

Full Immersion

The memories come flooding back at Trapped, Sovereign Hill's new light and sound experience.

Text:/Christopher Holder

SOVEREIGN HILL IS in a privileged position: it's on the international tourist trail. Convoys of Chinese and more local visitors are bussed daily into the provincial Victorian city of Ballarat for an authentic goldfield experience. The tourists are inserted and extracted with military precision, allowing enough time to tickle a fairy penguin at Phillip Island and be back in Melbourne for the buffet and bed.

Sovereign Hill has earned its stripes. It's a world-class attraction that's been around for some 40 years. But like anything of this sort, you've got to stay fresh... you have to spend the dough to make it. Trapped is the latest 'big thing' to hit the Hill.

Trapped is a 20-minute light and sound show that recounts the Creswick mine disaster of 1882, where the nearby gold mine was flooded, killing 22. It's a moving story made more personal by various accounts of the individuals involved. But it's the audiovisual experience that's the real star of the show here.

Trapped takes people through the mine via an inclined tramway to what feels like the depths of the earth; in fact, it's actually housed within a sizeable shed at the bottom of the Sovereign Hill. Faux tunnels have been constructed where the story commences and moves people upstairs (thanks to the sound of a flood and a blast of air from the 'cave-in') where the story is picked up from the perspective of the trapped miners. A three-layer Pepper's Ghost adds considerable drama at this point. Next, punters are ushered into a blacked out theatre, where the real drama unfolds. Seven channels of audio, four projectors, dozens of DMX lighting channels, a diorama reveal, and a 'pond' that reflects the projected imagery, and a Creswick streetscape hanging from the ceiling, all make for an immersive experience.

SPRINGING TRAPPED

Under the direction of Think! Outside The Square (Think!OTS) led by creative director, Pete Ford, a formidable cast of audiovisual

pros were mobilised to produce, install, and integrate Trapped.

Andrew Dibble, Think!OTS: The main challenge of Trapped was dealing with the existing structure and the fact it had to be spread over two levels. The creative process was a long one, finding a way of moving people to the main theatre without it being disjointed.

Creatively, water was the main feature of Trapped. The blast of the cave-in is simulated by six 'carpet driers' blowing a fine water mist. In the No Way Back room with the Pepper's Ghost, there's lots of water pumped and reticulated from tanks under the floor. And in the main Face Room we decided on water acting as a reflector.

AV: I must admit that it wasn't immediately clear to me that water was being used to reflect the models on the ceiling. Does the water offer practical advantages?

AD: Yes. We couldn't get a mirror big enough, and keeping glass clean is problematic at Sovereign Hill with all the dust about. The water provides a perfect reflection. We conducted a few experiments in the design stage and discovered that the depth of the water was immaterial, you simply need a layer. So the pool in Trapped is less than 20mm deep. We also added a small amount of black dye to the water to ensure you couldn't see the bottom of the pool and to improve the reflective qualities of the water. **AV:** I noticed ghostly images of the dead coming through the water as well.

AD: That's right, something I've not seen done before. Given the water is only less than an inch deep, the bodies are actually acrylic panels that sit under the water and are lit from underneath.

AV: The story is told by the faces of the protagonists, coupled with panned sound. Is that a simple projection?

AD: We project onto a mesh cut to the same shape as the face. The mesh provides that ghostly 3D feel. Projecting faces onto a solid 3D surface is nothing new, but the mesh adds a quality that suits the eerie nature of the production.

CONJURING WITH WIZARD

Wizard Projects out of the ACT was the integrator, taking the vision of Think!OTS and putting some technical flesh on the conceptual bones. We spoke to Wizard's Andrew Leiper for more.

AV: What were the tricky aspects of the integration?

Andrew Leiper: The most fiddly aspect was syncing audio soundscapes to the audio and video between rooms. Audio for the main presentation, along with the video, comes from an Alcorn McBride Binloop – six of the Binloop's CompactFlash card slots are loaded. So that's perfectly frame-synced. Elsewhere, in the tunnels and in the Pepper's Ghost ante-room, soundscapes are triggered from a Fostex D2424LV 24-track digital recorder. But there are instances, as people move between areas, where tracks overlay. We spent a lot of time ensuring the AMX control system was precisely triggering the playback of the devices.

AV: There are plenty of Dyalite dimmers in the machine room. Was controlling the lighting part of the AMX's remit?

AL: Lightmoves installed the lighting. AMX sends RS232 control strings to the Enttec DMX Streamer to trigger the lighting sequences. So the DMX Streamer is doing the heavy lifting, streaming the recorded DMX data (originally generated by a Rosco Horizon controller) to the Dyalite dimmers.

AV: Was there any difficulty projecting the faces onto the mesh screens?

AL: The team did several takes, and for our part masking the lenses of the projectors was very important. Each Panasonic PT-D4000E has a dowsers that we trigger open/shut with RS232. It means there's no black raster from the projector, and we keep extraneous light down to a bare minimum.

