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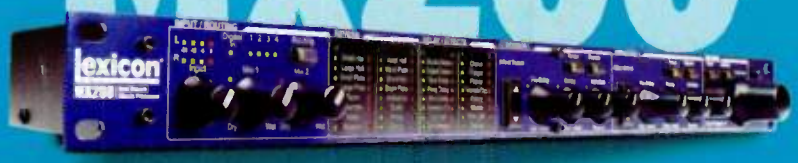

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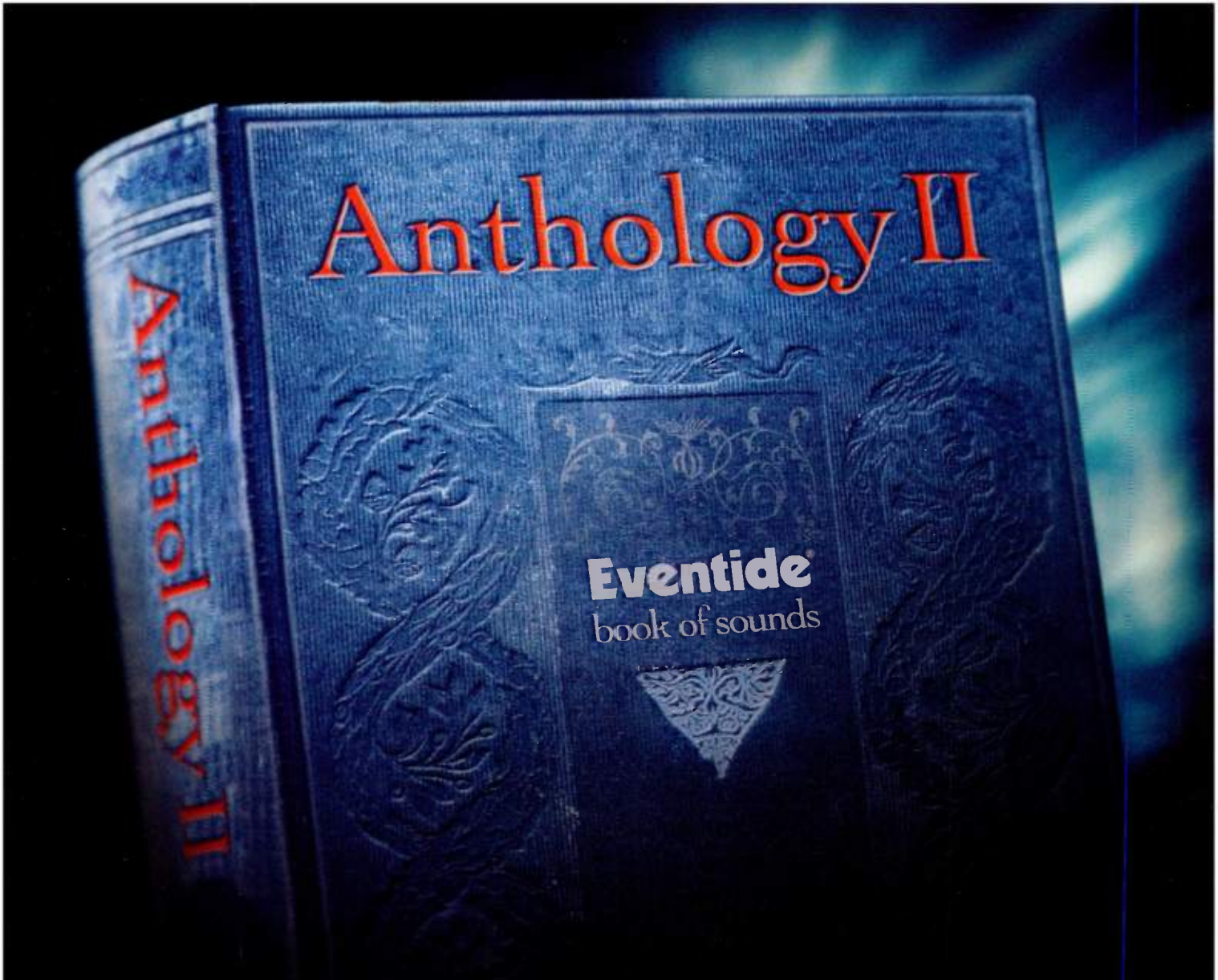

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03/07

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Talk Box

AGE AS A WEAPON

Before signing on as Executive Editor at *EQ*, I'd been talking with a media company about joining a project that covers the groove/DJ scene. Several people at the company wanted to get me involved in a big way, but the gig fell through. When I talked to someone "on the inside" a while later, he felt pretty sure that the problem was age discrimination — that I was older than the intended readership.

And that got me thinking . . . would their audience actually care? Some people would, I'm sure; and frankly, that's not entirely without justification. As some people age, at some point they become frozen in time. I know plenty of people who think that music ended when the Beatles broke up. They don't even know that soca music exists, never heard Public Enemy, and don't realize there's a thriving indie rock scene. Some of these people are in bands, and keep playing their hits; some are engineers, using the same mics and EQ settings they were using decades ago, on the same kinds of music.

But then you have a Miles Davis, who wasn't just on the cutting edge: He often defined it, even after being in the music business for decades. You have a guy like Bruce Swedien, who actively solicits the opinions and ideas of people young enough to be his grandkids. And jazz violinist Stéphane Grappelli's life transitioned from the Hot Club de France in the 1930s through Duke Ellington to Jean-Luc Ponty; he was still touring the USA, Europe, and Japan a year before he died — at age 89.

But the age issue also cuts both ways. Rock and roll was *not* a passing fad, "what those kids listen to these days" isn't the dreck some old-timers so firmly believe, and youth is perfectly capable of making grand artistic statements — just ask Mozart. Lack of experience doesn't preclude creative brilliance.

In the end, we all have something to learn from each other. Youth provides a continuous flow of new ideas and fresh perspective to invigorate those who've been around for decades, while the young can learn a lot from those who've amassed a lifetime of experience.

"Hope I die before I get old?" No way. I prefer "Hope I die when I run out of ideas." Because then I really *will* be old!

EQ

Vol. 18 No. 3
March 2007

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Please direct all advertising and editorial inquiries to:
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(650) 238-0260; Fax (650) 238-0262; eq@musicplayer.com

Please direct all subscription orders, inquiries, and address changes to: 888-266-5828, outside the U.S. 937-280-0011, eqmag@sfsdayton.com

Back Issues: Back Issues are available for $10 each by calling (800) 444-4881; outside the U.S. call (785) 841-1631

EQ (ISSN 1050-7868) is published monthly by NEWBAY MEDIA. EQ is a trademark of NEWBAY MEDIA. POSTMASTER: Send address changes to EQ., P.O. Box 369, Vandalia OH 45377-0369.

