HOMAGE
“Pierre Angénieux Excellens in Cinematography”
at Cannes Film Festival
Philippe Roussolot AFC ASC (2013)
& Vilmos Zsigmond HSC ASC (2014)

TESTIMONIALS
Philippe Le Sourd AFC ASC
Dariusz Wolski ASC
Aseem Mishra WICA
Guillaume Schiffman AFC
Jean-Marie Dreujo AFC
Gustavo Biazzi
Oliver Wood

25-250MM : 50+ YEARS OF ANGENIEUX EXCELLENCE
ANAMORPHIC OPTICS
We are delighted to be able to present the second issue of AngéNews to the entire cinema community.

It includes the opinions of some great cinematographers who were willing to talk about their work and the reasons for their loyalty to the Angénieux brand and its lenses. We greatly appreciate them giving us their time.

In a changing environment prompted by the development of digital cameras, for us, their loyalty is the best possible reward.

Who better than the people that use Angénieux lenses to highlight their quality and results?

Who better to demonstrate the sustainability and universality of Angénieux zoom lenses? Some manufactured as long as 30 years ago are still widely in use on production sets. Their impressions are a true recognition of Angénieux’s continued commitment to providing the very best tools to the world of cinematography.

Angénieux development teams continuously strive to design optics which, by their quality and technological performance, will facilitate and enhance the work of directors of photography, and ensure the sustainability of their work.

I hope you enjoy reading our brand new issue.

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President and CEO
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Optimo lenses are present all around the world on the most beautiful production stages.

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Best Cinematography – Golden Horse Film Festival 2013
Best Film – Asian Film Awards 2014
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**LA GRANDE BELLEZZA / THE GREAT BEAUTY**
Director: Paolo Sorrentino
Cinematographer: Luca Bigazzi AIC
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Best Cinematography - Golden Globes 2014
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**12 YEARS A SLAVE**
Director: Steve McQueen
Cinematographer: Sean Bobbitt BSC
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**ARGO**
Director: Ben Affleck
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**SOSHITE CHICHI NI NARU / LIKE FATHER, LIKE SON**
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Prix du Jury - Cannes Film Festival 2013

**ILO ILO**
Director: Anthony Chen
Cinematographer: Benoît Soler
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**STRAY DOGS**
Director: Tsai Ming-liang
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**LIFE OF PI**
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Best Cinematography - BAFTA Awards 2013
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**A WINTER SLEEP**
Director: Nuri Bilge Ceylan
Cinematographer: Gökhan Tiryaki
Palme D’Or - Cannes Film Festival 2014

**LES REVENANTS / INSIDE LLEWYN DAVIS**

Globes 2014
Best Film not in the English Language - BAFTA Awards 2014
Movies shot with Optimo lenses are regularly awarded in the most prestigious film festivals.

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What can you say about the very special shoot that took part in the middle of China over a period of almost three years?

**Philippe Le Sourd:** When I met with Kar Wai in Paris in July 2009, he proposed that we do a documentary on the martial arts for six months. So I started off with that idea of a story on the life of Ip Man... Kar Wai had imagined a story based on that character, who was a Grand Master of the martial arts.

At first we imagined making the film in 3D, but then Kar Wai dropped the idea. During long trial sessions, we considered all the possibilities for filming martial arts with a multitude of martial-arts Grand Masters.

The first day of shooting with the lead actor Tony Leung, in southern China, ended with a mishap... After 10 takes, Tony broke his arm and shooting had to stop. The producers laid off all the teams. Kar Wai sent me to scout new locations in northern China, in Manchuria. I left with an assistant, without a screenplay, to look for potential and historic locations. With no screenplay, all the stories and characters become potential narrative elements.

That's when the story of the film changed direction and we started the story over with Zhang Ziyi, the female character.

We shot at night in bitter cold, for six months. The incredible scene of the fight in the station between the brother and sister and a large percentage of the scenes in Manchuria are good illustrations of the impossible arctic cold. After these six months of difficult conditions, the production stopped shooting to take a two-month break. The adventure ended up lasting three years. 365 days of shooting, practically all of it shot at night, over 20 months in China, which represents a million feet of film....

Can you explain your work with Wong Kar Wai? How did he work with you? How did he intervene in the choice of framing?

Working with Kar Wai was fairly out of the ordinary, because we had to develop a dialogue about the photography as a whole without working in depth on the script and the settings. Kar Wai works with a simple narrative structure at the start, without a finalized screenplay, and in fact without a shooting schedule. The sets and costumes are fabricated as the shooting progresses, without a screenplay. For him, it means great creative freedom, but for his close collaborators it can be very disconcerting.

This is a film set during the 1930s in Manchuria, and it covers the history of China and Hong Kong up to the 1950s.

"Kar Wai likes shooting with the zoom to give the character a certain depth. It’s very hard to explain all the nuances, but the sense of a sequence can sometimes be reinforced through the use of the zoom. It becomes a narrative element in the writing.”
Kar Wai works with highly documented historical research on all the costumes and sets in the film. That becomes the first layer of the art direction. This film was very absorbing – working all day, with little time or objectivity to visualize the photography as a whole.

The scenes were written little by little, and we'd get them early in the morning to be shot that day or that night. Kar Wai allows a lot of freedom with the storyboard, framing and light. The inspiration could come from photos shot during location scouting, pre-lighting, or visual experiments done several months beforehand. Rodenck, Kurosawa, Autochromes, Alex Webb, and 17th- and 18th-century Chinese paintings were constant sources of inspiration, but during the shooting, each scene provided elements of inspiration that could become a promising source of ideas.

A spot that moves during the filming of a shot, an extra in a corner of the set, a graceful hand gesture, an eloquent costume… Anything could become a source of inspiration.

It's a very free and very enriching collaboration where we could constantly toss ideas back and forth.

In certain scenes, Kar Wai provides a certain atmosphere with the help of music. It gives the scene, a tone, a colour, that affects the actors’ work, the camera movements and the tempo of the scene in general. Once he feels that the harmony has finally been reached between the framing and the acting, then we film the scene without music.

Sometimes Kar Wai would start a sequence with a close shot rather than the wide shot. He likes to find the emotion of the sequence first through a character, a face, a detail, and keep the freedom to finish the sequence with the wide shot.

You couldn’t say there’s any fixed rule for the shooting style in the studio.

For Kar Wai, the results are the only thing that counts, and it’s no big thing if the dolly shot has to be moved 10 times in one night!

The same goes for re-shooting difficult fight scenes, for entire days, in the rain, just to change the colour of the star’s hat…

As the Chinese proverb says so well: “With time and patience, the mulberry leaves turn into a silk gown.”

From a technical a point of view, how did you handle all the different shots taken over a period of three years to end up with a homogeneous result?

When I started the film in 2009, after several days of shooting I realized that Kar Wai likes to re-shoot certain parts of the same sequence. So I got into the habit of taking notes about lights, exposures, contrast, colours, gels, films, development – for all shots and all sequences. We added whole sequences in sets that had been shot three years earlier, and we had to take all those
parameters into account to be able to match them. For example, the interior of the station. The station was built first in Manchuria and rebuilt in a hangar in southern China – but that time it was four times as big! One corner of the set could become the backdrop for a counter shot of a sequence that had been shot years before.

As for the film, after three years of shooting, Fuji had decided to close their film department, and we had to search around the world for the last available stock. It was a real race against time to get the film done!

Can you talk about the work with the lenses and the lighting to get such beautiful shots with very low exposure?

I generally work with large apertures and I like working in low light. It gives a certain patina to the image where the colours blend and mix in halftones. It gives you a muted colour tone, different from the radiance images have with key light. The entire film, the sets, the costumes are shot that way.

How did you work with the 24-290 and the S4?
The scenes inside the bordello, the “Golden Pavilion,” were often shot with the zoom, with Gong Her’s father, and also the exterior day scenes. Kar Wai likes shooting with the zoom to give the character a certain depth. It’s very hard to explain all the nuances, but the sense of a sequence can sometimes be reinforced through the use of the zoom. It becomes a narrative element in the writing.

Is the 24-290 fully compatible with the S4 (resolution, look, colour rendering)?
I compared the Optimo 24-290 and the series S4 during preparations for the shooting on Fuji film and the resolution and the colorimetry of the zoom were very close to the series S4. The resolution, the look and the colour rendering of the 24-290 zoom were ideal for a historical film and working with low light.

Do you have any particular remarks to pass on?
“Time opens its doors to those who wait.”

“Time opens its doors to those who wait.”
En Solitaire opened in theaters a few weeks ago. What do you remember about shooting the film?

Guillaume Schiffman: This film was an extraordinary adventure for me: shooting for two months at sea in a racing boat, and a beautiful shared friendship. It isn't possible to shoot a film without trust and solidarity. This is all the more so on a boat, where no escape is possible. And then, working with Christophe is working with a friend. He was gaffer in my crew and now he’s become DoP – I encouraged him to do it – and now he’s directed his first film. I was thrilled to shoot it for him and I would have been furious if he’d asked someone else to do it. He’s the one who framed the second camera and it was really a pleasure to exchange our viewpoints here and there.

What were your criteria of selection for your optical equipment?
Most of this shooting took place on a limited space, on a boat at sea subject to storms and the vibrations of the waves. So both Christophe and I were concerned with putting maximum limits on manipulations with the cameras. We couldn’t fit more than fifteen people on the boat. In addition to three sailors and a skipper who had to do the Vendée Globe, the two actors François Cluzet and Samy Seghir, there were two assistant cameramen, two riggers, a chief gaffer, an assistant director who was also the script person, two people for the sound, a prop person who also helped with the machinery, and one person who handled makeup, coiffure, and costumes. And it wasn’t rare for one or the other to take part in maneuvers..! Not to mention the seasickness..!

On the boat, we worked with two Red Epic cameras fitted with Angénieux 15-40 and 28-76 “mini-zooms”. At that time we couldn’t yet have the new 45-120.
The Zeiss series wasn’t taken out more than 4 or 5 times during the whole time we were shooting. ►

“Most of this shooting took place on a limited space, on a boat at sea subject to storms and the vibrations of the waves.”
How did our zooms work under your shooting conditions?

The material was exposed to spray, wind, cold, and the boat’s motion. A racing boat vibrates and clacks! The material was loaded onto the boat every day and meticulously cleaned by the land crew every night. On the boat we had special barneys to protect the cameras and the optics. And when we were doing the tests, we got the idea of these big flexible poufs that went up and down to break the shocks and vibrations of the boat. With that, we were able to work from the shoulder with our elbows leaning on these big cushions. The choice of zooms was judicious. They handled very well, we had no problems of condensation. To prevent the salt water from damaging the front lens we used a plane glass.

What are the features that you particularly appreciated?

I was already familiar with those zooms - I had used them for many of my films - Elle s’en va, Populaire, OSS 117, Gainsbourg... I appreciate the softness of those zooms. We couldn’t use filters. They bring a bit of roundness to the digital image that is the opposite of the overly “sharp” result you get from other optics. With those zooms, we didn’t have any colorimetric problem. They are quite soft but still precise and exact. There’s something very “cinema” in those zooms.

What kinds of images did they give?

Christophe’s intention was to reconstitute the confined atmosphere of a boat. We avoided wide shots as much as possible. The two zooms (15-40 and 28-76) covered the whole range of focuses we needed. Most of the shots were done in a 28-40mm range and often at 32mm. So we simply interchanged the two zooms. The longest focus we disposed of was 76mm. We had to do two shots at 20mm, that’s all.

With the sensitivity of today’s digital cameras, T2.6 aperture is no longer a problem. Even on a boat, at 800 ASA, it’s very good.

You mention “mini-zooms”; what advantages do you see in their size?

It’s clear; they’re small, light, very practical. They balance the camera. We can old them on the shoulder.

How about a few words on the 24-290 that I believe you used for images shot on the land?

You mean “Patator”? That’s our nickname for it... I love it!
“I appreciate the softness of those zooms. We couldn’t use filters. They bring a bit of roundness to the digital image that is the opposite of the overly “sharp” result you get from other optics. With those zooms, we didn’t have any colorimetric problem. They are quite soft but still precise and exact. There’s something very “cinema” in those zooms.”
"The Search" has been nominated in Official Selection of 2014 Cannes Film Festival.

How do you feel about doing a film entirely in zoom?

Guillaume Schiffman: It is more and more common to do films with zooms. Shooting with a zoom obviously takes nothing away from the quality of a film. I think the choice of lens corresponds more with a choice of cinematographic vocabulary, the type of narration, an approach to the staging... All the more so with digital.

I have just finished shooting Michel Hazanavicius’ film The Search in Georgia. It’s very different from the earlier films, a drama against the background of the Chechnya conflict... We shot 99% of the film on the shoulder from 45-120! We kept some Cooke S5 –on wide shots or night sessions that were a bit complicated... but Michel doesn't like wide shots much in general and this war film called for shots that were a bit “wild,” close ups, we had to constantly show urgency... The 45-120 was perfect.”
I got an email from my agent one day talking about a film that was in preproduction by long time comedy writer and comedian Jordan Rubin. This would be his directorial debut. Right out of the gate I was told that the film was intending to bring back the good 'old fashion 80’s creature horror picture- full of dumb teens, funny one-liners, mechanical effects, and of course puppets. I was instantly interested.

One of the first things Jordan and I talked about was how we would go about making the film look and feel as big and as authentic as possible, not just in size and scale, but also in the details and energy of each frame. We took a lot of notes from titles we both grew up watching and tied together a list of visuals that was full of throw back homage shots, genre motifs and classic misdirections.

We had been told straight off that our acquisition needed to be digital due to effects and post workflow- so with that in mind I chose to stick with my digital friend the Arri Alexa. I have been a fan of both the latitude range and naturalistic detail of the Alexa system and its ArriRAW workflow for many years. To capture the ArriRAW image we opted for the smaller Convergent Designs “Gemini” recorder system. The film itself only had 21 days of principal photography scheduled, so speed and accuracy was key. I think it is a fair to say I am a fan of shooting on zooms. It allows me and the director the chance to be versatile and expedient, and in the indie world
that is worth its weight in gold. I am very partial to the lightweight 15-40mm and 28-76mm Optimo zooms, they can almost always be found mounted on at least one of the cameras on my sets (from film to digital) in addition to the classic 12x 24-290mm Optimo.

