



# The Lord of the Rings

Mirvish Productions Presents  
Ground Breaking Production





ith much anticipation and a \$28 Million Dollar price tag the mammoth live stage production of *The Lord of the Rings* had its world premiere at the Princess of Wales Theatre in Toronto on March 23rd this year. The press were generally not impressed, with fairly middling reviews from the local critics – the set and staging, particularly the centre piece with three concentric turntables and 17 lifts overwhelmed the actors; “Set Shines But Ring No Jewel” said the *Toronto Sun*. “Why We’re Left Bored Of The Rings” from *The Toronto Star* and “Ring Bearable” from *NOW Magazine*. Apparently puns are required for show reviews in Toronto, and if it’s not a musical and it’s not theatre, then we don’t know what it is so we’re not sure we like it. The New York critics were particularly catty, although nobody seemed to consider whether the general audience enjoyed the show – which they most definitely did where I was seated! Some of the international press seemed to get it and were suitably impressed. *Time* called it “Ingenious, a definitive MegaMusical”. “Breathtaking and thrilling” said *The London Times* and the *Hollywood Reporter* called it “Spectacular and mesmerizing.”

Amongst all the critiques however, nobody – not once that I read – mentioned the sound. There is an old adage in the sound biz’ that says, “If they don’t mention the sound, you’re doing a good job.” Well, the sound wasn’t really quite good – it was quite amazing! The clarity of the voices was excellent. The impact of truly dynamic range that went from friendly spoken words and the whispered intimacies of romantic dialogue to the “jump in your chair” roaring special effects, along with orchestration that went from folksy plucking of a nickel harp and bouzouki to full-on Hollywood (or perhaps Bollywood given composer A.R Rahman’s background) film score bravado was truly spectacular on a scale equal to any of the other design elements.

To accomplish this, the sound equipment list reads like an epic unto itself.

I spoke with Simon Baker, the Sound Designer, Sten Severson, Associate Sound Designer and Bob Shindle, FOH Mix Engineer to get some insight into how this all works and what it took to put it all together.

### IT STARTED SOME YEARS AGO...

Simon Baker was brought on to the design team over two and a half years ago, when there was only a preliminary script and not even any music. He attended the first music workshops. This early involvement is a reflection of Producer Kevin Wallace’s understanding that if the music and sound don’t work the show won’t work. Kevin is very aware of the sound quality and was continually giving input and notes for sound and the special effects. He’s also aware of the costs and the time it takes to get it done right. He didn’t just want the cheapest solution.

From the start they knew it was going to be a big show on an epic scale with big sound requirements. The challenge was two-fold: to create the broad sound spectrum of Middle Earth and to develop the Hollywood-esque orchestral soundscape and sound effects. This meant underscoring the scope of the epic with dynamic range and getting as much of the orchestra into the 5.1 surround system as vocals into the stereo loudspeakers. Simon knew he would need the capabilities of the DiGiCo D5T console – the specialized version of the D5 that Autograph Sound helped develop to control all this. This soon became two consoles as the requirements grew – one for the wireless microphones which had turned into a 64-channel system of Sennheiser EM1046 receivers, and one for the 19 piece orchestra comprised of three keyboards, two full percussion rigs and a complement of strings, brass and woodwinds.

### FIREPOWER

Simon also knew he would need a lot of firepower to handle the very wide dynamic range requirements. Initially the design called for Meyer MILO line array loudspeakers as the primary system, but these proved to be too large and heavy, so he opted for the new MICA system, even though he had only heard demos of the system. Simon feels that Meyer has done the best job of making their systems tonally matched over a dynamic range such that they aren’t thick and boom-y at lower levels, turning strident as the volume increases, which can so often be the case.

