

HARIS ZAMBARLOUKOS, BSC  
THOR

MICHAEL CHAPMAN, ASC  
TAXI DRIVER, RAGING BULL

DIGITAL-IMAGING SENSORS:  
PART 2

# American Cinematographer

JUNE 2011

International Journal of Motion Imaging

## PIRATES OF THE CARIBBEAN: ON STRANGER TIDES

DARIUSZ WOLSKI, ASC  
SAILS HIGH SEAS IN 3-D

\$5.95

Canada \$6.95



# Production Slate

Pieter Bruegel (Rutger Hauer) explains his famous painting *The Way to Calvary* in the film *The Mill & The Cross*, which had its U.S. premiere at this year's Sundance Film Festival. Director/co-cinematographer Lech Majewski wanted to achieve clarity of detail in the hand-stitched costumes that would be on par with the aesthetic of Early Netherlandish painting.



## Entering Bruegel's World

By Patricia Thomson

When art critic Michael Francis Gibson approached Lech Majewski about making a film from his book *The Mill & The Cross*, the idea was simple: create a scholarly art documentary, with Gibson standing before Pieter Bruegel's 1564 masterpiece *The Way to Calvary* and explaining its hidden meaning.

Gibson would talk about how the Flemish artist transposed Christ's journey to contemporary Flanders and depicted Roman soldiers as red-coated Spanish mercenaries. He would explain the religious symbolism of the mill perched high on a rock, and note how the windmill's sails are in the shape of a cross. He'd explain how the entire landscape is a metaphor of life and death; on the left is a sunlit village with verdant woods, and on the right is Calvary, a barren hill featuring a forest of crucifixes and Catherine wheels. (Bruegel painted some 500 Flemish people walking toward the field of execution, with Christ at center but ignored by the throngs — and virtually hidden from our view as well.)

Majewski told Gibson he wasn't interested in a standard documentary. "But I had a vision," says the Polish director. "I wanted to enter Bruegel's world."

Thus began a three-year project that took them to the Jura

Mountains of Poland, the Czech Republic and New Zealand for 48 days of filming, followed by 28 months of postproduction at Odeon Film Studio in Warsaw. Production and post immersed them in digital technologies that included the first Red One to arrive in Poland, 2-D compositing in Flame and After Effects, 3-D compositing in Nuke and Fusion, and 3-D graphics in LightWave.

The resultant film, which made its U.S. debut at this year's Sundance Film Festival and will be released in select markets this fall, shows Majewski to be a man of his word: it's a unique vision, one that embraces the aesthetic of Bruegel, the exegesis of Gibson and cutting-edge technology.

Majewski's imaginative approach to Gibson's book is in keeping with his diverse body of work, which includes films, video installations, music compositions, painting and stage productions. Several of his movies relate to painters, including *The Garden of Earthly Delights*, which Majewski directed and shot, and Julian Schnabel's *Basquiat*, which he co-wrote and co-produced.

On *The Mill & The Cross*, Majewski acted as director, producer, co-writer and co-cinematographer. Sharing the latter credit was Polish cinematographer Adam Sikora, who had previously collaborated with Majewski on *Angelus*, *Wojaczek* and *The Roe's Room*. Sikora was responsible for lighting, while Majewski handled camera-work and post.

*The Mill & The Cross* photos courtesy of the filmmakers.

Majewski imagined that the lynchpin of *The Mill & The Cross* would be a *tableau vivant* involving hundreds of extras. "My vision was to assemble this crowd of people who are motionless in the painting and then sail with the camera through the crowd, seeing their faces, hearing their thoughts," he says. "Everybody is motionless, suspended in this magical time. The Greeks have a word for it: *kairos*, the holy time. In the most important moments, time seems to be suspended, whether it's a moment of grief or ecstasy."

