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FILM AND DIGITAL TIMES

Art, Technique and Technology in Motion Picture Production Worldwide



Leica Cine Lenses by CW Sonderoptic

Leica Summilux-C Cine Lenses



Leica Summicron-C Cine Lenses







Summicron-C



Summilux-C



Summilux-C

FILM AND DIGITAL TIMES
Art, Technique and Technology

Film and Digital Times is the 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 and Director. He is the author of 14 bestselling books—over 120,000 in print—famous for their user-friendly way of explaining things. With inside-the-industry "secrets-of the-pros" information, Film and Digital Times is delivered by subscription or invitation, online and on paper. We don't take ads and are supported by readers and sponsors.

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Leica Cine Lens Story

This special report is about Leica's commitment to motion pictures and the development of their Summilux-C and Summicron-C Cine Lenses by CW Sonderoptic. Many of the pages that follow are from Film and Digital Times articles chronicling the concept, design, development and production of these lenses. The story reads like a screenplay, beginning with a mystery, full of flashbacks, and complete with action, intensity and passion.

INT. LOBBY OF LEICA CAMERA - DAY



After years of "exile" in neighboring Solms, Leica Camera returned to Wetzlar. The new 6.6 acre (2.7 hectare) Leica home, headquarters and manufacturing facility was inaugurated on May 23, 2014. I entered the large lobby. It felt as if I were walking through a stylish museum filled with photo exhibits and cases of historical Leica products. I saw a large camera and continued on. Delayed reaction. Hang on, what was that? I turned back. And there it was, supported by a black metal rod. A motion picture camera that I'd never seen before. This was the Oskar Barnack Motion Picture Camera from 1912, the Leica Ur-Cine Camera—built two years before Barnack's famous Ur-Leica 24x36mm still camera.

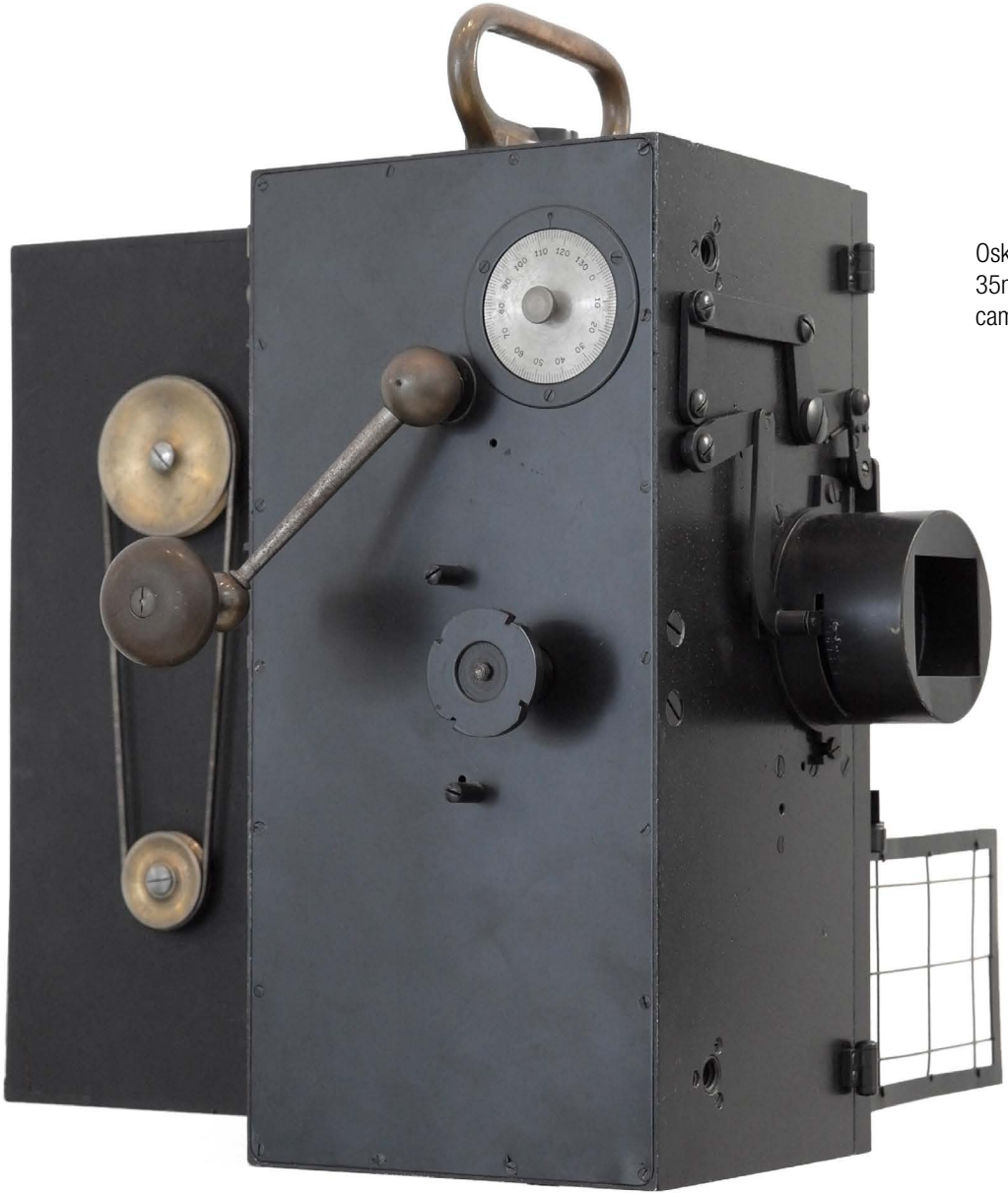
So—Leica entered the motion picture business in 1912.





Left: For the scary job of removing Barnack's precious cine camera from the safety of its display case for the photos in this edition, thanks to Leica Camera's Markus Limberger and (left to right): Holger Thurm, Boris Bender, CW Sonderoptic's Gerhard Baier, and Lars Netopil.

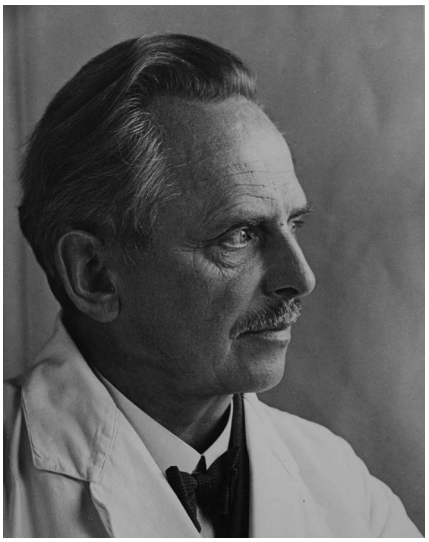
Leica 1912 35mm Cine Camera



Oskar Barnack's 35mm motion picture camera, built in 1912



Left: Barnack's Cine Camera on location in Bad Ems



Right: Oskar Barnack. Photo of original courtesy of WestLicht

Barnack's Leica 1912 35mm Cine Camera



What if Ernst Leitz had indulged the dreams of Oskar Barnack?

Perhaps lured by the glamor and excitement of the movies, dreams of exotic locations, and life outside the laboratory, what Oskar really wanted to do was work as a cameraman. In 1912, he built a 35mm motion picture camera.

In that same year, August Arnold and Robert Richter had just become teenagers; they would found Arnold & Richter in 1917 and build their first film camera, the Kinarri 35, years later, in 1924.

What were Oskar Barnack and Ernst Leitz thinking?

And why was this motion picture camera never developed?





Barnack Cine Camera

Our story of Leica Cinema begins with Emil Mechau, who built a projector in 1910 that eliminated flicker and jitter by means of a ring of mirrors instead of the traditional intermittent movement. (Incidentally, by 1934, more than 500 of these projectors were installed in movie theaters, and because of their extremely gentle film handling, were later used for flying spot film-to-video.) In 1911, Mechau persuaded Barnack to join him in Wetzlar.

Ernst Leitz II explained, "Besides his tasks in the field of microscopy, Barnack developed a cinematographic camera which he used for photographing a great number of local events at Wetzlar. Since electric exposure meters were as yet unknown, he built for himself a small hand camera for cine film enabling him to make a few trial exposures before the actual cinematographic exposure. This was the prototype of the Leica camera."[1]

Oskar Barnack wrote, "I joined the Ernst Leitz Optical Works in Wetzlar. Here my responsibilities included, among other things, motion picture technology. I designed my first motion picture camera in 1912 and pretty soon I was headed in the right direction because of the fine grain of motion picture film. A postcard size enlargement from a motion picture frame was quite acceptable. It is really true that, the larger the picture, the more plastic and realistic its effect.[2]

"For that purpose the motion picture frame was too small. Since regular film unfortunately was not permitted to become wider because of the wonderful invention of standardization, I had to employ as much feasible length in order to make optimum use of it. Right off, I tried to double the frame width and what do you know, it worked out very well; that is, 24 mm wide and 36 mm long. That is how the Leica format came to be."

In 1924, Ernst Leitz approved production of Barnack's Leica format 24x36mm still camera. His famous words, "I hereby decide: let's risk it," was pretty risky at the time, although there is some speculation that the meeting had dragged on for hours and Mr. Leitz was eager for lunch.

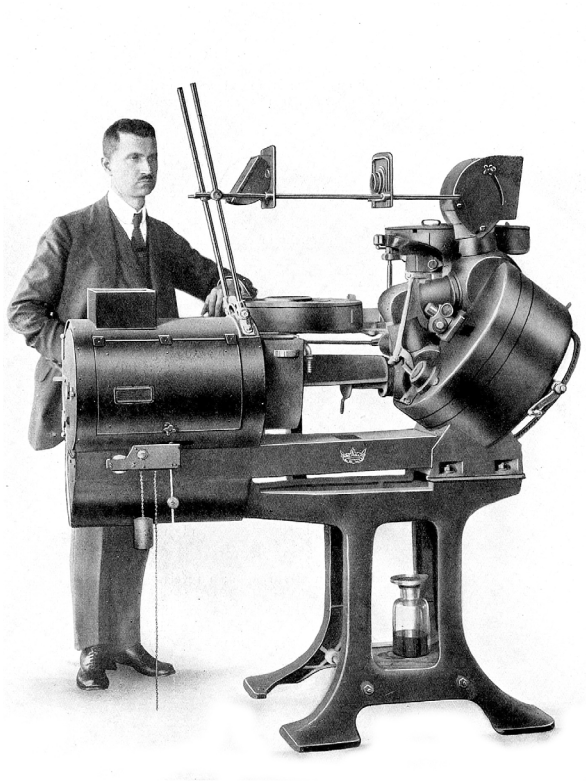
The prototype "Liliput" camera, as Barnack called it, would later be referred to as the "Ur-Leica." But why was Barnack's Ur-Leica developed and his motion picture camera remained a singular model, now prominently on display in the lobby of Leica Camera's new headquarters in Wetzlar?

Dr. Andreas Kaufmann, Chairman of Leica and a former history professor, thinks it was a matter of economics at a time of massive inflation. Mechau's projector was extremely expensive. In 1911, the famous Bell & Howell 2709 was introduced: hand-cranked, cast aluminum, 4-lens turret with rackover for focus and viewing.

It would be another hundred years for Leica Camera to get back to 35mm motion pictures with their Leica Summilux-C and Summicron-C lenses—the subject of this special report—and more products to come.



1914: Oskar Barnack's Liliput prototype, the Ur-Leica



1912: Emil Mechau's 35mm motion picture projector



Ernst Leitz and Oskar Barnack. Photo from Theo Kisselbach archive.

Sources

[1] Ernst Leitz II 1975 speech to the Leica Historical Society Viewfinder Vol. 8, No. 4, pp 22-23.

[2] Oskar Barnack, How the Leica Came to Be, 1931, translated by Rolf Fricke, Leica Historical Society Viewfinder Vol 11, No. 4, pp 11-12.

Thanks to Lars Netopil for his wonderful book of Leica prototypes and expert advice, and to Rolfe Fricke, Heinz Richter, LHSA-International Leica Society.

Wetzlar





Wetzlar is halfway between Amsterdam and Munich, about one and a half hours' drive from Frankfurt.

Leica originated as the Optische Institut Wetzlar, founded by Carl Kellner in 1849 and specializing in microscopes. Ernst Leitz became a partner in 1865.

Oskar Barnack was born in November, 1879. At age 22, he began working at Carl Zeiss in Jena. He was 33 when he moved to Wetzlar to work at Ernst Leitz Optische Werke. Turning his attention to still photography, Barnack called his first 1914 prototype the "Liliputkamera."

Barnack wrote, "Now the actual designing of the Leica began. I gave a free reign to my yearning for the unusual and the novel. I was not restricted by any particular assignment or direction, as would be the case in a modern design department; rather it was a private hobby. Because I was not inhibited by customary guidelines and because I used hardly anything that was heretofore considered essential for a good photographic camera, the result was this novel type of camera. Already then it was basically as it is still seen today."

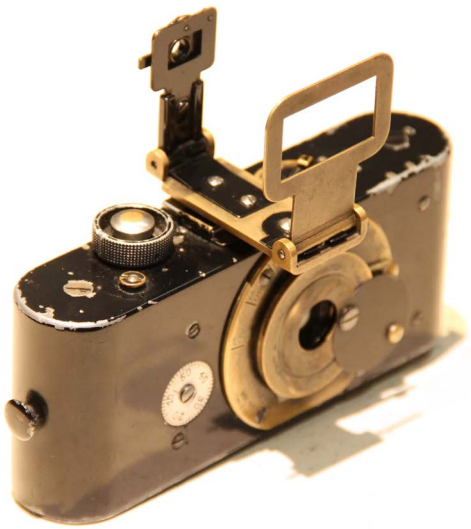
In 1923, the "0" series of around 25 cameras were built "to test the waters." The first Leica A cameras (the name came from Leitz and Camera) went into production in 1925. It was the first, small, practical, portable 35mm still format camera and was a huge success when it gained public attention.

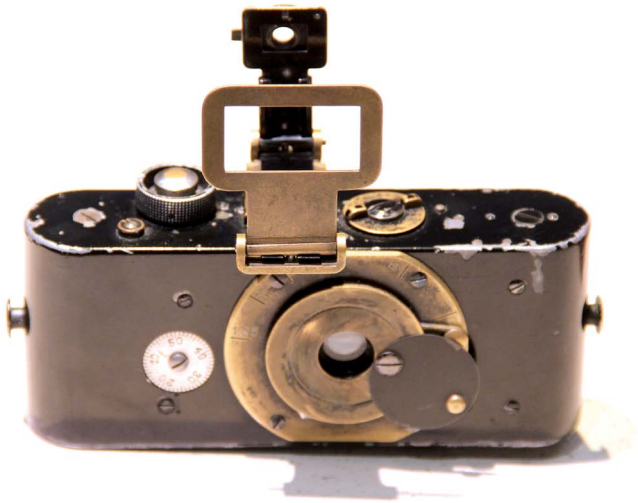
Above, left: One of Barnack's first pictures taken with Ur-Leica in Wetzlar's Eisenmarkt (Iron Market).

Above, right: how it looks today, shot on a Leica D-LUX 4.

Below: June 2014. Shot with the new Leica T camera. Commemorative plaque "First Leica picture was taken here 1914 by the inventor and visionary Oskar Barnack."



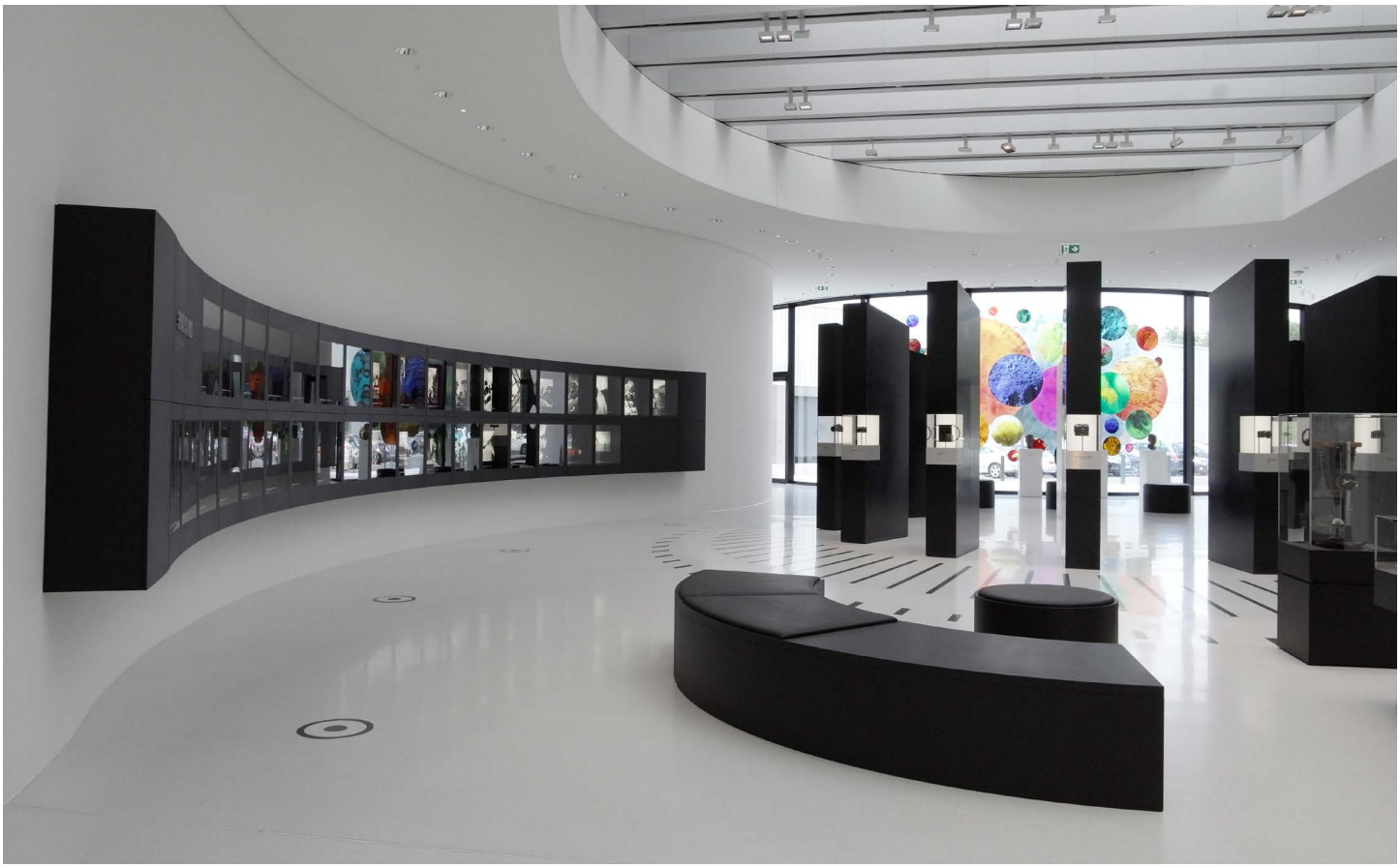




Leica Camera Returns to Wetzlar: May 2014



Above: View of Leitz-Park piazza toward main entrance of new Leica Camera headquarters. Café Leitz is out of frame to left.
Below: Interior of main lobby with Leica Gallery and Museum.



Leica Camera and CW Sonderoptic in Wetzlar



Above: Christian Skrein, Board Member of CW Sonderoptic (Leica Cine Lenses), surrounded by Magnum Photographers Elliott Erwitt (left) and Thomas Hoepker (right) at Leica Camera in Wetzlar. *Below:* view of CW Sonderoptic at left and Weller at right, from roof of Leica Camera.



Andreas Kaufmann on Leica's new Wetzlar Home



Dr. Andreas Kaufmann, Chairman of the Leica Supervisory Board. Photo courtesy of Leica Camera.

I was in Wetzlar for the May 23, 2014 *inauguration ceremonies of the new Leica Camera headquarters in Leitz-Park. Dr. Andreas Kaufmann met me in the Café Leitz, a dazzling structure that anchors the Leica campus. Over Zwetschgenkuchen (plum cake) and Prosecco, we discussed architecture, design, cameras, Leica, Goethe and cinema.*

JON FAUER: Tell us about your magnificent new headquarters.

ANDREAS KAUFMANN: There are quite a few points. First, this new building shows a new self-awareness of Leica. After restructuring, rebuilding, and redeveloping, it was a time to demonstrate that this is a different Leica. Second, a very pragmatic point, we needed more space. At our old place in Solms, people were basically sitting on each other's laps. And three, we always try to follow a rule when we build something: it should make people feel good when they enter it. In a way, the original buildings in Leitz-Park, Weller and CW Sonderoptic, look like humble industrial buildings. But they're very cleverly designed. The new Leica Camera headquarters building is a sort of elevation of this aesthetic—you feel good because it's good industrial architecture, but it goes a bit beyond that. It incorporates some elements of what you might call Leica DNA in the design. Yes, there are quite a few reasons why today is special and why we are celebrating.

Were you involved in the design of the buildings?

Yes, sure. We have a fine team of architects from Frankfurt: Gruber + Kleine-Kraneburg. The first phase consisted of the Leitz-Park I buildings, which I would describe as Bauhaus influenced industrial buildings, nicely done, functional design, good light, where everything works. Then, for Leica's next step, I said, "We need something different, it has to look unique." When we saw the first design sketches, it was clear that the building would need to be special, and I said, "No, we need some elements that are unique to Leica." Then, in one session, we worked on defining the typical design elements of a Leica 1, Leica 2 and a Leica M camera. We tried to see how those camera designs could be reflected in architecture. The architects developed those concepts, we change a few things, and that was it.

The building has curved lines similar to Leica cameras and lenses.

Leica is always about clear geometric lines but sometimes with a twist. When you look at the lens on a Leica camera, it is always offset. It is not in the middle. The question is where you place the offset, which has to do with proportion. It's about clear geometric elements: round, then straight, and in between you do a few things that suddenly make it look a little bit livelier. That's basically the idea behind the architectural design and I think we were quite successful in creating this.

It almost looks like a modern museum both inside and out.

This is industry, but the idea was to create something special. This is a new entrance to the city of Wetzlar, and the German word for what we wanted to do was Stadtplanung, City Planning. Not an industrial zone. We needed what the Italians would call piazza. Something that combines. We needed to tie it all together in the middle and that's how we decided on the Café Leitz. This is a very complicated building—the roof construction is made to look very light. From the outside you don't see the roof. Only a few companies can do this kind of construction in Germany.

I wanted the outside walls to be transparent, so you could look through the building. It's related to optics: you have to be able to see things. The city planning concept meant a public café where people could gather, set in a piazza between our industrial buildings. There's room for parked cars, and that makes the space a bit more lively. A side benefit is you don't have too many skateboarders when cars are parked. There are quite a few European cities where they banish the cars, and then the skaters come in, as well as the guys who spray grafitti. If there are cars and people, a coffee shop and pedestrians, they don't come.

Is this design philosophy in all your other cameras?

In a way, yes. When you look at the Leica T, it is not simply a slab of aluminum. It has a touch screen. It has rounded and straight elements, and the lens is offset. We have a long working relationship with Audi Design. And now we have an in-house designer again, a young fellow from Sweden, who created our 100-year logo.

Earlier you mentioned Leica innovation.

Sometimes it's about material and design. If you ask what was the first medium format digital camera in an SLR body, that was the Leica S2 shown 2008. The body is the size of a Nikon D4 but it is a medium format camera. The first small consumer camera with an APS-C sensor was the Leica X1 shown 2009. The first camera with a black-and-white sensor was the Leica Monochrom in 2012. In 2014, we introduced the Leica T. It was the first aluminum unibody design and was completely different from every other camera until

now—with a touchscreen that you could use to basically drive the whole camera. And for a small batch production, we did the first camera and lenses in stainless steel.

Leica Camera is celebrating its 100th birthday. What's coming up in the next 1 to 100 years?

We are thinking about something between M and S, but I can't say more. It's in the pipeline. At Photokina, we will show some interesting developments in lenses. We will commemorate the 60th anniversary of the M system. We'll have a very special exhibition about the story of rock music and Leica M, the camera that covered it all. We have put together a nice exhibition for the event. It will be a celebration of the M system, and you can imagine that we might be also working on some ideas regarding future M models.

Let's talk about your involvement with Cine Lenses.