With the consistent and predictable coverage of the line array technology he was able to locate the speakers exactly where they needed to go over a year before the show began, this meant that the set and lighting designers knew what they were dealing with well in advance and could accommodate the speaker positions. The 11 MICAs per side rigged in and worked



MEYER LOUDSPEAKERS ARE HIDDEN BEHIND SET DRESSINGS.

exactly as predicted. Sixteen Meyer MID line array speakers are deployed for the centre cluster and the balcony fill with three Meyer HP600 subs per side. The theatre already had Meyer UPM-1A speakers for under-balcony fills which were augmented with UPM-1P front-fills with d&B E3 speakers filling any other delayed house coverage requirements. The whole system is processed through XTA DP428, 226 and 224 controllers.

By being able to demystify the “black art” of speaker focus that today’s technology allows and to be able to provide the level of control, repeatability and fast adjustments that the digital world has introduced to sound, sound is no longer the “bastard stepchild” that was never considered as having a creative role in theatre and was merely just a support service to the true arts of set, lighting and costume design.

Sound now gets a lot more respect from the other disciplines than it ever has.

Being brought in much earlier in the process than usual and being involved in mutually creative discussions allowed for a very collaborative effort amongst the design teams from the onset.

For example, the proscenium set design piece looks like a giant thicket sprawling out from around the stage and out over the log boxes. To hide the MICA speakers the thatched section that covers them is cut from acoustic material. To integrate this in, the spaces over the speakers are covered with foam cut to match, but rather than actually cutting the foam which would have been 3-4” thick, it was constructed from speaker grille material that was stitched into shape. When it was painted to match, they blew the paint out of the foam pores to ensure it was as acoustically transparent as possible. Bob Shindle said the process was “a pain...” – they had to build temporary outriggers because it had to be taken down as many as 20 times to get it to match and fit properly. In the end they did an excellent job – I had to go over and touch it to be sure it was acoustic foam and not the same hard material as used for the rest of the set.

### SURROUND

You couldn’t help comparing the stage production to the films, in fact there was a heavy reliance on having seen the films or certainly being very familiar with the books to fill in some of the story line details. Whilst standing outside the Caves of Moria, searching for the password to get in, the Fellowship (and the audience) hear a distinct sound of water being disturbed – the surface being broken by something big off to the right behind us. This is of

course a lake monster with many tentacles that attacks, but in this case our only indication is the sound effect and the actors staring into the void and asking "What was that?" so sound is really the only element used to fill in this plot detail.

This and all the surround effects were accomplished with a TiMaxx dynamic matrix controller. A custom MIDI go button was installed by Sound Associates into the control surface of the DiGiCo D5T desk. MIDI commands are sent to a PC running G-Type which sends out MIDI commands to Logic Pro via a MOTU interface via USB on the Apple G5 computer, which are in turn fed through Firewire to the 24-track MOTU D to A interfaces. These in turn feed audio to the TiMaxx. Using Logic Pro was an innovation of necessity. What would previously have been done with samplers wasn't feasible because the hardware is no longer readily available. It made sense to match up with the keyboard systems, which use the G5 Logic Pro format, for redundancy and programming efficiencies. The G5 can store what would have taken racks of hardware and wiring to accomplish, so it was a fortunate solution. The surround speakers are the Martin Effect 5. Simon Baker says he has found a key element to good surround sound is not in the back speakers as much as having as many speakers

Sten says the new technology has allowed sound to react faster and to get more obvious and noticeable results more quickly. This allows sound to integrate more with the other disciplines and not be just a post-script. When the Ents emerge from the forest, seemingly out of nowhere, the voice of Treebeard is processed via an EFX sub matrix out on the D5T through an Eventide Harmonizer to get the deep sub-harmonics into the bass speakers, very effectively adding sound to the visual effect. Michael Therriault is brilliant in his portrayal of the tortured character of Gollum. At one point he appears, his sssssibilant voice routed to localize him high up on the house right proscenium structure right over the audience, again to eerily dramatic effect, he's so close you can almost smell the rotted slime oozing off him.

There is a brilliant snowstorm scene followed by a startling wind effect when Gandalf falls into the depths of the Mines of Moria. Strangely, you are almost unaware of the sound for these scenes because it is so integral to the whole effect that you don't really notice it as a distinct element. It's not a visual effect with a sound effect; it's a snowstorm, it's a battle with a monster. The sound would only be conspicuous by its absence.



