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Steve: I think the whole digital conversation is a very interesting one. There is a lot of varied opinions on digital - some people just can't stand it and still profess that vinyl records are the best.

Interviewer: And I find it very interesting with that, there is surely an element of that where there is a generation of people that grew up listening to purely analog music and then digital came in and for better or for worse it was different to what they were used to hearing. And now I suppose we are far enough along the road that we have the opposite, we have a whole generation of teenagers and people in their early twenties that were raised purely on only ever hearing digital music, and so it is interesting to see their opinions now.

Steve: Is that the mp3 generation?

Interviewer: I suppose so, Generation M. But you know, the generation that never had cassettes or never had analog sound as part of their intimate association with music in a sort of music development stage. And so now I find it quite interesting when they meet analog sound for the first time, and it is not from a nostalgic point of view of people who once had it and left it behind and had gone and rediscovered it, it's purely from a like... I suppose it is one of the more objective listening test for someone genuinely hearing it for the first time.

Steve: I'm not exactly sure. I think what the interesting thing about streaming has offered to the music buying public is the availability of bands that may have been forgotten. With the, I guess genius sort of typesetting that you have on iTunes, if you are listening to a particular band, it's current, it's new, it's I guess a brand new band. Genius or other similar sort of suggestive formats or software may say, "You may also be interested in..." And it might even throw up a band, Bob Dylan's band or The Who or The Birds, maybe throwing stuff up like that. And I think the streaming system is just reintroducing classic sort of recordings to the public, whereas before the opportunity might not have ever been there apart from finding it at the back of your dad's bookshelf and picking out a record and going, "What the hell is this?"

Interviewer: What is this shit piece of classical music?

Steve: What is this antiquated piece of black plastic, and how do I play it? I have even gone back myself and listen to some records that I was listening to when I was a teenager on streaming services and thought, "Wow, geeze, I haven't heard that album for a while." How good is it? How great are those songs? I had forgotten how good those sort of tracks were.

Interviewer: I find it particularly interesting, obviously being audio professionals we spend all day, every day sort of analyzing and scrutinizing the technicalities of people's recordings. And then there are obviously the albums that we grew up listening to that made us the avid music fans that we are and would have to be to do this job. And I find it so funny that when I go back and listen to those I'm back listening to music as a listener again, and it's not that I forgive any technical things about it, I just don't even hear them almost in those recordings because it's that connection with the song as you say. And people often ask, "Oh, you must go home singing this", whatever song you had been working on today you must go home and just like sing that all night. It's like no, it doesn't tend to be like that; it tends to be a week or a month later and it pops into your head in the shower kind of thing and you're hearing the music again. And so I think this is what's really nice about, as you were saying before with your approach with the mastering, hearing and highlighting what the song is rather than trying to do something technical just for the sake of doing it, it's really trying to maximize the song so to speak.

Steve: I've just find myself in that same situation where I've gone back and been asked to remaster some albums, and these are albums that I grew up with, albums that inspired me to get into music, to pursue a career in music, albums that opened my eyes and my ears to the power of music and how good it can be, both from a listening point of view and a production point of view, albums that inspired me to hunker down and be a really good engineer. Recent projects have included Icehouse, remastering the



back catalog for Icehouse. I listen to Icehouse when they first released their albums back in the 80s and stuff like that, I used to listen to them, they used to be on the radio. Recently we did their back catalog and I was just amazed at how many hit records they actually had and the production that they actually went through. And even with today's technology, the ease of digital recording, quite a lot of those albums are actually mixed from analog tape by hand, actually mixing the individual instruments. Two or three people might have been sitting at the large mixing disc balancing the songs. And I kind of listened to them and kind of think, "Wow, you guys are really working hard." The way that they were pulling up effects and working out delays and reverbs. It's obviously a lot easier these days with their systems, I've had digital work stations where you've got a lot of plug-ins and stuff like that. But the quality of the recordings and the quality of the songs and everything, it's just fantastic being in position now to be able to go back and I guess relive those albums with a bit more of a defining ear and a bit more of a technical knowledge, bring something to the table. Another project which has gone off in the last couple of years was also remastering the entire, but not all, back catalog which has been quite extensive. It's to coincide with a world tour I think they are about to embark on.