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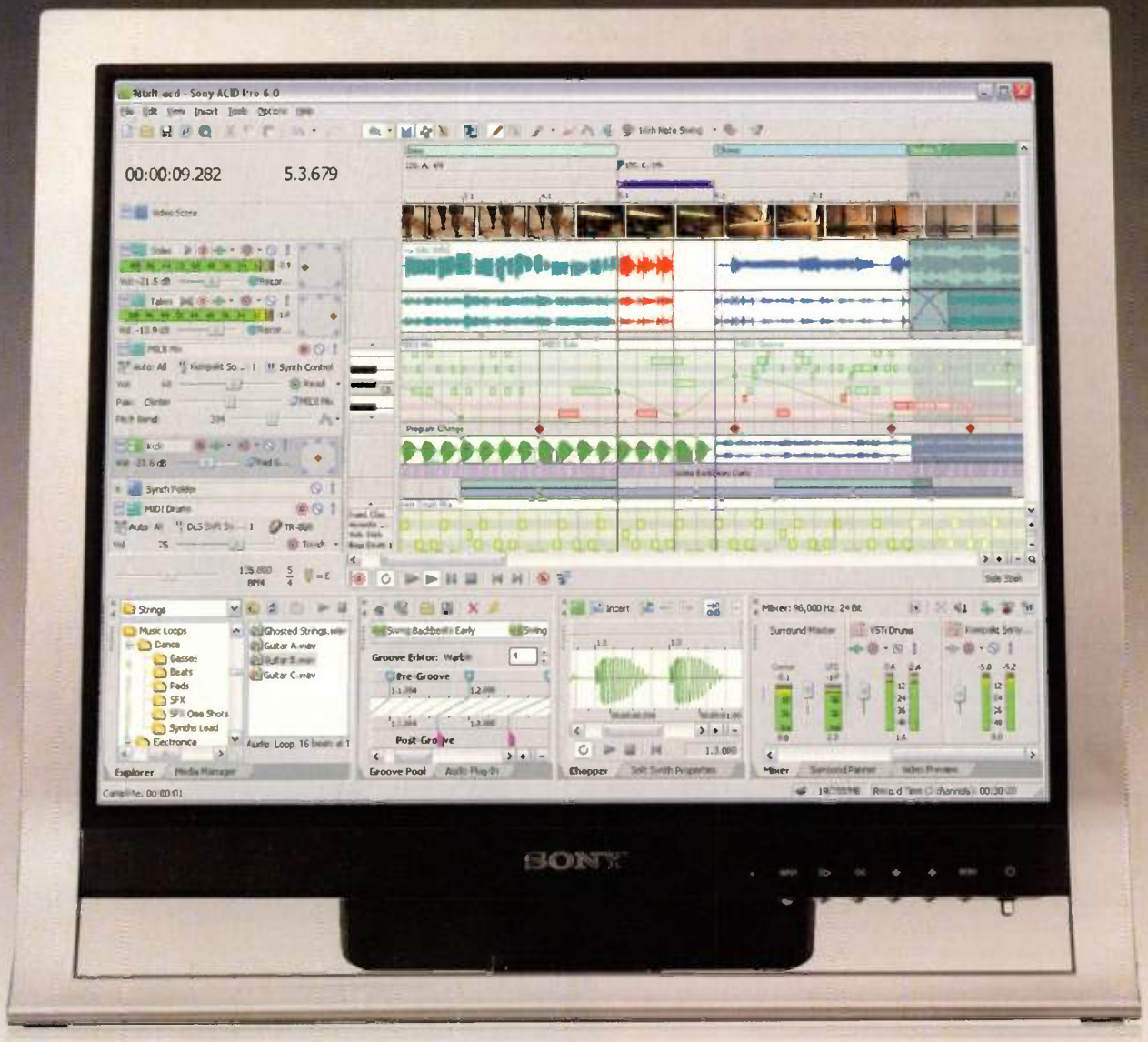

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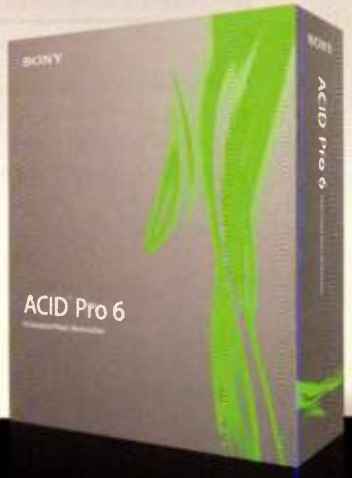

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Punch In

TUNE IN, TURN ON, PUNCH OUT BY MATT HARPER AND THE *EQ* STAFF

TOBY WRIGHT

It took industrial-metal stalwarts Fear Factory nearly 15 years to finally enlist the help of one of the heaviest hitting, and thus most befitting, producers in the business — but with *Transgression*, their newest (and arguably most fully realized) release, the Fear Factory crew and Toby Wright have finally collaborated and bore many, ahem, laborious fruits. Showcasing a significant sonic progression for the band, *Transgression* benefits from Wright's penchant for capturing bands at both their most caustic and, dare we say, sensitive — serving as a testament to the production talents that have garnered Wright the ability to work with such genre-defying acts as Alice In Chains and Metallica. Thankfully, we were able to pull Toby aside for a few minutes to hear how to approach real metal in the studio, yet still keep the product fresh.

EQ: As Fear Factory have a long track record and a fairly established sound, did that make coming on board to produce *Transgression* easier or harder for you?

Toby Wright: Well, they actually told me they wanted to experiment with their sound, and that's why I went into the project. For example, I really wanted to add some more melody to their vocals while still preserving their live feel and energy, so I started working really hard with Burton [C. Bell], their singer, from the beginning to achieve that.

EQ: Given the change in approach to performing his vocals, what did you end up using mic-wise to capture his clean takes?

TW: I used a Soundelux U95, which was actually a one of a kind, custom-made mic for Layne Staley [Alice In Chains] that we had modded when we were working together. I brought it out of retirement, and it really sounded amazing.

EQ: Were there any other old, good "standards," in terms of gear selection, that you used from previous sessions? Any "I'm making a metal record and this never fails" standbys?

TW: I don't really have any "standards" for gear, or for that matter, technique. I don't like to repeat myself. I'll even go out of my way, even if I'm after the same kind of sound I've gotten before, not to repeat myself from session to session. I'll try to find a different way around a band because, frankly, it gets boring if you don't. A great song will only be made better with a great sound, but you'll never discover those ways of getting great sounds if you get stuck working with what you think is necessarily going to work.

EQ: That's a very respectable approach to making albums. So, on that note, what did you do different for Fear Factory this time around?

TW: Well, like for Christian [Olde Wolbers, guitar] I started by asking him to use some adjectives to describe what he wanted his guitar tracks to sound like, and when we settled on a concept, I took a technique that I've used with a [Shure] SM57 and a [Sennheiser] 421 paired up, and switched the 421 with two [AKG] 451s. I call it the "Boom Array": a 57 in the middle and two 451s straight across.

EQ: The very industrial, machine-like drum sound of Raymond Herrera is one of the

Debate: Mental Manipulation by Jeff Anderson

There is no denying the fact that psychology plays a huge role in the producer/artist relationship. By way of years of experience with the mentally unstable . . . um, I mean, musicians . . . the industry's most successful producers have learned that sometimes the best way to facilitate an artist's success is through the manipulative approach. But to what degree is this ethical? Where does one draw the line that differentiates between keeping the sessions productive and behaving in a way that merely satisfies self-interest?

Take this example: Just last night I started the first rhythm tracking session with a new band as their producer. The band is decent — neither my best nor my worst. On one hand they are young and inexperienced, but on the other hand they have the drive and ambition that it takes to possibly make a living in this industry. They just got a development deal with a decently sized indie, and the pressure is on them, and me, to come up with a good product. So we call in a top engineer, a great drum tech, and fly in some wonderful equipment. We had spent some time in pre-production making sure the parts were worked out, so we spend the first hours getting

continued on next page

ON RECORDING FEAR FACTORY BY SHANE MEHLING

most easily definable aspects of Fear Factory. Did you record e-drums or just trigger the kit and drop in BFDs?

TW: We miked an entire natural kit. It was a tricky situation because you have Raymond, who's one of the fastest drummers I've ever worked with, and you can really risk losing clarity of the individual hits by going the *au naturel* route. You have to be careful in your mic decisions. We ended up using a 421 and a [AKG] D112 on the kick. For the snare we used both a 57 and a 451 on the top, and a [Sennheiser] MD 441 U pointed up at the bottom.

EQ: And toms?

TW: A 421 on each.

EQ: Overheads?

TW: No overheads; three stereo pairs of [Neumann] U87s placed throughout the room.

EQ: *Transgression* was all cut to Pro Tools, I take it. I hear it's your preference. . . .

TW: Yeah, it is. I own five TDM rigs. For me, it's just easy manipulation. I've been using Pro Tools for so long . . . I mean, when you're arguing with a guitar player about 1dB, that's going to be gone when you run the tape over the heads 25 times. But with recording digital, it obviously stays there.

EQ: So I take it, given the prominence of the drums in the band, and in the mix, you started the mix from the drums up?

