INSIDE TRACK

Secrets Of The Mix Engineers: Mike Crossey

The 1975's chart-topping album is just one of a string of hit debuts engineered, mixed and produced by Mike Crossey.

PAUL TINGEN

Mike Crossey is a man of many talents, two of which are a knack for propelling unknown acts to the top of the hit parade, and the ability to mix tracks that sound amazing on the radio. Speaking from his large SSL room in Livingston Studios in north-west London, Crossey comments: "I think I like doing debut albums the most, because you get such huge enthusiasm from the band. For any band recording their first album is an incredible experience, and I love having that kind of energy in the room: if you can harness some of that and get it onto the record you get fantastic results. The Arctic Monkeys' debut EP [*Five Minutes With The Arctic Monkeys, 2005*] and Jake Bugg's debut album [*Jake Bugg, 2012*] contain very different music but were recorded in very similar fashion: both acts were very young at the time of making these records and I wanted to capture the energy you have at that age as authentically as possible. I set them up to play live in a room without headphones, as if they were in a rehearsal room, with everything bleeding into each other and going straight to tape. It worked and resulted in this incredible energy. Conversely, the 1975's debut album was recorded over several weeks and had 100-track Pro Tools sessions and lots of thought going into arrangements and programming. It's important not to impose some personal production style."

Crossey's track record during his 10-year career to date is hugely impressive. New

Mike Crossey at the SSL desk in Livingston Studios where *The 1975* was mixed.

artists who have achieved success on his watch include not only the Arctic Monkeys, Bugg (whose debut album reached number one in the UK), and the 1975 (another UK number one), but also Ben Howard and Foals. He's also worked with Ray Davies, Keane, Razorlight and OMD, while acts like Two Door Cinema Club, Black Keys, My Morning Jacket, Theme Park, and CSS have asked him to mix their singles for radio.

Born in Belfast, Crossey began his career as a guitarist playing in bands. He moved to Liverpool in 1998 to study Sound Technology at the city's Liverpool Institute for Performing Arts, and after that, ended up working in the Neve room at Motor Museum Studios, which is owned by Andy McCluskey of OMD. This led Crossey to work predominantly on electronic music for the first few years after he left college, an experience which stood him in good stead with Wilmslow band the 1975, whose ear-catching blend of guitars and electronics is framed in a production approach that's strongly influenced by the 1980s.

"After these years of working predominately with pop music that involved a lot of programming, I had a period of rebellion to it, during which I fell out with computers and wanted to work all-analogue and solely with tape machines," remarked Crossey. "I was inspired by the Steve Albini approach and worked with many guitar bands. These days, I'm somewhere in the middle, and so last year I was talking with my manager about finding this mythical band that blends pop, commerciality, programming and electronic elements with being a guitar band with real instruments, credibility and ambition. I then heard the 1975 demos, and I immediately loved the songs and vibe of the band. That combination of guitars and electronic elements that I was looking for was right there, they just needed someone to help them make their record."

What's In A Name?

Singer/guitarist Matthew Healy (son of Denise Welch and Tim Healy), guitarist Adam Hann, bassist Ross MacDonald and drummer George Daniel have been playing together since 2002, but it was not until they hit on the name the 1975 in 2012 (apparently inspired by some '60s beat poetry scribblings) that things started coming together for them. Despite being rejected by all the major labels they were picked up by artist manager Jamie Oborne, who runs a small label called Dirty Hit. The band released a self-recorded and produced EP called *Facedown* in August, and then approached Crossey to help them get to the next stage. His additional production and mix of two tracks, 'Sex' and 'You' on the band's second EP, *Sex*, released in November, helped gain the title track some popular attention. Two more EPs followed — *Music For Cars* (March 2013) and *IV* (May 2013) — with Crossey producing and mixing the respective lead singles, 'Chocolate' and 'The City', and the band doing the other tracks themselves. Their debut album, *The 1975*, which included both singles and an updated version of 'Sex' was unveiled in September. It reached number one in the UK and number 28 in the US, and was at the time of writing still climbing the charts in other countries as well.

