

The Special Visual Effects of *Willow*

by David Hutchinson

It's a bright, sunny day up at George Lucas' San Rafael effects facility, Industrial Light & Magic, but ILM matte artist Chris Evans invites me indoors. "Come inside," he says, "and watch us make it rain." One of ILM's large stages has been draped in black Duvetyne and vast sheets of black plastic cover the floor. Far overhead, water sprinklers are cascading sheets of "rain" onto the stage floor, where a crew waits with brooms and squeegees to push the water into floor drains.

Chris Evans stretches out on the floor to peer through the VistaVision viewfinder on one of ILM's cameras. The lens points up into the rain at a steep angle.

Evans sees me shielding my eyes from the bright lights, which are shining directly toward us through the spray of rain. "Backlighting makes the droplets visible against the background," he explains. "This rain element will be composited with a matte painting of the Nockmaar castle. It's a very dramatic shot, since the camera will appear to tilt up the castle walls into the rain."

Several crew members approach Evans with suggestions about placing the wind machines so that the rain appears to move across the stage in sheets, just the way a real rainstorm does on a windy day. It is standard procedure at ILM, and one of the secrets of their success, to invite comment and suggestions from *everyone* on the crew.

As the stage technicians set up for another take, Evans walks me back over to ILM's main building. The matte paint-ing department is located upstairs in the building's rear. Evans' associates are hard at work painting scenes on glass panels which are approximately two feet by six feet. Some paintings have blank areas in which a live action shot (called a "plate") will be inserted. For example, one painting is a vast panorama of a landscape; a small circle in the center remains clear unpainted glass. "A live action plate of the Nelwyn village, which George shot in Wales, will be rear-projected into that painting's center," Evans announces. Other paintings are complete themselves and are used to establish locales or serve as transition between scenes.

The studio walls are lined with storyboard sketches and landscape photographs, frame blow-ups from the miles of film shot by the location unit for the matte department. A large organizational chart detailing the progress of each shot in the department takes up another wall.

"Last summer," Evans continues, "before the main production units were on location in Wales and New Zealand shooting principal photography, we discussed the kind of shots we were looking for. But, the basic idea was that they would simply go out and just shoot tons and tons of plates, not knowing what great shots there might be in the making. The idea was *not* to lock ourselves into predetermined designs, which would limit our vision. What we didn't get on location we could re-stage back here, which we are doing a great deal.

"All the plates arrived in September, and we went through them with George, who had a very rough assemblage of the picture. As we ran through the film, he would say that he wanted a matte shot here and one there. 'This is a plate we got in New Zealand, I want you to add this, and this is something we didn't get so I want you to create the entire thing from scratch locally.' Essentially, we got a whole shopping list

from George, but he let us design the shots.

"For example," Evans notes, "the castles were never fully designed, especially the Nockmaar one. ❖The location unit in Wales built a section of it and a drawbridge, but when it came to what the entire castle and surrounding landscape actually looks like from different angles, then we got to design it, which is really very nice. ❖It would have been nicer, if we had designed it *before* they went to England to shoot the plates. ❖If someone had some idea of exactly how big this thing was at Tir Asleen, it would have been a little simpler."

It's January as I talk with Evans, about four months before *Willow* opens in theaters nationwide, and about two-and-a-half months before ILM must complete hundreds of individual special effects shots. ❖"We have about 30 matte shots to do," Evans says. ❖"On *Return of the Jedi*, we had 44. ❖As supervisor, I am personally completing three paintings. ❖Our other artists are Mike Pangrazio, Sean Joyce, Caroleen Green and Paul Paul Sen, who is new, though he did work on *Tucker*. ❖Craig Barron is supervising all the photography involving the matte shots, his assistants are Wade Childress and Randy Johnson. ❖Paul Houston, who is the film's chief model maker, has done a tremendous amount of work for us; we have a number of shots which combine miniatures with matte paintings.

"Mike Pangrazio is working on a painting now that will be combined with miniatures. ❖It's a big establishing shot of the Nockmaar castle. ❖We have some miniature towers that will have banners and flags blowing in the wind. ❖It will add life and movement to an otherwise static shot. ❖The model allows us to move the camera slightly during the shot and get a sense of changing perspective. ❖Also, the model can be lit to give us a depth and quality of texture. ❖It adds enormously to the painting's reality."