TW: I've found that I get lost if I start at the drums. I've realized that the drums get so big and, when you're done, it's a great drum sound but then the guitars sound don't sit right, they sound like crap, and you have to start over. Like, with a band like Fear Factory, you know you're going to want guitars in the very front and drums right behind them. So instead I'll just throw up the faders and see what I have. I got that guitar and drum good balance going, and that's pretty much the most important thing.

EQ: How much involvement did you want from the band, or any musicians you're working with, in the mixing process?

TW: When I'm producing a band from scratch, I'll have the vision down completely by the time we hit mixing, so if they want to come to the mix, great. If not, that's okay too, because I know I'll be able to hit it. I usually start off by myself, and when I have a good vibe going on I'll invite the band in. But then again, it's really important to deliver what they're asking for and not so much what I want. It's funny, people get really shocked sometimes when I get them exactly what they want, but I'm really just a conduit between their vision and getting it on CD.

Debate: Mental Manipulation

good tones. By the time we're ready for the first tracks, even the headphone mixes are sounding awesome. All we need to do now is get that perfect performance. So we dial the click in at 116 BPM, press the big red button and scream "rollin!"

And everything falls to crap: The drummer has somehow forgotten how to count, the bass player is trying to follow the drummer, and everything else falls over behind them.

"Is everyone's headphone mixes right?" If they want an excuse it's available for them now. But they say they are okay, and we do two more terrible passes. And then two more after that. And then the drummer informs us that he can hear the click, and that means he's off — and it also means that he's playing out of the pocket because he's concentrating too hard, and only getting more uncomfortable/frustrated by being put on the spot. It's a sick cycle.

"Don't worry, I can always edit the takes together if we can't pull it off," I tell them. But I'm lying. The takes suck, but letting the drummer know that is only going to make him psyche himself out.

And, tonight, that's my job, not his.

So we start rolling again. And they start sucking again. But they don't realize it, they think it's really getting better. So this time I tell them, "Great job, guys. I think you almost nailed it. We're going to keep that take, but I want to get one more just in case. That's a great song you got there."

And this time they really do nail it. And it isn't a bad song after all.

I don't consider myself to be a liar, but last night I was. I'll justify the ends by the means this time around though. I'm sure that they wouldn't mind that I was f^$#ing with them when it was to their benefit.

But is it right? There are many successful producers out there that swear by the "documentary" approach. And this isn't because they are bad liars, but because they are humble enough to assume the role of documentarian — to document the artist's music in an objective manner. Such producers would consider my bias unnecessary, even counter to the good of the band. These producers would trust the band when the band thought their take was good, and would consider it unethical to lie to the artist just so that they would perform in a way that pleased the producer. Music is subjective, right? Who is to say that "my take" was better than "their take?" They are the artists; they would know better than anyone else if it was right or not. They don't need their creative process interfered with, their performance hi-jacked by some producer eager to put his stamp on something.

Then again you could argue that due to their relative inexperience the best thing I could do for them was to hold their hand a bit. How beneficial is it, really, to scold a child the first time they try something and they fail? That's not exactly good parenting. This band wasn't mature; they weren't even ready for the studio! This wasn't a chamber ensemble; it was some "technical emo" band that wanted to record 80 tracks per song.

So I'm in the right, right? Now excuse me while I inform my five-year old that, next week at preschool, it's not okay to tell the teacher that his daddy lies and manipulates artists until they give him what he wants. Tell them he's a doctor or something. Hell, tell them he works for the IRS.

KENNY LEWIS
THE MAKING OF RICH SCHRODER'S *YOUR KIND WORDS*

by Shane Mehling

While the spirit of folk is still alive and well, its sound has seen better days. With the success of pop country music in recent years (an overtly glossy second cousin twice removed, oftentimes mistaken as the sister to the brother of folk — namely, traditional country music) anxious producers have scrambled to spit shine out every blemish that would, in older days, be considered integral to the quality of folk music. This has effectively turned some of the genre's best written albums into unnecessarily polished, overproduced husks of songs.

Which is exactly why Rich Schroder's new album, *Your Kind Words*, is such a relief. Channeling the classic musicians that inspired him in his youth — from Bob Dylan to Arlo Guthrie — Schroder teamed up with veteran engineer Kenny Lewis to use some new techniques to get that old, soulful sound. And luckily for us, Mr. Lewis found some free time to chat us up, reminding us in the meantime that some people do, indeed, still listen to AM radio.

EQ: Aside from, of course, Rich's vocals, the mix is centered around the acoustic guitar. This makes sense given the style of music, but what was your approach in tracking the guitar knowing that it was going to sit so prominently in the mix?

Kenny Lewis: When it was just a single pass, like the majority of the guitar tracks on the album, I used mid-side (M-S) and stereo mikings, with a couple of [Sennheiser] 451s close miked to get a bigger guitar sound. You have to watch your phasing really closely but this works out the best, unless you are doing multiple passes, though; that sort of miking setup tends to get a sound that's too big and poofy.

Anyhow, the M-S mics were placed about 2 to 3 feet from the guitar, and the stereo mics were placed up and down instead of left and right. One 451 was pointed directly at the bridge, and the second was just past the 12th fret.

EQ: How did you begin the mix? Did you do the old standard of starting from the drum tracks, or did you start with the more central components?

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KL: I'm pretty old school in that I just start with the drums, though the vocals were, and always are, very important — so I spend a lot of time making sure they're fitting where they need to. Most people don't understand music, they understand English, and so the vocal has to sit in the mix so that it's very clear.

I was also very concerned about the phase of the record, making sure I knew how the record is going to sound in mono if it gets played like that. More and more engineers seem to not care about that these days. I've worked with a lot of Christian bands, and many of them get AM radio play, so I've really learned to worry about how tracks sound in mono.

EQ: So you always mix with mono in mind?

KL: I think you need to keep it in mind.

EQ: You mention the clarity of the vocals as being the most integral aspect of a record for most listeners. How did you track Rich's vocals to really get the most out of his performance?

KL: The vocal chain was a [Neumann] U87 into the Groove Tubes VIPRE then into an API 560 EQ and finally, into the [Teletronix] LA-2A. Rich worked with his vocal coach in the studio, making sure the performance was right, and mostly just leaving me to just make sure it sounded good.

EQ: How much compression did you rely on when mixing his vocals?

KL: When I mix, I can ride the compressor pretty heavily, but when I'm tracking I try to make sure that I leave my options open. With vocals, though, I'm usually sure I know what I want, and the LA-2A is a pretty gentle compressor, so it's pretty hard to mess it up.

EQ: But not so much that you track vocals with compression, right?

KL: No, because if down the line a label wants to buy the record and remix it, you've already forced them to work with your effects — and a lot of times that could be a deal breaker. It's becoming more and more common for labels to come in and just buy whole records, so. . . .

EQ: So you approached tracking this record with that mindset?

KL: Yes, but it's interesting: The original thought process was that Rich's record was going to be just guitar and vocals, so we went into recording this with just him and his guitar. But when it was done we decided to move it into something a little more mainstream. So we cut bass and drums — the other elements — as a secondary session almost.

EQ: What about the drums?

KL: I miked the top and bottom heads of all the toms, did a top, side, and bottom three mic technique on the snare, and did the standard stereo pair overhead deal. I used my Radio Shack special on the kick, with the "four button trick" on the 1176. [*Editor's note: This refers to the classic technique of engaging all four ratio buttons on an 1176, causing the unit to distort and max out, also known as "the British mode".*] I find it helps the stereo image quite a bit. My room is small, so we had to get a little creative. I have a [Lexicon] 480L that we used for a reverb unit, and that helped to simulate the sound of bigger drum room.

EQ: And on the rhythm section note, the bass sound is really warm.

KL: I used an Avalon DI, which I dumped directly into the LA-2A. That's usually what I do, and often I'll mic it, but for Rich, I just ran the DI. What I did on this record during mixing is split the bass into two channels, using a SansAmp on one channel for more of an amp tone. So, it's almost like bi-amping the bass.

EQ: That's a cool approach.

KL: This album was really one of those times when you see more production, bit by bit, creep in, and all of a sudden you have a full band . . . and that's when you stand back and thank God you cut everything to a click [*laughs*].

Correction!