'Chocolate'

Written by George Daniel, Matthew Healy, Adam Hann and Ross MacDonald
Produced by Mike Crossey and the 1975

Crossey describes how he began the process of steering another unknown act to the top of the charts: "We did a week of pre-production in their studio, during which we mainly discussed the aesthetics of the album and listened to lots of records together to get a sense of where we could go with each track. Their tracks cross quite a few different styles, so it was really important to make sure that the production had a strong sense of character, a fingerprint that would help define the music as immediately identifiable. One of the things that the band was really clear on was that they wanted to make an album with a colourful, widescreen sound, which had many contrasts in it. They are very much into the soundtracks to 1980s films, as well as Michael Jackson, and this was reflected in the sound image that we were going for. We were not trying to make something that was lo-fi! They also wanted an impressive pop element to the music, especially in the vocals, and we were pretty unashamed about wanting a song like 'Chocolate' to be a smash hit. But at the same time we wanted things to be funky and a bit leftfield. There is a lot of ambient leftfield-type music on their EPs, which the band very capably produced themselves, and that's an important aspect of them. Many people got into them via a more underground route, via digging into the more weird things they also do. We really wanted to incorporate all these elements and strike a good balance."

After the pre-production sessions, the 1975 and Crossey, with help from Crossey's regular collaborators, main recording engineer Mike Spink and Pro Tools and programming whizz Jonathan Gilmore, went into Motor Museum to lay down the basic tracks. "In fact, the 1975 was the last thing »

The 1975 was the last project that Crossey recorded at Motor Museum Studios in Liverpool.

» we recorded at Motor Museum. The day after we finished the tracking sessions we started packing up the studio and moved to London — it was an epic move with three lorries carrying all the equipment! After arriving at Livingston we recorded two more tracks, and I mixed the entire album here on a 72-channel G-series SSL, which came from Wisseloord Studios in Holland. The room at Livingston was designed around a 72-channel SSL, so the Neve I had in Liverpool would have been too small. I've been a Neve man for years, but a good console is a good console, so the transition hasn't been a problem. We fitted the SSL with Ultimation, because I really like the tactile way you can mix with moving faders. During tracking, I tend to use outboard preamps and processors while the console was only used for monitoring and foldback.

"We ran two studios during the recordings at Motor Museum, one programming room with Jon in it, whilst Spink and I tracked the core band parts in the main studio. Using two rooms was the only way in which we could do the amount of work we had in the allocated time, which was five weeks. Running two rooms really speeds the tracking process up, and great studio sessions stem from building a great momentum. Once you have that in place, magic happens because everybody focuses, tunes in and gets inspired. In this process the technology has to be as invisible to the band as possible. Everything should look easy and free-flowing. This is one of several reasons why I prefer to work in my own studio, and predominantly in the analogue domain. I like to work fast, and when you're in your own studio you know where the best spots are to record, and for monitoring you »

A Free Day At Abbey Road

Mike Crossey: "We mixed back into the sessions through the Lavry Gold converter, but once we had mixed the entire album, the band signed to Polydor, which is part of Universal, which now owns Abbey Road studios. They like to give their new signings a free day at Abbey Road, so we asked the engineers to line up all their two-track tape machines in Studio 3, and we got several really nice D-A converters, and spent a whole day blind-testing the converters and the tape recorders. In the end we ran almost the entire album to an Ampex ATR102. We also experimented with slight varispeed on certain tracks, until the album felt perfect as one piece of work. We knew the final track order, and wanted to make sure that all the tempos of the different songs connected. It did mean that some songs went slightly off concert pitch — I think 'Chocolate' ran a little faster so it is above concert pitch. During mastering, with Robin Schmidt in Germany, we chose the mixes that sounded best, and while we chose the analogue mix for 'Chocolate', we felt that the digital version of 'Talk!' sounded a bit more open, because it has such a dense arrangement. I like working with Robin, because he doesn't kill the mixes. The main thing that suffers from over-compression is the groove, which is one of the most important aspects. You want people to tap their feet to the drums!"

Mike Crossey's team on the 1975 project included programmer Jon Gilmore.

» know the sound of the studio itself and the monitors, which in my case are NS10s and Unity Audio's The Rock and The Boulder speakers. Great monitoring helps you make decisions quickly and with confidence. When mixing, I find it much quicker to work on a console and outboard, because everything is at your fingertips, and you can reach for two things at once instantly. These days people expect you to be able to recall mixes very quickly, so we have a system in place where we print quite detailed stems.