AV GOLDMINE

Sovereign Hill has almost a kilometre of tunnels, and walking the labyrinth with



LIGHTS ACTION

- 1 x Selecon Axial Zoom Gobo Projection
- 28 x Selecon Aureol Profiles
- 55 x Par16
- 50 x Sovereign Hill lanterns
- 200m x 100mm Cliplite (handrails, names)
- 20 x 100W Ql's (under-floor lighting)
- 20 x LED flicker candles
- 40 x Raydz R4200 warm white prime lights
- 2 x Techart DMX LED controllers
- 11 x Dyalite DDLE802 DMX dimmers
- 2 x Dyalite DDRC1220FR relay controllers
- 1 x Enttec DMX Streamer
- 40 x Tridonic P511 LED modules

PERSONNEL

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Face Time: Four Panasonic PT-D4000E units project faces onto mesh cutouts to promote an eerie look during the storytelling. The projectors have RS232 dowsers to keep ambient light down to a minimum. The audio system is a 7.1 setup with passive Tannoy D15s, D16s, and D18s speakers (powered by Biamp MCA multi-channel amps), along with a Tannoy TS10 powered sub. There's no DSP between the playback devices and the amps.



What A Blast: A big part of Trapped's design is to keep punters moving upstairs through the space. Sounds of a cave-in are part of that forward momentum accompanied by a rush of moist air – simulating the displacement of air from the cave-in. The blast is produced thanks to six carpet driers. The blowers are suitable because they're instant and powerful. A fine mist is simultaneously triggered, all via DMX control.



technical services manager, Adam Reid is like patrolling the grounds of Taronga with the head zookeeper: keeping the various exhibits (some new and some old) fed and watered is an ongoing daily task. In one machine room, Adam shows me an ancient Apple PowerBook controlling some aspect of a 15-year-old installation. Adam has managed to run the control software on a comparatively modern G4 but is loath to decommission the old-school lappy – after all, *with* the PowerBook he has some redundancy.

While I was inspecting Trapped, the crew were experimenting with the concentration of the black dye, and a dodgy connection was playing havoc with the centre channel of the Faces Room. A new ventilation system was part-way through its installation, as the high humidity mixed with the nature of the structure (a shed) was making the summer months oppressively warm. Dust gets into every nook and cranny of Sovereign Hill and projectors, in particular, take a hammering.

So what? Well, it brilliantly illustrates that a new 'experience' such as Trapped might represent a considerable up-front investment, necessary to stay fresh, but from an AV and maintenance standpoint, it's an enormous ongoing commitment set to last at least 10 years, if not quite a bit longer. ↩

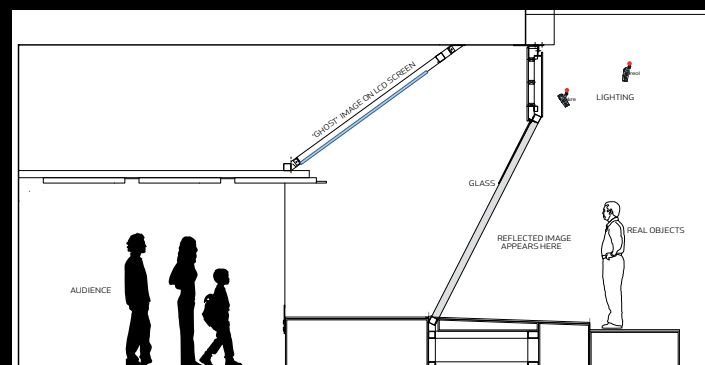
“We've not seen a three-deep Pepper's Ghost before... why not? Doesn't it work?!”

THREE-TIERED GHOST

Sovereign Hill likes a good Pepper's Ghost and I imagine there was little conjecture as to whether Trapped would include one. But Think!OTS hates to be second or to revisit old ground, so decided to shake things up a little by devising a Pepper's with a twist – in this case it's a three-tiered setup. “It was one of those things,” noted Andrew Dibble. “We've not seen a three-deep Pepper's Ghost before... why not? Doesn't it work?!” So Think!OTS devised a number of tests to get the angles right, which goes some way to explaining why the Pepper's 'tunnel' slopes upwards.

A lot of work was also done experimenting with glass thickness. There's a fine line between the glazing being thin enough to produce a strong image without shadows, and the glass being thick enough and therefore strong enough to support its own weight when installed at the requisite angle.

Traditionally, Pepper's Ghosts combine a projector(s) and angled glass. But thanks to high-brightness modern flat panels, there's no reason why an LCD can't be used. Which is exactly what Think!OTS has done in this case. The LCDs provide the space saving required, and have proven to be a good alternative.



The basic principle of the Pepper's Ghost: An out-of-sight image of the 'ghostly apparition' is partially reflected from a sheet of glass that is not immediately visible to the audience, who see through the 'ghost' to the solid objects behind the glass.