Bob Power writes:

"I first want to thank you for speaking with me for last month's issue — you really captured the essence of "where I live," and Rich Tozzoli's questions and threads were relevant and thought-provoking. One correction, though: Although most of the production credits are accurate, I did not produce A Tribe Called Quest's *Low End Theory*. I recorded and mixed it, as with most of their first three records. Q-Tip, Ali Shaheed Muhammad, and Phife (and one track by Skef Anselm, as I recall) were responsible for the genius of the production of that pivotal record. As well, my credits with the Roots and Miles Davis were mixing, not production.
Again, thanks for a job well done."

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SESSION FILE: SATELLITE PARTY

Forging a Revolution Party

by Richard Buskin

Perry Farrell, the alternative rocker who fronted Jane's Addiction and Porno for Pyros, is pulling out all the stops for the self-titled debut of his latest project, Satellite Party, calling on the contributions of several special guests — both living and back from the grave.

Fergie of the Black Eyed Peas, Porno for Pyros guitarist Peter DiStefano, Joy Division/New Order bassist Peter Hook, Flea and John Frusciante of the Red Hot Chili Peppers, former Peppers and Pearl Jam drummer Jack Irons — all are lending their talents to the new album. However, it is the song "Woman in the Window" that is drawing most of the attention, thanks to portions of two-spoken word poems featuring the late Jim Morrison that "may have been" the last ever recordings of his voice. At least, that's what Farrell claims.

RESURRECTING JIM

"The only thing I can tell you about it is I have been granted permission by the Morrison estate to produce these two poems that may have been Jim's last recordings as far as anyone knows," he recently stated. "It comes in at an amazing time. When you hear these poems, it sounds as though Jim Morrison were watching us today and commenting on the world today. I'm very reluctant to call him a prophet, because I don't want to go that far. That would be really putting myself on the line. But the words he is speaking about are so speaking about the world today. It leaves a person almost dumbstruck. Why would this song surface today, and how would he know about what's going on in the world now?"

According to Farrell, Morrison's posthumous contribution is something of a dream come true.

"You could count on one hand the people who were important in my life, as far as musicians and singers," he says, "and he might be the middle finger. I loved his spirit and I loved his refusal to allow anybody to even suggest that he didn't own the world. And if nothing else, I feel that spirit has got to be preserved, and we have to consider it and never let it fall from our thoughts."

Farrell composed the music that complements Morrison's voice on the song, commencing with him intoning, "I am the woman in the window," and later singing the refrain, "Just try and stop us, we're going to love" . . . which kind of fits with Farrell's Satellite Party concept of a lavish extraterrestrial bash.

"Let's make believe we're going to be shot into space for the weekend," he suggested. "What would we be looking at? The Earth, from the vantage point of a satellite. We'd be dressed to the nines. We would have these great hors d'oeuvres. The music would be deep and soulful and sensual, and the interior decoration would be comfortable and slightly weightless and ecstatic and luxurious, because this would be a luxury flight."

ENTER NUNO

Farrell produced the Satellite Party album, with former Extreme axe-man Nuno Bettencourt engineering at each of their home studios, mixing at The Village in L.A., and also playing guitar, bass and keyboards. In addition, there were sessions at other places, such as Henson (the former A&M Studios) in Hollywood.

"We worked for nearly three years on this project and I mixed largely as we went along, with everything being done in Pro Tools," Bettencourt says. "In the case of 'Woman in the Window,' Jim Morrison's vocal was great, like you'd expect. And as it was recorded at Sunset Sound in L.A., the tape was in very good shape. Not that I know where the tape is — we got his part as a sound file. Anyway, Perry went with Jim's melody and took that as the lead. He did some programming, we added guitar, bass, and drums, I played piano, Perry recorded his vocal with a [Neumann] U87, he and I did the backing vocals, and Harry Gregson-Williams came up with the 30-piece string arrangement."

THE RESTA ACCOUNT

Meanwhile, in order to help realize Farrell's otherworldly vision for the album, Bettencourt enlisted the services of his friend and sometime-collaborator, Anthony J. Resta. A self-described "sci-fi mambo poet," Resta has utilized his production, engineering, multi-instrumental, and programming skills to craft unique soundscapes for anyone from Duran Duran, Blondie, and Sir Elton John to Megadeth and Shawn Mullins, often melding obscure vinyl samples and twisted vintage analog synth sounds with the artists' performances. In this case, Farrell and Bettencourt sent some tracks to Resta's 4,000-square-foot Studio Bopnique Musique facility in Boston, and basically let him get on with it.

"I love pushing the boundaries and that's what Perry's all about," Resta says. "I gravitate towards sounds from my childhood, and I just love mixing futuristic sounds with the sounds of classic rock: Tube Wurlitzers, Rhodes 88s, you name it. All of this virtual stuff is okay if you haven't heard the real thing, but to me there's nothing like real instruments. Anyway, Perry and Nuno would send me a slave mix with vocals and music, and I'd then just load up the tracks, sometimes sending them as much as 48 tracks of really non-generic homemade soundscapes."

POWER-TOOLING

"I have these circuit bent drum machines," Resta discloses, "like the [Yamaha] DD110 from the early '80s that a guy in England modified for me — he basically added a patchbay and all these switches that make it malfunction in an infinite number of ways to create some really unusual beats. So, I used that, along with lots of analog keyboards, and I'd also run guitars through modular synths to create really unusual soundscapes. Then again, among the main tools that I'm excited about right now

are the revolutionary Crowley & Tripp ribbon mics. They are really different."

These comprise the Soundstage Image, the Proscenium, and C&T's flagship model, the Studio Vocalist, a large ribbon mic with a figure-eight pattern that has been specially built for voice recording applications. Providing the highest output signal of any natural ribbon microphone, the Studio Vocalist keeps a low noise floor, offers increased fullness via a smooth proximity effect, and has a symmetric frequency response well suited for minimizing off-axis coloration.

"It has a lot more output and a lot of natural brightness, which is not really characteristic of traditional ribbon microphones," Resta says. "That's been one of my secret weapons — I'll put it on a Matchless guitar amp and run a keyboard through it. I like the saturation that you get with analog, and I try to put that into the digital world."

SYNTH-ESIZING RHYTHMS

"For 'Dark Star,' I ran a lot of analog synths through various guitar pedals, miked them with the Crowley & Tripps, and got some really unique textures," Resta says. "With a lot of my stuff, you can't tell if it's a guitar or a keyboard, and with the circuit bent drum machines I make these really unusual beats that glitch but also groove. It's sort of like an MPC style. Having worked with a lot of hip-hop artists, my music is beat-driven . . . it's definitely electronica, but there are lots of human elements too, like a real drummer on top of the machine stuff.

"Nuno would send me a stereo mix of music and beats in Pro Tools, and then I would just start experimenting and cutting things up. I don't really use MIDI — years ago I did, but I don't quantize anything. I just play everything in real time and then edit it in Pro Tools, because I find there's so much more of a human aspect to that. I might quantize things slightly by moving the audio around, but I gave up on MIDI because I found the timing lag really annoying. Instead, I prefer to use CV [control voltage-based gear] because it's instantaneous — when you have those things sync up, it's just beautiful to hear it where you want it right now. I was first and foremost a drummer when I started out, and so everything for me is about the rhythm.

"In this case, as with everything else, I'd just go by my gut instinct. I'd start plugging things in and trying things, like the circuit bent drum machines and Suzuki Omnichords. I've got quite a collection of those, and I would run them through various guitar FX pedals. I have a collection of hand-built pedals by Pete Cornish — he built me these sustain pedals that are to die for. It's a tone that you only hear on something like 'Revolution' by The Beatles. It's incredibly saturated and analog and complex and wonderful. So, I run things through those and they take on this otherworldly quality."

MAKING THE HARD LIFE EASY

Constantly requesting feedback, Resta would overnight Farrell and Bettencourt the files he'd been working on via FedEx, and they in turn would call him to express their likes and dislikes.