I was very happy to test the new 19.5-94mm and 28-340mm Optimo zooms. Right away you notice a dramatic sharpness and contrast that for us was key. The lens is marked well, and has almost no breathing even at its widest. This, along with its wide aperture allowed us to keep the lens working day and night. One of the main tests I wanted to do on the lenses was to see how well they took to flaring.

In the film we did everything from shine flashlights down the barrel to shooting across backlit water on a lake, all of it handled great, no fogging or color shift. Just sharp high contrast imagery. My grip team soon became fans as well.

The 19.5-94 Optimo zoom quickly became an asset to us. The range was fantastic, the lens allowed us to shoot everything from establishing shots to close coverage, all off of one lens. Again, its sharpness was on a par with our set of Cooke S4’s and the saturations and contrast matched spot on. This is a great zoom with a very useful range, and now is even better. These two zooms took care of all our studio style work and the lightweight Optimos (15-40/28-76) cleaned up all our kinetic camera work (handheld/steadicam/water work). Angénieux will always have a place onset with me regardless of shooting format.

“The 19.5-94 Optimo zoom quickly became an asset to us. The range was fantastic, the lens allowed us to shoot everything from establishing shots to close coverage, all off of one lens. Again, its sharpness was on a par with our set of Cooke S4’s and the saturations and contrast matched spot on.”
When you started to work on Gunday, what were the constraints, the requirements and the artistic choices that were imposed by Ali AbbasZafar? What kind of look were you particularly looking for?

Aseem Mishra: I believe there is little that can ever be imposed on any kind of art form!!! To start with, Gunday is an interesting film set in between the years 1971 to 1988 and journeys from Bangladesh and to Calcutta. The film starts with children of the Geneva refugee camp in Bangladesh who subsequently grow up as the good bad guys of Calcutta. Ali and I had a similar vision about the look of the film. We wanted to shoot the entire film with a kind of gentle movement to draw the audience’s mind into each scene and shot of the film. While doing this we had to be careful not to go overboard with extreme movements and execute this treatment as and when required. Attention grabbing camera movements were used only when required. We canned great stuff in the action scenes of the film using the Optimo 24-290 lens and the short zoom 15-40 on Arri 435 mounted on Steadicam. In fact the short zoom was really handy and effective when we shot the coalmine sequence on set because of lack of space in the narrow gullies. The 24-290 Optimo worked really well in the outdoor chase action sequences.

Apart from action scenes, we also shot a lot of emotionally strung outdoor scenes with Optimo as we wanted the camera to zoom in instead of tracking in. We wanted this treatment to play on the subconscious of the audience to allow them to perceive what is going through in the minds of the characters.

In general, what are the main criteria that define your choice of lenses on a project?

Well, for me the choice of lens largely depends on the script of the film for starters. Also the tenor and nature of sequence one is attempting to shoot - emotional scenes, action scenes, songs. A lot depends on the mood of the film and movement in the characters’ enactment in the course of the storytelling. For me personally, lighting comes later. My priority at the outset is the right choice of lens to capture the appropriate mood of the scene.

What lenses have you used during the shooting of Gunday? Have you shot with Optimos zoom lenses? If yes, which ones?

I used Optimo 24-290 and 15-40 in Gunday. I have largely used these two lenses in most of my films. I have used these lenses in some of my previous work on films like Once upon a time in Mumbai 1, Band Baaja Baarat, Ladies Vs Ricky Bahl, Ekta Tiger, Gunday and now on the under production Phantom. I’ve used these lenses on several commercials that I have worked on as well.

Can you share with us what kind of testing process you are going through before the shooting, and on what particular points you are not ready to compromise at all?

My team, which essentially comprises of Anil, Yudhisthira and my focus puller, Sanjay always do a detailed check for all the lenses few days prior to the shoot. As I shoot all my films mostly on f/2.8 it’s really important for my lenses to be absolutely sharp in focus. So it is critical to do a detailed lens test. In case of an error we always inform the maintenance department.
As you already know, zoom lenses have to be handled carefully because of their fragile elements. Rough handling could lead to wrong alignment of the elements which would further lead to out of focus shots. Unless warranted, nobody likes out of focus shots! And it is imperative that one is in control of one’s equipment and its’ performance. I am extremely careful when I am testing lenses. I am extra careful when I get to know that the lens has been opened up earlier. I also keep an account of the date of manufacture and for how long it has been in use. Nowadays we can play around with almost everything in the DI stage but you can’t convert an out of focus shot into an in focus shot. For me the most important thing is the sharpness and the f stop of the lens.

Can you let us know more about your approach between prime lenses and zoom lenses?

For me choice of lenses is primarily based on the script and then the locations. The choice of lenses entirely depends on the mood of the scenes, movement of the characters and the physical space for that particular scene in the context of the script. What I normally do is when I go through the script, I mark my lenses alongside as I read the script. The second stage of decision making is between a prime lens and a zoom lens. This is when I read each scene keeping only

“I’m a big fan of Optimo. For me they are really convenient and time saving lenses in terms of operation. I have been using them extensively in action scenes and a lot of emotional scenes...”
the lens in mind and then the third stage is when I sit with the director for the scene breakdown. For me, the decision of choosing a particular lens is an aesthetic process more than a technical requirement. For me it’s really important to decide how much of the audience’s attention do we want to draw towards the background elements in a scene. If I don’t want any kind of unnecessary distractions in the background then I would most certainly go for a longer lens. Also, if I need to attract the audiences’ attention to something specific I would choose a zoom lens.

About your previous projects, could you please tell us what were the main advantages brought by our Optimo lenses on the set? What were their limits? Is there any particular scene that you feel you could not have done without an Optimo zoom?

I’m a big fan of Optimo. For me they are really convenient and time saving lenses in terms of operation. I have been using them extensively in action scenes and a lot of emotional scenes especially when I need to zoom in gently to draw attention towards something that’s important in the scene, for example, if I need to go in to the actor’s face or when the director and I feel that some emotion needs to be highlighted. The opening sequence of Ek ThaTiger is shot a lot on Optimo. In fact, I recall, most of Ek ThaTiger was shot on Optimo as we wanted most of the scenes in the film to have a very intriguing feel - a touch zoom in and a touch zoom out on a loose head. It was a fantastic experience to be able to achieve what we had planned for the film.

What were the most extreme conditions you had to face on the set and how did the Optimo respond to that? What particular moments will you remember most?

I have shot with Optimo from -9 degrees centigrade to 43 degrees centigrade, in varied terrain and conditions from the mountains of Kashmir to the beautiful landscapes of Ireland, or the beaches of Goa to coalfields of Raniganj. Initially I had thought that in sub zero temperatures it might be better to shoot with prime lenses - but I am happy to state that I had absolutely no problem! The shoot went off smoothly and the results are really good!

You should be aware about the new Optimo 25-250! What do you think about this focal length? Will you be interested to use it during your next coming projects?

To be honest I feel absolutely comfortable with the Optimo lens 24–290. Also I think my left hand on the zoom and my brain are in great sync. A lot depends on how one holds the lens while operating. Is it a full grip or one is operating with zoom stick? I operate with a full palm grip. A lot also depends on the way one is holding the pan rod. And since I come from a news and documentary background a lot of my zoom operations are instinctive.

The long focal length Optimo are the most famous lenses at the moment. What do you think about the Angénieux approach regarding the lightweight zoom family? Have you already tried some of them?

I think the kind of focal length that I am naturally comfortable with is 15-40 and 24-290. As I said my left hand palm grip works really well on 24-290. Also, I love the way it balances on the tripod.

How would you define the OPTIMO lenses and why would you recommend them to other cinematographers?

Helps in compositions, easy to operate, beautiful shallow depth of field. I would recommend Optimo highly to other fellow cinematographers, especially since we are going digital. It helps a lot in keeping the image look more “film” like.
“For a few years now, I’ve been incorporating organic motivated zooms into all my work. I find that the use of the zoom makes shots feel more immediate and intense. I dreamed for a long time of the perfect set of zooms. I was looking for zooms that could satisfy my desire for superior optics, optimum range, ergonomics and overall functionality. When the news of the Angénieux lightweight zooms was released, I was excited to work with them. They are truly amazing and totally satisfy everything I’ve been looking for in a set of lenses. I currently outfit each of my cameras with a full set of all three focal ranges and have been thrilled with the results.”

Lisa Wiegand, DoP
PECADO MORTAL

TV Record (Brazil) chose Angénieux Optimo Cine lenses to shoot Tele-Novela “Pecado Mortal”. Director Alexandre Avancini gives us his feedback.

Pecado Mortal was the first tele-novela from TV Record shot with equipment camera and lens package generally used to shoot movie or mini-series. What guided your decision to use that equipment?

Alexandre Avancini: My crew and I had already used this kind of equipment in a previous TV Record production, a mini-series called Joseph from Egypt (José do Egito). Although the pace of the production in Joseph was a lot slower than in the tele-novela, about 5 scenes per day, we acquired confidence in the equipment and of course in the image quality that it delivered. I must say that capturing with this type of equipment allows us infinite ways of manipulating the image in post-production besides bringing to the project the cinema look in terms of texture and depth of field.

What were the advantages of using the 24-290 and 15-40 Optimo for that production? How did it work?

Both Optimos 24-290 and 15-40 proved themselves to be extremely versatile and productive during our day-to-day work. If in Joseph we had a set of fixed lenses plus the Optimos, in Pecado Mortal the Optimo lenses...
became our main lenses, specially in the studio scenes, as they allowed us to set the speed of shots that is required when shooting a tele-novela, which means 20 scenes per day in the studio. We basically used eight Alexa with six Optimo 24-290 and six Optimo 15-40 plus a few fixed focal lenses. We used two studios with three cameras in each of them and two cameras for on-location shots. Optimo 24-290 were used inside the studio practically the whole time, while 15-40 and a fixed focal lens were chosen in more specific shots. On location, we used 15-40 most of the time together with a few fixed focal lenses.

As the speed of shooting tele-novela is much faster than shooting a movie or mini-series, how did you manage to achieve that without compromising the quality of the image?

The Optimo 24-290 lenses were extremely handy in this process. At first we even tried to use fixed focal lenses but we realized that we lost too much time exchanging lenses and it became impractical. With the 24-290 there was no waste of time and the image quality was spectacular.

Are you happy with the result?

Yes, very much. I was rather impressed to see how we obtained excellent productivity using film cameras in a telenovela, with all the image quality advantages that they offer. In reality, when we refer to film cameras, one must definitely take into consideration the lenses because, at the end of the day, they are the ones that make the difference, and the Optimos were an extremely important tool in the implementation of the dynamics of the shooting.

Is Rede Record planning to produce other Novellas using that type of equipment?

I have high hopes that we will at some point be able to exchange all our cameras for this kind of equipment.
**Ava’s Possessions**

Adrian Correia testimonial

You have an academic background in history and never went to film school. Can you tell me how you become a cinematographer?

**Adrian Correia:** I was going to get my doctorate in history when I got a job as a production assistant on a film called “Maryam” (shot by Harlan Bosmajian). That was it, I was hooked and began my career. I knew I wanted to be a cinematographer and the paths to that were starting to open up with DV cameras and the dawn of HD. The traditional route of working your way up through the camera department was starting to fall away. I was a terrible focus puller and I knew I would never make it that way. I switched to the grip and electric route and shot as much as I could, whenever I was given the opportunity. One of my first mentors was Nancy Schreiber ASC. I learned a lot from her on Kevin Bacon’s film “Loverboy”. I loved her attention to detail, boundless energy and creativity. She always offered great advice. Tom Stern ASC, AFC is also a terrific mentor and a wonderful friend. His knowledge of lighting is limitless, but his leadership, command of production and thought process on attacking problems on set in real time were invaluable to me and my development. He is always able to cut away the problem down to the bone and find the most reasonable and effective solution that is both practical and artistically inspired. I frame my worldview on cinematography through them, and the lessons they have imparted to me.

This year you have 2 movies that premiere at the South By Southwest Film Festival. That’s a great success. How did that happen?

It is the same with any script you get the privilege to shoot. You factor in all the elements. The budget, the schedule, the resources available to you, the vision of the director and the practicality of what can be achieved within the confines you have to deal with on a scene by scene basis. Hopefully at the end of that you can attack not just the scenes but the idea, visually, of the film as a whole and deliver a film that tells the story as soundly and cinematically as possible. I’ve always tried to do that with a responsibility to my crew, my producers and most importantly to my director. It just so happens that on these two particular occasions (Night Owls and Ava’s Possessions), the films have found their place to fit in the cinematic landscape at such a prestigious festival. That being said, firstly they’re very good scripts, but the directors (Charles Hood and Jordan Galland) had visions that, when they were executed, turned into very interesting films. Without the pages and the visions, the technical fields are meaningless.

“The lens worked very well with the Red Dragon. We shot in the 2:1 aspect ratio with a final 2.40 mask in 6K resolution.”

Your first experience with Angénieux Optimo was last year using the 28-340 Optimo on Undrafted. Can you tell me more about that experience?

Joe Mazzello’s “Undrafted” is an ensemble sports comedy with a decidedly romantic photographic style (reminiscent of Rudy and The Natural). Joe wanted to shoot multiple cameras, with an incredible amount of coverage on a short schedule and limited resources. The only way to move quickly was with a zoom. Jay Ellison at Shadowcast Pictures informed me of the
Angénieux 28–340 and it seemed like a perfect fit. It gave us just enough room on the wide side to shoot masters with an entire baseball team, and long enough to suit our ideas for handsome, romanticized photography. Plus it was fast, breathing wasn’t an issue, it was an easy match with primes (Zeiss Ultra Primes), and it rendered faces beautifully. I’m always wary with digital about skin tones and making sure our actors look their best. The Optimo had a warm and gorgeous texture which really suited Joe’s ideas about creating a world that was a notch above reality. Our last day was brutal. We shot seventy-three set-ups, every one of which was in the final film. There is no way we moved that fast without the Angénieux.