Interviewer: Could you tell us a little bit about that? Was there a sort of triggering or a catalyzing event that made them decide that this was something they wanted to do? Up until that point was there something seen as not good enough about... and I suppose this is coming with a lot of remasters. Is there often stuff with that where there is an obvious detriment or its just bringing it up to date?

Steve: I guess the trigger point was the first Midnight Oil album that we did actually start with the remastering and essentially that was it, that was kind of just remastering that one album.

Interviewer: That was 10,9,8,7,6,5,4,3,1?

Steve: That's right, yes. The reason why we wanted to remaster that was that the record, the vinyl record sounded great. If you're not Midnight Oil fan and you're going to play a Midnight Oil record, you've got to listen to that one because that's just a sensational album. The decision was made... the CD didn't actually quite stand up to how the record did. In saying that, it was when CDs were first, I guess, released, way back when, so I think what happened there was that the tape was simply transferred to what's called a u-matic which is just basically a large video cassette, and that's run through a system called the 1630 PCM digital system. So it was the beginning of digital technology, it was still in its infancy, and so ultimately I guess the transfer, the original very, very first transfer could have been a little bit better. So the producer who did that, Nick Loney, he just wanted to just re-transfer it from the tapes, from the original half inch tapes.

Interviewer: The half inch tapes would have been their pre-mastered mix or the tapes of the mastered mixes?

Steve: No, they are pre-mastered mixes, unmastered so to speak, so they haven't actually been equalized for mastering at all whatsoever. So what we did is we record the tapes, the 10,9,8,7,6,5,4,3,2,1 masters from the Midnight Oil archives which are extensive, they really looked after all of their tapes really well. And we got the tapes back and we set up two half inch machines in the mastering room, one was an ATR-100, one was a Studio A20. We just wanted to see which tape machine played them back the best. Interviewer: Bring them to life the most.

Steve: Yes. What we went for was the Ampex ATR-100, as Nick Loney recounted that was the same model of machine that he used when he mixed it. So when we put the tapes on, the tape was Side 1 on one reel, Side 2 on another reel that Nick had already edited together back in 1980 something, sorry for not recalling the exact year. And we both just turned around and looked at each other and went "Wow." It was like being there. And the sound coming off the half inch tapes was just astounding, just absolutely astounding. So what we did was we put it through a couple of Neve 1084 EQs just to give it a little sort of top end lift because the 1084s have a lovely, lovely character at the top. And we basically transferred the reels and that became the remastering. It was very, very little actual I guess what you would call mastering done to it, a little bit of EQ here and there, a little bit of level adjustments, but pretty much it was laid down how it was.

Interviewer: So at the end it was not to modernize it and bring it into the 21st century, it's just sort of...



Steve: Faithfully just to get it down there properly

Interviewer: Faithfully digitize what was already... and I suppose sonically in terms of the shape of the EQ and things like that and how that has developed over the years, not try to bring it up to date too much, but sort of just be the best most faithful sort of version of what it was.

Steve: Well the converters that we are using at my studios in Studios 301 are their Prison Dream, so it is basically a Prison Dream converter from digital to analog, into the analog domain through the 1084 Neve EQs then through the Prison Dream analog to digital converter into the digital workstation there. So the Dreams are my favorite converters there, exceptionally high standard conversion. And that was pretty much the signal path and we transferred it. And that I guess you could say would begin to open up the floodgates, because I think once everybody heard the benefits I guess of bringing the previous releases up to a more higher technical standard through the advantages of better digital equipment these days. We then started looking at going back through the catalog and then faithfully just pulling stuff back up again. In most cases it was coming off analog tapes, so the analog tape had been looked after very well.

Interviewer: And presumably not played and played and played for 20 years so the top [inaudible, cross talk 14:07] was sort of still intact

Steve: So Jim Maginny was my helping hand, he sat through most of the mastering sessions with me and we meticulously went through each album and found the appropriate mixes of each song. In some cases there were some edits done to quite a lot of the songs, like say a midsection from this mix and the choruses from this mix and perhaps the bridge from this mix

Interviewer: Was the documentation reasonably there for any of that?

