



# Recording **Star Wars** the **Phantom** Menace

Richard Buskin talks with co-supervising sound editor Tom Belfort, scoring and re-recording mixer Sean Murphy, Foley artist Dennie Thorpe, effects mixer Gary Rydstrom, and assistant supervising sound editor Matt Wood about their work on the new *Star Wars* prequel.

‘A long time ago, in a galaxy far, far away...’ As these seemingly innocuous words moved purposefully onto cinema screens 22 years ago, few predicted the *Star Wars* phenomenon that would ensue. Two follow up films, *The Empire Strikes Back* and *Return of the Jedi*, and a trio of *Special Editions* have set the bench mark from which all the numerous effects-based extravaganzas that resulted would be judged.

Now, over two decades and a couple of generations later, director George Lucas has decided to dig deeper into the goldmine by way of a series of three prequels. *The Phantom Menace* takes us back [even longer ago in a galaxy even further away? – CH], reacquainting us with a unnervingly fresh faced Darth Vader, and a youthful knight by the name of Obi-Wan Kenobi, while involving us in more pan-galactic feuding. Ah yes, for fans of the series this new instalment certainly amounts to another dose of the usual fun.

## Screen Rolls

Shot during the summer of 1997 at Leavesden Studios – a former Rolls-Royce factory in England which was converted to 10 sound stages and 60 sets – *Episode 1: The Phantom Menace* also made use of locations such as the Caserta Royal Palace near Naples and the Tunisian Sahara Desert before returning to Leavesden in the early autumn. Then there was all of the digital work created at Lucas’ Industrial Light & Magic facility in northern California. Indeed, around 95 per cent of of the frames in the finished film – comprising nearly 2,000 separate shots of sets, backgrounds, vehicles and various characters – are the result of digital work. Yet, even though this more than triples the previous record for computer generated shots in a motion picture, it has to be said that this latest release is considerably less effects-based than its trilogy of predecessors.

“What’s nice about the movie is that it was designed with a lot of resting points in it,” says effects mixer Gary Rydstrom. “It’s not an assault from beginning to end, it’s nicely paced, so that when the action occurs it really has an impact, and it is also much bigger and more complicated visually than anything that we’ve seen before. Our problem in sound is always how to match the scope of what people are seeing while not being guilty of overkill, and that is a

challenge with all modern Hollywood movies which are trying to 'one-up' each other. I think you reach a saturation point and you can only do so much, so we try to convey impact and size while also keeping an eye on the dramatic swing of the soundtrack. We have to vary the sounds and the level, because I think change is the key to any good sound job."

## Changing Technologies

Of course, movie sound technology has come a long way since the original *Star Wars* helped popularise the Dolby surround system. During the intervening years audiences have become accustomed to digital soundtracks and Lucasfilm's own THX program, and now, with *The Phantom Menace*, 6.1-channel sound has been added to the theatrical oeuvre courtesy of Dolby Digital-Surround EX. Developed jointly by Lucasfilm THX and Dolby, and overseen by Gary Rydstrom, (Skywalker Sound's Director of Creative Operations), the EX system helps to highlight the latest contributions of music composer John Williams and sound designer Ben Burtt. Williams came up with nearly two hours of new music that also harks back to the themes of the original trilogy, while Burtt created more than a thousand new sounds, including references to many of the series' signature effects.

"Ben's main area was in the sound effects, while mine was in the dialogue, and he and I shared responsibility in terms of the Foley," explains Burtt's co-supervising sound editor Tom Belfort, who was intermittently involved with *The Phantom Menace* project from February to October of 1998, and then worked on it full-time until late April 1999. "I listened to all of the production dialogue and determined what had to be looped, based on technical requirements, and then of course George [Lucas] had all of his performance issues to consider. He would opt for looping if he felt it could help a performance in one way or another, and we started that process in February of 1998 just because George wanted to get the looping done as quickly as possible. That way he would have a sense of how the dialogue was flowing throughout the film.