On Ava’s Possession you chose to work with the 19.5-94 Optimo. Did you choose that lens for a particular reason?

Jordan Galland favored wider lenses for “Ava’s Possessions”, but he also wanted to incorporate zooms to suit the 70’s horror esthetic. The 19.5-94 Optimo looked gorgeous, was fast enough for us to shoot our night exteriors (even with our limited budget and schedule) and enabled us to move quickly in and out of set-ups. Also, considering a few of our locations, I could resize with the zoom if the blocking changed after a dolly track lay and not lose time. Just having the chance to use it as a variable prime saved me loads of time. We only had 18 days with tons of locations and scenes. I couldn’t afford to make any mistakes. I knew from Undrafted that I could use the Optimo under any conditions and not worry. Also, considering it was only twelve pounds, if I quickly needed to grab the camera and do handheld with it in a pinch it wasn’t going to kill me!

How does the 19.5-94 work with skin tone?
The Optimo is beautiful! It can be so difficult with modern glass and new digital sensors. I always worry about skin having a plastic texture. Careful lighting is always key, but having glass like the Optimo is certainly as crucial. We often had the 19.5mm or 25mm right in an actor’s face, and you better have the confidence that you are treating your talent with the respect they deserve and doing all you can to help an audience connect with the character. The Optimo always had my back. Sure, the resolution was perfect, but I was so pleased with the rounded nature of the image and the dimensionality of the faces. I debated not even using diffusion, but we wanted the bloom in highlights so we shot with the Optimo. Our coloring schedule was extremely tight, and thankfully the Optimo and our colorist, TJ Seiler, helped give our world terrific breadth but great focus as well.

Did you work mostly full open at T:2.6?

I detest losing performance to focus. As a result I try to shoot a bit deeper usually falling around 2.8/4 for interiors and 5.6 for exteriors. Unless we are trying to achieve a specific effect (like in the finale of Ava’s), I try to stay away from being wide open. The Optimo functions wonderfully even wide open, so I knew I had it as a fail-safe, but I just prefer a deeper stop. So much of independent cinema is shooting without rehearsal. I just find it a little sacrilegious to sacrifice a take and possibly a fantastic moment we may never get back to the arbitrary nature of an unrehearsed take. However, it is the place most indies find themselves in today. There are so many things against us, why throw more logs on the proverbial fire? Also, my assistant Andrew Brinkman is the finest focus puller I’ve ever worked with, so he bails me out most of the time.

For the post production, was it an advantage to have almost all of the scenes shot with one lens? It certainly streamlines your work in the suite! Ava’s has a very aggressive style in terms of color contrast. It kind of dips its feet into many pools. Giallo, Polanski, Wong Kar Wai, 70’s American Cinema, Crewdson, Powell and Pressburger. The references in Jordan’s look book were as extensive as they were varied. It certainly helped to maintain a foundation by having continuity with the Optimo. Our coloring schedule was extremely tight, and thankfully the Optimo and our colorist, TJ Seiler, helped give our world terrific breadth but great focus as well.

How easy was it to use the lens on the Red Epic Dragon? Did you have any issue with image format or color rendition?
The lens worked very well with the Red Dragon. We shot in the 2:1 aspect ratio with a final 2.40 mask in 6K resolution. We had slight vignetting at 19.5, which went away at about 20mm, but Jordan loved the look of it so much we embraced the vignetting and made it part of our style. We didn’t test it at full frame as we never would shoot that, just to save on drive space, but we always knew we would finish in 2.40:1. I thought the Optimos always traveled a trifle warm, but in a pleasing way to me as I usually favor Cooke for my prime lenses anyway. In terms of color, the Optimo showed itself to be very true to my eye as I see the set. In fact, I never went to the monitor; I lit with my meter and eye. The camera and lenses were always true to my intention, and Ava’s is a film that is brimming with color.

You are prepping for a new feature film directed by Charles Hood. Are you considering using the Optimo lenses on that production?

When “Sorry For Your Loss” rolls this summer I would be a fool not to have Optimos on the truck. They have proven themselves to be not just timesavers and brilliant technically, but they give me the artistic quality and results I demand for the stories I want to tell. They’ll always have a place on my cameras.
ANAMORPHIC OPTICS

In this new all-digital world, one of the challenges faced by Angénieux in recent years has been rethinking the place of anamorphic lenses: in today’s digital age, does it still make sense to film in anamorphic format?

With 35mm film and vertical scrolling perforated film, scope formats required optical squeeze to improve resolution. With digital the constraints of the film itself disappear, and the scope format is naturally integrated in the format with the new large panoramic sensors. The issue of anamorphic squeeze to increase resolution becomes redundant. Although anamorphic squeeze can no longer be justified in terms of resolution, its special qualities could also disappear in the all-digital world.

Angénieux’s two anamorphic zoom lenses with 2x squeeze now give filmmakers two tools that retain the subtleties provided by anamorphic images despite the larger screens and better quality projections (4K).

The choice of anamorphic rear met four important requirements:

**Ergonomics**: to put small and lightweight zoom lenses on the market that are easy use on Steadicams, cranes, drones, etc.

**Versatility**: in order to refine the depth of field produced by anamorphic lenses these two zoom lenses have no breathing, no distortion and no unwanted flare. They therefore successfully match with prime anamorphic lenses or spherical lenses.

**The minimum object distance** is extremely short for an anamorphic lens (0.65m)

**The full aperture at T4** seemed the best compromise to meet the ergonomics in view of cameras’ new sensitivity.

The Optimo 56-152 A2S and Optimo 30-72 A2S are the smallest ever anamorphic zooms with 2x squeeze – cinematography’s two new borns.
Hugo Santiago testimonial

“In 1978, I shot my film Écoute-Voir, with Catherine Deneuve and Sami Frey, in anamorphic Panavision, and my choice was to shoot it entirely with the 40-80 zoom, used as a zoom and also as a fixed lens. My excellent memories of that experience are what led me to look for an anamorphic zoom to shoot El Cielo del Centauro in Buenos Aires – due to format requirements – that could give me comparable rendering while conforming to other requirements of the project. And your new Optimo 56-152 2S came out – with a much longer lens range, precision of use for combining very complex camera movements with the complementarity of the zoom, an uncommon softness while still keeping the required definition, a considerable dynamic range, surprisingly light physically (as much on a Panther or a crane as on a Steadicam), and so on.

I’ve just finished shooting the film, entirely with the Optimo 56-152 2S, using 56 mm as the basic fixed lens and up to 152 mm for very tight shots, with exceptional rendering (naturally, which underlines the perfect consistency of the lenses). I shouldn’t anticipate too much on the final result until the grading stage but I can say that my Director of Photography and I were aiming at very special images. But I think I can say that these images won’t look quite like any other, and are intimately linked to the conception of the film, and that your 56-152 zoom is largely to be thanked for them. It’s a superb tool and I predict it will have a remarkable career.”
Gustavo Biazzi testimonial

Shooting of El Cielo del Centauro has just ended. What impressions has it left with you?
It was an aesthetic learning process. Beauty is among us, concealed, hidden, and we need to discover it. Hugo taught us that.

What were the director’s intentions for this film?
To create a fascinating image of Buenos Aires. Combine a look, a face, a tone of voice, a gesture, a colour and movement in the scene, and capture it with virtuosity. In short, to show the beauty of Buenos Aires cinematographically.

What criteria were used in selecting your lenses?
With the aspect we wanted for the film, our first requirement was to have anamorphic lenses. Then, in analysing the storyboard Hugo had put down on paper, where he described all the shots in the film precisely, we realized we needed a zoom. In addition to simplifying the production with its versatility and cost, we needed to combine the physical camera movements with optical movements of the zoom to get a wide variation of shots within a take. And because of that variation we were looking for, the zoom’s minimum focusing distance of 0.63 m was indispensable.

What camera did you use?
The Arri Alexa 16:9.

What were the specific conditions of the shooting (climate, etc.)?
Shooting took place in spring and early summer in Buenos Aires, and the weather conditions were good, with moderate temperatures.

And how did our zoom behave under those conditions?
Perfectly.

What types of images did it give you? Mr. Santiago mentioned some very distinctive images...
The specificity of the cinematography is the result of a set of aesthetic decisions, choreographed camera movements, the counterpoint of the grey of the city with the emphasis on the colours that move across it. The architectural shapes, the faces, the costumes,
the décors, the contrast. The image of fascination, where everything shines, but without being blinding, and where a camera movement counts for as much as a gesture or a line of dialogue, a colour or a musical passage.

What qualities did you especially appreciate about the zoom – weight, bulkiness, optical performance, colorimetry, etc?

Visually, the colorimetry is the remarkable characteristic of this zoom. It faithfully reproduced the nuances of tone that are there in reality. Mechanically, it’s exceptional – in situations where you change focus suddenly, the lens never “breathes”. And obviously its lower weight and bulkiness differentiate it from other anamorphic zooms, which gives it great versatility.

What’s your feeling about making a film entirely with a zoom?

For me, there’s no great optical difference between shooting with a zoom or with high-quality fixed lenses. The decision has to do with the specific needs of each film.

The most frequent problems I see with using zooms are related to the maximum aperture of the diaphragm, which is a disadvantage compared to fixed lenses. But, currently, with the extraordinary sensitivity of digital cameras, that’s less and less significant. And breathing when changing focal length is an issue, but with the Angénieux zoom it’s not a problem.

“For me, there’s no great optical difference between shooting with a zoom or with high-quality fixed lenses. The decision has to do with the specific needs of each film.”
“I wanted to extend my personal gratitude for letting me use the new anamorphic zoom on Carmen Chaplin film’s shoot.

I have to say the lens was great. We basically only had 3 days to shoot everything and without your lens I am certain we would not have been able to get what we did. I got some great photography of Uma Chaplin with it on the last day, and it looks very nice. It was a steadicam following a baby on a beach so being able to adjust on the zoom quickly to re-frame was crucial. Aside from that, it was delicate on skin tones, there was no distortion, and it looks great projected. It was perfect for the shoot and it is going to be an amazing tool for so many more when they hit the market.”
“I am both director and director of photography on Jean’s & Blue – an ad for a fashion designer.

The screenplay I wrote is an allusion to the spectrum of American Cinema, as seen for example in the western “Once Upon A Time in the West”, with small references to major films such as Elia Kazan’s “East of Eden” and others that take up the Jean’s adventure of rebellion and doing battle.

Like everyone else, I have worked with different lenses and I’ve often been struck by Angénieux’s definition, accuracy, colorimetry, latitude, contrast, and soft grain.

Over the five days of shooting, we used the new Optimo anamorphic 56-152 mm on a tripod, Steadicam and crane.

I didn’t personally use the Steadicam – we had a Steadicamer. He seemed really comfortable. He could use it for long periods, which is not always possible. On the jib, it was perfect.

The major concern is always focus breathing, etc. But overall, there is no focus breathing. Or you really have to be paying very close attention. When the aperture is open to the maximum, there is the risk of distortion and loss of quality in all areas, but after carefully examining the images it doesn’t seem to be the case here.

The only thing I would have liked this lens to do would be to go down to 35mm - start at 35mm at least goes up to 152mm.

As for its aesthetics, weight and mechanics, I feel good with it…I think this Optimo has a combination of everything I like about certain other lenses. This is the first time I have worked with the RED Dragon as it has only just come out. It seemed to me that with this very wide sensor now approaching 24x36, the relationship between lens and sensor could very well become seamless - like two perfectly matching colours.”
“I think this Optimo has a combination of everything I like about certain other lenses.”
Oliver Wood & Florian Emmerich testimonials

“We used the Optimo 56-152 on the movie Child 44. It was the perfect lens for hand held work. The focal lengths were exactly right. The lens is very sharp and optically on the same level as the longer Optimo zoom. For me it is a must have on any anamorphic movie. A much needed lens. Thank you Angénieux.”

Oliver Wood – Cinematographer

“Working on Child 44 as the B-camera operator and the 2nd Unit DoP with the new anamorphic Angénieux Optimo 56-152 has given us the lens we needed so much to achieve the visual style of the film using zooms in hand held and Steadicam situations throughout the show. In action sequences only the minimal weight and size of the lens allowed us to get shots that were impossible to achieve otherwise. The optical performance is fantastic with the lens handling backlight situations very well. The close focus of only 2 foot 1 at 152mm gave us beautiful close ups, perfectly serving the style the director Daniel Espinosa and DoP Oliver Wood were looking for, underlining suspense and emotion with very subtle zooms in a handheld or Steadicam shot.”

Florian Emmerich – 2nd unit DoP

“The optical performance is fantastic with the lens handling backlight situations very well.”
“For the 2014 MLB All Star Game, Fox Sports hired me to provide some unique shots of the players and the host city, Minneapolis. I chose again to use the Angénieux 56-152 for it’s clarity, quality, and unmistakable cinematic texture that is rarely seen in sports content. This was to be Derek Jeter’s last All Star appearance, so there was an opportunity to capture images of an icon in a memorable setting and I wanted to do so with the anamorphic. It delivered and performed beautifully and I’m truly grateful for the opportunity to continue shooting with Angénieux hardware across all my projects.”

Charles Brosius
Smaller, lighter, cheaper, more sensitive cameras came with digital technology. Resolution is now a primary concern given the improvement in quality (4K or more) and the proliferation of special effects. Meanwhile, production budgets are falling. Creativity is no longer purely the province of the big production houses. Many budding and independent filmmakers want to produce their own projects.

The rules of the game are changing...

At the end the 2000’s, following the need of high quality optics at an affordable price for the new digital cameras, Angénieux launched a series of two compact zoom lenses - the **Optimo DP 30-80** and **Optimo DP 16-42**. Designed on the basis of the Optimo cinema lenses, but at a lower price, the Optimo DP zooms still offer excellent optical compromise.