"I left Nuno's tracks alone," Resta says. "He does his own thing and I do mine. My stuff is more programming, playing keyboards, and coming up with various transitional noises. I'll even take some stuff off vinyl, like the swell of an orchestra, and then run it through processors like [TC Electronic] FireworX or Eventide's DSP4000 to create those really interesting, haunting textures that might go into the last chorus.


Anthony Resta exploring the final frontier.

"On a track like 'Dark Star' I also used my Roger Linn MPC 3000, which I call the drum machine with a soul. That's really the sound of pretty much everything I do. I swear there's something about the way the clock works in that thing — it has just a wonderful feel that is a widely imitated groove template. In my case I use the real thing, and I take a lot of my own samples off old vinyl records, like single snare hits and single kicks, because even though they're samples they do have that character. The way a speaker moves when you put an analog signal into it is unmistakable — a real sine wave is not jagged, and it definitely moves speakers in a different way.

"The most enjoyable Satellite Party song I worked on was one called 'Awesome.' Perry just keeps singing that word over and over again, almost like he's looking at a picture of stars and different galaxies. It's so floaty and beautiful — I love atmospheric sounds that make you feel like you're floating, and so for that track I did lots of ambient keyboards; analog stuff from my [Roland] MKS-880, which has 16 oscillators. I also have another thing called the Freeman Symphonizer which has 40 oscillators in it, and it produces that sort of rich analog string texture, which is another of the sounds that I put in there, along with various percussion loops. I make my own loops, like bongo loops and tom loops, and I run those through guitar pedals as well. Then, after I record them I re-amp them — a lot of my percussion stuff made it onto this record."

When asked which was the most difficult track, Resta is non-committal, insisting that all of the songs were nothing less than a pleasure to work on.

"It was a dream come true for me to have a guy who's into pioneering and always pushing the boundaries," he remarks. "That's the ultimate client. I mean, what could be better?" EQ

SUCCESS STORY: STEVE BERLIN

An American myth

by Jeff Touzeau

It is difficult for even the most successful artists to pull off serious producer careers — at least at the same time as their *own* music careers. Those that do tend to take long-ish breaks between their own work and other works they are producing: Brian Eno, Todd Rundgren, and Ric Ocasek all come to mind. Steve Berlin is a longtime member of Los Lobos and also an extremely accomplished producer in his own right. Before joining Los Lobos in 1983, he was saxophone player for The Blasters and was also a very much in-demand session musician in Los Angeles, playing on many recordings including Paul Simon's landmark *Graceland*.

To say Berlin has been busy recently would be a huge understatement. Late last year, his group Los Lobos released what many consider to be its most artistically challenging album: *The Town and the City*. He also produced a startling record by Jackie Greene, one of the more promising new artists in pop music today.

American Myth sounds like it could have originated from the soul of a Memphis-bred bluesman with many years of experience under his belt. Instead, Jackie is a California-based 27-year-old at the dawn of a brilliant career — the sincerity and authenticity of *An American Myth* made it one of the more exciting records to come out in 2006.

FROM THE DEMO ON

By the time Berlin received demos from Jackie for *American Myth*, the songs were already fully developed. "The first time I heard 'Hollywood,' 'So Hard to Find My Way,' and 'Just as Well,' I thought, 'These songs are so done!'" he says. "He gave me a tape with five songs on it and I remember driving through Los Angeles one rainy Sunday — I got so excited that I would pull over, call my wife and say, 'Listen to this one! Holy crap, here's another one!' Each song was so amazing." From the very beginning, Berlin knew he was working with some very solid material. He honed in on getting the right players together to create the right mood, and then all he had to do was let the songs speak for themselves.

A picture began to develop that would help crystallize what Berlin was trying to help Jackie achieve: "The record I had in the back of my mind was The Faces' [Rod Stewart's] *Every Picture Tells a Story*. I wanted to use a band that had played together for a long time." Berlin appreciates The Faces' approach on the album: "They were taking chances on every song, yet were just so loose, so tight. It sounds like it's a party that just happened to have a 16-track machine capturing it." The vibe he wanted was loose, but very coherent.

Steve Berlin primed to take care of business.

CALLING IN THE CREW

With this in mind, Berlin recruited the L.A.-based band Jack Shit to help out with backing tracks. Drummer Pete Thomas and bassist Davey Faragher, both formerly of Elvis Costello's band, provided the backbone while modern-day guitar virtuoso Val McCallum handled a range of stringed instruments — including some very impressive slide guitar work. Jackie himself was no slouch with instrumentation, covering guitar, dobro, piano, harmonica, percussion, and of course, vocals. Jack Shit was able to emanate a distinctive signature on the album, says Berlin: "That decision was probably the best call on the whole record — they got it right away." This contrasts what can often occur when producers pull in band members from a variety of places. "In my career you're often like, 'Let's put this guy, this guy, and this guy together.' Sometimes this works great — but other times, and for no particular reason, this guy doesn't get along with that guy, or this guy is playing too much." Berlin says that this time, everything fell into place. "They really wanted to experiment, everyone had ideas, and it was just about as fun as you could possible make it."

COMING TOGETHER

After Berlin had scouted many different locations, tracking was finally done at Stage and Sound in Hollywood. The vibe the studio projected seemed to personify the artist: "Jackie doesn't have a whole lot of use for stuff that happened over the last 20 years — the '70s was really his era. [Stage and Sound] is quite literally frozen in time in 1976. I know, because I worked in there in 1976, and it was exactly as it was in every way as it was back then."

The studio selection ended up putting *all* the players, including Berlin himself, in precisely the right frame of mind. "It wasn't that we wanted to make a '70s kind of record," he says, "we just wanted to capture that pre-Pro Tools, pre-'let's put it on the grid and line it up' sort of mentality that modern record making has come to. Not that that's all bad, I'm as guilty as anybody fixing stuff in Pro Tools." Berlin was after quality live performances, which was far more preferable to him than building up a record piece by piece. "It worked. Everybody really responded to it and we stayed on tape for about 90% of the record. We weren't going to go into the computer, cut stuff up, and make up something that didn't actually happen on the floor."

NEAR IN SESSION/CLOSER IN SOUND

Among *American Myth's* best attributes are its intimacy and immediacy. At times, it seems like the artist is right next to

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SUCCESS STORY: STEVE BERLIN

you or whispering over your shoulder — songs like "Love Song 2:00 AM" or "Marigold" both have this quality. Berlin elaborates: "These tracks were cut live as can be, generally with the players close together. The idea was not to maintain separation because we were going for performance. On "Love Song 2:00 AM," for example, the guys were within five or six feet of each other, with no baffling — there was a lot of leakage, a lot of bleed." According to Berlin, all the "quiet" songs on the record were done in one of the first three takes: "'Marigold' was take two, 'Just As Well' was a first take, 'Love Song 2:00 AM' was a first take. Really, it was about getting a great song played by great players in a moment of high inspiration."

Berlin describes inspiration as the moments in which "one person takes an unexpected turn and everybody else follows him for a little while." Overall, the sessions seemed to move along at a good clip: "When things go better than planned, time often whizzes by."