THE LORD OF THE RINGS  
AUDIO & RF TEAM

- SIMON BAKER, SOUND DESIGNER (AUTOGRAPH UK)
- STEN SEVERSON, ASSOCIATE SOUND DESIGNER
- BOB SHINDLE, HEAD SOUND MIXER
- AL MERSON, PRODUCTION SOUND ENGINEER
- WAYNE COLE, ASSISTANT HEAD OF SOUND
- VIV COWLEY, DECK SOUND
- CRAIG KADOKE, BAND SOUND
- SCOT WHITHAM, PRODUCTION MANAGER
- STEVE REBBECK, UK PRODUCTION MANAGER
- STEWART CROSBIE, UK PRODUCTION MANAGER
- A KEVIN WALLACE LTD. PRODUCTION.

along the sides of the theatre as possible. Speakers in the theatre is always a concern, primarily because of the visual intrusion, and Simon likes to have them as large as possible in order to get the most efficiency and best bass response. In most productions loudspeakers have been adapted to the role of surround. The Martin speakers are specifically designed with the rhomboid wedge shape that audiences are familiar with from movie theatres, so they look perfectly at home hanging along the walls and are readily accepted. Four Meyer 650 R2 loudspeakers powered by Crown Macrotech amplifiers fill out the .1 sub role for the surround.

The primary on-stage effects speakers two pairs of Meyer MSL-2s on each side for the LED screen. In an inventive safety maneuver these are also deployed if one of the fail-safe triggers on the turntable/lift assembly is hit. During the raging battle scenes in particular an actor may bump a safety switch on the stage pieces, or it may get hit by a flying sword or broken prop. When this happens the stage automatically drops to safe mode in a static, flat position until the problem is detected and solved. Bob gets notified to hit his F12 key and a giant thunder clap goes off to warn the actors that this is happening.

Sten Severson likes the cinematic features that the sound design picks up on within the production, particularly being able to bring the orchestra out into the 5.1 surround system.

With all this available firepower the sound can be truly intense without being loud. The dynamic range capability allows there to be moments of incredibly big sound that go back to close intimacy in an instant, which is important; if you were to try and maintain the full intensity for the whole show it wears down the ears and you lose impact over time.

Personally, he feels that it's the theatrical moments such as created by the "Nazgul" riders and the 14-foot "Ents" that make the show. "I can watch a movie, but the live theatrical elements make it an experience on a whole other scale".

CONTROL

Sten feels there is a better communication process amongst the creative teams than before such that if a set designer suggests placing a speaker in a box they will instantly correct themselves and say, "Oh right, that's no good is it, then it will sound boxy."

Being able to analyze and control more accurately lets the sound design team react much more quickly and allows them the time to look into ever-finer detail.

The D5T's capabilities enables them to preset the changes required in volume levels and tone as, for instance, the musician goes from flute to piccolo, without requiring the operator to adjust every time.

One of the biggest challenges is in trying to maintain consistent vocal quality from actor to actor. Frodo has a very mid-range voice whereas Sam's is quite deep – the challenge is not to make them sound identical but to make them sound matched and as if they're in the same room. An even more challenging task is in dealing with the costume changes. It is hard enough to balance level and tone on an actor when they put on or take off a simple peaked cap, but when you have a mic inside a tin helmet it requires some pretty gnarly EQ settings to compensate. This is compounded by the fact that they are constantly subbing in understudies in the main roles – on one show there were 11 alternate actors brought in; without scene-to-scene preset and memory capabilities you'd be spending an awful lot of time dialing EQ knobs instead of mix balance faders.

RF WORLD

Wrangling the 64 Sennheiser SK50 and SK5012 transmitters using DPA 4061 and 4066 microphone elements is left in the capable hands of Wayne Coyle on deck. He has a custom Sound Associates audio monitoring system so he and two deck hands can audition the transmitter sound before the

actors go on stage and two screens of Sennheiser MCD software for video monitoring of the transmitters. The system is capable of monitoring RF signal strength, audio level, diversity activity and transmitter battery status.

