



The recital hall of Anglia Ruskin University, Cambridge: the large space allowed more mic choice and placement options than Neil's studio.

# SESSION Notes

THE PRACTICAL CRAFT OF RECORDING

**Brass on location:** Our engineer tracks a trombone ensemble and solo trumpet for use in a contemporary rock mix.

NEIL ROGERS

With Dave Stewart's series on pop brass arranging (<http://sosm.ag/top-brass-pt1>) coming to an end last month, I thought I'd pick up the brass baton here in Session Notes: I'll describe how I approached the location recording of a trombone-heavy brass section and a solo trumpet.

To anyone whose experience of brass is limited to recorded parts and sample libraries, these can be surprisingly powerful instruments, so I'll explain how I chose to capture these instruments in a way that meant they'd work for one particular project. Regular readers may recall the I Strip For Couples project of producer/composer Jason Williams — I discussed working with him in SOS May 2014 (<http://sosm.ag/may14-mixrescue>). Jason's tracks make use of a broad and often complex collection of instruments, ranging

from traditional rock-band elements to full-blown strings, rap vocals, bagpipes and so on. For consideration in this session were two tracks: a piece called 'J Fears M', which Jason felt would benefit from the addition of trombones, and a track called 'Ladyfingers', which includes a searing, improvised trumpet piece when performed live.

### Room Mates

Like many engineers, I work mostly from the comfort of my own studio. Based in Cambridge, though, I'm fortunate that there are quite a few local buildings and large spaces that aren't too difficult to get access to for short recording sessions — I find that you just need to know someone who works there or even just ask nicely. It's well worth investigating the spaces that might be available to you locally, wherever you live, as your studio won't always be the right option and a large commercial one can be prohibitively expensive for many projects.

For this session, I managed to get into the music department's recital hall at Anglia Ruskin University for a few hours at quite short notice. This is a lovely sounding room which is big enough to have its own natural reverb, but it has also been professionally treated so that the reverberation is nicely balanced and controlled. It's also a big enough space that if you close-mic an instrument it actually sounds fairly dry: the reflections have to travel quite a way to get to and from the walls and ceiling.

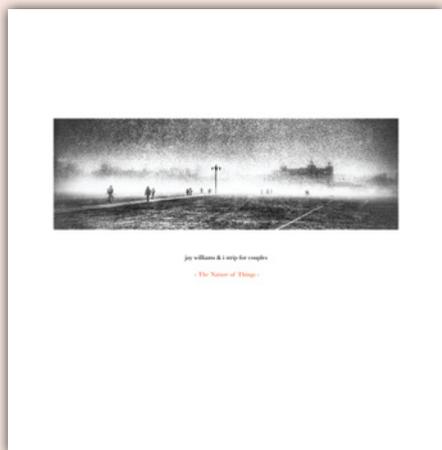
The downside was the short notice: I have a small mobile recording setup, based around an RME Babyface audio interface, and plenty of mics, stands and cables. But the Babyface has only two analogue inputs and I needed very quickly to find a way of expanding the channel count, both to give me the option of using more than two mics, and to allow me to create headphone foldback mixes for at least six people. It's a scenario that I'm sure many readers can relate to: I racked my brain and made a few phone calls to friends who might have a few bits of kit I could borrow at short notice. After a little work I was able to source from a friend an RME Octamic II, which would add eight mic preamps to my Babyface via its ADAT port. That meant I now had 10 recording channels to play with. In theory, with this and a six-channel headphone amp I'd managed to borrow, I had everything I needed. I'd not had sufficient time to

## Recorded This Month

The recording session featured in this article was part of the sessions that formed Jason Williams' I Strip For Couples project, which is now available as a very luxurious double-vinyl album. Initially conceived as a live spectacle, the album is Jason's attempt to match the scale and ambition of some of his favourite childhood recordings by the likes of Jeff Wayne and the Who. Written and arranged by Jason himself, the album is called *The Nature of Things* and fuses traditional rock-band elements with large-scale string arrangements, brass, rap and operatic vocals, bagpipes, and most things in between!

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test the whole system before the session... but what could possibly go wrong?

