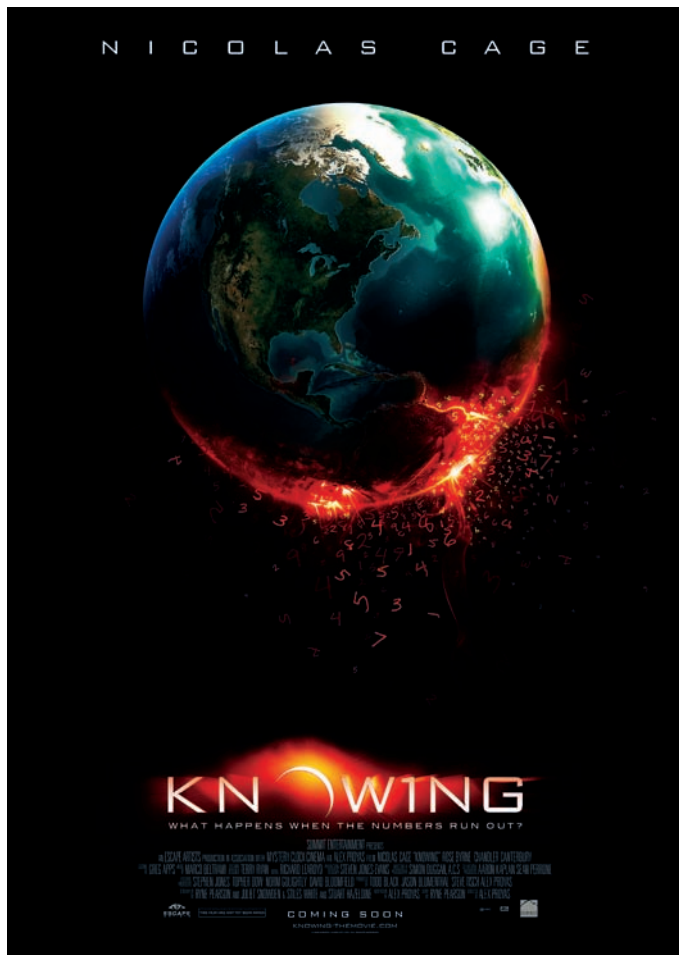


In the know

Revelations from the past shake Nicolas Cage's on-screen world in **Knowing**, while its sound calls on classic past and present technology in the studio. **Stephen Bruel** reports



FILMED IN MELBOURNE WITH audio postproduction completed in Sydney, the new Alex Proyas-directed Nicholas Cage thriller *Knowing* centres on a time capsule buried in 1959 and later recovered to reveal Nostradamus-like predictions. With Melbourne providing the backdrops for Boston and New York City, it may be another time capsule from Sydney and a former Beatles' recording engineer that steal the show for audio enthusiasts.

The film's final audio mix was completed at Sydney's new Deluxe StageOne Sound. Built primarily to handle the final mix for Baz Luhrmann's blockbuster *Australia*, this impressive facility boasts an investment of Aus\$4.5m in the local audio for video postproduction industry. At centre of the large 1,500-cu-m stage of Theatre One sits a 72-fader, 410-input AMS Neve DFC digital console. Famous for its 'sound' since 1961, this sonic time capsule is still favoured in today's digital audio environment, according to Deluxe StageOne Sound sound manager Angus Robertson: 'We looked at all the obvious high-end digital consoles that would satisfy the demands of large contemporary film and sound mixing,' he says. 'However, the AMS

Neve DFC Gemini rose above the pack as it is the console of choice for leading re-recording mixers and postproduction companies in the US, the UK – and also throughout Asia. Of course, the other overriding factor was that it still has that Neve "sound" which is fantastic and unique.'

The facility also has a scaled-down AMS Neve DFC Gemini console in its smaller Theatre Two, taking care of pre-dubbing on major projects and feeding these to Theatre One. It is also used for producing cinema trailers, commercials and work on shorter feature projects. Six Digidesign Pro Tools HD3 units – totalling 352 discreet outputs and 48 record inputs – are available in Theatre One for recording and playback of audio, along with a Fairlight HD Pyxis system for high-definition nonlinear picture replay using a Barco DP100 2K digital projector.