"The other reason for still using analogue is of course to do with the sonics. Digital sounds pretty good now, and I am using many more plug-ins than I used to. But I just love the sound of valves and a real analogue console. There's a magic there that's hard to get in the digital domain. I've tried working purely in the box, but it never feels quite right. If you put too many plug-ins on a track, it begins to sound smaller and narrower. So you want to use plug-ins with a light touch. I generally use them just for small sweetening things, like the Cranesong Phoenix, which is great for changing the colour a little bit. But other than that I prefer working with outboard, and I also use analogue tape regularly. I have a Studer A80 Mk2, which has a beautiful widescreen sound, and I run ATR tape lined up at +9/185, with no noise reduction, almost always at 15ips because I like the big bottom end it gives me. I use it in conjunction with the [*Endless Analog*] CLASP system, which is fantastic and saves a lot of time and money because you don't need to use as much tape. One reel of two-inch tape can be enough for an entire album. I used tape and the CLASP system on about half the instruments on the 1975. All drums and bass and some of the guitars were recorded to tape, but for the other instruments we went straight to Pro Tools running at 24/48, either via my Lavry 122-96 MkIII A-D converters, or the new Avid HDX interfaces — the A-D converters sound much better than those of the 192 units. I really wanted to have the contrast between analogue and digital recordings on this album."

Tracking The Drums

Recordings involved a hybrid approach of live playing, overdubbing and programming. "We started most songs off by tracking two or three of the band members together," explained Crossey. "I always try to get as much of a live feel as possible and record several instruments at the same time. One reason for this is that I otherwise would not have a clue as to whether we have a good take or not. When tracking the drums you need to get the feel and the pitch right, and you need to hear other instruments next to it to judge that. To be able to judge individual parts, it's really important to have an overview of the entire sonic picture.

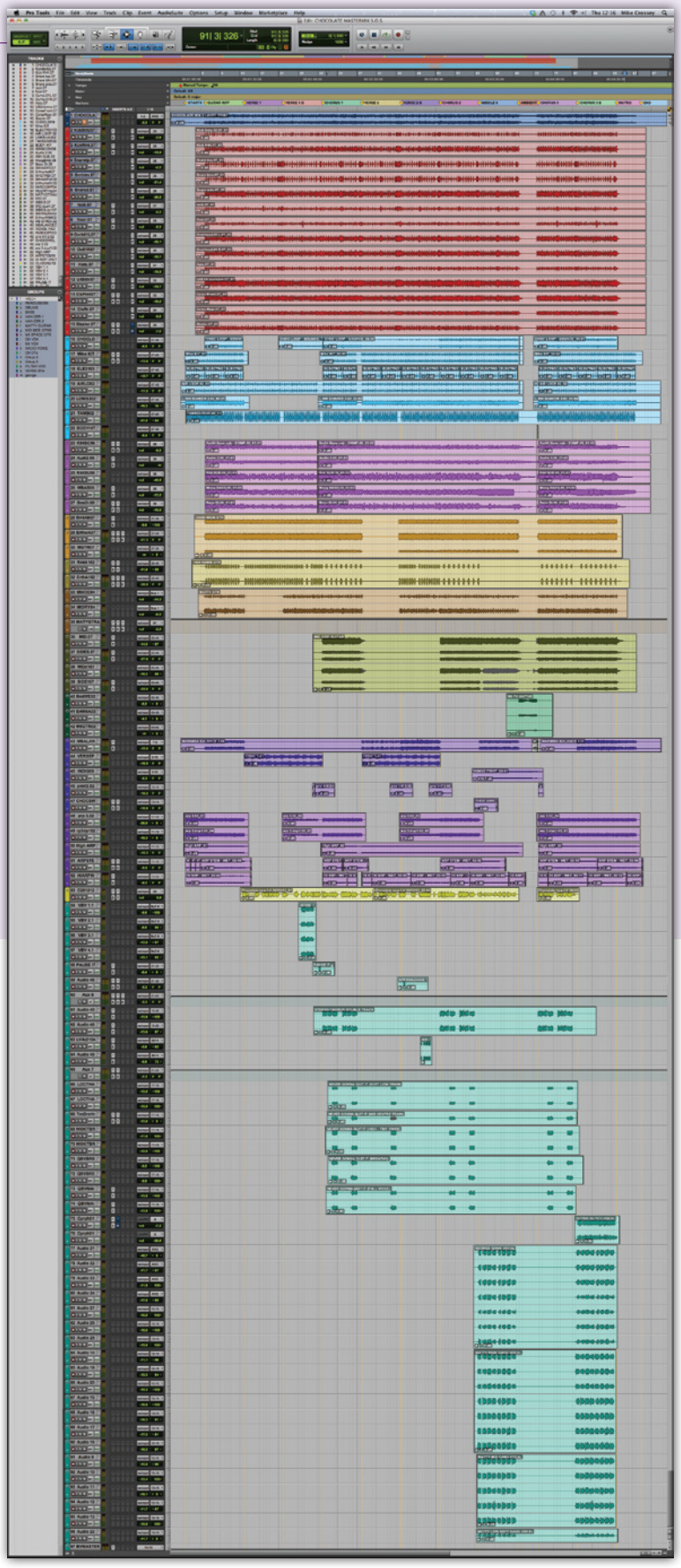
"Having said that, with some songs we began with the backing tracks from the demos, while 'The City' originally had a loop going all the way through. Then, during recording we had a happy accident while recording the tom overdubs for another song, the Michael Jackson-esque 'She Way Out', for which we had a side-chained gate on a room mic, triggered from the actual tom spot mic. That room mic went through a Culture Vulture for extreme distortion, and ended very abruptly a second or so »