These lenses have the rear group which stick out of the PL mount so they cannot be mounted on cameras with mirror like film cameras or ARRI Alexa Studio and on some specific digital camera like Canon C300 or C500 in EF mount.

To remedy this technical limitation and offer more versatility optics to users, Angénieux launched the **Optimo Style** series in 2014. This new series has three lenses: 16-40, 30-76 and 25-250. The 16-40 and 30-76 are compact, they weigh around 1.9 kg (4.2lbs), providing a perfect balance on the shoulder. They also have the perfect size and weight for being used hand held on cameras like Red Epic or Canon C300 / C500 cameras.

The studio Optimo Style has the legendary 25mm to 250mm focal range, a standard in Angénieux cinema lenses since 1963. It is a sturdy, rugged and versatile zoom lens incorporating the latest technology at a price that makes it accessible whatever the production budget. The Optimo Style zooms are perfectly adapted for the 4K resolution of modern digital cameras. They cover the large image sensor formats, Super 35mm or more. Their mount system allows an easy swap from PL to Panavision or Canon EF mounts for a wide option of camera compatibilities.

The Optimo DPs are now only available in **3D duo-pack**. These packs of two lenses, Optimo DP 16-42 or Optimo DP 30-80, are specially designed to answer the specific needs of stereoscopic production. The two lenses of the duo-pack are matched and calibrated at our factory. They offer an easily adjustable tracking, a very important feature for calibrating the cameras on the rig. The Optimo DP duo-pack has been chosen by the most prestigious 3D production companies.

The Optimo Style zooms inherit the optical look of the Optimo cinema lenses with a nice blend between contrast and resolution and optical coating providing a pleasant skin tone. When used on a digital camera they provide a beautiful cinema look of the image which is very appealing to the viewer. The Angénieux zoom lenses - Optimo, Optimo DP or Optimo Style - guarantee a standard of production performance traditionally required by film negatives as well as those required in today’s digital productions.
PERU’S RAINFORESTS ARE UNDER THREAT

Jérôme Dolbert had a limited budget for making his documentary about the deforestation in the tropical forest of Peru. Despite this constraint, Jérôme wanted the pictures to be top quality as this was a topic which was very important to him.

With the help of 9 sponsors and a lot of motivation Jérôme was able to achieve his goal. He spent 25 days shooting in the tropical forest in order to capture the activity and traveled more than 700 kms (430 miles) to a remote part of Peru with 80 kg (180 lbs) of equipment. Jérôme left Los Angeles on October 28th to reach Puerto Maldonado after a connection in Lima and finally arrived at the Taricaya Ecological Reserve, Amazon Rainforest onboard a small boat. The Taricaya Ecological Reserve is approximately 1000 acres of ecological reserve on the shore of the Madre de Dios River.

We interviewed Jérôme in November 2014 after his return to Los Angeles.
The Peruvian tropical forest host extraordinary ecosystems, with a large number of animals, birds and plants that can’t be found anywhere else on the planet. These ancient forests are part of the impressive variety of natural environment in Peru. However, many years of deforestation and poaching practices are putting that fragile ecosystem in extreme danger.

For that documentary I wanted to bring back very impressive footage: go everywhere I could go even in dangerous parts of the forest where the mafia, often protected by the local authorities, take the wood and gold without caring for the forest habitants and plants. In the area called “La Pampa”, mercury is used along the shores of the Inambari River to collect the gold. This is a huge problem because there is widespread mercury pollution, the water is no longer drinkable and the people can’t eat the fish. People working at the mines breaths the mercury fumes and get sick and it even pollutes the nearby forest. Just for the Pampa area, 100,000 acres of forest disappeared in the past 8 year due to the mercury pollution.

The local people don’t want to talk about that problem because they are afraid of retaliation. There are approximately 40,000 illegal gold miners in the Madre de Dios region.

I planned my work in 2 parts: First working on the issue with the animals at the Taricaya Ecological Reserve where Projects Abroad, an NGO based in London, is very active. Since 2004 several scientists from Project Abroad including biologists, veterinarians, zoologists, forest engineers and environmental engineers have been working there. It’s the first research center doing reintroduction of animals which has an official recognition in Peru.

They cure sick animals and reintroduce them in their habitat when they are in good health. They also study them when they are in captivity at their center. They have tapirs, monkeys, jaguars, black panthers, parrots, toucans, turtles and wild dogs injured or without parents. They also help the local population to develop sustainable and ecofriendly agriculture (acajou, coffee, banana, and cacao).

Second plan was to work on the deforestation in Peru. Although it was a very dangerous part of my journey, I got a lot of nice footage. I was able to shoot from far a military operation where 1,500 soldiers went into La Pampa to destroy the equipment used for illegal gold mining (pumps, digger, etc).

I had to hide for shooting that operation. It may have been easier to do that with a mini-camera, but I was successful using the Red Epic with the 30-76 Optimo Style lens.

My camera package weighed around 12 kg (25 lbs). I had the Red Epic camera and its accessories, the two Optimo Style 16-40 and 30-76 (under 4.2 lbs each), the 2x extender and a light tripod (around 11 lbs).
documentary. If I had chosen to use primes I would have needed several of them to cover the same range of focal lengths. The Optimo Style lenses are of excellent quality and I was impressed by their sharpness, the easy way to frame the subject and the fast way of swapping both of zooms on the camera. I used them to shoot both the devastated landscape of La Pampa and monkeys climbing in the trees. They have remarkable performance features and are so easy to use.

I did all the shots in 5K with a 3:1 compression. The camera had a 512GB memory card, so I could shoot a total of 30mins on the same. I used an 8TB hard drive to store the footages and ended up with a total of 15 hours of footage.

The environment was very tuff and hostile. The temperature was at an average of 37°C (95°F) with humidity at 75%. There were a lot of aggressive insects like mosquitos and flies. I remember one day I had probably around 80 flies biting my legs during an important shoot that had to be completed. The lenses worked perfectly in that environment. They were always ready to do the job even after carrying them several hours in the forest. I always kept them in my bag when they were not on the camera and didn't experience any condensation or moisture on the optics. I only had moisture on the LCD screen of the camera. We had only 2 hours of electricity per day at the campground, so I shot mainly in natural light. We had to go out very early in the morning to see the animals at dawn with a very little amount of light available at that time of the day. I worked at T: 2.8 on the lenses which provided enough light for the camera. I worked mostly on a tripod except for some scenes shot from a car in the dangerous areas.

I used the extender on the 30-76mm to shoot the monkeys in the trees and the same optical configuration to shoot the gold miners from a distance. I primarily used the 16-40 for the scenes shot in La Pampa.

I really liked the smoothness of the rings on the Optimo Style lenses. The focus is smooth and precise. I played a lot with the iris in order to adapt the exposure of the sensor as the light changed often from bright to gray when a cloud was suddenly hiding the sun. I used the camera LCD screen to adjust the aperture of the lens. Since being back in Los Angeles, I have gone through all of the footage I got from Peru. I'm very happy with the result. I can see amazing details on the images like the hair of the monkeys shot from far away and clear water drops on bananas. I'm working now on the editing in order to have a 60mins documentary. I would like to get additional testimonials from international experts on environmental issues. I'm hoping my documentary will be selected at film festivals. Looking back to the 25 days spent in Peru, I believe that shooting was a great success, but there was a big part of luck on that. Without the help of several valuable people and generous sponsors it would have been difficult to achieve what I did in such short period of time.”
Can you tell us about the intentions of Jean-Christophe de Revière, the filmmaker?

Cyril Thepenier: It’s an independent documentary that tells a true story – the story of André Lucas, a primatologist who is close to 70 years old and who spent eight months of his life with Dian Fossey. He was the only Frenchman the famous ethnologist allowed to share her daily life. He returned to Rwanda 38 years later – which is the subject of the film – to look for Pompon, a female gorilla whose birth he witnessed with Dian. At the end of the shooting, we all shared a very moving moment. We finally found Pompon. She had a baby gorilla with her. And André was able to spend a long time with them… That was probably the last time he’ll go back to the mountains of Rwanda and see them.

The crew entered Rwanda on November 24th. What impressions have stayed with you about the shooting?

Those three weeks in Rwanda remain a strong, grandiose, physical experience for me...

We left Ruhengeri every morning. After a trip by 4WD vehicle, we had a three-hour walk up the slopes of the volcanoes in the Virunga range, during which we regularly brought out the equipment to film. Then we plunged into the forest, often in the middle of the bamboo, to approach the gorilla groups that the trackers had spotted for us.

The landscapes in that region are grandiose. Up to a 2,700m altitude, the land is cultivated – obviously in a very low-tech way. The place is verdant, luxuriant. Starting at 2,700m, agriculture is prohibited to preserve the forest. That’s where the last 400 mountain gorillas of Rwanda live. The gorillas are broken up into several groups. As adults, their back becomes silvery, which explains the name “silverback.”

They’re just incredible animals. They have 97% the same DNA as we do. Their attitudes and their facial expressions are very close to those of a
human. If you respect their codes, they have no reason to be aggressive. You can get very close to them. One of them even touched my arm. The risk would be getting bitten or pushed. That happened twice, in fact. André Lucas ended up on the ground...

In that region, the climate is equatorial. We were pretty lucky – we didn't have to put up with heavy rains and didn't suffer too much from the humidity.

What equipment did you have? What criteria influenced your choice?
I worked with a Sony F5 camera and I'm familiar with the Angénieux Optimos. I've shot a few commercials with the 24-290 (ads for Chanel and Nike). I also used the 45-120 and the 19.5-94.

For this shoot in Rwanda, we had a small crew, and obviously I made a priority of ergonomics, lack of bulkiness, and light weight for the forest images where I did a lot of shoulder work. I had an Optimo DP 16-42 and an Optimo 45-120 available, along with an extender. I used the extender 2x fairly frequently and its rendering was very good, which is not always true with other brands. I could see no difference, with or without, on the 45-120.

On my shoulders, I had 12 to 14 kg maximum with the sound equipment. It was all well balanced, and it worked well.

For the needs of the shoot, I also had to film people, landscapes, helicopter views, etc. Ideally, I'd like to have had a 19.5-94 the size of a 45-120! The 16-42 quickly became too short which meant I had to change focal lengths.

Working entirely with a zoom avoided swapping optics, which are not always easy under those conditions. I was able to do a few very slow zooms on the gorillas' faces. The focus ring is precise, in feet or in meters. A pleasure to use.

What qualities did you especially appreciate?
The film is currently in post-production. Jean-Christophe and I have already had a chance to see the quality of the images – they're both very soft and very sharp. Those qualities were especially visible on the details of the gorillas' fur, for example. There's still softness there. We shot in a very heavy image format, without too much compression, so there's a lot of information that gives us plenty of latitude for grading in post-production.

The image is very clean and very true. I had no filters – I just had a polarizing filter that I never used.

I had no problems at all with the aperture; both zooms can go down to T 2.8. The light can change very quickly in that region. As soon as the sun comes up, the light is very bright. I used a denoiser once or twice when things were a little close to the limit...
Le Ride is a verite documentary. Shooting from the back of a motorcycle for 26 days we followed the saga of two bicyclists, Phil Keoghan and Ben Cornell, as they rode the 3500 mile circumference of France, retracing the route of the 1928 Tour De France. We shot in all kinds of weather and in every conceivable lighting condition. The action was constant and free flowing; nothing was staged for the camera. We endeavored to never impede the rider’s progress for any reason. If you missed something; that was that.

We needed a 4k camera kit that is light and versatile. We went with the Sony F-55 camera and Angénieux Optimo lenses. The camera was set up with a shoulder mount and handgrips but no follow focus or matt box; just a light weight clip-on lens hood & filter holder. Simplicity and balance. We needed to keep it as light as possible.

Given the physical challenges and the fact that we were shooting 4k for theatrical distribution, the lens choice was my single biggest concern going in. I also didn’t agree with the choice of the Cabrio 19-90 servo zoom. My preference was to go with the Optimo DP 16-42 as my primary lens. The problem I have with the Cabrio lens is related to it’s use in hand held shooting; it’s too nose heavy. It is about a pound and a half heavier than the Optimo, and much of that weight extends almost 9” from the camera. This combination of weight and length creates a significant amount of polar inertia that is hard to overcome in fast-paced shooting, so unwanted motion can end up in the shot. And it’s just not wide enough. By comparison the Optimo is shorter, lighter, wider and faster. All aspects that help determine what and how one can shoot in difficult conditions.

“We the Optimos have precise focusing with no ramping or breathing and the optical quality of these lenses is beyond reproach [...]”

We also knew that we would have to live with long takes from a single camera to cover some of the most critical action. Any mechanical hindrance in capturing those moments would be problematic. The Optimo have precise focusing with no ramping or breathing. And the optical quality of these lenses is beyond reproach: great speed, sharpness and contrast. All critical aspects for this project.

However we also needed beautiful cinematic landscapes in which to place the action and compare with archive photos of historic locations from the of 1928 Tour. This was the mission of our second camera operator Uri Sharon. For this we chose the Optimo DP 30-80 and the Optimo 45-120 with a 2x extender. This combination gave us all the range we needed while maintaining a consistent look and quality.

Verite filmmaking is all about capturing unpredictable actions in uncontrollable conditions. When the sun is blazing there is no time to set up a china silk and bounce card. Riding through a village at 2 am in the rain the only available light comes from street lamps and the occasional passing truck. The Optimo lenses exceeded my expectations in all of these conditions.
“Shooting at high frame rates always looks amazing, but now to be able to do it at 4K is mind blowing.”
Brain Farm is an American production company specialized in Extreme Sports. Ty Evans tested the Phantom Flex 4K camera during LA skateboarding session.

On the forefront of technology and image quality, Brain Farm has been shooting in 4K. Brain Farm director Ty Evans was given the opportunity by Vision Research to spend time testing and filming with their new Phantom Flex4K.

