit Decision List, you scanned the negative that you needed from the project. We've gone through some big changes, but if you think about it, most of them have been pushed kicking and screaming to get here.

Do you think we'll get to a point where digital workflow is very similar to the simplicity of film workflow?

That's what we're aiming to do at Codex, and I really do think that this is happening. We have Vaults now on *Iron Man 3,* a large project with Marvel. The cinematographer is John Toll, ASC. They used Codex for the first time on one of their first digital shows, *The Avengers*—an ARRI Alexa job—and it was very successful. The workflow was streamlined and elegant, and it led to Marvel investing themselves in Codex Vaults for the backbone of

Codex Onboard Recorder

Codex Onboard S Recorder

their next production. I think this is probably the way that we're going to see productions moving forward in the future because the studios want some control of the workflows.

Warner Brothers also has had great success every time a show's been done on a Codex. They know that they've got solid data at the end of the show, and that's important. They're spending a lot of money. They want to make sure that they can actually get access to their assets at the end of production. So we're trying really hard to pull all the main camera vendors together. I continue to talk to ARRI, RED, Canon and Sony about streamlining workflows and the importance of safeguarding the digital negative.

The Life of Marc...

I'm an engineer. My father was an engineer. He was a managing director of Frazer Nash Engineering. Archibald Frazer-Nash was a completely eccentric engineer who made cars for Le Mans and my father ran a division that made robotics. I started as a design engineer and spent the first few years of my working life developing automation systems for the manufacture of printed circuit boards. Although this was advanced electronics, I just fell in love with the movies. When I saw *The Abyss*, I said that's what I want to do. So I sold my house and everything and I went to California. I asked anybody I could about animation and learned whatever I could.

Each person is different in the way they approach things and how they wound up doing what they're doing. I think the key to you is probably this love of the motion picture business with a strong engineering background.

Absolutely. I have a three-year-old daughter now and she probably won't want to get involved in this business at all. I didn't have the opportunity to go to film school when I was younger, and I really regret that. I'm maybe a frustrated cinematographer, but I'm realistic enough to know that my value in the industry is what I'm doing to bring great technology to help other people.

How Codex began...

I've been involved in the industry in various forms for about 23 years now. I started in 3D animation with CubiComp and then it was Vertigo 3D. I went from there to Softimage before joining Discreet Logic.

The concept of Discreet Logic was exciting back when the company began. I moved to Montreal from Los Angeles, and I was there for a period of time before going back to London.

I was with them for some time, and we pushed that technology and were very successful. I then went on to build a compositing system of my own called Cyborg with a company called 5D Solutions in the UK. We also had a color corrector called Colossus, which is now called Lustre. 5D did one of the first recorders for the Thomson Viper. By 2003 we came up with the concept of Codex.

I did the original plan for Codex with Delwyn Holroyd, who's our chief engineer, and we went to somebody who could raise money. Things went in a certain direction and they decided to go ahead and do it and I went off on my own. That's when I started doing digital workflows. I did a couple of projects for the Viper and some F23s, some RED shows and really just pushed that whole area. In July or June of 2009 it became apparent that I was going to be able to join and move Codex forward.

They had already had some success with the studio recorder, which was an 8U 19-inch rack-based recording system.

When I became involved in 2009, I immediately saw that the recorder needed to be much smaller so it could be mounted on a camera, although I think it had many strengths. We really focused on that and also on supporting ARRIRAW, which put us in a great position when the ARRI Alexa really took off for feature film production at the beginning of 2011. We learned from our mistakes.

When television production started moving to HDCAM-SR tape, they didn't have any sales people at Codex to actually take advantage. A portable Codex at that time could have completely taken over all those TV shows, and we could have gone to file-based workflows with Sony F23 and F35 cameras way earlier. But of course, post-houses and this industry just loved their tape. I think people felt that if they had a piece of tape on their desk, then they had something that was secure. I personally disagree, having been involved with high-performance computing for many years...

Tape is just rust glued onto plastic.

I'm not saying that you shouldn't have solid secure workflows, but some of the lengths that people go to are ridiculous compared to what they would have done with a 35mm film.

Codex Vault. As shown in this and the adjacent two images, the Vault is scalable. It grows according to your platform, needs, hardware, drives...

Codex Vault with two storage bays added for internal hard drives.

I was talking with Chris Menges recently about *Extremely Loud and Incredibly Close*, which used Codex. He said that during the entire show, they lost only one shot. On film, they would have lost way more than that.

One leak of the changing bag zipper and...

I'm not saying it happened all the time, but I don't know any film project I've worked on in the last ten years where something didn't happen—whether it was scratched when it was being scanned, or something happened.

On *World War Z*, for example, which was the Bob Richardson zombie show that was shot in the UK, I think that 22½ million frames were shot digitally without one technical error.

Our focus is on streamlining this business. Recording was a way in for us and we've been very successful at it but we have no illusions about the current style of recorders. They will not continue forever, because, anybody who makes a new camera will start to consider inboard and on-camera recording in the same way RED and Sony are now doing. It's Moore's law. That's why we've been very focused on workflow technology. We are focused on post technologies for set.

Having a very heavy visual effects background, and many people at Codex do, we are constantly thinking about the metadata that people require to make shows easier to do. There still is a massive divide between post and set...about the priorities of the different crafts. Your camera crew is going to be on a different show by the time you're into post. The post people don't seem to think the camera crews care enough about post—although that's not usually true. The role of the DIT has expanded to try to bridge the divide.

How does Codex work with DITs?

I think there's a fantastic role in the business for great DITs and what we need to do is to get some accreditation so that producers know what they're hiring. Most cinematographers are very creative people, but they're not all the most technical people out there and technology in their field is changing very fast. DITs have stepped into the role of interfacing between cinematographers and technology.

One of the problems we have at the moment is that DITs are being given more and more responsibility and they vary so much in their background and skills. It's easy to become a DIT these days—you need a Mac Pro...the free copy of Resolve. People want to do color on set but the problem is that nobody is sitting down saying we need to get some standards in place.

You know, you can imagine having a Vault with a QC player system plugged into a 30-inch Canon monitor. Doing 4K QC. That's where I think the DIT role will go. I think it should be much more about metadata and visual QC rather than color.

Get that bit right, clean that, and then get your archives done, and then have somebody do the color. That might be the part of the DIT's team, but don't try and do it on the set.

How are camera companies different?

All the camera companies have different cultures.

ARRI have successful products and they're developing more, I'm sure. The next generation cameras will have all sorts of magic things. That's tough enough to do as it is. And, they're competing with Canon. They're competing with Sony. They've managed to build on their history and cement their place in this digital world.

Sony, made their mark in the sand at 4K. Red have made theirs, with 5K and they have their 6K coming out. Canon have made their first play. I don't think it's their last play, but it's certainly their first play in this market.

ARRI are in a unique situation right now where they've got the most popular camera in our industry, yet they don't have the highest resolution, but they certainly have the best colorimetry in my opinion. So I have great respect for the guys in Munich at ARRI. I think they're a fabulous team of people. Franz Kraus, Jens Rumberg and others are remarkable people.

The reason that our relationship works well is that they respect what we do. The chief engineer at ARRI and my chief engineer, Delwyn Holroyd, have mutual respect. We are building these relationships with other camera companies and see this as the basis for our success.

Codex Vault with two storage bays for internal drives and two archive bays for LTO or other archive/backup devices.

If you don't have a Vault (but you should), the Transfer Station M for Mac OS X will wrangle your data from Codex Datapack on top to Codex Transfer drives on bottom, and to connected hard drives as well.

Is the industry ready for 4K? Some think not.

There are several things. Originating in 4K doesn't mean that you're finishing in 4K. Resolution isn't everything. If you want my humble opinion on this, ProRes is great, but it's an editing format. It was designed to edit. Anybody who's shooting a quality television program, something that they may want to resell in the future, they should be shooting RAW. And then what you do is you archive that. I'm not saying have a RAW workflow. Make ProRes 444, make DNX 444, whatever. That could be your working deliverable, but just get the RAW in the can for the future.

Like a film negative.

Absolutely. So that's what Codex is all about. And yes, AJA will have a 4K compressed recorder to go with the C500. It's not what Codex is going to do. We are fully, fully behind getting the highest quality we can out of that camera and then producing your working deliverable to suit your budget.