### Mics & Musicians

I get the chance to record brass perhaps only a couple of times a year, and every time I'm initially quite surprised by how much 'power' and 'attack' can come out of a trumpet, trombone or saxophone. In a live scenario, this initial part of the sound is often all you seem to hear and often all you need, and that's perhaps why you often see a moving-coil dynamic mic, such as Sennheiser MD421 or SM57, or a specialist miniature clip-on microphone such as those made by DPA, positioned fairly crudely right in front of, or sometimes just inside, the instrument's soundhole or bell. While this is sometimes the only practical option for achieving enough isolation in a busy live stage setup, in the studio, and especially in a decent-sounding room, you have the opportunity to position the mic a bit further away, giving the sound a chance to develop more fully before it meets the mic. A trumpet or trombone is capable of chucking out upwards of 130dB SPL, and beyond the initial 'attack' and 'power' there are plenty of rich and complex harmonics to

brass instruments, and a surprisingly large dynamic range. Capturing the right balance of these elements is what will hopefully give you a full, rich-sounding brass recording — so you don't need immediately to reach for the EQ and reverb.

Both the choice and the position of microphone can have an enormous impact on the quality of your brass recordings, and the two are, to some extent, interlinked. For instance, moving your mic further back from such a loud source will increase your options in terms of mic choice, as many capacitor or ribbon mics — particularly older designs — are going to struggle to if positioned too close, the former at risk of overloading and the latter of damaging the ribbon.

I find that brass can highlight any shortcomings of lesser-quality microphones quite dramatically. Although a trombone's fundamental frequency is centred around 550Hz, it produces plenty of very meaningful frequency elements much lower than this and extends well beyond 10kHz. This extended frequency range probably explains why I tend to favour good-quality large-diaphragm condenser mics for this task — although it has to be said that both ribbon mics and pencil-style condensers

can also produce great-sounding results with careful placement, and there will be times when you want a certain sound that a coloured-sounding dynamic mic, such as an AKG D12, will give you what you want.

If you're recording a group of brass players at the same time without some fairly sophisticated gobos or other means of isolating players — it's usually best to maintain a line of sight between musicians — you just need to accept and embrace spill. While you might still choose to employ close mics on each instrument (just to give a little more flexibility at mixdown), you'll need to spend plenty of time considering how best you'll capture the sound of the group as a whole. I find that most of the conventional stereo mic techniques can work well, including an X-Y setup, spaced omnis, Mid/Sides and ORTF, but as well as thinking about mic placement, consider the positioning of the players themselves, as it's much easier to record if you can achieve the right natural balance between all the musicians in the first place!

Another consideration when it comes to mic placement is the non-musical noises made by the instrument. On this session, four trombones played together and in such >>

» situations you need to be aware that there are quite a few moving parts. The audience won't usually hear much of the mechanical noise and it's usually desirable to minimise it where possible when recording — another good reason to get the mics a little further away from the instrument.

## The Bones

My plan was that the main bulk of the recording session would focus on the four trombonists, known collectively as the Bones, leaving us with an hour or so to complete the recording by capturing the trumpet playing of Terry Hope. Tackling the Bones first, my plan was first to try and space them out a little, still keeping them roughly in a line but in a slight arc — a layout to which I knew they were accustomed. I had enough large-diaphragm capacitor mics available to dedicate one to each player and, although I knew I was going to get mountains of bleed, my objective was to get just enough control to be able to do some rough rebalancing between the four trombonists later, if required.

As I mentioned, I was keen to get a little distance between the instruments and the mics, but I also wanted to avoid the mics pointing straight (on axis) at the bell of the instrument. I chose to place the mics slightly above the trombones to achieve this, and each mic was at least three or four feet away from its main intended sound source. I also had a spare high-quality dynamic mic kicking about in the form of a Beyerdynamic M88, which is hypercardioid in polar pattern, and placed this as a second close mic on one of the trombonists. Partly this was a bit of a wildcard option, but it also provided me with a useful point of reference.

In addition to these 'closer' mics, I opted to use my trusty Royer SF-12 stereo ribbon mic to capture an image of the whole ensemble from a bit further back, where the sound should be a little more natural. As well as being quick to work with (the stereo setup's already done for you), I find that mics like this Royer really shine in a bigger room — presumably because the figure-of-eight pattern means it captures a stereo image from the rear as well as the front. In this case, I spent a good few minutes walking around, using my ears, trying to find what I thought was a good spot in which to place this mic before settling on one which gave me a nice spread of the instruments while also highlighting the great space we were recording in. Then, listening carefully to the warm-ups, I could hear one trombone just 'poking through' a little more than the



Neil takes a little time to assess the sound and balance of the Bones. You can see the AKG C214 condensers employed as close mics on the two most distant trombones, and a Neumann U87 and Blue Baby Bottle perform the same duties for the two instruments in the foreground.

others, so asked that player to move back just a few feet. It's far better to balance things at this stage than try to unpick things at mixdown.