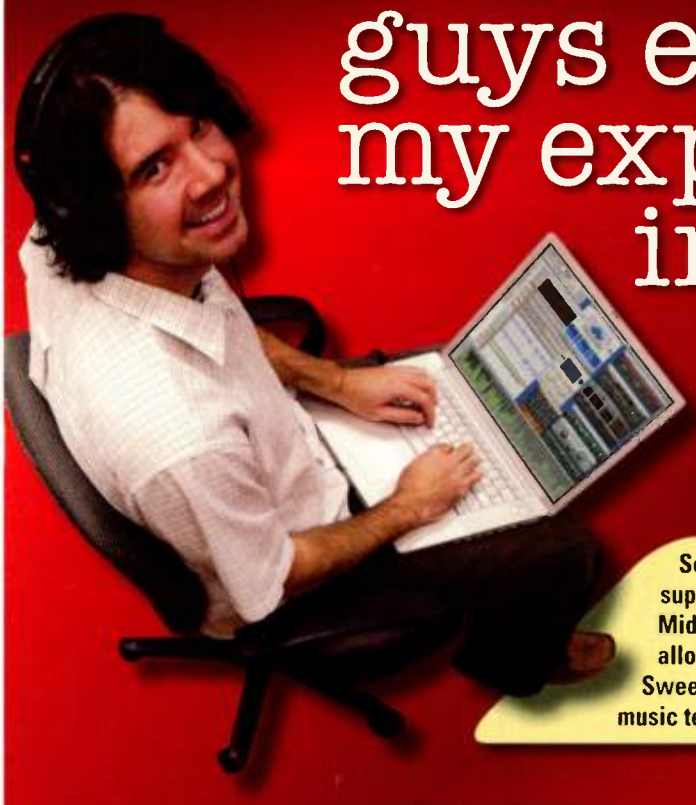
RUNNING THE STREAMLINE

Something that Berlin strives to avoid with any session is bringing in a pre-determined agenda — in fact, he rarely brings in his own equipment as many other producers do. He simply wants to "share the moment" with his artists, rather than offering divine guidance. "I'm not one of those producers who says, 'Follow me kid, this is a wise path. I've been here a million times so just walk where I walk, just do what I do.'" Instead, he regards every record takes a new journey and he tries to bring as few bags as possible along the way. This requires having astute senses and being tuned into everything that's going on around you, he says. "I try to have my eyes and ears and antenna as open as possible to every single thing that's happening, and that's all I ask of the people I work with as well. Let's experiment: No idea sucks until it's proven to suck."

However, Jackie Greene complemented Berlin's style of working, because he came prepared and was focused — therefore the project got done on a reasonable time scale. "I'm not the guy to call if you plan to spend nine months making a record, because I don't have nine months to make a record. The projects that I'll accept will be people who want to make their records on the fast side of reasonable, which is five, maybe six weeks." Artists should be well rehearsed with songs that have a beginning, middle, and end *before* entering the studio, Berlin believes — this is based on first-hand experience. "I've been in situations with Los Lobos when we've been trying to write a record in the studio: You've got four songs, but you need 12. Trying to write those other eight in the studio isn't pretty — you tend to lose focus really fast." Therefore, he is adamant: "I *will not* go into the studio if somebody doesn't have [their songs] ready to go. You can't tear them apart and put them back together if they don't exist in the first place." EQ

"Once again you guys exceeded my expectations in every way.."

— Miles



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TECH BENCH
Meet the Digital Multimeter

by Craig Anderton

The multimeter has served electronic techs for years — but is also useful in the studio. The most common kind, the digital multimeter (Figure 1), is available at places like Radio Shack or even Home Depot. It typically has a large LCD to show voltages, a selector switch that chooses what you want to measure (DC current, DC voltage, AC voltage, resistance, and more), a number of jacks, and two probes that plug into these jacks. You'll generally plug one probe into a "common" jack, and the other probe into a jack associated with a particular type of measurement (for example, current, resistance, or high voltage AC).

Fig. 1. Digital multimeter.

A cheapo model with a few ranges costs under $10, while $40 will buy you something with more bells and whistles, like a built-in battery tester or very low (or high) voltage ranges. Even more gets you an *auto-ranging* meter, which doesn't require switching to higher or lower ranges to measure higher or lower voltages, respectively; it just reads the voltage, and displays it. (With non-auto-ranging meters, always start at the highest voltage range, and work your way down to the proper range.)

Caution: Before proceeding, note that *doing something like checking the power at an AC receptacle requires care and caution, and respect for high voltage circuitry. If you're not familiar with electrical safety practices, don't use a multimeter.*

Checking phantom power for mics. Not all audio interfaces and mic preamps really put out +48V. Set the multimeter to read DC volts; stick one probe into the XLR connector's pin 1 and the other into pin 2 (assuming pin 2 is hot) to read the real voltage.

Testing AC power consistency. You can't take AC line voltages for granted, especially if other equipment on the line draws a lot of current. Switch the meter to a high AC range, and insert the probes — *carefully* — into the two AC outlet slots to check the voltage.

Is the AC ground pin really grounded? With the meter set to a high AC range, insert one probe into the outlet's ground pin, then probe the other two slots. The hot line should read a standard AC voltage (*e.g.*, 117V) while the neutral should read 0 or a *very* low reading — well under a volt. If you don't get a standard AC voltage from one of the slots, then the ground pin isn't really grounded; high neutral readings indicate potential danger. In either case, have an electrician check your wiring.

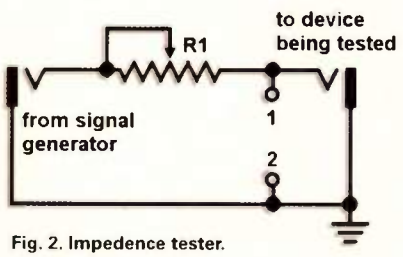

Fig. 2. Impedence tester.

Testing for leakage. Ever hold an electric guitar and get "bit" by a mic? Some guitarists haven't lived to answer that question. To check for leakage between equipment, connect one probe to the ground of one of the pieces of gear, and the other probe to the other device's ground. The AC voltage reading should be zero or at most, just a few tenths of a volt. Any more means that a potential shock hazard exists, which should be checked out immediately.

Testing input impedance. In many situations, impedance and resistance are roughly equivalent; so, determining the input resistance to ground will give us a ballpark figure for input impedance. (Just clipping a resistance meter across a dummy plug inserted in the input jack isn't good enough, as the input will usually be capacitor-coupled, making it impossible to measure resistance accurately.)

Wire up the test jig in Figure 2, plug in the signal generator (a synth with a key held down will work in a pinch), plug in an amplifier or other device being tested, then perform the following steps. Turn down the amp's master volume control to prevent having loud signals damage your speakers.

1. Set the multimeter to a sensitive AC range (*e.g.*, 2.5 to 10V) so it can measure audio signals.
2. Set R1 to 0 ohms (no resistance).
3. Measure the signal generator level by clipping the meter leads to test points 1 and 2. Aim for a signal generator level around 1–2 volts AC.
4. Rotate R1 until the meter reads 50% of what it did in step 3.
5. Be careful not to disturb R1's setting as you unplug the signal generator and amplifier input from the test jig.
6. Set the multimeter to measure ohms, then clip the leads to test point 1 and R1's wiper.
7. Measure R1's resistance. This equals the approximate input impedance of the device being tested.

You do a lot more with a multimeter, but that's enough for now. Testing . . . testing. . . . EQ


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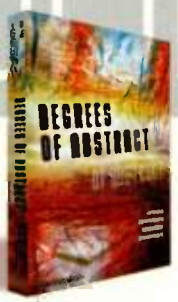


Cakewalk Sonar 6.2 Update

This free update to registered users provides native Vista support, MIDI input quantize, Bit Meter VST plug-in to monitor digital signal dynamics and quality, field recorder support, AudioSnap and ACT enhancements, "X-Ray windows" with keyboard shortcut control over transparency, import/export color schemes, and more.
www.cakewalk.com

Korg New Product Blitz

The **Zero 4** and **Zero 8** "Live Control Consoles" blend a MIDI control surface with traditional audio channels (including EQ and multiple input types); they're basically mixers designed to be played as instruments. With a new audio engine drawn from OASYS technology, the **M3** Workstation/Sampler features 2nd-generation KARMA functions, a RADIAS expansion board, multimode control surface, FireWire audio/MIDI interface option, and editor/librarian software . . . the **R3** Synthesizer/Vocoder uses the RADIAS MMT synth engine for synthesis and adds external inputs, dual filters, and dual insert and master effects . . . **Analog Edition 2007** combines the MS-20, Polysix, and Mono/Poly soft synth plug-ins with the MS-20FX and MDE-X effects plug-ins . . . The **mini-KP** KAOSS Pad is the smallest member of the KAOSS pad family of dynamic effects processors.
www.korg.com

Zero-G Degrees of Abstract

Degrees of Abstract ($99.95) is 2GB of manic beats, chilled-out pads, disturbing SFX, serene vocals, futuristic synths, gentle guitars, and more; it includes Acidized WAV and REX files, Reason refill, and EXS24/HALion/Kontakt instruments.
www.zero-g.co.uk

