

Award for Outstanding Achievement

The Great Glass Elevator

ONE MILLION SUGAR POWER AND SKYHOOKS

by Rachel Read

On 1 April 2006, Alton Towers, a leading European theme park located in Staffordshire UK and owned by the Tussauds Group, unveiled Charlie and the Chocolate Factory™: The Ride, giving guests the chance to be Golden Ticket winners like young Charlie Bucket, the protagonist of the classic Roald Dahl children's novel, and take a tour of Willy Wonka's splendiferous Chocolate Factory. The finale of the ride is a simulated flight on the wondrous Great Glass Elevator, a virtual 3-D ride that whizzes through the heart of the Factory, then explodes up through the roof into candy-floss clouds before finally plummeting back down to earth. This aspect of the total ride experience – the elevator – was singled out by TEA for a Thea Award.

This £8m ride is aimed at families with children under 12. Guests are able to feel, smell and see what happened to Charlie and his spoiled companions in Wonka's wacky world. The first part of the ride is a boat trip down the scrumptious Chocolate River where the sticky situations in which vile children can find themselves are vividly brought to life. Adults and children alike can delight in seeing poor Augustus Gloop's mother screaming from the riverbank as the greedy boy is sucked up a tube. Similarly, gum-chewing Violet Beauregard's de-juicing, self-centered Veruca Salt's exit at the paws of demon squirrels, and TV-obsessed Mike Teavee's televisual shrinking provide a wickedly entertaining spectacle.

Translating Dahl's much-loved story into a 3-D ride must have been a daunting task,

bearing in mind that guests would have huge expectations driven by the book and movies. Paul Lanham, creative director at Tussauds Studios, credits the success of the adaptation to the hard work put in by the animators and voice artists, and the media production company Falcon's Treehouse in developing the storyboards and synopsis, and transforming 2-D illustrations into 3-D characters. Lanham says, "Willy Wonka is a particularly successful and a believable interpretation of the original Quentin Blake illustrations brought to life. You really feel that this is the eccentric character as drawn by Blake, come alive onscreen." Of course familiarity with the original story is not a pre-requisite to enjoying the ride, but Dahl aficionados won't be disappointed as Alton Towers has checked every element of the ride with Dahl & Dahl Ltd.

After the boat-ride, guests are invited inside the Great Glass Elevator. Charlie knows that "Something crazy is going to happen now" when Willy Wonka presses the Up and Out button. Whereas the fictional Wonka attributed the power source and levitation of his Elevator to "one million sugar power" and "skyhooks," Tussauds' Lanham has a more down-to-earth explanation. "The simulator experience uses five projectors: one for each face of a cube [except the floor, which is a three-axis motion base]. The five moving images have been designed as a joined-up, synchronised piece and act as one image all moving together to give the sensation that you are actually moving or flying. Combined with the moving floor this is a very strong sensation."



The view from inside the Great Glass Elevator.

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Philip Hartley of Philip Hartley Associates, who project-managed the Elevator finale, explained that in fact two identical elevators had to be created to meet the capacity of the water ride, each holding 32 guests. The tilting of the floor reinforces the visual effects. The actual range of movement for this standup experience is relatively little - in fact the ride is suitable for wheelchair users - and guests are able to steady themselves inside the elevator by holding the handrails.

Hartley says that there were two major challenges with the project. The first was physically co-coordinating the construction of two elevator simulators in a restricted area to a tight schedule. The four-meter-square motion platform and rails sit inside a glass elevator casing which is in turn enclosed within a six-meter-square projection cave.

Hartley described the other major challenge, which was to ensure that when an object moves from one screen to another round a corner there would be no perceptible change in image color or size, in order to retain the illusion. To help achieve this, the screens have one-millimeter seams at the edges - so narrow as to be imperceptible to the guest - and the images are precisely matched up. The elevator experience lasts for two minutes and during that time the ride is designed so that at some point, whichever side of the elevator you are looking out of, you will be moving forward.

Brussels-based nWave Pictures, a leader in the use of computer technology and 3-D for special venue films and ride films, created the imagery for the Glass Elevator - a richly colored, detailed panoramic view that is essential to what Hartley praises as a "totally immersive experience." The elevator's simulated path moves upwards initially and then careens around the factory sideways, up and even downward, at one point plunging into a bucket of chocolate. The elevator then smashes out through the factory roof, glass splintering all around, into the sunset, flying over the factory before its final earthward descent. The audiovisual effects, combined with the shuddering, tilting, shaking floor provide a thrilling climax that demonstrates an inspired, innovative and masterfully executed use of simulation technology.

