

American Cinematographer

March 1990



Showscan Expands Movie Realism

by Bob Fisher

Call From Space and *The Magic Balloon* are a new genre of Showscan films with storylines and dramatic content that provoke emotional response. They were photographed back to back by Jack Cardiff, BSC.

Visualize a scene from *Call From Space* where the heroine materializes in the middle of a battle in the Napoleonic wars. Hundreds of soldiers on horseback and foot are locked in a life or death struggle. Cannons are

flashing, augmented by echoing booms that rock the theater.

Each time a cannon speaks, there's an explosion which sends a pillar of dust spiralling into the air. Meanwhile, the girl is weaving her way through the chaos on the battlefield with the camera following close in her wake. She comes upon Napoleon himself, framed in dramatic backlight, motivated by the sun lying low behind a line of trees on the horizon. He's a

heroic figure standing firm as shells burst all around him.

It's not like watching a movie. It's like being an invisible spectator at a battle fought many years ago. That ability to expand the realism of movies was part of Douglas Trumbull's vision for Showscan, and it is finally becoming a reality.

Showscan was invented by Trumbull during the early 1980s while he was at the top of his career as a visual effects art-

ist. Trumbull had just won an Oscar for his work on *Close Encounters of the Third Kind*. He envisioned an ultimate theatrical experience which touched people in ways that television and conventional movies never could.

After much research, Trumbull settled on 65mm production at 60 frames per second and 70mm print film projected at 60 fps for theatrical display. The images are augmented with six channels of Dolby sound. Trumbull also designed a special theater which provides everyone in the audience with an unobstructed view. Images fill a floor-to-ceiling, wall-to-wall screen. There is no flicker (sometimes detectable with film projected at 24 fps.) There is just one seamless moving image, bigger than life. The pictures are pristine and colors are richly saturated.

Showscan staked its first claim in special venue theaters at destination parks because that's where the interest was. The first nine Showscan films were short features with titillating imagery and sound, but little or no dramatic content.

But the story is changing. Consider the battlefield sequence in *Call From Space*. Cardiff shot the scene in one long take with a CP65 camera on a Chapman crane, rolling over several hundred yards of dolly track.

"It took a full day to set up the shot," said co-producer and Showscan Productions president Peter Beale. "We had many extras and a lot of painstaking special effects work, particularly the explosions which had to be precisely planned and executed. It was like choreographing a ballet. Everyone always had to be in the right place. With someone like Jack Cardiff, you can plan and make shots like this and do them in one take."

And you also get extra touches like the dramatically backlit shot of Napoleon, which caps a perfectly executed visual perspective of the battlefield scene. "I asked Jack how he was going to create that effect, and he

mumbled something about trusting him — the sun would be in the right place at the right time. He made it sound easy," said Beale.

That was Cardiff being Cardiff. He started this very complex shot in the morning, and finished right on schedule as the sun moved behind Napoleon as if on cue.

Jack Cardiff? Didn't he shoot *Rambo II*? Sure, but go back a little further, like about 35 years, when someone asked Natalie Kalmus what she thought was the best all-time color movie? In those days that meant Technicolor. She answered without hesitation, *The Red Shoes*. Her opinion carries credence. She wasn't just the wife of Technicolor founder Dr. Herbert Kalmus. Natalie Kalmus was the heart and soul behind Technicolor during its peak years.

On the other hand, many people believe that *Black Narcissus* has no equal when the topic is beautiful Technicolor imagery. That picture is about five nuns overcoming trials and tribulations to build an orphanage in a mythical mountain country. The common denominator was Cardiff, who shot both films only a year apart, just after the end of World War II. He won an Oscar for his work on *Black Narcissus*.

When Cardiff shot *Black Narcissus* and *The Red Shoes*, he was already a 30-year veteran in the film industry, and he was one of a very small handful of masters of the Technicolor process. Cardiff was born in Yarmouth, England, in 1914. His parents were vaudeville performers who acted in movies between live shows. Cardiff became an actor to put a little extra bread on the table. He appeared in his first film in 1918 at the age of four. He also starred in several films.

By the mid-1920s, he was

pretty much washed up as a child actor. He was physically too big. He stayed around the studio running errands, and generally making himself useful. One day, someone called him over to a camera and told him to twist the lens from one mark to another when he was signalled to do so. Later, Cardiff asked what he had done, and the answer was, "You followed focus, kid."

At the age of 14, Cardiff was working steadily on film crews just in time for the nadir of silent movies and hand-cranked cameras.

It required more than a rock-steady hand and an ability to turn the crank at a consistent speed. You also needed a sense of drama and the eye-hand coordination which could make it pay off. "For example, when there was a fight sequence you slowed the cranking down just enough to extend the action," he explained.

"I worked with some very good directors, including Alfred Hitchcock before he left England to work in the United States," Cardiff recalled. Around 1936, he came home from the studio one day and his mother said there was a call for him to return to work. Cardiff was angry. It had been a long day. But he went back to the studio and discovered that a half a dozen camera operators were being interviewed, and one of them was going to be selected to learn about making Technicolor movies.