Some of the storyboard drawings look as complicated as they are spectacular. ❖I point to one showing the vast maze around Tir Asleen. ❖"The idea for this one is to start with the camera very tight on the plate, which is surrounded by a painting and a miniature. ❖The painting is actually a *bas relief*. ❖It's flat at the point where it joins the plate and then it immediately goes off into three dimensions. ❖So, when we do a big pull back and tilt, the audience will be aware of parallax shifts in the foreground elements, and it will look very three-dimensional. ❖Essentially, we are rear-projecting a plate into a multi-plane miniature. ❖It should give the feeling of a live-action helicopter shot."

In Evans' corner of the studio rests a large easel with a nearly completed panorama of the Nelwyn Valley. ❖"This is the last shot in the movie," he says. ❖"George wants it to be the landscape equivalent to the warehouse at the end of *Raiders of the Lost Ark* where you're in tight and you gradually pull back and face out and the titles come up. ❖Willow has returned, he has been reunited with his family and to show that peace and happiness has come back to the land again, we do this big pull back. ❖Actually, there are two plates which will be rear-projected into this painting: one of the village and another of a rushing river. ❖Then, we'll add some moving clouds and some rays of light."

The scene evokes a very 19th century romantic style. ❖"The Nelwyns could sell this shot as a tourist postcard," I joke.

Evans smiles. ❖"That's what George wants--very artistic panoramic landscapes in the style of the Hudson River school. ❖George wants a fairy tale quality, so the landscape has a misty, golden glowing look to it."

Pointing out the other paintings in progress, Evans tours the room. ❖"Sean Joyce is working on a painting of Bavmorda's throne room. ❖It's a latent image shot, which means the scene is composited *entirely* in-camera,

giving us first generation quality. ♦ It's a sunset shot. ♦ This will be a bipack element and there will be another bipack element of trees. ♦ Behind *that* will be a sunset, which we will either paint or photograph.

Evans then singles out "another full painting with a bipack element of just these guys walking across a log, everything else will be painted. ♦ Mike Pangrazio is starting a snow camp shot, which is going to be very beautiful. ♦ It's another latent image composite, this time with a tent--a miniature tent with lights against a moonlit landscape. ♦ Sean Joyce will be doing the fairy forest shot with the gigantic tree trunk; we will probably compose that shot in front projection. ♦ We can set up a miniature tree trunk and flicker the light against the scene. ♦ In front projection, you can shoot it and see it through the camera all at once.

"All in all, we designed 40 shots, but George cut out 10. ♦ Only 20% are plates that were actually shot on location in England or New Zealand; the rest we have shot here on the stage or locally. ♦ So, about 40 plates were shot for matte paintings and about five were used. ♦ But there are many other special effects plates that were photographed on location."

"When do you hope to finish all this?" I wonder.

"Actually, we are fairly well ahead of the game," Evans smiles confidently. ♦ "We should be wrapping by march and finals are due in April. ♦ So even if we go a month over schedule, we're still two weeks ahead."

In his quest to populate a Nelwyn village, George Lucas put out a casting call all over Europe to gather together more than 200 little people, including star Warwick Davis, who stands 3' 4" tall, and Billy Barty who towers over the youngster at 3' 9". ♦ But, where would George Lucas find even one actor capable of playing brownie--an actor only 9 inches tall?

The solution turns out to be quite easy: Hire Rick Overton, 6' 4" and Kevin Pollak, 5' 10" and let ILM handle the rest. ♦ Of course, this means that director Ron Howard found himself directing scenes on location with imaginary brownies. ♦ Young Warwick Davis had to pretend the brownies were in a given shot and depend upon ILM to shrink full-size actors down and insert them into the already lensed scenes.

Mike McAlister, an eight-year veteran of ILM, was attached to the main production unit during five months, overseeing the shooting of more than 700 special effects. ♦ "I came onto *Willow*," McAlister reveals, "about the beginning of April '87, just before production started in England. ♦ I was sent to England to supervise all the background plates photographed over there for about five months. ♦ Dennis Muren and Phil Tippett each came over for a couple of weeks while the bulk of their stuff was being shot. ♦ England was great for about the first three months, but then I began getting homesick for some good french fries.

"After we got back to America, Ron and George were busy putting together a rough cut of the film. ♦ Originally, there were going to be many more brownie shots, but by the time they got finished assembling the film I was down to about 70 shots."