RSO Instructional Video

Optimizing Windows for Audio Recording ($39) is a downloadable, step-by-step instructional video on how to optimize Windows XP and 2K for digital recording.
www.recordingschoolonline.com

Acustica Audio Nebula2

Nebula2 is a Windows VST plug-in that can emulate numerous types of audio equipment: equalizers, filters, mics, preamps, compressors, reverbs, and time-variant processors such as flangers, phasers, and choruses.
www.acusticaudio.com

112dB Software Morgana

Morgana (VST/RTAS, Windows with Mac planned) is an authentic representation of an early digital (circa 1984) 8-bit sampler, designed to be musical rather than accurate. Morgana can also sample, either through its own inputs or via SampLink technology, which allows sampling from any track in a multitrack environment.
www.112db.com

I/ONE Connects FireWire Audio Snakes

FireWire Audio Snakes make it easy to connect studios, stage to mixer, traveling shows, or anywhere you need to transport audio (up to 1,640 feet). The snakes feature the DICE II FireWire chip, which offers a constant bus latency of 0.35 ms (regardless of the number of devices connected).
www.IOneConnects.com

Avantone CV-12 Tube Mic

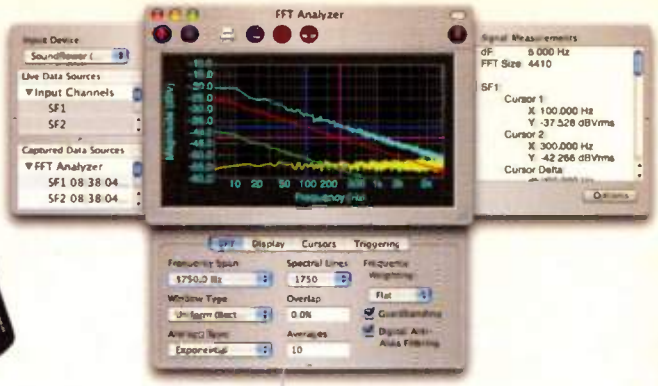
The **CV-12** ($399) large capsule multi-pattern tube mic comes with three different interchangeable tubes (6072A, ECC81, and ECC83) that can be swapped out in less than a minute; this allows changing the gain stage just ahead of the output transformer. The mic includes a –10dB pad, 80Hz rolloff switch, and dual 32mm capsules. The mic kit comes complete with power supply, vintage style shock mount, cable, wooden mic box, and an aluminum road case.
www.avantelectronics.com

Laurent Colson MusicMath 4.0

Now available as Universal Binary for the Mac, MusicMath is a freeware utility that converts musical values. You can calculate the time stretching to use on a sample if you change tempo (or the number of semitones to transpose), the time stretching to apply for transposing samples without changing duration, BPM delay synchronization, tap to determine tempo, MIDI note to frequency conversion, etc.
www.macmusic.org/software/main.php/lang/en/id/2819

PreSonus Announces FaderPort Sonar Support

The FaderPort ($229) single-fader USB controller has added Sonar support to existing compatibility



with Pro Tools, Cubase, Nuendo, and Logic Pro. The FaderPort's 100mm long-throw fader delivers 1,024-step resolution for writing smooth, accurate fades and adjustments for channel volume, pan, and mute automation. Download the Sonar installation file at www.presonus.com/faderport-downloads.html.

TC Electronic PCIe Upgrade For PowerCore Users

The PowerCore Express Upgrade Program is for longtime PowerCore platform supporters that have upgraded to faster PCI Express-based PCs or Macs. Users can choose between a cash rebate or plug-in rebate, which can be used for purchasing optional plug-ins. Element cards qualify for a $100 cash rebate or a $250 plug-in rebate, PCI cards qualify for a $150 cash rebate or a $300 plug-in rebate, and PCI mkII cards qualify for a $200 cash rebate or a $350 plug-in rebate. The offer is valid through June 2007.
www.tcelectronic.com/PowerCoreUpgrade

Sonic Studio Updates soundBlade

soundBlade 1.1 ($1,495) for Mac OS X incorporates more than three dozen feature additions and stability enhancements, including a dual EDL mode for improved source/destination editing and support for split DDP file sets. Also in the 1.1 release: Vive from iZotope Inc., which bolsters soundBlade's production power by bundling basic restoration functions.
www.sonicstudio.com

Sennheiser "Kicky" Evolution 602 II Mic

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Matrox Parhelia APVe TV Output Support for Pro Tools

The Parhelia APVe PCI Express (PCIe) graphics card ($349) now enables TV output support with Digidesign Pro Tools systems. This combination enhances the digital audio editing experience through the Parhelia APVe's Dual-display + TV output multi-display configuration for its DualHead workspace, and for the previewing of Pro Tools video projects with the QuickTime multimedia player on an SD or HD video monitor.
www.matrox.com/graphics

Propellerhead Software Now Vista Compatible

Users of **Reason 3.0.4** (without ReWire), **ReCycle 2.1**, and **Reload 1.0.1** can safely upgrade to Windows Vista, although these programs will require reauthorizing (via the original CDs and serial numbers) if you're upgrading from an earlier version of Windows to Windows Vista. ReWire and Rex are also compatible with Windows Vista, however, as a result of Vista's enhanced security features, the way ReWire and Rex need to be installed has changed. Propellerhead has created a special downloadable installer of ReWire and Rex for Vista users.
www.propellerheads.se

Faber Acoustical Electroacoustics Toolbox

The Electroacoustics Toolbox ($699) for Mac OS X is a modularized, multi-channel multi-analyzer, offering realtime data acquisition and analysis of electrical, acoustical, and electroacoustic signals and systems. It measures acoustic quantities, such as equivalent and time-weighted sound levels, as well as acoustic and electroacoustic systems (*e.g.*, listening rooms and loudspeakers). The software works with any Mac-compatible audio hardware and supports multiple channels of 8-, 16-, 24-, or 32-bit data with sample rates as high as the hardware will support.
www.faberacoustical.com

ExperimentalScene SpatialVerb

SpatialVerb ($20) is a Windows VST reverb that offers stereo operation; the early impulse response is modeled using ray-tracing for realism, and the late impulse response is created by a feedback delay network for greater smoothness. A demo is available.
www.experimentalscene.com