'Pro Tools was preferred as it is the industry standard, has a wide degree of familiarity among all sound post professionals and is also the most common platform of our clients,' says Mr Robertson. 'Compatibility between the sound cutting room and the mix stage was paramount.'

As a big Nicholas Cage fan,



Sydney's new Deluxe StageOne Sound facility

Knowing's lead re-recording mixer Phil Heywood was happy to get the gig. With 36 years of audio engineering experience, and credits including *Australia*, *Happy Feet* and *The Truman Show*, the five-time AFI award winner was impressed with Deluxe StageOne Sound. 'Angus Robertson has done a great job,' he says. 'For the first time in Australia we have a quality Hollywood-style dubbing stage that sounds to work in and is aesthetically pleasing with top-of-the-line equipment readily available.'

Phil Heywood was responsible for the final mix for the film and, consequently, what the audience hears in the cinema. This involved pre-mixing the raw and original dialogue, atmosphere, sound effects and Foley audio tracks (numbering in their hundreds) into manageable stems, adding the music and then completing the final mix in 5.1-channel surround sound. He mixed *Knowing* in sequential order and for long periods – which is just as well, as his mix schedule was reduced from six to three weeks during the making of the film. 'For the final mix we had to mix a 20-minute reel of film per day, play it back and make changes before moving onto the next day,' he recalls. 'Over the years, I've found that if I mix a film sequentially and in long runs, I get into the flow of the movie and end up with a smoother result.'

Knowing director Alex Proyas was willing to sacrifice audio quality for performance quality, which resulted in a large amount of location dialogue being used in the film, and hence, a large amount of inherent embedded noise. For Mr Heywood – who believes 'dialogue is King' and that the film is lost if you can't hear

the dialogue – this presented the challenge of keeping the dialogue forward in the mix with minimal noise.

'I set up a chain for the dialogue consisting of a Cedar dialogue noise suppressor, Dolby CAT 430 noise reducer, and the de-esser component of a Junger B43 four-channel dynamics processor,' he says. 'I also used the Neve's excellent inbuilt limiters that didn't hit hard, but kept the transients under control. It's amazing how much noise on the sync dialogue you can get away with in the final mix when everything else is in.'

Supervising music editor Tim Ryan assembled and prepared the music production reels for Mr Heywood and delivered them as two 5.1 outputs, two five-track outputs and five stereo pairs to the Neve console. 'Tim did a fantastic job and was on-hand during the final mix to make changes to the music as required,' Mr Heywood says.

The music for the film was composed by Marco Beltrami and recorded and mixed by John Kurlander at Sydney's Trackdown Studios. Mr Kurlander's sound engineering career probably ticks

the biggest box of all, as he has worked on a Beatles album. The three-time Grammy winner's career began at EMI's Abbey Road Studios in 1967, and after completing his initial in-house training, was assigned as the assistant engineer on The Beatles' *Abbey Road* album. Following this, he assisted on subsequent solo albums from John, Paul, George and Ringo, and was promoted to first engineer at Abbey Road after less than two years assisting. Mr Kurlander has also recorded many of the world's finest orchestras, including the London Symphony, Royal Philharmonic and Vienna Philharmonic, for EMI Classics, and his film credits include *The Lord of the Rings* trilogy.

'I had worked with Simon Leadley from Trackdown previously on *Master and Commander* in Los Angeles, and we had often talked about the possibility for me coming down to Australia to record a score at Trackdown with the marvellous local musicians,' he says. 'Also, Marco and I had worked with Alex Proyas a few years ago on *I Robot*, so there was already a great relationship there.'

