A Guided Tour Of Beauty In The Beast

DURING OUR THREE-DAY STAY AT Wendy's Greenwich Village studio, we had the opportunity to preview *Beauty In The Beast* and *Secrets Of Synthesis*, her new albums for JEM and CBS, respectively. The following are highlights from Wendy's commentary as we listened to the records for the first time.

Incantation. The piece is based loosely on the ritual incantations that go on in Tibet and Bhutan, although it's far more melodramatic than the actual ceremonies. It incorporates the sound of prayer wheels, which is a ratchety effect. I used the vocoder [a Synton 216] to give it that wooden sound. I EQed several of my bell sounds for the Tibetan bells you hear. But I may have built one bell sound from scratch. Tibetan bells are very clear-toned. The tuning is the same one used in Tibetan monasteries. I listened to several records and copied the pitches until I produced the same scale. There's some vocoding on the vocal sounds. What really made that come alive was that I built special patches on the GDS which were designed to be fed through the vocoder. I built a solo voice and a choral tone which optimize the use of the vocoder, so what you get is a digital larynx instead of the usual analog oscillator larynx. The articulations were done with a small mike.

Beauty In The Beast. This is the piece that's addictive. Everyone who hears it wants to hear it again. I did it as a lark. I was trying to beat new material that I was totally unfamiliar with into some kind of usable shape. You'll notice that the first time the theme comes in, it's in 3/4. When it comes back around, it's in 7/8. It doesn't stand out as an odd meter, and that's the way a mixed meter should work. I did that sort of tongue-in-cheek. The piece uses the alpha and beta tunings [see page 64]. The beta opens the piece. It's the tuning with the split fourth [*sings* B♭ C E♭]. You hear the fourth, but the note in the middle is in between the fourth. There's no equivalent in equal temperament. The melody that comes in in the B section has a minor third with a flat second step—not an equal-tempered interval. If you miss that the first time, it comes back with [*sings a minor third with three steps in between*], and then [*sings a minor third with four steps in between*]. It always reaches the same point, but there are more divisions. It's the kind of thing you could never do live.

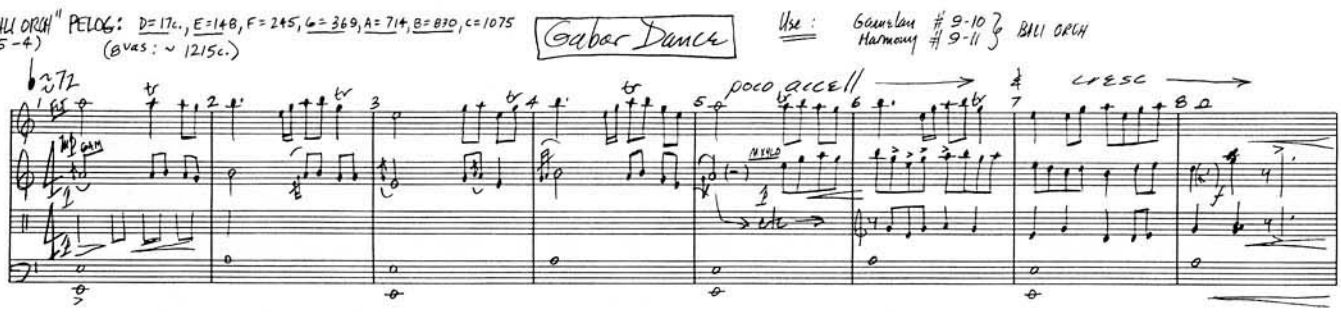
The piece had its way with me. I never intended for it to get so loud. But I found timbres that would sound big and fat like an orchestra, but that didn't sound like an orchestra. People say it sounds more like a big carousel. It's really a-tip-of-an-iceberg kind of piece. I'm not sure how to proceed with these tunings. If I were to take the time to fully understand them, I wouldn't be finished with any music for the next 10 or 15 years.

Poem For Bali. There are eight or nine sections. First there's a long prologue. Then there are what I call Seychell/Bali patterns, based on an ostinato I heard on a *National Geographic* special on the Seychell Islands that reminded me of the Balinesian pelog scale. Then there's a bridge that introduces that wonderfully flexible solo line whose sound is a combination of pan pipes with a bent attack and an English horn. After that comes the barong dance—the dance of the dragon. It's based on transciptions of a Balinese gamelan that I recorded while I was in Bali viewing a solar eclipse. Following that are two interludes—two wailing variants of the first solo. Then it goes into the section that's in slendro tuning. This is a delicate thing that came to mind one afternoon in the islands. I made a recording of a wooden gamelan, which I used to remind myself that I liked what I heard enough to want to do something like it. In this case, I remembered the sound of surf because we were staying close to the coast, and I put it in the background so you'd get the impression this is happening in an imaginary area near surf. This provides a change of pace for the gabor dance that follows. It's a transcription of a different dance, but I've reworked it to include the themes of the other movements. At the same time, I pulled off the stunt of having a gamelan orchestra accompanied by a western orchestra—something that's impossible in real life because the tunings are so distant. To accomplish that, I cheated equal temperament toward the pelog scale and the pelog towards equal temperament. Then there's a coda that ends the piece that's based on the bridge that came third. In several sections of the piece, you'll hear what sounds like voices, but it wasn't done with vocoder this time. I simply built vocal formants into the GDS.

One of the surprises for me was finding out that gamelan music is all transcribed, or at least well-known to the musicians. There's very little room for improvisation, which is surprising because it sounds so spontaneous and improvised. It can't be that because there's so much hocketing. If you're playing on two and four and someone else is playing on one and three, you'd better agree on the notes in advance.

