STAR WARS SPECTACULAR!

An INTERTEC®/PRIMEDIA Publication

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An Exclusive Look at the Post-Production For *Episode I*

On Tour

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The Mix Interview

Blondie

GEORGE LUCAS WITH THE *EPISODE I* SOUND TEAM AT SKYWALKER SOUND

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MUSIC FOR

John Williams' first three *Star Wars* scores are instantly recognizable throughout the world, a part of the common musical lexicon. Listeners need less than a dozen notes to recognize the opening of a *Star Wars* movie, the entrance of Darth Vader or the heroics of Luke Skywalker. For *Episode I*, Williams joined with scoring engineer Shawn Murphy and music editor Ken Wannberg, both longtime associates, in Studio 1 at Abbey Road and crafted what is sure to become another classic.

John Williams and Shawn Murphy With the London Symphony Orchestra

Wannberg first worked with Williams on 1968's *Valley of the Dolls*, and has worked on all of his big films since, including all three *Star Wars*, the three *Indiana Jones* movies, *Jurassic Park*, *Schindler's List* and so forth. Only Williams knows exactly what he wants, but, of the rest of us, it's fair to say that Wannberg has the best guess.

George Lucas and John Williams at Abbey Road

Williams and Wannberg began by spotting the film, such as it was, with George Lucas at Skywalker Ranch. *Phantom Menace* has some 2,000 computer-generated/enhanced shots, so a great deal of the picture was missing from the early print. Still, says Wannberg, the print was more complete than the print used when they spotted the original *Star Wars*. By the time all was done, there would be over two hours of music composed for the film.

Back in Williams' offices at Steven Spielberg's Amblin Entertainment in Los Angeles, after the spotting session, Wannberg noted start and end times and duration for each cue. Each cue was broken down into seconds, noting all cuts, dialog and action. That is what Williams writes to. It was important to note what video was used for each given cue, because updates regularly came in as picture continued to be edited.

"He has to write a minute-and-a-half of music a day to make the schedule," says Wannberg. "That's a fair amount of music for the way John writes because he actually writes everything out; he doesn't play on the synthesizer into the computer, which a lot of people do today."

The huge quantity of music prohibited Williams from revising cues as new versions of the picture came in; forward motion was paramount. Wannberg matched new cuts to the breakdown and noted the changes. Up to this point, Wannberg's job was mostly administrative, but now he had to evaluate which cues could be reconformed with editing in post-production and which required revision by Williams. As a consequence, Williams and the London Symphony Orchestra would record music that did not always fit the picture at the time of the session.

Shawn Murphy

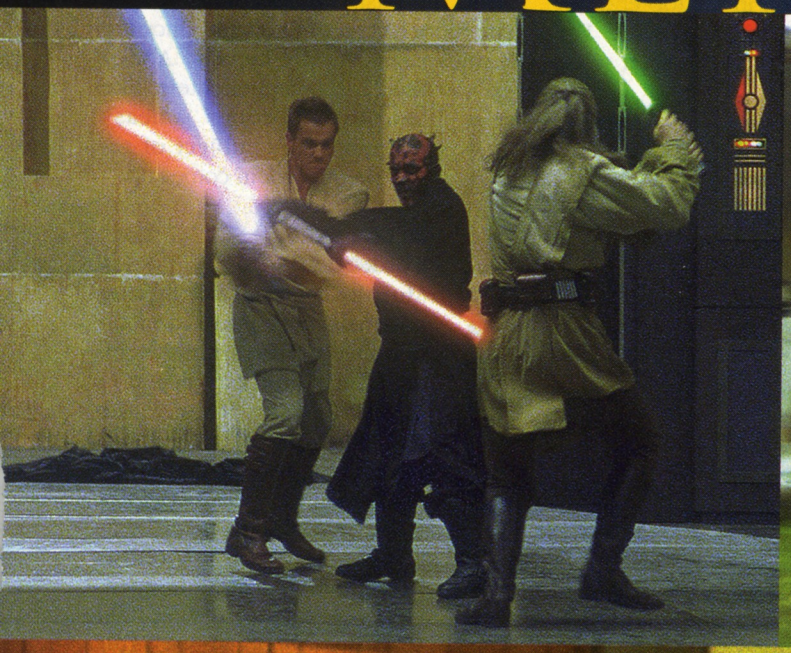
PHOTO: © STEVE JENNINGS

First-call scoring mixer Shawn Murphy began discussions with Williams and Wannberg in late September, bringing ten years' history of collaboration (*Jurassic Park* and *Schindler's List* are but two examples). Sessions were booked at Abbey Road Studio 1 in London, a room Murphy has worked in often. Consequently, his preproduction was brief but comprehensive.