**Ty Evans:** “I have always been a huge fan of Vision Research and the cameras and technology that they are pushing. The Phantom Flex 2K is my go to camera for high speed shots and one of my favorite cameras to shoot. With the industry pushing towards 4K, the timing is perfect for Vision Research to introduce the Phantom Flex4K. Shooting at high frame rates always looks amazing, but now to be able to do it at 4K is mind blowing. Being able to see life slowed down with so much detail is ground breaking. I was stoked to have a first go at it and honored Vision Research gave me the opportunity.

The Phantom Flex4K can film up to 1000 fps and up to 2000 fps in 2K and can record in both uncompressed raw or industry-standard compression. Abel Cine also helped with lending the Optimo DP 30-80mm lens and camera support. The Phantom Flex4K has its own built in camera control menu to eliminate a computer on set. Still in prototype mode Ty and the crew adjusted the settings from a tethered laptop. Shooting an LA skateboarding session in 800 fps the camera was put to work. The guys were really impressed with the camera’s coloring and skin tones being already dialed. This will be the camera for all major 4K films.”
During the preparation of “Ilo Ilo”, what were the constraints, the requirements and the artistic choices that were imposed by your Director Anthony Chen? What kind of look did you particularly look for?

**Benoît Soler:** During the prep, Anthony has been very careful to show me and speak about Singaporean housing: the type of architecture, like a typical 5 room flat with a balcony and the type of lighting there was inside. The idea was to keep as close as possible to the reality and out of that, make it a bit more visual without being fake. So each place was a real inspiration and had its own palette of colors. The change was coming from the color of the light. For example the flat was not looking or feeling the same during the day and during the night. We have been very careful not to make it look like a postcard with too much esthetic. We were looking for the right feeling.

In general, what are the main criteria that define your choice of lenses on a project? Can you let us know more about your approach between prime lenses and zoom lenses?

The first choice over a lens is its quality (soft/hard) and after I look at the different options that the lens can offer me, speed, close focus, weight and homogeneity.

What lenses did you use during the shooting of “Ilo Ilo” and why were the Optimos the right choice for you?

Since I was doing the film all hand held, I needed something light and the Optimo DP 16-42 mm and Optimo DP 30-80 mm from Cameraquip (SG) were fitting the bill. They are very useful hand held and were matching the Ultra Primes visually in my taste.

Can you share with us, what kind of testing process you went through before the shooting, and on what particular points you were not ready to compromise at all?

We made different tests for different purposes. The most extensive test was to do a day-shoot on set with the talent, the make up, the wardrobe and the set design to see if everything was coherent and to be able to change whatever needed to be changed. Then we went to the post house to make a grading of this test and shoot a print of it again to be sure of the final result and the palette we went for. Doing this test in the post house was for me adamant before the shoot.

What cameras did you use during the production of “Ilo Ilo”. How did you find the combination between the Optimo and this camera? Can you share with us your approach regarding the camerawork?

We shot with the Alexa in Apple Pro Res. The visual language we wanted to develop was essentially hand held to bring an idea of constant instability. And for this we needed to be light, compact and bright since we were shooting a lot in real spaces that we could not light. The Optimos gave me the required flexibility.
“We needed to be light, compact and bright since we were shooting a lot in real spaces that we could not light. The Optimos gave me the required flexibility.”

How would you define the Angénieux look? Did the final result correspond to what you were expecting?
I would describe it by a very define image that holds a nice soft look. I have been using the 24-290 for a lot of shots and it always has been a key element with an amazing picture rendition. I don't think an Angénieux has once disappointed me.

What were the most extreme conditions you had to face on the set and how did the OPTIMO respond to that? What particular moments will you remember most from the shooting of “ILO ILO”?
It's a scene that is not in the film anymore but we had to react fast during a part of the shot to capture real people looking through their window. So we decided to use the zoom to get the shot and be able to adjust the focal length very fast. We were faking a loud sound to be able to get people looking out and then capture them.

“Ilo Ilo” gets the Camera d’Or in 2013 in Cannes and received an amazing welcome. Can you share with us this Cannes experience as a DoP?
Cannes is very prestigious festival to go to and it was the first time that I did it entirely. For “IloIlo” and us it was the first real screening in real size with a real audience of over 800 people (the Quinzaine des Réalisateurs’ theater is a big one). So the first worry was to be able to fill the entire theater but luckily it was sold out.
Then during the screening we had after 40 minutes an electricity cut that petrified the whole team, we were getting really worried. Then it started again and cut 2 times more and we had to wait for 10 minutes without any explanation…that was horrible but we started to see that despite all those technical problems everybody in the cinema was staying. Nobody left and at this time we understood that the audience was drawn into the film. It basically gave us the best comment we could have had, the film was interesting to them. Until then we didn't really know what the reaction would be.

The long focal length Optimo (24-290, 28-340) are the most famous lenses at the moment. What do you think about the Angénieux approach regarding the lightweight zoom range? Is this a type of lens you would be ready to try on your next movies? What is your feeling on the concept of the lightweight anamorphic zoom?
I really like the 24-290 lens but it is not very practical in terms of space and since I am shooting a lot of hand held I am more than enthusiast towards light weight zooms for different kinds of projects. I try to be as diversified as possible to be able to renew myself and my craft, so I need tools that can be versatile. I would be very interested in shooting with the lightweight anamorphic zoom, I saw it in Cannes on the booth and what I saw from it was quite impressive. So I look forward to bringing it into the field for a real taste.

What are your next projects?
Well I am doing all kind of different projects at the moment (commercial, music video, short film) but I might shoot a new feature soon but that has to be settled before speaking about it.

In three words, how would you define the Optimo lenses and why would you recommend them to other cinematographers?
I was lucky enough to be able to use Optimo zooms very early. For me there are no zooms quite like them. But I don't need to recommend them that much since most of the time when I am talking with fellow cinematographers they are using Optimos as well. It’s of a reference in the industry.
SHOOT... IN STYLE
PANDAS IN 3D: BACK TO THE WILD

4K production with Angénieux Optimo DP lenses
Cinematrographers: Robin Cox & Chris Openshaw

From Oxford Scientific Films (OSF) for Sky in association with CWCA & Wolong Panda Conservation Centre, National Geographic Channels, National Geographic Entertainment and CCTV9.
Narrated by Joely Richardson, the one-hour special reveals China’s quest to save the endangered giant panda.
Working with DoPs Robin Cox and Chris Openshaw, Onsight provided cameras and post production services, including two sets of Optimo DP 16–42 and 30–80.

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Wolf Totem has been shot in 3D. Jean-Marie Dreujou AFC told us about his experience with Angénieux lenses on the movie during the shooting.

Jean-Marie Dreujou: Wolf Totem is my second Chinese movie experience: I shot in 2001 «Balzac et la Petite Tailleuse Chinoise» (“Xiao ai feng”/“Balzac and the little Chinese Seamstress”) of Dai Sijie. For this movie, I used a 25-250 HR that I mixed with a Zeiss serial Distagon. We were, by that time, 4 French people to make this movie, entirely in Chinese.

Wolf Totem is my forth movie with Jean-Jacques Annaud, it takes place in 1969. A young student coming from Beijing is sent in Central Mongolia, in a tribe of nomadic shepherds. In this infinite, hostile and vertiginous country, he will learn a lot about community, freedom, responsibility and also about the most frightening but venerated creature of the steppes… the wolf!

What about the mixing of the teams?
I shot all over the world, I already found myself alone to shoot in a foreign team. Presently, we have 450 persons in the team, 9 of whom are French. The image team is made up of 27 technicians on camera, 17 on machinery, 19 for electricity, one translator… because only my Chinese gaffer speaks English. Thanks to the cinema language being universal, and to the technician skills, we always manage to understand each other.

Denis Scozzesi, my Head Rigger accompanies me. His skill and our complicity are essential to coordinate every camera movement.

What are the equipments you use on the shooting?
I shoot with 5 cameras! (3) 2D cameras and (2) 3D cameras. I use a Screenplane for 3D cameras, on which I set either 16-42 3D packs or 30-80 3D packs. On 2D cameras, I mainly use Angénieux zoom! 15-40 & 28-76, 24-290 & 28-340. We shoot about ¼ in native 3D and ¾ in 2D. The movie will then be entirely “spacelized” to go out on cinema screens in 3D.

What are your feelings concerning Angénieux lenses?
I liked to use the new 28-340 on Wolf Totem with the Angénieux 2x extender. I appreciate its very homogeneous optic quality. When I started as an operator, I frequently used Panavision lenses such as 24-275, with a 2.8 aperture, which was an enormous advantage when shooting in 35 argentie mm. I alternated this lens with the Angénieux 25-250 HR which had an inferior aperture. I used the 24-290 Optimo as soon as it came out, as it exactly matched my need in term of quality of skins and in colorimetry. It was for me the ideal lens. I also found these qualities, of course, with the 28-340, as well as with the lightweight Optimo 15-40 & 28-76. I could switch from a fixed camera with long focal to a shoulder camera with harmony. My shooting method is really focused on that. I usually mix with Cooke S4 and it works very well because I find the same quality.
Concerning cameras, what do you use? In 2D I shoot with some Alexas, and in 3D, with RED. I register in RAW, so that we quickly link the two systems. Olivier Garcia accompanies me. He has set up a laboratory on site and fixes all the issues. We also link quickly, thanks to Angénieux lenses.

According to you, to what does this Angénieux distinctiveness come from?
To a very good manufacturing quality. With the Alexa associated to Optimo, I can find exactly what I obtained with argentie. The mixing is bluffing!

How do you make your technical choices according to the constraints?
I often have a camera on a crane and two others on travelling or slider, with the zoom lenses. We can quickly choose adapted focal, especially when we have to catch the looks of our wolves.

The difficulty comes from the fact the movie takes place over several seasons. In Mongolia, going from one to the other is visible daily. The yellow quickly turns from brown to green (between winter and spring) and from green to brown (between summer and fall).

The second difficulty remains in following the evolution of a small wolf (one character of the movie) from its...
birth in April until the beginning of fall. We created a complex work plan in order to conciliate those two constraints. Andrew Simpson has raised 16 wolves, whose 4 youngest were filmed for the main role. We started to shoot very wide plans, in summer of August 2012, with a very small team, in very isolated spots in Mongolia – which could not fit the whole team.

Then, we shot a complicated winter stage: wolves attacking horses in the night and a blizzard. It was terrible, but men and equipment resisted! When the little wolves were born in April, the shooting went on. Two more cuts have again been necessary, in order to let them grow up and also to respect the season’s evolution.

We are now starting the winter’s stage shooting, in the cold and snow.

How do you manage between prime lenses and lenses?
I use very few prime lenses. Generally speaking, since we have 15-40 and 28-76, I almost don’t use them anymore.

But yet, Optimo lightweight are not the most used in China vs Europe or United States...
This is evolving quickly... My Chinese team has immediately seen that those lenses are of high quality and I must fight with the set photographer who “steals” me systematically the 28-76 as soon as it is not on a camera!

When is the shooting over?
Mid November 2013. I will probably have to make some link shots in April 2014.

As an operator, what are your technical wishes?
One of my wishes would be the Optimos to be equipped with a zoom motor, because when we need rapidity, this is something that we miss (I really enjoyed Panavision because a direct connection on Panaflex was enough to control the lens).
I would also like to test your new anamorphic lens.

Your next plans?
Some more adventures, as nice as Wolf Totem!
Jon Fauer: Tell me a little bit about your current job, “The Martian.”

Darius Wolski: It is directed by Ridley Scott. We describe it as Robinson Crusoe on Mars: an astronaut stranded on Mars struggles to survive. It stars Jessica Chastain, Kate Mara, Kristen Wiig, and Matt Damon. It’s not Sci-Fi. The story is realistic. It’s very interesting; everything the astronaut does is quite feasible.

We have consultants from NASA and they say, “You can’t do this; yes, you can do that.” So our character grows potatoes on Mars and there are attempts to rescue him and so forth.

And you’re shooting this in 3-D?

It’s 3-D, yes.

What equipment are you using?

Panavision equipment and 3ality. Since my early 3-D days, we used RED cameras because of the size. Now we’re using RED Dragons. Our lenses are small Angénieux Optimo zoom lenses, so we don’t have to change lenses to change focal lengths. The biggest problem in 3D is changing lenses, because
that takes forever. Basically we devised a system with lots of multiple cameras. This movie has four rigs. On “Exodus” we had five rigs. We have two wide rigs and two tight rigs. That’s why those little Angénieux Optimo zooms are basically indispensable. They are the best thing that could happen for us. We have 15-40 mm T2.6 Optimo zooms for the wide rigs and 28-76 mm T2.6 Optimos for the tight rigs. With that range, we don’t change lenses, which is great. We line up the shot and adjust the focal length.

On “Exodus” we actually went a little bit longer because it was just really a big landscape movie and so we also had a fifth rig that had another set of small Angénieux Optimo zoom: 45-120 T2.8. I was afraid to use longer lenses at first, but when you deal with big landscapes, they actually work pretty well.

Are the lenses in PL or PV mount? There should be one universal mount for all cameras.

That would be nice. Hah! And one electrical connector, like the Apple MacBook charger.

Hmm. That may happen when there’s just one RAW format for all cameras. It’ll never happen.

Back to lenses: on your regular movies, not 3-D, are you also using zooms more than primes? And especially on digital shows?

Not just in the digital world. Using a zoom is just simpler. Even in the film world, I use Optimo short zooms all the time. Why not have a zoom lens that is as small, or smaller, than many primes? Some people have to have a lot of big, heavy equipment, but for me it’s not necessary. When it comes to the quality of the Optimo lenses, they are wonderful.

Of course, you can debate that certain primes made your shot or gave it a look, but, as you know, everything is so sharp these days. Film stocks are sharp, the digital images are sharp, and as long as you treat these zooms well, they’re absolutely beautiful.