The Cine Lenses project essentially started in 2006. Toward the end of 2006, I met Christian Skrein who introduced me to Otto Nemenz, and that is how it started. The initial idea of Leica lenses for cinema has been brewing for quite some time. Members of the movie industry were forever trying to convert M and R lenses into Cine Lenses. I didn't like that approach. Iain Neil, the lens designer, was proposed by our former R&D Director, Knut Heitmann. I met Iain at the end of 2006, beginning 2007, in Italy.

Knut Heitmann worked for Leica until 1990, went to Daimler Benz and then entered the private equity business investing in startup companies. He was the one who made a presentation to the Leica board in 1988, "Why the Digital Camera is the Future."

I can imagine what the board thought of that.

At that time Knut was also involved in the defense business and had already seen the first 16 megapixel sensors for NASA, so he had an early view of the future.

Was it Photokina 2004, when digital already had more than 90% of the market, that Leica appeared to be in denial and handed out buttons reading, "I am a film dinosaur"? Of course, that was before you took over the company. You seem to have a different marketing strategy, making the cameras and lenses aspirational.

Not only aspirational but also based on innovations. It is based on the idea that we need to have retail. Innovation, up-market trend and retail. I think these are our three elements. On the other hand, I originally wanted the Cine Lens business to be inside Leica. But at a certain point, I decided we have to do as a separate company. It had to do with the development process and the time to market, which still turned out to be too long.

Where do you see the Cine Lens and Cine market going?

Well, we have had this discussion often and I always said that we have what I call convergence. Technically, when you look at the sensors and processors, there's not much difference between a still camera and a movie camera. When I press a button on the still camera, I can produce HD. But, I have autofocus, which in the movie industry up to now has not existed. My belief is it will come. And with the new sensors, I can shoot HD video with 12,500 ISO, which makes it a little bit tricky for lighting by the way. Sorry.

On the other hand, it won't come that fast because the amount of information you have in shooting a movie is different than the amount of information you have in shooting stills or short HD



Goethe in the Roman Countryside, by J.J. Wilhelm Tischbein. 1787. Oil on canvas. 161.0 x 197.5 cm. Städel Museum, Frankfurt am Main

videos. There are still a few problems but you still have convergence. We'll see what happens. We will work more on standards in our camera. The next S will have an HDMI output. Formerly in still photography you didn't think about HDMI. The key element to consider at the moment is whether there are standards. They're not completely set. A standard for sound, yes. Standards for certain type of frame rates and for processors. You still have some elements which are for movies and not for still, but the backbone—sensor, processor, processor boards—tend to be more or less the same. That means there will be a change in the industry and a change in how people are using the cameras.

Can you talk about the fascination with Goethe and why *Werther* attracts people to Wetzlar?

Wetzlar is a historic city, and it was featured in one of the most famous novels in the world, a best seller of the 18th century: *The Sorrows of Young Werther*, written by Johann Wolfgang von Goethe in 1774. It was based on Goethe's experiences here. He came as a lawyer to the state court located here in Wetzlar. There are many descriptions of Wetzlar in *Werther*. He experienced what he saw. At the beginning he said, "Wetzlar is an odd town but outside the landscape is beautiful," and it was a very moving novel. For instance, when Napoleon conquered Prussia in 1805, he said, "I want to meet the author of *Werther*." If Napoleon wanted to meet the author 31 years after the book had first been published, that means there was an ongoing effect. It was based on Wetzlar experiences.

Werther was read in schools around the world. It was a part of the education in the high schools in Asia. A huge company in Japan and Korea, founded in 1948, was named after one of the leading ladies whom Werther loved. Lotte Co Ltd (eight largest conglomerate in Korea) was named after Lotte, a character from the novel based here in Wetzlar .

What was the reason for the success of Goethe's *Werther*?

It hit a certain nerve. This time of literature in Germany is sometimes called Sturm und Drang. It was pre-romantic but basically romantic and it moved people. You could see in Germany and other places people running around in the same clothes as Werther had because he described what he was wearing. A blue over coat and yellow knee trousers were the Werther uniform.

Andreas Kaufmann on Leica



Andreas Kaufmann in his Salzburg office. Taken with Leica T 18-56 ASPH at 56 mm, f/5.6, 1/160, 1600 ISO. Photo: Jon Fauer

I first met Dr. Andreas Kaufmann at the Pacific Palisades home of Otto Nemenz in June 2009. "We have an interesting story to tell you," Otto said, as Santa Monica Bay glistened in glorious magic hour light. "It's about Leica cine lenses."

The saga involved several degrees of separation that began more than 30 years ago, with Otto and his good friend Christian Skrein dreaming of Leica lenses for high-end 35mm motion picture production. The degrees of separation get even closer: Otto was my predecessor as camera assistant for cinematographer Herbert Raditschnig, and Christian Skrein was director/producer on some of those productions.

Jump cut to December 2005. Christian Skrein met with Andreas Kaufmann, and said, "I have a concept and a friend in Hollywood, Otto Nemenz. He and I have had a dream for many years"

Later that evening, Otto received a phone call from Christian. "Otto, we have our dream."

Otto said, "Leica Cine lenses? How is that possible?"

Christian replied, "We know the new owner of Leica."

I stayed in touch with that owner, Andreas Kaufmann, as the Leica Summilux-C lenses were developed and introduced. At the annual International Leica Society meeting in October 2011, I did an informal interview.

Jon Fauer: I heard you started out as a teacher?

Andreas Kaufmann: I studied German Literature, Political Science, History and Linguistics at the University of Stuttgart. I graduated, wrote my thesis, and became a history teacher at a Waldorf-Rudolf Steiner school from 1983-1998.

Why did you do that?

Quite simple. My school life took place during the late 1960s and through the 70s. I was heavily influenced by the '68 movement. When I finished school, my goal was to revolutionize the world. I had to abide by the decision of my family that none of us could go into the management of the family company. So, I was totally free and studying was…well you had to study something.

In the late 1970s I belonged to the group of founders of the German Green Party—the first ever. I was still studying. In 1983, after I thought I had finished my thesis (although that took longer), I started teaching because for me, school was a kind of reforming element. It was a Rudolf Steiner school and you could change things. The school was responsible for its own finances, because in Europe most other schools are usually run by the state. But this was private.

Is that how you learned about business?

Partly. On the other hand, since 1987, I was introduced into the wealth management of my family. From 1991 on, I was on some of the boards of our capital management companies, on the board of our Cayman financing company and the board of our North America real estate company—so I had a dual life. On-the-job training. I didn't know much about management then and I'm still learning.

What is the background to your investing in Leica?

Formerly, our family owned the biggest paper, pulp and packaging company in Austria. We owned this for 101 years. Otto Nemenz's father was a sales representative for one of the pulp companies we owned.

Our family started selling part of the companies in the 1990s because we realized it was CAPEX (Capital Expenditure) intensive.

But, I had a strong belief, and our family history shows it, that you can't influence stock markets, but you can create value in companies. Stock markets are like a casino. I presented an idea to my brothers. If you have the right strategy, a little bit of luck and a good management team, you can turn companies into a value creation engine. That was the theory.

So we set up ACM. The name comes from my two brothers and me. Nowadays we call it Austrian Capital Management because my brothers are not involved anymore. We set this up in 2002 as a new entity to buy into new industries to try to create some wealth out of what we had. ACM bought its first company in the Wetzlar region in 2002: Weller Feinwerktechnik, which we still own today.

How did you acquire Leica?

I moved to Salzburg, Austria in 2002. In that year, I came up with the concept of ACM Projektentwicklung (Project Development) GmbH, Salzburg. We looked at several investment scenarios. One thought was what would happen if we re-entered the pulp-paper-packing industry via Sweden—which my brother later did. He manages that now on his own.

We invested in a precision machining company, Weller-Feinwerktechnik because it had always been profitable, and they wanted to sell in 2002. That was the first time we were in Wetzlar. My co-managing director was Wolfgang Kisselbach. His father, Theo Kisselbach, was the key guy in the Leitz factory for development and marketing. This gave us a sort of connection with the Leitz environment.

Can you please give us some background into how and why Leica was sold.

The Leitz family sold their last remaining shares in the '80s to the Schmidheiny family of Switzerland. It had to do with the policy of the Leitz family that they reinvested back into the company and seldom looked at profit. It became critical. By the end of the '60s they had already sold 25 percent to Max Schmidheiny. That's how this family became involved. They had the Wild company in Heerbrugg, Switzerland—an optical, mainly geodetic, company. But their main business was cement. The company was called Holderbank. (Motto: "cement, and all that goes with it.") Now it is called Holcim, and they are the second biggest producer of cement in the world.

The Schmidheiny family came in and sooner or later Leica needed another round of raising capital because the Leitz family didn't have that much money, as they had everything in the company. They were forced to sell in the '80s. Knut Kuhn-Leitz was the last Leitz director of the company.

Stefan Schmidheiny brought together other companies, relabeled everything Leica, cut it into three parts in the '90s, and sold shares of Leica camera on the stock markets. Leica Microsystem was sold to a private equity house. The Wild Heerbrugg company was put on the Zurich Stock Exchange in 2001 as Leica Geosystems.

In 1999, the managing director of Leica France contacted an investor. It was Jean-Louis Dumas, chairman and artistic director of Hermès, who also happened to be a long-time Leica camera user. In 2000, Hermès bought into Leica Camera. Probably it was the wrong time. Why? The whole shift in the industry had started and maybe they weren't completely aware of it.

In 2003 we bought Viaoptic and decided we'd do something in the optical industry.

At end of 2003, Wolfgang Kisselbach, my co-managing director of ACM, and I had an idea. We already were here in Wetzlar. We had Weller Feinwerktechnik and Viaoptic. We figured we could probably buy into Leica because we thought we saw it as a rather cheap investment. We had two or three discussions with Hermès in Paris and that was it. We decided that ACM would acquire 27.4% of Leica. We entered in August 2004 as the junior partners. Hermès had the biggest share, 31.5 percent. We considered their majority investment as a solid kind of insurance. Hermès, wow, what could go wrong with that?

We figured we would study the company for one year. But then, how do the Americans say… "Oh boy, were we wrong."

Shortly afterwards, we came to realize how tenuous this "insurance" actually was. We had entered in August 2004 and by November 2004 we experienced a few shock waves. I still remember Wolgang and I were sitting together in Florida where he had a home at the time. We said we had to develop a strategy on what had to be done. Then things moved a little bit faster, and by February 2005 it became clear the company was near the point where it couldn't pay the bills. Obviously restructuring was needed. We had a discussion with Hermès because they weren't sure they wanted to get out. They stayed with us in a financial restructuring but then we bought them out because they really were scared by what was happening. On the other hand, it's my firm belief that a restructuring should done by only one party, otherwise it gets complicated.

By 2005, it was a mess.

I said, "I still believe we have the right strategy. We entered rather inexpensively and were able to get through the refinancing of additional shares at reasonable rates. With the right strategy and the right management, in the end we will create more value than what it is today."

So we had serious discussions in the family.

I guess they were not happy.

It can happen in any family. I said, "I'm responsible for it, I'll take it." And that was the start of dividing our shares of ACM.

By 2006, I think we had 90 percent or so in Leica Camera. We had interim management and then hired additional people. In 2007 we set up CW Sonderoptic to develop Summilux-C Cine Lenses. We worked together with other companies from the software business to produce our M8 (digital Leica camera) and then the 24x36 full format M9 camera, which should have been ready in 2008 but was delayed. After that, we had many other products in the pipeline and these created a huge change in our business. Since August or September 2009 we have been in the black.

Were you interested in photography or Leica cameras before?

I learned how to take pictures like a good German boy when I recieved my first camera. When I was young, I got a camera from a photo store along with specific instructions on exactly how to take the pictures: for example, cloudy bright is f/8 at 1/125th second exposure.



Dr. Andreas Kaufmann, Chairman of the Leica Supervisory Board. Photo by Jon Fauer with Leica Monochrom and Summicron-M 35 mm ASPH f/2.0 at 1/25 sec ISO 2500.

It was a very weird camera. I still have it today. It was a Penti from Pentacon Optische Werke in Dresden. It was produced in the German Democratic Republic (East Germany) with an awful lens. But I learned to shoot.

In my last year at university, I had a girlfriend who was enrolled in a 3-year program as a photographer's apprentice. She was into photography, definitely. And this is a fascinating story. In the second year of her apprenticeship, she came home and showed me a camera. She held it carefully and said in a reverential tone, "Look what I've got."

I said, "Well…it looks like a camera."

And she said, "No, no…look carefully at what I have here."

I said, "It's still a camera."

"Not exactly. It's a Leica."

I said, "So what?"

She looked at me, probably thinking, what kind of nincompoop is this? She had bought her Leica camera with the money she had saved and I reacted like a fool. Half a year later, our relationship was over. I never forgot the name "Leica."

I came back to cameras via the digital world. In 1999 I bought my first digital Canon. I bought it at a Staples in Massachusetts. That told a story in itself, because formerly you went to a specialized photo dealer. Now you could go to a big box office supply store. At this time I was doing a website for one of the companies I had invested in. Now it was suddenly so easy to shoot a picture, edit it and whoosh—upload it. That's how I came back to photography.

In 2004 we bought into Leica. In 2005 we had this family crisis and we cut our inheritance in thirds…

This must have been stressful.

I've never been scared in my life. Being scared doesn't help. I don't think I was stressed. I was under pressure, but when I'm under pressure I take half a day off and think about strategy. This usually works. In 2005 you could definitely have said that I was under stress but I was focused on what had to be done. It was a tricky situation because I think our chairman of the Leica supervisory board didn't understand much about digital and didn't consider it. He had been running Leica since 1996. He was a great guy, but he loved analog photography. Maybe he also really liked Leica's campaign at Photokina 'I am a film dinosaur.' So we needed to reorganize management and had to make changes in the supervisory board.

Our team worked continuously on various projects. After presenting the digital Leica M8 in 2006, we were able to show a complete new product roadmap in 2009—and this was the key element of our success nowadays. In the last year we financed everything from our cash flow and paid back our loans.

Sounds like you're enjoying this.

I'm already thinking of the strategy for the next 3-4 years. We cannot do it alone. We now have a partner, but we are still the majority. We are committed. I call this Stage 2, the roll-out of Leica as a worldwide brand, because we're not available in a lot of markets. We're not available in parts of Russia, Emirates, India, we only have 1 store in Latin America, and so on.

We are planning a concept called Super Store. The slogan is, "Where the picture comes alive." And we'll show more than cameras. The idea is to have 10 to 12 Super Stores worldwide. It will have exhibition space, a studio, it will be the next step.

We will break ground in 2012 for a new building to move Leica back to Wetzlar from Solms. It will be in Leitz-Park, next to our other companies.

Leica and Blackstone

On October 19, 2011 Leica's largest shareholder, ACM Projektentwicklung, Salzburg, and The Blackstone Group announced that Blackstone will become a strategic investor in Leica Camera AG with a minority stake of 44 per cent. ACM, with Dr. Andreas Kaufmann as its owner, will continue to hold the majority of Leica shares.

What does this mean for photographers, cinematographers and practitioners of digital dark arts? Capital and commitment in high-end imaging. Here are excerpts of the official announcement:

The strategic partnership involves investment funds advised by Blackstone to acquire, indirectly through a holding company, a 44% minority stake in Leica Camera AG to support Leica's international growth plans. Located in Solms, Germany at that time, now moved back to Wetzlar, with 1,150 employees, Leica is one of the few remaining German camera companies. Leica combines hand-crafted quality with a dedication to precision mechanics and outstanding optics. Leica now plans to expand the business into new markets. Leica Camera AG finished its 2010/2011 financial year with record sales of € 248.8 million. This was an increase of 57.2 % over the previous year (€ 158.2 m). EBIT (Earning Before Interest and Taxes) increased by almost six times: from € 7.4 m in 2009/2010 to € 41.6m. The sales increase is attributed mainly to the strong demand for the two camera systems, Leica M and Leica S.

Leica Camera AG is located in Wetzlar, with a second production site in Vila Nova de Famalicão, Portugal. The company is active in 54 markets internationally and operates branches in England, France, Japan, Singapore, Switzerland, South Korea and the USA.

Andreas Kaufmann on the Leica Monochrom



In May 2012, 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. The French verb is "manufacturer," meaning to craft things by hand, to 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.

Premiere of the Mystery Primes: Dec 2009





The mystery lenses were designed and manufactured by CW Sonderoptic in Wetzlar, whose Managing Director is Dr. Andreas Kaufmann, above.

December 17, 2009. A totally new set of motion picture camera PL mount prime lenses were unveiled in Hollywood. They were all T1.4, and the big news was how lightweight and small they were: 95mm front diameter, and about 3.8 lbs each. Called the "Mystery" lenses because of lack of corporate provenance emblazoned on the barrels, we were assured all would be revealed very soon. The event took place at the Band Pro Open House.

We learned that the lenses were designed and manufactured by CW Sonderoptic in Wetzlar, Germany, a 100% subsidiary of ACM Project Development Company, whose managing director is Dr. Andreas Kaufmann. Dr Kaufmann is also the majority owner and chairman of Leica Camera.

The lenses were expected to be ready by Cine Gear, June 2010, in focal lengths of: 18, 21, 25, 35, 40, 50, 65, 75, and 100 mm . Additional focal lengths would be available later on.

In development for three years by an international team of prominent optical and mechanical lens designers (anonymous sources point to alumni of Panavision, Leitz, Leica Canada, as well as involvement by Otto Nemenz), it was one of the industry's best kept secrets. Even Film and Digital Times was in the dark.

Three focal lengths were shown as working prototypes. Band Pro was named as the exclusive worldwide distributor. A service facility was to be set up in Hollywood.

The small size and light weight were made possible by use of double aspheric elements and a titanium mount. The entire set of "Mystery Primes" have focus scales in the same position relative to the front of the camera, common size and location of focus and iris rings, and a 95mm threaded lens front. A threaded ring in the rear of the PL mount permits quick and clean mounting of nets. The first 30 sets of lenses will be delivered to Otto Nemenz International.

They are Leica Lenses: NAB, April 2010



Gerhard Baier at NAB 2010 with a Leica Summilux-C Prime.

April 2010, NAB. Leaping lizards! Leica Cine Lenses. The mystery was revealed. Not since "he who must not be named" in Harry Potter was something cloaked in as much mystery and anticipation.

The fast, light, multi-aspheric prime lenses shown in December were unveiled carrying a very familiar red logo with the "L" word, confirming what many guessed: Leica.



Leica Cine Lens Saga





Above, left: Dr. Andreas Kaufmann. *Right*: Christian Skrein. *Below*: Alfred Schopf.

This is the cast of characters in the saga the Summilux-C cine lenses. It took five years of research, development, and investment to get the project going. It came together those movies where someone gets an idea, puts together of a team, and then get the job done.

These were the first 35mm cine lenses designed and built specifically for motion picture production by Leica. (There were 16mm format prototypes, Super8 models, and many modifications of existing Leica still camera M and R lenses for 35mm format—but no earlier 35mm original lenses.)

The new Leica Summilux-C ("C" as in Cine) are all close-focus, T1.4, lightweight and small: 95 mm front diameter, and weigh between 3.5 and 4.0 pounds (1.6-1.8kg). They will initially ship in focal lengths of 18, 21, 25, 35, 40, 50, 75, and 100 mm. Additional focal lengths will be available later on, making up a total of about 15 different focal lengths, ranging from 12 mm to over 150 mm.

All Leica Summilux-C lenses share uniform spacing of focus marks from infinity to 6 feet. You will not have to recalibrate wireless focus scales or swap follow focus discs. Furthermore, the lenses all share uniform length and placement of focus and iris rings—which is helpful for quick lens changes. They all have a 95 mm threaded lens front. A removable ring at the rear of the titanium PL mount permits quick and clean mounting of nets—no more snot tape needed to glue stockings behind the lens.

Multiple aspheric elements contribute to the small size and light weight. Illumination is uniform across the entire 35mm frame with suppression of color fringing up to the extreme corners. The first 25 sets of lenses will be delivered to Otto Nemenz International.

The Leica Summilux-C lenses were developed by CW Sonderoptic GmbH, a 100% subsidiary of ACM Project Development Company, whose Managing Director is Dr. Andreas Kaufmann. He also happens to be the Chairman of Leica Camera AG. The other principal players in the project were Christian Skrein, photographer, filmmaker, collector, and lens designer Iain Neil. Alfred Schopf and Erik Feichtinger were the initial Managing Directors of CW Sonderoptic. Erik was the former Investment Manager at Global Equity Partners in Vienna. Alfred later would become Managing Director of Leica Camera, and Erik would be joined by Gerhard Baier as Managing Directors of CW Sonderoptic.



Leica Cine Lens Saga



Below, left: Otto Nemenz. *Right*: Erik Feichtinger, Managing Director of CW Sonderoptic.





Leica Summilux-C Lenses

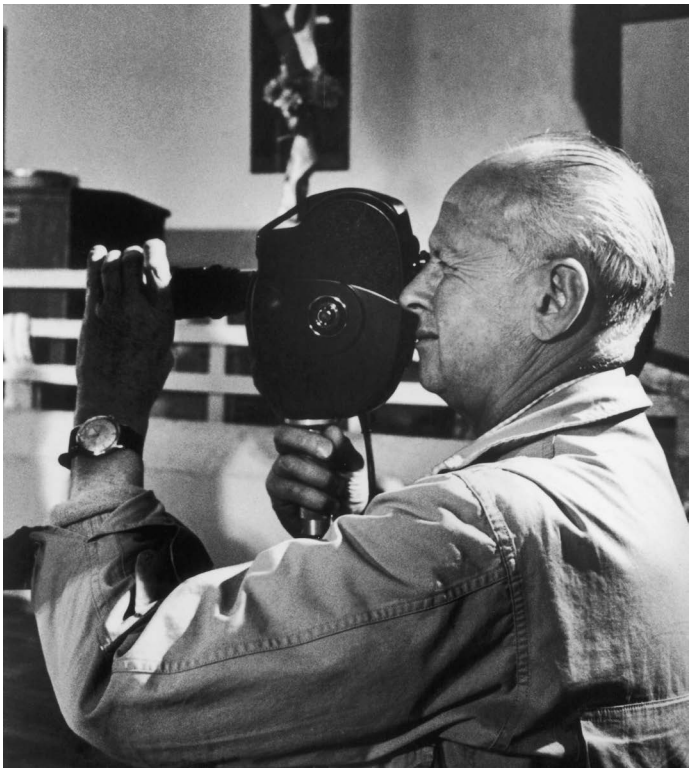


Leica Summilux-C lenses at NAB 2010 on an Arriflex 435 film camera. A year later, film cameras would be very scarce at NAB.



The Decisive Moment





Left: Henri Cartier-Bresson with his Leica. 1955 Photo by Dmitri Kessel//Time Life Pictures/Getty Images

Above: Cartier-Bresson with Beaulieu R16 16mm camera Photo ca. 1965. CBS Photo Archive/Getty Images

Henri Cartier-Bresson's apothegm "The Decisive Moment" won the approbation of the photographic community and ensured his investiture as the founding father of photo-journalism.

In 1952, Cartier-Bresson published a portfolio of photographs, with a cover by Matisse, and a title "Images à la Sauvette." The English title was "The Decisive Moment," which is a lot more elegant than the literal translation "Images on the Sly."

"The decisive moment" first appears in the introduction. "Il n'y a rien dans ce monde qui n'ait un moment decisif." ("There is nothing in this world that does not have a decisive moment.")

Double negative notwithstanding, when Cartier-Bresson bought the first of a lifetime of Leica cameras in 1932 in Marseilles, he found the instrument that would allow him to capture those moments on the sly and on the run. Around the same time, he was inspired by Martin Munkácsi's photograph "Three Boys at Lake Tanganyika." Cartier-Bresson later said, "For me this photograph was the spark that ignited my enthusiasm. I suddenly realized that, by capturing the moment, photography was able to achieve eternity. It is the only photograph to have influenced me. This picture has such intensity, such joie de vivre, such a sense of wonder..."

Still photographers seem to have a knack for decisive mantras. Martin Munkácsi's famous quote was "Think while you shoot." His younger brother, Tibor Sands, is a retired New York camera assistant (*The Godfather, The Last Waltz, The Front*), as legendary for loquacious commentary and pithy advice as his impressive work on features and documentaries.