Steve: No, unfortunately there was no documentation. So Jim and I sat through a couple sessions there where we had to reconstruct the original edits that were done; that was fun. But in doing that...

Interviewer: And as part of that did you find that any of them they had done much in terms of varying tempo adjustment or anything that involve sort of...

Steve: Place Without a Postcard was an interesting one because we found that when we played the tapes it was at the wrong speed, so very interesting. We played the record and we played the CD and they were correct, they were fine. Then when we played the tapes it was running slow.

Interviewer: And quite noticeably so?

Steve: Very noticeably so. So what must have happened there is that when they were mixing it the tape machine that they were recording onto may have inadvertently had the vary speed switched in speeding it up, and so it was being mixed. I am just guessing here how it may or may not have happened, but is a consequence the tapes were at the wrong pitch or speed, they were slightly off. So in an instance like that we just vary speed the tape back down to the correct tone, the correct speed. It was interesting, it reminds me of a... I think it's a Branford Marsalis or a Wynton Marsalis and there is a record out, it's been out since the 70s or something like that, and everyone was wondering how he could possibly play those notes. And it was noticed that record was actually cut at the slightly wrong speed as well. Things like that that escapes through...

Interviewer: There are a couple of technical things I suppose. I know that through my development as sort of an engineer and producer there has always been a sort of dark art associated with the idea of mastering, what it will do and what some of the processing and procedures can be and just how much of it is important or not important in terms of some of the common wisdom that is sort of handed down. So I suppose I would like to take an opportunity and essentially ask a master questions, things that the engineer and producer in me has always kind of wanted to know, and I am sure there are other people that have always kind of wanted to know from the mastering domain. So I suppose the first is with most mixes provided a reasonably high bit depth these days, I assume it is fairly common for most people to sort of deliver you guys with 24 bit files and not 16 bit.

Steve: I would say 24, 48 has become a very popular standard.



Interviewer: And when working in a standard like that, is there any issue with leaving more or less headroom? Do you find that from a sonic point of view there is a sweet spot in terms of that, or is it just in terms of lining up levels into your equipment, that there is a particular sort of heat that is worth providing the man?

Steve: I think it's important to note that when recording in digital it is important to use up all of that digital headroom. If you are recording too low in your workstation you can run into all sorts of terrible, terrible things with distortion, particularly in the dither areas if you are not dithering your recordings. But anything quiet, very quiet in digital isn't really all that lovely down there. You have got to find what's the most significant bit, essentially that is where the particular instrument or the track that you are working on reaches its highest possible peak, rms trans in, and just don't let that go red, don't let it clip, don't let the way form square off because digital distortion is a very, very unlike analog distortion. As you know at 301 we have got analog equipment, and you can push that analog equipment into a little bit of a distortion or a little bit of headroom clipping in an analog domain and you can get a kind of an unusual effect like particularly with analog tape or if you are running any valve equipment you can overload its input or even overload its output, getting a little bit more grain off the tubes and its output transformers, things like that. But when you do it in a digital domain, it just clips, it just sounds distorted, and there is no way of getting rid of that. I would recommend taking it as high as you possibly can, not too quiet, and try and push it as high as you possibly can and in that individual recording channel or the bus output if you are putting the mix down into the point where it just clips, but then okay, there is the clip, pull it down like a DB. I get a lot of mixes sent to me recent where, I'm playing it back off a Protel by the way, I get their files sent to me over the net, whether it's Hightail or Dropbox or something. And I will download the files and then I will import them into Protels, and they are at like minus 10, so they have been recorded or summed I guess at minus 10 or minus 6 or something like that. And all I basically do is either make up the gain in the analog domain or simply increase the output of the Protels rig itself into my Prison digital analog converter. I can hear in that transfer that there is a little bit of distortion because it's been recorded too quiet, it is actually in the domain of where the dither is starting to come into play, or in some cases dither hasn't being actually switched on and so you and I are getting that distortion down at the quiet parts. By the time I push the volume that distortion becomes a little bit more apparent.