A Codex workflow doesn't have to be expensive. We don't control how much our customers charge to rent out Codex equipment but sometimes we scratch our heads.

Do you rent it out yourself?

No. Codex doesn't rent anything out.

Conclusion...

At the end of the day, Codex is all about making products that perform and are robust. We believe that anything we design should be elegant in form and function, but clearly function is always more important than the design. We think the ergonomics of the user interface and the touch and feel of any product is very important. Human beings are tactile individuals. We touch. That's why things like iPhone have been so successful, because that's how we work.

We're completely dedicated to making sure that we get the best we can from the technology we use - it's got to be robust. We want to support the industry and we make sure that we've got people on our team who understand why our users want to do certain things. We have to try and remain one step ahead the whole time.

Where are we heading? Where you would like it to be?

I think 4K is a stepping stone to a certain extent. It's an obvious next step, isn't it, from where we are right now. I don't think that it's the be all and the end all. I can see us having much higher resolutions than that to be quite honest.

I think you probably need 8K to get great 4K for cinema.

Cinema has definitely got to jump to the next level. I think the new Dolby Atmos sound system is a big step. Distributors have got to figure out a better experience for customers. If they want people to keep going to see cinema, they've got to take the cinema experience to the next level.

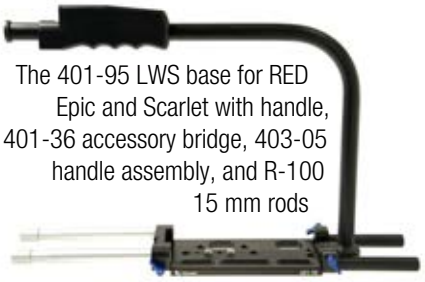
We have to be realistic about what money people have got to spend and how they spend it, and right now we can get higher frame rates with the current projector systems at the cinemas we've already got. I think we should be making full use of what we have right now. It will be interesting to see what the take up is on The Hobbit and 48 frames per second. I personally like it. I'm not sure that 48 or 60 fps is enough. I think we need to be getting closer to 72 fps , maybe even higher. I'd like to see 120 FPS recording and we're working on a project to do that right now. Now, I hear a lot of people saying they don't like it because you get this kind of ultra real look. People say it looks too much like video but I'm not actually sure it does look too much like video. Maybe it's personal taste and what we're used to.

Actually, I think these innovations are not for us. We're done. We're old and we're past it. It's for our children and the younger generation. These are people who are making better use of things like smart phones and Twitter and Facebook than we'll ever, ever get involved with. Because it's their world. In the same way that vinyl was our world. Unfortunately, that's the way it is.

In the end, it's about doing the right thing and enjoying what you do. I love filmmaking, and I think that probably comes across. We're all so passionate about this, which is why our lives are in this business. We're dedicated to this industry. ❐

Chrosziel

BMD1KIT for Blackmagic Cinema Camera



The 401-95 LWS base for RED Epic and Scarlet with handle, 401-36 accessory bridge, 403-05 handle assembly, and R-100 15 mm rods

Chrosziel will show a number of new kits at IBC and Cinec, including systems for the Nikon D800 and Blackmagic Cinema Camera.

There's an improved RED Scarlet/Epic Lightweight Support (LWS) base that now includes Varitube rods. This is an important improvement because many of these cameras are used with short lenses. The Varitubes are adjustable from 150 mm to 230 mm in length, and will work with most DSLR and cine prime lenses, including largers lenses like the Schneider Cine Xenars.

The 403-05 low mode handle can work on any of the Chrosziel Heavy Duty LWS bases with rear mounted rods.

Chrosziel Mattebox, Baseplate, Follow Focus, Handle kit for Nikon D800

Lightweight Support 401-431 for Sony NEX FS700 with 500 mm long rods that can split in to two lengths, 300 and 200mm respectively. This extra length allows mounting of recording devices, shoulder pads or battery plates to the rear of the camera via the 15 mm rods

Lightweight Support 401-95 for RED Epic and Scarlet

Scorpiolens Anamorphic Lenses

Servicevision will not be at IBC. They will be in full force at Cinec, with lots of equipment and one eagerly awaited 100 mm prototype 2x anamoprhic lens, the Scorpiolens.

At NAB, we learned that the Scorpiolens concept is a set of anamorphic primes with size and shape of lightweight spherical lenses.

Servicevision tells us that the Scorpiolenses will not have distortion or breathing. Geometry should remain good on columns or corners. probably T2.0. No change of compression for close positions. Prices similar to spherical lenses.

Planned Specifications:

- Covers up to ANSI super 35 Silent (31.14 diameter)
- Same front diameter, 95 mm, for the entire focal range
- Compatible with both film and digital cameras
- Feet and meter exchangeable scales
- Internal focus that keeps the external position of the lens constant
- Available in both PL and PV mounts
- Telecentric design with floating elements for a good close-up performance
- Multi-aspheric design with high resolution and contrast
- Uniform quality over the whole field of view
- Consistent optical performance across the whole focus range

Fujinon PL Premier Cabrio Zooms

Fujinon 19-90 mm T2.9 PL Premier Zoom

Fujifilm Europe's Optical Devices Division will present the new Fujinon lightweight 19-90 mm T2.9 PL Premier zoom at IBC. It's also known in catalogs as ZK4.7x19SAM, and in the US as "Cabrio Zoom," as in Cabriolet.

Similar to ENG/EFP handgrips, the detachable servo drive unit has built-in lens motors for focus, iris, and zoom. A rocker controls the zoom. There are "hot shoe" contacts in the lens mount.

If you're using the Cabrio zoom lens with Preston, ARRI, Hedén, Servicevision or cmotion lens motor systems, you can quickly detach the servo handgrip with 4 screws. When you reattach it, the drive is self-centering.

Therefore, the 19-90 zoom lens can be used as a standard cine style PL lens or as an ENG style PL lens. It includes: flange focal depth adjustment, macro function, LDS (Lens Data System) and /i metadata compatibility. With a 19-90 mm focal range and a weight of only 2.7 kg (including the servo drive unit), this lens has one of the longest focal length ranges available in a light weight zoom lens.

Fujinon 19-90 mm T2.9 Specs

- Fujinon 19-90 mm T2.9 (ZK4.7x19SAV) Cabrio Zoom Lens
- 31.5 mm Image Circle Coverage
- LDS and /i Technology lens data capable via contacts in the mount
- Wireless Control Enabled
- Adjustable Back Focus, No Shims
- Macro Focus
- 114 mm Threaded Front Diameter
  Auto Align Digital Servo
- Feet or Meter Barrel Markings
- 16-bit Encoders for Lens Data Accuracy
- Hot Shoe or 12-pin Hirose connector for power and Run/Stop
- 0.8 Barrel Gearing
- Luminous Barrel Markings
- 9 Blade Iris
- 200 Degree Focus Rotation
- 2.7 kg w/Servo
- 2.2 kg w/o Servo

Fujinon 80-300 mm T2.9 PL Premier Zoom

Fujifilm will also show a prototype of the Fujinon PL Premier 85-300 mm T2.9 zoom (ZK3.5x85mm) at IBC.

Sony F65 Upgrades from Otto Nemenz

Otto Nemenz International (ONI) has been working on accessories, retrofits and upgrades for their fleet of Sony F65 cameras. Ryan Sheridan and Patty Nemenz provided these pictures and descriptions.

Camera Right Side

Main Power

New, user-removable, Power Management Box (PMB) can accommodate 3 different power sources for the F65. The PMB actively monitors each source. If any source falls below 12.1 volts, the PMB will automatically switch to the next highest source. If there's an onboard battery, the PMB will not draw power or drain the onboard battery until both of the 8-pin Lemo inputs are below 12.1 volts or are unplugged. This is a true hot-swap and backup system for the digital cinema market.

The PMB also creates (inverts) 24V from a single 14.4 VDC Anton/Bauer Dionic battery to power all the 24V accessories on the F65 and RED Epic-X.

The PMB switches between all the incoming 12V and 24V power sources without disrupting power. The PMB will do this even when the cameras are recording and under extreme accessory power load.

LED indicators on the side of the PMB show what voltages are coming into the box from each source. In addition, the PMB confirms that 12V and 24V are leaving the box via two green LEDs. LED indicators also show what source is actively sending power to the camera. For example, if you're on AC power and the AC cable gets kicked out of the wall during a shot, the PMB will automatically switch to the onboard "OB" battery. The "Source" LED will switch from the green "A/B" 8-pin Lemo indicator to the amber "OB" indicator.