The Leica was a documentarian's still camera dream come true. Liz Jobey wrote in *The Guardian* (June 11, 2010), "The small camera made it easy to capture subjects on the move, but just as crucially, it made it easy for the photographer to adjust his point of view. Anybody who has seen film of Cartier-Bresson at work will understand how important movement was to the making of his pictures. Truman Capote, who went on an assignment with him in 1946, described him as 'dancing along the pavement like an agitated dragonfly, three Leicas swinging from straps around his neck, a fourth one hugged to his eye: click-click-click (the camera seems a part of his own body) clicking away with joyous intensity...'"

Cartier Bresson said, "For me the camera is...an instrument of intuition and spontaneity, the master of the instant. One has to feel involved in what one frames through the viewfinder.

"To take a photograph is to hold one's breath when all faculties converge in a face of fleeing reality. It is at that moment that mastering an image becomes a great physical and intellectual joy.

"To take a photograph means to recognize—simultaneously and within a fraction of a second—both the fact itself and the rigorous organization of visually perceived forms that give it meaning."

Cartier-Bresson founded a cooperative photo agency in Paris, Magnum Photos, in 1947 with three fellow photographers: Robert Capa, George Rodger and David "Chim" Seymour.

In Magnum's own "History of Magnum," George Rodger recalled how Robert Capa saw the photographers' role. "He recognized the unique quality of miniature cameras, so quick and so quiet to use. He saw a future for us in this combination of mini cameras and maxi-minds."

Cartier-Bresson used Leica 35 mm rangefinder cameras with a 50 mm lens for most of his long career.

Christian Skrein on Leica Cine Lenses



Christan Skrein is a member of the Board of Directors overseeing the Leica Summilux-C project, developed by CW Sonderoptic.

Christian Skrein was born in Vienna, Austria in 1945. When he was 17 years old, while still in school, he bought a used Leica camera and a used Bentley. The door of the Bentley was emblazoned "Christian Skrein Photography." He was in business.

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. Skrein became friends with fellow creative troublemakers, with memorable photos of the Beatles, the Rolling Stones, Joseph Beuys, Christo, Andy Warhol, Hundertwasser, Catherine Deneuve, Gina Lollobrigida, Sean Connery and Grace Kelly.

In 1968, at age 23, Skrein began shooting film. In 1970, he opened a film production company, Skrein Films, with offices in Vienna, Milan and Hollywood. Small world: Otto Nemenz was his camera assistant. For a Tyrolia binding commercial, Skrein hired Herbert Raditschnig, the famous Austrian skiing and mountaineering cameraman. Otto Nemenz was Herbert's regular camera assistant (but not on that job—Otto was once described by Herbert as the world's only Austrian who was not a world-class skier). When Otto opened his rental house on Sunset Boulevard, Jon Fauer followed in his footsteps working with Herbert—mostly on ski films.

After 25 years of doing award-winning commercials, Christian Skrein moved into corporate mergers and acquisitions. In 1990, he became an industrialist with holdings in 72 factories, including the textile mills that made most of the world's Loden fabric (heavy, water-resistant, olive-green wool used in traditional alpine clothing). With a combined population of 25 million Loden-wearing customers in Bavaria, Austria and Switzerland, this was clearly more lucrative than shooting even the highest-end commercials. The famous fabric from the Alps found its way to the Rue du Faubourg Saint-Honoré, Karl Lagerfeld, and Chanel.

Since 1968, Christian has been collecting photographs. He now has one of the world's largest collections, with over a million photos. (www.christianskrein.com).

Skrein sold his companies in 2001, and went back to his photography collection. All the while, Christian and Otto Nemenz remained great friends. They talked on the phone at least once a week for the past 38 years. With common interest in cameras, optics, and cinematography, they often discussed the ideal lens for cinematography—for them, an unfulfilled dream.

In 2005, Austrian photography aficionado, businessman and former professor Dr. Andreas Kaufmann became the majority shareholder of Leica AG through his company ACM Projektentwicklung GmbH, Salzburg, Austria. Previously, about a third of Leica was owned by the French fashion house of Hermes.

Dr. Kaufmann is interesting. He helped start Germany's environmental Green Party in 1979 and taught history for 15 years. He was so committed to rescuing the ailing Leica company that, by 2006, he owned 97.5% of its shares. (The rest was publicly traded on the Frankfurt exchange.) Part of Dr. Kaufmann's estimable wealth came from a paper manufacturing company that belonged to his family for 101 years, where, small world again, Otto Nemenz's father managed accounts in the Middle East and Orient.

So, back to 2005. Christian Skrein met with Andreas Kaufmann. Skrein said, "You're a solid, bright industrialist and Leica is a world famous company, as we know, founded 1849 in Wetzlar. But never in history has Leica ever made cine lenses. Many after-market modifications have been done to Leica still lenses, rebarreled and re-housed, but never a cine lens. This is ironic because Oskar Barnack, designer of the first Leica still camera, made his first prototypes specifically to test motion picture film and lenses."

Dr. Kaufmann replied to Skrein, "Leica has manufactured over 1 million cameras and over 2 million still lenses—but you are right, not a single 35mm cine lens. The corporate philosophy had been, 'We don't want to get into these moving picture things,' and they didn't feel they had enough motion picture enthusiasts."

Christian Skrein said, "I have a concept and a friend in Hollywood, Otto Nemenz. He and I have had a dream for many years. Does it make sense?"

That evening in December 2005, Otto received a phone call.

Christian: "Otto, we have our dream."

Otto: "What dream? Leica lenses?"

Christian: "Yes, Leica."

Otto: "How is that possible?"

Christian: "We know the new owner of the factory."

The meetings began. The three Austrians drew up an initial list of seven parameters. The lenses had to be:

1. Lightweight.
2. Small in size.
3. T1.4 maximum aperture.
4. User-friendly focus and iris scales.
5. Fitted with a Titanium PL mount.
6. Greater than 35mm cine silent aperture coverage.
7. Easy for camera assistants to handle—easy in the hand.

The physical characteristics of the body were to be understated, elegant, without reflections. It should be easy to repair, simple to replace a front element, ideally in 25 minutes. This would not be easy because it's in direct conflict with light and small. It would be made even more difficult for the designer, because adjustment of tolerances is much easier in a large and heavy lens. Multiple aspheric elements would be a way to achieve this.

Although Leica has not built 35mm cine lenses before, there is a



Gerhard Baier and Christian Skrein



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

strong link to aspheric designs. Dr. Mandler, optical designer for Leica, used aspherics in the Leica 35mm Summilux-M f1.4 ASPH, as well as the world's fastest aspherical lens, the Leica Noctilux 50 mm f/0.95 ASPH and Leica Summilux-M 50 mm f/1.4 ASPH (called the best standard lens ever produced by DP Review).

The next question was, "Who was the best available lens designer in the world to do this?"

All roads led to Iain Neil in Lugano, Switzerland. Dr. Kaufmann invited Iain, Otto, and Christian for a meeting. With flip-charts and drawings, they drew up the plans. The charts showed the finished product specification—they understood the goal in advance. With a combined level of experience of over a hundred years, this international gang of four were no dummies. Optical design is acknowledged to be a series of informed compromises. It's a holy trinity of balancing cost, compromise and quality.

Two Years Later

Jon Fauer caught up with Christian Skrein two years later near Wetzlar, in September 2012 and conducted this interview.

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.)

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.





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.

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. It was an assortment of brushes.

Christian Skrein on Leica Cine Lenses (cont'd)



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

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 3*. 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.

Iain Neil



This interview with Iain Neil was done in June 2010.

Iain Neil is a international, multi-talented optical designer, currently living in Lugano, Switzerland. He was born in Scotland, graduated from Strathclyde University in Glasgow in 1977 with a B.Sc. Honors degree in Applied Physics, awarded Alumnus of the Year in 2003 and made Visiting Professor to the Department of Physics in 2004. Along the way, he won more technical Oscars than anyone else, and has been issued or applied for over 150 worldwide optically-related patents.

His association with Leica goes back over 30 years. He worked for Barr & Stroud Ltd. Scotland (now a division of Thales), as Head of Optical Design. The company had associations with Leitz Wetzlar. He then was employed at Ernst Leitz Canada Ltd. (now Raytheon ELCAN Optical Technologies Ltd.) as Manager, Systems Engineering. Most cinematographers, of course, will remember Iain from his eighteen years at Panavision Inc. as Executive Vice President, Research & Development and Optics, and Chief Technical Officer. At Panavision, his work included the design and development of the Primo series of spherical and anamorphic lenses, video systems, viewfinder optics, HDTV optical systems, compound zoom lenses, and much more.

Iain Neil has known Otto Nemenz for more than 22 years—through his connections at Panavision. When Otto first started in Hollywood he worked in the Panavision lens department, building anamorphic lenses under George Kraemer, who was the optics guru at the time. When Iain started at Panavision, he was sort of taking over from George, who knew Otto very well. After leaving Panavision, Iain moved back to Europe in 2005 and provided optical services from his company ScotOptix. His involvement with the Leica Cine Lens project began in 2007. I spoke with him by phone in Wetzlar recently.

Iain explained, "By 2007, Dr. Kaufmann, Christian Skrein and Otto Nemenz had come to the conclusion that there should be a project to make Prime Cine lenses. They had put the rough specifications together as to what kind of lenses these would be. They had already decided on prime lenses: it was a question of aperture, size, weight, resolution, etc. The general specifications had already been determined. It was market driven, answering the question, 'What's the right product for the film and digital market?' One key aspect was to consider cameras with both film and electronic sensors. It was to design lenses equally good for film or digital. The digital application became more important as time went on."

When Iain got on board, it was clear the first thing they needed to do was put together a top notch, world class team of experts to develop this kind of product. Leica had never been in the business of making lenses for cinema cameras. Yes, there had been modifications, but this was a new thing.

When Andreas Kaufmann and Christian Skrein met with him, Iain said, "You'll need a team of people, not just one person."

When he heard the specs from Otto and Christian, Iain knew this was going to be extremely demanding—and that they needed a very, very strong team. They assembled a worldwide team, connected by phone, computer, and internet, to design the optics, mechanics and aspects of manufacturing. It was a first class group—they didn't want to be on the learning curve; they all had to know what they were doing. Iain explained, "When I looked at the speed (T stop had to be fast), the size (had to be small, reduced length and small diameter—compared to what existed at the moment), and feed in the requirements for film and digital, future-proof, good for the next 10-20 years—we had to come up with an optical design that corrects optical aberrations and reduces certain unwanted characteristics. This was not going to be a series of lenses that's just a mere improvement over what's been there before. This was a situation that happens every quarter century, where you can make a quantum leap in lens design as opposed to an improvement.

"To do that, we had to start from scratch, asking, 'How can we meet this target?' The base set of 8 lenses, from wide angle to long focal length, derive from a single optical design approach and construction. I created a new optical design, which is patent pending, and it covers the whole range of lenses. They all derive from one core optical design which involves using more than one aspherical surface. That's the key thing."

Iain was the optical designer. He spent thousands of hours, over a few years, using powerful computers and one of the most advanced lens design programs in the world. He also had to write a lot of additional algorithms and proprietary macro software. After several years, one of the major things they contended with was elimination of color fringing.

On film, in the past, minor color fringing was less critical than on current high definition digital, which now has to be well controlled down to the pixel level. Color fringing has to be very carefully controlled: the number of elements in the lens, with different kinds of glass, push things to the limit. These new Leica lenses intended to squeeze in a small space as much glass as possible with virtually no air in between. "This would use up all degrees of freedom," Iain said.

The next big task was contending with shading, which is the light loss from the center of the lens to its outer edges. If you shoot against a white background or a cloudless blue sky, this shows up as a darkening circle, like vignetting, toward the edges. This can be up to 1 to 3 stops in older lenses. Electronic sensors are more critical in this respect, and the shading cannot be abrupt, suddenly happening at the corner of the picture.

Iain explained, "That was an enormous obstacle, especially for wide angle lenses. We achieved it with very little fall-off across the entire picture. And it had to be controlled for all focus distances. Even with our combination of aspheres, cramming everything into the small space, with our lens design coming together, the level of illumination remained very high.

"The other very big technical aspect, without getting into MTF, is that these lenses were designed to perform extremely well for not only 4K, but also 6K, 8K, and well beyond. Two major things (besides distortion and a few other things) contribute to picture quality when

you talk about camera resolution like 2K, 4K and so on. One is contrast and the other is resolution. Most cinematographers do lens tests by looking at a test chart that has black and white bars. You can put up a Baltar, you know, a really old lens from the 1950s, and you can say it's a 4K lens. But there's a difference.

"At whatever the resolution has to be for 4K, when you look at the contrast, how black the black is, how white the white is, for these black and white bars, when you measure it for a Baltar, you might get only 30% contrast. You should get ideally 100%, but the best you might hope for would be around 90% once you design and build the lens. Lenses from 20 years ago, maybe you get 40 or 50%. And this can vary over the picture, from center to edges. The point is, all these lenses are 4K. But then arguments go on over contrast—it's contrasty on axis, but not off…

"First, you've got to resolve your target. For a usable 4K picture, you've got to have high contrast. We are aiming for 6K, 8K with high contrast, and we're looking to set a new standard that will meet film and electronic sensor requirements for the future. This is not a gradual improvement, this is a quantum leap. When you invest in a set of lenses, you want to be sure your investment is future-proof for a good span of time, say at least 10 or more years. We're not in the game of coming out with a new set of lenses and 3 years down the road coming out with something completely different.

"There was one snag. It was a major thing. If you look at the trend in cine lenses in the last 20 years—the barrels got larger. Everyone has lenses that have barrels with a pretty large diameter. The main reason was for focus scale marks and how well spaced apart they were—particularly in the range from 6' to infinity. The scale there normally is a bit compressed, so it's a double whammy. You need a big diameter just to get more marks. So as a result, the lenses became bigger and heavier. If you make them a bit too big, you reach a point where it's even hard to get the lens out of the lens case and you might need three hands to do a lens change. From the user point of view, if it gets too big it almost becomes unmanageable. So if you have these big, heavy lenses in a big, heavy lens case, and you're outside on location, climbing a mountain…there are a lot of practical issues for wanting to make the lenses smaller."

The Leica Summilux-C designers understood this. They had a lens with great optical performance, jammed full of exotic glass, aspherical surfaces, all this great performance, but they now had a lens that was 20% thinner in diameter and 30 to 40% smaller in circumference. The focus scale was once again much smaller and much more difficult to use.

Iain came up with another invention.

"I arrived at a unique way of solving, for the customer and the focus puller, a design arrangement using the optics and mechanics, where from 6' to infinity we're using half the available rotation, and from close focus to 6' is the other half of the travel. And that was our new design, which even though the diameter was 20% less, the spacing of the focus marks from 6' to infinity is 60% greater than on most other lenses. To achieve this kind of thing you need very good optics and mechanics, but that's why we put this strong team together. We had much more than a hundred years of combined experience on this team. The scale is even more expanded than on the largest diameter lenses.

"So that completely changes the direction of cine lens design. In the coming years, everyone will want to do this. And not only did we make the scale expanded, we went one step further. We also made it the same for every lens in the set, between 6' and infinity. The feel is the same from lens to lens in the entire set. The scales are all virtually identical. This is especially handy when you put the lens on a crane with a remote head, so the remote focus scale is the same. This was a unique invention in the package of many new and powerful benefits out of these small, breakthrough lenses.

"We were aware of the 3D trend, but this didn't come up at the beginning. It came up later in the design phase when we realized that 3D was no longer a fad, but that the studios needed something else. Smaller and shorter lenses, with a factor of about two times less weight, and much smaller, are especially suitable for shooting with two cameras on a rig."

In realizing this project, there were three key factors in making the large leap in lens logistics. They needed to know the market. They needed the general specifications: not a luxury car, but a Formula 1 custom racing car. And they had to design new software to do it. Most important, they needed an investor for this long-term project who had to be committed, determined, and believed the goal could be achieved. He had to be willing and able to put money down and stick with it.

That was Dr. Andreas Kaufmann.

Iain said, "This is the kind of thing that only happens a few times every century. One of the previous quantum leaps in cine optics was the development of the early cine zoom lenses by Angénieux and Cooke, followed later by the Panavision Primo high end zoom lenses. They were made possible partly by advances in lens coatings and the advent of computers. Remember, before that, lenses weren't coated, so if you had all these lens elements, by the time the light hit the film there wouldn't be any light left at all. The Cooke Triplet was revolutionary in 1893, but it would have taken over 1 million man-hours to design a modern zoom lens back then: that's one man working a million hours, or a million men working one hour. These were positive, breakthrough, disruptive technologies in optics. These were huge events."

The key players were Dr. Andreas Kaufmann, Managing Director of ACM, CW Sonderoptic, Chairman of Leica; Christian Skrein, photographer, filmmaker, collector, longtime friend of Otto Nemenz, President of Otto Nemenz International; and Iain Neil, optical designer.

Iain explained, "Another company might have gotten stuck, or done something not as brand new. Or they would have done what some other companies have done, made conservative lenses that wouldn't be as good or future-proof.

"In addition to all that, to the multiple aspheric surfaces, we've added both a thread in the front for screw-in filters, and at the rear, for net or gel holders. The iris closes all the way down—this is helpful for electronic cinematography. And finally, the proof is in the pudding, as we say. These lenses have exceptional image quality, resolution, contrast, without shading (fall-off). Skin tones have a pleasing, pleasant look. In summary, we tried to balance all of the specifications. The key features balance the market requirements, specifications and technology."

Iain Neil at the Leica Historical Society



Jon Fauer, Iain Neil, Rolf Fricke (President Emeritus LHSA), Andreas Kaufmann (Managing Director ACM Projektentwicklung). www.lhsa.org

Prof. Iain Neil is chief optical designer of the new Leica Summilux-C cine lenses. He is also well known for consulting globally with optical technology companies. Iain was formerly Executive Vice President of Research & Development and Chief Technical Officer at Panavision. He has numerous worldwide optically related patents, has published and edited more than 30 papers and books, and received 11 Technical Academy Awards. Iain is a member of SPIE, SMPTE, Optical Society of America, the ASC, and AMPAS. At the annual meeting of the Leica Historical Society on October 15, 2011, Iain gave a presentation on Summilux-C lenses. Here are excerpts.

We recognized early on that digital cameras with single chip sensors were going to become quite important in terms of the optics because you have to satisfy certain technical requirements. They are not the same as film. With a film camera, you have a piece of film. And in front of it you have a lens. The lens produces an image on the film. With an electronic sensor, you usually have a low pass or some kind of filter, like a glass plate or crystal plate sitting between the sensor and the lens.

There's also a micro lens array on the sensor. It's like a tiny lens over each pixel. These optical and other sensor characteristics have mainly to do with specific optical aberration correction, which don't exist with film. They actually have a pretty serious impact on the optical design and what you need to do to make the lenses work best with those kinds of sensors.

So we placed a lot of emphasis on optimization of lens design to work not only with film but also with these new requirements for digital sensors. We had to make some projections and estimates of what would happen with future electronic sensors. Film tended to be a slow moving capture medium in terms of technology, whereas electronic sensors tend to change quite rapidly. Unlike cameras, cine lenses usually have a life of 10, even maybe 20 years.

Some years ago, Andreas Kaufmann, Christian Skrein, Otto Nemenz, a few others, and I met in Salzburg and decided what would be the base parameters. In other words, before writing a detailed target specification of what the lenses should do, it was more about the key parameters. We came up with several wishes—including light weight, small size, and a fast aperture.

We also went for slightly greater than full 35mm cine frame. Full cine frame is about 28, 29 mm diagonal, depending which standard you read. We went for at least 32 mm. This is about two-thirds of a still frame. We went a little bit larger because the sensor technology is changing. Some cameras have larger sensors. One of the problems with that is suddenly many lenses don't cover the format. So we just went a little bit on the large size for safety. We made a prediction that this might be useful to have.

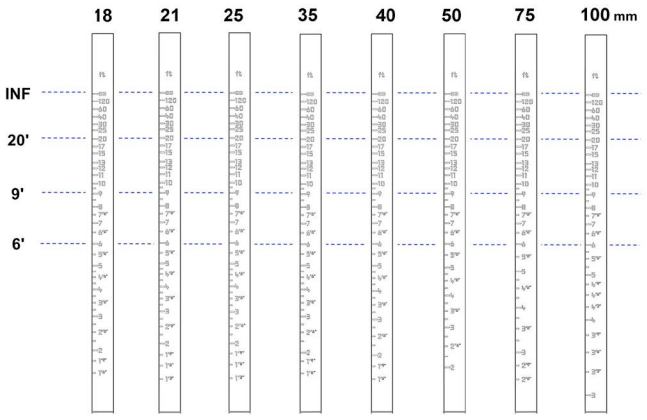
Leica Summilux-C lenses are motion picture lenses with specifications never seen before. They use multiple aspheric elements. Some tolerances are down in single digit microns. We're approaching the realm of the wavelength of light.

We wanted high contrast and we wanted high resolution—ready for the next generation of 4K, 6K cameras and beyond.

We wanted the lenses to be easy for the camera assistants to handle. The idea is that many cine lenses tend to be quite large, heavy, and you need two hands just to lift the lens. And if you are trying to put it on a camera, you may need two hands to put the lens on the camera. But you need like a third hand or maybe you can lift your foot up just to lock the lens lock. So if you can lift up a lens with one hand, put it on a camera, and then use the other hand to basically lock the lens lock—it seems almost obvious.

Leica Summilux-C lenses have high resolution, extremely high contrast, and almost no chromatic aberration over the full image. We have high relative illumination. That's important for digital sensors because if you have light falling off towards the corner of the picture, that will show up as shading. Film is much more forgiving. You can maybe lose about two or three stops of light. You could be T2 on axis and you could be maybe T8 at the corner of the picture with film and you may not see shading in the image. But with an electronic sensor, and it doesn't matter which kind, you could have T2 on axis but you preferably don't want to go past about T2.4 at the corner of the picture. Also, you want a gradual fall-off in illumination from center to corner of the picture, not a cliff-like fall-off as in many previously designed lenses. The terminology I use for that is high relative illumination.

We have a patent issued for a small diameter focus scale. Every mark in every lens is individually calibrated and engraved. But the challenge with a small diameter lens is that you can end up with all the marks being very crowded together, which means it can be difficult to focus. We actually went for a novel feature—which is to have almost an identical, consistent focus mark spacing from six feet to infinity. That's usually the main region of use in motion pictures, six feet to infinity (roughly just under two meters to infinity). We decided to make all the lenses have the same scale, the same length of scale and the same circumference of the lens with the same marks in the main region of use. This was the first time that this had actually been done in a whole series of lenses.



Iain Neil on Designing Summilux-C Lenses

Set of 11 Leica Summilux-C T1.4 Primes:
16, 18, 21, 25, 29, 35, 40, 50, 65, 75, 100, mm



by Iain Neil, Optical Designer of Summilux-C Lenses
April 2013

In designing the Leica Summilux-C lenses, we included the following artistic qualities: good skin tone (texture and color), pleasant and attractive handling of highlights during daytime and nighttime, even light across the picture or low picture shading (such as seen in panoramic blue sky scenes), low or non-existent color fringing, a classic image with a 'smooth' Leica look (not clinical).

Here is a practical, technical explanation. In designing the Leica Summilux-C lenses, we looked for high contrast at medium resolution and medium contrast at high resolution, slightly warm color balance (slightly higher for digital than for film lenses), blackest blacks, low glare and low veiling glare, low halo or halation, high relative field illumination, low longitudinal and lateral color, and near telecentric output to match sensor micro-lens optics.

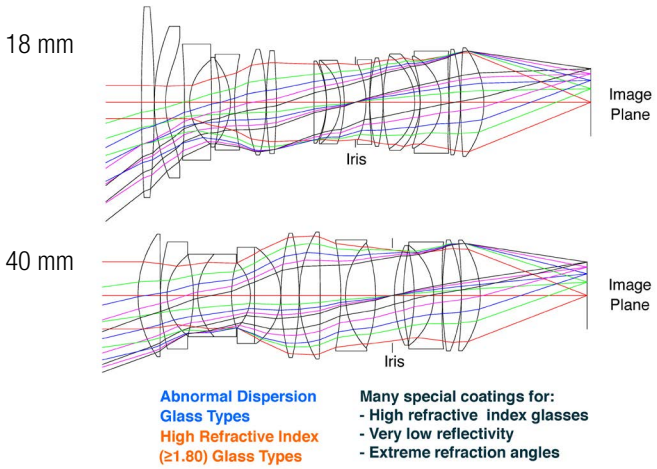
Digital motion picture cameras have created a demand for new lenses with characteristics that match electronic sensors and benefit camera performance. Some of these lens characteristics may have already been requested for film. High contrast and resolution are required as before, but now some previously less noticeable things are becoming more important: low color fringing, high field illumination (i.e. low picture shading, especially towards the corners of the picture) and a nearly telecentric exit pupil location.