"I think the production recordist did as well as he could under the circumstances, but at Leavesden, for instance, traffic was a problem, as was having enough time to set up the miking correctly. Unfortunately, there were also a couple of scenes where the performances were really wonderful but there were floor creaks, and these were totally inappropriate for the environment inhabited by the characters. So, in some cases we solved this through looping, and in others, where we felt that the looping wasn't nearly as good as the original production performance, we just lived with those creaks."

This, of course, is not an uncommon problem, yet, given the budget and production values of a movie such as *The Phantom Menace*, it is still somewhat astounding that floor creaks aren't eliminated prior to the start of shooting.

"I honestly don't understand it, yet I've dealt with this problem countless times," says Belfort. "I was the sound supervisor on *Mission Impossible*, which was shot at Sheperton Studios, and one day when I was on the set there were floor creaks while they were filming a dolly movement that takes place at the CIA headquarters. I think this sort of thing happens because the production recordist is really low on the totem pole, the director knows things can be looped, and so attention to those details is sometimes relegated to a secondary position. However, the looping doesn't always match the original performance, and so you have to make a choice as to what you're going to go with."

According to Tom Belfort, between 60 to 70 percent of the finished dialogue on *The Phantom Menace* project was looped. Much of this was recorded at Magmasters in London and at a recording studio in Nassau in the

Bahamas – which the cast members certainly didn't mind visiting – as well as locations such as Abbey Road Studios. Nevertheless, George Lucas is not a director who is overly enamoured with the ADR process.

"He really doesn't like it," says Belfort. "He believes in the original performance – which I think we all do – and so for me one of the biggest challenges was convincing him to do as much looping as was necessary. We ended up kind of trading: 'Well, I'll give you this scene if you let me do that scene.' Still, when considering the scope of this film, I have to say that it truly was one of the easiest projects that I've ever worked on. I mean, George is such a good person to work with. We've collaborated many times and he has always been very generous in terms of allowing me what I think is necessary. In this case the schedule

was such that there was no overtime, which helped make it one of the best experiences that I've had compared to films like *Titanic*, which required work around the clock. George's approach is very rational and he likes to work with a very small crew, and so this project was never 'slam-bam' like others I could mention."

In fact, on *Episode 1* there were just two dialogue editors, two effects editors and a pair of foley editors, and the usual last-minute rush was only due to the plethora of visual effects. "Even when it came to the final mix at the Skywalker Ranch we would start everyday at 9am and work until 7pm," Belfort reports.

## I Like To Score

As for the music, this was recorded by the London



Assistant supervising sound editor, Matt Wood

Symphony Orchestra via the Neve VR console in Abbey Road's Studio 1. Two 24-track machines were utilised as backup while the live 8-track mix was fed to a 24-bit Genex 8000 using Prism converters. This 8-track mix was then used for the film as well as the CD, the CD being a reduction of the film mix, 24-bit digital to a Nagra D.

"Basically we dealt with the live board mixes in every case except for cues that required overdubs or sweetened material," says scoring and re-recording mixer Sean Murphy. "We did mix down a couple of cues that required either vocal overdubs or, in one case, production – in other words, it was designed to be overdubbed – and so ultimately we went to the dub with 8-track mixes that were then edited and aligned to picture with a ProTools 24-bit system.

"The picture was not completed when we recorded the score, with large portions of the film still being in temporary form due to visuals – primarily optical effects not yet finalised and computer effects not yet manufactured. Given the structure of some sequences in the picture we were relying on those final form opticals, and so what we did was score to a picture that was an approximation, and then the music editor, Ken Wannberg, was assigned the task of aligning the existing music to the new picture. Therefore, what you hear in the picture is a manufactured track from material that was meant to be there but in adjusted synchronisation with the new picture, whereas what you hear on the CD is more of a compilation of the original material that was recorded for those sequences, and in some cases cut down due to time constraints."

### Rational Foley

Meanwhile, in terms of the foley there was a similarly rational approach. After all, having worked on the project for so long and ensured that there was a comprehensive temp mix, Ben Burt had a fairly good idea as to where the music would be and what could possibly be heard over it.

"We would say things like 'Don't worry about this. You'll never hear the footsteps,'" Tom Bellfort recalls. "However, Foley also contributed to some wonderful effects, and so they did a really terrific job."

