

Wendy Carlos: In the Moog

by Chuck Miller

It's more than 35 years after Wendy Carlos merged a collection of Bach's greatest compositions with the Moog Synthesizer. The finished product, *Switched-On Bach*, became a landmark album, one of the first classical LPs to dominate the Pop chart and one of the first all-electronic albums to chart, period. It spawned an invasion of Moog synthesizer albums and singles (Hot Butter's "Popcorn" and LPs with titles such as *The Cow Goes Moog*). *Switched-On Bach* also earned Carlos a Platinum Record award and three Grammy® Awards, including one for Best Classical Album, and has inspired a generation of synthesizer-based musicians from Brian Eno to Trent Reznor.

But *Switched-On Bach* is not Carlos' only achievement. She has continued to expand her music beyond the limitations of the early electronic music devices, her albums *Sonic Seasonings* and *Digital Moonscapes* have become staples in New Age music libraries, she premiered a 35-note octave in her *Beauty In The Beast* album and her soundtrack to *A Clockwork Orange* features the first use of a vocoder. Her work on another soundtrack, the Disney cyber-fantasy *Iron*, merged her synthesizers with the London Philharmonic Orchestra, while her work on another album, *Peter And The Wolf*, merged her music with the whimsy of "Weird Al" Yankovic.

For the past five years, Carlos has gone back to the original master tapes for her classic albums, preparing them for CD release by East Side Digital (whose label roster also includes The Residents and Henry Cow). Four of her most famous classical albums, including *Switched-On Bach*, were released in a deluxe CD package, *Switched-On Boxed Set* by East Side Digital in 1999; the boxed set also includes a downloadable synthesizer for your computer as well as a digital snapshot of her voluminous wendycarlos.com Web site. Reissues of *By Request* (ESD 81592) and *Secrets Of Synthesis* (ESD 81602) came out in November 2003. *By Request* contains some avant-garde excursions, including a synthesized version of "What's New Pussycat?" On *Secrets Of Synthesis*, Carlos narrates about how synthesizers can be used to create music, and it features snippets from her previous albums.

In this exclusive *Goldmine* interview, Carlos talks about the CD reissue of her classic albums, her feelings about compact discs over vinyl pressings, the music in her own record collection and the events of Sept. 11.

Goldmine: Has working with ESD been everything that you'd hoped for; in getting your product released and promoted and presented in a way that is preferable to when it was originally released?

Wendy Carlos: It's been really fine, and it was a chance to get away from that kind of big, monolithic government-like aspect that I had dealt with for so many years before. For some-



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Wendy Carlos, surrounded keyboards of many types.

one like me who had already wallowed in getting lost in the cracks of a large company, this was the natural thing. It's something that you have to try East Side Digital — they're such nice, bright, honest people, how can you not help but just at least be comfortable in the process? It even feels like we're all in it together, and that's something I didn't really feel before.

When it came time to remaster the albums for CD release, how did you deal with the age of the original master tapes and that some of the binding on the tapes had actually stuck together?

I was a fairly faithful person to 3M tape, although we had tried Ampex tape — *Sonic Seasonings* masters, for example, are all on Ampex tape — and 406 tape was the number that was still a good tape. By the time they reached the mid-70s, Ampex started in with these horribly unstable polyurethane-based binders. And if you've ever had anything made out of polyurethane, I think it's one of the worst chemistries devised. I understand that it has certain flexible or sticky properties, but it's a very unstable chemistry, and Ampex got burned. And 3M idiotically — and how often have we seen this happen — the one with the right answer went and copied the one who didn't know what they were doing. But they didn't do it until the end of the '70s, into the '80s, so my tapes that are unstable are

between 1980 through 1985 [including the *Iron* soundtrack]. I feel myself to be very lucky that the tapes made before and after that are fine. But those five years — yes, it's really hell. I must be sure that I handle these tapes appropriately, or they could all be lost.

The East Side Digital discs have a digital watermark on them from Aris MusiCode. You're very proactive in alerting your fans about bogus CD-Rs. For the longest time there were pirated copies of Iron on CD when none ever existed before, or CD-Rs of the soundtrack to The Shining where none ever existed.

Yes, my lawyer is extremely aware of these things, and she's on the Web a lot. When she found them, she was appalled, and she came over and showed me. Unless you're a rock 'n' roller or jazz musician or one of the big performers — usually not the composers in classical music — it's hard to make a living, and there you see rampant pirating. It's even worse now with the MPEG-3 thefts, and nobody much cares. It's the kind of thing that intellectual property is as real as any other thing that somebody can do, and I don't understand how it can be suddenly felt that it's everybody's right just to steal us. If they killed the geese with the golden eggs, they will have no more new music made. And the fault will be their own.

People who are purchasing pirated CD-Rs are missing out on bonus goodies on the East Side Digital CDs. On the Switched-On Boxed Set, there's a downloadable synthesizer for your computer. An article you wrote on tuning, "Tuning At The Crossroads," is part of the enhanced CD of Beauty In The Beast.