All of these requirements can be substantially achieved in combination. Together they have a significant impact on the optical and mechanical design of the lens. High resolution and contrast, when combined with a particular camera, may prove to be the best image technically but it may not suit the content, theme, genre or let's say "look" of the material being photographed. In fact, what is needed are lenses that offer the opportunity to vary the results. For example, an old Baltar lens look, which is generally lower in resolution and contrast, may best suit a period piece—but other things like low color fringing and low shading may still be highly favored. What this means for the lens is that design features are required to maximize the imaging flexibility.

Considering all this, it is customary to provide lenses with high resolution, high contrast and low color fringing. A considerable number of lens elements need to be employed, many of which comprise exotic glass types. In addition, special coatings need to be applied to the lens element surfaces to maximize transmission, to minimize ghosting due to light reflections coming back into the lens from the camera sensor and returning via lens surface(s) to the sensor, and to manage large values and ranges of ray angles incident upon lens element surfaces.

Plots of 18 mm and 40 mm lenses, which are similar to the Leica Summilux-C lenses, are shown in Figure 1. Modern optical manufacturing technology can readily fabricate these optical compo-

Fig.1 Exotic Glasses



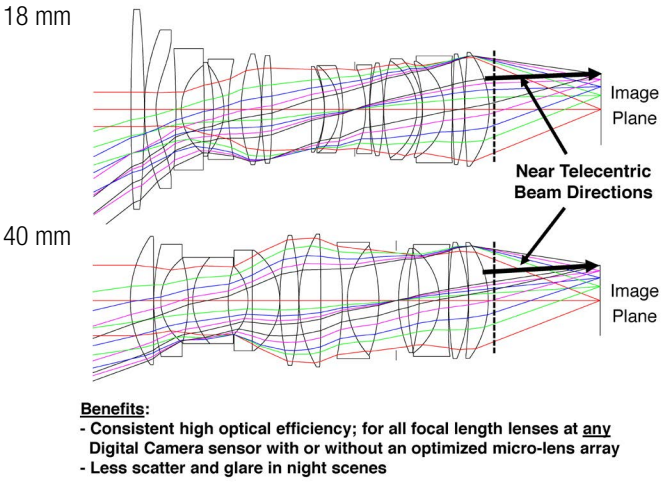
nents even given the level of intrinsic complexity.

Moving on to color fringing, a level that might be considered preferable and acceptable can be achieved by adopting numerous exotic glasses.

Another important lens characteristic, especially for digital cameras, is that of the output direction of the light beams that exit the lens in the direction of the camera sensor.

For many digital sensors, the output light beams are ideally telecentric with the sensor (according to the photometric center of the light beam), meaning that the light hits the sensor almost perpendicular to its surface. This can be attained with appropriate optical designs as shown in Figure 2.

Fig. 2 Lens Optical Interface to Sensor



The significance of this attribute is that optical efficiency at the sensor may be improved and less fish-scale, rainbow and spurious ghosting or scattering effects appear, particularly in night scenes.

Having described all these high performance characteristics and shown that they are certainly well within reach for modern cine lenses, there is still that period look to be addressed, where perhaps lower resolution or lower contrast or both are desired.

Ironically, this is like saying that, having gone to all the trouble to maximize lens performance, it now needs to be degraded.

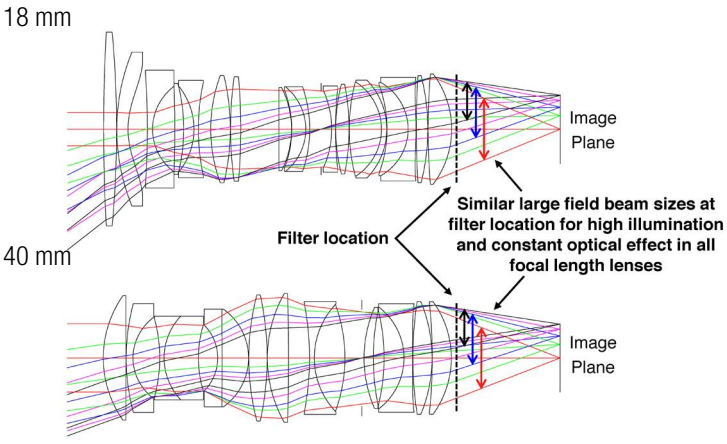
One way to alter the lens resolution and contrast is to modify the light with filters. Even though all the Leica Summilux-C lenses do have a constant diameter screw-in front filter capability, and the lenses can be used with a mattebox, it is sometimes difficult to maintain a consistent image "look" across an entire range of focal lengths with a front filter.

Normally the same can be said for a rear filter, assuming the lens has that capability. However, if the light output (beam sizes and directions) at a rear filter location can be kept almost constant across a focal length range of lenses, then the same filter on two different focal length lenses will produce a closely similar result.

As mentioned before, in the Leica Summilux-C lenses the rear output angle of the field beams is near telecentric and is also fairly consistent. Furthermore, they are similar in size from focal length lens to focal length lens, as can be seen in Figure 3.

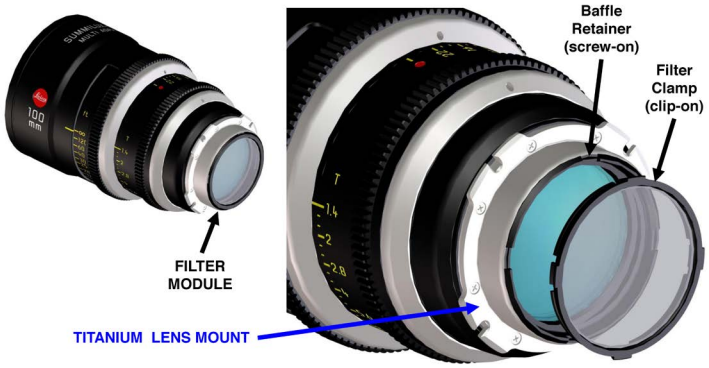
By creating sufficient space at the rear of the lens it is also possible to design a module in the form of a light baffle that is made up of two pieces; a first part that screws into the rear of any Summilux-C lens, and a second clamp-on part that traps or holds a net between the two parts.

Fig. 3 Consistent Rear Filter Optical Effect



As shown in Figure 4, this arrangement allows for the same behind-the-lens module containing a net to be attached to different focal length lenses to provide a consistent look.

Fig. 4 Modular Rear Filter Capability



In terms of the exact look produced, this depends on the actual filter choice. Assuming a net is used, a nice side benefit is that the focus scale calibration remains unchanged with or without it.

Going further into additional image manipulation, ironically the look of some movies dictates aggressive alteration of the lens imaging by removing a coating or even scratching a lens element surface, presumably with the advance consent of the owner, and the knowledge of how expensive it will be to restore the lens back to its original condition.

In summary, new lenses for use with digital cameras have greater performance requirements but also require more built-in flexibility such as that offered by a modular rear net or filter. The Leica Summilux-C lenses do indeed combine a variety of high performance characteristics with several features, including provision of a rear filter capability to alter the look of the image.

Focus on Leica Summilux-C Lenses



Leica Summilux-C Lens set

by Howard Preston, Iain Neil and Jon Fauer. April 2012.

Leica Summilux-C lenses have a unique combination of T1.4 maximum aperture, 95 mm front diameter, small, comfortable size (easy lens changes with one hand) and very high optical performance. They also incorporate a non-linear cam in their focus mechanism to bring consistency to the focus scales over the entire set of focal lengths. More importantly, the separation between focus marks is increased for mid- and long distances, a big help for the focus puller.

In most lenses, the focus marks are most spread apart at close distances and become increasingly compressed as the focus distance approaches infinity. For these lenses the depth of field occupies a constant space along the focus scale. Take a look at some of your still lenses, or the Leica Summicron-M lenses, opposite page.

Leica Summicron still lenses for M series cameras indicate depth of field on the fixed ring adjacent to the focus witness mark. On the 35 mm Summicron (2nd from left, below), we see that at f/8 we're in focus from infinity to 5'. The depth of field witness marks are constant; the focus scale is calculated to provide equal depth of field at all points. This is done with a linear helical thread. The internal elements are moving in direct proportion to the rotation of the focus barrel.

The Leica Summilux-C cine lenses use internal cams—with a linear focus scale from infinity to 6' and a non-linear scale from 6' to close-focus. This promises to offer the best of both worlds. The non-linear close-focus scale provides the internal elements with travel that increases at close range with less rotation of the barrel.

As Iain Neil, optical designer of the Summilux-C lenses said, "The problem has been that compact, lightweight lenses have traditionally had small diameter focus scales with compressed and difficult-to-use focus marks from about 6 feet to infinity. The Summilux-C design optimizes focus mark spacing to expand the focus scale in the most-used region: from about 6 feet to infinity."

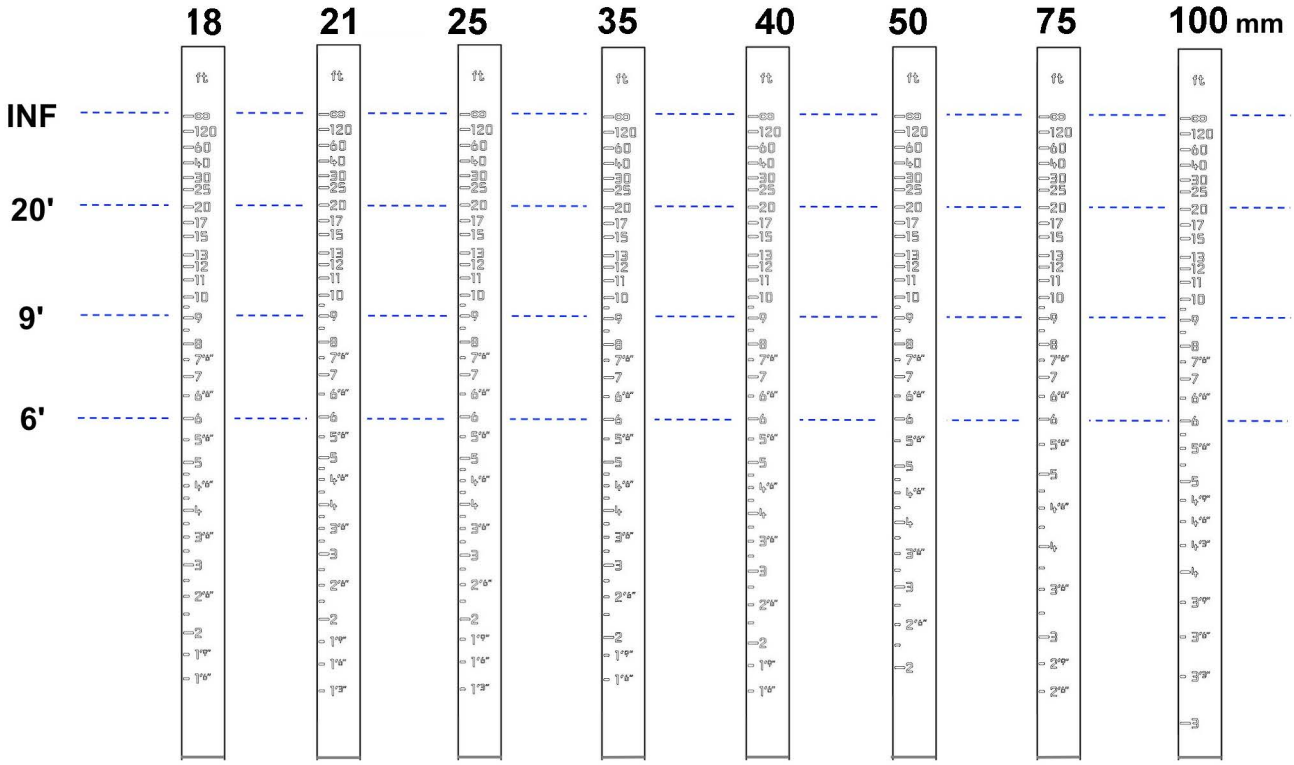
The table below shows how far the focus barrel of a popular cine lens must be turned to travel from infinity to the 6' focus mark:

Focal length	Degrees of Rotation from ∞ to 6'
14 mm	18°
25 mm	35°
50 mm	95°
100 mm	152°

Iain's design nicely balances the benefits of a non-linear focus cam for distances under 6 feet and a linear focus cam with increased spread and consistency for the most-used distances of 6 feet to infinity. The result is that the compact Summilux-C lenses are as easy for the focus puller to use as their much larger cousins.

Focus Scales

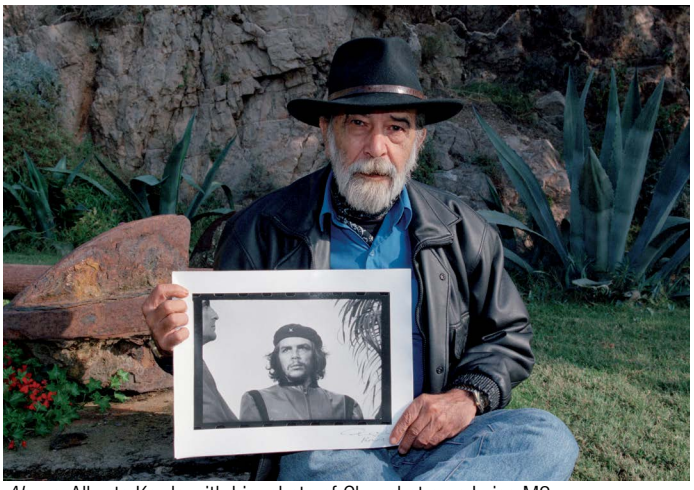
On the Leica Summilux-C lenses, the 6' focus mark is always about 110 degrees from the infinity mark, and near focus is about 255 degrees from infinity. All the focus marks on the lens barrel from infinity to about 6' are in the same position on all the different focal length lenses (below). These scales can be easily mapped to one of Preston's pre-printed focus scales.



Comparison with focus scales of Leica M Still Lenses



From Che to Cine Lenses



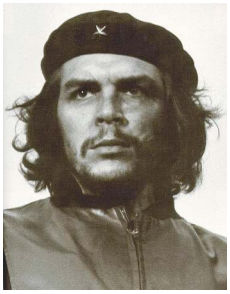
Above: Alberto Korda with his photo of Che, shot on a Leica M2.
Right: "Che Guevara," Iconic image of a generation. Oldest known print (1961-1964) taken by Alberto Korda in 1960, from the Christian Skrein Collection.
Below: Leica Summilux-C Cine Lenses



Above, left to right: Ulrich Schröder, Head of Cine Lens Assembly; Rainer Schnabel, Production Manager, with finished Summilux-C lenses;
Below: Uwe Weller with mechanical parts and his factory.







My first visit to Wetzlar was September 2010, sneaking around Solms, learning about Leica's new Summilux-C Cine Lenses and their provenance, production, and people.

There was a picture of Che in the Leica lobby. No other photo has been reproduced more often than Alberto Korda's iconic picture of Che. It was shot March 5, 1960 with a Leica M2, 90mm lens on Kodak Plus-X Pan film.

Alberto (Korda) Diaz Gutierrez was born in the same year as Ernesto (Che) Guevara de la Serna: 1928. Alberto became a prominent fashion photographer in pre-revolutionary Cuba, and changed his name to Korda, apparently a fan of Hungarian-born, British film producer-director Alexander Korda (who changed *his* name from Sándor László Kellner). Ernesto was the earnest medical student from Argentina, known as Che, later a legend.

Leica was another legend. No other still camera captured the imagination or the events of the twentieth century more prominently than the lightweight, portable, practical cameras from Ernst Leitz GmbH. The Leica Camera factory I visited was ten minutes east of Wetzlar, at Oskar-Barnack-Strasse in the little village of Solms. (This was before the move in 2014 to the new facility in Wetzlar.)

How does a camera or lens leap from concept to cult status, taking many of the world's most famous pictures? Success came from the simplicity of a lightweight, portable, meticulously machined camera that enabled more people to photograph high quality images than ever before.

However, a funny thing happened in the 1980s. Ironically, the company that helped bring photography to the world, along with Kodak, misunderestimated (as a former US President was fond of saying) the new paradigm of the ubiquitous image hunter-gatherer-sharer. Whereas Leica had sold cameras to almost every professional and prosumer on the planet, the new Japanese business model was to sell two affordable cameras—not just to pros—but to almost every inhabitant on digital earth.

In 2003 Dr. Andreas Kaufmann purchased a Leica camera. A few years later, he bought 97.5% of the company. Leica is part of his ACM group which also owns CW Sonderoptic, Viaoptic and the majority of Uwe Weller Feinwerktechnik.

Uwe Weller *(left)* took over the machining department of Leica Camera AG in 1994. Today, with a staff over 100 and 60 CNC machines, his company specializes in high-end precision mechanics, serving optical, automotive, medical and aerospace industries. They make mechanical parts for Leica and other prominent lens companies in the cine business. Most optical companies outsource their mechanical parts—lubricating oil, metal shavings, and anodizing chemicals do not cohabit easily with clean-room optical assembly. Of course, this was the cleanest machine shop I have ever seen—not a spot on the floor, not a speck of dust anywhere, with machining in titanium, aluminum and steel to micron tolerances. Uwe Weller Feinwerktechnik GmbH, located in Wetzlar, is managed by Uwe Weller. www.weller-feinwerktechnik.de

In 2010, Leica introduced ten new products, including the S2 system, M9, X1, and the new Leica Summilux-C Cine Lenses.

Leica Factory Tour: September 2010

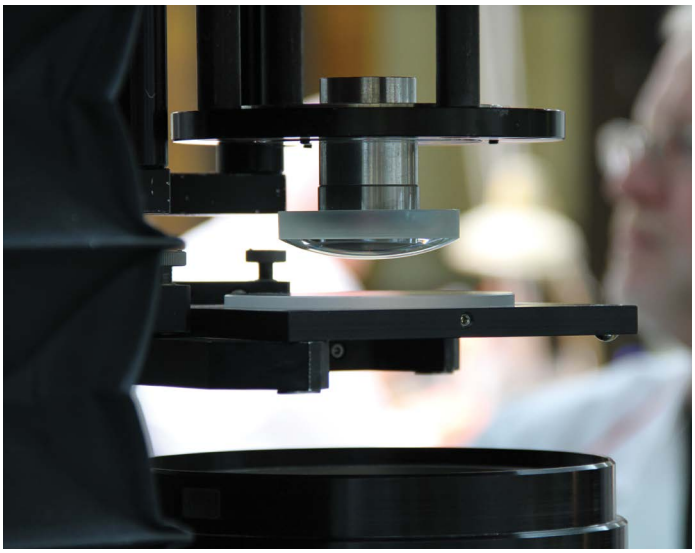


The Summilux-C Cine Lens Team at the former Leica factory in Solms (above).

The new Leica Summilux-C lenses have a multi-aspheric lens design. Aspherical lenses have complex curved surfaces—the radius of curvature changes according to distance from the optical axis. Aspherical lenses can concentrate all the light onto one point, provide improved correction of aberration, and higher resolution.

After grinding to a precision of 1 micron, the next step is polishing (below). For aspherical lenses, the polishing machine uses a small rotating tool that travels in a controlled path along the rotating element, "carving" the shape of the asphere. It's a much slower, more accurate process than for spherical surfaces—accurate to several nanometers.

Next, computer generated holograms measure the shape of the asphere to check for any deviations. The data is saved and loaded into the MRF (Magnetorheological Finishing) machines, which polish and correct any irregularities.



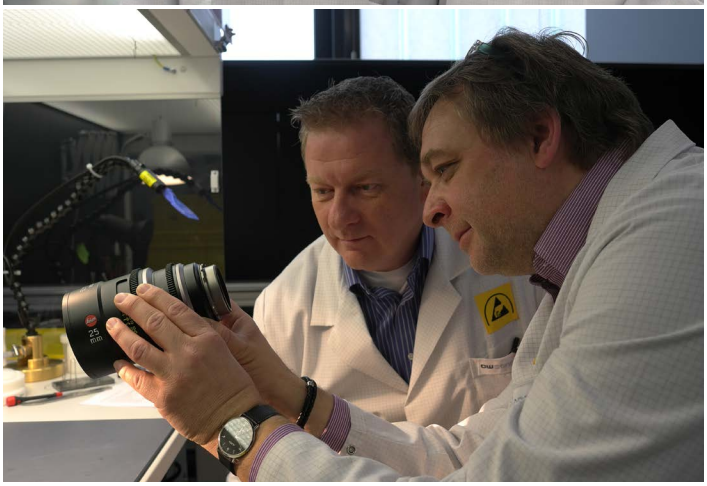






Gerhard and Bernhard at Leica: April 2012





There has been a lot of activity at Leica lately. Gerhard Baier (right) is now Managing Director. He shares the title with Erik Feichtinger, who previously shared the title with Iain Neil. Gerhard will be responsible for production and marketing, Erik for finance and operations. Iain continues as principal lens designer and CTO of the Leica Summilux-C Project. Bernhard Kratzer (left) is the new Production Manager, replacing Rainer Schnabel, who recently retired after 33 years at Leica. We spoke to Gerhard and Bernhard.

Jon Fauer: I guess you can answer the question on everyone's mind: when are Leica Summilux-C lenses shipping?

Gerhard Baier: We have been totally excited and overwhelmed by the feedback and response of the market to the Leica Summilux-C lenses. Rarely in the industry has there been such a huge amount of orders before a product was delivered, and that made adjustments in the production process really necessary.

We are ramping up and restructuring the production process. These are lenses that have never been seen in the market before in regards to performance, size and weight. So it's a completely new approach. We basically went through a learning curve on how to build, adjust, coat, and finish these lenses.

With these lenses, we raised the bar to a new level that was, I must say, a little bit unexpected in terms of production ability. With demands for perfection and fine-tuning of the lenses from the design into the industrial manufacturing process—some said we may have been too ambitious.

Perhaps. But without being ambitious, and I would rather call it a challenge, you're not going to make any progress. This is our game and we want to claim that high end. This is what Leica stands for and what we do. I apologize to the market that it takes longer. There's no excuse for the delay other than we really want to support the market with the best product.

This is our goal and this is what we are trying to do now. We are really making progress. The delay, even if it was long, is coming to an end. This spring, after NAB, we will start to deliver our lenses to the market in a larger quantity than up to now.

There is a perception about the design of the lenses being so ambitious that they are hard to make.

Yes, the design, made by Iain Neil, is ambitious. I call it challenging because we elevated lens manufacturing in regards to performance, weight and size to a new level. The whole concept of these lenses, envisioned by Christian Skrein, is challenging — and all the features of these lenses have not yet been fully recognized. We raised the bar for specifications and manufacturing tolerances. But meanwhile, we proved that we can make them, not in the time we had in mind, but we have shown that we can. Now we have to turn this into volume. And I think we are ready.

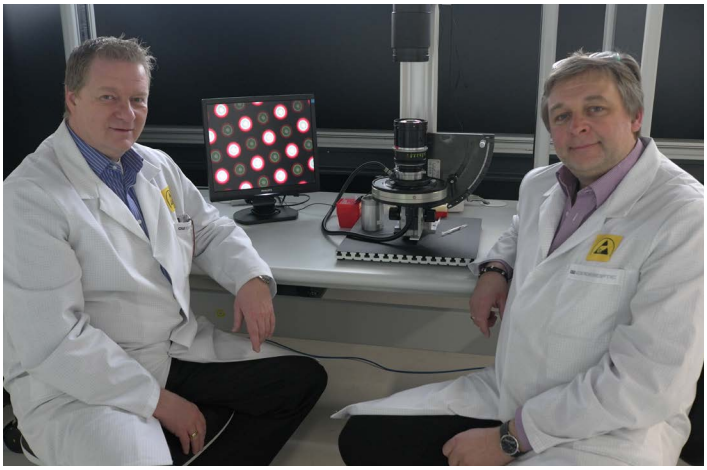
Bernhard Kratzer: I think the main point is to implement a more systematic production technique. What I found upon arriving at CW Sonderoptic was really more of a prototype assembly system that could make a limited number of lenses. It was time to bring the production up to a new level and say, "Okay, let's reorganize and begin industrial production for big numbers." And this is what we are doing. We will hire more people for production and expand the service department.