This initial idea is intact in the final film. The camera tracks alongside the tableau, finally arriving at Bruegel (Rutger Hauer), who is explaining the scene to his patron (Michael York). The camera then tilts up to reveal Bruegel's mountain, the windmill and the miller himself, who pauses from grinding wheat to impassively watch the proceedings below. The camera tilts back down, and the action resumes. It's a 4½-minute sequence presented as one continuous shot.

"This is the centerpiece of the trip-tych," Majewski says. Before and after this frozen moment, life goes on. The film follows half a dozen characters from the painting, fleshing out their stories, and includes snippets from the Passion of Christ. Bruegel, the ringmaster, explains all as he prepares sketches and stage-manages the extras, his own painted landscapes a ubiquitous backdrop.

Situating living actors within a Bruegel painting took much trial-and-error. "The biggest challenge came from my misunderstanding of how we were going to treat this main image," says Majewski. "I imagined I'd find a landscape similar to Bruegel's, put 500 characters dressed in period costumes in that landscape, and then photograph it with a Steadicam or some form of traveling shot."

He managed to find a landscape in the Jura Mountains that resembled Bruegel's eerie rock formations. But during tests, Majewski hit two snags. "First, the light changed so fast that I knew we could never capture the entire scene with so many characters in one go and later match those things. Second, if I used a wide lens, the rock that's so impressive in Bruegel's painting would be tiny, like a finger; and if I used



The film, which involved 48 days of filming and 28 months of post, culminates in the procession toward Calvary, where Jesus is largely obscured by the throngs (as in Bruegel's masterpiece). Creating an organic-looking unity between multiple elements while emulating Bruegel's colors and atmospherics was the greatest challenge during the color correction.



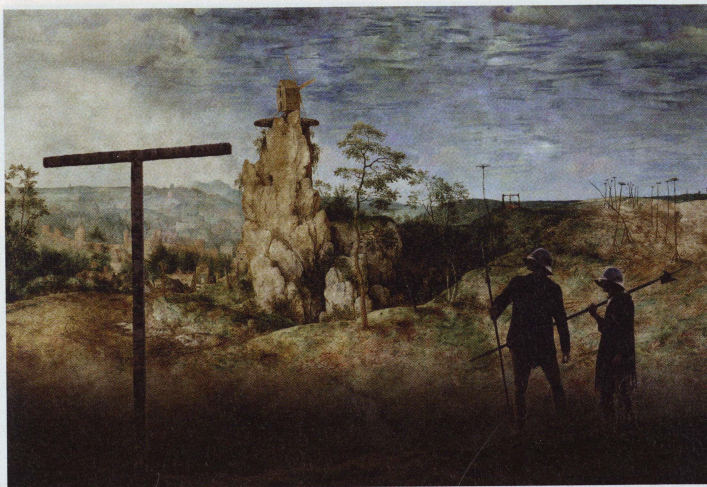
a longer lens, it would just become a blob in the background. The tests proved to me that my concept was completely, entirely wrong."

Majewski realized he would have to piece Bruegel's world together from the ground up. His first stop was Vienna's Kunsthistorisches Museum, which provided a 120-MB photo of the 49"x67" painting. "We could blow it up on a huge screen, zoom in and get fantastic details," Majewski says.

He and a team of visual-effects artists then set about removing all 500 figures from

the digital reproduction. Museums in London and Darmstadt supplied other photos of Bruegel's work, which allowed the filmmakers to build a sizable library of landscape elements that could extend or alternate with *The Way to Calvary's* background.

Working so closely with the painting, Majewski realized that it contains not one cohesive perspective, but seven different ones. "Some are from high above, some from below, some from left or right — Bruegel tricks you!" he notes. "I presume



Left: Bruegel's metaphorical mill sits atop a rock that was inspired by the artist's journey through the Alps to Italy. Right: Majewski works with the actors on a bluescreen set in Katowice, Poland. "There are so many green details in Bruegel's painting that we had to use bluescreen instead of greenscreen," notes the director.

that this broken perspective allowed him to select from sketches, choosing what was most useful for building this *theatrum* and packing more clarity in the distribution of characters."