Not only are there 64 wireless microphone channels, 4 wireless in-ear monitors, 32 Telex wireless intercoms and 50 walkie talkies, there's 21 video cameras for monitoring everything from the conductor and the vocal booths to the hydraulic pumps for the stage (which take up two parking spots below the theatre). Many of the cameras are converted to even more TV channels with Blender-Tongue modulators for distribution. With various WiFi networks all over the building and that pesky CN tower next door broadcasting all manner of RF, it's really quite a marvel that with all that transmitter traffic the whole thing can work every night.

### CINEMATIC

There is a lot of film sensibility in the production. After the (very cute) opening prologue of Hobbits chasing fireflies with ever larger nets (put to good comic effect) as the audience filtered in, the first thing we are presented with is a screen with a shadow play and the voiceover of Gandalf relating the origin of The Ring and the story of Bilbo Baggins from *The Hobbit*. You almost sensed they were going to role the introductory credits. When there aren't actually songs and dance numbers (which there are) the orchestra is almost continuously underscoring the dialogue and action with only a few short scenes with only dialogue. The orchestration is very involved and very dramatic, requiring a level of complexity that could not be achieved without help from the sound system. One of the sounds that really caught my attention was using wire brushes on bell trees, it created an urgent driving quality that was also made very "magical" by putting it into the surround system with very wet reverb, but



**BOB SHINDLE AND WAYNE COYLE AT FOH.**

then the score would instantly go to thundering drums, a transition that would have been physically impossible to play, so in a number of incidents the percussion is supported by tracks from a Mackie HD24 hard drive routed through a Yamaha DM1000 mixer. The Mackie also provides SMPTE code for numbers that are synchronized with lighting.

### IN THE PIT

The percussion is miked with an array of AKG C414 condensers and a D112 for the kick drum which Bob characterizes as more of a 'marching band' sound than what we would usually consider as a kick drum. There is no trap kit on the show. To get the folksy bell sounds without sounding like jingle bells the percussionist wears them around his ankles a good distance from the mics overhead. The same distant and close miking is employed on the strings with a DPA 4061 clip mics on the instruments and Sennheiser MKH40 distant mics which allows them to transition from the folk instrumental quality to the Bollywood strings as required. DPA 4011, 4021, 4041, Sennheiser E604 and MD504 mics round out the pit complement. There are also two off-stage vocal booths with Neumann U87a mics.

Pit monitoring is accomplished using Aviom systems for everyone except the violin player. She needs to hear the acoustic sound of her instrument, so there's a Galaxy Hotspot for her to listen to.

All the microphones are fed to a MADI interface which is linked to the Orchestra D5T desk via Opticore fibre. There is a continuous loop from the desk to the redundant back-up engine, then to the pit and back. There is a second optical fibre link for the wireless microphone console and its redundant engine feeding a second MADI interface to the output controllers along with systems monitoring computers. With 128 inputs and 70 busses per console "pretty much maxed out on both," and along with all the other networked systems one fibre optic link could not handle all the data being transferred! The two desks are only linked via MIDI. The Opticore is quite amazing, the connector is fairly large, being about the size of a short Cam-Lock, but the cable is only as big as a 14 gauge speaker wire and it's very flexible compared with some of the digital console wire looms.

TC Electronic System 6000, Fireworks and M3000s provide the reverb and effects sounds with settings such as "Nazgul Echo", "Large Warm Hall" for the strings and "Perc. Straight Tails".

Bob says his favourite scene is the Battle of Mordor because the score is so dramatic. It's actually the hardest scene to mix, but that's when everything really comes together. Being in the driver's seat controlling all this technology and the sound it produces is the thrill that makes all the time, technology and money seem worthwhile.



**The RF rack containing equipment from Sennheiser, Crown and SymNet.**



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