Gerhard Baier: When the project was started, the basic idea was to manufacture these lenses on an existing production line of still photography lenses at the Leica factory in Solms. However, it soon became clear that this could not be done. There was not enough capacity to use an existing Leica camera lens production line. They were totally back-ordered themselves, and didn't have any time or room for us. So the first decision was to open a completely new production line just focused on this particular project of Summilux-C lenses. CW Sonderoptic built a dedicated assembly facility. But it was not big enough to satisfy the demand for the more than 200 sets that were ordered soon after the introduction of the lenses.

Nobody did this before. Unfortunately, or luckily, this meant really starting a company from scratch. That was not the basic idea when the optical and the mechanical designs were conceived at the very beginning of the project.

And are you changing production techniques?

We found that we can shorten the time a lens needs to be built. This is also to deal with the volume. We have delivered 20 sets to Otto Nemenz International. Now we're going to hit the big and demanding volume market. In the production line, there is still a reserve that we can ramp up. But as Bernhard noted, we have to hire more people and we have to streamline the production process to make it leaner in order to get higher volume. We have to go away from being a handmade manufacturer, as we were before, and this will, of course, change production techniques.





We have another topic that is affecting our assembly rate, and I think it is important to know. We started with a set of 8 lenses, but we realized that in the high-end area where we are playing this is not enough. We are introducing additional focal lengths. You will see two of them working at NAB, and more to come at IBC this year.

About service. Will you have a service facility in the US?

First of all, we are implementing a service facility here in Wetzlar, and yes, we will have service facilities in the US. The plan is to certify Band Pro as a Leica service facility for Summilux-C lenses in Los Angeles.

Bernhard, let's talk about your background, where you came from, and how you got into this.

Bernhard Kratzer: I'm from Munich. I'm one of the rare few actually born in Munich—in 1966. I lived in Munich for the last 45 years. I attended school in Munich and then had an apprenticeship at Rodenstock as a precision mechanic and then as a master of precision mechanics and a master of business administration. I worked at Rodenstock and Qioptiq for the last 30 years in a lot of departments. I was responsible for logistics at the entire factory in Munich for distribution, stock, inventory management, the assembly department, and the mechanical department. I should also mention that I'm very interested in photography. It's a big hobby of mine. I hope I can do my very best at Leica to increase production and bring the products to a very high standard and high volume. I think I can.

Gerhard Baier: Maybe I can add something to what Bernhard just said. I think one of Bernhard's jobs at Qioptiq was to define, restructure, and implement workflows and processes towards the specific product. So basically what he is doing with his experience is really appreciated here to ramp up Summilux-C production.

Gerhard, tell us about your background and how you wound up at Leica.

Gerhard Baier: I was born in 1964 in the south of Germany. I was always interested in photography all my life. I was photographer for our school newspaper. While I was studying economics at the University of Augsburg, I also worked in their newly-opened video lab. So from still photography, by way of economics, I learned about motion pictures.

Next I got the chance (chance is an ironic way to say it) to go to Bosnia as a war reporter, cameraman, and editor for CNN, German TV and the BBC. I did that for over three years: 1991 to 1994.

I got my second degree, a Masters in Media Science, in Berlin. I moved to Munich because I fell in love with somebody there. Later, I met Amnon Band, from Band Pro Film & Digital, who offered me a job as a managing director for his Band Pro office in Munich that he wanted to open. That is how he managed to become my boss in 2002 and my friend later on.

I worked nearly ten years for Band Pro and this took me on an amazing journey pioneering HD and digital cinematography.

Weren't you involved with ZEISS DigiPrimes?

That was an amazing project I came to when I first joined Band Pro. That was part of using the first F900 cameras and elevating digital cinematography. We were looking for lenses that worked like 35mm film lenses. Amnon Band and the team at Carl Zeiss were the force behind that. It was totally amazing coming into the DigiPrime project at this very early stage and working together with all the participants. Many cameras later, F23, F35, F65—I am now here at CW Sonderoptic with Leica because this is one of the most exciting projects I have ever heard of.

You have 8 focal lengths now, right?

We learned and we saw pretty clearly that the market we are aiming for might not be satisfied with 8 lenses.

So we changed direction internally again. This is something that Bernhard is doing. He has to set up production now so that instead of doing a set of 8 lenses, we are now pushing additional focal lengths and expect to get them to the market earlier.

It's like a mosaic. A lot of tiny little things coming together. First, capacity and inability to manufacture enough lenses at a Leica production line influenced the decision to set up our own manufacturing facility. Then we changed from a set with 8 lenses to 10 lenses and more. The 29 and 65 mm coming to NAB as prototypes are planned to deliver towards IBC (September). At IBC, you're also going to see the 16 and 135 mm, which we are planning to deliver towards the end of the year.

Will there be additional or other sets of Leica lenses?

We are looking into all kinds of options and I think it's worth keeping an eye on us. We are definitely thinking of creating a family of cine lens products. We are exploring some options. I am not giving too much away by telling you to see us at IBC time. Save the date. At NAB, be sure to see Leica Summilux-C lenses at the booth of the worldwide distributor, Band Pro, C10308.

How to Build Leica Summilux-C Lenses: July 2012





I returned to Wetzlar in July 2012.

This is the front door of the new, "boutique" CW Sonderoptic assembly plant with some of the most advanced lens manufacturing techniques and equipment I have 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.



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.

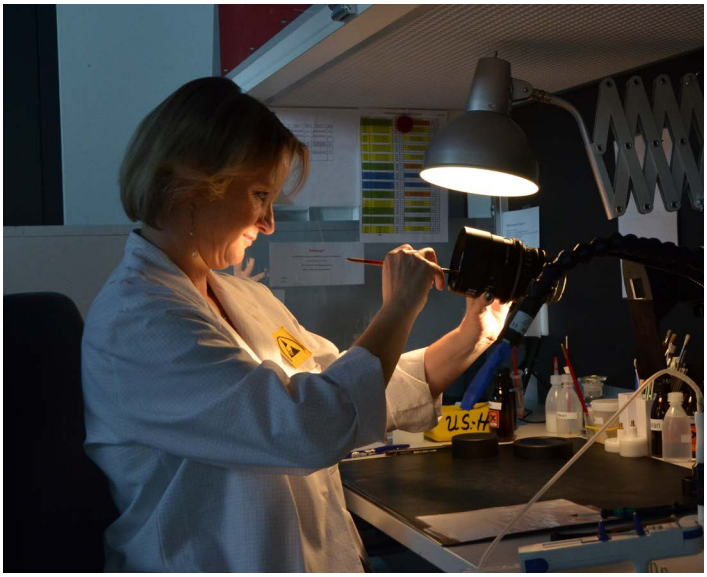


Gerhard Baier, Managing Director, leading the morning meeting with part of the CW Sonderoptic assembly team



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 (cont'd)



Cleaning optical sub-assemblies



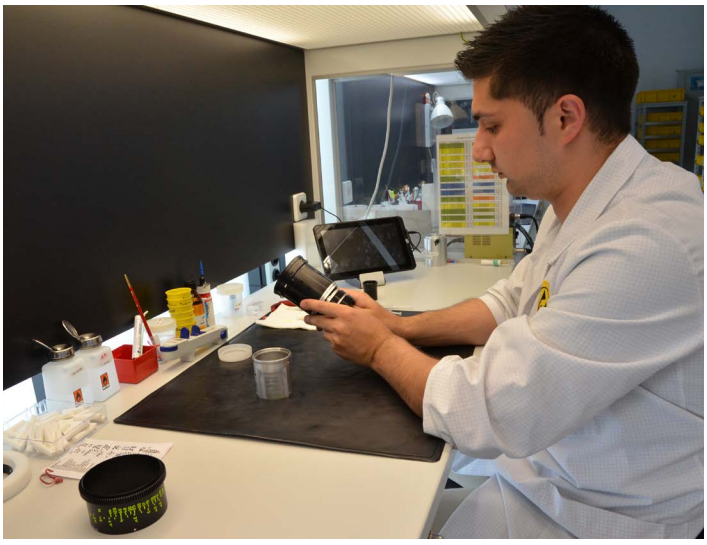
Cleaning and inspecting optical elements



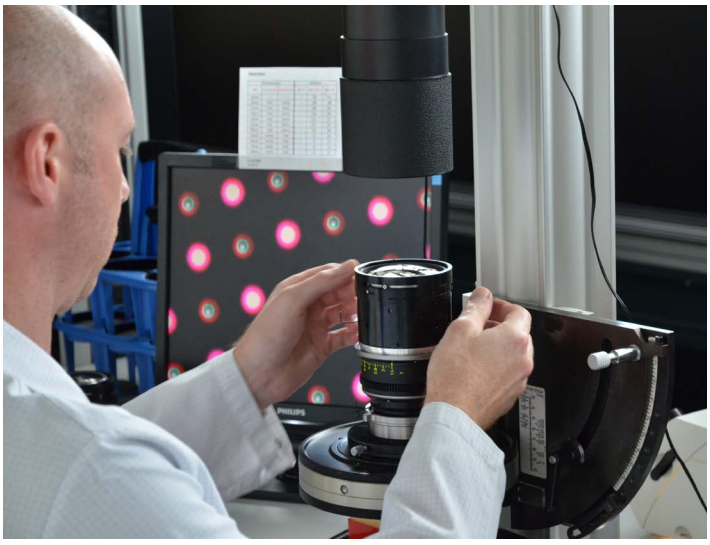
Assembly begins: the mechanical focus components are prepared prior to installing the optical elements



Checking optical centering

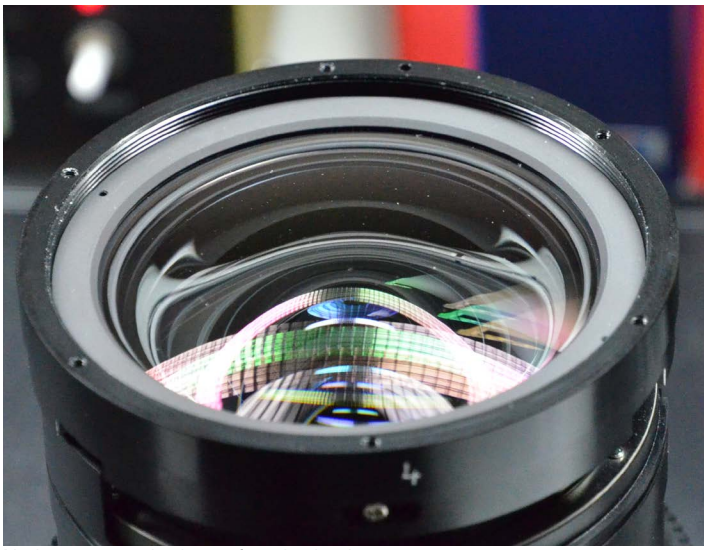


Mechanical assembly

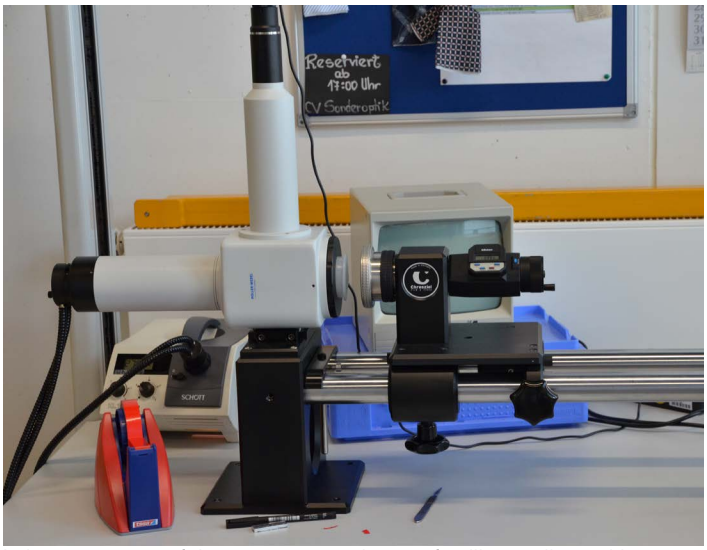


Testing is done at every step. Adjusting optical centering.

Leica Summilux-C Cine Lens Factory Tour (cont'd)



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.



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.

Leica Summilux-C Cine Lens Factory Tour (cont'd)



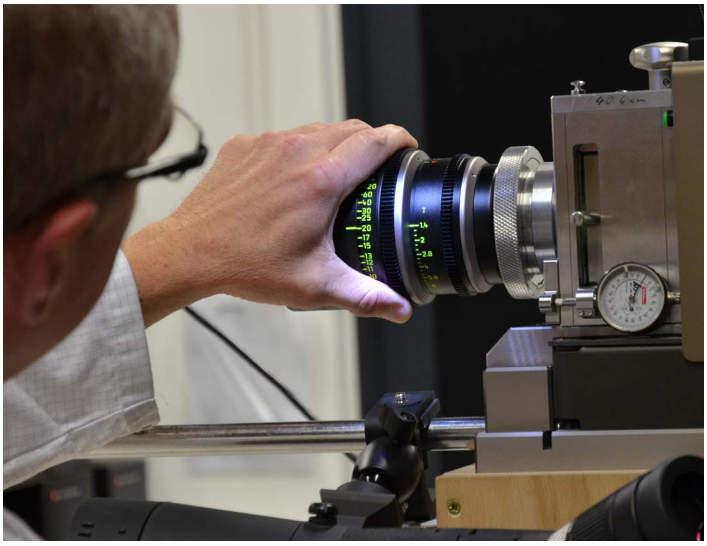
Inspecting lens—quality control



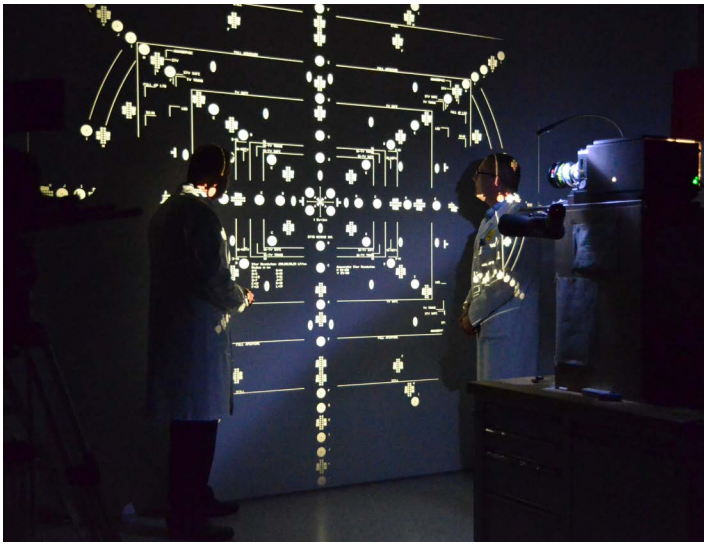
Familiar lens projection tools: a Gecko-Cam lens projector and Leica APO-Televid 65 spotting scope to check image sharpness.



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



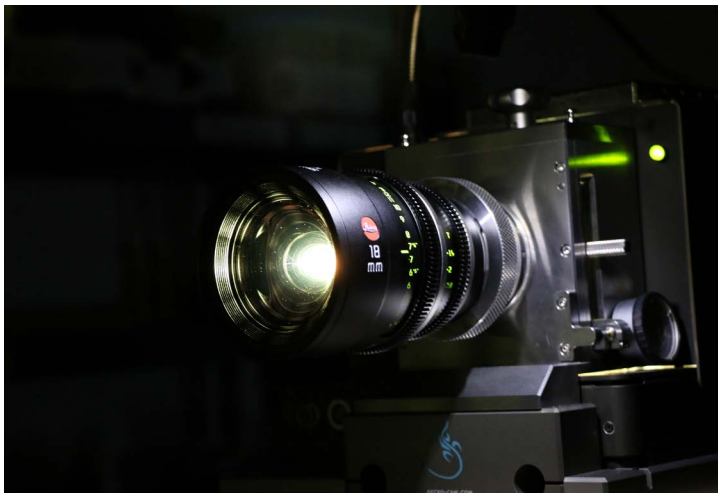
Each lens also undergoes a long period of mechanical wear-and-tear simulation: opening and closing the iris and racking focus



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

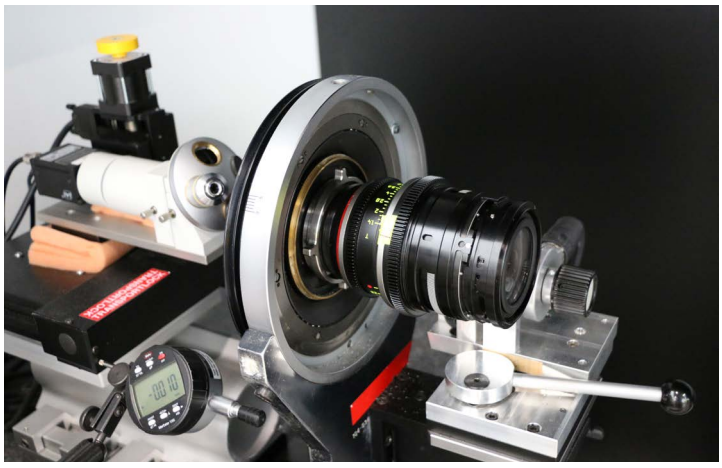
Leica Summilux-C Cine Lens Factory Tour (cont'd)



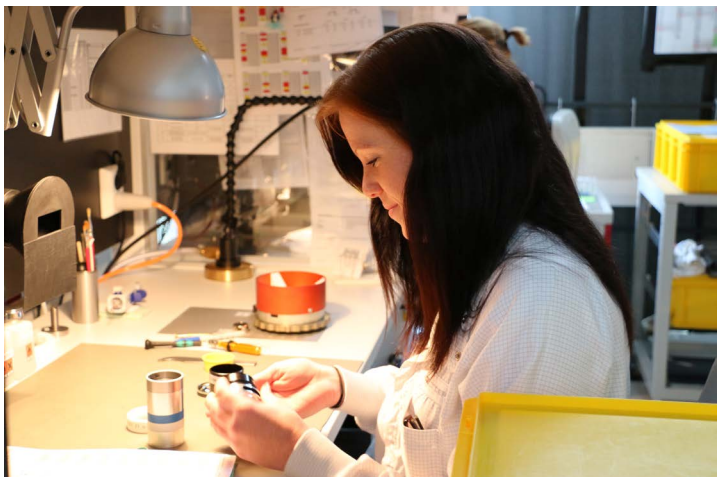


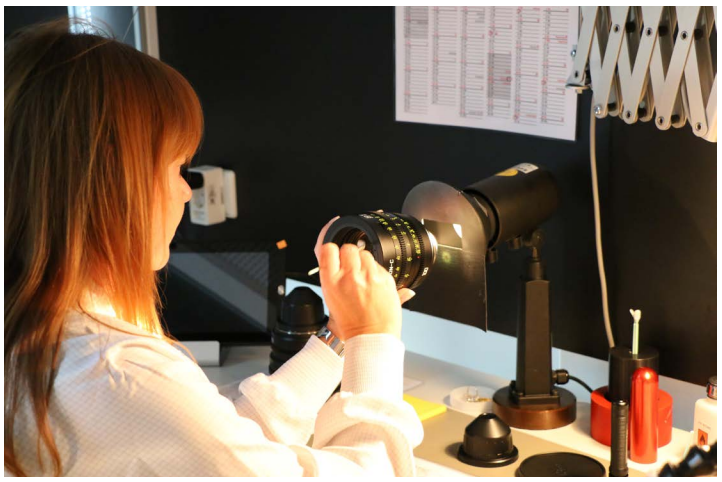












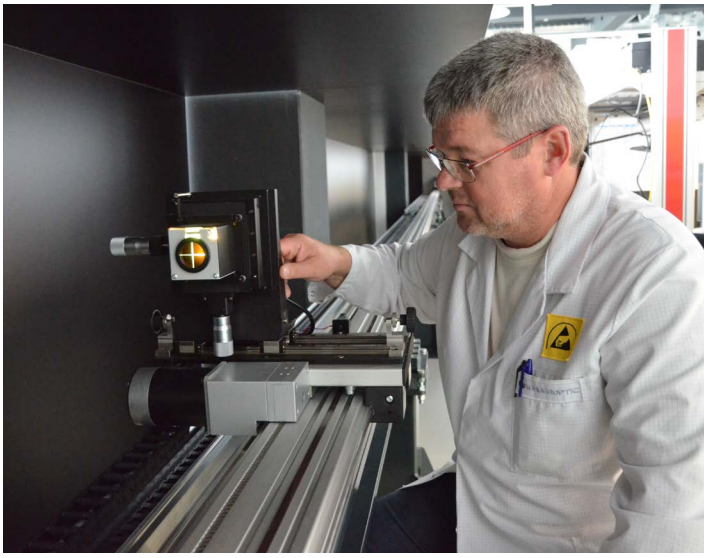
Leica Summilux-C Cine Lens Factory Tour (cont'd)



A focus-scale indexing system on a 60' long "railroad" moves an MTF target to each marked distance to be engraved on the focus barrel.



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.



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



Measuring air gaps of completed lens

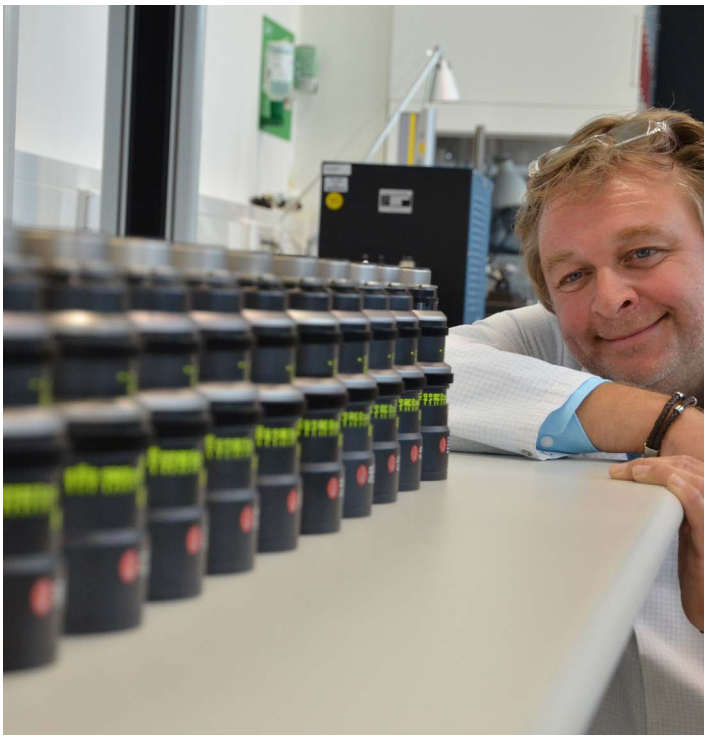


Serial numbers and data from all tests are saved for each lens. This data can be recalled whenever a lens is serviced, or a focus barrel swapped from feet to meters and back.



