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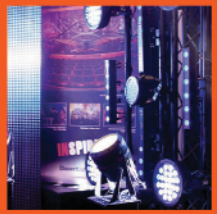


The Old Truman Brewery Brick Lane, London E1 6QL

Showcase: Book of Mormon

GARETH OWEN

Book of Mormon is an unlikely West End success – running at London's Prince of Wales Theatre the show is co-written by Trey Parker and Matt Stone, the infamous creators of the crudely surreal animated hit, South Park. The show charts the fortunes of a pair of Mormon missionaries, Elder Price and Elder Cunningham (played here in the UK by Gavin Creel and Jared Gertner respectively) who are sent to Northern Uganda in Africa to baptize new followers for the Mormon Church.

Including songs such as Spooky Mormon Hell Dream and Hasa Diga Eebowai (roughly translated as 'Fuck You, God') *Book of Mormon* covers previously taboo subjects such as poverty, Aids, famine and Disney World – offending and entertaining in equal measure as it does so. Despite the furor created at the Mormon Church headquarters back in Utah, Co-Director and Choreographer Casey Nicholaw has clearly got this show right – *Book of Mormon* is the hot ticket both on Broadway and now here in London, collecting umpteen awards and nominations in the process. In 2011 the show won the Tony Award for Best New Musical, and, arguably more importantly, earned its Sound Designer the much coveted Tony Award for Best Sound Design of a Musical.

American Sound Designer Brian Ronan is no stranger to musicals. His Broadway credits number twenty shows including new musicals *Bring It On* (the high-flying Cheerleader Musical), *American Idiot* (Green Day's celebration of the album by the same name) and *Nice Work If You Can Get It* (the multi award winning 20's musical starring Ferris Bueler principle Matthew Broderick). His London show *Spring Awakening* won him Best Sound Design at the 2010 Olivier Awards, and *Book of Mormon* is likely to be the show to beat in 2013.

I talked to Brian about the process of creating a completely new show with guys who had never worked in musical theatre before. Book of

Mormon went through three script readings and two workshops, the latter including full choreography, mock sets and a small sound system. This gave the writers, Trey, Matt and Bobby Lopez (of *Avenue Q* fame) a chance to see and hear their work from a different perspective. Ronan comments, "What I found so fascinating about these guys who, with the exception of Mr. Lopez, have not worked in this medium, was their adaptability. These are not your usual theatre types huddled over a score and script. They look like a couple of men who wandered into the wrong room on their way to play a video game! Looks however can be deceiving – I found them completely fearless in their ability to adapt their humor to a live audience. They speak to one another in an efficient, almost secret language that reminded me of a special communication between twins, giving each other directing notes as they have done for years while taping *South Park*."

Book of Mormon faces many of the same technical challenges that most musicals face – a need to hear the words, a need to emote the audience, and a need to do it while working around the inherent restrictions imposed by set, costumes and direction. Ronan has risen to the challenge and more – *Book of Mormon* is loud without ever being harsh, exciting without ever being offensive (at least from a volume point of view), and clear without ever being unpleasant.

To achieve this, Ronan approached North London based rental shop Autograph Sound Recording, arguably a world leader in musical theatre sound. Working closely with Autograph, his US Associate Cody Spencer and UK Associate Tony Gayle, Ronan started with the mixing desk – the DiGiCo SD7T. It's a safe bet to say there are more shows running on Broadway and in the West End using the SD7T than any other console. Certainly when it comes to new musicals the SD7T is the choice of many leading UK sound designers. Mick Potter, Bobby Aitkin and Simon Baker are all fans, as well as American designers such as John Shivers, Steve Canyon-Kennedy and Tony Meola.

Ronan runs the DiGiCo in 96k mode – a step up from the 48k mode that many other designers favor. This necessitates the use of the newer DiGiCo SD DiGiRacks, introduced at the same time as the SD7. Running the console in 96k produces an obvious sonic improvement with little in the way of a downside – you lose some channel processing resources within the console, but not enough to affect a show the size of *Book of Mormon*.

The console plays the roll of master show control, with a pair of dual redundant Apple MacPro's slaved via MIDI providing sound effects and driving click tracks. Running the latest ProAudio version of Figure 53's QLab software, these computers are treated to a relatively easy life. There are very few sound effects run from out front – indeed, most of the sound effects are musical cues coming from the keyboards – a wise choice by Ronan, effectively removing the sound department from the firing line when things go wrong!

The QLab machines feed audio to the SD7T via MADI from a pair of RME HDSP MADI Cards – a fantastic internal audio card capable of delivering sixty four channels of digital audio on a single BNC cable. This method of sound effects delivery is ideally suited to the SD7s multiple MADI ports.

Rounding out the relatively sparse front of house mix position, Head of Sound Simon Fox has a tc electronic System 6000 Mark II, generating two vocal reverbs and a single band reverb. The System 6000 is another firm favorite in the sound designer's arsenal, not least of which because it packs four high quality reverbs in to one box, neatly controlled by the elegant user friendly Icon Controller. Use of the System 6000 presented Ronan with an unforeseen challenge – despite the Mark II's ability to run native at 96k, it seemed that not all of the algorithms functioned

correctly at that speed. The reverbs themselves all worked perfectly but it was the selection of an obscure stereo pitch shifting preset which caused issues – effectively it wouldn't work at 96k. After much debate, the design team made the decision to run the System 6000 at 48k, requiring the installation of an RME ADI-8 Format Converter, which downscales the outputs of the desk from 96k to 48k. The S6000 then does its thing before the console upscales the input automatically back to 96k.