Steadicam and Support Shoe

A removable shoe supports a Steadicam plate at the rear of the camera. As with an ARRI Alexa, the shoe is used to keep the camera from bouncing or vibrating. The shoe also serves as a support to keep the back of the camera off the ground when the camera is set down.

Accessory Power, Connectors, Record Button, Ethernet

- 2x 12V 2-pin Lemo
- 4x 24V 3-pin Fischer with R/S (Run/Stop)
- 1x 4-pin Lemo: 12V, 24V, R/S

The 4-pin "1B" Lemo connector is quickly becoming a standard for connecting and powering high-amp accessories. This connector provides 12V, 24V, Run and GND—and it also is the mounting and power point for the new ONI lens lights.

Record Button

A record button has been added to the right side of the camera. The button has a green LED in it to indicate that the camera power is on. When pressed, it turns red to indicate the camera is rolling. Next to the button there is a lock switch to prevent the record button from being used.

Rear Ethernet connector

By installing mini rods on the front of the camera, Otto Nemenz needed to find a new place for the F65's RJ-45 Ethernet connector. To save space, increase durability, help with cable management and maintain a consistent cable inventory, the RJ-45 connector was replaced with a 10-pin Lemo connector. This is the same 10-pin Lemo is used for Ethernet on the ARRI Alexa.

New Lens Light

Using the Lemo 1B connector for lens light mounting and power, the ONI lens lights come with red, white and UV LEDs. All colors are fully dimmable.

Sony F65 Upgrades, cont'd

Camera Left Side

SR-R4 Stabilization Plate

A plate on the bottom of the F65 prevents the SR-R4 from being wiggled loose when the operator uses a Hollywood Handle or grabs and operates by holding the onboard battery at the rear of the camera.

Electronic Viewfinder Port

The Sony electronic VF port has been moved from the front-center of the camera to the rear on the camera operator's side. The connector is slightly angled up and recessed so that it's easy to get your fingers around and unplug. When plugged in, the VF connector does not touch the operator's head. This position also aids in quick Studio-to-Steadicam changeovers.

Forward 3/8-16 handle mounting point

The top cheese plate was extended over the lens mount to accommodate a handle that could be mounted closer to the center-of-gravity of the camera when using primes or very short zooms. By adding a 3/8-16 mounting hole over the lens mount, and assistant can pick up the camera and not have it tip forward. This forward weight almost always requires the use of two hands to stabilize the camera when placing it on an operator's shoulder or when taking it on and off a head.

Otto Nemenz Standard 4-Axis Viewfinder Mount

The 4-Axis mount is standard on all ONI cameras. It lets you position the Viewfinder vertically, in-out from the body, forward-backwards along the lens axis, and rotationally. These adjustments allow for easy left or right eye operation and for comfortable placement of the viewfinder when you're in handheld mode. A sturdy, lockable extension arm is part of every camera kit. It lets you attach the 4-Axis mount for gear head operation and for placing the viewfinder in all kinds of unusual angles and positions.

The 4-Axis system is also designed to make it easy to switch the viewfinder to the opposite side of the camera—for example, when you have two cameras next to each other.

New PL Lens Mount

The new PL lens mount has larger ears for easier handling.

Front Mini Rods

Mini rods have been added to the front of the camera above the lens mount. These mini rod mounts serve 3 purposes:

- To keep an iris motor mounted to the camera full time.
- To aid in Steadicam changeover speed with FIZ motors.
- To aid in placement of lightweight and handheld accessories.

Litepanels Sola 12

Maybe it's because the company was founded by a group of gaffers, always looking for a new device to address yet another production challenge, but hardly an IBC goes by without something new from Litepanels. This year, they brought their biggest and brightest LED light yet.

Sola 12 is a daylight balanced LED Fresnel. It has a 12" (30.48cm) polycarbonate Fresnel lens with an output approaching a traditional 2K.

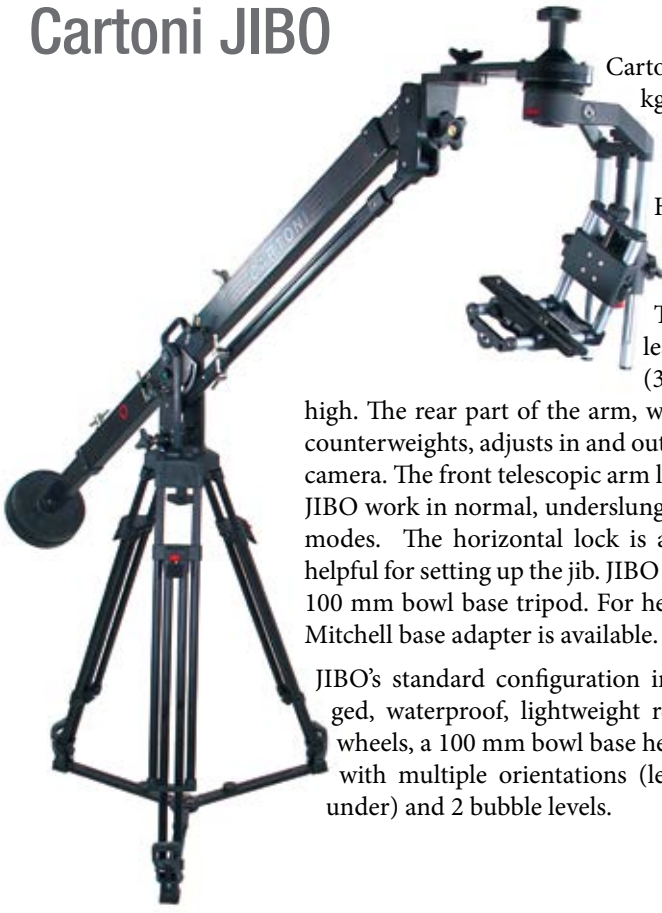
Its power draw is low enough to make an espresso machine look wasteful (albeit required fuel for the 5-day IBC marathon.) I can almost hear the cheers of documentarians and thrifty broadcast studio chieftains around the world at the idea of powering six Sola 12s off of a single 20 Amp circuit.

In addition to low power draw, Litepanels has managed to squeeze all of their usual features into the new Sola 12: dimming and focus are both controlled via DMX512 protocol or on-board knobs, the fixture stays cool for glove-free adjustments and quick location moves, as well as no flicker, no ballast, and no color shift. True to its name, the Sola 12 can be used to create a beam of sunlight streaming in through a window on stage or deployed to balance the real sun when the script calls for EXT - DAY.

And, there's a rumor that a tungsten balanced sister fixture is not far behind.

Around $ 4,500

Cartoni JIBO



Cartoni JIBO is a lightweight jib arm that carries a camera and head up to 15 kg (33 lb). The entire unit fits into a durable, portable Pelican-style case on wheels. (Buy weight plates as counter-weights when you arrive on location in your friendly local body-building store.)

How do you use a JIBO? Mount it on a tripod, attach a fluid head to the end, and now you can achieve smooth up, down, and diagonal moves — where you previously only had pan and tilt.

The JIBO consist of 3 sections that can be assembled or disassembled in less than 3 minutes. It weighs only 12 kg (25 lb) and folds down to 1 meter (38") in length for packing. It moves from ground level to 2 meters (78") high. The rear part of the arm, which holds the counterweights, adjusts in and out to balance the camera. The front telescopic arm lets the Cartoni JIBO work in normal, underslung, and sideways modes. The horizontal lock is a safety device helpful for setting up the jib. JIBO attaches to any 100 mm bowl base tripod. For heavier setups, a Mitchell base adapter is available.

JIBO's standard configuration includes a rugged, waterproof, lightweight resin case with wheels, a 100 mm bowl base head attachment with multiple orientations (left, right, over, under) and 2 bubble levels.

Shape

Shape first caught our eye at AbelCine, and then at NAB 2012.

Push the red, patented QUICK HANDLE (spring-loaded push-button), and you can instantly adjust the handle or handgrip. It's a lot faster and easier than unscrewing, twisting, loosening and tightening.

For IBC, Shape will show a line of shoulder mounts and accessories for Sony F65, Blackmagic and others.

