A Conversation With Bob Ludwig

by Tom Jung

Bob Ludwig is considered one of the premiere mastering engineers working today, with a Who's Who *list of record and CD titles under his belt.*

Ludwig studied classical trumpet at the Eastman School of Music, where he met Phil Ramone. After he graduated in 1967, Ludwig went to work at A&R Recording in New York City where he was exposed to disk cutting — part of the A&R training that all engineers went through. This was before mastering houses even existed. Disk mastering soon matured into its own art form.

In 1968 Ludwig moved over to Sterling Sound, where he became vice president, working there for seven years. After his stint at Sterling, Ludwig went to Masterdisk, where he became vice president and chief engineer and grew to be one of the most respected names in the industry.

In 1993 Ludwig embarked on what was to be the gutsiest move yet — putting together a world-class mastering facility, Gateway Mastering Studios, located in the less hectic location of Portland, Maine. You can check out the extensive list of artists who have worked at Gateway since 1993 at www.gatewaymastering.com.

Bob Ludwig and I go back to the late '60s, so it seemed like a good idea to do a ***PAR*** *interview with him. Last summer my wife Jean and I took our boat, Mister Bean, from our home in Stamford Conn. downeast to Portland. We spent part of a weekend with Bob and his wife, Gail, and had a nice chat about music, gear and the biz in general.*

Jung: *How do you feel about the quality of recorded music today compared with 20 years ago?*

Ludwig: Wow, that is a great question. A lot of clients come in and I take them up to our 5.1 screening room and I play them Elliot Scheiner's mix of the Steely Dan "Gaucho" that was from when, 1980? They listen to it, and they are just floored. I say 'we've come a long way since 1980 haven't we?' [laughs] Its quality wipes out a vast majority of recordings that are made today. And, of course, a good part of it is, the music was so damn good.

Jung: *Where do you think the music business is headed today with regard to downloads vs. high-end packaged music, like DVD-Audio or Super Audio CD (SACD)?*

Ludwig: I think the Internet is going to play a bigger part than I want it to play.

Mastering ace Bob Ludwig

Jung: *Do you think there will be enough of a critical mass of the music listening population who care about audio quality to buy a higher-end quality recording — especially when lower-cost, lower-quality audio could be obtained off the Internet?*

Ludwig: I think, ultimately, there will be enough critical mass. My feeling is it's going to be kind of a chicken-and-egg thing. When universal players come out that play DVD-Audio and SACD — assuming they have decent converters in them — believe me, there are artists I work with who are going to want to have their recordings on it.

For example, right now we do these little vanity pressings of vinyl discs for some artists. There's a very limited vinyl run and it's done just so they can say they have it. I'm sure there will be a lot of those same artists who will want to have a DVD-Audio at one of the higher sampling rates or even SACD done with some of their music. I think the A&R departments are at first going to say 'What would you want to do that for?' And reply will be 'Because I'm the artist.'

Pretty soon other artists will join in and it will be like this vanity press sort of thing. Certainly the audiophile market will take care of itself; there's no question about that. But you can't achieve anything near critical mass with just the audiophile market.

Jung: *What is your view on the numbers-game hype in the professional audio gear business — 16-bit, 24-bit, 88.1 kHz, 96 kHz, etc.?*

Ludwig: One of the main points I try to make to people is that a well-engineered anything can sound better than a poorly engineered other thing. For example, there was a DAT machine that came out a few years ago that allowed you to record at 96 kHz and on that machine, if you compared the 48k to 96k, the 96 indeed sounded better.

However, if you have a state-of-the-art 44.1 kHz, 16-bit converter, it's going to sound much better than a poorly done 96 k converter on a $5 chip. So it's a matter of relativity — it's important to realize that an audiophile-quality, well-engineered product of lesser specification can absolutely sound better than something that has better-looking specs that isn't implemented so well.

Jung: *Speaking of sample rates — how good is the sound quality of a recording that is downconverted from the 88.2 kHz to 44.1 kHz?*

Ludwig: Very good. The dB technologies converter has a setting called "2 to 1 down sample" as opposed to a sample frequency conversion, so it has lower harmonic distortion. My feeling is it probably makes a better 44.1 than recording at 44.1 in the first place — probably not to the extent of SACD, but I think it's pretty good.

Jung: *Converting from 96 kHz to 44.1 kHz does not make any sense to me, so why go there?*

Ludwig: The only reason we have gone there from time to time is for DVD-Video.

The artists seem able to hear the higher resolution, like the difference between

continued on page 58

Bob Ludwig continued from page 56

16-bit and 24-bit. They notice the extra detail, the better soundstage, the echoes trailing off more smoothly, the lack of low-level grunge — all that stuff. I think going up to 88.2 kHz reveals that kind of difference again as far as smoothness in the high end — getting that aliasing filter up another octave, I think that the digital filter is part of the big bugaboo.