Mike Crossey favours working in the analogue domain and using hardware processors where possible. Two units that saw lots of use on the 1975's album were his Thermionic Culture Earlybird EQ (top) and Cartec EQP1A (bottom).

The Pro Tools Session

The 97-track Pro Tools mix session for 'Chocolate' is amongst the best organised this writer has seen in six years of writing Inside Track articles. All tracks are numbered and instrument groups are colour-coded, with the track names on the left indicating the signal chains, and files named to reflect the instrument they contain — including some of the actual words sung in certain backing vocal clips. The instrument groups are, from top to bottom: final mix in blue, drums in red, electronic percussion in light blue, bass in pink, guitars in beige, brown and green, keyboards in purple, lead vocals in light green and backing vocals in a darker green. According to Mike Crossey, it's all part of his central aim, which is to maintain momentum during his sessions, and not be distracted by things technical.

"Yes, we keep things organised while we record, which is mostly done by Jon Gilmore, and by the time we get to the mix stage they look like this session. If I get a session in from someone else to mix, Jon makes sure it's well organised before it gets to me to mix. We do tend to use the same colours for each instrument group in all sessions, but it's not a rule. The most important thing is that there is a clear contrast between different groups so that you only need a glance to find anything. There are several multi-coloured clips in the bottom of the edit window for 'The City', but those are edits of last-minute backing vocal overdubs that we hadn't gotten round to renaming and recolouring. Many of my sessions are even better organised than the 'Chocolate' session. For me it's part of not being distracted and keeping sessions flowing. The less you have to think, the more you can focus on the actual music and the creative side of the mixing. So I try to simplify things in every way possible, also by combining some things in Pro Tools before I lay them out over the desk. For example, the 'M* FX Guitars' in 'Chocolate' consisted of many tracks, but I bounced them down to three mono tracks for the final mix, going via my Thermionic Fat Bustard valve mixer, which glues things together in a really beautiful, transparent way."



» after every time the tom was hit, so we got this really explosive 1980s tom sound. We then started messing with the kick and added some stereo room mics which were smashed pretty hard with the Thermionic Culture Phoenix compressor, and also a snare mic that was triggered from the tom mic, and this led to us trying different songs with this setup. It provided the foundation for the explosive drum sound of 'The City', for which we used just six microphones to record the kit."

Crossey added that, unusually, every single track on *The 1975* featured a different drum recording set up. "We wanted this album to be a journey, like a movie with lots of different scenes. In general I think that stripping things down and rebuilding them is a great thing to do, because the real magic in the studio comes from the happy accidents, the moments when things happen that are a mistake, but that have character. You end up keeping it, or it leads you somewhere where you hadn't expected to go. The more you change things around, the more opportunities there are for these magic accidents to happen. Mike Spink and I call it 'changing the air', »

Sounding Good On The Radio

The Wikipedia entry for Mike Crossey states: "After studying the sonic nature of BBC Radio One's transmissions, frequency and compression, Mike has developed a solid reputation of creating separate radio mixes specifically suited for the channel."