"We did everything that moved," asserts Dennie Thorpe, who, along with Jana Vance, were the Foley artists on the film. "You see, even if we're only going to use Foley in conjunction with sound effects or production effects, we have to be there when all of the production sound gets

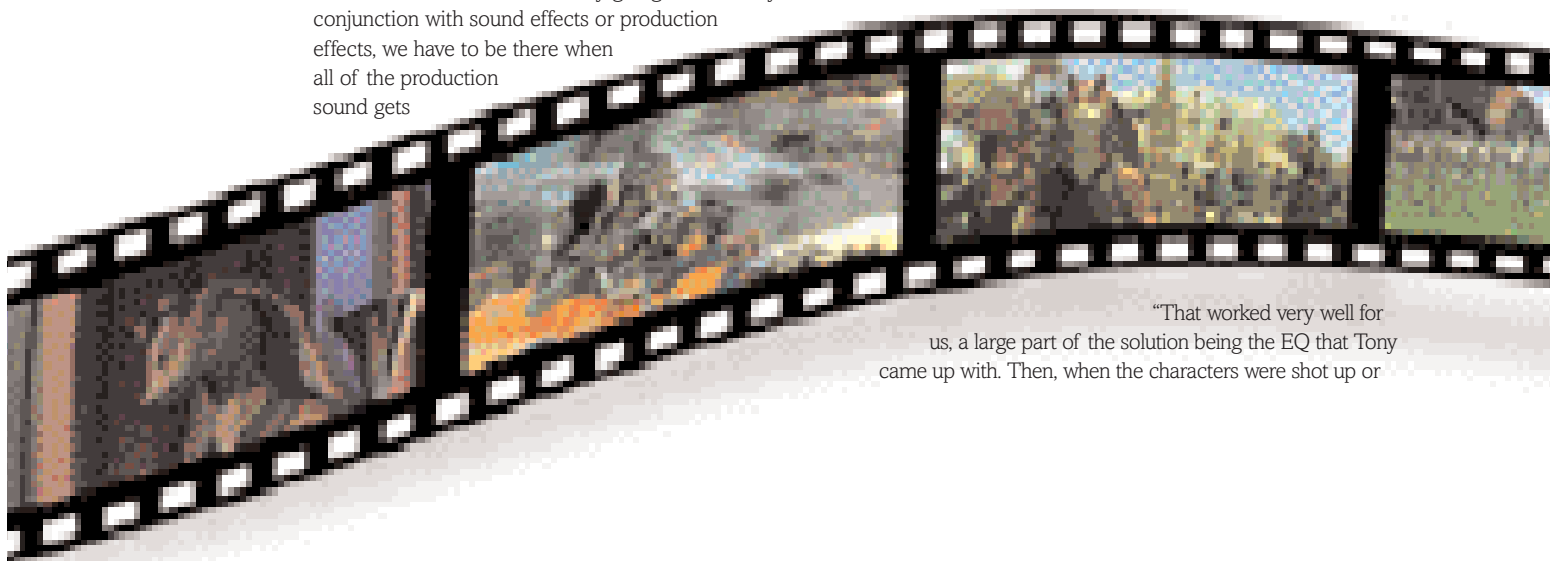
stripped out for the foreign versions."

Thorpe and Vance divided the main characters between them – the former taking care of footsteps and so forth for Anakin Skywalker, Queen Amidala and Obi-Wan Kenobi, while the latter did the same for Jar Jar Binks, Qui-Gon Jinn and Darth Maul.

"With whatever we do, we always want to convey that there's a reason for us to make a specific sound," says Thorpe. "Obviously the actors are telling the story and there are certainly production effects and other sounds cutting in and out, but we're all working together to create a sort of translation of what you're seeing into sound. For our part we had to deal with plenty of wet, gushy sounds, metallic sounds, and zingy sounds.