"Two or three operators had already been interviewed by a committee of studio executives, and they said they were asked very technical and frightening questions," he said.

Ray Rennahan, ASC, was coming to England to shoot *Wings of the Morning*, starring Henry Fonda and Annabella, and

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Above: CP65 camera in use on scene for *The Magic Balloon*. Below: Cardiff and Beale on set.



he needed an assistant. Rennahan was a color consultant for Technicolor. At the time, a Technicolor consultant worked side by side with the regular director of photography on every movie shot in that format.

The questioning began: Cardiff was asked where he studied photography, and he told them candidly they were wasting their time talking to him. "They were shocked," he said. "Someone asked me how I hoped to ever become a cinematographer. I told them that I studied paint-

ers, Vermeer, the old masters, and the impressionists. I said I also studied how light fell every place I went, in subways, for instance, so I would know how to recreate those environments."

Cardiff continued, "I thought that was my cue to leave. But instead, they asked a few questions about lighting and then selected me, probably because I admitted that I didn't know anything about photography."

After brief training, Cardiff went to work on *Wings of the Morning*. Subsequently, he

worked on just about every Technicolor movie ever made in England. He shot his first feature film in 1946, *A Matter of Life and Death*, which was titled *A Stairway to Heaven* in its successful release in the U.S. And then came *Black Narcissus* and *The Red Shoes* during the next two years.

Those films were followed by such notable credits as *The African Queen*, *The Magic Box*, *The Barefoot Contessa* and *Pandora and the Flying Dutchman*. In 1956, Cardiff earned his second Oscar nomination for *War and Peace*. Two years later, he decided to try his hand at directing.

His first directorial effort was *Intent to Kill*. In 1960, he won an Oscar nomination for directing *Sons and Lovers*. In all, Cardiff has about a dozen credits as a director. He didn't make any apologies when he decided to go back to cinematography in 1961. "There are no films I want to direct," he said.

But there was one he wanted to shoot. Cardiff earned his third Oscar nomination for cinematography for shooting *Fanny* that year.

Peter Beale explains, "When we got Richard Fleischer to direct *Call From Space*, he said he wanted Jack. We were fortunate that Jack was available and interested." Cardiff had worked with Fleischer on four feature films: *The Vikings*, *The Prince and the Pauper*, *Conan the Destroyer* and *Million Dollar Mystery*, over a period spanning 30 years.

Cardiff says, "When I first saw Showscan, I was bowled over. I thought, 'Here is a new kind of magic.' It is a different sensation entirely. The imagery is so intense that the characters seem to be alive.

"The audience sees everything very clearly. Normally, if you are shooting an exterior scene, and there is someone on a hill a mile away, you wouldn't worry about it. No one will notice. But in a Showscan theater they do. So, you have to pay attention to every small detail."

In *The Magic Balloon*, there is a scene shot at The Culver Studios in Los Angeles, on a big set replicating a dungeon. Cardiff was working at stop T-5.6 with a 200 slide in his photometer. "That's about three times the light I would need if this was a conventional 35mm film," he said. "Because the screen is so big, you always want to have sharp depth of field on a Showscan film."

This is an adventure film, with two leads played by children who use magic to follow their whims and travel around the world. Though one scene was shot in a dungeon, Cardiff didn't want it to feel threatening. Illumination came from candles and lanterns, so he set his lights to augment those sources. The biggest unit was a 5K, and Cardiff used blue and yellow gels to create the atmosphere he wanted. The CP65 camera was on a Chapman crane, tracking freely through the set.

The Magic Balloon was directed by Ronald Neame, who was once an outstanding director of photography in England, and a long-term associate of Cardiff. Watching them work together was a little like seeing an intricate dance, as they made subtle adjustments while barely exchanging words.

"Because of the big Showscan screen, we are cautious about coming in extremely close for tight shots," Cardiff explained. "You can hang back a little, fill the frame with a 50mm or an 80mm shot, and still have all of the impact of a closer shot because the audience can see everything in such great detail. You can come in tight, but you do it selectively," Cardiff explained.

"One thing that helps is the new Eastman EXR 5296 film, which we are using on this movie," he continued. "It has the ability to go right into the shadows and pick up details without my having to throw fill light into those areas."

Cardiff shot *Call From*

Space with Eastman color negative film 5295. That's a 400-speed film, which is somewhat sharper and finer grained than previous high-speed emulsions. However, Cardiff said that the newer Eastman EXR color negative film 5296 is even sharper; it has less apparent graininess; it is a little faster, and it sees details in the shadow areas better.

"In the early days of Technicolor, we needed around 650 footcandles to light a stage with the lens set at F-1.5," says Cardiff. Depth of field didn't matter all that much with the small screens in theaters, so everyone tended to work in tighter, or they allowed the backgrounds to go soft.

"I lit *Black Narcissus* entirely with big arcs placed at very high angles," he said. "On *The Red Shoes*, we were really forcing the light. I think it all happens more naturally today."