"My contacts are typically with the sound crew at Skywalker," Murphy explains. "I spoke with Gary Rydstrom and some of the

THE MENACE

BY LARRY THE O

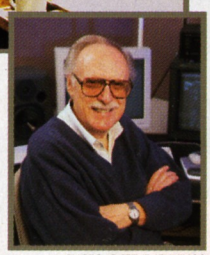


John Williams conducts the London Symphonny Orchestra

engineering crew about what format we'd be working with once we got to the final dub. I've worked at Abbey Road so much that I don't have to be very detailed because the assistants there know what my standard orchestral setup would be. And it was going to be the London Symphony Orchestra, nothing in the way of peculiar instrumentation. It was pretty straightforward."

Murphy and Williams both knew that the score would have to be recorded in a way that would translate into impact and immediacy. "We were looking for a natural acoustic," explains Murphy. "It's a summer picture, primarily action-oriented, there's a lot of brass and percussion, so our approach acoustically needs to be versatile enough to retain some control while still [making] an orchestral picture 'stick to the screen' adequately. It has to have some flexibility, where we could make it a little more lush, through processing, for the CD, and keep it a little less lush for the picture because it has to be able to hold its own against some pretty large-scale effects material."

That flexibility was gained through classic sound engineering, according to Murphy: the right mics, positioned correctly, with proper seating and a great composer/conductor for the right balances. "On our main mics we might be a little closer, we might not let it be as far back in perspective as we would [for other projects]. Studio 1 is fairly bright, which means overall EQ isn't going to be needed in the top end because of the room's characteristic. For the seating, I try to maintain a wide perspective but limit the depth, because if you can control the depth from the main mics to the woodwinds and percussion, you won't need to use spot mics as much, and it helps pull it more toward the screen in a beneficial way."



Above: Shawn Murphy kicks back while producer Rick McCallum chats with George Lucas in Studio 1's control room. Right, music editor Ken Wannberg.

PHOTO: © STEVE JENNINGS

On February 5, Williams, Wannberg, Murphy, Lucas, Rick McCallum, the LSO and a 92-voice choir filed into the cavernous Studio 1, whose history spans Sir Edward Elgar's opening of the facility in 1931, through The Beatles (who used Studio 1 for their orchestral work), and on to the past two *Star Wars* scores. The room has hardly changed since the Beatles years, mostly because Abbey Road's classical clientele, like Murphy, become uneasy whenever the subject of reworking the room comes up.

DECCA TREE, SURROUNDS

Murphy's orchestral miking scheme is built around a modified Decca Tree arrangement, with the main room pickup of three Neumann M50s on the tree, plus a pair of string boosters on the wide left and right sides—in this case AKG C12s. The "surround mics" are usually "tipped-up" omnis (omnis with a rising frequency response for distant-field pickup): Sennheiser MKH20s with the top end tipped up, B&Ks tipped up with the bright grid on them, or a Schoeps MK3.

"The variables you have with the main trio of mics are depth into the orchestra, spacing of the mics, height of the tree and angulation," Murphy says. "At Abbey Road the tree height generally resides between 10 or 11 feet. It's quite critical—you can actually jiggle your way in between 10 and 11 feet and hear dramatic differences. In this case, the tree ran at about 10 feet, 6 inches. Usually for film, I try to line up the back arm of the tree, the M50s, at about the split of the first stands of violin and cello, so they're in a little bit farther than where it would be for a classical recording. The spacing on the rear M50s was 42 inches, front was 36 inches from the back bar, and then 12 feet out on either side were the C12s, six inches lower than the tree and angled a little more into the orchestra, as opposed to flat over the strings, so they were picking up a combination of horns and strings on the left, brass on the right.

"I used a wide cardioid pattern [on the C12s]," he continues. "Big capsule omni is obviously not the best thing in the world because you have anomalies. The pattern is not even and your off-axis response tends not to be attractive, but wide cardioid tends to be much

SPOT MIKING

Woodwinds were miked with a combination of Schoeps cardioids and hypercardioids, which went directly from the mic preamps to tape. Horns were covered by an AKG C24 stereo mic, bused to mono, as it was being used for angular pickup, as opposed to stereo. Brass had a U47 for overall coverage, with a pair of U67s on the trombones (bused to tape), a TLM170 on tuba (straight to tape), and a Coles 4038 on trumpet, also going straight from the preamp to tape.