"For instance, there's a sort of slapstick scene between Jar Jar and another character named Sebulba that takes place in a marketplace – Jar Jar sees all of this food, he gets hungry and wants to take something from this iron grille that the food is hanging off. There's very little happening except for the characters' voices and what they're doing, and so we were happy to be assigned the squeaks of the iron grille, as well as other effects such as Jar Jar's tongue zinging out to grab a piece of food, the food then flying through the air and splashing Sebulba as chaos ensues. To that end I was crunching food, mashing my hand inside a cut orange for the sloshing sounds, and flicking a metal Slinky inside a box for some of the more zingy sounds. Added to that were the footsteps and all of the other background stuff that we put in, helping to make the whole scene come to life.

"By that time we'd already gone out shopping and acquired all of our props, because on this film we weren't completely set up in the studio for every eventuality. We looked at the film with Ben and with our sound editors and Foley editors, and then Jana and I went out shopping to various junk stores and recycling places for all of the materials that we wanted. Then, in terms of the recording, our top mic was a Neumann U87, and we used that in conjunction with a PZM and a room mic, and Tony Eckert mixed those three so that we could get perspective on our sound. That's something we really like to do in Foley. We don't want it to sound like it's in your face all of the time, and so as the characters walk through the hangars and the palaces and the courtyards their footsteps sound different on every surface, whether it's cement, marble or whatever.



"That worked very well for us, a large part of the solution being the EQ that Tony came up with. Then, when the characters were shot up or

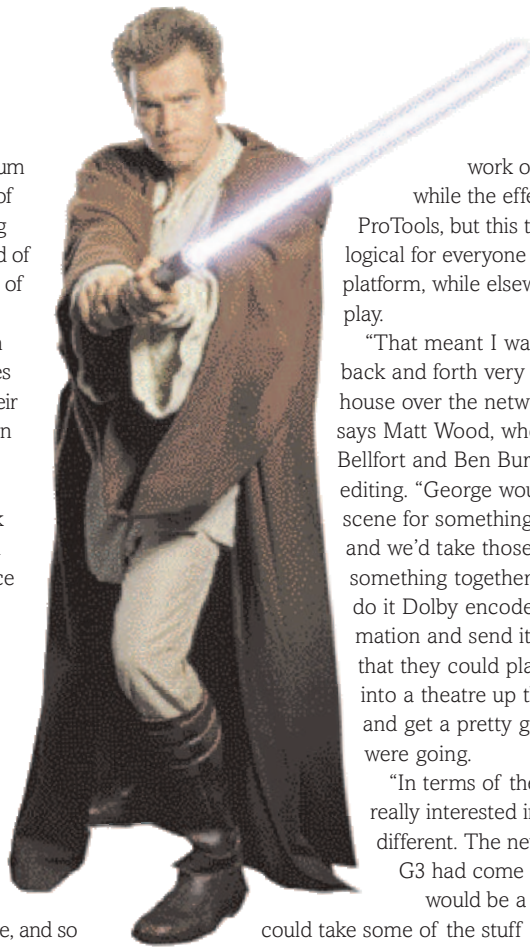
blown apart, we'd use various old vacuum cleaners, jacks, drills and heavy pieces of iron, so that each head and arm and leg and hand and maybe torso had a sound of its own. Added to that were the sounds of the characters touching themselves or each other, and given that a lot of them are not human we would use pineapples or coconuts or even cantaloupes for their skin surfaces. We get a lot of satisfaction doing that sort of thing."

Dennie Thorpe, in fact, also did Foley work on *Return of the Jedi* back in 1983, a film in which C-3PO had a somewhat more complete appearance than the skin-less, work-in-progress look that he boasts in *The Phantom Menace*.

"He had a whole different set of sounds in Jedi," says Thorpe. "For this movie we just ended up using a large stainless steel salad bowl with wires, whereas in Jedi – where you couldn't see inside of him – we manipulated ice trays along with some other aluminium, metallic sounds. There again, in both films his feet are complete, and so for those I used these really old-fashioned, eighteen-inch-long kid's skis which sound sort of like flippers when you put them on and walk on the various surfaces.

"Foley can be a bit mysterious when you're sitting up in the control room because you don't know what we're using, but then when people come down onto the Foley stage and see us work it appears as if all we're doing is playing all day. They really like that, while at our end we're sometimes wondering if our stuff is going to cut through. However, the sound effects department always leaves room for Foley – we've worked with those people for quite a while now and they know what kind of things they can leave to us."