Cardiff tells a story about the time he was in Rome shooting a travel film in the Technicolor format. The company had gotten permission to shoot in St. Peter's Cathedral, which was the first time that was done. Film speed was very slow in those days and Cardiff had only five 2K lights, making shooting in the cathedral quite difficult.

He set up a very long shot, getting as far back as he could, shot 10 feet of film, re-wound it, then exposed the film a second time. He repeated this process eight times. Then he shot the next 10 feet. "In effect, I was shooting a one-second exposure on each frame," he explained. "I did it by instinct, and it all worked out perfectly. We got beautiful footage."

By comparison, shooting in the Showscan format is a piece of cake. "The pace is about the same as it would be on any 35mm film with the same scenes," Cardiff observed. "There is nothing we aren't doing because of the format. We shoot all over the world, in day and night environments. We shot a car chase scene

in *Call From Space* that is breathtaking when you see it in Showscan format. The point-of-view puts the audience right in the car." Because the camera is running at 60 fps, there is no strobing effect when a car is panned speeding past a line of trees.

Beale noted that through 1988, Showscan was using 25-year-old 65 mm cameras and lenses. "Ed DiGiulio at Cinema Products was the first to say he could give us what we needed within six months, and the company kept that commitment. Until we had the new camera, it really wasn't practical to shoot a dramatic feature."

Cardiff called the CP65 camera extraordinary. "I have been using the camera for months," he said, "and you would think that with film moving through it at 60 frames per second there would occasionally be some scratches. But I can't remember having a single problem."

Big scenes and action are expected in the Showscan format. What's also interesting is the dramatic impact of smaller scenes. In *The Magic Balloon*, there is a scene shot in a cave — in reality, a set at The Culver Studios — where a single beam of sunlight sends a warm yellow shaft cutting through velvet blackness. As the beam of light bounces around the cave, there is just enough ambience to see the faces of the two children in dramatic half-light.

Cardiff shot the scene in nearly total darkness, in an enclosed black set, sending one beam of HMI light through a crack in the rocks. Neame had the children poised to catch the light on half of their faces, with the other half barely visible in the blackness. "The blacks you can get in color now are the best I've ever seen," said Cardiff. "This really puts the audience in the cave sharing the children's adventure, and that was the point."

There was a fair amount of blue screen and front projec-

Napoleonic Wars
in Showscan
format.



tion work on *The Magic Balloon*. There is a flying sequence with one of the children who lands on a beach in the middle of a heavy rainstorm with flashing lightning. The rain sequence was shot on a stage against a blue backing at Culver Studios, with artificial rain, wind and smoke for diffusion. This was composited with background plates shot at the Pacific Palisades, in Southern California.

Beale and Cardiff agree that the blue separation characteristics of the 5296 film are superior for travelling matte work. Because of the speed of the film, blue screen plate shots can be set up faster with less light, yet the image quality is superior.

"Any time you are doing opticals or other work that requires multiple generations of photography, image sharpness and grain are crucial," Beale said. "This is particularly true for Showscan. Because the screen image is so large, any noticeable grain or loss of sharpness is magnified. It would be like sending a signal to the audience that this is a trick shot. That would spoil the illusion entirely.

"With the high cost of making movies today, you must have an idea of what you are

going to do," he said. "But, you also have to be willing to take chances and improvise. Very often, it is the small things you do which change the nature of a movie."

There is a scene in *The Magic Balloon* in Venice, Italy, when the two kids are walking down a bright sun-lit street. They go into a restaurant and are seated at an outdoor table. Unfortunately, clouds rolled in and the sky turned dark. Cardiff purposely over-exposed by a stop, tracking from the brilliant sunlight into the unexpected shadows.

"It was an intuitive thing to do, but it worked beautifully," Cardiff says. "The film has very good exposure latitude."

The movie will open simultaneously at Lotte World in Jamsil, Korea, and at a Showscan theater in Los Angeles this year. *Call from Space* opened in May in a Showscan theater at the Big Bang Schtroumpf theme park in Metz, France.

Cardiff agrees that Showscan is a viable format for dramatic production. "I can see doing movies like *Gone With the Wind*, *Lawrence of Arabia* or *The Red Shoes* with this format," he said.

Beale estimated that the added cost for producing a full-length feature in Showscan format would run about \$1.5 to \$2 million higher below-the-line. He predicted a quick return on that kind of investment.

"The best theater in the world is now in Brussels," he said. "They have 26 theaters under one roof and they are adding six more. They are all equipped to show 70mm prints. Theatrical revenues in Belgium went up by 38 percent after this complex opened. In fact, this complex now sells 60 percent of the movie tickets sold in Brussels. They had 3.5 million admissions last year." Beale noted that all of the theaters in the complex are designed to show movies in Showscan format.

What will it take for a genuine trend toward full-length dramatic film production in the Showscan format? "Give us one big commercial success on a dramatic feature, and everything else will fall into place," they reply. ▲