The SD7 mixing console feeds a mixture of speakers from manufacturers Meyer, d&b, and rock and roll favorites L-Acoustics. The main PA is L-Acoustics dV-Dosc paired with two stacks of dV-Subs, which, between them are more than partly responsible for the rich, warm sound heard throughout the auditorium.

Speaker positioning is pretty much spot on throughout the theatre with one exception – *Book of Mormon* features a golden cherub statue in the top centre position of the proscenium arch. This, much like the Time Dragon down the road at worldwide smash hit *Wicked*, looks fantastic but somewhat gets in the way of an ideal centre cluster position. Faced with the effective elimination of this prime speaker location, Ronan has still managed to achieve good vocal imaging. A single Meyer UPA hidden in the proscenium behind the cherub acts as a down fill, while a pair of Meyer UPQs shooting in from either side of the pros arch serve to enhance the front stalls audio. d&b E3 front fills complete the proscenium arch picture.

The remainder of the stalls is covered by a mixture of d&b products – E3 delays, E8 side fills and E8 surround sound. The circle is again covered by a pair of L-Acoustics dV-Dosc hangs with Meyer CQ-1s for the centre position and d&b E5s for delays.

Stage Foldback is an area of musical theatre sound which is often neglected. Forced to fit around set and lighting, speakers are often squeezed into less than ideal positions – something which seems unavoidable in production meetings but has a habit of coming back to bite the unprepared sound designer when the cast step on stage.

No such worries at *Book of Mormon* however – the stage is well covered from good positions both on the proscenium and from either side on the lighting ladders. A mixture of Meyer UPAs, UPJs and d&b E3s do the job well – indeed, talking to several cast members in the bar after the show, I was reminded just how much easier a happy cast can make the job of the sound designer.

Moving from the output section of the desk to the input section finds Scott Carter and Adam Taylor (Number Two and Number Three respectively) looking after an impressive collection of Sennheiser em1046 radio mics. Ronan specified all Sennheiser SK5212 packs but has taken the unusual decision to mix radio mic heads. The two lead boys both wear two Sennheiser MKE1s, picked primarily for their great sound quality and small size - allowing the microphones to be better positioned where a main and backup pair are used. The rest of the cast wear either Sennheiser MKE2s or DPA4061s, the choice of which is decided by a combination of skin tone and voice type. Those of a more geeky persuasion will have identified the different polarity characteristics of the two different microphone manufacturers – but Ronan has solved this by simply phase reversing the DPA microphones back at the console.

As well as the cast microphones there are a healthy number of hat mics and tap mics to contend with. One of the principals, 'Butt Fucking Naked' (a nod to genocidal Liberian warlord General Butt Naked) wears a cowboy hat for a good part of the show – something for which fellow sound designers will feel Ronan's pain. There is also a tap dancing number requiring a number of the principles to have microphones attached to their shoes. Backstage

All images: Johan Persson

sound crew fit a Y-Split pair of MKE2 microphones to each dancer with a mic positioned to hang out the trouser leg on each side. To further bolster the tap effect, Production Engineer Richard Bower fitted a trio of Shure MX150 lavalier microphones across the front edge of the stage. This departure from the normal Crown PCC160 or DPA 4022 options produces a really interesting result – not only do you get a great tap sound but the mics are nearly invisible and seemingly very robust – more than capable of being stood on without lasting damage.

Radio monitoring for the show is provided by MultiMon – a proprietary system developed in conjunction with Sennheiser, Autograph Sound and sound designer Theo Holloway. Affectively a replacement for Sennheiser WSM, MultiMon is optimized for touch screen and allows designers to install multiple computer terminals throughout the theatre. Each terminal can independently monitor RF and AF levels as well as allowing independent audio monitoring of individual radio mics via the SSL MADI to Analogue audio interface which connects to the SD7's MADI stream. The software not only allows real time monitoring of radios but also records performance history for each and every radio simultaneously. This makes it the work of a moment for the backstage sound team to check on a radio – did that radio just drop out? Check the history. Did another radio just peak? Again, check the history.

The compact orchestra pit is filled with nine musicians constituting drums, bass, two keyboards, two brass, reeds, violin and guitars. Many of the usual microphone and DI choices are in evidence here – Shure, Neumann, and Sennheiser with DI Boxes from Avalon, Opus and Radial. Fractal guitar simulators remove the need for amplifiers in the pit – a canny bit of bartering from Ronan, that, combined with extensive use of ClearSonic acoustic screens, greatly reduces the ambient noise floor.

The orchestra rely on Aviom A16MKII Individual

Headphone Mixers, driving a combination of Sony MDR-7506 Headphones and a pair of d&b E3 speakers for the Musical Director. Drums and Bass have been allocated UltraPhone Noise Defending Headphones – a wise choice providing much more acoustic isolation than normal headphones.

The Aviom headphone system is derived from the show's second DiGiCo mixing console – this time an SD10 located in the substage amplifier room. This console takes all of the inputs from the DiGiRacks as a direct MADI split. Gain Tracking allows the FOH desk to have master control of the gain while the Monitor desk tracks the FOH gain and turns its own attenuator up or down depending on what's going on out front.