Accordingly, the filmmakers categorized their landscape components into seven sections, and Majewski photographed corresponding landscapes in the Jura. "When we were compositing the landscape later on, we were using a little bit of Bruegel and a little bit of reality, and finding the invisible point at which one goes into the other."

Cloud formations were a trickier matter. Bruegel's static clouds would not do, but when shooting on location, the filmmakers encountered blue skies, which were useless, or clouds of the wrong size. "Also, it sounds strange, but the real clouds didn't look real," adds Majewski.

The solution was found halfway around the world. After principal photography, Majewski happened to go to New Zealand, and while traveling on the southern island, he noticed some remarkable cloud formations. "In Maori, they call this 'the island of the long clouds,'" he says. "The clouds were endless, like a piece of polished marble with rivulets and tiny streams going through it. It's an endless metamorphosis, a real show. You could basically pull out a chair, sit down and watch it."

Majewski asked a local cinematographer, John Christoffels, to film these cloud formations in various light conditions. "With

those images, we almost had it, but there was a little too much reality," says the director. So the team went back to the Bruegel digital library and extracted some skyscapes. In the final, about 80 percent of the clouds moving across the frame are New Zealand clouds. "But in order to combine those with [the CG clouds] in the right way, we had to extend the cloud formation in the Bruegel painting," says Majewski. "That's where my painting background came into play!"

The village and mill interior were filmed mainly at historic sites in Poland and the Czech Republic. These included two windmills and a 600-year-old salt mine, whose cavernous rock walls helped create the mill interior. The mine's huge, wood wheels and cogs were set in motion for the first time in centuries "after a lot of negotiation," says Majewski.

The final piece of the jigsaw was the actors, who were filmed in a bluescreen environment onstage in Katowice. "All the technicians were very unhappy that we couldn't use greenscreen, because it's easier to extract images from greenscreen than bluescreen," notes the director. "But there are so many green details in Bruegel's painting that we had to use blue."

Principal photography was accomplished with a Red One, which recorded onto 8GB Compact Flash cards. 24Media in Katowice supplied the camera package, which included a 24mm Zeiss Super Speed lens and an Angenieux Optimo 24-290mm

zoom lens. "The Red was a saving grace in terms of playing with various layers because of the amount of pixels it provides," notes Majewski.

To evoke the atmospheric haze of Bruegel's landscapes, he considered filtration, but he eventually decided to use only ND filters on the lens. "I rejected other filtration because I felt it removed me from the human beings," he explains. "I knew we had to get inside the aesthetics of Bruegel another way."

In post, most of the Red's RAW data was converted to DPX files, "but for big shots involving many people, like the one in which Bruegel walks around the characters in the painting, we didn't convert the Red data at all because we didn't want to lose any information captured by the camera's sensor," says visual-effects supervisor Pawel Tybora of Odeon. After receiving the shots, the effects artists would decide whether to use 2-D or 3-D compositing, and then pick the best platform for specific shots. "It's easy to shoot all the elements but hard to assemble them as one, to create a unity that has a significant and recognizable aesthetic," observes Majewski.

Tybora notes, "It took us many hours to find the right atmosphere for each shot because we had about a hundred different shots of clouds, Bruegel paintings, actors on bluescreen and shots of fields, hills and rocks to choose from. It was trial-and-error to find the right elements that would fit together,

and then we would experiment some more with colors, different kinds of fog, dirt and smoked glass. Creating an organic unity for each scene was indeed very hard work, and many, many scenes involved this process."

The finished DPX 10-bit logarithmic files went to the Warsaw Film Studio lab for final color correction, which was handled by colorist Ewa Chudzik. The festival print was made on Kodak Vision Premier 2393.