As music recording and mixing engineer for *Knowing*, Mr Kurlander's first task was to listen to Marco's synthesiser mock-ups in order to understand the musical style and genre of the score. As the score was to principally be an orchestral work with choir and electronic elements, Mr Kurlander opted and scheduled to record the 65-piece orchestra all together and overdub the choir later with a few minor exceptions. 'There were three cues that featured some very precise and necessarily metronomic pizzicato passages,' he says. 'I recorded the entire orchestra first, then recorded just the string pizzicato bars as an overdub.'

For the recording, Mr Kurlander set up the first and second violins



Score composer Marco Beltrami at work on the film

in a very shallow and wide split, with cello and bass positioned half left, and violas placed half right. The horns and brass were placed behind the violins but placed further left and right than is usual in concert. He brought in his own microphones for the recording, including Brüel & Kjær custom modified 4006s, Neumann TLM50s and Neumann KM88s. 'After some listening tests I decided to commit to the 4006s for the Decca Tree and use the TLM50s as outriggers,' he says explains. 'I placed at the back of the room Neumann KM88s in figure eight mode set up as a Blumlein Pair for the surround sound, and used Røde spot microphones from Trackdown's impressive collection.'

Mr Kurlander sent the signal from the seven main microphones into a Millennia Media HV-3D microphone preamplifier, then into a Genex GXAS eight-channel analogue-to-digital converter, and finally into Pro Tools via a Digidesign HD 192 I/O interface. Most of the remaining spot microphones were directed to a racked Raindirk RM6 microphone preamplifier and parametric equaliser, then directly into Pro Tools. A Yamaha DM2000 digital console was used for monitoring during tracking. With this impressive selection of both analogue equipment and digital technology available, John Kurlander insists that you still need to get the basics right in terms of microphone technique and performance space to achieve the desired result: 'To be honest, I'd have to say that by far the most defining factors of the sound would have to be the microphone selection, positioning, room acoustics and orchestral layout,' he says. 'These choices totally define the recorded musical balance, while the transparency of higher-end converters and esoteric equipment serve to enhance the

audio image, and can only "clean the window" so to speak.'

Mr Kurlander mixed the recordings in Trackdown's newest mixing room on a Pro Tools system and a Yamaha DM2000 digital console. The orchestra and choir stems were mixed through the Yamaha's digital path using a Lexicon 480 for reverb, while the piano solos used a Bricasti M7 reverb unit. The electronic and music FX stems, meanwhile, were mixed in the box using the DM2000's remote layer for fader assistance. 'While the recording sessions were taking place, Trackdown's Simon and Tim edited our best takes,' says Mr Kurlander. 'Therefore, once we got

to the mix we were able to proceed on a fast track rather than having the necessary editing process slow us down in any way.'

The effects processors used for the mix covered both digital plug-ins and analogue outboard equipment. Mr Kurlander used Digidesign's Revibe and Abbey Road's Dynamics and Brilliance plug-ins. There were also specialised orchestral effects created by Marco Beltrami's sound design partner Buck Sanders, using older analogue gear. 'Selected passages of orchestral solo spot microphones were processed by Buck offline using his own gear, and re-imported to our mix,' says Mr Kurlander. 'This

vintage hardware included the Fender Echo-Reverb III [oil can echo unit], Roland Chorus Echo SRE-555 [tape loop reverb] and Moog Moogerfooger MF-104z [analogue delay].'

A final challenge facing the production crew was that this was the first feature-length movie to be filmed entirely on a RED digital camera. Supervising sound editor Andrew Plain from Huzzah Sound had to design the best workflow to accommodate this new video technology with audio: 'To the best of my knowledge, no feature this size had been shot on RED camera before,' he says. 'As pictures used up tremendous amounts of

storage, we had to find and use the H264 codec as a compromise between video quality for the director to make his cuts, and space for us to add the audio.'

For Huzzah, the end result in quality was outstanding, as was mixing at Deluxe StageOne Sound. 'It truly is a beautiful sounding room, a fantastic place to work in and answered every challenge we faced,' concludes Mr Plain.

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