It's important to take time to set things up for a great recording, but you do need to remember that musicians are human! You can often feel a slight change in atmosphere when they start to worry a little about the clock and get a bit twitchy. Sensing that this time was almost upon us, and recognising the need to move things on, I still had a few things to do: although confident with the sounds going into my hastily improvised recording system, I wanted to make sure there was no funny business going on with the unfamiliar setup. How you manage such moments in a recording session is one of the things that comes naturally with experience, but one lesson you can learn early on is to not leave people uncertain — I find that almost all musicians react better if they're confident that someone's steering the ship and they know what's happening when. In this case, I made a point of politely but firmly informing everyone that I was really happy with how everything was sounding, but just needed five more minutes to attend to some details before we'd commence recording.

## Happy Headphones

Once I was as confident as I could be with the sounds coming in to my recorder, I made sure I had a basic but workable headphone setup in place. Things were simple out of necessity, with all the players

sharing the same mix. It might seem obvious, but when using multi-headphone setups it's best to make a point of asking the musicians if they're happy with what they're hearing. I've got halfway through some sessions only for someone quietly to mention that their headphones seem a bit quiet — at which point a quick check revealed a fault, and that they'd been playing along to a crackly sounding backing track for the past half hour, wondering if they should say anything!

At the other end of the spectrum is the player who is very specific about how they like their foldback mix. This can be a great help or a hindrance, according to how realistic their expectations are given the setup at your disposal. If you're in a situation like this and think it's appropriate, it's perhaps worth explaining briefly why you can't have individual headphone mixes for six people on this occasion. At the very least, make a point of actually having a quick listen to all the sets of headphones just to check everything is clear and working as it should be. Another good tip during your initial setup is to make sure that if you're using different brands of headphones that they are roughly comparable in volume before you start. A decent-quality headphone amp, with independently adjustable control over the level of multiple outputs is your best friend in these types of sessions — one of those dull but essential investments that will soon pay for itself. In short, even if the musicians seem happy with their foldback mix, it's worth being proactive and methodical,



When close-miking brass instruments it's important to bear in mind that they make mechanical noise when played — something that an audience usually won't hear a great deal of, but which mics will pick up quite ruthlessly!

really important. I can't stress enough how important it is at this point in a session to really train your focus on the performance: although

making sure you hear what's in their cans and check that they're content.

### Trombones In Action

Once we were ready to hit Record things moved fairly quickly, and we got a few takes down with little fuss. After a slightly fiddly setting-up period, and with an unfamiliar recording rig such as this, it can almost feel like a relief just to be getting stuff down like this, but there's a real risk that this feeling leads you to lose sense of what's

getting a good sound from your mics is very important, remember that timing, pitch and feel are the issues that the listener will ultimately connect to.

With such thoughts in mind, although things were sounding great and everyone seemed fairly happy, I felt that the brass seemed a little detached from the music at one particular point in the track, and made my opinions politely known. This kind of intervention usually goes down pretty well if delivered tactfully — I find that most

musicians realise instantly that you care deeply about the finished product, and that you're professional and experienced enough to be able to tell the difference between one take and another. I explained that I thought it was getting better and better with each take and wanted to see if this upward curve in performance would continue. Sure enough, we played on, and by the fifth and sixth pass everyone, myself included, felt like we had it in the bag. I could hear a tiny timing issue in the best take but realised both that I'd probably pushed this issue as far as I could, and that I'd be able to drop in a better previous take for that particular section, so we moved on.

### Trumpet

With the Bones all packed away, we had about 45 minutes to get some trumpet parts down. A good trumpet player is a real joy to record and as we already had all the mics from the trombones, I indulged myself by using two mics to capture a close sound as well as leaving my stereo room mic up. I'm fortunate enough to have an older Neumann U87, which I find sounds great >>

## Audio Examples

Audio files from this session are available for you to download on the *SOS* web site.

W <http://sosm.ag/sep15media>

» on trumpet. I positioned this using a similar principle to the trombones, getting a good four or five feet between the cone and the mic, to allow the sound to propagate, and also coming from slightly above to keep it off axis. As another option, I employed the 'wildcard' Beyerdynamic M88, positioned about two feet back and off axis, towards the side rather than above this time.