It’s surprising we don’t use zooms more often as “variable primes.” There is a stigma that goes way back to the 1970s, when the earlier zoom lenses came. Some of them breathed, they were not that sharp, not that fast, during a zoom, they could go out of focus. There were all those issues. It was a very complicated optical thing. Actually there were two stigmas - the first was technical, that the image was not good enough. The other was artistic. The idea of zooming in and out made people think of television. But when you look at all the great movies, people used zooms. Billy Fraker and Vilmos Zsigmond used zooms in the ‘70s. That’s how it was.

Vilmos was talking with me about using zooms on “McCabe and Mrs. Miller” (1971). Of course. And then there was this weird notion that you shouldn’t use them. But you can look at it both ways. For example, you can be on the roof of the building, following a car way down below, and zoom out to establish the scene, as Billy Friedken did in the “French Connection,” and many films. You can make a statement out of it and make the zoom noticeable. Or you can just do it gently. If we watch various movies, most of us won’t even notice whether a zoom was used or not. Using a zoom has become a classic way of telling a story.
Right now you’re using zooms as variable primes?
Yes. Basically it’s a variable prime. But you can zoom in and adjust the frame slightly during the shot. You can sneak in or out. It holds up, even in 3-D and it totally works.

Do you remember the first time you used an Angénieux zoom?
The first time was probably as a camera assistant, in the ’80s. I remember putting them into blimps with all those little strips and gears. In those days, of course, using primes was beneficial: sharper, faster, smaller. But there were certain situations, like, when you went outside, where zooms were indispensable.

What about matching the two lenses on your 3-D rigs?
Well, that takes a little work. I don’t do that personally, but we have a great crew. We prepped at Panavision in L.A. And we are supported by Panavision here in Budapest. The reason I use Panavision is that I appreciate their vast network, with their excellent service. When it comes to making movies all over the world, I find that Panavision still has the best service system in the world. They’ll do anything for us. You go to England, you go to Budapest, you go to Australia, you go anywhere, and you’re talking to the same people. Other rental houses can buy a bunch of cameras. But can they deliver? You can buy 10 cameras and be a rental house, but can you really service a big movie with a lot of equipment changes and additional stuff? That’s why, for me, Panavision is still the best place in the world.

Do you see continued interest in 3D? What’s the next phase?
I think 3-D’s going to fade out. I initially had to learn how to deal with it, and I love it. Ridley Scott loves it because he enjoys shooting big movies and epics. I think what we do with 3-D is
pretty seamless and good. But at the same time, you can show the same film in 2-D and 3-D. I don’t know how really advantageous it is in the end.

On this show, are you shooting full 6K?
No, it’s actually 5K. And the Angénieux zooms cover that image circle.

For you, what’s the difference between film and digital?
Lately we’re seeing a film reaction to the digital world. It’s like, “Oh, digital is not pure, so to be pure, we’re going to shoot film.” I’ve shot lots of film. It’s not like I’m some new kid on the block; I’ve shot a lot of movies on film, and I love film. But everyone forgot about bad baths on Monday. And things could go wrong. Was it the camera? Was it the lab? Or was it Kodak? Was it the wrong batch? Everyone forgot about those details. Remember green dailies? What happened? First, fire the cameraman. But then it was learned that some guy fell asleep at the lab. Everyone has forgotten about those stories.

And the dreaded phone call from the lab at three in the morning.
Yes. Racing to the lab early in the morning. Unfortunately, we are losing people with skills to run a film lab. Nobody who is 30 years old wants to be a lab technician any more; they’re all working on their computers, shooting movies on GoPros. Who’s going to be the guy in the lab at two in the morning making sure the temperature in the bath is okay?

Don’t get me started on the film vs digital world. I love those last purists who shoot film and they do such a heavy DI manipulation, you wonder where’s the film? Give me three printing lights like we used to do. Then let’s talk about film. It’s a sentimental notion.

What format will “The Martian” be released in?
Widescreen - 2.35:1.

And you’re composing that way? Or leaving extra room for effects?
No. We compose the shot carefully. Ridley is quite precise about composition. He is a visual director.

Is there anything you’d like to add about Angénieux?
It’s a fantastic modern lens right now. I mean, their short zooms are revolutionary. If you have to make a low-budget film, you can take one camera, and you can take those two zooms, and you can shoot the entire film with two short zooms. You can hand-hold, you can use them as variable primes. They are practical. That’s how we do our big 3-D movies. But we are pretty much shooting our whole film with two lenses. The bottom line is that’s pretty much all you need. Unless there’s an effects shot that needs a super long lens or super wide lens. And I think if you talk to every experienced director, that’s what they will tell you.

There’s no mystery to it. I mean, one director will go a little bit longer, some a little wider, but the bottom line is that’s how you tell the story. And those Angénieux zooms have all that range in one or two lenses.●
The 25-250mm zoom lens for 35mm motion picture cameras has been an industry reference amongst the cinema/episodic TV production community for over half a century.

Coming back to the history of Thales Angénieux 25-250mm zoom lenses dating back from the early 1960s illustrates how optical/mechanical technology have evolved over the years to cope with different recording formats (various film standards to digital cameras), and industry requirements.

The latest OPTIMO STYLE 25-250mm T3.5 zoom lens recently disclosed at IBC 2013 is the 4th generation 25-250mm lens from Thales Angénieux.

The birth of x10 motion picture production zoom lens

The very first x10 zoom lens for motion picture cameras was developed for the 16mm format in 1961: the 12-120mm T2.2. At the time, vast majority of TV content was shot on 16mm film cameras, including news and documentary programs. The first x10 zooms for 35mm motion picture cameras were released in the following year, 1962: The 25-250mm T3.9 “T2”. Note that this first x10 lens was called T2 not because of its open aperture, but it was the 2nd design trial that made it to a commercial product. All these lenses were designed, built, and tested without any modern computer technology. The complex optical calculations were based on basic calculators, and no MTF measurement software existed. Having measured the T2 lens years after its initial product launch, the lens achieves a 50%+ MTF response at 20 line pair/mm at the image axis throughout the zoom range. However the MTF performance deteriorates at the image corners, and at shorter focusing distances.
Refining the 25-250mm lens in the film era

In 1985, more than 20 years after the introduction of the highly successful 25-250mm T2 lens, the 25-250mm T3.7 HP lens was born. “HP” standing for High Performance, the 2nd generation 25-250mm includes fluorophosphate glass material (low dispersion glass) to drastically reduce secondary chromatism. In order to reduce color fringing, these additional glass elements were added to the focusing groups.
The 3rd generation 25-250mm T3.5 HR lens was introduced in 1990. “HR” standing for High Resolution, major improvements were made to both optics and mechanics from the previous HP version. This lens has a protective UV glass in the front, and the size of the lens does not change while adjusting zoom or focus. This new lens construction helps to make the lens reasonably airtight, reducing dust or moisture to enter inside the lens.
In terms of optical performance, the HR lens achieves a 70%+ MTF response at 20 Line pair/mm at the image axis throughout the zoom range, which is a significant improvement over the T2 version.

Ever since the very first “T2” lens, the 25-250mm family of lenses had a geometric open aperture of f3.2. Improvements in lens coating technology have helped to improve the photometric (or transmittance) aperture from T3.9 to T3.5, even while the newer lenses are composed of additional lens elements to improve their performance.

From x10 to x12

In quest of higher zoom ratio, and higher performing 35mm optics, Thales Angénieux introduced the OPTIMO 24-290mm T2.8, an x12 lens in 2001. The OPTIMO 24-290 exceeds the 25-250mm HR lens in every aspect, including zoom coverage, constant T-stop of 2.8, MTF, color rendition, breathing, aberration correction, and etc. The 24-290mm lens is designed to deliver an MTF response of 70%+ at 40 Line pair/mm at not just the optical axis, but throughout the entire image plane. Due to improvements in film emulsion, it is worth noting that the 24-290 is measured at 40 Line pair/mm, two times finer resolution that its predecessors. 14 years after its introduction, this lens has established itself as the industry reference in producing blockbuster features, high-end TV commercials, and episodic TV. Perhaps the only drawbacks are its size/weight and cost of ownership, which make certain people remain loyal to the 25-250, especially in India.
> 25-250mm, the reference lens for Indian movie production

Indian movies are well known for its dynamic action dancing scenes, which comes with many technical challenges for the production crew. Since a large number of actors and singers are involved within the shot and moving rapidly, the camera crew must have tools that allow them to instantly change the composition of the image frame. The leading actor/actress needs to stand out from the crowd, thus a tele-photo lens is required for close-up shots. The cameras are also expected to capture the ambiance, the set/location environment, and the entire dancing crew. In order to capture both wide and tight shots within the budget and time constraints, no wonder Indian movies have pioneered the use of zoom lenses in feature movie production.

Cinematographer Mr. Sunil PATEL - WICA comments: “I would estimate at least 50% of any shot in our industry is shot on zoom lenses. The 25-250 x10 zoom makes a good choice for outdoor work. However its real beauty is indoors when you need a wide but distortion free image at the 25mm end. I would use this zoom practically on most occasions for its ease and speed of work. It is a much more practical lens.”

25-250 mm for the digital / 4K era

In the past 20 years, our industry has faced an unprecedented change in technology. First came Digital HDTV in the 1990s, followed by digital theatrical presentation. Film cameras are about to be replaced by digital cameras. As of today, Ultra Definition TV (or 4K/8K TV) is not just being discussed, but content is being produced, and home receivers are already available in many countries. “More for less” is the common demand in every corner of our industry, thus the balance between performance and economy is becoming even more critical in developing new professional production tools such as our zoom lenses.

The 1st Optimo Style 25-250mm T3.5 lens has started shipping in September 2014. In order to meet latest customer demands, this lens has been totally re-designed from scratch and offers a quantum leap improvement over the ever-popular 25-250 HR.
OPTIMO STYLE 25-250MM T3.5 OPTICS

- Constant T-stop of 3.5 throughout the entire zoom range.
- Image circle size has been increased from 27.2mm to 31.4mm to cover the entire S35mm camera negative/imager size.
- Breathing is extremely well controlled to facilitate continuity shots.
- Use of aspheric lens elements reduces spherical aberration.
- Color reproduction matches the highly acclaimed Optimo lens series.
- MTF performance has been significantly improved to exceed the resolution offered by modern 4K digital cameras. Lenses are inspected at up to 140 Line pair/mm at image axis.
- Distortion is well controlled to the level of OPTIMO 24-290.
- M.O.D. (Minimal Object Distance) reduced to 1.22 m / 4 feet.

OPTIMO STYLE 25-250 MM T3.5 OTHER FEATURES

- Integrated lens encoders provide lens meta data (FTZ information) through industry standard Cooke-I protocol. The FTZ information can be displayed on camera monitors to assist critical focusing. The same data can be recorded in the camera to support VFX/post production work.
- Internal filter slot allows the use of various optical screw-in filters to create a particular look.
- Focusing and zooming lens groups are guided through an internal rod system, which helps to maintain optical stability even after rough handling or transportation.
- Inter-changeable lens mount (PL / PV / EF)
- Compatible with x1.4 or x2 extenders, which offers a combined focal length of 35-350 mm or 50-500 mm.

In response to customer demands and advancement in camera/display technology, the 25-250 mm lenses have made significant improvements both optically and mechanically, generation after generations. It is our hope that the new Optimo Style 25-250 mm lens will become an essential tool to many cinematographers and particularly Indian cinematographers.

Special thanks to Mr. Jacques Debize, a veteran optical engineer at Thales Angénieux, for providing valuable information in preparing this paper. A fair portion of this paper related to classic 25-250mm lenses are based on his SPIE 2003 paper: “Thales Angénieux: 42 years of cine 35mm zoom leadership.”
1 - GSS Flies the Red Epic Dragon

“Gyro-Stabilized Systems develops leading-edge aerial camera systems like the C520 and C516 and our customers require the best lenses available for production work. The Angénieux Optimo line of lenses are considered the highest quality lenses by many aerial cinematographers worldwide, so it was a simple choice to ensure our gimbal designs were capable of integrating their lenses. The Angénieux team understands our specific business needs at GSS and have delivered on their promises each and every time.”

Jason Fountaine, Managing Director, Gyro-Stabilized Systems (GSS)

2 - ACS France

Shotover K1 gyro-stabilized system on The Spy shooting directed by Paul Feig. The film will release on September 2015.
3 - About Le Ride aerials

“An essential element of Le Ride is the landscape of France. So we went all out to shoot aerials and landscapes in the French Alps and the Pyrenees. ACS France provided the helicopter and Super G mount, and we were using a Sony F55 shooting 4k RAW, with Angénieux Optimo lenses.

We had a selection of Optimo lenses to choose from the 19.5-94 f/2.4, the 28-340 f/2.9, and the new Optimo Style 25-250 f/3.2. The 19.5-94 became our favorite for the helicopter shots. The 4.7x zoom range gave us the ability to start on a broad sweeping mountainscape and then push in to the riders on Col d’Aubisque with virtually no aperture ramping. The combination of optical performance and mechanical precision makes for combination shots that would otherwise be impossible. The 28-340 was the ultimate lens for long shots on the ground. Even at its maximum focal length it has no apparent artifacts, and can pull in crispy sharp images out of hazy landscape. However my personal favorite was the new Optimo Style 25-250 because it produced similar results to the 28-340 in a much shorter and lighter package. This was an advantage on this project as we were on a tight schedule and working short handed. With no physical constraints the 28-340 is the best choice, but in a real-world documentary shoot the 25-250 is what I want in my kit.”

Scott Shelley
Ronald Meyvisch: We used the lenses on the camera 5 which was in the stand in “beauty” position. We put first the 15-40 to have a ‘beauty’ shot of Bercy. Then we replaced it with the 28-340 to have more rendering from the camera at this spot. At 28mm, we still had a nice “beauty” shot and the 340mm focal length allowed us to take tele shots of players. Having a wide-angle zoom lens until 340 mm increases the opportunities of a camera spot giving us much more diversity in shots.