You're supposed to give people a bang for their buck. You don't blink twice. You try and do the best job you can. They're buying your records, and you should make sure you give them something. I'm just appalled that it isn't more widespread. You try to respect the fans and all of that and the people who have invested themselves in you.

You were a mastering agent at some point when you were at college, right?

Ah gee, how urban legends get formed. It's true, I did do mastering — when I left graduate school, my first job was as a recording engineer in a small older studio in New York that had a lot of old radio contracts and government shows, Department Of Defense and all kinds of little things. It was a really lovely occupation, and I prided myself into doing a really careful, attentive job and keeping their equipment tuned and tweaked to the best it could be done and learning a lot in the

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process. It was fun. It would put me in good stead when doing my own recordings. All through my years with the CBS Masterworks, we knew what to expect from cuttings.

I ask that because you've had experience on both sides of the fence with vinyl and with CDs. For you, listening to a CD wins out over a vinyl LP, doesn't it?

In at least the standard itself. If you have a CD that's been mastered stupidly, from tapes that were designed to try to make early stereo equipment produce a reasonably bright, good-sounding recording, you can make a CD that's absolutely horrible to listen to, and that might be worse than the LPs that were made beforehand. It can be the other way around. Those little roller-coaster rides that the diamond needles would take in those plastic grooves was an awful thing to do to audio, and I'm surprised it lasted as long as it did. So when people tell me how fabulous my analog recordings sound, I look at them and think, "Oh, did you lose your hearing at too many rock concerts? You're obviously not hearing the intended stimulus properly." But you don't want to come across as being smart-assed — it's really an urban legend.

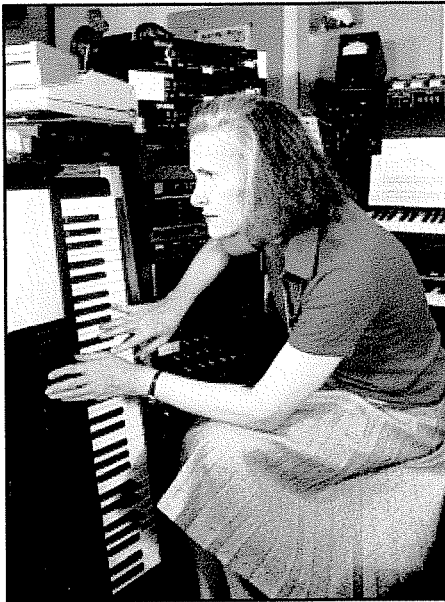
In your own personal music collection, what are some of the recordings that you own that you haven't been able to find anywhere else?

I just acquired one of the best Christmas recordings I've ever heard, by The Melachrino Strings. Somebody decided to restore that album from the 1950s. They went back and got the tape, and they got a very decent recording and transferred it to mono CD. And it's very nice to hear, a very clean sound of what I thought was some amazingly well thought out arrangements. I look for things where somebody is really doing something with a creative insight or interpreting the notes in a special way that makes my flesh goose-bumpy. I also have on CD The Everest Collection. They did some of the best-sounding early [stereo recordings] that I heard. They were just astonishing. The Rachmaninoff symphonic dances, which is a wonderful piece of music — it's light and easy to take. It's like the 20th-century equivalent to Tchaikovsky. In many ways it's a beautiful piece of music. I've also liked some of the lesser-known Respighi works, and they did such a beautiful job on some of that. In the 1950s and 1960s, Everest did some astonishingly good recordings... the engineering was done by Bert Whyte and Ruth Whyte. I knew Bert very well before he died, which was about 10 years ago. And Ruth and I still communicate regularly. My collection would be either composers who are not very fashionable right now, like the late Respighi works — there's some fabulous music there. His *Metamorphosis For Orchestra* is not the popular kind of classical music — it's the stuff that most people just don't care about. But to me it's remarkable music and there's some beautiful recordings that were done. If you want to capture something that's really good, get some of the Everest remastered recordings that have been put out by Vanguard.

On a recent episode of the History Channel's History Lost And Found, they showed the first Moog synthesizer, the original prototype. The one with the brown panel?

Yes. You've been there through the entire evolution of the Moog Synthesizer — for all practical purposes, you've been Robert Moog's research and development specialist.

I don't want to understate his role, too. He will tell you that a lot of this stuff is what had been floating around at the time. It was not anything that was a single big invention. His patent is on his wonderful voltage control filter and making a one-volt-per-octave standard. Those are things that he pioneered. But as far as a system goes, we were doing that sort of thing at the Columbia-Princeton Electronic Music Center many years beforehand. It all came together at that time, and I had cut my teeth on those earlier things and stuff that I had put together in my parents' house when I was still an undergraduate. You could



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get oscillators, and you could get sources of white noise from an FM station that was off the air, and you could take that and get a fairly respectable white noise. And you could get an octave or third-octave equalizer for some fairly sophisticated filtering. I built a few devices using photo cells that had an attack and delay time in light that could be transferred into audio, so you could get a gated circuit to do percussive sounds. Bob Moog and I were both of similar minds — he was the engineering brilliance behind that and I had more of the composer's orchestra's performance skills, but we both spoke each other's languages. We both enjoyed very much the collaboration.