Interviewer: Do you like to receive or do you listen to a reference rough master kind of thing? Do you like to receive that along with it? Would you pay any attention to what that may have done to the balance? Or do you like to kind of approach the mix with the assumption that the mix is how it should be and maybe only go back to that if something sounds like its weird?

Steve: If the mixing engineer or the producer or say someone who is involved in the project has actually sent out copies of the mix to I guess either the media or some friends or the band, and they have switched on some plug-in device or compressor or something like that in order for when you listen to it it kind of sits up a bit. If they have switched that in and everyone has been listening to that, everyone has sort of gotten used to that and I guess they become accustomed to how that sounds, 'that old classical is not as good as the demo'. But I think if there has been version being banded around everybody that everybody has been listening to for quite some time, by all means, supply that to your mastering engineer along with your own mastered file, just so that he or she can also have a listen to it and go, "Oh, okay, well everybody is..."

Interviewer: Everyone has been expecting you to squeeze it this hard...

Steve: Everybody is in this ballpark, okay, so I'll do what I am going to do to it. And I am quite sure it will be a lot more pure and cleaner and a lot more detailed. But if that's a level they have been listening to it at then the mastering engineer should be in on the loop I guess you could say of where that level has been sitting. But in some cases I have actually not gone as loud as that version that is being supplied to the band or to people who want to hear it and stuff like that, because it has just been purely too much, just beyond the realms of the loudness war, which is sort of one of my pet sort of subjects - the loudness war, please let's not go into that discussion, will be here all night.

Interviewer: Minus 4 hour mass

Steve: Here we go. It's just good to hear that version, what everyone has been listening to. This is where the ballpark is, let's go somewhere near there.



Interviewer: Excellent. And if there is anything, any other pet peeves that you can air to people, things that would make your life immeasurably easier and your job immeasurably easier if people could just follow this one simple thing when they give you something.

Steve: If you are going to send something to the mastering house or the mastering studios, try and keep it uncomplicated. If you've got say an album that you are going to have mastered, just send the mastering house the mixes that you want on the album. There is no need to send them the stems say, like bass, drums, guitars; unless they have been requested by the mastering engineer, or unless you have actually spoken to the mastering engineer about doing it that way. I would recommend in all situations, if you are going to master a record, choose your mastering engineer and don't feel afraid of just calling them up and asking for a conversation. Having a chat with the mastering engineer can really clear the air as far as first of all building that relationship, understanding who the band or the artist are, chatting with the mastering engineer, see what they can bring to the table. Perhaps even send the mastering engineer the basic files of what you have mastered ahead of the mastering session so that the mastering engineer can at least have a listen to those files and get on the same page. Whereas the band might have been working with it for a period of say maybe 6, 12 months, maybe 18 months, maybe even two years, it is good to include the mastering engineer, just to give them a little bit of time, because if you are just sending them the files in the morning and then you want that album that night or that afternoon, it's not really allowing the mastering engineer enough time to get involved in the project, to understand the project

Interviewer: Get into the head space of it.

Steve: Absolutely. They become part of it to bring something to it. It's almost like, "Okay, go, let's do it." I actually enjoy getting the files for a project in advance, having a listen to them - I am not going to sit down and actually listen to them from start to finish, I simply don't have enough time to do that. But I will actually click on the tracks and play significant portions of each song and get to know what the album is about, what the band is about, what sort of music it is. And then I will speak to the band or the producer or the engineer again before I bring it to the mastering point and have a chat, see what they want me to bring and what I would like to bring to the project and how I would like to approach it, just to get the conversation going, get the relationship started, just to be all going in the same direction. That is the great thing to be working at Studios 301 - I can walk in on you guys while you have a got a mix going on or you have got a few mixes under your belt for a particular project and we can chat about it like walking around the kitchen or sitting down on the couch, or just talking about the artist, the songs, what they are going to do with it. I enjoy sitting down with all the engineers at 301 just talking about these, getting the insight into the projects that are going to be coming to the mastering rooms.

Interviewer: Okay. Well I think that probably wraps us up for today. I would like to thank Mr. Smart, wonderful Steve here for coming in and sharing some of his time and wonderful insights.