As for that living tableau at the heart of the film, "the most challenging part was dealing with the length of the sequence," say Tybora. Running about 4½ minutes, it comprised 147 elements. At its foundation were three Red shots: one with the *tableau vivant* in the Jura, a second with Hauer and York in bluebox, and a third with the crowd moving. These were combined with a CG rock, mill and miller. It took Tybora nine months to build and texturize the rock, using images of rock surfaces, cracks, and slabs he'd gathered with his Canon EOS 450D. He and Majewski also struggled to find the right speed for the CG camera movement.

Astute observers will notice that this sequence contains two conflicting light sources. The crowd walks through a raking, golden light, but the virtual camera move tilts up to a mill backlit by the sun, with CG rays of light slicing past the windmill's blades. "That was to 'spiritify' the light," Majewski explains. "It might seem like a mistake, but in painting at those times, there was often a different usage of sunlight [in the same image]. There's real sunlight and holy sunlight. When Van Eyck painted the angel visiting Mary, Gabriel is lit from the left, or north, wall. Anybody who sees that knows this is not the real sun; this is the light of the Creator."

In addition to the feature's upcoming theatrical release, a video installation called *The Bruegel Suite*, which incorporates extensive footage and drawings from the film, will be featured in the Venice Biennale this month.

## TECHNICAL SPECS

1.85:1

Digital Capture

Red One

Zeiss Super Speed, Angenieux Optimo



In *Last Man Standing*, Catherine Bell (right) stars as Abby, a soccer mom and former black-ops soldier who uses her military training to rescue her kidnapped husband.

### Last Man Standing Brings Alexa to Detroit

By Jean Oppenheimer

The first obstacle Steven Bernstein, ASC faced on Lifetime Movie Network's *Last Man Standing* was convincing the powers-that-be at Sony Television to let him use an Arri Alexa instead of Sony's F35, Panavision's Genesis or Red's One. "I pushed hard for the Alexa," says the cinematographer. "I was able to show that the camera would probably end up saving us money and a whole lot of time, if used correctly."

The second obstacle proved to be finding an Alexa, which has been extremely popular since its introduction in April 2010. "Fletcher Camera came to our rescue," says Bernstein. "[ASC associate] Thomas Fletcher had one [brought to us] from the company's headquarters in Chicago, and he actually purchased a second one from Arri so we'd have two."

*Last Man Standing*, Bernstein's third collaboration with director and fellow ASC member Ernest Dickerson (following the feature *Bulletproof* and the telefilm *Big Shot: Confessions of a Campus Bookie*), stars Catherine Bell as Abby, a soccer mom with a black-ops background who uses her military training to rescue her kidnapped husband (Anthony Michael Hall).

The cinematographer had tested the Alexa shortly after it hit the market but had not yet used it on a project. "It's incredible in

its simplicity," he observes. "It has dials on the side for shutter angle, frame rate, ASA and color temperature, which makes it incredibly easy to operate. It's small, handles like a film camera and has an enormous dynamic range."

Although Dickerson hadn't used the Alexa, either, he had been following its development. Faced with an 18-day shooting schedule on *Last Man Standing*, he knew "the only way we could pull it off was with a digital camera that had the flexibility of a 16mm film camera. That's the Alexa."

More than half of the movie's action takes place at night, and the Alexa's latitude enabled the filmmakers to shoot in downtown Detroit with just available light. When Bernstein needed additional illumination, he used small sources such as LED ribbon lights.

He chose T1.3 Arri Master Primes because "they can be used in very low light without any reduction in quality," and for their ability to combine sharpness with softness. "I know that sounds like a contradiction, but one has to do with contrast and the other has to do with acutance; it's a lovely combination that makes the image look three-dimensional." (He also used two Angenieux Optimo zooms, a 24-290mm and a 17-80mm.)

The Alexa's ability to record to solid-state cards was also very appealing. "You don't have that bulky cable going to the back of the camera, so it's faster to use, and we could also eliminate the traditional DIT