Book of Mormon is a ridiculously successful show for a number of reasons, not least of which that the songs are extremely funny. However, it wouldn't matter how funny the songs were if you couldn't hear what the cast were saying. At *Book of Mormon* you can clearly hear every last lyric, and that, combined with a truly great sounding production, makes for an extremely enjoyable evening.

MORE INFO
www.bookofmormonlondon.com

Mini profiles

HELEN ATKINSON

What is your current project?
I am currently working on a sound installation for the Ottakringer Brewery in Vienna, Austria, and a design for one of the third year acting shows at ArtsEd.

What is the favourite part of your work?
When designing, my favourite part is the eureka moment, when it all starts to fit together. When engineering, I love a fit up.

What would you change about the industry?
The pay structure and the imbalance between London and regional theatres.

What's your top trick / tip?
Positivity, and an open mind.

What are you listening to at the moment?
Essential Johnny Cash and Björk *Biophilia*.

TOM GIBBONS

What is your current project?
I have just opened *As You Like It* at the RSC and am now in full-time rehearsals for Complicite's new show *Lionboy*, which begins its UK tour at the Bristol Old Vic at the end of May. The show is based on a trilogy of books by Zizou Corder and is Complicite's first show aimed at a younger audience. I am working with a great associate designer, Pete Malkin.

What is the favourite part of your work?
It has to be getting into the space and getting into the tech, interacting with LX cues and the set/cast. Always interesting to hear your content in show conditions for the first time. I find the process of arranging series of numbers and equations in a computer to create sounds that can be very lyrical and human pretty cool.

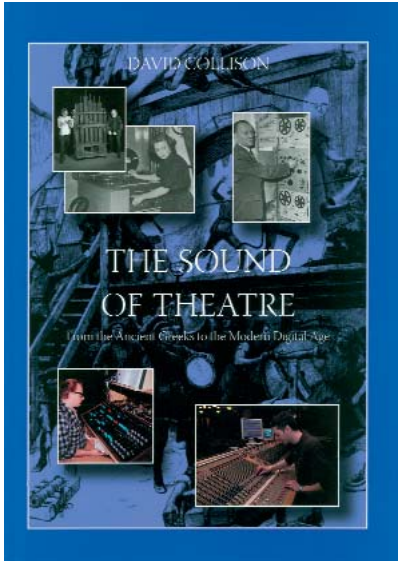
What would you change about the industry?
It would be great to be able to work solely on one project at a time, having been paid enough to do so. It's an old argument but still a hugely valid one. Sadly this seems to be increasingly unrealistic. And maybe some industry regulations about adequate production desks?

What's your top trick / tip?
Make sure you stay happy, we've got great jobs.

What are you listening to at the moment?
I was given Gaz Coombes' new album recently, which is a grower, but great, and *New Relics* by Errors is one for the summer.

The Sound Of Theatre

DOM BILKEY



David Collison's book *The Sound of Theatre* arrived in the post a few months ago now and I have to confess I have found it hard to put down ever since. As one of the pioneers of theatrical sound and the first person to receive a credit in a theatre program as 'Sound Designer' his authority on the subject is unquestionable and it is this wealth of knowledge and experience that makes this book one of the best books I have read on the subject.

"This book is an attempt to tell the history of the development of sound in the theatre from the days when sound effects had to be created by mechanical means, right up to the invention of digital audio technology", states Collison at the top of the book.

The premise of the book may appear very simple; what it delivers and the style in which it does this however is greater than the sum of its parts and is as apt at engaging the reader as it is in providing factual information.

The book first takes us back to the Ancient Greeks and Romans and quickly progresses through Medieval and Elizabethan theatre and the Restoration. During these early chapters we are introduced to numerous mechanical effects machines used to create the sounds required for the stage. Numerous, detailed diagrams provide a welcome visual reference to these ideas and highlight just how ingenious some of these early ideas were. Who knew the Ancient Greeks had wind machines long before the period in which these are accepted as in widespread usage?

A number of photos towards the latter section were particularly welcoming showing some mechanical devices from Theatre Royal Drury Lane that I have not seen since the sad closure of The Theatre Museum some years ago.

Having grown up in Cornwall I spent many days as a child at the Porthcurno Telegraph Museum and it was part two of this book that afforded me a particular fondness; comprehensively detailing the development of electronic and electrical sound.

Presented as a linear timeline this section starts with fundamental principals back in the 1820s and quickly catapults us through phonographs,

tapes, CDs and MiniDisc. The competition between numerous rival companies and inventors is highlighted throughout this chronology with numerous examples of inventions being produced to outperform a competitor's; it's still all very familiar. Throughout this journey we are introduced to many of the large household names that we are familiar with today and it serves as an interesting and comprehensive reference.

The third and largest section of this book takes us upon the much more recent journey within the 20th Century right up until the release of Yamaha's 'Promix' console in 1994. It is here where the relaxed and informed style of writing allows Collison's anecdotal stories to really engage with and inform the reader.

The wealth of information contained within this section makes fascinating reading and the numerous photographs of custom-designed sound desks, playback equipment and control rooms full of amplifiers all serve to aid this expertly written text.

'Sound Design is Here to Stay' is one of the closing chapters and it is here brief biographies exist of some of the early pioneers in the field of sound design. It is a fascinating read and demonstrates the vast differences in approach and artistic style employed and how these desires have driven some of the practices and equipment that today we take for granted.

This book is a definite for any University or College library and equally finds a welcome home on my bookshelf. Collison's passion and knowledge for sound is enthralling and the style with which he writes should make this book accessible to both the casual reader and scholar alike.