Percussion was covered with KM84s, except for bass drum, where a KM83 or a Schoeps omni is used. Murphy buses the percussion according to its position in the room: "I tend to do that with percussion: I'll select left, center and right, or multiple left, center and right busing, so that, wherever it's bused, when I remix it automatically appears in the right position in the room, so I don't have to remember where things were." Timpani are miked with a U67 going straight to tape.

String spot mics included a U47 on the first chair bass, B&K 4011s on violins and violas, a U47 on the cellos, and a KM54 tube on the harp. For keyboards, a pair of Schoeps cardioids were on the piano and a TLM170 was on celeste.

—Larry the O

more even on a large-capsule mic. On the C12s, you have gradients on the pattern selector: cardioid, omni far left, figure-eight far right—you can basically step your way toward omni. We find that we go one step less than omni on those wide mics."

Murphy usually places the surround mics in the audience perspective, about 30 feet from where the podium would be, but at Abbey Road he couldn't go back quite that far. "I try to get them up as high as I can," he says, "20 to 25 feet if possible, spaced about 30 feet apart, pointed straight out into the room. Basically, they're looking at the distant pickup ambience of the room.

PREAMPS, PROCESSING, RECORDERS

The main mics were plugged into Millennia Media preamps, which were then fed directly to two Studer 820 2-inch analog 24-tracks, run at 15 ips with Dolby SR. Ampex 456 tape was used, calibrated to 320 nWb/m, Abbey Road's standard calibration, but somewhat hotter than Murphy's usual level.

The preamp outputs were normaled through the patchbay to the console so that Murphy could flip the bus/tape switch on Studio 1's 64-input Neve VR and go back and forth between monitoring the machine output or listening directly to the preamp.

Spot mics were fed through Grace, Boulder and a few GML preamps. "I like the Grace preamps for spot mics in that they have a slightly softer characteristic and they're particularly good with ribbon microphones," says Murphy, "and the Boulders are kind of an old standby for me for brass and horns. I like the characteristic of a tube mic going through a Boulder transformer preamp and then straight to tape."

No dynamics or console EQ was used, but Avalon 2055s were used on the mix buses for overall EQ: "A little bit, maybe 2 dB, of top-end boost, as high as it will go, which on the Avalon is over 20k, I think, a little bit of low-end boost, like 2 dB at 15 Hz, and a dB out at 600 Hz, just for clarity."

All of this was printed to the 24-tracks, with a separate 8-channel, 24-bit mix printed to two Genex MO recorders (a master and a safety) through Prism converters. The same mix was piped via AES/EBU to a Yamaha 02R, where a stereo submix was created for the CD and printed to a 24-bit Nagra-D recorder, as well as a 24-bit DADR-5000 sent over by Sony (the score will be issued on Sony). Several DATs with Genesis converters received another 2-channel mix. The DATs were fed analog because there wasn't a convenient method at hand of dithering the 24-bit mix down to 16 bits. The Nagra-D mix was also used for conductor and music editor headphones. Murphy relied on experience and careful phase-checking of microphones and the signal path to ensure 4:2:4 (Dolby Surround) compatibility. Everything was recorded at 44.1 kHz to be compatible with Skywalker Sound.

According to Murphy, the live 8-track Genex mix ended up being used for 95% of both the film and the CD. The eight tracks were: left, center and right orchestra; left, center and right synthesizer/choir/solo instruments mix; and stereo surround channels. "The surrounds consisted of the two mics I described, plus an addition of the reverb returns from the discrete left-center-right reverbs that were added to the close mics of the orchestra," Murphy

explains. "Lexicon 480s were used for that, the synthesizer used a [Lexicon] 224XL, and for the solo instruments—flutes, pennywhistles, that sort of thing—we used a Lexicon 300. In those cases, after returning the reverb to the console, I assign a couple of aux buses that feed the surrounds directly, so that I can basically just tweak the reverb return to surround selectively."

THE MURPHY METHOD

Williams' working method calls for printing mixes right away. "John likes to rehearse the cue once or twice, then make a take and listen to a playback, and I think it's very effective," Murphy says. "Everyone will make the appropriate notes to their parts, and then they'll go out and make a couple more complete takes, maybe even three or four, depending on the feel."

Spots that were not satisfactory in the complete takes were recorded as pickups, where Williams relies on his internal sense of timing and a sweep-hand clock. "John puts landmarks on his score by clock time and sets the tempos in his head," Murphy explains. "He's looking at the picture, and there's streamers on the picture to mark where important points are to be met, but the timing is internal and is based on clock time, so his most important synchronization point is the sweep-hand clock in front of him."