With regard to Switched-On Bach, most people don't realize you were working off of a system that allowed you to play only one note at a time. You couldn't hold down a chord —

None of that existed at the time. In fact, you had to release the note before you could make the next note start, which meant you had to play with a detached feeling on the keyboard, which was really very disturbing in making music.

Plus, the unit also had a tendency to go out of tune on occasion?

Tendency? [laughs] That was standard operating mode. It was an impossibility to keep it in tune — the amount of patience you needed to continually hit it — you had to take out the hammer and bang it and tweak it, and you did it just before recording, playing a couple of notes and then stop the tape and check it again and make sure it hadn't drifted before or after. If it was all right before and all right after, and the performance was only five seconds, you assumed it was close enough for government work, I used to joke. That's what you put up with. And why did you do it? Because you needed the eggs, as the old joke went. What were you going to do — go try to work with the RCA music synthesizer that had its own pint of blood that it required from you? All of these techniques were in their early stages. Most instruments, like a violin, you've got to really cajole into working nicely. An oboist has to wait until you get just the best reed and then put it aside for the really good performance. Most instruments are a little fickle, and the synthesizer was no different.

I interviewed "Weird Al" Yankovic three years ago, and he commented about collaborating with you on Peter And The Wolf, "Wendy Carlos was an amazing talent — a real thrill to work with her. Her musical ideas were astonishing."

That's lovely. I have to thank him for that. It was a beautiful experience — we enjoyed working on that album very much. It was a lot of work on that album too, and I don't think Al

understood that putting together a MIDI orchestra was many months of tedium. But it was also my first experience with using a MIDI, and that was its own initiation ceremony. It was a stimulating thing, and it was a great chance to let your sense of humor out of the cage. Because I was so involved with people who are I think a little bit frightened to show their human natures, and in serious music if there's a smile, they try to hide it right away, whether it be a humorous smile, like the Beethoven 9th Symphony where the contrabassoon and the bassoon are going pfft-ta-ta, pfft-ta-ta — it's a very funny passage. Improvisation and sitting down with a blue pencil and editing it and doing it the written way, those two things work like yin and yang together, and they shouldn't be cut apart like cojoined twins separated at birth. The music should have enough meatiness in it that you should be able to get something off the bone. It shouldn't be only bones that we're getting.

Your Wendycarlos.com Web site has a plethora of information not only on your performances and compositions, but also on topics such as the history of quad and surround sound, the process you underwent to save and restore the Tron master tapes, your study of eclipses and color spectrography —

Oh, you ain't seen nothing yet. There are plenty of interesting topics I'd love to find the time to put up there. Part of the reason that I try to put a lot of these lengthy treatises and essays about what I've done... is to hopefully inspire some other young people to follow along in the same path that I've been following. It's going to be there after I'm dead, and there's still going to be plenty of things to investigate, just as there were before I came along.

One of the more poignant parts on the Wendycarlos.com site is the area with essays and your photographs regarding Sept. 11. After the attacks, you documented the aftermath with photographs. You took pictures of the fire station that was near your house.

Many of us were walking around in a trance. No one seemed to mind, in a way. I was a little bit embarrassed doing it, and I never took any pictures of anyone who was losing it at the time. It's a little less sharply felt right now but not completely. I haven't gotten over that. I just was talking with a couple of friends last night that many of us are still walking around slightly depressed — not quite clinical depression, but slightly depressed. It doesn't go away, and the fact that the fundamentalists on both sides of the ocean are not able to see the folly of that mind-shape, that paradigm, makes it more likely that it will continue.

It seems the big topic among Wendy Carlos fans, now that the last of the Switched-On albums has been released, is "When is the By Request album coming out?"

They do that to me all the time, and they never let up! [laughs] They're also my loyal base of fans, and I try to do my best. People got all upset when the *Switched-On Boxed Set* came out and they didn't hear some of their favorite little technical problems on the album. Some of them were cleaned up a little bit, and they complained. East Side Digital was being inundated with people complaining, and so I had to write an essay on what was actually done to make the sound better on that project so that people would trust me that I hadn't cut off the legs and spliced the legs where the arms should be. There are no longer any hisses on the *Handel: Water Music*, and that took a lot of time to fix. But it's fixed.

Are there plans for new recordings, or are you still trying to make sure that the By Request album or the Peter And The Wolf album are getting cleaned up?

We've got a lot of old things we still want to do. I was talking with East Side Digital — I said, "Let's get the *By Request* album out next." We're going to do that. I think there's going to be an album of unused film-score music of some kind. I'm trying to get another album started, dealing with some surround-sound things, and maybe we'll put out some of the surround-sound tracks of early music, too. We've got the last of the *Switched-On* albums out there, so they'll be in the form that people will remember them by. *By Request* is going to be among the next efforts. [The *reissue* came out in November 2003. — Ed.]