Which were the main difficulties to manage in a tennis match capture? Tennis is a very quick game and as soon as we try to get tele shots of the game, keep the focus on the players becomes very difficult. In shooting sports with a large sensor camera, the depth of field is a parameter we need to be very careful with. Thanks to a good lighting and the sensitivity of the Sony F55 camera, we could work with an aperture of 8 which helped us to have sharp pictures.

For the 28-340 as for the 15-40, two zoom lenses that are traditionally used for cinema, can you tell us the benefits you had in the picture capture?

As we worked in 4K, cinema lenses have a superior quality. Since the final result is shown on larger screens than 65” home screens or those of cinema theatres, the simple fact to have less chromatic aberrations brings a lot to the pictures. The precision of a PL mount allows easier changes of lenses during shootings since the disadvantage of the back-focus, well-known with the B4 mount TV lenses, is reduced.

Which are the main differences you see compared to the 2/3” lenses used in the broadcast field so far?

Regarding operation and fiability, the first advantage of lenses for 2/3” cameras remains the servo integrated on the lens. With most of cine lenses, we have to fasten external motors in order to control the zoom and the focus with standard handles that are used in the TV world. We also have to install a motor to remote control the iris which remains a weak point. Moreover, for long focal zoom lenses, we have to take into account the size of the lens.
significantly bigger than what we have with usual TV cameras. Same thing for the weight, as we use much more often handheld cameras in TV productions.

Have you been convinced by the plus of cine lenses?
It’s clear that with the increasing number of requests for 4K TV productions, it is not only question of having a camera with a better resolution. It is essential that all elements are at the same level. We can even say that the lens becomes more important than the camera. That’s the point where we clearly see the advantage of the cine lenses.

Do you have other projects?
We are just at the beginning of a new world that we have just discovered. With our colleagues in the Netherlands from Euro Media Group United, we managed in July to capture in 4K the concert of Muse band in Roma. The results have already been shown in cinema theatres everywhere in the world. The capture of tennis in Bercy allowed us to show we have the know-how for 4K productions in the sports field. In the coming months, we have many other projects in preparation as well in sports as in entertainment fields (concerts, operas).
THALES ANGÉNIEUX TO RECEIVE THE BSC BERT EASEY TECHNICAL AWARD

On Friday 28th November 2014 Thales Angénieux was honored to be the recipient of the BSC (British Society of Cinematographers) Bert Eeasy Technical Award, presented at the annual BSC Operators Night at Gibson Hall in London.

This award was named in honor of Bert Eeasy, who, in 1947, was head of the camera department at Denham and Pinewood Studios and was integral in the formation of the BSC. The award is given to “an individual or company who has contributed something outstanding in the way of endeavor or equipment.”

Presenting the award, John de Borman BSC, former president of the British Society of Cinematographers, underlined the “really spectacular lenses” made by Thales Angénieux “for the new motion picture film and digital industry…which are now used on pretty well every movie”. Referring to the past, John de Borman mentioned that even now, the old Angénieux lenses, made in the 60s, work incredibly well on new digital cameras. He commended the English optical design work of Bill Woodhouse and Joe Dunton, MBE, BSC, who modified an Angénieux zoom into a 25-500 (20:1) for 35mm format. It was first used on “10 Rillington Place” (1971) and Kubrick’s “A Clockwork Orange (1971). Mr. Dunton received the award for Outstanding British Contribution to Cinema at the British Academy Film Awards ceremony in 2010.

Thales Angénieux is very honored to be the recipient of this award – greatly appreciated because it comes from the British cinema industry, recognized for its great number of talented directors and cinematographers: Paul Greengrass (Bloody Sunday, Jason Bourne, Captain Phillips), Guy Ritchie (Sherlock Holmes), Danny Boyle (127 hours, Slumdog Millionaire, Trainspotting), Christopher Nolan (Interstellar, Man of Steel, The Dark Knight Rises, Inception), Ridley Scott (Exodus, Cartel, Prometheus, Robin Wood), Sam Mendes (Skyfall, Revolutionary Road, Road to Perdition, American Beauty), Stephen Frears (Philomena, The Queen, High Fidelity, Dangerous Liaisons), Ken Loach (Jimmy’s Hall, Angel’s Share, Looking for Eric). British Film Studios including Pinewood at Shepperton and Warner Bros at Leavesden continue to produce the James Bond and the next Star Wars franchises. The British market is one of the biggest market for Thales Angénieux after the US market.

Pierre Andurand, President of Thales Angénieux, who attended the ceremony to collect the award, said it was an “honor and true privilege for the company to have been accepted for a long time by the members of the British Society of Cinematographers, who represent one of the more demanding cinematography communities in the world”. He also expressed his “warm thanks to all Governors and Members of the BSC, for giving this high recognition”.
In 2013, and for the first time in its history, Angénieux became an Official Partner to the Cannes Film Festival and took the opportunity to pay tribute to the work of directors of photography.

Angénieux launched the very first “Pierre Angénieux ExcelLens in Cinematography” award that pays tribute to directors of photography alongside the directors with whom they have collaborated and whose talents they have brilliantly showcased.

The first award was presented on 24 May 2013 to Philippe Rousselot (AFC, ASC) with Carmen Chaplin, John Boorman, Kristin Scott Thomas, Victoria Abril, Uma Thurman and Jean-Marc Barr.

2014 honoured another well-known figure in international cinema: Vilmos Zsigmond (HSC, ASC) with Catherine Deneuve, Jerry Schatzberg and John Boorman.

For almost 80 years the high aesthetic and technological standards set by directors of photography have made Angénieux zoom lenses a great success. It is therefore natural for Angénieux in turn to use the Cannes Film Festival - one of the most prestigious gatherings in the cinema’s calendar - to highlight the work of the artistic and technically skilled men and women without whom the cinema would not exist.

*Each year, a Thales Angénieux group delegation is invited to this event.*
The list of filmmakers with whom Philippe Rousselot has worked is as long as it is varied...

As a student at the Vaugirard Ecole (Louis Lumière) - and at the expense of his studies - Philippe Rousselot favoured the darkened rooms of the film library and neighbourhood film clubs where he explored Fellini, Cocteau, Bergman, the new wave, and German expressionist cinema...

In the late 60s, as camera assistant for Nestor Almendros on Ma Nuit chez Maud and Le Genou de Claire by Eric Rohmer, Philippe Rousselot had already begun to shake-up lighting traditions. In 1969, he was director of photography on Le Clair de Terre by Guy Gilles, but it was with Diabolo menthe and Diane Kurys (1977) that he first achieved success. La Drôlesse by Jacques Douillon (1979), La Provinciale by Claude Goretta (1981), Les Voleurs de la Nuit by Samuel Fuller (1984), from set to set Philippe Rousselot began asserting his delicate feel for lighting design, which wonderfully served the actors. His subtle and discreet lighting brought him international recognition.


Philippe Rousselot is fascinating because of the diversity of his talent. He is equally masterful when working with powerful and supernatural blue in Diva by Jean-Jacques Beineix (1981), twilight shades in Patrice Chéreau's drama La Reine Margot (1994), or the scary chiaroscuro of Stephen Frears’ Mary Reilly (1996). His work with Tim Burton on Planet of the Apes (2001), Big Fish (2003) and Charlie and the Chocolate Factory (2005) also illustrates his ease in the fantasy genre.

In 1996, he directed his only feature film The Serpent's Kiss. A historical drama starring Carmen Chaplin and Ewan McGregor among others, it was selected for inclusion in the Cannes Film Festival (1997). As his career has progressed, Philippe Rousselot has become one of the most critically acclaimed directors of photography in international cinema. He won Césars for Diva by Jean-Jacques Beineix (1982), Thérèse by Alain Cavalier (1987), and La Reine Margot by Patrice Chéreau (in 1995), and received the Academy Award for Best Cinematography for A River Runs Through It directed by Robert Redford (1992). He also won the British Society of Cinematographers Award for Hope and Glory by John Boorman (1986) with Jean-Marc Barr and then a BAFTA for Interview with the Vampire by Neil Jordan (1994).

Philippe Rousselot talks about his career in his book, entitled La Sagesse du Chef Opérateur, which was published in September 2013 (La Sagesse d’un Métier collection, published by J-C Béhart).
Vilmos Zsigmond was born and raised in Szeged, Hungary. A teenager as World War II was coming to an end, he saw Russia impose its communist regime and isolate his country from the western world. At 17, he was sent to work in a rope factory...

Fascinated by Eugene Dulovits’ *The Art of Light*, Zsigmond saved up for his first camera and learned how to use it. He set up an art and photography club in the factory, and was rewarded for his efforts by being sent to resume his studies at the Academy of Theatre and Film in Budapest.

On 23 October 1956, the uprising began. Zsigmond and his friend Laszlo Kovacs filmed the massacre of civilians in the streets of Budapest. After a perilous journey, both managed to get their images out of the country to show the world what was happening.

In 1957 and now political refugees, the two friends immigrated to America with the aim of becoming cinematographers in Hollywood. To achieve his goals, Zsigmond managed to bypass the language barrier, surviving on odd jobs and working with 16mm on student productions. In the late sixties commercial television industry, he worked on low-budget films for drive-ins. His real cinematographic career began in Hollywood in 1971 with Robert Altman on the film *McCabe & Mrs. Miller*. As he has moved from set to set, Zsigmond has become one of the most sought after international directors of photography in film and television.

He received Academy Award nominations for *The Deer Hunter* in 1979, *The River* in 1985, and *The Black Dahlia* in 2007, but it was in 1978 that he won an Oscar in Los Angeles for *Close Encounter of the Third Kind*.

Honoured for his contribution to cinematography at the Camerimage International Festival of the Art of Cinematography in 1997 as well as by the American Society of Cinematographers in 1999, Zsigmond achieved recognition and his work became the gold standard for the entire profession.

In 2005, Zsigmond and Kovacs were among the first four recipients of the Legends Trophy awarded by the Hungarian Society of Cinematographers. Zsigmond regularly returns to teach in Budapest in the school that he set up in order to pass on his knowledge to students from around the world. More recently with Yuri Neiman he opened the Global Film Institute in Los Angeles.
“The Ranger mission returned 4308 excellent quality photographs of the Moon, 1000 times better than those taken from the best telescopes on Earth.”
31 July 1964: 50 Years Ago, the First Close-Up Images of the Moon

50 years ago... On 31 July 1964, the Ranger 7 took the first close-up images of the moon. The images were taken using Angénieux 25mm f:0.95 M1 lenses.

The Ranger programme was a series of nine unmanned space missions undertaken by the United States in the 1960s - between 1961 and 1965 - whose objective was to obtain the first close-up images of the surface of the moon: vital topographic information that was needed for the Surveyor and Apollo projects.

The Ranger spacecraft was designed to take images of the lunar surface, transmitting those images to Earth until the spacecraft was destroyed on impact with the moon. A series of mishaps, however, led to the failure of the first six flights.

Ranger 7 was the first US space probe to successfully transmit close-up images of the lunar surface back to Earth. It was also the first completely successful flight in the Ranger programme. Launched on 28 July 1964, Ranger 7 was designed to reach the moon and transmit high-resolution photographs of the lunar surface during the final minutes of flight up to impact. Ranger 7 reached the moon on 31 July 1964.

Rangers 6, 7, 8, and 9 were the so-called Block 3 versions of the Ranger spacecraft. The spacecraft consisted of a hexagonal aluminium frame base 1.5 m across on which the propulsion and power units were mounted, topped by a truncated conical tower which held the TV cameras. Two solar panel wings, each 739 mm wide by 1537 mm long, extended from opposite edges of the base with a full span of 4.6 m, and a pointable antenna dish was hinge mounted at one of the corners of the base away from the solar panels.

A cylindrical almost omnidirectional antenna was installed on top of the conical tower. The overall height of the spacecraft was 3.6 m. The equipment for picture shots was fully redesigned in Rangers 7, 8 and 9.
The spacecraft carried six television Vidicon cameras. The cameras were arranged in two separate channels each self-contained with separate power supplies, timers, and transmitters so as to increase reliability and the probability of obtaining high-quality images. No other experiments were carried on the spacecraft. The first channel had two full-scan cameras, one wide angle (25 degree field of view and 25-mm focal length) designated the A-camera, and one narrow angle (8.4 degree field of view and 76-mm focal length) B-camera. The other channel had four partial-scan p-cameras, two narrow angle and two wide-angle lenses.

The three cameras positioned on the bottom row were fitted with the Angénieux 25mm f:0.95 M1 lenses (for wide-angle shots) inside specially modified housings, while the top 3 cameras were fitted with the same B&L 76mm f2 Super-Baltar lenses that were used in the Ranger 6 mission (for narrow-angle shots). The 25 mm Angénieux wide angle lenses were added to the package for Ranger 7 and the following Rangers, meaning that the three successful and celebrated missions in the Ranger programme all used the Angénieux lenses, while the earlier six (failed) missions did not.

Ranger 7 transmitted images until its lunar impact, later named Mare Cognitum, south of the Copernicus crater. The full-scan camera system began transmitting pictures at 1308 UT on 31 July 1964, 17 min 13 sec prior to impact. The partial-scan system initiated transmission of pictures at 1312 UT, 13 min 40 sec prior to impact. The last full-scan transmission occurred between 2.5 and 5 sec before impact, while the last partial-scan picture was taken between 0.2 and 0.4 sec before impact and achieved resolution to 50 cm. Image motion was more severe in the last pictures. The Ranger mission returned 4308 excellent quality photographs of the moon, 1000 times better than those taken from the best telescopes on Earth.

At the end of the sixties and seventies, Angénieux continued to collaborate with NASA and participated in all manned space missions: Mercury, Gemini, Apollo. Angénieux lenses were on board Apollo 11 and took part in the most important televised event of all time: the first man to step foot on the Moon on July 20, 1969. During the seventies, the collaboration between Angénieux and NASA continued on with the Skylab space station and Apollo Soyous programs. In the eighties, Angénieux lenses were part of the equipment selected for NASA’s space shuttles. Today, Thales Angénieux continues to contribute to space exploration by being a part of NASA’s Dawn mission. The Dawn mission aims to study the asteroid Vesta and dwarf planet Ceres, celestial bodies believed to have accreted early in the history of the solar system. The Dawn spacecraft, with four Angénieux lenses on board, was launched in September 2007, reached Vesta in July 2011 and took the first pictures of Ceres on February 12, 2015.
Thales group today continues to participate to the conquest of space contributing to the Planet Mars exploration.