A brief interview with David Collison

Having read the book there is an enormous amount of information covered over a wide period of history. When writing the book which period did you find particularly interesting in the development of sound for theatre?

I found researching the very early days of sound (with a great deal of assistance from my wife) the most interesting. I have always been fascinated by the stage mechanics and invention of all kinds of mechanical sound

DAVID COLLISON

David Collison will be joining the Theatre Sound Colloquium for an 'in conversation' with Ross Brown to mark the occasion of his conferment as an Honorary Fellow of the Royal Central School of Speech and Drama, University of London – the first time this prestigious honour has been conferred in recognition of a career in theatre sound.

Other Fellows include Dame Judi Dench, Simon McBurney, Richard Pilbrow, Michael Grandage and the late Harold Pinter. The conferment of the Fellowship will take place in a short ceremony at the Colloquium.

effects for the theatrical spectacles of the 18th century, but to discover that the ancient Greeks had wind and thunder machines centuries before was fascinating. There were not so many surprises during the 'coming of age' of electric sound as I was involved in part of it, but I very much enjoyed meeting some of the pioneers, particularly in America.

The third section of the book covers a large number of developments both in the technology and thinking around theatrical sound. Which one of these developments stands out as particularly significant to you?
During my career, the first big change was moving from sound effects on 78rpm disc to tape. Moving from the big heavy valve amplifiers to transistor amplifiers was important – though not always successful. Then the development of printed circuit boards meant that mixing desks suddenly became affordable and I could introduce them into the theatre.

Also, around this time, better quality and more powerful loudspeakers suitable for theatre use were being produced. I suppose that the development of wireless microphones from a very shaky start to the point where they are stable and everyone in the cast can wear one is significant; although I fear they are often used to the detriment of natural sound and at levels so out of scale with the human voice that they form a barrier between the performer and the audience.

The list of musicals designed by yourself at the back of the book is numerous. Is there a show that you are particularly fond of still to this day and why?
Fiddler on the Roof is one of my favourite shows simply because it has some great musical moments and the story is so well told that there were scenes that moved me every time, no matter how often I saw it. Company is dear to my heart, not least because of the opportunity to work with Hal Prince and Stephen Sondheim, but also because with the new mixing desk and the superb natural-sounding loudspeakers imported from America, I feel that this is when the quality of sound reinforcement in the UK took a great leap forward.

Then, of course, *Jesus Christ Superstar* was a joy. To sit at the back of the dress circle mixing a 40-piece orchestra, plus rock group and a large cast of singers (with no radio mics!) was bliss.

Is there any advice you would give to young professionals starting their journey into theatrical sound?
Sound in the theatre seems to have become all about vast amounts of equipment requiring computers to help control everything. It is in danger of being a technical exercise rather than an art. The only advice I can give to someone starting out is to learn to use the tools available but not to be dictated by them. Remember to use your ears. Also remember that loudness does not equate with excitement. Loudness is unpleasant and boring. The excitement and interest comes from variations in intensity. Loud is only effective if it is contrasted with

A FEW OF OUR FAVOURITE THINGS

BEN AND MAX RINGHAM
Recent theatre includes *The History Boys* (Sheffield Crucible), *The Hothouse* (Trafalgar Studios) *Paper Dolls* (Tricycle Theatre) *The Full Monty* (Sheffield Lyceum and UK tour), *The Architects* (Shunt), *NSFW* (Royal Court), *A Taste Of Honey* (Sheffield Crucible), *Scenes From An Execution* (National Theatre), *The School For Scandal* (Bath Theatre Royal). Ben and Max were nominated for a Best Sound Design Olivier for *Piaf*, *The Ladykillers* and as part of the creative team accepted a 'Best Overall Achievement in an Affiliate Theatre' Olivier award for *The Pride*.

Ben and Max are associate artists with the Shunt collective and two thirds of the band Superthriller.

So what are their favourite things?

iZotope Iris

This is a great new bit of software from iZotope. One of the biggest currencies in theatre is having sounds no one else has and Iris is an incredibly powerful tool for creating interesting sounds from field recordings. The interface allows you to select sounds from a visual representation of the sample across frequencies, using tools not unlike Photoshop. In *The Hot House* we used Iris-mangled recordings of everything from a squeaky garden gate to an NY subway vent.

Moog Minimoog Voyager

A classic analogue synth and one of our most prized studio possessions. It just sounds massive, nothing digital comes close and it has an external input so we route lots of stuff through the filter. But it's also gots lots of knobs and lights which makes you want to touch it, and consequently it gets used a lot! It's all over our score for *The History Boys*. Moog have just brought out a gold-plated version with pearl inlay for ten grand. If we had ten grand we'd buy one...

A sense of humour

A big necessity for those long techs. We don't always have one but find it more important than any amount of gear!

Blasts from the past
SOUND DESIGN IN THE 1980S

JOHN LEONARD

If the 1970s were the beginnings of the blossoming of sound design, the 1980s was the digital decade – so this article's mainly about the hardware, rather than advances in the design process.