The Shape Dovetail System for Sony F65 has an Adjustable Sliding Dovetail Bridge Baseplate, handgrips and lightweight support.

There are several models of Shape systems for the Blackmagic Cinema Camera: basic, straight, and offset.

I like the offset model. It puts the rear panel display directly in front, with a quick release plate underneath to quickly go from tripod to handheld mode.

www.shapewlb.com

Sony F65 Shape

Shape Adjustable Bridgeplate and 12" Dovetail Baseplate are equipped with standard (ARRI-style) rosettes. Can hold 15 mm lightweight, 15 mm studio and 19 mm rods

Blackmagic Shape

Oppenheimer Products

Oppcam Carry Handle for Fujinon 24-180 Premier

Oppcam 60 and 100 mm Makro lenses

OppCam Lens Carry Handles

Oppenheimer Camera Products currently supplies Lens Carry Handles for the following zoom lenses:

Angénieux 24-290 and 17-80 mm
Alura 45-250 and 18-80 mm
Fujinon Premier 75-400, 24-180 and 18-85 mm

They are currently working on handles for the:

Fujinon 14.5-45mm
Canon 30-300 and 14.5-60mm

Oppenheimer Lens Carry Handles attach easily to the appropriate lens, providing a safe way to handle it along with accessory mounting points and optional zoom motor bracketry.

OppCam/Zeiss Makro Lenses

Oppenheimer Camera Products first produced the OppCam/Zeiss 60 mm and 100 mm Makro lenses in the mid-1990's.

In the past two years, interest in these lenses has increased, so they revisited the project, introduced some design improvements, and began serious production of the 60 mm and 100 mm Makro lenses. They start life as Zeiss Contax SLR lenses.

Both the 60 mm and the 100 mm focus all the way to 1:1 image ratio. On the 60 mm, that makes minimum focus 10" and on the 100 mm minimum focus is 16.5". Each lens has an aperture range from T3.2-22. Both come in PL mount and have an 80 mm front. www.oppcam.com

3ality Technica and Elements

Elements accessories for Sony F65: handle, viewfinder mounts, side cheeseplate

Elements, a Division of 3ality Technica, designs and manufactures impressive professional camera accessories for all types of productions. Featured at IBC are essential accessories from the new Micron line for the Sony NEX-FS700 and the Canon C300/C500. All of the small camera support systems provide the same protection and durability as the standard cinema sized accessories. The Micron is simply a new standard consisting of the dovetail and bridgeplate and is based on the LW15 standard. Elements have miniaturized the camera support in order to complement smaller/lighter-weight cameras. The Micron is intended to replace traditional camera support systems to let operators go smaller and lighter. To see Elements accessories, please visit the Band Pro Munich stand at IBC 11.F41.

Headquartered in Burbank, California, 3ality Technica is a leading innovator, manufacturer, and provider of stereoscopic 3D production systems and technology. BSkyB, the prominent 3D broadcaster, and the Host Broadcast Services feeds from the FIFA World Cup, have based their live event productions on 3ality Technica's technology. Committed to providing true and accurate 3D to the world, the company's broadcast partners include TV Globo (Brazil), Telegenic (UK), CCTV (China), BTV (Beijing), Topvision (Germany), Sky Sports (UK), and Fuji TV (Japan). Please visit the RED Digital Cinema stand, IBC 3.A55, to see 3ality Technica's Helix (2012 BIRTV New Product Award Winner) system and technology in action.

To set-up IBC meetings with an Elements specialist or the 3ality Technica team, contact: sales@3alitytechnica.com

Micron camera support system on Sony FS700: top handle, top plate, lower stage kit, handgrip, base plate, rosettes

Micron Baseplate is about 60% smaller than a BP-9 style baseplate, and at 180 g is almost 4 times lighter.

NILA SL

Nila's new SL ships this August for the first time. The SL is an LED light that can be a feasible replacement for traditional high-output HMI and tungsten fixtures. With light output comparable to a 2500W HMI or a 6K tungsten fixture, the SL draws only 500W and the housing is only slightly above body temperature after burning for an hour at 100 percent.

Nila's holographic lenses slide in front of the fixture to control beam angle. The SL can be rigged as a space light. A kit is available that includes diffusion bag and rigging hardware.

The SL operates flicker-free at any dim level when you shoot from 0-1500 fps, and at any speed when the light output is set to 100%. This new firmware will eventually work with the entire Nila line, but it's currently exclusive to the new SL. The SL also uses Nila Engineering's newest yoke innovation, the Hidden Disc braking system for positioning without any slippage no matter how the fixture's rigged.

Specs

- Power Consumption: 500W @ 100%
- Light Output (no lens): 500 FC @ 40', 8' spread
- Input Voltage: 90-250V AC, 50-60 Hz
- Locking IEC Power Input Connector
- Color Temperature: 6000K (daylight) or 3400K (tungsten)
- Rated Lifespan of LEDs: 20,000+ Hours
- Dimmer: Internal and DMX Controllable
- Weight: 76 pounds
- Dimensions (without yoke): 16.25"x13.25"x17"

CanaTrans White Space

Cinec 2012 and Oktoberfest both begin on Saturday, September 22 in Munich, but Lentequip's new CanaTrans White Space will be unveiled only at Cinec. FDTimes received this intriguing picture from Emery Soos, with a promise that all would be revealed at the show.

Here's what we do know. The beer mug in the picture is from Upper Canada Brewing Company. We don't think that particular brand is served at Oktoberfest or anywhere else in Munich.

I assume Emery's White Space does not refer to winter whiteout snow-blind conditions in the Canadian Arctic near the Lentequip factory.

I imagine the White Space that Emery will reveal is a frequency that has never been used, or became free as a result of digital television, and is FCC approved.

Lentequip will be in booth 3-A09 at Cinec, two booths away from Film and Digital Times.

Mole-Richardson

In June, Mole-Richardson Co. celebrated their 85th Anniversary with an open house at the Larry Mole Parker Technical Institute, across the street from Mole's main showroom, manufacturing facility, and Studio Depot store on North La Brea Avenue in Hollywood.

Guests headed down a long red carpet, lined with a historical collection of the company's lights, enroute to a sumptuous barbeque supplied by the Mole-Richardson Farm (at the foot of Mount Shasta). Mike Parker and Larry Mole Parker recounted the fascinating history of the company founded by Peter Mole in 1927.

New products will be introduced at IBC, with rumors of a compact Baby 12K, a high output version of the MoleLED 12Pack, and 50 and 100 Watt Fresnel LED prototypes.

The Origin of the Species and the Family of FIZ

Howard Preston is president and founder of Preston Cinema Systems, makers of Micro Force, MDR, FI+Z and more. He graduated from UCLA with a PhD in Physics. On Saturday, June 16, Dr. Preston was invited back to his alma mater, UCLA, to give the Commencement Speech to the Astronomy and Physics Class of 2012. It is the fabulous story of becoming a filmmaker, jumping headfirst into the business, and a journey of discovery and invention. Here are excerpts of Howard's speech. The full text is online. Enter "Preston" in the search box at www.fdtimes.com

by Howard Preston

For me, physics and astronomy have always had an intrinsic beauty and elegance, and Jacob Bronowski's *Ascent of Man* was an epiphany. Bronowski was, among other things, a mathematician, biologist, and author. He showed — using art, architecture, music, literature — all the manifestations of culture and how human society evolved through its understanding of the world through science. In a moment of complete and utter irrationality and naivety, the die was cast: I would leap into unknown waters, I would make a film, a documentary film about the cosmos, called *The Universe, Man's Changing Perceptions*.

With hardly enough money to process film, this was clearly going to be a very minimalist piece of work. But armed with boundless optimism, negligible skill, a new-found passion, and a 16mm camera borrowed from my wife's brother-in-law, (a great stroke of luck if ever there was one!), I began the journey…one I thought I could complete in…six months…or so.

Writing, filming, editing, music, sound, narration; all these things needed to be learned. I was thrilled with the challenges. The six months stretched out… into a year, then two. The scraps of film were finally assembled into a final form, and I submitted it to three film festivals…and won three medals. Apparently film festival juries weren't being besieged with legions of filmmakers anxious to tell the story of the Cosmic Microwave Background.

Buoyed by success, I started a small business, one employee, me, selling copies of the film to schools and libraries. After a year or two, the film turned a small profit. I had survived Business 101. But I was obviously still a rank beginner and had no clear idea of what to do next. Then the phone rang.