"We knew right from the beginning what effects could do and what Foley could do," adds Tom Belfort, "and so the tracks themselves were not as typically dense as on other movies. You know, what happens frequently is that everybody duplicates everybody else's work and then you throw it out, but that rarely happened on this project."



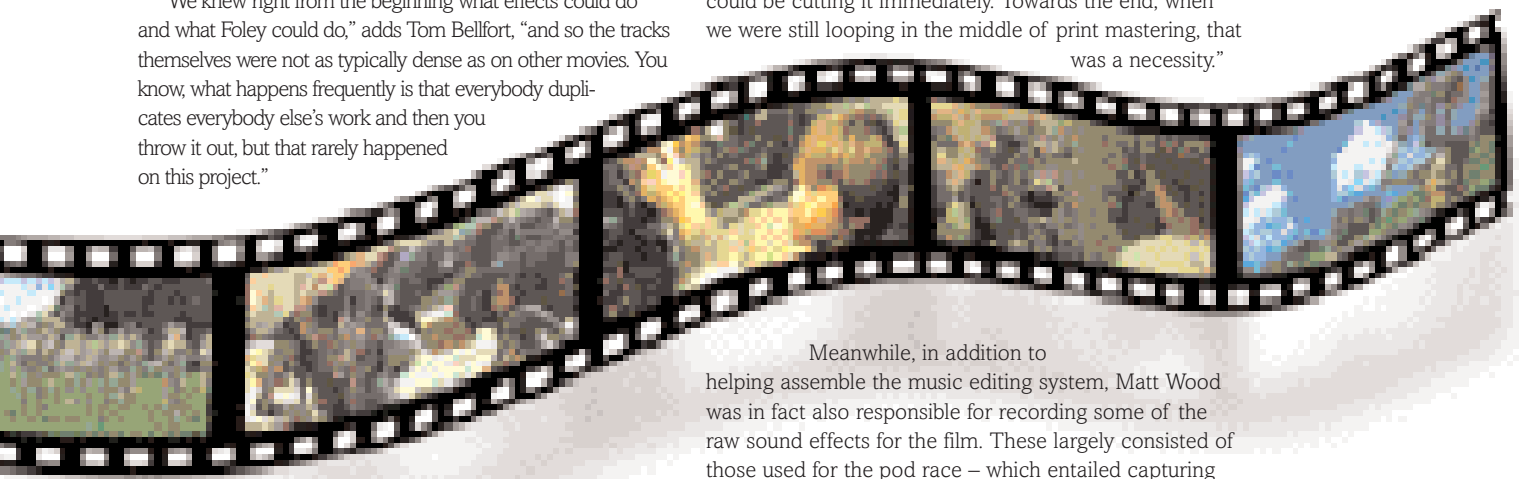
work on Timeline Studioframes while the effects department utilises

ProTools, but this time around it seemed logical for everyone to be on the same platform, while elsewhere Avids came into play.

"That meant I was able to transfer files back and forth very easily up to the main house over the network here at the Ranch," says Matt Wood, who assisted both Tom Belfort and Ben Burt in terms of the sound editing. "George would work on an effects scene for something like the space battle, and we'd take those tracks and we could cut something together pretty quick. We'd even do it Dolby encoded with surround information and send it back over the net, so that they could play it off their Avid right into a theatre up there at the main house and get a pretty good idea as to where we were going.

"In terms of the ADR recording I was really interested in doing something different. The new Apple Mac Powerbook G3 had come out, and I thought it would be a good test to see if I

could take some of the stuff that I had been doing in the studio with the ProTools system and try to apply it to a portable-type system. I therefore built like a portable ADR recorder; it's got a preamp, an AD converter, a mixer and video distribution with streamers, and I had all of the information that Tom spotted in the computer – so effectively I was able to be a recordist. I could go into a quiet room anywhere and record, and when we worked at places like Magmasters in London and the studio in the Bahamas I had a complete backup in case it failed. With that setup, the second we had completed some ADR, I could take that information, back it up to CD and I could also send it back home over the Internet so that they could be cutting it immediately. Towards the end, when we were still looping in the middle of print mastering, that was a necessity."