In the space of ten years, the world of professional sound changed dramatically. For me, it started at the beginning of the decade, with the purchase and construction of a home-brew computer kit: the Nascom II. Based, like the cheap and cheerful Sinclair ZX80, around the versatile Z80 microprocessor, the relatively low-cost and plethora of expansion possibilities made the Nascom the nerd's device of choice. Three of us, the RSC's resident computer whizz, Leo Leibovici, electronics expert, Frank Bradley (then part of the RSC sound department and now running the Bristol Old Vic Theatre School's technical course) and me, spent a year or so designing, programming and building a computer-aided speaker routing/switching system as an add-on to the rather basic 10-4 mixer in The Pit Theatre, the RSC's afterthought studio theatre at The Barbican Centre.

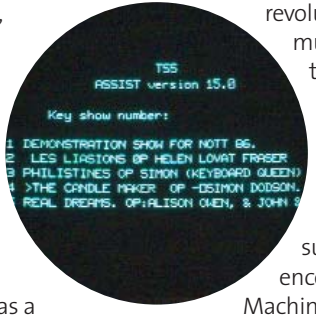
We weren't the first: the main theatre at the Barbican boasted a strange hybrid of sound desk and lighting board, built by an amalgam of ex-Theatre Projects Sound personnel and digital lighting control bods from Rank Strand. The Strand-Sound Sonnet featured recordable input and output routing, controlled by a modified Duet lighting console and was a one off, thankfully: I will say no more, because the memories are still painful.

Frustrated by what we saw as a degree of inflexibility in the main-house system, but hamstrung by a non-existent development budget, the three of us spent much of our own money and spare time developing our system which, by the time we'd finally finished tinkering, boasted the possibility of storing five shows, each with a possible ninety-nine cues, in battery-backed memory. A manual backup using illuminated switches allowed fail-safe operation and the operating system offered blind plotting, insertion of cues, a help-menu and various other options. We offered a version of this as a programmable cue-desk to RSC stage management at the time, but were fairly robustly rebuffed. They wanted the reassuring feel of a Pye-TMC Lever Key Switch under their fingers; none of this fancy, computer-driven stuff.

Elsewhere, the sound industry was changing rapidly: in the ten years from 1980, Yamaha alone produced the first affordable digital reverbs, followed by the first all-digital assignable console, the DMP-7D. Digital doo-dads from a proliferation of other companies sprung up like weeds and we were soon auto-panning, reverbing, echoing and harmonising with digital delight on every conceivable occasion. The RSC's

production of Peter Pan at The Barbican in 1982/3 featured a digitally enhanced Tinkerbell, courtesy of an MXR Pitch Transposer, for example, and the arrival of a high quality digital delay, Klark Teknik's DN700, made the use of delay speakers in musical theatre a much more practical proposition, with the ability to time-delay their output back to the stage image.
In the world of playback, change was slower, with reel-to-reel tape and NAB Cartridge players slowly being abandoned in a piecemeal fashion as MIDI-sequencing and samplers became more affordable. Akai, Roland and E-MU samplers along with various systems of triggering them for playback became a common sight in many theatres towards the end of the decade, with Akai's S-series eventually becoming king and lasting many years, before finally being dethroned by ever more complex hard-disk-based playback systems. Attempts at harnessing Digital Audio Tape (DAT) for theatre playback were less than successful, with the modified Sony Radio-DAT machine being the only viable (and hugely expensive) option, but DAT soon became the standard for effects gathering and music mastering, as lower cost portable recorders with digital outputs became more widely available. Yamaha also came up with the first more-or-less affordable CD-R machines and I believe I was the first to use custom-made CD-Rs as a playback source, produced on a prototype Yamaha PDS towards the end of 1989.

The hideousness of DART, DigiCart, MiniDisc and other ill-conceived attempts at producing digital playback devices was all to come and we ended the eighties in a reasonably stable state.



Two other major innovations came about in the 1980s: the first, initially developed by a couple of University of California graduates as a means of editing and producing samples for an E-MU drum machine, The Drumulator, evolved into what is now the industry standard for computer-based music recording and editing, Pro Tools. Released in 1989 in its original guise as Sound Tools, the system was just about affordable; the killer, in the UK at least, was the huge cost of the Apple Macintosh II computer needed to make the whole thing work. In those days, you could get a cheap flight to New York, buy a Macintosh computer, have a couple of days' holiday, fly home, declare the purchase, pay the import duty and tax and it was still cheaper than buying the system here. Regardless of that this really was a product that changed completely the way we work today, as did the second innovation of the 1980s.

In 1982, a group of American and Japanese synthesizer manufacturers got together to agree on a digital control standard that would revolutionise the world of electronic music and impact heavily on theatre sound. MIDI (Musical Instrument Digital Interface) first became available on the Sequential Circuits Prophet 600 in 1983 and the MIDI standard has been greatly expanded in the subsequent thirty years, encompassing add-ons such as MIDI Machine Control, MIDI Timecode and, importantly for the entertainment industry, MIDI Show Control. Long-time theatre sound innovator Charlie Richmond was at the head of the development group that saw this important sub-set of the MIDI standard through its ratification process, but discussion of that belongs in the next decade.

There was one other major development that could have massively changed the face of theatre sound, but that never saw the light of day: in the mid-1980s, the same group of RSC sound men posited a system that they named DAISY – Digital-Analog Interface SYstem – which comprised a portable digital control surface with a central assignable channel strip, talking to a remote rack of analog signal processing gear; with full state recall, redundancy, and many other innovative properties. "Oh no", we were told, "no-one would want a system like that."

