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# REALITY TREK

Ernest Shackleton showed how to overcome incredible challenges to survive in Antarctica — a virtual reality film argues his methods can help the world tackle climate change



**W**HEN participants don their 3D goggles to enter the virtual reality world of Thin Ice, they will be undertaking two simultaneous adventures.

The first recreates Anglo-Irish pioneer Ernest Shackleton's ill-fated Imperial Trans-Antarctic Expedition of 1914-17, when pack ice crushed his team's ship, a glacier blocked their path on foot, and he had to travel by lifeboat in treacherous conditions to mount an ultimately successful rescue mission.

Throughout the experience, acclaimed modern day explorer and environmentalist Tim Jarvis will take the virtual adventurers on a second journey, jumping back and forth more than 100 years to the present day, to show how climate change has radically altered those remote locations.

"Shackleton's goal was to save his men from Antarctica ... our role is to save Antarctica from us," Jarvis says. "That's really what has changed in the past 100 years."

Thin Ice – a collaboration between Jarvis, animation and game design studio Monkeystack, and writer-director James Calvert from Torrens University – will have its world premiere at the Queen's Theatre as part of this month's new Illuminate Adelaide festival.

"Virtual reality is just an incredible medium to communicate with people because it's the next best thing to actually being there – and for many people, the Antarctic is just a bit too far away," Jarvis says. "It's a very powerful experience ... and it's good fun. It's adventure without the danger."

Manchester-born, Adelaide-based Jarvis has been to Antarctica many times, including a 2013 expedition in which he recreated Shackleton's epic crossing of the Southern Ocean in a replica of his lifeboat, the James Caird.

"I've often thought, you know, wouldn't it be wonderful to bring that experience back home to an audience? Working together with Monkeystack, we've been able to do that," Jarvis says.

While his re-enactment served as the inspiration for Thin Ice, Jarvis actually made a subsequent trip to Antarctica to capture the locations with a film crew. It included 360-degree videographer Doug Gimesy, who was briefed by Monkeystack on photogrammetry – the art and science of extracting 3D information from images.

"We could then digitally recreate some of these environments to be as realistic as possible and actually 'transport' people to those locations," says Justin Wight, who co-founded Monkeystack in 2004.

Monkeystack now employs more than 20 South Australian artists, animators, producers, programmers, developers and designers to combine the latest screen and



Working with green screen technology (above), the creators of the virtual reality experience Thin Ice created realistic, immersive Antarctic landscapes after travelling to Turnback Glacier (opposite) and Fortuna Bay (below), places visited by Ernest Shackleton during his ill-fated 1914-17 expedition.

projection technologies with innovation and the art of storytelling to create animation works, interactive experiences and digital games.

The company has also created two interactive installations which are part of Light Creatures at the Adelaide Zoo this month. Feeding Frenzy simulates how fish school when they detect a threat, while in Curious Creatures the viewer's own silhouette appears on a giant screen and interacts with "fantastical" animals.

Jarvis had worked with Monkeystack before, to develop multimedia content for his presentations, and began talking with them about the idea for Thin Ice more than three years ago.

At the Queen's Theatre, viewers will pass through a physical recreation of Shackleton's camp before they enter the virtual reality experience. Three actors dressed as Shackleton and his fellow expedition members Tom Crean and Frank Worsley recreated their original journey with sleds and props in front of a green screen and their performances were digitally added into the virtual environment.

"We've also collaborated with another organisation here in Adelaide called Imagine Room, to do the volumetric capture of the performances," Wight says.

"That's a little bit different from a normal green screen shoot because it captures those performances in full 3D, so that we

can create a more realistic virtual experience."

As the Thin Ice viewer moves, the virtual actors and landscapes can be seen from different perspectives – and, if they turn their attention to a virtual Tim Jarvis, from different centuries.

"I am your guide in the background, wearing very evidently modern gear," Jarvis says. "You can witness those events, but also turn to me as a kind of narrator who is there in person."

"As you traverse the mountains, you see things as they saw it, but we also have some clever little animations that allow you to see things today. You can see a glacier melt – or reappear, depending on which way round you want to look at it."

The team also got permission to film in Antarctica using a drone, and took high-end stills cameras to capture surface textures which were then replicated in the 3D environment.

"It's completely immersive ... you are basically there," Jarvis says. "So if you choose to be looking at Shackleton, Crean and Worsley, I will just be a voice in the background – but if you want to walk up to me, you can do that too."

"There is a glacier that Shackleton, Crean and Worsley got to, called the Turnback which – as the name suggests – is where they couldn't go any further. It used to finish with these vertical ice cliffs tum-

bling into the ocean ... you are there in the modern environment initially, with me, then you see the glacier appear literally up out of the ground.

"Next thing, you are effectively standing in a crevasse and above you, you see Shackleton, Crean and Worsley step over the gap. That indicates the level of where the ice used to be, 20 or 30m above you."

**T**orrens University had previously made a project with the ABC called Kokoda VR, which took school students through the Kokoda Track campaign of World War II.

"I went along to the Kokoda Track and I'd had that experience," Calvert says. "The university was looking at doing more in terms of virtual reality and education – and that was driven by me – but I also have a history of doing animated films or games for the last 20 years."

For Calvert, Thin Ice was an opportunity to combine documentary film experience with his passion for animation and gaming, in a virtual environment.

"We're drawing on our experience creating worlds, in the case of animation and video games, and putting people in those worlds," he says. "You (the viewer) control the view, and that's really important – that level of control where you want to focus your attention."

"When you put that headset on, it makes it an active experience rather than a passive one ... it's all about putting you in Shackleton's shoes, or putting you in there as a polar explorer."

Jarvis says there is more than the environmental aspect alone to learn from Shackleton's experience. "The other one is the leadership lesson that he epitomised, really. He was all about breaking the enormity of the challenge down into small pieces, and understanding what it took to move a team of people who are all different individuals with different strengths and weaknesses and motivations."

"To get them all wanting to pull together as one to – in their case – save themselves is a very relevant message for today, when we're faced with a global issue like climate change," he says.

"The difficulty with climate change – and I've been involved in this field for about 20 years – is that you can't see parts-per-million of CO2 in the atmosphere. So for many people, the issue is sort of invisible – unless you have got a proxy that really speaks to people."

"The melting ice is a way of really instilling a sense of urgency. The glaciers are a litmus paper, showing us what we are doing to the planet."

**Thin Ice VR is at the Queen's Theatre from July 26 to August 1. Book at [illuminateadelaide.com](http://illuminateadelaide.com)**