Then, it was time to call in Rick Overton and Kevin Pollak to start performing their roles. ♦ The luckless brownies had an even more difficult challenge than Willow Ufgood or Madmartigan, because Overton and Pollak (who play Franjean and Rool) had only a giant blank blue stage on which to work. ♦ Their entire performance would have to be created solely with their imaginations. ♦ Of course, but George Lucas and Ron Howard were on hand to direct the pair through some difficult scenes, though a large number of the scenes fell to Mike McAlister alone, and a few others to effects supervisor Dennis Muren.

"Rehearsals for the brownie sequences largely consisted of sitting through much of the dailies," says Overton. "We discovered that there was a good bit of leeway in each plate so that we could develop little character bits and gags. Ron was very clever, in the sense that he shot plates with different timings. Other sequences were very difficult because they had to be very precise. It was explained to us on the set that *Willow* sets a new record for matte work with a film using actors. That is, live people, *not* miniatures matted into shots and working in the scene with a previously photographed cast. We have done more matte work of this type than any other film that they can recall in history. And we were there! For five weeks, sometimes six days a week, all day, and those are *long* days when it's just Kevin and I facing a camera. Of course, next time they might just dispense with all the rehearsal, get out a motion control rig, and stick a blue pylon up my wazoo."

They did all their work "on one of the largest blue screen stages ever built, too--about 70 by 70 feet," Overton recalls. "They spent a great deal of time getting the lighting just right. Mike McAllister said that one of the biggest problems in blue screen work is getting the lighting to match. Even the hair style designed for us was a problem. Because our hair was so frizzy, the early tests showed grainy lines, you know, just like you see on those early TV episodes of *Star Trek* when the *Enterprise* is going around a planet and the ship's pylons disappear. Finally, they changed our hair to a very spikey look and the mattes worked great. The poor hair was just spraying and pinching, twisting and twirling--I thought we might look like punk elves. It says in the script, 'angry little haircuts,' and that's just what we wound up with."

"The first week was spent in rehearsal, working out character and roughing out timings with the plates. They would project the plates for us, which had been marked in very roughly with little dots showing us where we should be. Also, we were able to rough out the timing for the dialogue."

"George was very open-minded about our suggestions for character bits. They really trusted us. It was a very nice working situation. They knew exactly what they wanted and how to get it. Usually their directions were so good that you could get it on the first take--unless the scene was just something so complex you had to train your legs to walk the path of taped X's on the floor and watch for their hand signals for the dialogue. That would take a few runs to rehearse."

"For a few sequences, we worked on oversize sets," he confesses. "For example, when we have to pick the lock to Madmartigan's cage or the big wagon chase scene in the escape from Sorsha's camp, the sequence uses both blue screen shots and oversize sets. They made a big wagon, which they rocked and bounced around; Kevin and I were able to do all these great slapstick bits with big apples rolling by and giant kernels of corn. We're inside the wagon with the soldiers stomping around and then you cut to outside, in which we will be blue screen matted, and then back again to us on the oversize set. Anyway, the wagon is being pulled by horses at a gallop and we're bouncing around, Rool [Pollak] is getting nauseous and falls off the wagon's side and I pull him back in. On the full-size set, Kevin's hanging 25 feet off the ground, practically naked. There is one take in which he is hanging in there screaming, 'Help me! Help me!' And I'm just saying, 'What? I can't hear you. What?'"

"The cutting back and forth between blue screen and full size helps to hide the effects technique," Overton explains. "When you're looking straight down at Rool, for example, when he is hanging and swinging, ILM will be matting in the terrain whizzing by underneath, and then, back in the wagon, those are the straight oversize set shots."

In order to match eyelines with the characters in a plate," Overton says, "the directors watched us on the video monitor, telling us to spot on a light or a particular crossbeam in the grid overhead or one of the grips, whatever. ♦ We had to time our lines to answers, so they would point at us to cue us for the next line. ♦ Or they would say the line and then leave a little leeway so there would be no overlap on the soundtrack when we did our lines. ♦ As it turned out, the sound quality was so echoey on that vast blue screen stage that we will have to re-record all of our dialogue. ♦ We'll be looping our little brownie butts off--looping hell for a week.

"Ron Howard has the most incredible team of people up there at ILM; they'll do *anything* for him, bend over backwards and follow him to the end of the Earth. ♦ Ron was born to be in the business; endless experience. ♦ At one point, I grumbled a little during the big battle cry charge. ♦ We were on gravel that was supposed to be the beach in front of the Nockmaar castle. ♦ It was cold, and we were barefoot and the gravel hurt our feet. ♦ Ron cheered us up by telling us about a take he did for *Huckleberry Finn* (1975) when he was Tom Sawyer; they made him run on heavy, sharp driveway gravel, barefoot and it was freeing out. ♦ 'OK!' I said. ♦ 'You win!' ♦ The man has been doing this for years; what do I have to complain about? ♦ I enjoyed working with him on *Gung Ho*, and *Willow* was a chance to repeat that experience."