Opportunity was on the line. It was a call from Woody Allen's production designer, Mel Bourne. Woody was working on a new project and needed some effects work. Would I be interested? Tough decision! The film was Manhattan, and the work consisted of filming a background of Saturn and its rings standing in for a Hayden planetarium diorama and a star-field to stand in for the city's night sky.

I shot footage of the starfield and sent the print overnight to New York.

Mel calls: "I'm going to be in LA tomorrow, mind if I drop in?"

The morning comes and Mel Bourne is standing in the studio in Hollywood. "Woody doesn't like your night sky".

"Well, what's wrong with it…I tried to make it very accurate! I showed him my sky map…"

Mel: "Uh, you don't understand, Woody's never SEEN the night sky in New York."

Me: "Oh...So what do we do?"

Mel walks over to the four by eight foot star-field, takes up a sharpened awl, asks "May I?", and starts pecking out new constellations like a cosmic woodpecker.

"Don't feel bad," as he continued to add more stars by the second, "Every Friday I drive up to the set with a truck full of furniture that I spent all week collecting. I open the gate, Woody looks in, shakes his head, and off I go again, more furniture!"

I stood back from the star-field: the delicate veil of the Milky Way had been transformed into a cloud of fireflies the size of Buicks.

"Masterpiece!" declared Mel. "Now that's a sky!"

An astronomer friend from grad school, Don Goldsmith, informed me that Carl Sagan, who had been his undergraduate advisor at Harvard, needed an effects sequence shot for his PBS series Cosmos. Perhaps I was interested?

Carl wanted to demonstrate on film how the view of your surroundings would appear if you were travelling near the speed of light. For this sequence, I was to film the point of view of a boy riding a scooter in Vinci, Italy, Leonardo's hometown. There, at Carl's request, the speed of light was reduced from 186,000 miles/second to about 25 mph. Since computer graphic effects were a decade away, most of this transformation would have to be done in the camera using electronics and optics, all of which I would have to design.

This was amazing luck. Not only would I get to work with Sagan, whose book had been partly responsible for setting me off on this path, but I would be able to use some of my science background to do a little inventing.

In order to simulate the scooter changing speed rapidly, I made a device to instead change the speed of the camera, and simultaneously compensate the lens iris to maintain constant exposure.

To simulate the optical aberrations of special relativity, using the very limited resources available, I constructed a special zoom lens. At its longest focal length, its view of the world looked normal. At its shortest focal length, the world appeared compressed and distorted into a small circle, like the fisheye view through a door peephole.

The zoom lens and camera speed were electronically linked so that the apparent speed of the scooter and the view through the lens changed at the same time. Not to be forgotten, the Doppler shift would be added later, blue shifting the central part of the image which showed objects in the direction of motion, and red shifting the receding imagery captured along the circumference of the fisheye image.

I met Carl and the Cosmos crew in the plaza of the small hilltop town of Vinci, sitting on a plywood platform bolted to the front of an aging cargo truck. Carl looked through the lens, nodded his approval and off we went in a cloud of diesel.

The truck wheezed up and down the Tuscan hills, honking its horn and ignoring the occasional stop signs. Italy was still a country of miracles; not only had we not struck any of the goats that wandered the roads, but everything worked. Cosmos went on to become the most widely watched PBS series in the world.

While shooting effects sequences had been a lot of fun, I wasn't certain that I wanted to build a business to continue doing effects work. The success of Star Wars led to an enormous demand for film effects, mostly centered around motion control animation. Large – industrial scale — effects studios were already springing up in vacated aircraft assembly buildings around LA, but I had little interest in joining what I saw as a largely mechanical enterprise.

I felt a special satisfaction in having imagined and constructed the devices for the Cosmos project. I began to consider the possibility of making commercial products based on some the devices I had developed. Having some time on my hands and remembering the vow I made after shooting *Invasion of the Bodysnatchers,* I designed a zoom control based on an impressively stable force sensor used in military aircraft and called it the Micro Force.

Prototype in hand, I conducted my first product demo. An hour later, I was in the technology business. I exhibited the Micro Force at trade shows in LA and New York, knocked on doors, placed ads in the trade magazines and in a few years the Micro Force became an industry standard piece of equipment.

Although I had never intended to run a business, I also realized it would be foolish to not take advantage of the opportunity that was squarely in front of me, and so I set about addressing some of the many other issues confronting the cinema industry with new product designs.

Out of the Cosmos sequence came the Speed-Aperture Computer, the device which controlled the camera and lens for the Cosmos sequence. It was subsequently given a Technical Achievement Award by the Motion Picture Academy.

Following that came a steady stream of new products: control systems for both cameras and lenses, a gyro-stabilized camera system for helicopters, and the Light Ranger, the world's first autofocus system based on laser ranging.

I had finally found an arena where I could indulge both my creative instinct and technical skills. My timing was also serendipitous. The control systems I was busy designing were soon to fill a critical need: remotely controlling the Steadicam.

With the invention of the Steadicam in 1976, cameras became mobile, bringing the audience into the midst of the action. But now the cameras could no longer be tethered to controls through cables, they needed to be free to move about the set. They needed to be controlled through wireless links.

Young Howard Preston, the human car-mount, in Vinci, Italy

The wireless controls in use during that time used simple modules made for model airplanes and cars. They were cheap, readily available, frequently malfunctioned, and were beset with interference problems. Many a film set was paralyzed while a neighborhood was searched for a rogue model car, airplane, or even an aberrant garage door opener.

In 1994, we showed our first digital but non-wireless control system for cameras and lenses at the LA Convention Center…mostly to yawns. It looked like it was going to be a very slow show. I felt a tap on my shoulder and looked up. There, peering down at me was cinematographer Mark O'Kane, one of Hollywood's muscular Steadicam gladiators.

He explained that he had just been hired for the upcoming *Waterworld* film. He was to film from the pontoons of actor Kevin Costner's trimaran wearing 80 pounds of Steadicam and camera gear, as the boat sliced through the waters off the Hawaiian coast. The camera was to be focused by his assistant riding in an adjacent boat, bobbing in the waves.

Waterworld was slated to be the most expensive film ever made. Equipment failure would not be looked upon kindly. Mark slapped our shiny new non-wireless control in his hand. "What's the price for a wireless version?" He asked.

"We don't have a wireless version."

"Can you make me one?"

"Well, of course it is possible…"

His large heavy hand fell on my shoulder,

"I'll call you Monday…"

I didn't have to wait for his call; I decided to make the leap.

Our first wireless camera and lens control made it to the *Waterworld* set, worked non-stop, and made its reputation. The Motion Picture Academy awarded a Scientific and Engineering award for our work in 2007. Today, our wireless controls are used on sets and locations throughout the world. ❐

Dedo DLED4.0

Version 4.0. Are Dedo Weigert's LED lights coming with numbers like software iterations? The new Dedolight DLED4.0 is available in location or studio models, daylight, tungsten or bi-color balance. Bicolor provides continuous adjustment from daylight to tungsten. The studio version includes DMX control.

Because it only draws 45 Watts, the DLED4.0 is excellent for battery operation, while still retaining all the other famous dedolight characteristics. Its energy and output efficiency make it well suited for all kinds of location, documentary, run & gun, and portable productions. Its light output is roughly similar to a 150 W classic dedolight with a dichroic filter (daylight conversion) or a 100 W classic tungsten unit.

The DLED4.0 focuses like a classic dedolight: a clean beam from wide 60° to extremely narrow 4°, without stray light or unwanted shadows. There are separate focus and dimming controls. Dimming will adjust the LED light intensity without color change.

DLED4.0 works with all dedolight light-shaping accessories and aspheric wide angle attachments (85° max. and still focusable) and new DP1.1, DP2.1 and DP3.1 projection attachments. These are used to project patterns, and the new versions have dual condenser optics for higher transmission and better light distribution. All DLED4.0 units draw 45 W. They weigh 3 lb / 1.36 kg.

Location Models: DLED4.0-D (daylight), DLED4.0-T (tungsten), DLED4.0-BI (bicolor).

Studio Models (SE): Same light head as DLED4.0 but with U-shaped yoke and ballast attached to one side of the yoke.