How to create a basic sound effects database

RICH WALSH

I can still remember the excitement of going to Our Price in 1992 to collect my first proper sound effects CD – ordered specially while I was working on the Oxford Revue. After about 20 CDs it started to become impossible to remember where, say, the best arctic wind would be located – or whether or not I had an ice cream van. Searching for sound effects became a tedious process of trawling through sleeve notes and paper catalogues, and then laboriously loading CDs one at a time to audition the sounds.

To try to improve this process I progressed slowly through a variety of applications until finally, a breakthrough: I bought myself a copy of Soundminer Pro – and this represents the single best investment I have ever made for my craft.

Before we go any further, let's just clarify what I mean by a 'sound effects database': an application that allows you to search and audition sound effects you have previously ripped/copied to a hard drive and then transfer them to your DAW for editing. The search should examine any metadata ingested when you created the database, such as descriptions of the sounds, categories, and so on.

Surely I can do all this in iTunes/Spotlight, can't I?
You can indeed pop your commercial sound effects CD into your computer, accept the metadata – ie: track names – from CDDB (if it's there), rip the CD to wav and then search iTunes

before dragging and dropping the file to copy it where you need it. I seriously think you are wasting your time if you try to manage a sound effects database in iTunes though (or, worse still, the Finder with Spotlight searching). Here's why:

- It will be a lot more work to set up and much slower to use
- It doesn't scale well: a lot of sound effects would choke iTunes
- It isn't easy to keep your sound effects collection separate from your Justin Bieber collection
- Searching only by filename really isn't going to make best use of your assets
- There's no waveform view, no varispeed, no editing, no concept of a 'DAW', and so on...

Why soundminer?

Back in 2004 there didn't seem to be any serious competition, and I've not had any cause to be disappointed since. One of the many great things about Soundminer is that you can demo any of the versions for 30 days (store.soundminer.com/demo).

If you have absolutely no idea what all this is about, take a look at the video on store.soundminer.com/product-tour/.

Metadata

Maybe it's time to say a little more about what is meant by metadata. Not that long ago, filenames were limited to 31 characters – which isn't a great many to describe exactly how echoey that dog is, what type of dog, where it was recorded, what time of day, what emotions the barking invokes and so on.

Enter metadata: the ability to enrich the audio file with not just its name (and boring stuff like sample rate, etc), but a description too.

You can read more about metadata in Soundminer's white paper (www.soundminer.com/current/MI_Whitepaper.pdf) or in this interesting set of articles: designingsound.org/2010/12/frank-bry-special-methods-of-a-metadata-madman-part-1/.

Tip: try to give every file a unique filename – it will make life easier in the long run; this is a useful article: www.jetstreaming.org/2013/04/04/15-tips-for-naming-sound-effects/

WHICH VERSION?

Soundminer is available in four versions (see store.soundminer.com/blog/product-comparison/)

1. HD $199 (c£130)
2. HDplus $399 (c£260)
3. v4 $599 (c£390)
4. v4Pro $899 (c£580).

For just $199, HD is really quite pokey. What's more, if you ever feel constrained by your current version, upgrading to the next level costs only the difference.

HDplus adds more extensive metadata support and the ability to spot directly to the timeline of most DAWs; v4 includes the thesaurus, ReWire, support for any sample rate and better project tools; v4Pro adds VST support and quite a lot else.

How to get sound effects and metadata into the library

For the rest of this article I'm going to assume you're using Soundminer HD, and on a Mac. It's worth having a look at Soundminer's own tutorial video (smftp.s3.amazonaws.com/HD_metaimport.mov) and Gareth Fry's blog article on this process (garethfry.wordpress.com/2011/01/12/creating-a-sound-effects-library-with-metadata/).

Your sound effects files probably fall into one of these four types: 1. Files you have created/recorded yourself; 2. Files you have downloaded or received on a hard drive that are already 'Soundminer ready'; 3. Files you have previously copied from a CD without embedding the full metadata available for them (eg: Sound Ideas 6001 CD, imported via iTunes); and 4. Files that are still on audio CDs

If you have a lot of the last type, you should look into buying Ripper (store.soundminer.com/macintosh-products/ripper-v4-for-mac.html); for $250 it will digitise almost any commercial CD with extremely thorough metadata, saving you a great deal of time. About 60% of my database was created this way, the rest was almost all supplied as 'Soundminer ready' files. Even if you have already ripped some commercial CDs without Ripper it is worth ripping them again for the quality of the metadata you will get with so much less effort than the process described below.

Tip: rip to wav; you will regret it if you ever rip in any other format: wav/BWF is the most universally-compatible audio file format

If you don't want to go down the Ripper route, I would use iTunes to rip any remaining CDs to wav, leaving the option to include track number on (i.e. tick 'Keep iTunes Media Folder organised' on the 'Advanced' tab of iTunes Preferences) – this will make it a lot easier to match up any metadata later. You can always use your favourite batch renaming tool later to tidy the filenames.

The second type of files should be the easiest to deal with: drop them into SM and you should be good to go. However, I would still run them through the process below in order to clean up the included metadata.

Drag, dump, massage, import, embed
Essentially, you need to introduce SM to the audio files, make a text file of the metadata for them, and then have SM merge the metadata with the audio, embedding it for posterity in the process.

Step one
You're going to need at least two databases in SMHD, one as your main database and one for the process of embedding metadata in new files before ingesting them into the main database (let's call this database 'Importing'). When creating them, select the 'SoundEffects Database Template'.