It's worth mentioning that, given the march of the clock, I was working mainly by instinct by this point; there was precious little time for fine-tuning my mic-placement choices. When we hit record, however, it immediately struck me just how good the stereo room mic sounded — it captured a beautiful, natural reverb that you just can't get easily from any software. What I'd give to have a room like that to record in all the time!

I felt for our trumpet player, Terry, as he'd had to wait around while the trombones finished up and, like me, was now somewhat under pressure to perform against the clock. This was far from ideal for a player who likes to improvise, as it's all about getting in the right frame of mind and finding the right 'pocket' to play in. Bearing this in mind, I tried my best to keep things calm and flowing, and just kept recording as many takes as I could squeeze out of him. I normally like to evaluate performances as I record, but that ideal went completely out the window. It was very much a case of getting things down and getting out of there!

## Back To The Lab

Back in my own studio, I could evaluate what I'd captured in more detail and think in a more focused way about fitting the parts into their respective mixes. To my horror, I could hear instantly that a gremlin had reared its ugly head — what I'd thought, while tracking, was a mechanical sound from the trombones, was a quiet but repeated clicking on all the close-mic channels, which can probably be attributed to a clocking issue between the Octamic D and the Babyface. Thankfully, it didn't prove problematic in the mix at all, and was only really noticeable when listening in solo on headphones. So rather than kick myself, I chalked it down to a lesson learned — that flying into sessions without pre-testing

your recording rig should be avoided wherever possible, and I determined to make the best of what I'd got.

Looking at the trombones first, I was really pleased with how the stereo room mic sounded. I was also pleasantly surprised at the amount of balance control the close mics afforded me, and was able to get what I thought were the stronger players to push through in a musically useful but unobtrusive way. To fit them into what was already a fairly dense mix I opted for compression, using about 4-5 dB of gain reduction with fast-ish attack and release to help them sit in place. I also found myself adding a little shelving EQ boost above 10kHz just to help things cut through a bit more. Although the room mics provided a nice sense of space, things seemed to work better in this mix when I sat the brass parts a bit further back by sending a little of them to one of the longer reverbs I was already using the mix already.

For the trumpet, I was again impressed with the room sound, but to my slight disappointment I found that the part fitted better in the mix when bedded in with some shared longer mix reverbs! It can be quite hard to make yourself mute a channel that sounds so wonderful on its own, but it's a common scenario when mixing stuff you've recorded yourself. It's hugely important to be able to separate your pleasure at having captured a great-sounding performance from your job of determining what's best for the mix. Never let your pride get in the way of the best end result!

Inevitably, the slightly hurried nature of the recording meant there wasn't a best 'complete' trumpet take, so I ended up doing a little comping of Terry's performances. This wasn't problematic or, I hope, noticeable to any listener. In terms of getting the resulting part to work in the mix, I ended up using a blend of signals captured using the U87 and M88 mics. Although this involved removing a little low end to make the mics work together, it seemed to produce a sound that cut through the mix better than before, with very little trade-off. As with the trombones, some compression worked really well and I applied a little EQ



Two close mics were used on Terry Hope's trumpet, a Neumann U87 and a Beyerdynamic M88, and in the event a blend of both was used in the final mix.



shelving boost, but this time at the low end (150Hz) to 'fill things out' a little.

## Conclusions

I really enjoy getting the opportunity to record brass and recommend that you try it yourself if you haven't already. It provides a welcome change from my normal fare of drums, guitars and so on, but I also find that working with instruments like this makes me think about engineering in a more old-school way; I find myself moving musicians about more and thinking about capturing a group of players as a whole.

Looking back at this session, the brass added a really nice element to the tracks and the live nature of the recording felt right. Given the density of the tracks they were sitting in, we'd probably have managed passable results in a smaller room, but I think decamping to the bigger space was worth the extra effort. Working in a large room is something many of us don't do enough these days and it makes you appreciate some of the compromises you end up making when working in a smaller studio. It's definitely easier to get full, natural recordings if you can get the mic a little further away from the source and the room is working with you rather than against you.

So what could I have done differently? Even though it wasn't an problem in the end, I was disappointed that I'd missed the clocking issue, but then I did have limited monitoring facilities and time — and I'd like to think I would have picked up on it in good time if it had been in any way worse! In terms of recording technique, I felt that the mic placement worked really well and the fact that I had some level control in the mix, courtesy the spill-filled close mics, was genuinely useful. Now, if only I could stick that live room on to the side of my control room, with a nice big viewing window, I could have some real fun! **///**

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