Barn door shadows of the new LED fixtures are sharp, like the classic dedolight counterparts. They work with dedolight scrims, graduated ND filters, aspherical wide-angle attachments with rotating barn door leaves, dedolight projection attachments for gobos, light framing (precise cuts around a picture frame, for example), soft edge light framing, Obies, background effects, and slide projection.

Dedo is working on an entire line of LED Dedolights. The largest LED fixture is the DLED12.0. The smallest is the Ledzilla onboard light. The DLED2.0 and the DLED9.0 will become available later this year.

Filmtools Canon Case

Filmtools' Canon Cinema EOS C300 / C500 ATA Camera Case is a custom-built shipping case for the C300 and C500 digital cinema cameras. This lightweight case, commissioned by Filmtools, has a custom-cut foam interior that will hold your C300 / C500 body, monitor, top handle, power adapter, two batteries, charger, memory card case, 4 compact prime lenses and a large unpadded compartment for other accessories.

This flight case is made of honeycomb High Density Polyproylene (HDPP), which is strong and lightweight. HDPP is a nonabsorbent material that is dent, crack, and scratch resistant.

Exterior Dimensions: 26" x 15" x 11.5". Weight: 17.5 lb.

Approx cost: $595. www.filmtools.com

Vocas MB-430 Mattebox

3rd filter clips inside mattebox shade, in front of the other 2 stages

Vocas MB-430 on Canon C300, with Tuscan wood handgrips and shoulder pad

Vocas MB-430

Flexible donut adapter ring for MB-430

Vocas swing-away bracket for 15 and 19 mm rods

partial list of lenses that fit:
ARRI/Fujinon Alura 15.5-45, 18-80, 30-80, 45-250
Canon 14.5-60, 30-300,
Cooke 5/i, S4/i, Panchro/i; ZEISS CP.2, CZ.2

Vocas is the Dutch company that has brought us handgrips crafted from Tuscan walnut wood, among many other delightful camera accessories. Vocas' latest MB-430 mattebox will be shown at their IBC booth 11.D43.

The MB-430 mattebox is a 4" x 5.65" design that holds up to 3 filters. It accepts two 4"x 4" or 4" x 5.65" filters in filter frames that slide inside the mattebox.

You can add a third 4" x 5.65" filter, without filter tray, by means of a unique snap-in holder in front. Internal eyebrows adjust to keep flares away from the top and bottom of the frame. The MB-430 fits lenses up to 138 mm front diameter.

The Vocas MB-430 Mattebox comes with a standard top flag and two combo 4" x 4" / 4" x 5.65" filter frames. It weighs only 600 gr.

Recommended additions: a Vocas swing-away bracket and donut with adjustable fabric cuff to keep flares from creeping in between lens and mattebox. Many step down adapter rings and fixed donuts are available. For more info: www.vocas.com

The US Distributor is Manios Digital and Film: www.maniosdigital.com

Manfrotto

MVT502AM tripod with 701HDV head

Manfrotto is located in the foothills of the Alps, so it's no accident that ski-pole technology comes to camera tripods with ellipsoidal aluminum twin tubes and newly designed leg locking collars for rigidity and stability.

Manfrotto's 701HDV, MVT502AM Tripod System consists of the new MVT502AM tripod, the lightweight 701HDV fluid head, and a carrying bag (left).

The MVT502AM is a 2-stage, 3-section tripod with a 75 mm bowl that can be adapted to 60 mm. It folds down to 24". The new telescoping tandem tubes are a first for Manfrotto—providing the stability of a twin tube tripod with the ease of use of a single tube design. Rubber feet provide grip on location, in studios and on Alpine peaks.

The 701HDV head has improved ergonomics, double pan-bar rosettes, and a bigger sliding plate.

For a few Euros more, upgrade your MVT502AM tripod package to include the new 502HD fluid head (right).

MVT502AM tripod with 502HD head

OConnor on Canon C500

OConnor 2575 Supporting Canon EOS C500 on *Man and Beast*, directed by Dante Ariola for Canon. Cinematographer Jeff Croneneweth, ASC, left. Above: Peter Simonite, 2nd Unit DP. Below: Dan McDonough, First AC. Photos by Steve Tobenkin

Matthews Intel-A-Jib LITE

Matthews Studio Equipment (MSE) has something new at IBC 2012 for small, lightweight cameras: Intel-A-Jib LITE.

In response to requests from Burbank to Beijing, MSE now has Intel-A-Jib LITE for cameras up to 20 lb / 9 kg. It is suited to small spaces and remote locations where carry weight is a factor.

This is the smaller sibling of MSE's Intel-A-Jib, which carries cameras up to 80 lb / 36 kg to heights of 10 feet, and weighs 65 lb / 29 kg (without counter-weights).

Both jibs have the same two-minute set up tine without any tools.

Intel-A-Jib LITE weighs 40 pounds / 18 kg. It is smaller, with a reach of 8' / 2.43 m and a working diameter of 16' / 4.88 m on the horizontal.

The jib beams are built from extruded X-Box aluminum, which greatly reduces torquing and sway of the arm. The Intel-A-Jib LITE mounts on a 100 mm bowl tripod and the duck bill will accommodate a wide variety of camera mounts.

IBC Booth 11.G71

Matthews Studio Equipment hosted an open house on June 3, "on location" at their under-construction new home at 4520 West Valerio Street in Burbank. The new 40,000 sq ft facility should be ready later this year — and will house all manufacturing, offices, showroom and shipping. Burbank airport is across the street.

Convergent Design Gemini 4:4:4

Convergent Design's Gemini 4:4:4 is a full uncompressed recorder and 5" monitor that records onto two 1.8" SSDs. It now supports ARRIRAW 4:3 and Canon 4K Cinema RAW. Users who already have the ARRIRAW option can get a free firmware upgrade.

Canon 4K RAW is an optional extra, to be ready when the C500 ships (any day now). When recording 4K RAW in Canon Cinema RAW format, the Gemini will also convert the 4K to HD (1920 x 1080) for monitoring on set. Canon C500 4K RAW support records the raw file, up to 30 frames per second, debayers the image in real-time, and supports playback of the images, all within the Gemini 4:4:4.

The Canon 4K Cinema RAW Option will capture 10-bit Log RAW (.rmf) up to 30 fps on a single Gemini, and up to 60 fps using two Geminis. Likewise, a single Gemini supports HD up to 60 fps, while two Geminis can record HD at 120 fps.

Gemini 4:4:4 also has a Stereo 3D Option as a paid firmware update. (Delays in getting higher-performance SSDs are pushing Gemini RAW's slated delivery to April 2013.)

Convergent Design is in booth 7.D01 and several other places at IBC. At Cinec, they will be seen in Band Pro's booth 3-C18. www.convergent-design.com

Just another day on location, camera on sticks on a level platform...
Film for French Air Force featuring the “Patrouille de France.” DP: Eric Dumage, AFC. Production: Airborne Films France.
Canon C300PL, Canon PL Zooms 14.5-60 and 30-300, Preston FIZ3, Denz Cage for C300. www.airbornefilms.fr

PhotoCineRent rented and supplied the cameras, lenses, and accessories to the productions shown on these four pages.

PhotoCineRent: “Avant que de tout perdre”

“Avant que de tout perdre” Short film by Xavier Legrand
DP: Nathalie Durand, AFC
Production: Alexandre Gavras, KG Productions
ARRI Alexa, Leica Summilux-C, Grip-Factory Primo Dolly, ARRI Lighting.
Camera, Grip, Lighting supplied by PhotoCineRent.

Check out PhotoCineRent’s new “grand magasin du cinema” website:
www.photocinerent.com

Left to right: Cinematographer Nathalie Durand, AFC, Director Xavier Legrand, Producer Alexandre Gavras

1st AC Aurélien Py (left) and Key Grip Aurélien Gabory (right)

PhotoCineRent: “Last Call” and Time Slice

Left, top and below: Short Film “Last Call” written and directed by Camille Delamarre. Cinematographer: Madhi Lepart. Production: Full Dawa.

PhotoCineRent provided Sony F65 with Cooke Panchro/i uncoated front elements, Fujinon 70-400 Premier Zoom.

Below: Time slice (and food slicing).

Thirty-four Canon 600D cameras lined up for a Bullet Time Effect (Time Slice) TV Commercial for “Masterchef” (Reality TV Show).