Marshal a bunch of files you want to process into a single sensible location on your hard drive. I would not recommend trying to process more than about 2,500 files in one go. It is also vitally important that you have only unique filenames in each batch of files you process, as this is how SM matches the metadata up. It will be easier to work in files of only one type at a time too (i.e. don't try to process Premiere Edition CDs at the same time as Soundsnap downloads).
Tip: add some pictures; I resisted it for a long time, but am now fully converted to the idea of having an image associated with each sound: it's particularly useful if you have photos of what made the sound, rather than just 'album artwork'; if you put a jpg in a folder of sounds, SMHD will associate that artwork with all of those sounds, and allow you to embed it later

Open your 'Importing' database in SMHD. It should not contain any records at this point: 'Database>Delete All Records' if needs be. Drag the files onto the SM browser: it will scan the files and extract any useful information it can from whatever is embedded in the file and attempt to populate the Description field. As a bare minimum, you should aim to have a sensible entry in this field embedded into the metadata of every file in your library; if possible, also include an entry for the Category field.

Step two
Make sure you are displaying all the columns you are interested in and all the records in the 'Importing' database ('cmd-J'). Select 'Edit>Dump Results to Text'; save the resulting tab-delimited text file somewhere sensible (you can delete it later).

Note, however, that SMHD only supports embedding into the Description and Category fields, so you're wasting your time populating any other fields with this version.

Step three
Drop the text file onto your Excel icon (or equivalent) – this will bypass a lot of tedious mucking about with import dialogs. Now begins

ALTERNATIVE MAC OS SOFTWARE
AudioFinder (www.icedaudio.com, $69.95): my immediate impression is that it isn't going to scale well once you have more than a few thousand files to manage.

BaseHead (www.baseheadinc.com, $299): similar to SM with some extra features (eg: reverse playback), but requires a CMStick.

Library Monkey (www.monkey-tools.com, c£90-£320): this is worth a careful look – it appears to have a built-in ripper, batch processing tools and AU support.

NetMix PRO (www.creativenetworkdesign.com; POA): in 2006 the cheaper NetMix LE was a serious contender, so it was what I instituted for the National Theatre; however, for the individual user SM feels easier to use; plus, there is no longer an entry-level version of NetMix.

I've also had a look at **Sound Ideas' Metadigger** (www.sound-ideas.com/metadigger-free-metadata-management-software.html, free), but it does not appear to be able to embed metadata, has no waveform display and was very sluggish with even just 50 sounds.

the fun. You don't need the 'RecID' column: delete it (along with any 'hard' information columns, such as BitDepth, SampleRate, Duration). DO NOT delete the Filename column! Now, populate the Description cells.

There are various techniques for this. You can copy and paste the Filename column onto the Description column (remember to change the top row back to 'Description' if you do this), and then search and replace just the Description column to remove all occurrences of '.wav'. This is probably the best bet if the only information you have about a sound is its filename.

If it's your own files, you'll need to type your own entries by hand. I recommend adopting a consistent style for your descriptions sooner rather than later.

Tip: 'General' format your cells; in Excel you can set the 'Number' format for cells; although 'Text' might seem the obvious choice for text entry, it is limited to 256 characters, so has a tendency to truncate things; 'General' doesn't do this, and SM's Description field is also capable of supporting more than 256 characters.

Most likely, it's files that have come from commercial CDs though. You can get the metadata for the two main sources of sound effects CDs from: www.hollywoodedge.com/Search-Engine-Databases-C74.aspx – a runtime FileMaker database that exports text files – and www.sound-ideas.com/sound-ideas-ascii-files.html – raw text files for each library.

A specific example of massaging

This is the bit that's hardest – and hardest to be general about: lining up the metadata from a manufacturer's text file with the filenames you have. You'll need to work this out on a case-by-case basis, but let's look at Sound Ideas CD 6001. If you've ripped via iTunes, you should have 57 tracks called (possibly without the track numbers):

01. Airplane,Biplane Stearman_From Cockpit,Start,Idle.wav
02. Airplane,Biplane Stearman_From Cockpit,Idle,Take Off.wav
03. Airplane,Biplane Stearman_From Cockpit,Idle,Take Off.wav etc

What you've got to do is open the file in Excel – see right – and transfer the contents of column

D into the Description column of the file exported from SM. In this case, it's simply a matter of copying and pasting into the other file as the rows are in the same order.

Things get more tricky if you're dealing with indexes as well as tracks, or if you need to reorder the rows: familiarise yourself with the Excel '&' (concatenate text) and 'EXACT' functions to help compare cells... This article would be even longer if I tried to cover indexes too!

Whatever you do, I'd also recommend you do this as the final stage of massaging your metadata:

1. Click on the word 'Description' and 'shift-cmd-down arrow' to select all the entries; press 'cmd-C' to copy
2. Switch to TextEdit and open a new empty document; press 'shift-alt-cmd-V' to paste without formatting
3. Press 'cmd-A' to select all, then right-click and select 'Transformations>Capitalize': it is generally much easier to read the results of a search if all the text is capitalised; press 'cmd-C' to copy
4. Switch back to Excel and press 'cmd-V' to paste over the selection you made earlier
5. Spell check any columns you have modified (DO NOT spell check the Filename column): searching isn't going to work very well if you

have spelling mistakes! Also, this step will correct any acronyms that have been corrupted by the capitalisation step above (eg: 'LFE' to 'Lfe')
Tip: watch out for accents; I've had a few issues over the years with words like café – for example, it doesn't come up in searches for 'cafe' – so I try to remove any characters like é & è, … (ellipsis), – & — (en & em dashes: longer than a normal hyphen), ` (grave accent, sometimes used instead of an apostrophe by mistake), double spaces and "typographer's quotes".