The moving camera shots with the brownies are some of the most interesting blue screen shots ever done. ♦ "We had a shot," Mike McAlister says, "in which a brownie was running along the top of a log that was three feet off the ground. ♦ Then, he jumps off the log, lands on the ground, and tumbles. ♦ I had to figure out how to photograph that.

"First of all, a brownie is supposed to be about 10 inches tall, and, say, the top of the log was 30 inches off the ground. ♦ That means the log is *three* times as tall as the brownie. ♦ But we had a *six-foot* brownie. ♦ So, if we were to build a set that was to literally put the human through what the brownie is supposed to go through, the log would have to be three times higher than the human actor, which is 18 feet. ♦ At that point, we would have been asking a human actor to run along the top of something that was 18 feet from the ground and then jump off and break all his arms and legs landing on the ground.

"Well, that's what mathematics tells you to do, but the reality of it is that even though we're dealing with a six-foot actor, he still only has to jump 30 inches. ♦ The reason is simply that the laws of physics tell us that there's a certain amount of time for any object to fall 30 inches, and it is the same time for a brownie or a human. ♦ Didn't Galileo prove that?" MacAlister smiles.

"It takes maybe four frames--a sixth of a *second* to fall 30 inches. ♦ If our actor had jumped from 18 feet, it would have taken several times longer. ♦ So, even though the actor was falling through a distance of only half his height; he was still airborne for the same length of time as a 10-inch brownie. ♦ So, what we do is, he jumps off a 30-inch high platform and he's in the air for four or five frames. ♦ Then, we use a process which we call *lipin blocking* in which we re-photograph the film on an animation stand positioning the actor where he needs to be, so that it actually looks like the human is falling three times his height.

"Also, there is another big dolly shot, in which the brownies are running along the top of a log. ♦ These are showcase shots in which we can really make the brownies look believable. ♦ It's one of the most important jobs we have here at ILM, and that is to make these characters *believably* 10 inches high. ♦ It's our job to establish their credibility.

"I had the greatest time working with Rick Overton and Kevin Pollak," admits McAlister. ♦ "You have to

remember I had spent months and months trying to place them into scenes that Ron was directing and saying, 'Well, what's that brownie going to do?' Then, finally, seeing them perform and bring life and personality to their characters was a real thrill. I guess all the anticipation built up in me and when I finally saw the brownies, they were even better than I imagined they could be."

Work on the battle at Tir Asleen with the two-headed Eborsisk as well as Bavmorda's terrible phantasmagoria of magic in her climactic struggle with Raziel has only begun at this writing. Phil Tippett is bringing his go-motion expertise to bear with the fire-breathing Eborsisk and Dennis Muren is supervising the great duel of magic in Bavmorda's castle tower.

Stop motion is being used to bring mechanical objects to life and rod puppetry for a chair. "The slightly mechanical look of stop motion is fine for animating mechanical objects," says Dennis Muren, "but we'll try to introduce a little blur just to blend it in. One of the things which are *still* working out at this late date is the look of Cherlindrea, the queen of the fairies.

"Transformations, too; such as the character of Raziel, who is variously a goat, a raven and a sort of otter. Most of these transformations were handled on the set, they are *not* an optical effect, except perhaps for Raziel's fist appearance. It was an otter-like puppet in England, but George was never satisfied with her appearance, so a real animal was used.

"The other shot that is coming up is a very elaborate transformation of Raziel the goat into Raziel the woman. It involves a great deal of image processing," Muren reports. "you are really going to see something that you haven't seen before. It won't look like a lot of bladders going and things being pushed out. We're using our laser scanner to scan out frames of film, manipulate the image and scan it back in again. It will be very interesting."

Confides Dennis Muren, "I really hope *Willow* works out. George is playing it very straight, and I hope the audience is going to accept it that straight. If you *really* believe that there are all these little characters and this other world, then the film will seem credible. And I really think you will believe you are there in the world of *Willow*."

Hutchinson, David. "The Special Visual Effects of *Willow*." *The Official Willow Movie Magazine*. Ed. David McDonnell. New York: Jacobs, 1988. 58-66.

[Back](#) | [Home](#)

This page hosted by  Get your own [Free Home Page](#)