Concept and Technical Supervision: Jean Chesneau/Propulsion. Production: TF1.

Kodak Asset Protection Film

Kodak has developed an affordable new color film specifically designed for archiving.

The new Kodak Color Asset Protection Film 2332 is especially intended for producers who shoot or finish their productions on digital formats and want to protect their moving pictures well into the future. The stock offers over a century of dye stability when stored in recommended environments. Kodak’s proprietary ESTAR base guarantees high-quality physical performance.

Kodak Color Asset Protection Film 2332 is designed to be exposed on digital film recorders and processed with standard ECP-2D chemistry. The film uses current Kodak Vision Color Print Film 2383 technology with formulation changes incorporated to improve long term dye stability. Sharpness and grain structure is equivalent to the 2383 print film.

Kodak plans to add a black-and-white separation film to the asset protection line later this year, joining 2332 and Vision3 Color Digital Intermediate Film 2254 as archiving choices.

Kodak Color Asset Protection Film 2332 is now available in 35mm format. www.kodak.com/go/archive

Christian Berger and Cine Reflect Lighting System

From top: 1. Christian Berger, AAC with CRLS PANIBEAM. 2. Finding a low angle shot with Leica Summilux-C 18 mm. 3. Gaffer Jacob Ballinger on *Ludwig II*. 4. CRLS system of light, mirrors and controls.

By Annette Zoeh

Christian Berger, AAC began working for the Austrian broadcaster ORF in 1968. His many feature film credits include *The White Ribbon*, for which he was awarded Best Cinematography in 2009 by the Los Angeles Film Critics, New York Film Critics and in 2010 by the American Society of Cinematographers.

Christian owns TTV Film Production Vienna and is a university professor in cinematography, art and visual expression at the Vienna Film Academy. In addition to shooting, Christian has devoted a lot of time and effort designing his own lighting system, the Cine Reflect Lighting System (CRLS)—which he has used on many productions, including *The White Ribbon*. The CRLS system was presented the Innovation Award 2010 by the City of Vienna.

Recently, Christian used his Cine Reflect Lighting System to illuminate Bavaria Film's biggest film project since *Das Boot*—the production of *Ludwig II,* directed by Peter Sehr and Marie Noelle. Art Director Christoph Kanter converted Hall 12 of Bavaria Film Studios into the famous Munich Residence, Wagnerian sets and Berg Castle interiors.

Christian shot *Ludwig II* with ARRI Alexa in ARRIRAW using Leica Summilux-C Primes. He commented, "Alexa was intuitive to work with, and it truly had at least a 13 T-stop dynamic range. The new Leica lenses delivered clear, pristine images with a beautiful transparency."

Leica Summilux-C 35 and 75 mm primes were used the most, along with an Angénieux Optimo 24-290 mm zoom for long lens shots. *Ludwig II* was composed in 2.39:1 and 1:78:1 formats simultaneously. Camera gear was supplied by ARRI Rental. CRLS lighting equipment was supplied by PANI, Vienna, with Jacob Ballinger as Gaffer. The film is scheduled for a December 2012 release in Germany.

Christian describes his Cine Reflect Lighting System – CRLS:

"My main intention was to invent a luminaire that would create beautiful light and would, at the same time, reduce stress on Actors, Directors and, of course, Cinematographers, while at the same time offer great flexibility. For example, with a 10K blazing in a love scene, how can an actor, sweating like hell and amidst a forest of flags, whisper the words 'I love you?'"

The CRLS source produces a parallel beam off the set and it is redirected via special reflectors wherever you want to have your light. It consists of three main components:

1. PANIBEAM 1200 parallel spotlight with a very bright output that comes from a 1.2 kw HMI bulb.

2. PANIFLECTORS. Seven different reflector types bounce the light from the PANIBEAM, defining the quality of light from hard to soft and the light distribution into vertical or horizontal shapes—ellipses, circles, beams or arcs, eliminating most additional use of flags or scrims. The largest reflector size is 1 x 1 m, the smallest 10 x 20 cm. The desired intensity of light is controlled by the size of the various reflectors. The quality of the light is achieved by use of the reflectors with precisely defined shadows.

3. PANIGRIP ensures compatibility with standard grip equipment.

The complete system is available for worldwide and US sales and rental. It is sold exclusively by Pani Projection and Lighting in

Vienna. Most US crews are familiar with PANI HMI follow spots.

The idea of the CRLS is to avoid diminishing the light by "obstacles" (cutters, flags, scrims) and to replace these tools with special reflectors that can dramatically influence the shape and structure of the light that reaches a scene. For best efficiency, it is crucial to use the special reflectors with parallel light beams. (In other words, they won't work as well with ordinary Fresnels or PARs.) The reflectors use specially calculated laminations and diverse coatings.

On *Ludwig II*, the Herrenchiemsee castle night scene during a firework display used just two 1200 W PANIBEAMs. Production Manager Ralf Zimmermann commented that on the four months of shooting in many different locations, the CRLS significantly reduced set-up time on Ludwig II.

When Christian is not shooting or inventing, he is teaching. Once a year, he takes his students on an Adriatic cruise to explore and learn about the meaning of light and darkness. He conducts seminars on Johann Wolfgang v. Goethe's theory of color and how people perceive them.

Christian is a skillful, sensitive cinematographer with charisma, creative ideas and a very interesting system of lighting.

More info: www.christianberger.at www.pani.com

Clockwise from top: 1. *Ludwig II* interior, lit with CRLS. 2. Sunlight on a cloudy day in king's carriage. 3. Interior church scene on *The White Ribbon*. 4. CRLS units outside church, lighting through windows, on *The White Ribbon. 5.* Steadicam Operator Robert Stopfer in the mirror hall of Herrenchiemsee castle. *Ludwig II* stills © Bavaria Pictures, Stefan Falk.

FGV Schmidle

Above: FGV Schmidle Studio. Below: FGV Schmidle's new set of Leica primes coddled in a custom-designed Cocoon-Competence case.

Oliver and Markus Schmidle (above, left to right) run FGV Schmidle in Munich. The company was founded in 1972, after their father, Hans-Joachim Schmidle bought his first Arriflex 2C and Angénieux zoom while working as a freelance cameraman on documentaries and other productions. The camera department was in the cellar of the house. The lighting and grip department was in the garage. From there, the company grew. Their modern facility today occupies 54,00 square feet in Munich, with a fleet of 8 camera trucks, 6 grip/electric trucks and generators. They have a large sound stage, a separate building for grip and electric, and the camera department holds a lot of glass including the latest Cooke 5/i, Leica Summilux-C, Fujinon Premier lenses, around 100 16mm and 35mm cameras and 50 digital cameras.

Two years ago, the ratio of film to digital was 50-50. This year it is 95% digital and 5% film. FGV Schmidle were at the forefront of the digital revolution; their numerous Canon SLR camera PL mount conversions have been sold worldwide.

www.fgv-rental.de

Easyfocus

Easyfocus, the Camera Assistant's new BFF, now plugs into Preston with the Easyfocus CAN Bus converter box (bottom, right).

Easyfocus is a focus-assist using an infrared laser that scans the scene, and a touchscreen display that tracks focus wherever you touch or point. It was invented by Fritz Gabriel Bauer AAC, who also designed the Moviecam and Arricam cameras.

Easyfocus simplifies the process of remote focusing with cranes, rigs, and remote heads because you don't have to run a tape measure from a focus hook that could be 30 feet up in the air. In Manual Mode, Easyfocus displays the distance from image plane to subject, and you do the rest.

In Focus and Tracking Mode, you touch the screen or move the target cursor over the displayed image of the subject, and Easyfocus shifts the focus there. You can adjust the speed of focus shift.

Peter Denz

Ottobrunn is a suburb half an hour south of Munich and a half hour north of the Bavarian Alps. It is the epicenter of fine motion picture machining and hometown of Praezisions-Entwicklung Denz.

I'm here to visit Peter Denz, who began his cine equipment work in 1970 and founded the company in 1977. I had always admired, rented and purchased his famous products, but this was the first time to see the facility. Peter made some of the first electric zoom controls, follow focus, black & white, color and pivoting finder video assists—when designers like Erich Kaestner and others said "impossible." Denz can machine products to 2 micron tolerances—and his portfolio includes titanium satellite parts, carbon fiber grand prix racing car components, jet parts, and space agencies.