"It's true that I get asked to mix things by people who want to get their songs on the radio," explains Crossey, "but I don't mix for the radio, I mix until things sound good to my ears. The common misperception about radio is that you have to make things sound really thin and bright to jump out, but I believe that is a bit of a red herring. Anything that's played on the radio will automatically sound bright because of the EQs that are used. What really helps your mix on the radio is to build density in the bottom end. It's not a matter of having a big bottom end, but rather of a dense bottom end, with lots of harmonic distortion. To make sure things sound good on the radio you need to make your bottom end bulletproof to the onslaught of extreme compression, and one way in which I do that is by using the [*Thermionic Culture*] Culture Vulture a lot as a distortion box. I'll have it as a send on the console and I'll feed the kick, and the bass and all the other low-end elements into it, and bring all of them back into the mix in mono, and that adds density to the bottom end. I think what radio compression does to music can be pretty devastating, but because I quite like harmonic distortion and colour in the low end, it tends to work. The other aspect is to make sure your centre image is uncluttered in the mid and high frequencies, so you can have a big vocal. But really, if your mix sounds good, it'll sound good everywhere. There isn't a magic formula to make things sound good on the radio."

» and we often strip things back in a session to try something completely new and revitalise the recording process. Setting up the drums in the same way for an entire album is pretty bland. These accidents, just like great sounds, will inspire musicians to play better, or differently. You really get more out of them when they're listening to sounds like that. Like when tracking 'The City', inspired by the sound we got George [*Daniel*] played some really cool fills that gave the track great movement.

"All the techniques we used to record the drums in 'Chocolate' were new. Part of 'changing the air' for Spink and I is to put up some 'wild-card mics'. You want character, especially in the modern world with everybody working in Pro Tools and with often the same plug-ins. For example, the 'sizzler' mic chain on the vocals was inspired by a wild-card microphone that we had on the kit, which was a [*Neumann*] KM84 boosted super-bright in an Avalon 737 and then going into a Thermionic Phoenix compressor with quite a long attack and a short release, which highlighted the stick sound of the snare drum. It was hit hard to tape, bringing out some nice harmonic richness and character. I had the 84 quite high in the mix, because it acted like an exciter, giving a really nice bloom on the kit and adding nice musical top-end detail. Regarding the other drum microphones, on the inside of the kick we had a Shure Beta 52, going into an API mic pre, and outside of the kick we had a RCA R44 ribbon quite close to the floor to get a really extreme sub sound, which went to an AEA TRP ribbon mic pre. The snare top mic was a Josephson E22, which is a fantastic drum spot microphone that always delivers natural and firm-sounding results. I had two of those on the toms as well. The snare top mic went into a Neve 1073 and then a Thermionic Culture Freebird valve EQ to sweeten the top end a little. Underneath the snare we had a Beyer M201 going into another API mic pre, and on the snare side we had a Shure Beta 57, but I don't think we used that.

"During these sessions I had some Earthworks SR20 mics on trial, which are pencil condensers, and I put them up as overheads. They went into a Thermionic Culture Earlybird microphone preamp, which we found to be a great partner with those particular mics. Then we had an [*Electro-Voice*] RE20 on the hi-hats, going into an API mic pre, and a Telefunken U48 in front of the kit going into a Neve 1073 and then hitting a Phoenix compressor pretty hard to bring out the ambience. I also had front and back Coles ribbon mics, and they went into mic pres from an old Neve Kelso desk that break up in a really nice way when you drive them hard. They sounded great on the room mics, because it gives you an explosive sound when you drive them a little too hard and they have a handy output attenuator so you can hit the tape just right. The Little Labs Redcloud attenuator sees quite a bit of use when recording drums too. It allows us to drive those mic pres right into the sweet spot and then attenuate to just the right level onto the tape."

Wider Guitars

"We recorded the bass player in the control room, plugging the bass into an »

Waves' Kramer PIE compressor helped to craft an interesting room-mic sound for the drums on 'Chocolate'.

» API mic pre to get a nice punch. Then we put a KM84 on the bass cab — I really like small condensers on bass cabinets — and we had an R44 for some sub detail. We tracked with a bit of compression, using the Distressor in Opto mode, and EQ from the Cartec EQP1A. We also multed the bass DI to an old Minimoog. You can get unique distortion from the Moog, and while the bass was going down I played with the filters, dipping them down for a darker and mellower sound in the verses, and opening the filters for a brighter sound to lift the choruses. It's nice to have small details like that in the track. We miked Hann's guitar cabinet using the Earthworks SR20 and an R44, going into Neve 1073 mic pres, and then added some 16th-note slap back from the Waves HDelay, going into the Waves CLA76 compressor, to bring out the attack and also make the tone of the guitar more dense. Matty's guitar went through an Electro-Harmonix Memory Man pedal, with the wet and dry outputs going to two different amps, which allowed me to pan the delay to a different place than the main guitar. I would have run Matty's guitars through the Thermionic Culture Freebird EQs.