Analog is still trying to keep up. There is now the 1", two-track machine that Tim DeParavicini, the great vacuum tube designer, makes. It sounds pretty darn good, so we'll keep battling for a while longer.

Jung: *When you start a project with an analog tape source, do you stay in the analog world?*

Ludwig: A lot of it depends on what we're going for. We have some great analog equalizers made by Avalon, Massenberg, Millennia and Manley and, of course, they all have their own particular sound. It was kind of interesting when I bought my last two equalizers; I was going to buy either the Avalon or the Massenberg. It turned out that they were so different from each other that I bought them both. But now, the new Millennia EQ has a top end like I've never heard on an EQ; it's very special and the Manley Massive Passive has its own unique sound.

Let me ask you a question. When you record, you are now recording with analog mixing consoles right? You began with analog, and then went to digital consoles now you're back to analog.

Jung: *Right.*

Ludwig: I'm curious as to what you have discovered coming full circle.

Jung: *Fifteen to twenty years ago, I felt pro audio analog consoles were headed in a direction that was contrary to the direction I was going. The recording consoles on the market at that time were becoming feature-oriented, with not enough attention being paid to the signal path. So when I started DMP Records 18 years ago, I commissioned a designer, who will remain nameless, to build an all ClassA discrete mixer, which turned out to be a total disaster — I'll spare you the details.*

Then I had Mark Levinson, who was with Cello at the time, build me an all-discrete ClassA mixer; this one actually worked and sounded great. But as it turned out, it did not even have the basic features I needed.

Then along came Yamaha with its first digital console, which seemed like a good direction to follow. I figured as long as I couldn't make analog mixers work to my satisfaction and the end product was digital anyway, and DMP being a CD-only label, it made sense — converting each microphone to digital with its own ADC. This process put less of a demand on the converter itself, converters then being the weak link.

Ludwig: Oh boy, the A/B test. I was able to listen to your DSD material and some music from another record company. It has progressed sonically. DSD, when it first started, I felt was not as good as the existing PCM systems. And every time DSD got reworked, it got better and better and soon the difference was pretty much a tradeoff. The latest DSD step — with the converters made by Ed Meitner — has shown the best-quality playback of a two-channel or 5.1 I have ever heard. I haven't done a shootout yet with our new Pacific Microsonics 192 kHz/24-bit PCM converters.

Being that I work a lot in the pop music field, however, it remains to be seen how much of the post production will degrade DSD recorded SACD — once it goes through 10 different digital processing boxes.

Tom, have you ever used any 1-bit processing on any of your recordings?

Jung: *Yes I have. There is a prototype that was developed by the Sony Oxford group that they call the Pizza Box. It is a 1U box that is as deep as it is wide and works with Windows NT. It has level adjust, EQ, dynamics, DC removal and sort of basic mastering tools all in the 1-bit world. I have used it, and it works quite well.*

One of the interesting things I've found with DSD — using the Meitner ADCs and DACs — is that the conversion process is so benign that coming back to analog to do processing is no big deal because almost nothing is lost. I'm not sure it is necessary to reinvent all the tools we now have with PCM.

Ludwig: PCM digital has evolved so much over the years. There are many pieces of outboard gear, processors that don't even exist in the analog domain like loudness maximizers other crunchers, finalizers, normalizers and "otherizers"...

The fact that none exists for SACD at the moment means you'd have to have an A&R person who was willing to allow the average level of recording done on SACD to be considerable lower than the PCM version.

We'll see what happens with that, unless this Pizza Box has something like look-ahead limiting built in.

Jung: *There is also some talk about converting DSD to 352.8 kHz (8 times, 44.1 kHz) at 24- or 32-bit, doing PCM processing then converting back to DSD to make a SACD, which actually makes a lot of sense to me. What is your take on surround sound for music?*

Ludwig: The very best musical experiences I've had with prerecorded sound, as opposed to live concert, is listening to perfectly done 5.1 recordings. Examples are the ones that you have made and other recordings that have been made on the six-channel SACD recorder. When you hear a really well done recording with music that is appropriate for surround, I think there is nothing like it. I think it represents the best commercially available kind of a sound reproduction system we can have. So I believe — as more and more people get used to multichannel surround — they're not going to want to go back to just stereo.

Jung: *With the price of recording technology products coming down to the point that musicians can record from their home, are you getting more mastering projects from home studios?*

Ludwig: We get more and more tapes done in home studios these days; it seems like record companies are routinely buying artists a home studio and having them make their record there. I'm glad I'm not in the recording studio side of the game. I have noticed, however, the good studios in New York have been super-busy lately — it's hard to get into them.

Jung: *Do you think labels have been burned having artist work for six months on a project and, at the end there is nothing worth releasing?*

Ludwig: That has absolutely happened, but on the other hand some very famous artist have done their most recent albums on ADATs at home and have gotten some very good results by having one of the professional guys remix it. I can't tell you how many projects we do now that are done completely on 24-bit Pro Tools; people send us the CD-ROMs of the mixes to master.