Final assembly in clean room

Leica Summilux-C Cine Lens Factory Tour (cont'd)



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 100 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

Leica Summilux-C Prime Lenses



Focal length	Design	Aperture	Close Focus Object to Image	Length Front to Flange	Length Front to Image Plane	Front Diameter
16 mm	Close Focus	T1.4-22 - closed	0.35 m / 1'2"	142 mm / 5.6"	194 mm / 7.6"	95 mm / 3.7"
18 mm	Close Focus	T1.4-22 - closed	0.35 m / 1'2"	142 mm / 5.6"	194 mm / 7.6"	95 mm / 3.7"
21 mm	Close Focus	T1.4-22 - closed	0.31 m / 1'0"	142 mm / 5.6"	194 mm / 7.6"	95 mm / 3.7"
25 mm	Close Focus	T1.4-22 - closed	0.31 m / 1'0"	142 mm / 5.6"	194 mm / 7.6"	95 mm / 3.7"
29 mm	Close Focus	T1.4-22 - closed	0.46 m / 1'6"	142 mm / 5.6"	194 mm / 7.6"	95 mm / 3.7"
35 mm	Close Focus	T1.4-22 - closed	0.36 m / 1'2"	142 mm / 5.6"	194 mm / 7.6"	95 mm / 3.7"
40 mm	Close Focus	T1.4-22 - closed	0.41 m / 1'4"	142 mm / 5.6"	194 mm / 7.6"	95 mm / 3.7"
50 mm	Close Focus	T1.4-22 - closed	0.50 m / 1'8"	142 mm / 5.6"	194 mm / 7.6"	95 mm / 3.7"
65 mm	Macro Focus	T1.4-22 - closed	0.43 m / 1'5"	142 mm / 5.6"	194 mm / 7.6"	95 mm / 3.7"
75 mm	Close Focus	T1.4-22 - closed	0.70 m / 2'3"	142 mm / 5.6"	194 mm / 7.6"	95 mm / 3.7"
100 mm	Close Focus	T1.4-22 - closed	0.90 m / 2'11"	142 mm / 5.6"	194 mm / 7.6"	95 mm / 3.7"

- For PL mount film and digital cine cameras
- Multi-aspheric optical design
- High resolution, high contrast, low chromatic aberration (full image)
- High relative illumination (minimal shading), flat-field illumination across the entire frame
- Even image quality over the field of view, consistent performance throughout the focus range
- Linear iris with closed position
- User-friendly, small diameter focus scales
- Expanded and consistent focus mark spacing in most-used focus range
- Compact, lightweight, ergonomic design
- Uniform small diameters and short lengths
- Lightweight 3.5-4.0 Lbs (1.6-1.8 Kg)
- Rugged titanium lens mount
- Front and rear filter capability

New Headquarters Announced: Sept 2012







Braunfels castle (above), built in the 13th century, perches above Solms and the manufacturing headquarters of Leica Camera until 2014 (bottom, left).

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 (left), 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.

A giant globe with a red dot locating Wetzlar (opposite page, top) 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.

Opposite, bottom: the new Leica Camera Headquarters is completed and the entire company has relocated from Solms in time for the opening celebrations in May 2014.

New Headquarters (cont'd)









Leica Camera Returns to Wetzlar: May 2014



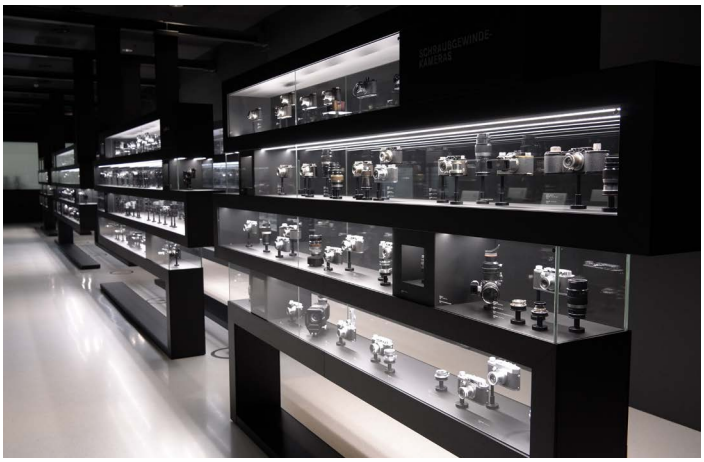
Leica Camera AG is back in Wetzlar. On the 100th anniversary of Oskar Barnack's "liliput" still camera that used motion picture film, Leica inaugurated a new 291,000 square feet (6.6 acres) headquarters to accommodate 700 employees. (The company was in nearby Solms since 1986.)



Presentation of Key, L-R: Markus Limberger, COO; Ruud Peters, CFO; Alfred Schopf, CEO; Andreas Kaufmann, Chairman of Supervisory Board; Wolfgang Kisselbach, CEO of Leitz-Park GmbH.



Above: Gerhard Baier and Wolfgang Kisselbach
Below: Frank Holzer, Managing Director of ACM Projektentwicklung GmbH and Peter Coeln, Director of WestLicht.





Leica Camera Returns to Wetzlar (cont'd)









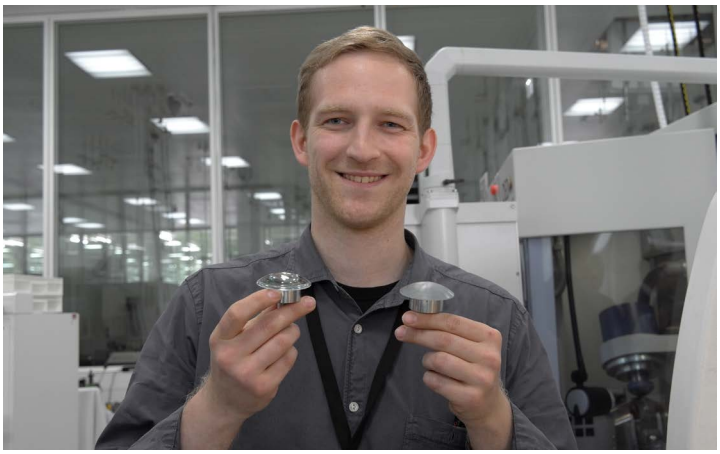




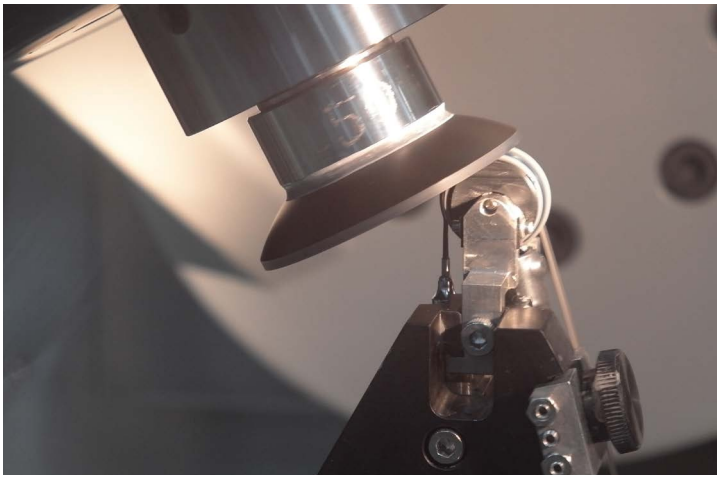


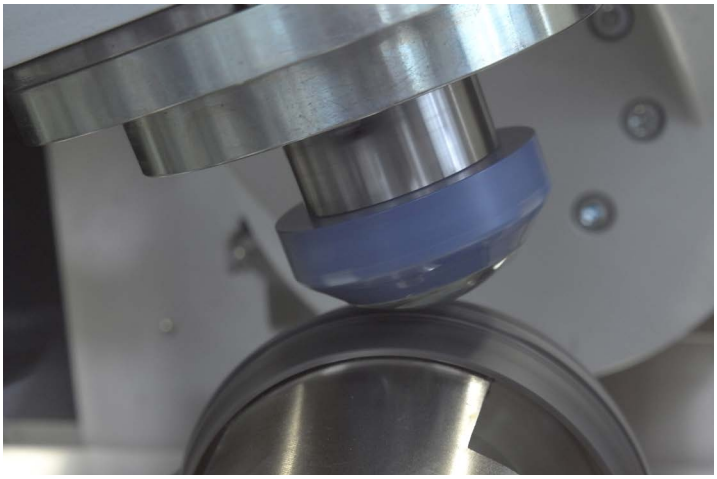


Leica Optical Finishing in New Wetzlar Facility

















Leica Camera Assembly in the New Wetzlar Facility



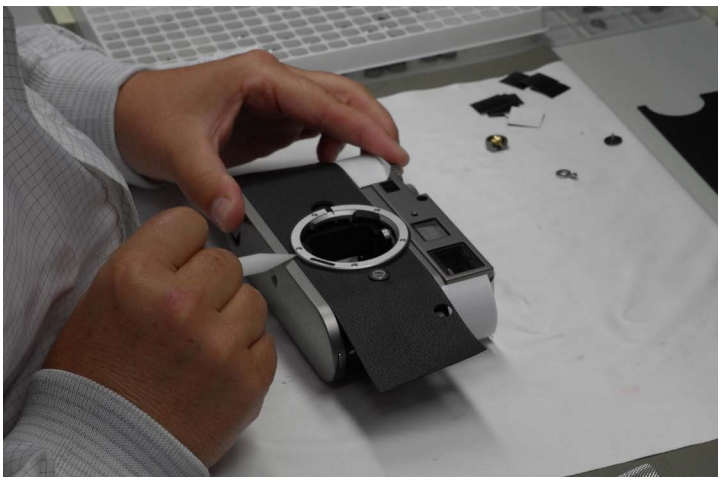










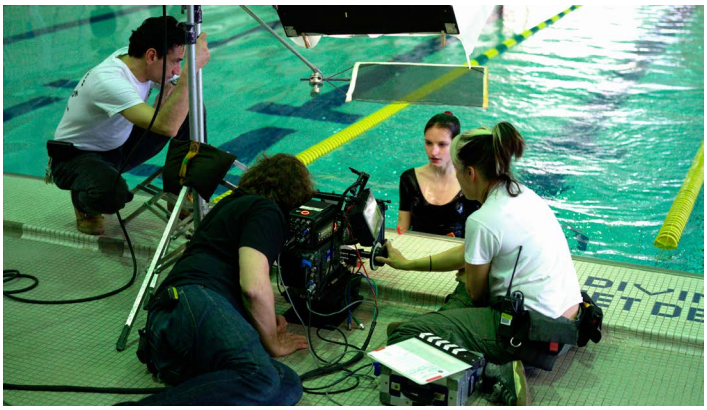




Harris Savides, ASC Tests in NY



Harris Savides, ASC tragically passed away in 2012. In April 2011, he tested one of the first sets of Leica Summilux-C prime lenses on location in New York. He told us, "They have a beautiful look—reminding me of the Leica still lenses that I have. The color and contrast reminds me of what I like in Leica lenses. It's difficult to put in words, but it's special. We shot day exterior on an overcast day, night exteriors, and interiors in a swimming center. They looked amazing wide open. I rated our ARRI ALEXA at 200 ISO for night exteriors, and used 5-stop ND filters during the day. I look forward to doing a movie with these Leicas."





Harris Savides, ASC above and below at left



Director/Cinematographer: Harris Savides, ASC. Framegrab from test shown at top.
Camera Operator: Petr Hlinomaz
1st Camera Assistant: Aurelia Winborn
Camera Utility: Joe Bottazzi Jr.
Location Manager: Joseph White
Still Photography: Jim Hegadorn
DIT: Jeff Flohr
Editor: Barry O Donnell
Post Production: Box Studios
Codex Operator: Randy Wedick
Gaffer: Joe Mattina (picture above, holding C-stand)
Producers & Stills: Erik Schietinger, Jim Hegadorn, Randy Wedick
Colorist: Pascal Dangin—Post coloring performed on Baselight
ARRI ALEXA and camera gear courtesy of TCS Inc.
Leica Summilux-C Prime lenses and Codex courtesy of Band Pro Film and Digital.
Production still images were shot with Leica Summilux-C lenses on FGV-PL Canon 7D.

Florian Ballhaus, ASC

Florian Ballhaus, ASC was the cinematographer on *Gambit*. He used Leica Summilux-C lenses, and had this to say in August 2011,

"In the world of digital cinematography, the character of the lens is revealed more closely given the absence of grain and other photochemical imperfections.

"The new Leica Summilux-C lenses have wonderful character with their gentle Leica look that one expects from the still lenses we all know and love. They are as sharp as you want them to be but the focus falls off quite gently. I found myself using less filtration with them because they render skin tones so beautifully. I was very impressed with how uniquely they handled highlights and flares. I'm definitely going to keep using them and I can't wait for the new additions to the line."

Florian Ballhaus, ASC on *Gambit*



Vilmos Zsigmond, ASC & Fred Goodich, ASC

"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. 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.



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



"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."

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

FILM AND DIGITAL TIMES



Worldwide Edition

Taylor Swift Music Video
with Summilux-C Lenses
Leica Summilux-C Factory Tour

Summilux-C on Taylor Swift: Cover Story Sept 2012



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.

Jon Fauer, ASC www.fdtimes.com June 2013 Issue 54

FILM AND DIGITAL TIMES



PhotoCineRent Paris and Leica Summilux-C

PhotoCineRent outfitted this Music Video for French rap band “Ayenalem” with Sony F55 cameras, Leica Summilux-C primes, CineTape, Transvideo Rainbow HD Monitor, and Sachtler artemis CineHD.
Photos on this, previous page, and cover by Albrecht Gerlach.

Director: Geoffrey Diaz
Camera Operator: Adrian Bernard
Camera Assistant: Kate Eccarius
Camera Operator - artemis Cine HD Pro: Alexandre Floris
Cinematographer: Maxence Muller
Focus Puller: Charly Brown



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)



cinegrell camera rentals: Sept 2013



cinegrell (with a lowercase "c") camera rentals in Zurich supplied the feature *I am the Goalie* with Alexa Plus cameras and Leica Summilux-C lenses. On location in Berne and Langenthal, the Alexas recorded ProRes 4444 onto internal SxS cards. The A-Camera is suspended from rope attached to an interesting counter-weighted support atop the dolly. B-Camera dangles from an Easyrig. Richard Grell, owner of cinegrell, said that their Leica Summilux-C lenses have been extremely busy this past summer, shooting more than 4 features in Switzerland.



(Above, l-r) 2nd Unit AC Björn Detre; 2nd Unit DP Gabriel Sandru; 1st AD Roger Schweizer; 1st AC Micky Schärer; DP Michael Saxer, SCS; Key Grip Urs Schmid. Production company: C-Films, Zurich.

(Below) 1st AC Micky Schärer and Cinematographer Michael Saxer, SCS.

(Below, left) 2nd Unit DP Gabriel Sandru. Photos by Richard Grell.





Jon Fauer, ASC www.fdtimes.com Dec 2013 Issue 57

FILM AND DIGITAL TIMES



Introducing Leica Summicron-C

Summicron-C Concept





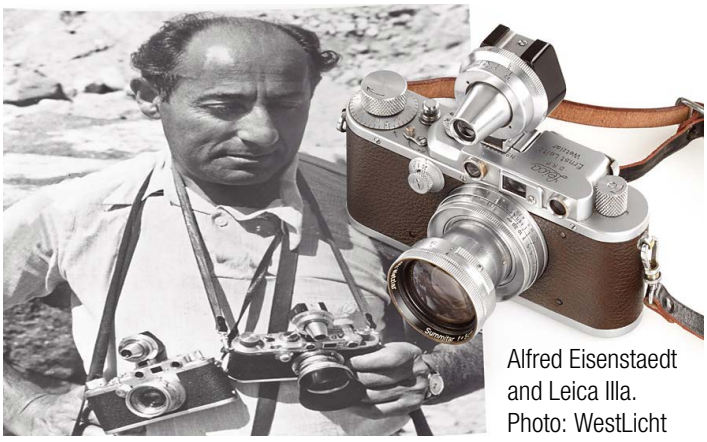
1945: (left) Alfred Eisenstaedt's *V-J Day in Times Square*. © Time & Life Pictures. Getty Images. Christian Skrein Collection.

2013: (above) At Micro Salon in Paris, Gerhard Baier, Managing Director of CW Sonderoptic, holds a Leica M camera with PL to M adapter and prototype Summicron-C lens. Dr. Andreas Kaufmann, Chairman of Leica, with M-9 and a late 1960s ultra-high resolution Leitz Canada Elcan 66 mm f/2 lens, designed by Walter Mandler for the US Navy and NATO.

August 14, 1945 was a decisive moment for Alfred Eisenstaedt. In *Eisenstaedt on Eisenstaedt*, he described his iconic photo *V-J Day in Times Square*. "I saw a sailor running along the street grabbing any and every girl in sight...I was running ahead of him with my Leica." The photograph was taken with his 1931 Leica IIIa and Summitar 50 mm f/2 lens. (That camera and lens, by the way, were purchased for almost $150,000 at the WestLicht Photographica auction in Vienna last May.)

Alfred Eisenstaedt's archives, researched by Christian Skrein, show a 1967 US Customs Registration Form listing a bag full of Leica MP, M2, M3 cameras and Summicron f/2 lenses. Apparently he had replaced his Summitars with Summicrons by then.

Ken Rockwell (kenrockwell.com) explains, "The Leica Summitar 50 mm f/2 was an extremely sharp lens in the center, and softer on the sides compared to Leica's newer lenses. The Summitar 50 mm f/2 was Leica's highest-performance normal lens from 1939 until it was replaced by the improved Summicron in 1952-53."



Alfred Eisenstaedt and Leica IIIa. Photo: WestLicht

About Leica lens names: Noctilux = f/0.95-f/1.2, Summilux = f/1.4, Summicron = f/2, Summarit = f/2.5, Elmarit = f/2.8, Elmar = f/3.5-f/4.

Jump cut to 2011. Design concepts for a Leica Summicron-C Cine Lens Set were drafted by Christian Skrein, Director/Cameraman, Photographer, and Board Member of CW Sonderoptic. The project was code-named "Eisenstaedt" in honor of Alfred Eisenstaedt.

Christian, who had previously drawn up specifications for the Leica Summilux-C T1.4 set with Andreas Kaufmann, Otto Nemenz, Erik Feichtinger, Alfred Schopf, and Iain Neil proposed a list of 16 features for the Summicron-C lenses. Among these:

- High resolution, high contrast, for digital cinema cameras
- Launch with set of 6 lenses, followed by another 4
- Manufacture in larger quantity than Summilux-C
- T-Stop range of T2.0 - T22
- Like Summilux, iris should close completely
- Front diameter of 95 mm like the Summilux-C set
- Image circle coverage greater than 34 mm
- Helical threaded focus assembly, focus marks on each side
- Color matched with Summilux-C and "film look"
- Easy to build and easy to repair
- Even illumination across the sensor (shading)

Origins of the Leica Summicron-C Cine Lenses: April 2014



Christian Skrein, 50 Years a Leica Fan

Exactly a year ago, I met with Christian Skrein at NAB under strict NDA to discuss the pending Leica Summicron-C project. The lenses have been a huge success since their introduction in December 2013. Christian Skrein is a Board Member of CW Sonderoptic.

Jon Fauer: What was the concept for the Summicron-C lenses?

Christian Skrein: In 1958, I was 13 years old and I read a book called "Leica Maedel Monika," by Elizabeth Guenter. It was a children's book with lots of drawings about a girl who gets a Leica camera, dreams of becoming a photo journalist, and fulfills her dream.

My dream was also to become a photo journalist with a Leica camera. I thought, at the time, if you had a Leica camera, you would automatically become a good photographer and take good pictures. And I wanted to marry the girl, Monika, if only she existed.

So that was a boy's dream. The funny thing is that this boy's dream came true. I became a photographer and a filmmaker. I did not marry the Leica girl whose name was Monika, but I did marry a lady named Maria. Whose name also begins with M.

Anyway, Walter Mandler designed the first Summicron f/2.0 lens at Leica. It was introduced in 1952-53. It was a very robust, easily constructed lens. So, that is the background. Now let's jump to how we arrived at the idea of the Summicron-C lenses for cine. I had the concept in 2010. The project name was Eisenstaedt.

Named after legendary Alfred Eisenstaedt?

Yes, Alfred Eisenstaedt, who photographed one of the most famous pictures of all time: "V-J Day in Times Square," August 14, 1945. He shot it with his Leica IIIa and a Summitar 50mm f/2 lens—precursor of the Summicron. Eisenstaedt loved the Summicrons, and bought many of them. I have US Customs forms from 1967 listing Eisenstaedt's camera bag loaded with Leica cameras and Summicron lenses.

What gave you the idea to do a Summicron Cine lens set?

Leica started in still photography. The Summicron still lenses are f/2. The design, more or less, followed the original Mandler Leica design—but for cinema.

Our concept was a set of T2 cine lenses. I made a list of 16 features, including: high resolution, high contrast, strong, light, helical (threaded) focus mechanism, 95 mm front diameter (like the Summilux-C), easy to build and repair, even illumination, image circle greater than 34 mm, color-matched to the Summilux-C, and optimized for digital motion picture cameras. Additional help on details and specifications came from Andreas Kaufmann, Chairman of Leica, Gerhard Baier and Erik Feichtinger, Managing Directors of CW Sonderoptic, Wetzlar. So, that was the beginning of the story.

When you first met with the lens designers, did you give them these specifications?

Exactly, yes. I saw the first prototype in 2012 and we changed it two or three times. We began delivery in December 2013.

Tell me a little bit more about Mr. Mandler.

Walter Mandler was the famous optical designer of Leica. If I say only one sentence, you'll know everything about him. He was the designer of the Noctilux f/1.0. He designed most of the Summicron f/2 lenses.

So, now we see a similar range of focal lengths transferred to the cinema world. That is part of the concept. We have 18, 25, 35, 50, 75 and 100 mm T2 Summicrons. Soon we will offer 21, 29, 40 and 135 mm T2 Summicron lenses. These lenses are small and easy to handle. They are what the Camera Assistants expect when held in the hand and when used on the camera.

Why didn't you just take the existing Leica still camera Summicrons and re-barrel them for cinema?

The reason is that the design for cinema is different than for still photography because of ergonomics and the need to continuously follow focus. I wanted to do a classical cine lens that all filmmakers would like to have. That's why the Summicron-C lenses are different from our Summilux-C set.

What are the main differences?

The Leica Summicrons are priced much less than the Summilux lenses. Summilux are T1.4, cam focus, handmade, works of art, our flagship. Summicrons are T2.0, helical focus, still superb lenses. Summicrons cover the RED Dragon sensor.

Do you see different customers buying Summicrons than Summilux?

Many of our Summilux-C customers are also getting the Summicrons to spend a bit less money and still have Leica quality. But the Summicrons have opened an entirely new market with new people.

We are very proud to offer the market a less expensive lens, easy to construct and very high in resolution. These lenses have 4K specifications, and come in right after our Summilux-C. They color match and have similar, smooth, pleasing skin tones.

The boy who thought a Leica camera or Leica lenses would make him a good photographer may have been right.

Leica Summicron-C Cine Lenses (cont'd)



Just as Leica Still lenses are available as f/2 Summicron and f/1.4 Summilux models, there are now two lines of Leica Cine lenses. The two product lines offer a choice of aperture, performance, and price. The new Summicron-C lenses are T2.0. Leica Summilux-C lenses are T1.4. The Summicron-C lenses are about 30% shorter and 20% lighter than the Summilux-C.

CW Sonderoptic, manufacturer and designer of the Leica Summilux-C lenses, has introduced 6 new T2.0 Summicron-C prime lenses: 18, 25, 35, 50, 75 and 100 mm.

The Summicron-C set will grow to ten, with additional focal lenths of 21, 29, 40, and 135 mm.

Summicron-C lenses all have a maximum aperture of T2.0. Minimum aperture is T22 and there is a totally closed position. All have PL mounts, 95 mm front diameters, and are 101 mm / 4" long (except the 135 mm, which is 4.6").

Focus and iris barrel gears of Summicron-C and Summilux-C lenses line up in the same position relative to the lens mount, so follow focus and lens motors don't have to be repositioned when you change lenses.

The image circle is greater than 34 mm, making them a good match for the RED Epic Dragon sensor in 6K mode.

Leica Summilux-C lenses remain the high-end, top of the line, handcrafted in Wetzlar, artisanal pinnacles of performance. They have cam focus, uniform focus scales, rear net holders, and threaded fronts. The set currently comprises 11 focal lengths. The look can be described this way: "Razor sharp eyelashes yet silky, cosmetically smooth and beautiful skin texture. Probably the best performing cine lenses of all time. Like fine art and fine wine, worth the wait."