Mr. Denz handed me a small, gray, machined piece of incredibly heavy metal. "It's a custom part I made for BMW to reduce engine vibration," he said. It is made of Tungsten, with one of the highest melting points (3,422 °C, 6,192 °F), highest tensile strengths, and lowest coefficients of thermal expansion of any pure metal. Few people on earth know how to machine it.

Many of Peter's cine products include Hirth tooth rosettes that are essential to handheld handles, mounting accessories and comfortable camera-carrying. As far as I can remember, rosettes first appeared on the ARRI 16SR in 1976. Hirth tooth rosettes (Hirth couplings) were originally used on bicycle cranksets and crankshafts. They are not proprietary to ARRI: Aaton uses them, and almost every camera since the 16SR has them—until some recent digital designers somehow overlooked 40+ years of practical use.

Denz has the latest CNC machines, and the legend is true. The facility is so clean you probably could eat off the floor, which Elvis the dog probably does. That's Elvis, top right with Mr. Denz.

Recent Denz products include a lightweight titanium baseplate with left and right rosettes and 15mm lightweight support rods for the Sony F65 (below), PL mount for Canon 5D mk III, Baseplates with rosettes for Sony F3, Mounting cage for Canon C300 and C500, and Baseplates with rosettes for Sony FS700. See them at IBC 11.C82 and Cinec 3-C12. www.denz-deniz.com

Above: Hirth Tooth Rosettes
Below: Titanium Base for Sony F65

Peter Denz and Elvis
Below: Praezisions-Entwicklung Denz facility in Ottobrunn

Above: CNC machine room
Below: Design studio

bebob

bebob LED light

bebob batteries

bebob battery charger

bebob universal camera cage

bebob lens control

Pierre Boudard is the head of bebob. He began his career at Angénieux, worked as their distributor, moved to Munich, joined Chrosziel, and started his own company, bebob, about 15 years ago.

The name comes from "Broadcast Engineering," parts of Pierre's name, and an homage to Dizzie Gillespie, Charlie Parker and jazz.

Bebob makes batteries, power supplies, camera cages, lighting equipment, remote controls, and accessories. They continue to distribute Angenieux lenses.

Being in Munich, the machining of bebob products is superb.

The universal camera cage shown at left can be configured for most of the current systems, including Sony FS700, F3, Canon C300, C500, 5D Mk III, Nikon D4, D800, and the new Blackmagic Cinema Camera.

Bebob's rear battery mount for the Sony F65 is popular. It holds 2 V-mount batteries, and provides 12/24V output through 8-pin Lemo and 12V via a 4-pin Fischer connector.

Bebob products can be ordered online: www.bebob.de

TCS

Left to right: Oliver and Erik Schietinger on the immaculate checkout floor of TCS in New York.

Equipment includes the complete ARRI Alexa, Sony F65, F3, Red Epic, Scarlet, Phantom Flex, Canon C300 / C500 lines—and full sets of ARRI/ Fujinon Aluras, Cooke 5/i , S4, Panchro and ZEISS Master Primes.

T. Carl Schietinger opened Optical Research in 1978. The company became TCS (aka Technological Cinevideo Services) in 1980. Carl was the go-to camera and lens wizard most of us NY cinematographers went to. He was generous with advice and knowledge, and often shared much of his expertise teaching film at NYU.

Carl had an eye for quality. His search for the best products to supply his customers continued as he imported Sachtler tripods from Wendelin Sachtler and Chrosziel collimators and accessories from Alfred Chrosziel. TCS was one of the first rental houses in the US to offer the Moviecam Compact and Angenieux 24-290. Today, Carl's sons, Erik and Oliver, continue that tradition of being at the head of the line. Oliver said, "Band Pro recently shipped us the first set of Leica Summilux-C primes on the East Coast."

TCS has outgrown their facilities twice in the last 10 years, and is now occupying 10,000 square feet at 599 11th Avenue (45th Street in Midtown Manhattan's Hell's Kitchen).

The Leicas have been working nonstop: a series of Hype Williams-directed Music Videos shot on the Sony F65, commercials on Alexa and Epic, and the upcoming ABC drama series *Zero Hour*, shot on the Alexa Plus by Anthony Wolberg and John Leonetti, ASC. Anthony was instrumental in selecting the Leica lenses and very excited to work with them based on his experience with Leica optics. Erik summed it up, "Technical acumen combined with outstanding customer service is what people remember our Dad for. We've made continuing that tradition our main goal".

Band Pro at IBC and Cinec

Band Pro at IBC

Band Pro will be its usual feeding frenzy of products and demos at IBC: Sony F65 and FS700 cameras, accessories, production and post workflows, Codex Vault, Codex Onboard S, Canon C500 and C300, Movcam, filters, the list goes on. More than 50 sets of Leica Summilux-C lens sets have been shipped worldwide. Distributed exclusively by Band Pro, the complete line of Leica Summilux-C lenses will be on display in the Band Pro booth: 11.F41.

Vilmos Zsigmond, ASC at Cinec

Vilmos Zsigmond, ASC will be the honorary guest of Band Pro Munich at their Cinec 2012 booth: 3-C18. There will be screenings of "Kickstart Theft," the short film he shot with Sony F65, Leica Summilux-C primes and a Canon zoom. Vilmos will be available to answer questions. Jon Fauer, ASC, whose FDTimes booth is a few aisles away at Cinec, plans to moderate the discussions. For further info, details and credits: www.bandpro.com

Band Pro and Leica at Cinec

Cinec attendees will be delighted to learn that Martin Hartweg (left) will be, once again, presiding over food and beverage at the Band Pro/Leica booth during Cinec. Never mind that there is very important new equipment to be seen (new Leica 16 mm prime) or an impressive list of F65 and Leica productions that the Band Pro people will attempt to regale you with at the show. Those details are listed below, the better to read in advance, leaving you more time to be regaled, instead, with Martin's exquisite espresso, mid-day Mirabella Franciacorta, crisp white Rapalino Arneis or perhaps a ruby red Rapalino later in the day. Martin is a most gracious host, pairing each glass of wine with delicious combinations of cheese, air dried beef, figs, olives, mushrooms, and delicacies from the family farm in Italy.

Here's what the Band Pro band want you to know about some of the 8 major features shot, or in production, with F65:

- *After Earth* with Will Smith, dir: M. Night Shyamalan. DP: Peter Suschitzky, ASC, BSC
- *Oblivion* with Tom Cruise, Morgan Freeman. Dir: Joseph Kosinski. DP: Claudio Miranda, ASC
- *Motel* with Robert De Niro, John Cusack, Crispin Glover. Dir: David Grovic. DP: Steve Mason, ASC, ACS
- *The Smurfs 2* with Neil Patrick Harris, Christina Ricci. Dir: Raja Gosnell, DP: Phil Meheux, BSC

Episodic TV

- *The New Normal* (NBC)
- *Made in Jersey* (CBS) using Sony F65 4K RAW Lite, being finished at Sony Pictures with ACES workflow

Documentary

- Gavin Thurston shot 35 days in Sri Lanka with F65 for Disney

Tino Liberatore at Band Pro Munich

Tino Liberatore is the new Managing Director of Band Pro Munich. Like many famous camera technicians, Tino's 3½ year apprenticeship to be a precision mechanic began at ARRI on Tuerkenstrasse in Munich. Training included the legendary trial by filing: cutting, by hand, a triangular opening in one piece of metal and a corresponding triangular solid from another piece. The closer they fit together, the better your future prospects at ARRI might be. His metal triangles must have been good. Tino worked as service tech for 6 years at ARRI Inc in New York, and was promoted to service manager back in Munich. His journey included positions at P+S Technik, FGV Rental, MovieTech, Carl Zeiss AG, and Panther. Amnon Band said, "With a background in hands-on manufacturing, camera repair, lens technology, marketing, and sales, it feels almost as if Tino had been training and preparing for this job as Band Pro Munich's Managing Director—a job that requires many hats and talents."

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It's written, edited, and published by Jon Fauer, ASC, an award-winning Cinematographer, Director, and author of 14 bestselling books (over 120,000 in print—famous for their user-friendly way of explaining things as if you were right there on location with him). With inside-the-industry "secrets-of the-pros" information, Film and Digital Times is delivered to you by subscription or invitation, online or on paper. We don't take ads and are supported by readers and sponsors.

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