"There are a couple of guitars in the chorus of 'Chocolate' that don't sound like guitars but more like a cloud of tone. To achieve that we plugged the guitars into an API preamp to bring them up to line level, so we could substitute outboard for guitar pedals, and we ran this signal

As well as recording all the drums via tape, Mike Crossey also applied Cranesong's Phoenix tape emulation plug-in.

through a BX15 spring reverb and heavy compression from a Phoenix, and dropped that signal back to instrument level through a Little Labs PCP Distro box. The signal was then split into two amplifiers, one signal going via the Memory Man and one without, so one amplifier was slightly delayed. The two amps were recorded using the mid-side microphone technique with two R84 ribbon microphones. I had the mid microphone pretty low so it has a slight out-of-phase wideness to it. This gave us an ultra-wide cloud of sound that lifts the chorus in a subtle musical way, rather than using distorted guitars or whatever other heavy-handed devices. We did all this processing on the way in, because our aim was always to get the sounds we wanted at source. You can also do these things during the mix, but I prefer to make these decisions early on. After that mixing is just balancing really.

"There is quite a bit of programming on the track too, including lots of strange percussion, which just functions as ear candy. There are off-beat, trashy parts, like a tambourine, a 'body hit' sample that [*drummer*] George [*Daniel*] had and that was used on pretty much every song on the album. We also had quite a few synths, including a marimba part from Spectrasonics Omnisphere, an ambient pad from Absynth, while the arpeggio parts were constructed from various different soft synths, like Vacuum, EXS24 or Massive. George did a lot of programming on the album, with help from Matty. They had worked these things out in their Logic studio in Wilmslow, and we'd then recreate many of the sounds, trying to make them bigger and better. Some of the synth sounds they created worked so well that we kept them. It doesn't sound like there are that many electronics in the song, but if you took them out it'd have a very different listening experience. It's all part of creating that film-score vibe. It was great to work with a band who were that ambitious, and weren't afraid to tread that delicate line between credibility and commerciality, between mainstream appeal and cool."

Instant Mixing

"When I start a mix I will have a firm vision of what I'm going for, but I also allow space for evolution of new ideas," continues Crossey. "It's important not to put yourself in a box. You need to give yourself freedom to explore things. One way in which I do that is by getting a reasonable overall sound, and then doing multiple mixes very quickly, taking five to 10 minutes each. I just do this instinctively, trying out a whole range of different balances, just to find out how they feel. I'll print these mixes, which sometimes are just 30 seconds long, so I can A/B them. It allows me to explore the parameters of a track before I make firm decisions of where I want to go with it. This is another reason for using an analogue console, because doing that in the box is virtually impossible. You want to be able to grab faders instinctively and quickly to try stuff and voice grooves in different ways.

"When I began mixing 'Chocolate,' I had a clear vision of where we were going with it, as did the band. I had already created a rough mix in the box, so that we knew where we were at, and that sounded pretty good. I just wanted a better version of that. With 'Chocolate' I had the idea that it could have a little bit of the bottom-end vibe of 'Pumped Up Kicks' by Foster The People. So a lot of my attention went into the bottom end of the rhythm section and getting the track to groove just right. I generally start my mixes with the drums, because it's important to get the groove established. You can adjust the groove and feel by using compression and varying the levels of the elements of the kit, and also the bass. You »

» can put extreme lows on the kick and make the snare short and snappy, and this will give a different feel then when you give the kick and snare a uniform punch, which is more like rock. So although the drummer plays the same part, you have quite a lot of control over how the groove feels by voicing it differently. The vocals are the other main part of a mix, and I spend quite a bit of time focusing on the interaction between the vocals and the drums."

• **Drums: SSL desk compression & EQ, Cranesong Phoenix Dark Essence, Waves SSL Channel & Kramer PIE, Thermionic Culture Culture Vulture & Freebird.**
"All drum tracks apart from the 'sizzler' microphone have the Cranesong Phoenix on them, on the Dark Essence setting, to change the colour of the sound a little bit. I really like that setting, because it makes sure that the drums sit a little lower in the frequency spectrum. I also used the Waves SSL plug-in on several drum tracks — the Beta 52 and R44 kick mics, the rack and floor toms — just as gates. They were there for the rough mix and I didn't delete them because they worked fine. The 'sizzler' and Coles front mic tracks each have the Kramer PIE compressor on them, to bring out more of the ambience. I had a parallel distortion track set up on the desk as a send, using a Culture Vulture, to which I sent some kick and snare, in order to add some density and tone — this is one of the things that helps a mix sound better on the radio [*see box*]. I also used some Freebird EQ on the snare because it has a presence control that allows you to really fine-tune the crack of the snare and make it jump out. Other than that there was no outboard on the drums: everything else was done with desk compression and EQ."