Mars Science Laboratory

NASA’s Mars Science Laboratory mission is the most ambitious one ever sent to the surface of the planet Mars. Since August 2012 the mission has been in its information collection phase. The Curiosity Rover, after a voyage of 570 million km, landed on Mars and has begun analysing the Gale crater, 155 km in diameter. Since space observations have identified geological strata that are 3.5 billion years old, Curiosity’s goal is to search for traces of water (present or past) or signs pointing to the presence of life. To meet that challenge, Curiosity has followed in the footsteps of the Spirit and Opportunity (2004) rovers already sent to Mars.

Curiosity’s designers have moved into a new technological stage that enables the robot to move and have a longer life expectancy through nuclear power. Also, thanks to its battery of instruments, some of which are from French laboratories, it can make many measurements, photos, and characterizations. The Optronics Business Line of the Thales Group, of which Angénieux is a part, participated in preparing for the mission by supplying the ChemCam laser – whose fabrication was managed by France’s National Space Research Centre –, which enables analysis of the composition of the rocks. The laser uses the LIBS (Laser Induced Breakdown Spectroscopy) technique, which analyses the mineral once it has been reduced to a plasma state by laser impulse.
Inset on Curiosity

The Curiosity Rover surpasses all its predecessors. It’s five times as large, weighing close to 900 kg on Earth, with 75 kg of instrumentation and a telescopic arm over 2m long. Equipped for the first time with a nuclear-powered engine (unlike its predecessors, which operated on solar energy), Curiosity will be more autonomous and have a longer life expectancy – at least two years, which will give it time to cover close to 100 km during its existence.

To successfully complete its mission as detective, Curiosity has a wealth of instruments. They required contributions by numerous entities and industrial and scientific experts from around the world. Thanks to its telescopic arm, the robot detective has a mobile hand lens imager capable of revealing micrometric clues. It can clean the surface of a rock, drill into the ground, collect fragments, and study them using an array of instruments to determine age, nature, composition, etc. The laser can vapourise tiny fragments of minerals from several meters away and analyse them remotely.

50 years after Angénieux’s contribution to collecting the first high-resolution images of the surface of the moon, teams of opticians and physicians from Thales are again contributing their knowledge to the continuing space adventure!
Inset on the ChemCam and the LIBS

The ChemCam is the result of collaboration between the French National Space Research Centre (CNES) and the US’s Los Alamos National Lab (LANL). The instrument is made up of two parts – the arm of the instrument, also called the Mast Unit (MU), and the body of the instrument or Body Unit (BU). The MU is the French part, while the BU is American. The MU contains the laser source, a Cassegrain telescope and the electronics that drive the laser. The goal is to obtain an energy density greater than 1 GW/cm² at more than 10m in order to create plasma. De-excitation of the elements in the plasma contributes to the emission of a light that is characteristic of its constituent elements. The light is collected by the telescope and sent to the BU via fibre optics. Then the spectrometers analyse it. The spectra collected by the BU in this way provide information on the chemical composition of the rock being studied. Many French scientific teams have been associated in order to bring together the best skills in geology and LIBS technology. To successfully complete the analysis, the Chemcam’s BU contains three spectrometers from Ocean Optics to analyse the UV, violet, and visible/near-infrared frequency bands, along with three CCDs made by e2V.

When the CNES came to Thales in the early 2000s, the DIVA laser marketed by Thales had the performance needed by the LIBS instrument that would be sent to Mars. However, the mission required some very significant adaptations:
• reduce the volume by a factor 10, or a factor of 15 in terms of weight;
• broaden the operating temperature range to -20°C to +20°C, whereas DIVA operated between +20°C and +24°C;
• increase the robustness of the laser, which had to withstand the launch from Cape Canaveral, the arrival on Mars, and the deployment of the Rover’s arm.
Angénieux endeavours to reach out to the filmmakers of tomorrow. Not only in France but also worldwide, Angénieux, its partners and renowned directors of photography regularly participate in Masterclasses giving film school students the opportunity to test the very best Angénieux technology under actual shooting conditions.

In October 2014, Angénieux was involved in the sixth Cinematography Masterclass organized by the Romanian Association of Directors of Photography at the National University of Theatre and Film in Bucharest with Robert Fraisse, DoP. The students learned about the performances and subtleties of shooting with an anamorphic zoom lens.

In October 2014 once again, Angénieux went to the Whistling Woods International Film School in Bombay as part of Broadcast India. Accompanied by their teachers, the students found out all about the very latest lenses in the Optimo range, and particularly the two Optimo anamorphic lenses: 56-152 & 30-72mm.

As a French manufacturer, Thales Angénieux has developed a special relationship with two prestigious French film schools: the Ecole Nationale Supérieure Louis Lumière and La Fémis Ecole Nationale Supérieure des Métiers de l’Image et Son. In February and June 2014, partnership agreements were signed with these schools. These agreements are designed to facilitate sharing information on technical subjects and exchanges in the fields of teaching and research.

Some of the work in these schools will draw on the expertise of Thales Angénieux which, in turn, will accept students on study placements.

Thales Angénieux will also respond to requests for presentations, and in Angénieux headquarters will offer opportunities to organize not only workshops covering image industry jobs but also visits to its production facilities. Preferential terms for loans and / or the purchase of optical equipment are also considered. Finally, research and development projects will be carried out jointly.

By setting up partnerships, two workshops - “Scope” and “Working with day light” - have already been held at La Fémis.

The “Scope” workshop is a recurrent 5-day workshop for third year image students. It highlights the particularities of this wide format – both with spherical and anamorphic lenses. Comparative tests are shot in the studio and on location. The rushes, edited and projected on a large screen, are viewed, discussed and shared across all sections.

The “Working with day light” workshop is aimed at 2nd year image students. There are five days shooting in the natural scenery of the city of Saint-Etienne. The workshop, with the help of a top cinematographer (for the first one Michel Abramovicz), consists of appraising and discussing the capacity of a natural setting to restore the atmosphere described in a dedicated project, managing a plan of work from the point of view of both logistics and the screenplay and design needs. The sets are within a 30 km radius of the Thales Angénieux headquarters. The equipment is provided by the company.

The partnership has benefitted students from the ENS Louis Lumière with both personalized visits to the Thales Angénieux facilities and a working session under actual shooting conditions in the Studio Pierre Angénieux.
Thales Angénieux put at disposal of image professionals a 160 m² shooting space, specially dedicated to cinema or photo shootings, music videos, commercials.

Built by technicians of film, the Pierre Angénieux Studio meets Directors, DoPs or sound engineers requirements. Beyond a shooting space, the Studio Pierre Angénieux is an expert and meeting center around picture.

For any project you may have (tests, shootings, trainings), do not hesitate to contact us:
studio-pierre-angenieux@fr.thalesgroup.com

PIERRE ANGÉNIEUX STUDIO EQUIPMENT

• Surface area: 160 m² / 1722ft²
• 3 sides cyclorama, 4.5 m, 14′ high
• Gril allowing 100 KW (possible 140 KW)
• Tungsten projectors providing an homogeneous 1500 lux lighting level with a constant color temperature of 3200°K (at 100%)
• Lighting control by a 48 tracks keyboard
• Several power supply units available on the ground
• Easy access even with trucks (a 4x3 m door)
• Dressing and make-up rooms
• Wifi connexion
Raphaëlle Bruyas - Director: “The opportunity to work in the Studio Pierre Angénieux allowed us to take the artistic requirements of the film as far as we could. We built the two apartment interiors in the studio. In a natural setting, the director adapts to an already existing reality, along with the frustrations and pleasant surprises that can occur. In the studio, the director can choose everything – the color of the walls, the size of the room, the textures and materials, etc. That broad range of possibilities allowed me to imagine an interior that was truly appropriate to the characters’ universe. We also had the benefit of more amplitude for the camera movements than if we had shot in actual apartments. The film’s opening dolly shot, as I imagined it, was made possible by the fact that we were shooting in the studio. I also wanted the interiors to be perceived and filmed like shoeboxes, so that the characters move around the interior like insects captured in a jar. The absence of a fourth wall and the camera distance that was possible allowed us to film the set head-on and create the feeling of being closed in palpable. The studio also allowed us to shoot a few shots on a green background, on which an actual existing fresco in Athens will be superimposed in post-prod.

Shooting in the Studio Pierre Angénieux provided extremely comfortable working conditions for the entire crew, thanks to the space available, the ease of access, the wealth of lighting equipment and the warm reception by the Angénieux team, which opened its doors over the entire period of shooting to make the studio an ideal cover set in case of unfavorable weather.

Julien Gidoin - Cinematographer: “On Le Lit, I was lucky enough to use the Optimo 15-40, 19.5-94 and 24-290. With these lenses, I was able to be as close as possible to Nour, the main character, and accompany her in her movements. Working in zoom let me get the details of her expressions, capture all the fluidity of her movements, and so create the full impression we wanted to give of the main character. I particularly appreciated the softness and warmth of detail of the images that’s specific to the Optimos. By playing on the light, my intention was to enhance the choices of colors and materials, to try to make the materials organic and bring them as close as possible to the texture of the main character’s skin, which is what Raphaëlle wanted. … I think we achieved a very natural detail without deploying a large battery of lighting. The alliance between the Sony F65 and the Optimo, for me, was the perfect equipment for this project.”
Kamir Meridja – Director: “We were lucky and honored to work with top quality Optimo DP 16-42 and Optimo 45-120 zooms mounted on Red One camera. I thank Angénieux for trusting our crew for this film shoot. The Taximan clip by Assoh Babylas is a tribute to the cinema. We had to have the advantage of material that respects cinematographic codes and technical specifications. With the Angénieux zooms we were able to work in that direction. On an artistic level, I was able to do the technical shooting script without being troubled by issues of distance and focus. In fact, in the story-board I had planned to have 2 or 3 different values of frames available for a given action in the taxi, so that it would give me the dynamics for the editing. With the Angénieux zooms we could work without stress, taking advantage of the time saved on focus changes (little or no change of camera position), and greater ease in doing the staging with the actors. We had to be efficient in our timing, because we had a large number of actors and extras standing by and close to 40 people for the shots. Personally I appreciated the quality of the light rendition. From a short focus to a long focus, we got extremely precise and high quality light. As for the use of the Pierre Angénieux Studio, I observed numerous advantages. First, the proximity, which considerably facilitated our technical setup and logistics. Our production offices are in Saint-Étienne. The proximity with Saint-Étienne was also helpful for managing the extras, who could make the round trip between their homes and the studio in the same day. Having a cafeteria on the premises was also a considerable advantage. We could have our meals a few meters from the studio. That is an additional comfort and time-saver, which is precious when you are shooting a film. The size of the studio was perfect for shooting this clip. We were able to install a vehicle, and shoot plans from all angles. The studio is equipped with excellent lighting. We had no problem installing a 4-meter high blue background to handle the cut-in scenes in postproduction. I want to thank Jacques Durand who contributed largely to ensuring good coordination between our crew and Angénieux. Some of the employees were even able to make an appearance in the clip, and others watched the filming. It was a beautiful collaboration.”

Pierre Grange – Director of Photography and Samien – camera assistant: “When you shoot in 4K and RAW, you absolutely must have a stone at the tip of the camera that holds the road. Whether it was the Optimo DP 16-42mm or the Optimo 45-120mm, we got perfect rendition and impressive sharpness. Then, working the light takes on all its sense, when you know you’re working on that basis. The Pierre Angénieux Studio is on a human scale, it doesn’t have the discomforts of other studios; you don’t feel like your “shut inside” all day long. The surroundings make the crew feels like they can breathe freely, without being stuck between three warehouses, as often happens in other places. Besides, there’s something “authentic” about shooting a film in proximity with the men and women who manufactured the lenses. It’s a studio that radiates with good energy.”
ANGÉNIEUX, ALL AROUND THE WORLD
ANGÉNIEUX THANKS WARMLY ALL ITS EFFICIENT AND FAITHFUL PARTNERS WHO, ALL AROUND THE WORLD, CONTRIBUTE TO THE ORGANIZATION OF ANGÉNIEUX LENSES DEMONSTRATIONS.
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Meet Angénieux teams all around the world:

**2015**

**GOTHENBURG, SWEDEN**
GOKINEMA FESTIVAL
January 22-25

**SEOUl, KOREA**
Koba show
May 19-22

**LONDON / PINEWOOD STUDIOS, UNITED KINGDOM**
BSC EXPO
January 30-31

**SINGAPORE**
BROADCAST ASIA
June 02-05

**Clermont-Ferrand, France**
International short film festival
January 30 to February 07

**Los Angeles, USA**
CINEGEAR
June 04-07

**Paris, France**
AFC Microsalon
February 06-07

**JOHANNESBURG, SOUTH AFRICA**
MEDIATECH
July 15-17

**London, United Kingdom**
BVE
February 24-26

**PEKIN, CHINA**
BIRTv
August 26-29

**MOSCOw, RUSSIA**
CPS
March 03-05

**AMSTERDAM, THE NETHERLANDS**
IBC
September 11-15

**Dubai, United Arab Emirates**
CABSAT
March 10-12

**BOMBAY, INDIA**
BROADCAST INDIA
October 15-17

**Las Vegas, USA**
NAB
April 13-16

**ByDGoszcZ, POLAND**
CAMERIMAGE FESTIVAL
November 14-21

**CANNES, FRANCE**
Film festival
May 13-24

**TOKYO, JAPAN**
InterBEE
November 19-21

Angénieux partnerships in 2015:
Imago, ASC, SOC, AFC, CST, PSC, RSC & BSC