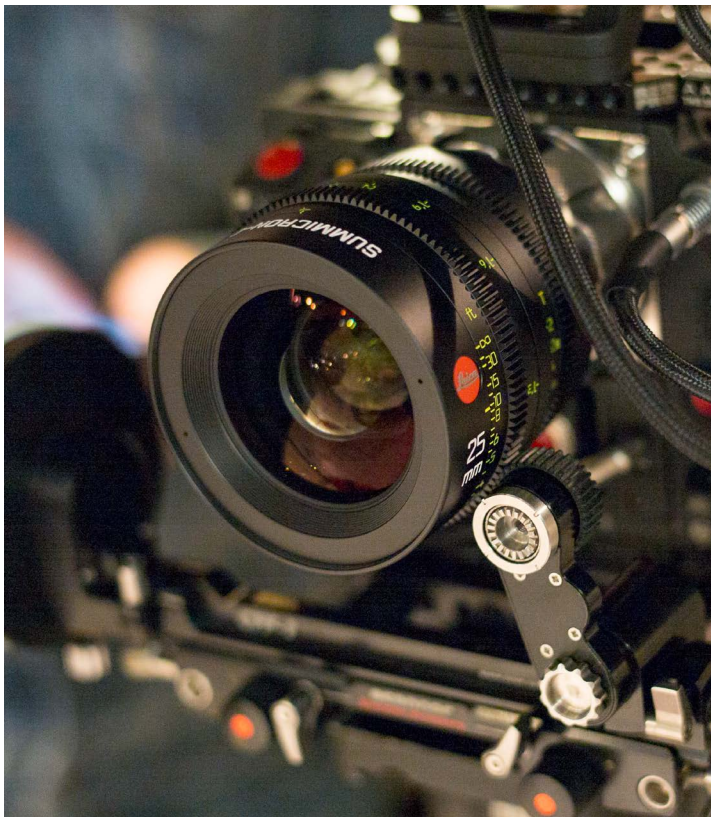
The new Summicron-C lenses have helical focus mechanisms. The difference of one T-stop makes delivery times and quantities practical in larger numbers at a more affordable price.

Summicron-C Specs

Lens	**18 mm**	**21 mm**	**25 mm**	**29 mm**	**35 mm**	**40 mm**	**50 mm**	**75 mm**	**100 mm**	**135 mm**
Weight	1330 g	1300 g	1550 g	1350	1340 g	TBD	1470 g	1250 g	1240 g	1850
	2.9 lb	2.9 lb	3.4 lb	3 lb	2.9 lb	-	3.2 lb	2.7 lb	2.7 lb	4.1 lb
Close Focus	0.3 m	0.3 m	0.3 m	0.3 m	0.36 m	-	0.6 m	0.8 m	1.0 m	1.5 m
	1'	1'	1'	1'	1' 2"	-	2'	2' 7"	3' 3"	5'
Length (Front to Flange)	101 mm									118 mm
	4.0"									4.6"
Lens Mount	PL - Stainless Steel									
Aperture	T 2.0 - 22, closed									
Image Circle	> 34 mm (diameter)									
Front Diameter	95 mm									
	3.7"									
Focus and Iris Gears	Line up in the same position relative to the lens mount as Summilux-C lenses									

Leica Summicron-C Cine Lenses (cont'd)





Above: Summicron-C lens on a RED Epic. They cover image area of 6K RED Dragon Sensor. Photos by Curt Schaller, BVK.

Below: Summicron-C with PL Adapter on Leica M.







Latest Leica Summicron-C Lenses: 21, 29, 135 mm





Summicron-C and Summilux-C Cine Lenses

Below: Summicron-C 25 mm and Summilux-C 40 mm Cine Lenses on new Leica M still camera using a PL to M adapter.



Leica Summicron-C
25 mm T2

Very sturdy front barrel on both sets. Clamp-on matteboxes do not impede focus movement.

Iris barrel gears of Summicron-C and Summilux-C lenses line up in the same position relative to the lens mount

Focus barrel gears of Summicron-C and Summilux-C lenses line up in the same position relative to the lens mount



Leica Summilux-C
40 mm T1.4

Leica Store and Gallery LA: Sept 2013





Above, left: Leica Store and Gallery , 8783 Beverly Boulevard in West Hollywood. Above, right: Leica Store & Gallery LA Ribbon Cutting. L-R: Leica executives Steffen Keil, Alfred Schopf, Andreas Kaufmann, Roger Horn, Roland Wolff.

Leica Camera opened a new USA flagship Leica Store and Gallery in West Hollywood. The 8,000 square-foot elegant bi-level exhibition and showroom space is a couple of blocks from Matsuhisa Restaurant. Cedars-Sinai Medical Center is across the street, in case Yibai Liao's "Fake Leica" sculpture sitting in the store's entrance induces an adrenaline rush of desire or heart palpitations from the million dollar price tag.

The opening exhibits featured photographs by legendary Mary Ellen Mark, including her iconic Brando and Hopper portraits from *Apocalypse Now*; Seal, the singer, writer and "photography geek;" and Yariv Milchan, talented photographer and studio executive.

Andreas Kaufmann, Chairman of Leica Camera AG's Supervisory Board, said, "It's been nearly 100 years since the Leica was invented, using 35mm motion picture film in still cameras." It was fitting, then, for Leica's new store and gallery to be in the center of Hollywood.

Alfred Schopf, CEO of Leica Camera AG, said, "We wanted to integrate not only the enabling tools, cameras and optical technology, but also show the results: stunning images."

Roland Wolf, VP of Marketing and Corporate Retail for Leica Camera, Inc said, "The Leica Store and Gallery LA will become a major hub in the world of Leica and photography."

The store carries the full line of Leica cameras, accessories, photography books, and accessories. There's a library, rental service, and a printing facility. The Leica Store and Gallery in Los Angeles is open 7 days a week.

Seth Emmons has joined CW Sonderoptic, designer and manufacturer of the Summilux-C and Summicron-C cinema lenses, as Marketing Director, Cine Products and will be based at the new Leica Camera Store and Gallery. Leica cine and other lenses will be on display and available for demo.

Seth is available for product information and support to Hollywood and the filmmaking community. He will host cinematography-related events in the store's exhibit space. Seth is the LA contact person for Leica's Still Moving Pictures project, already underway with cinematographers using Leica cameras to capture and document their world.

www.leicastorela.com www.leicagalleryla.com



Seal: singer, songwriter, and self-described "photography geek"



Seth Emmons with Yibai Liao's "Fake Leica" sculpture. (Photo: Trevor Owen)

Yariv Milchan on M and Monochrom



The Leica Gallery opening in LA featured the stunning work of Yariv Milchan. Yariv discussed his lifelong affair with Leica.

I was introduced to still photography by accident years ago, in the late '80s. I was in L.A., and we had a friend who was producing for *Vanity Fair*. One day she asked if I wanted to come help out. It was a shoot with Helmut Newton. I didn't know anything about photography. I didn't even know who Helmut was. And I said, "Sure, I'll come help you."

That's how I met Helmut. He kept it very simple. He knew exactly what he wanted. He was very good technically, but not complicated. He was simple. It was all about the idea. His advice to me was to get a camera and start taking pictures.

So I just started taking pictures. Helmut introduced me to a photographer, Wayne Maser, and that's when I was introduced to Leicas. I got a Leica very quickly. I started taking pictures. And that stayed with me throughout my life. I always have the camera with me. My father has a film company here called Regency and I started working with him.

All my latest work is digital, with the Leica M, Monochrom, and M9. I shoot everything RAW. After, that, I process the images myself on the computer. We print on real photographic paper, black and white, and color.

The Leica Monochrom is really unbelievable. The magic is, first of all, it's part of the M system in general. Not just the new M. The way the M system works is unlike any other. It works really differently from an SLR: the manual focusing, the rangefinder and everything. It puts your head in a different space.

I think when you work with these cameras, what happens is that it forces you, no it requires you to be a little bit more connected to what's going on around you. You need to focus and you need to anticipate. You get very connected to what's happening right at that moment and you try to see what's coming. I don't think there's any other camera that does that to you. It psychologically works on your head differently. Which is kind of nice because it forces you to be in the moment.

I have to think about what I'm doing and I have to put some thought into it. I'm required to be more engaged. And that is a real pleasure. And when you get the image you feel like something special happened.

With the new M and the new Monochrom, Leica has really advanced the idea of being able to shoot in lower light with a higher ISO, and this is very much improved. Color images with the new M are incredible. I think they are richer, deeper.

I can't even explain it in words. But there's definitely a difference to the image. There's something about the sensor. The M9 was fantastic. But the new M has a depth to it. When you start playing with the image you see it. It's really a masterpiece. The sensors are incredible. When you take the picture you start seeing it.

The Monochrom shoots a little bit differently. It has great richness in the blacks and the grays. I think that if you took a new M, converted the image, and you played around, I think you could get a phenomenal black and white image. But the Monochrom just has more range. It has something special. It has a different DNA almost. It's just different. It feels like real black and white. Every time I open the files of the Monochrom I'm always amazed.

The lenses I've been using lately include the 35 and 28 mm. I have the 35 Summilux which I absolutely love. The 28 Summicron is fantastic as well. And now I started playing around with a new 50 mm Summicron, which is spectacular. If you take any of these lenses and you put them on these bodies, you can't even compare it to anything else. That's how they are. It's a real pleasure to use the cameras. I literally have one with me all the time.



Which is which? Both new cameras have full-frame "Leica Format" sensors. The Leica M, above, shoots color with its 24 MP "Made in Europe" CMOS sensor. ISO 200 - 3200.

The Leica M Monochrom, below, discreetly eschews red dot logo and identifier. It has an 18 MP CCD sensor. ISO 360 - 10,000.



Monochrom on Mary Ellen Mark



Jon Fauer, ASC took this Leica Monochrom still of the great photographer Mary Ellen Mark at the opening of the Leica Store & Gallery LA. Mary Ellen talked about Leicas, movies, and photography:

Leica was my first camera. I grew up on the rangefinder. I have a whole bunch of M6's. And I just got the Monochrom. So I'm going to try it. I'm going to like it.

I worked on *Missouri Breaks* and I photographed Brando, who was not the easiest person. But then he liked my pictures. So he requested me on *Apocalypse Now.*

It was different then. You could take pictures of anything on the set. I really come from street shooting. I love street shooting. And you could do street shooting on the set.

Now it's very different. The studios really want like very precise shots for the ads they will make. The work is still interesting to me. But I loved it when you could roam the set. Now everything is either green screen or blue screen.

And the director is no longer behind the camera, the director is up in the video assist video village. I've worked on some of Tim Burton's films. His world is fascinating. It's like photographing in a museum. It's his world, his ideas, his costumes.

Dennis Hopper on *Apocalypse Now* was great. He was so amazing to photograph. He always knew how to give you a great photo. The great actors, they know how to give you a great photograph. 'Cause it's what they do. He was also a very good photographer himself.

The rangefinder gives you another way of looking at things. I'm faster with it. I learned to be very fast with it. Focusing with it. I think more about the content when I'm shooting with a rangefinder. Because you're not as seduced by the image.

That's another thing with digital. I feel, and I tell my students, that I want them to cover the monitor on the back of their digital cameras. I don't want them to use it to judge exposure. They need to know how to read a light meter. You don't know if you have a good image when you look at it in such a small way. I always believe in using a light meter. Because I always wanted to make the decision myself about how to expose my film. When I'm making that decision I know what I'm exposing for.

I'm not an intuitive lighter. It's a gift to be a great lighter. There are so many more levels in filmmaking that have to be perfect. Whereas in a still picture it's just this one level. And it's hard to make a great picture. But in film everything has to be perfect. It's harder. I don't think I could have been a filmmaker in that sense. It's all so very technical. I'm not a technical person.

People sometimes ask, why not shoot color and make it black & white with Photoshop? Not as much dynamic range.



Monochrom at Leica Gallery LA Opening



Above: Mary Ellen Mark and Karin-Rehn Kaufmann, Art Director and Managing Director Leica Galleries International. There are currently 12 Leica Galleries worldwide: New York, LA, Salzburg, Vienna, Wetzlar, Zingst, Frankfurt, Prague, Warsaw, Tokyo, Kyoto, Singapore.

Below: Wolfgang Kisselbach, Managing Director of Leitz-Park, at the Leica Store & Gallery opening in LA with M 240 and Summicron-C



Still Moving Pictures



The Still Moving Pictures project began at 200 km/hr on the Autobahn from Munich to Wetzlar. Gerhard Baier at the wheel, Jon Fauer riding shotgun, if stagecoach terminology can be applied to a high performance Audi. Godard once said that film is truth at 24 frames per second, but there's nothing like warp-speed along a ribbon of asphalt, peripheral blurr, and millisecond lane-change reaction time to enliven the imagination.

The Leica Monochrom had been introduced a few weeks earlier in Berlin. Gerhard lent me his. Because each photosite of the Leica Monochrom's 18 megapixel sensor is unencumbered by Red, Green or Blue filters, the image is incredibly crisp, shadows are bold, dynamic range is expanded, and the pictures are magical.

After a couple of recent Monochrom articles and pictures in these hallowed pages, colleagues called to ask if they could try the camera. Gerhard Baier, Managing Director of CW Sonderoptic, attended an event at the ASC clubhouse, and he couldn't walk more than five feet at a time without a parade of the world's best cinematographers pleading with him to borrow the camera as well.

Most cinematographers—people who "normally" see life at 24 or more frames per second—also have a passion for capturing single decisive moments. Visit any set anywhere in the world, and two people will probably have Leicas dangling from their necks: the unit still photographer and the cinematographer.

The word association along the Autobahn went something like this. Stills by cinematographers. Stills by movie makers. Moving pictures. Stills and moving pictures. Still moving pictures. That's it. Stills about the movies, stills by people who make movies, stills that move emotionally, or stills that show movement.

"Still Moving Pictures" became the title and unifying theme. A plan developed to lend the camera to cinematographers for a week each. That was fair. After all, the camera was Gerhard's. Not everyone could wait. Curt Schaller, BVK bought the first Monochrom available in Germany; his work was published in our June 2013 issue.

Nick Bolton wrote (*New York Times* Aug 7, 2013), "The results from the Leica M Monochrom are astounding. Pictures have the tonality and contrast that make them look as if they were shot with real black-and-white film. The control I have with a manual Leica makes me realize that today's abundance of buttons and features on most cameras often makes people take poorer pictures."

Cinematographers who shoot stills were invited to take out a Leica Monochrom camera with one lens. The work has been presented in FDTimes periodically, and the first exhibition was in the Leica - CW Sonderoptic booth at NAB 2014, with more to come.



Still Moving Pictures by Jon Fauer, ASC



Opposite page, top: Gerhard Baier and Richard Crudo, President of the ASC. Opposite, bottom: Team Leica+CW Sonderoptic at NAB 2014.
Above: Gerhard Baier, left, and Erik Feichtinger, right, Managing Directors of CW Sonderoptic (Leica Cine Lenses), with Stephen Poster, ASC, center.
Below: Pond Lane, Southampton Leica M Monochrom w/ Summicron-M 35mm f/2 ASPH. f/8 @ 1/500 sec, ISO 320



Still Moving Pictures by Curt Schaller, BVK





The picture of Vilmos Zsigmond, ASC, at left, was taken with a Leica M9, not a Monochrom. Both cameras begin life with a similar CCD sensor, but the Monochrom has increased resolution, a richer B&W tonal range, and greater sensitivity (ISO 320 - 10,000).

Left: Vilmos Zsigmond, ASC signing autographs at Cinec in Munich.
Leica M9 w/ Leica Summilux-M 50 mm f/1.4 ASPH. f/2.9 @ 1/350 sec, ISO 400

Above: Leica M Monochrom w/ Leica Summilux-M 50mm f/1.4 ASPH.
1/1500 sec, ISO 500

Below: Leica M Monochrom w/ Leica Summilux-M 21mm f/1.4 ASPH.
1/15 sec, ISO 320





Above: Leica Summicron-C 100 mm on RVZ Rentals' RED Dragon camera at Micro Salon Paris. Red Booth at NAB: SL1519

Below: Leica Summicron-C 29 mm with a PL-to-Leica adapter on Leica M camera. Leica Monochrom photos by Curt Schaller, BVK.



Still Moving Pictures by Roberto Schaefer ASC, AIC



Above: *Caleb Deschanel, ASC in The Grill at Hollywood and Highland.*
Photo by Roberto Schaefer, ASC, AIC.
Leica Monochrom 1/32 sec ISO 1250 with 35 mm Summicron lens.

Below: LAPD Film Cop in Venice with Chapman Lenny Arm III.
Photo by Roberto Schaefer, ASC, AIC.
Leica Monochrom 1/500 sec ISO 320 with 35 mm Summicron lens.



Still Moving Pictures by Bob Primes, ASC



by Bob Primes, ASC

When I first heard of the Leica M Monochrom, I was frankly skeptical. Why sacrifice the myriad opportunities to use color just for a little bit better image quality? But when I actually had the opportunity to shoot with the camera, it turned out to be a monumental increase in quality.

The low light sensitivity, exposure latitude, sharpness and smoothness of tonal gradation are simply phenomenal. You can shoot in almost any light and then find that lush tonalities are waiting to be brought out in "printing," which for me is Apple Aperture.

All I had was a 35 mm lens, a modest wide angle. But the lens and sensor are both so sharp you can blow the image up considerably with almost no loss in quality.

A Leica M3 was my constant companion in my teens and twenties. This inconspicuous, quiet little camera was designed for truly candid photography, what Henri Cartier-Bresson called "The Decisive Moment".

But that was half a century ago, when I could focus that super accurate rangefinder a whole lot quicker than I can now. On the other hand, a sensor that goes to 10,000 ISO sure beats the Tri-X film we shot back then.

I found that being free of the necessity to consider the emotional effect of color allowed quality photography in locations much too ugly to shoot in color. I learned how distracting color can be to many stories and how much easier it was to find a truthful moment without having to deal with the complexities of color.

The mirror self-portrait (above) is an interesting story because the photographer's personality doesn't intrude. It is a portrait of an observer. It shows what the subject sees at the instant the image is created. Yet, there is focused intensity from the photographer. The way the instrument is cradled by his hands is intimate. The focus on the lens itself suggests precision. Intimacy and precision are the essence of traditional Leica photography.



Portrait of Bob Primes, ASC by E. Gunnar Mortenson



Above: American Film Institute cinematographers handhold a challenging shot on a staircase at night. The quality is amazing for ISO 6400. The tiny Leica allowed me to scramble out of the way but still get the story of Arlene's concentration as she kept the shot steady while following her subject up stairs. Note the highlight and shadow detail and absence of noise. Below: This shot shows how the Leica rewards risk-taking and renders an insanely hot, flared-out backlight as dramatic rather than disastrous.

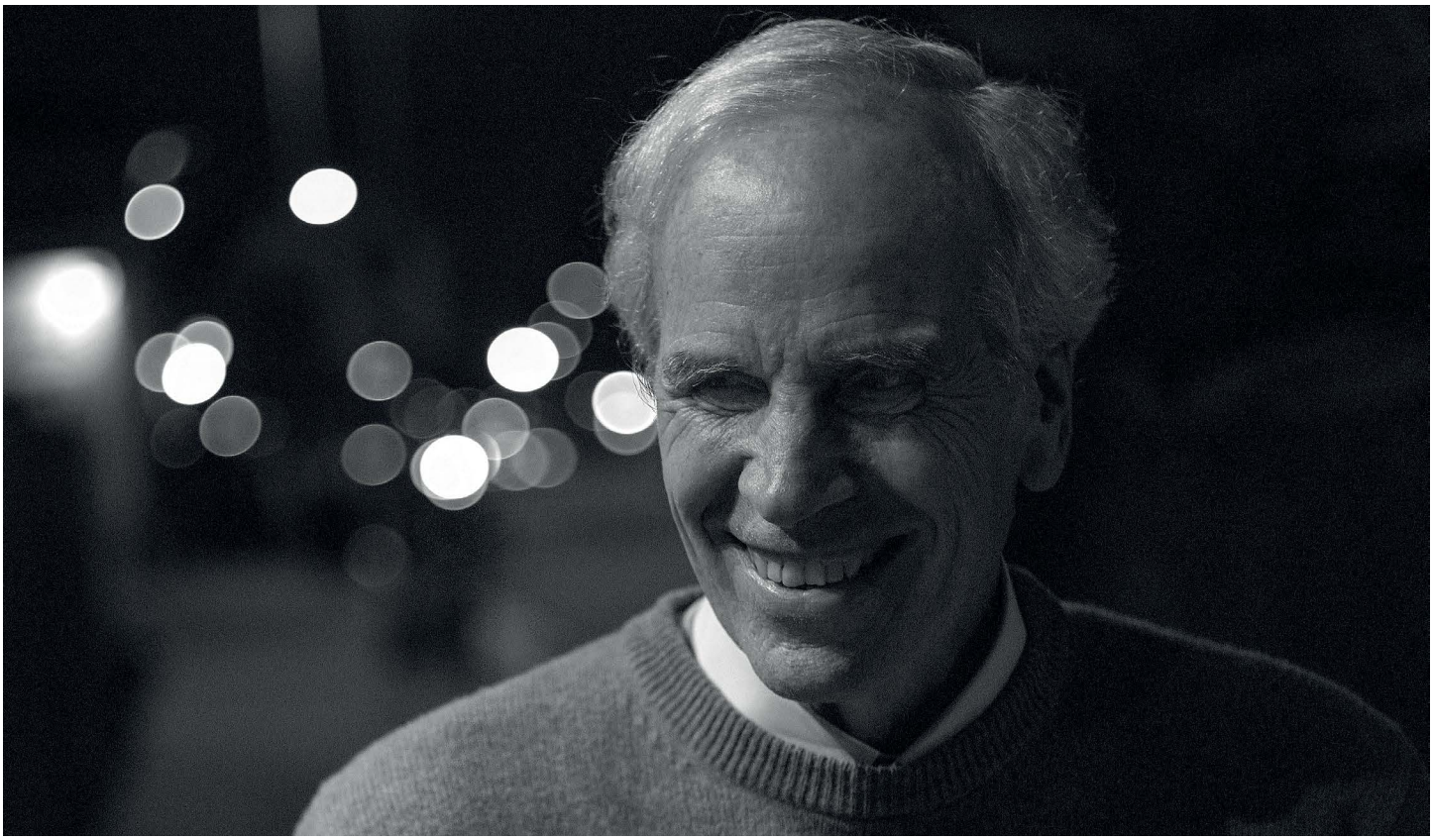




Above: the shot of Avner pulling focus on the AFI stage was enlarged 4x but even at ISO 3200 it's noise free and razor sharp.
Below, Johnny Simmons, ASC in natural light at the ICG Emerging Cinematographer Awards.



Still Moving Pictures by Paul Ryan, ASC



Doug Tompkins under street light in Venice, CA. Photo by Paul Ryan, ASC. ISO 3200, 1/125 sec with 1968 vintage Leitz Summicron f2.0 50 mm lens.

by Paul Ryan, ASC

Every so often Doug Tomkins passes through town and we connect for a dinner. This time he was here to meet Werner Herzog. I had the Leica Monochrom with me and, curious about its low light possibilities, I took this shot on the very dark Venice sidewalk outside the restaurant.

I first met Doug in the early sixties when we were both on the Alpine ski racing circuit out of Aspen, Colorado. We both had migrated from East Coast upbringings. Each of us then moved to San Francisco, I to pursue photography and graduate film school, Doug to create North Face, at that time a small shop in an unlikely location in the heart of North Beach. Doug was one of my first clients, buying some of my ski photographs for the store.

In 1968, he sold the company, and left on an epic expedition with Yvon Chouinard and two other climbing friends to climb Mount Fitzroy in Patagonia. After returning, he began to manage his wife Susie's clothing line, Plain Jane. In a few years he had nurtured it into the mega fashion force, Esprit. Though all this Doug always managed to pursue his world-class climbing and kayaking interests, including many first ascents and descents around the world.

In the seventies, we shared a small Cessna and did some wilderness flying together. In 1989, he sold his share of the company, putting most of his profits into land conservation, founding the The Conservation Land Trust and Foundation for Deep Ecology. With his wife, Kristine Tompkins, he has conserved over 2 million acres (8,100 km^2) of wilderness in Chile and Argentina, more than any other private individual.

These are my very subjective, non-technical impressions of my two weeks with the Leica Monochrom that Jon Fauer and Gerhard Baier kindly loaned me for a week in Los Angeles.

I have had many film cameras over the years, including Nikon Fs, a Rolliflex and two Leicas, an M2 and M3. All are gone except the Leica M2. After a restoration by DAG camera in Wisconsin, it works perfectly, though I hardly use it, having been drawn into the digital world.