Rather than use EQ to shape the tonality of sources such as percussion, electric guitars or backing vocals, Mike Crossey increasingly relies on de-essers, configured to control the offending frequencies (in this case 2kHz on the backing vocals) only when they peak.

• **Percussion loops: Waves Renaissance Bass & De-esser.**
"You can hear some of the percussion loops isolated at the start of the song. There's a shaker, a tambourine, an 'air loop' which is a bright airy Apple Loop, and 'electro' and 'Mike Kit' tracks. The latter two are kick and snare samples respectively. The 'Mike Kit' has an RBass on it for a little bit more sub at the start of the song, and a Waves De-esser, applied to the mid-range. Sometimes, I prefer using a de-esser to EQ, because the de-esser is dynamic. When you use EQ too much you can lose a bit of the soul of an instrument. Many young, inexperienced engineers (including myself a few years back) carve out much of the low mid in a track to make things less muddy, but this means that things start to sound plasticky and won't translate on the radio. I find that de-essers do a much better job. I often use them on guitars as well, around 2kHz. If the guitar plays softly in the verses and then hits harder in the choruses, you set the de-esser so it doesn't touch the guitar during the verses, but takes off some of the edge in the choruses. One of the laws of mixing is not to break the spell. If something leaps out at you and breaks the spell there's something wrong! Using a de-esser is a good way to prevent some frequencies from unexpectedly jumping out at you. More recently I've been using the Sonnox Suppressor instead of a de-esser, because the Sonnox gives me a little bit more control."

• **Bass: Tech 21 Sansamp, Waves Renaissance Bass & SSL Channel, Avid EQIII, Empirical Labs Distressor, Cartec EQP1A.**
"The bass consists of five tracks, 23-27, though track 24 was not in the mix. There's a Moog bass that has a Sansamp on it, and the KM84 mic on the bass cab, which is the main bass sound, has an RBass and the Waves SSL channel. The bass DI also has a Sansamp plug-in, for a little extra presence and drive, and a one-band EQ with phase reverse. Regarding outboard, I really like using the Distressor on the bass,

Exciting Vocals

"'Chocolate' was the first track that we recorded for the album," says Mike Crossey, "and it is really important that the recording of the first track blows the band away, because it gives them confidence for the rest of the sessions. We had a demo, but it was quite different, more guitar-orientated and with a more crowd chant-like chorus. Because we wanted to have this impressive pop element in the music, we talked at length about how we would approach Matty's vocals in this track, and decided that we would go for extensive harmony vocals, rather than the chant-like demo vocals. We did a mic and mic-pre shootout on his vocals and decided on a chain of Neuman U67 to Neve 1073 to Urei 1176 to Thermionic Culture Freebird valve EQ.

"The other vocal mic was what we nicknamed the 'sizzler' mic, which was a Manley Reference, which is quite bright already, going into an Avalon 737 pre then into a Sontec EQ, boosting the top end at 26k and then run through a Thermionic Culture Phoenix compressor to soften the top down again a little. 26k sounds really high to be boosting but it affects the frequencies below that harmonically whilst adding more air to the top end. It can sound quite harsh on its own, but if you run it through something valve or tube-like, like the Phoenix or the Mercury 66, it tames the hardness really well. This 'sizzler' chain gave this icy, bright, R&B vocal sound, and the backing vocals were a combination of that and the U67. I guess the 'sizzler' chain acted like an exciter, because whenever we took those layers out, the energy of the backing vocals diminished significantly.

"Matty is an incredibly capable and versatile vocalist and we spent some time experimenting with recording backing vocals in different characters, which we gave names. So one vocal might be sung in the character of a gentry guy called Oliver, for example. If the same singer records many backing vocals it can build up some mid-range harshness, and by using different voice tones and mouth shapes you can get vocal overdubs to sound bigger while avoiding that harshness build-up. At the end of 'Chocolate' there are also some filtered-sounding vocals that were recorded with the Placid Audio Copperphone. I could have created that effect in the mix with EQ, but it's more fun and exciting for the band to put up something like a Copperphone and get this crazy vocal sound and have them respond to that."

set to Opto mode and a medium attack and release. I connect it as an insert on the desk, set the EQ on the desk to pre-insert so I can EQ into the Distressor, which allows me to search for a beautiful sweet spot in the low end. I sweep the EQ around and there's this point where the bass just solidifies and holds. I then run the Distressor into something like a Cartec EQP1A for some nice chocolately low-end boost. So there's pre-compression EQ for finding that low-end solidity and post-compression EQ for more audio sweetening."