Meanwhile, in addition to helping assemble the music editing system, Matt Wood was in fact also responsible for recording some of the raw sound effects for the film. These largely consisted of those used for the pod race – which entailed capturing the sound of cars going around a race track – while the overwhelming majority of both new and classic effects came from Ben Burt's vast library of sounds.

"A lot of it is on quarter-inch tape," says Wood, "so we

### May The 'Tools Be With You

Another departure from tradition was the uniform use of ProTools at Skywalker. Normally the dialogue people

actually went straight from that format through an Apogee AD converter and into our system, enabling us to get the purest sound out of the source tapes. We ended up with something like 1500 newly recorded sounds for the film, and, unlike most sound designers who will just give you a list of raw sounds, Ben actually cut them into the film as we went along and was able to distribute cut sessions to the editors. From an editing standpoint that was a great template to work from.

“The pod race is one of the main scenes in the movie and Ben worked really hard on it for a long period of time. It’s not music-driven, it’s basically all visual effects, and George wanted a different sound to represent each pod. We had to get pretty creative there and editorially it features a lot of quick cutting, so it was hard to really get a sense of the slow-medium-fast approach in a shot that lasts two seconds. It was pretty challenging, but throughout the project we had a good idea of what was coming in terms of visual effects. In fact, Ben also worked in the animatics department and they put together a virtual storyboard – a low-res video representation of what Industrial Light & Magic was going to produce for each shot – and it was great to have that temporary version to work with early on, transfer our efforts to his Avid so that he could listen to them in a theatre, and then get his feedback.”

Among the aforementioned 1,500 newly recorded sounds were recognisable oldies such as the light-sabres and lasers, which often amounted to the original elements being tweaked to meet with present day demands – take a listen to the new double-ended light-sabre for instance.

“We used a lot of tools for processing,” says Wood. “One of them was the Kyma [made by Symbolic Sound], which is basically a giant DSP device that has the software control to do anything. In addition to that, Ben also has a Synclavier which he used a lot, and then there was a vast array of plug-ins on ProTools.”

### Final Touches

At the same time, the comprehensive use of ProTools at the Ranch also proved to be advantageous when, at the last minute, Tom Belfort was able to help cut some of the Foley and dialogue without even a hitch.

“It was really pretty smooth sailing all of the way,” he says. “George knew exactly what he wanted. He would sit through the mix and give us his notes, go to his editing suite and do some of the fine cutting, and then we would have playback. It couldn’t have been more straightforward. The lack of stress was exceptional, and I cannot think of too many films that I’ve worked on that have been like this. It was a really sweet job and there are very few of those around.”

After each big effects session on ProTools the results would be divided into pre-mixes for Gary Rydstrom, who would then solo up to 24 outputs per pre-mix on the Neve Capricorn and go to the Tascam MMR-8 24-bit eight-track digital dubbers.

“The main challenge on this project was to live up to what people heard before on these movies, as well as to their expectations for the new movie,” he says. “That’s why Ben Burt’s contribution was indispensable. He knows the sound universe of these films pretty well – he knows how we should deal with the laser swords and space ships and so on, and he really kept an eye on how we did things so that they were consistent with what was done before. I would then try to go just a little wilder, making the laser sword fight one step up from the previous movies by spinning the sound into the surround and over the audience’s head, and doing all sorts of fancy tricks that would place viewers more within the action.”

The result is an interesting blend of the cosily recognisable with the subtly new, highlighting the sonic advances that have taken place since the Jedi last appeared on-screen back in 1983.

“Just having digital editing and digital mixing is so revolutionary,” says Rydstrom. “Finally we can control where things are panned and how we blend them together. It’s pretty striking. Our use of spatial playback in the theatres is much easier and much better these days,

and in that vein we had one more surround channel that we could use for this film. I had three surround channels and three front channels, and it was really nice to take advantage of that.”



“Our problem is to match the scope of what people are seeing while not being guilty of overkill”



Foley artists Dennie Thorpe and Jana Vance: not just ‘playing all day’.