Step four
Now that you have the metadata you want for the audio files ready in the text file in Excel, save the file (still as a text file). Switch back to SM and select 'Database>Import Text'; select the text file when prompted, and then the root folder that contains the sounds as discussed above. SM will relink the new metadata to the files. NB: you need to set the 'Rescan option' in SM's preferences to 'Re-read metadata' for this to work.

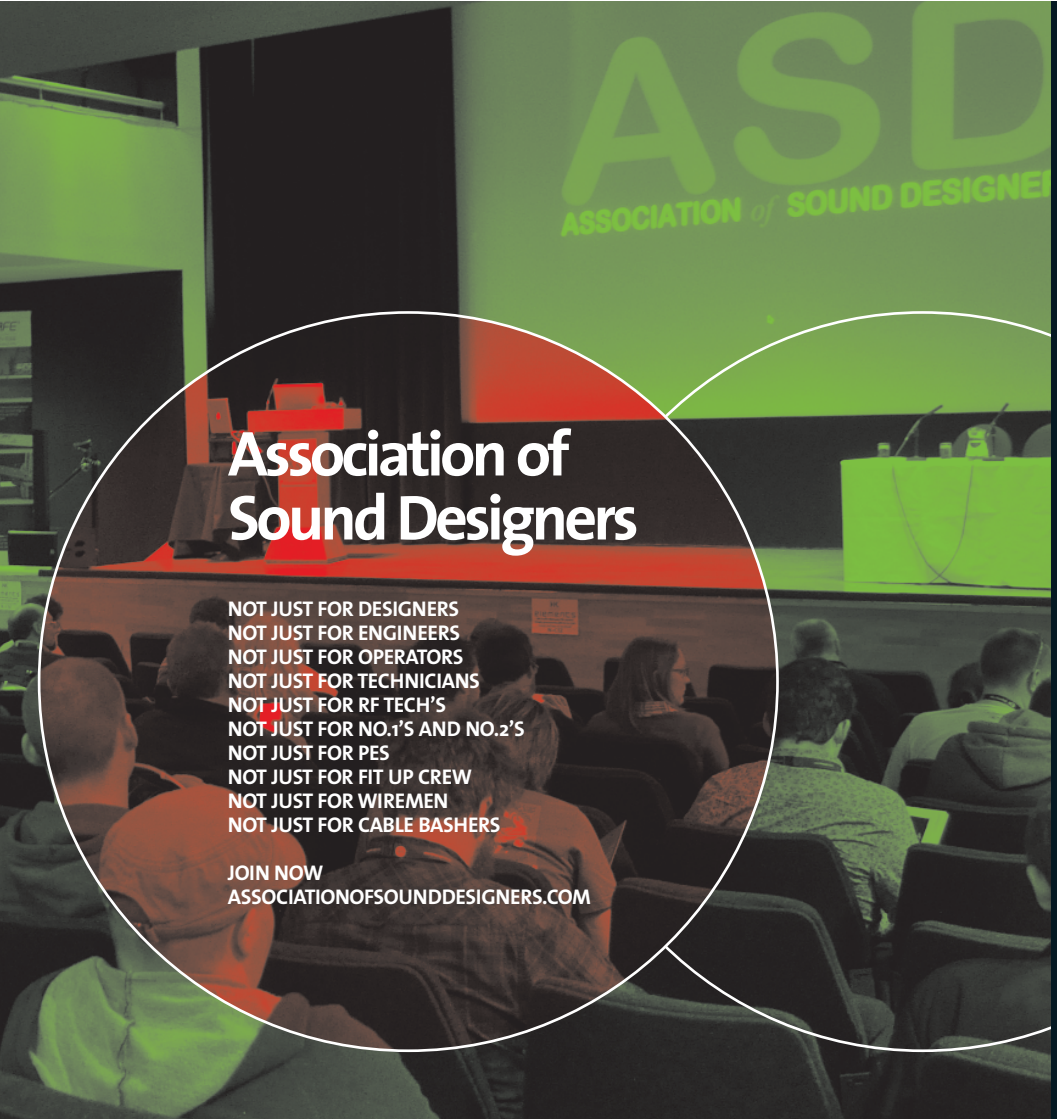
If you have any trouble with the file, select the relevant cells in Excel and copy and paste them into a new plain text file in TextEdit before saving and using this file instead (sometimes Excel adds extra empty columns, etc).

Now, if you show all records in SMHD you should see that the files have the shiny new metadata you have lovingly made attached to them.

Step five
The final step is to backup this metadata by writing it directly into the files themselves. In SMHD, press 'cmd-J' then 'cmd-A' to select all the records. Right-click and select 'Embed Selected': this will embed all the ingested metadata – including artwork – into the files themselves, and in such a way that any version of SM can read it. SMHD won't embed the BWF fields though.

Your files are now ready to be added to your main database: move them to their final destination (do any batch renaming you want on the way, such as removing track numbers), delete all the records from the 'Importing' database, switch to your main database and drop the processed files into SM: they should appear with the metadata you've embedded in them. Happy searching!

MORE INFO
For further info, hints and tips, visit www.associationofsounddesigners.com/sfxdatabasing



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