As Williams works through the rehearsals, Murphy gets his levels and mix going. While the first take is printing, Murphy is running an initial pass with the VR's automation. Each take or pickup thereafter, he refines the automation, printing final mixes *and* automation on-the-fly.

"When you're trying for a live mix, you're privy to conversations taking place between directors and composers and editors at the time of the scoring session and you react to that in your mix," he says. "The director says, 'It would be great if I could hear more of that flute,' or 'That drum wasn't so loud,' and you make a mix that responds to all those things live. If you go back without automation and try to remix any of that, you're really not privy to those conversations anymore. I think that's a disaster. Why not try for the best live mix you can get and then finalize it from the point at which you stopped? If I feel, 'I misjudged the woodwinds for this phrase,' I can trim it up and fix it in a jiffy."

The few cues that needed to be mixed after the fact were done at Skywalker Sound and the scoring stage at Todd-AO in Studio City, both of which have Neve VR Series consoles. Murphy transported the automation files from Abbey Road and simply picked up where he left off.

FIRST, THE CD VERSION

After completing mixing at Todd-AO in early March, the music team turned their attention to the CD release. Sony wanted to put the soundtrack CD out three weeks before the film release. The album was slated to hit the streets by May, so a master needed to be done *very* fast.

"To expedite that, we had the classical editors at Abbey Road take our edit notes and actually put together complete takes of each piece of music on their Sonic Solutions system in London, printing both to Nagra-D and Exabyte," Shawn Murphy explains. "Then John did a plan as to what pieces he wanted on the CD, which usually is a montage of some sort. We brought those to A&M, where we usually do our assemblies. Pat Sullivan, who is our engineer, unraveled the Exabytes, and we put all of that up in her computer and did the montage there. We mastered on her Sonic System, doing additional editorial work, montage work, a little overall EQ—using a 96k/24-bit Weiss EQ, which is the best digital EQ I've heard—and adding a little bit of ambient material because it was intentionally made a little bit close for the screen. When you listen to the whole thing put together, you tend to go into more detail on the CD because it's something you're going to hear over and over. With the film, because of the sound effects and the dialog, you might not hear a room noise or a slight blemish that's going to be covered."

—Larry the O

MUSIC FOR THE MENACE

The days at Abbey Road consisted of two three-hour sessions, with only one day seeing a triple session. On February 21, after 11 working days, the sessions were complete and 128 minutes of music had been recorded. Wannberg and Williams then sat down to suss out the best parts. "We have a session afterwards where we listen to all the takes and he'll do a roadmap [that marks the score to show which bars come from which takes], so there's a lot of editing to do before we even put it to picture," Wannberg explains.

At Skywalker Sound, Murphy remixed three takes from the first day to make them consistent with the rest of the recordings (which were slightly different based on feedback from the first day). Two other pieces also required remixing. The first was a choral piece where the choir was recorded separately from the orchestra, allowing the two elements to be used independently in the film. A mix of this was done at Todd-AO for Lucas' review, and a CD mix was also done at Todd.

The other was a large parade piece, which involved substantial overdubbing of synthesizer, percussion, a children's choir and effects, eventually totaling 44 tracks. In late March, deep into the final dub, this was mixed for film at Skywalker and CD at Todd-AO.

BACK AT THE RANCH

By mid-March, Murphy was back at Skywalker to handle re-recording in the final dub. Two weeks later, when I spoke with Murphy and Wannberg, the mix was rolling along, with five of the reels completed. But we all know that this film is not the last of the story, and Murphy is already planning what he'll do differently next time. "We talked about the possibility of the next one being recorded in a larger venue that's more of a symphonic acoustic—perhaps Watford Town Hall or something that is more of a concert hall acoustic—not much to change the perspective but to change the ambient character that surrounds the orchestra."

Oddly, however, this team faces the unique challenge of hurtling headlong into the future only to arrive precisely where they started decades before. "How's the thread going to stay put?" Murphy muses. "Musically, that's of very great interest: How do you start off with 95 percent new music in this *Star Wars* movie and wind up at *Episode IV*, the first one we all saw, making sense musically?"

Murphy disappears back into Mix A to start reel 6, but his question hangs in the air like a lingering whiff of a tantalizing aroma. This musical conundrum, which starts to unfold only a few short weeks from now, fits seamlessly with the movie's story; just one more subplot in the saga. ■

Larry the O would like to thank Shawn Murphy and Ken Wannberg for taking time out of an intensely busy schedule to offer their insights. And thanks to Ellen Pasternack of Lucas Digital for arranging it all.