When Jon handed me the Monochrom, my first impression was the feel: heavier than it looked, but it fit smoothly into my hand and had a centered weight. Ergonomics is a too-often overlooked quality in a camera. For me, it's essential that the movement and positioning of a camera be effortless. The Leica rides comfortably in one hand, and moves smoothly into any shooting position. With its paucity of dials, buttons, and knobs, it is easy to focus manually with your left hand. Important since there's no auto-focus. The camera came with a new Leitz Summicron 35 mm f 2.0, but I also shot it with my vintage (1960s) Leitz 50 mm Summicron f2.0 and Leitz 90 mm Tele Elmarit, both of which mated superbly with the Monochrom. Cousins from 44 years apart. The only difference was the lack of meta data transmitted from the older lenses.

The rangefinder viewing system is radically different than the reflex finders or digital monitors I've been used to for the last 15 or so years. With the Leica, I was looking at life out there, not a picture on a screen. This demanded more concentration and revisualization of the final image. Some may say this is a shortcoming—that looking at a ground glass image on a screen, or an electronic digital image on a camera back, connects us more directly to the final product. We can see telephoto effects, depth of field, and the picture filling the entire frame. Perhaps. But I think along with that



San Francisco Powell Street Cable Car tracks. Photo: Paul Ryan, ASC. Leica Monochrom 1/30 sec ISO 400 with Summicron 35 mm lens.

comes a lesser connection to the reality of people and objects inhabiting the world we are photographing.

I liked seeing what was happening around the frame, what was about to enter the frame, what I might include by a small pan or tilt of the camera. It helps with sensing the "decisive moment" as Henri Cartier-Bresson described it. Maybe that's part of the reason he used Leicas for most of his photography.

When I walked around with the Monochom, strangers very often stopped me with comments or questions about the camera. They seemed to sense it as something slightly outside the envelope of the ordinary. But at the same time, photographing with it was far less intrusive that with any of my SLRs.

I didn't do any analytical tests on the Monochrom. I didn't have time. But when working with the files in Photoshop I was taken aback by the extraordinary dynamic range and, most importantly for me, the very subtle gradation from one tonal level to the next, particularly in the deep shadow areas. (I shot everything as DNG RAW files.) It was as if Ansel Adams' zone system needed five more zones to accommodate the Monochrom's capabilities.

According to Leica, Monochrom images will be "significantly sharper than comparable exposures from a camera with a color-sensitive sensor." I didn't have a color Leica to compare, but compared to black and white images shot on my 36 MB DSLR, this was certainly my impression.

I shot several images in very low available light at night on the street , at ISO 3200. There was some grain-like noise, but the resolution of detail was astounding.

Shortly after I had to relinquish the Monochrom, I left for a three week tour of Europe, mostly cinematography work but a family vacation in Venice and Rome tacked on the end. I brought along a newly purchased Panasonic GH3, a small and light camera, but at the opposite end of the minimalist spectrum. It has four option buttons, as well as the usual front and rear finger dials, innumerable modes, auto focusing, face recognition, and much more. It can be set to shoot with all considerations automated.

Yes—all considerations automated—except the vision of the image. I did miss the Monochrom. I missed the simplicity of a camera that encouraged me to really look, to really translate life into imagery in my mind before shooting. And to visualize with fewer final form options. There is a place for this simplicity, as well as complexity. One is not better than the other. A simple Picasso line drawing is not better or worse than a complex Bruegel. In Rome we saw lush and complex Caravaggios in San Luigi dei Francesi and also the simple monochrome elegance of Michelangelo's Pieta at St. Peters.

Time with any tool is necessary to become intuitively familiar so the operational mechanics don't become a distraction or get in the way of visual response, and perhaps one can get there with any camera, but the Leica Monochrom, with its simple elegance seemed to be further down that road.

Henri Cartier-Bresson said, "Technique is important only insofar as you must master it in order to communicate what you see... The camera for us is a tool, not a pretty mechanical toy. In the precise functioning of the mechanical object perhaps there is an unconscious compensation for the anxieties and uncertainties of daily endeavor. In any case, people think far too much about techniques and not enough about seeing."

Still Moving Pictures by David Darby, ASC

by David Darby, ASC

I finally got to take our new Leicas out for a spin; my wife is into the M 240 and I'm getting the hang of the Monochrom. We went to Monument Valley last Thanksgiving, and while I was horrified to arrive just in time for a "Frozen Fog Advisory", I suppose it was better in the long run to have some interest up top! I felt really bad for the three busloads of Japanese tourists that had arrived the same night, seeing as the first morning you could see for all of 200 yards I would guess.

I think these photos fit into the theme of "Still Moving Pictures." Monument Valley is where John Ford filmed *Stagecoach* (1939), *The Searchers* (1956), *She Wore a Yellow Ribbon* (1949), *Fort Apache* (1948), *Rio Grande* (1950), *My Darling Clementine* (1946), *Sergeant Rutledge* (1960) and *Cheyenne Autumn* (1964). One of his favorite locations is named after him: "John Ford's Point." Our collective imagination of the American West was shaped by John Ford's cameras in this area on the Arizona and Utah border near Four Corners.

Loving both cameras, and am getting the hang of all the digital darkroom tools—so much so I might even talk myself into the new 35mm f1.4. We own both the Monochrom and M 240. In Monument Valley, I used the 35mm 1.4 Summilux ASPH (without the new floating rear element), my 50mm 1.4 Summilux, and 75mm Summilux 1.4. The 28mm Summicron ASPH is my favorite lens for street work, but when in a place as immense as Monument Valley I had to lean the longer way much more often than usual and was glad I brought the 75mm. I have come to appreciate that underexposing is the only way to hang on to extreme highlight detail with the Monochrom given it's lack of anti-alias filter, but what you gain in sharpness is, at the same time, close to frightening and well worth it. There is simply no way my Tri-X negatives would hold up to the Monochrom in terms of enlargement. I haven't spent nearly as much time with the M 240 as my wife has, but she loves its menu structure, and I have to say I have never seen more amazing color JPEGs in my life. The cameras are Apples and Oranges, and for the time being I guess I'm sticking with the Mono. It's not enough to say you can just drain the color out of a color camera and have the same B&W image that the Mono will give you. Unless maybe, you happen to think the Eiffel Tower in Las Vegas will do.

Last year I met a gentleman from Leica at the ASC Clubhouse and he was there with a Monochrom. He gave me his business card and I sent a copy of it and a request for availability to my NYC camera store (FotoCare, run by the truly superb Jeff Hirsch). Jeff told me the cameras were on indefinite back-order. But Leica responded with unusual speed, so much so that Jeff was stunned. In no time we had in our hands a brand new Monochrom and M 240. The bottom line is that my wife thought I was pretty sad about the end of the Tri-X Leica MP era, and not being able to find a single great B&W printer in LA at this point (all three of my favorite B&W labs have closed and I have lost touch completely with the guys that did my Agfa Classic 111 printing). So she lit the fire and promised that if we both had the new era cameras, we would get back out there and get something done. Crazy move I know, but it seems to have worked. The true test for me will be my first really strong attempt at street work, which is what I used to do every spare moment: Tri-X and two MPs in Mexico, Paris, India and Kurdish Turkey.

It was Gerhard Baier, Managing Director of CW Sonderoptic (designers of Leica cine lenses) whose business card parted the sea. It was there on the front steps of the ASC Clubhouse when Jon Fauer, ASC introduced us. Gerhard handed the Monochrom to Kees van Oostrum, ASC, Bill Bennett, ASC and then me. I took two frames of those three guys, and that was it. Or almost it, until I told my wife Pat the story.



Monument Valley by David Darby (cont'd)





Still Moving Pictures by E. Gunnar Mortensen

E. Gunnar Mortensen, SoFT, is a focus puller ("Sharp Wit and Sharper Focus") and one of the founders of the Society of Focus Technicians ("When you want it Sharp go SoFT"). Gunnar took a Leica Monochrom on location a few months ago. He wrote:

This job was for GE, production company was MJZ, the Director was Dante Ariola and DP was Benoit Delhomme. It was for the Olympics. We were shooting in Santa Margarita at a huge ranch that has been around since the Spanish missions were built. It was at the midway point between two missions and was used as a base camp at night by the fathers before heading out the next morning. The picture at the bottom of the page was a Fruit of the Loom spot shot by Chris Probst. As for the Leica Monochrom camera, I was blown away about the subtle gradations that I could achieve by shooting natively black and white compared with converting color to black and white. It was quite astonishing. I processed it in Silver FX Pro. All shot at ISO 400 on a Summilux 50 mm lens, aperture usually 4.0, which as a focus puller is one of my favorite stops to shoot at.







Peter Chrimes, Grip



Still Moving Pictures by Richard Crudo, ASC





Still Moving Pictures by Richard Crudo, ASC (cont'd)



by Richard Crudo, ASC

These photos represent an adventure in street photography. Most of the time what we do as cinematographers is micro-managed and so carefully structured that I find it invigorating to just go out on my own and shoot with no rules. It's great fun to snap whatever catches your attention, even without putting the camera's viewfinder to your eye. It's firing from the hip sometimes and hoping for a happy accident.

The pictures here were taken with a Leica Monochrom in early July at New York's Coney Island. On the 4th, the legendary Nathan's held a hot dog eating contest that was attended by a huge crowd. The weather was very ominous that day, featuring a low-hanging, pure white cloud cover; it actually rained a little at one point. In post-processing the photos I pumped in some contrast to give them some pop, basically trying to pull a bit of character from the skies because they were so flat.

On clear days the Monochrom really showed its stuff. For anything shot in some sort of sunlight condition, I used a 25 Red filter in front of the 35mm Summicron lens. The results were superb and immediately put me in mind of the same combination I used to employ with Tri-X negative. On the cloudy days there was no filtration. I rated the sensor at 400 ISO for everything here and it performed beautifully. In so many ways it really did feature that "Leica touch."

The Wonder Wheel is a big Ferris wheel that has been where it sits for what seems like forever. I've always been impressed by its intricate structure, not to mention that it seems like such an anachronism. When you get up close to it, you can see just how it was built with all the rivets, welds and joints in plain view. It's really a magnificent piece of work.

I grew up near Coney Island in Sheepshead Bay, the next community over. As a young guy in high school, making movies wasn't something I imagined I could do for a living - that was what people in California did. But I was always drawn to the midways, rides and amusements and took thousands of black and white 35mm stills while I lived there. Though most of the places I shot back then are gone, a walk through Coney Island today still feels like a dip into history. The derelict buildings and abandoned attractions...it's all so very moody. I also have a huge number of Kodachrome slides that I took during those same years. Amazingly, none of them have faded.

More than anything, these pictures are emotionally resonant. I had relatives all over the neighborhood. I've lived in California for 23 years but I still recall dozens of specific days and nights around the old haunts. It's funny how the whole environment just comes rushing back. The sights, the sounds, the smells. There always seems to be some kind of summertime connection at work because as kids that's when we all used to run wild on the beaches. Returning after a long absence and taking these photos was much more moving to me than I anticipated. I want to do it again soon.

Credits for Richard Crudo, ASC as cinematographer include: Justified, Brooklyn Rules, American Buffalo, American Pie.

Richard is currently President of the American Society of Cinematographers, a position he also held from 2003-2005, and again from 2013 to the present.

Still Moving Pictures by James Chressanthis, ASC, GSC







by James Chressanthis, ASC, GSC

I took a Leica Monochrom to Greece for three weeks and I didn't want to give it up. I had the 35 and 50 mm Leica Summicron lenses and used the 35 almost exclusively. For street photography I like shooting wide angle.

The Monochrom feels like a classic Leica camera body, very discreet, innocuous. People seeing you on the street are not threatened. It has the same range finder system as the classic Leicas. It was very easy to use. The digital interface was very quick. The latitude of the camera is fantastic. It captures highlights very well. The resolution is astonishing. It's like having a Hasselblad in a 35mm format. The blow-ups of these images and the detail are astonishing. It was a pleasure to shoot. The Acropolis steps photo was just a grabbed shot. You really do have a momentous sense of people making a pilgrimage. And being of Greek ancestry, it's emotionally important. We were there on a big fat Greek family reunion: nine Greek-American family members visiting our relatives in Greece: aunt, uncle, a cousin, a niece and nephew, a second cousin and my wife and daughter. We were showing the younger kids Greece for the first time. They were meeting their relatives in our ancestral villages in the Peloponnesus. The village of my Mother's family is in a place called Lynistaina, in Southwestern Greece on the mainland, in an isolated extremely mountainous area. This village is interesting as the temple of Apollo Epicurios, a miniature Parthenon, sits way up on top of the mountain. Iktinus, the architect of the Parthenon in Athens designed this temple.

The portrait of my daughter Zoe was near my father's ancestral village in Northern Arcadia, a little mountain place called Livartzi near Kalavryta. It was outside the churchyard, with beautiful late afternoon light. Zoe is an artist, art student, animator and young filmmaker as well. We were checking out the graveyard and many of our ancestors' names were on the stones. Many of them lived to be 90, 95, 100. She turned, I said " Hold it there and just look at me." And then a few moments later, I took that next shot of her back with the forest glinting behind. Both were at 320 ISO. The reverse shot is at f/2.0.

For me, these were "moving pictures." The Acropolis steps catches a moment, of people moving upward, Zoe in the village of our ancestors is emotionally moving. Two takes on the meaning of "moving." This whole trip was an emotional one, a homecoming, a personal pilgrimage into our own ancestry.

I'd like to mention something else that is moving. Phedon Papamichael, ASC, GSC and I are both new members of the Greek Society of Cinematographers. Greece is recovering economically but even during the depths of the economic and social crisis and Greek cinematographers were also suffering yet they had the wherewithal and fortitude to create this new Greek cinematography society. They told me they modeled it on the ethos and ethics of the American Society of Cinematographers. Phedon just won the BSC Award for Nebraska the other night so we want to trumpet that and the newly formed GSC.

Credits for James Chressanthis, ASC, GSC as Director of Photography include Four Minutes, Urban Legend, Life With Judy Garland, The Watsons Go To Birmingham*, as Cinematographer and Director of* Ghost Whisperer*, and as Director of* No Subtitles Necessary: Laszlo & Vilmos.


35 mm
16 mm
18 mm
65 mm
75 mm

Leica Summicron-C



Lens (mm)	**18**	**21**	**25**	**29**	**35**	**50**	**75**	**100**	**135**
Aperture	T2.0 - T22 - fully closed								
Close Focus (m)	.3 m	.3 m	.3 m	.3 m	.36 m	.6 m	.8 m	1.0 m	1.5 m
Close Focus (ft)	1’	1’	1’	1’	1’2”	2’	2’7”	3’3”	5’
Image Circle	36 mm								
Focus Rotation	300°								
Iris Rotation	180°								
Front Diameter	95 mm / 3.7”								
Length front to flange (mm)	101 mm	101 mm	101 mm	101 mm	101 mm	101 mm	101 mm	101 mm	118 mm
Length front to flange (ft)	4"	4"	4"	4"	4"	4"	4"	4"	4.6"
Weight (kg)	1.3 kg	1.3 kg	1.5 kg	1.3 kg	1.3 kg	1.5 kg	1.2 kg	1.2 kg	1.8 kg
Weight (lb)	2.9 lb	2.9 lb	3.4 lb	3.0 lb	2.9 lb	3.2 lb	2.7 lb	2.7 lb	4.1 lb

- For PL Mount Film and Digital Cine Cameras
- High Resolution, High Contrast
- Compact, Lightweight, Ergonomic Design
- Even illumination across the sensor (shading)
- Readily available
- Front diameter of 95 mm like the Summilux-C set
- Image circle diameter 36 mm (Covers RED Epic Dragon sensor)
- Helical threaded focus assembly, focus marks on each side
- Color matched with Summilux-C

All specifications subject to change



Leica Summilux-C

Lens (mm)	**16**	**18**	**21**	**25**	**29**	**35**	**40**	**50**	**65**	**75**	**100**
Aperture	T 1.4 - T 22 - fully closed										
Close Focus (m)	.35 m	.35 m	.31 m	.31 m	.46 m	.36 m	.41 m	.5 m	.46 m	.7 m	.9 m
Close Focus (ft)	1’2”	1’2”	1’0”	1’0”	1’6”	1’2”	1’4”	1’8”	1’6”	2’3”	2’11”
Image Circle	>33 mm										
Focus Rotation	300°										
Iris Rotation	180°										
Front Diameter	95 mm / 3.7"										
Length (front to flange)	142 mm / 5.6"										
Length (front to image plane)	194 mm / 7.6"										
Weight (kg)	1.7 kg	1.6 kg	1.6 kg	1.8 kg	1.7 kg	1.6 kg	1.6 kg	1.8 kg	1.7 kg	1.6 kg	1.6 kg
Weight (lb)	3.8 lb	3.6 lb	3.6 lb	4.0 lb	3.7 lb	3.6 lb	3.6 lb	3.9 lb	3.7 lb	3.5 lb	3.5 lb

- For PL Mount Film and Digital Cine Cameras
- Multi-Aspheric Optical Design
- High Resolution, High Contrast, Low Chromatic Aberration (Full Image)
- Minimal shading, Flat-Field Illumination across the Entire Frame
- Even Image Quality, Consistent Performance over entire Focus Range
- Expanded and Consistent Focus Marks in Most-Used Focus Range
- Compact, Lightweight, Ergonomic Design, Uniform Small Diameters
- Lightweight 3.5-4.0 lbs (1.6-1.8 kg)
- Rugged Titanium Lens Mount, Front and Rear Filter Capability

All specifications subject to change

Leica Summicron and Summilux Cine Lenses

Leica Summicron-C lenses were shown as prototypes at NAB 2013. They began shipping in December at a prodigious rate of more than 30 sets a month. By now, everyone knows the difference between the two lines of Leica Cine lenses in PL mounts. The new Summicron-C primes are all T2.0. Leica Summilux-C primes are T1.4. Summicron-C are about 30% shorter and 20% lighter than Summilux-C.

Focus and iris barrel gears of Summicron-C and Summilux-C lenses line up in the same position relative to the lens mount, so follow focus and lens motors don't have to be repositioned when you change lenses.

Leica Summilux-C lenses remain the flagship artisanal pinnacles of performance. They have cam focus, uniform (and expanded) focus scales, rear net holders, and threaded fronts. The new Summicron-C lenses have helical (threaded) focus mechanisms.

The Summicrons have a simpler design than Summiluxes, making them more affordable. Quality and performance remain high.

In summary, the T2.0 Leica Summicron-C set: 18, 25, 35, 50, 75, and 100 mm.

The new 21, 29, and 135 mm are also available.

Summicron-C lenses are available from Band Pro or CW Sonderoptic.

The T1.4 Leica Summilux-C set: 16, 18, 21, 25, 29, 35, 40, 50, 65, 75, 100 mm. They are available from Band Pro.

www.cw-sonderoptic.com

www.bandpro.com

Leica Summicron-C



Leica Summicron-C 18, 25, 35, 50, 75, 100 mm T2.0. Additional focal lengths: 21, 29, 135 mm T2.0.

Leica Summilux-C



Leica Summilux-C 16, 18, 21, 25, 29, 35, 40, 50, 65, 75, 100 mm T1.4



Leica Summilux-C and Summicron-C Comparison

Technical Data	SUMMILUX-C	SUMMICRON-C
Core Set Focal Lengths	18, 21, 25, 35, 40, 50, 75, 100 mm	18, 25, 35, 50, 75, 100 mm
Additional Focal Lengths	16, 29, 65 mm	21, 29, 40, 135mm
Aperture	T1.4 - T22 - fully closed	T2.0 - T22 - fully closed
Focus Rotation	300°	300°
Iris Rotation	180°	180°
Image Circle	>33 mm	36 mm
Length	142 mm / 5.6”	101 mm / 4” (except 135 is 118 mm / 4.6”)
Front Diameter	95 mm / 3.7”	95 mm / 3.7”
Weight	1.6 - 1.8 kg (3.5 - 4.0 lb)	1.3 - 1.5 kg (2.7 - 3.4 lb)
Telecentricity	Telecentric	Telecentric
Color	Natural color balance	Natural color balance
Color Balance	Color balanced to match closely	Color balanced to match closely
Image Quality (Field)	Even image quality	Even image quality
Breathing	No breathing	Very little breathing
Reflective Coatings	Extremely low reflective coatings	Extremely low reflective coatings
Design	Multiple aspherical optical design	Classic high performance optical design
Resolution	Extremely high resolution	Extremely high resolution
Contrast	Very high contrast	Very high contrast
Relative Illumination	High relative illumination over field	High relative illumination over field
Chromatic Aberration	Very low chromatic aberration	Very low chromatic aberration
Front Filter	Yes	No
Rear Filter	Yes	No
Rear Net Holder	Yes	No
Lens Mount Type	PL	PL
Lens Mount Material	Titanium	Stainless Steel
Matched Focus/Iris Ring Locations	Yes (all focal lengths)	Yes (all focal lengths)
Matched Dimensions In Set	Yes	Yes (except 135)
Expanded Focus in Critical Range	Yes	No

CW Sonderoptic GmbH was founded in 2008 to design, manufacture and market Leica-branded cine lenses for film, television and commercial production. The “CW” stands for “Cine Wetzlar.”, The company is based at Leitz Park in Wetzlar, Germany, the original hometown of Ernst Leitz and Leica Camera. Current products include the Leica Summilux-C and Leica Summicron-C cine lenses with more to come.

Charts courtesy of CW Sonderoptic GmbH

Summilux-C Techical Data



☐ Core Set of 6 Lenses ■ Additional Focal Lengths

Focal Length (mm)	16	18	21	25	29	35	40	50	65	75	100
Aperture	T 1.4 - T 22 - fully closed										
Length	142mm / 5.6”										
Close Focus (m)	0.35	0.35	0.31	0.31	0.46	0.36	0.41	0.5	0.46	0.7	0.9
Close Focus (ft)	1’2	1’2	1’	1’	1’6	1’2	1’4	1’8	1’6	2’3	2’11
Weight (kg)	1.7	1.6	1.6	1.8	1.7	1.6	1.6	1.8	1.7	1.6	1.6
Weight (lb)	3.8	3.6	3.6	4.0	3.7	3.6	3.6	3.9	3.7	3.5	3.5

Focus Rotation	300°
Iris Rotation	180°
Image Circle	33mm
Front Diameter	95 mm / 3.7”
Telecentricity	Telecentric
Color	Natural color balance
Color Balance	Color balanced to match closely
Image Quality (Field)	Even image quality
Breathing	No breathing
Reflective Coatings	Extremely low reflective coatings
Design	Multiple aspherical optical design
Resolution	Extremely high resolution
Contrast	Very high contrast
Relative Illumination	High relative illumination over field
Chromatic Aberration	Very low chromatic aberration
Front Filter	Yes
Rear Filter	Yes
Rear Net Holder	Yes
Lens Mount Type	PL
Lens Mount Material	Titanium
Matched Focus/Iris Ring Locations	Yes (all focal lengths)
Matched Dimensions In Set	Yes
Expanded Focus in Critical Range	Yes

Summicron-C Techical Data



Core Set of 6 Lenses ■ Additional Focal Lengths

Focal Length (mm)	18	21	25	29	35	40	50	75	100	135
Aperture	T2.0 - T22 - fully closed									
Length	101mm / 4.0”									118mm / 4.6”
Close Focus (m)	0.3	0.3	0.3	0.3	0.36	TBD	0.6	0.8	1.0	1.5
Close Focus (ft)	1’	1’	1’	1’	1’2	TBD	2’	2’7	3’3	5’
Weight (kg)	1.3	1.3	1.5	1.3	1.3	TBD	1.5	1.2	1.2	1.8
Weight (lb)	2.9	2.9	3.4	3	2.9	TBD	3.2	2.7	2.7	4.1

Focus Rotation	300°
Iris Rotation	180°
Image Circle	36mm
Front Diameter	95mm / 3.7”
Telecentricity	Telecentric
Color	Natural color balance
Color Balance	Color balanced to match closely
Image Quality (Field)	Even image quality
Breathing	Very little breathing
Reflective Coatings	Extremely low reflective coatings
Design	Classic high performance optical design
Resolution	Extremely high resolution
Contrast	Very high contrast
Relative Illumination	High relative illumination over field
Chromatic Aberration	Very low chromatic aberration
Front Filter	No
Rear Filter	No
Rear Net Holder	No
Lens Mount Type	PL
Lens Mount Material	Stainless Steel
Matched Focus/Iris Ring Locations	Yes (all focal lengths)
Matched Dimensions In Set	Yes (except 135)
Expanded Focus in Critical Range	No



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