• **Guitars & synths: SSL desk EQ & compression, Waves H-Delay, L1, CLA-76 & SSL Channel, Sound Toys Echo Boy, Tremolator & Crystallizer, Thermionic Culture Freebird, Bricasti M7, Lexicon 480L, AMS DMX1580, Avid EQIII & D-Verb.**
"Tracks 31 and 32, the Hann harmony guitars, are looped and quantised. It was something that we came up with later to create nice detailed harmonies, and I then treated them with delays. I had the SSL channel EQ on the R44 track (31) taking away 1dB at 8kHz, plus the L1 limiter. The Earthworks track (32) had the H-Delay doing filtered 16th note delays, then a Waves CLA-76 compressor, and then a Sound Toys Echo Boy, which is doing a quarter note on the left and an eigth note on the right. The Echo Boy's groove is also slightly swung, to try to get it to sit as best as possible in the rhythm track. I did something similar on the main guitars [*tracks 28-30*], without the L1, and with the Echo Boy delays set to eighth notes and not to a quarter note. Matty's guitar on track 33-34 has the CLA-76 compressor, followed by an SSL Channel EQ boosting slightly at 4kHz and the Echo Boy doing 16th-note delays. The mid-side guitar tracks underneath that have the Sound Toys Tremolator doing a strong 16th-note tremolo on track 36, and the 'T' on the tracks below that is simply a Trim, adjusting left and right. For outboard on the guitars I would have used the SSL channel compressors on the desk, because I wanted them quite punchy, and occasionally the Freebird EQ. I also had some auxiliary effects set up on the desk, like the Bricasti M7 with a stone-room sound, a Lexicon 480L set to Silver Plate, and the AMS DMX1580 with ±5 cents [*pitch-shift*] panned left and right and a slap-back. I would have had some of all these things on the guitars, to glue things together. I did not have a lot on the synths — in terms of plug-ins, just some SSL channel EQ, the Crystallizer, which is adding a delayed octave, a stock Avid EQ and D-Verb, while the outboard consisted only of the stone-room patch from the Bricasti."

• **Vocals: Waves SSL Channel, CLA-76, Kramer Master Tape, V-EQ, De-esser, H-Delay & Renaissance Reverb, Cartec EQP1A, AMS DMX1580, Lexicon 480L, Sound Toys Echo Boy.**
"On the lead vocal [*track 53*] I used again a Waves SSL Channel EQ, boosting at 10kHz and filtering everything below 48Hz, and the Waves CLA-76, set to a slow attack and fast release, just to gently catch some peaks. Outboard would have been the Cartec EQ, which has a beautiful tone to it, and a fair bit of AMS and 480L. The classic panned ±5 cent trick from the AMS gave Matty's vocal some presence and wideness and vibe. It really gave his vocals a sense of importance when I added that. You also hear a lot of that effect on his vocals in 'The City'. I probably adjusted the pre-delay on the 480 to move it slightly more to the back, so it didn't sound too reverb-y. Many of the backing vocals were combined in aux tracks below them, in this case aux 6 and aux 7. Aux 6 had the Kramer Master Tape plug-in with some slap-back echo, and the Waves V-EQ, taking out everything below 150Hz and a Waves De-esser, which is not used for de-essing but instead for taking out harshness around 2kHz. The backing vocals on tracks 61 and 62 were recorded with the Manley mic 'sizzler' chain, with that sizzly R&B tone, and that gave the choruses that extra bit of energy and lift. These tracks have the Waves CLA-76 on them, as do some other backing vocals tracks lower down. Aux 7 has the Echo Boy and the Waves SSL EQ. Track 59 has the H-Delay on it and that was going into the RVerb set to the 'Chatterverb' setting. Tracks 75 and 76 were recorded with the Copperphones. For safety I put up some other mics, but I did not use all of them. As I mentioned, Mike Spink and I will continuously try things out, and sometimes it works, and sometimes it doesn't. One of the beautiful things of this profession is that you never stop learning. You are constantly evolving and growing that box of tricks."

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The World's Best Recording Technology Magazine

This article was originally published in Sound On Sound magazine,

December 2013 edition

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