Just Imaginings. This is the piece that took me four hours to work out four measures [see music on page 54]. It's a lovely progression, where you hear the eleventh harmonic of whatever we happen to be on at the moment. I'm using my harmonic scale, with 144 notes per octave [see tuning story on page 64 and Soundpage between pages 50-51]. I thought it would be fun to modulate through the entire Circle of Fifths in the first movement called "Kaleidoscope," because everyone says the limitation of just intonation is that you can't modulate. The second movement, "Chroma," is a floating cluster piece. I wanted to know what it would be like to

A section of Wendy's score for the gabor dance section of "Poem For Bali." Notice the pelog scale notated at upper left. © 1985 Wendy Carlos, used by permission.



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Carlos at her custom-built mixing desk, on which rests (L, top to bottom) AMS keyboard control module, Synton 216 vocoder, two Symetrix 511 noise reduction units, Lexicon PCM 42 DDL, AMS dmx 15-80S pitch shifter/DDL; (center) Synton 221 vocoder; (R) Nakamichi DPM-100 2-track digital recorder on top of Sony PCM 701 and Betamax VCR. Moog modular system, 2-track vocoder, and Moog string filter stand in background to right. Fairlight Voicetracker rests on top of mixing desk.

write cluster music in non-equal temperament. These little things come floating in and out of the foreground. The movement ends with the strings turning into just their harmonics. I tried to capture the feeling of what I remember of dreaming in the last movement, called "Dreams." There's a section that was influenced by the rhythms in "C'est Afrique." It has a 14/8 ostinato, with a five and a four and a three floated on top of it. I thought it would be interesting to try that kind of thing in a Western framework.

I tried something new when I recorded this piece. Instead of recording the click track for the whole piece, I did it one section at a time, punching in new tempos for the next couple of bars or the next section. That allowed me to be a little more flexible with tempos as I went along. Also, because there were so many unusual rhythms, I found it hard to notate the piece in the usual fashion. Instead, I marked each section's location on the 2" master and watched the tape roll as I played.

That's Just It. The two solos you hear between a saxophone and a trumpet were both improvised. I tried not to overrehearse it, so there would be a roughhewn quality to the piece. The two parts were put down simultaneously, by MIDIing the two Synergys together. In the final mix, I had to smear their time domain by running the parts into the AMS, so it wouldn't sound so much like two stops on an organ, or two synths MIDIed together.

Yusae-Aisae [pronounced you-say, I-say]. It's not Middle Eastern music, but it has that feel. The solo instrument you hear at the beginning is a hybrid sound—French horn that's been turned into a percussion instrument by combining it with a xylophone that's been turned into a woodwind. I used the AMS to create the ghosted parts in the middle. The drums are in a sort of 5/4 ostinato. Historically, these two pieces, "That's Just It" and "Yusae-Aisae" were the first pieces I did using perfect tuning.

C'est Afrique. There are four sections. I kept them straight in my mind simply with glue and memory. It took about four days to record, but weeks of preparation. So while I was doing the sections, I simply memorized them. Oddly enough, when I did the drum parts, I couldn't listen to the other drum parts on the tape except for the conductor/drum track that all the parts follow. I discovered from some friends who were involved with African drumming that that is exactly what African drummers do. So, far out! I re-invented the wheel. This was an exhilarating piece to do. It was also the one that used the most vocoding—a combination of the Synton 216 and one bank of the old Moog vocoder from 1970. I used the AMS to pitch-shift my voice down. The part was recorded at half speed, so I simply played the excitation waves an octave lower. The third section had to be played in real time, because I couldn't feel the twos against threes against fives any other way. The vocal part was sung in real time too. It's pidgin Swahili throughout, more scat singing than anything else.

Some of the drum sounds are processed through the vocoder. I used white noise as a cross-modulator. I wanted to have a feeling of fingers slapping a membrane. I could get the effect easily by playing flams on the keyboard, but the vocoder added more of that feeling. I recorded some of the drums at half speed, and some in real time. So I got boosted overtones in some of the parts. This sort of breaks my rule of wanting to be all digital, but there's no reason you shouldn't do what you have to to get a sound. So many people love those big fat analog sounds. I hate them. You can't work with them. They're so thick that only if you want to do something cheap and dirty, using the fewest number of parts to get the maximum thickness, is that good.

The harmonica is played at half-speed, and is articulated by using a volume/tone control with my left hand. I don't think it or the drums sound like they were played on a keyboard, yet they were.

A Woman's Song. This is based on a Bulgarian shepherdess song. The form is my own, though. It's usually performed by a mezzo-soprano accompanied by bagpipes or something. I turned it into an Indian raga. The trick was to get some combination of sounds that would wail. I don't remember what those patches were. I performed the solo voice at half-speed. I couldn't do the portamento on the Synergy any other way. The articulations were hard to do at slow speeds, so I had to do it over and over again until I got them right. There isn't much improvisation. The strings have a very analog-esque phasing in them. That was done in the *klangenwändler* [the Bode frequency shifter], which does a very slow phase shift that's constantly moving up. The effect is similar to that of a barber pole phaser. And I also used my Moog String Filter.

Secrets Of Synthesis: Electronic Orchestrations From *Switched-On Bach* To *Digital Moonscapes*. This album is autobiographical. I've obviously overlooked certain things and stressed other things that I feel were more important than maybe a lot of other people do. It's meant to be entertaining first and instructive second—something a layperson can get something out of. It's also very dense, so I hope it can be listened to many times before you get all you can out of it. It's also quite long—52.18 minutes. It contains material from talks I've given at A.E.S, Ars Electronica, and so on. There's also a lot of stuff that's never been mentioned. It has something to say about every single record I did for CBS. I hope that the readers of *Keyboard* will enjoy listening to it. ■