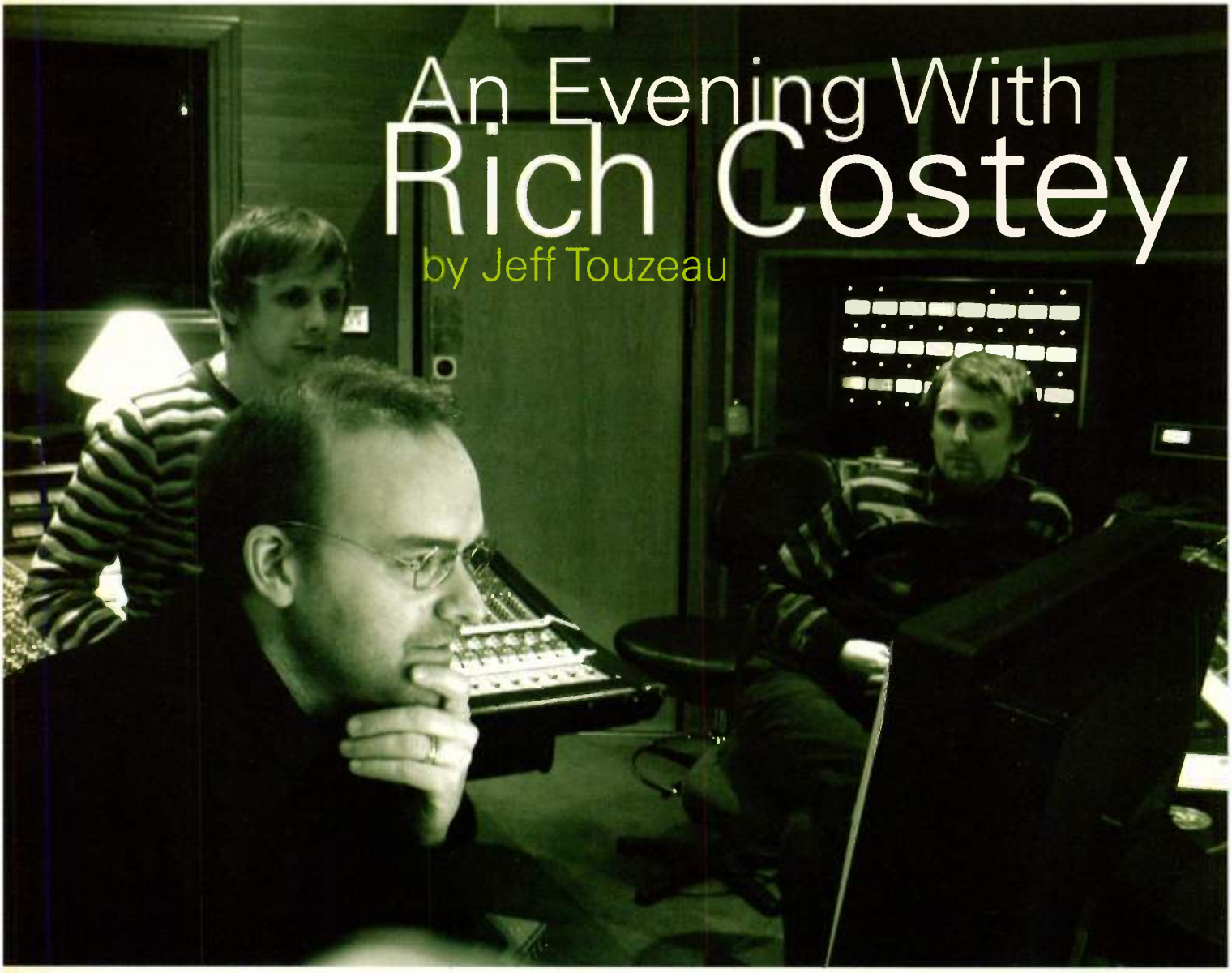
All prices are manufacturers suggested retail price. Toolbox material is provided courtesy of Harmony Central, Inc., and is used with the express written permission of the publisher.

Rich Costey is truly one of the lucky ones. Though well-versed in producing great music (**Mars Volta**, **Franz Ferdinand**, **Cave In**) and mixing a fair share more (**Fiona Apple**, **Bloc Party**, **Audioslave**), it's rare that a person gets the opportunity to not only sit behind the board, but work so closely with a band as special as **Muse**: a group that, by all calculations, has the perfect amount of talent, great material, and ambition. But he's gotten that chance — twice, in fact — having been the man behind the band's highly acclaimed 2003 effort ***Absolution*** and, now, the recent ***Black Holes and Revelations***. Heralded by critics as not only being one of the best written releases of the modern age, but also one of the most finely produced, *Black Holes and Revelations* is truly a rock masterpiece and surely *the* album set to propel Costey to the top of the proverbial producer pile.

Utterly taken aback by the rich sonic treatment (no pun intended) given to the album, we felt it morally preferable, nay necessary, to track Costey down and get the real story behind *Black Holes*; and he was kind enough to sit down with us for a lengthy conversation regarding the making of what has been dubbed one of the top albums in recent memory from **NME** to the **BBC**. So sit down in your favorite comfy chair, because you're about to have . . .

An Evening With Rich Costey

by Jeff Touzeau



EQ: When were you first asked to participate on *Black Holes and Revelations*?

Rich Costey: Matt had asked me during the tour of *Absolution* about possibly doing something, because I had produced *Absolution*, the album before *Black Holes and Revelations*. We kept in touch and a few months before we were looking to get started, I opened up a dialog with him about the new tunes and where we thought the album should go.

EQ: Did you sense the potential of the record from the outset?

RC: We were definitely going for something great, but we were also going for something a bit more personal than *Absolution*. On *Absolution*, for example, the guitars really sound big, but you don't hear as much of Matt as a true player. When Muse plays live, you can really hear his personality as a player. I wanted to make sure we preserved that — I wanted to make a record where you could hear his fingers on the strings, and you could hear his pick hitting the strings. I wanted a little more clarity on the album than *Absolution* had on it, perhaps.

EQ: Was there a lot of pre-production involved before you started tracking?

RC: We kind of merged the pre-production and the recording of the album into one. The location with Muse is always an interesting component to any of their recordings — even before I got involved with them, the location always has a lot to do with how the album comes out. That's partly because they're very adventurous people and they tend to never want to work at the same place as they've worked before. They all live in different places as well, and I don't even live on the same continent! We ended up settling on a studio in France that had been closed down for a little while and we convinced them to open up again.

EQ: This is Miraval?

RC: Yes. They arrived there about a week before I arrived and had set up so they could rehearse. We were rehearsing in the live room and we set up a little demo space so we could record our rehearsals, but at the same time we were setting up to do more formal recordings. The idea was that we would be able to seamlessly transition between rehearsing and developing songs in a primal way, to record them in a slightly more formal way. That's not exactly what ended up happening though. Miraval had some very strong points, but it also had a couple of areas that made things just a little bit difficult to transition between demoing and recording. At any rate, I think we spent two/two-and-a-half weeks of rehearsing.

What we really did at Miraval was quite a lot of creative focusing and trying to get a grip on where the album was heading. I think that because of the fact it was so geographically isolated, we developed a lot of schemes that ended up being chucked out the window as soon as we landed back in civilization [*laughs*].

EQ: How much raw material was there and how did you narrow the tune selection?

RC: There was a *lot* of material. One of the difficulties with Muse is that they are capable in so many different areas that one of the things that we wanted to do was to reign that in and give the album one feeling from top to bottom instead of "okay, here's the showboat piano song, and here's the showboat guitar solo song." Because they are so good, in contrast to many bands whose strength comes from limitation, Muse's strength comes from having no limitations.

EQ: This reminds me of *The Dark Side of the Moon* in the sense that everything on this album seems to have converged to a very strong result: the album cover artwork, the lyrics, the songs, and the production.

RC: It's funny you say that, because that's actually what kept coming up. They actually didn't know that record hardly at all. There were quite a few times where we sat around in France just listening to records, and that was one of the records we listened to because it is consistent from top to bottom and it has so much feeling. That was one of the things we wanted to do with this album, but because we recorded the album in so many different locations in so many different situations, holding onto that feeling is often tenuous . . . but I think we managed to pull it off.

EQ: On this record, I hear more dynamics in the performances than on previous records. Were their performances more rounded in terms of their emotional range?

RC: I wouldn't say that — I'm a huge fan of all their records. In fact, one of the songs, "A Soldier's Poem," was leftover from *Absolution*. On that album, that song just didn't seem quite ready and we ended up leaving it behind. For the new version of the song, Matt had completely changed the lyrics, the meaning and the arrangement. It is actually inspired by an Elvis recording, "(I Can't Help) Falling In Love." You can hear this in his tenor.

EQ: Did Matt have a good idea where he wanted to take the tracks in terms of adding the complex harmonies and layers that came about?

RC: Each song had a different amount of development in the studio. Something like "Supermassive Black Hole" ended up being pretty similar to his intention in the demo. It ended up being more dynamic, and other programming was added that wasn't there in the demo, but the essential core of the song is not that different.

On "Knights of Cydonia" the basic arrangement of the song might be similar, but that song went through a number of changes. It started out very "surfy;" then when we were working on it at Electric Lady, [Matt] was horsing around one day, as he does quite a lot, and came up with that tremolo guitar part that is the first melody once the song kicks in. That pointed toward a very new direction of the song, and to me, sounded like "Telstar." When you put that guitar track down, because it sounded so much like "Telstar" by the Tornadoes, which his dad was in, that was a song that was produced by Joe Meek and was the first UK single ever to make number one in the U.S., that became a total inspiration for the direction of the track. As soon as that guitar track went down, it clarified where we could take that track from where it was.

EQ: What did you leave Miraval with before you had to move on?

RC: When we left Miraval, we had full takes of quite a few songs. Some of these were developed in certain ways.

"Map of the Problematique," we ended up putting down the guitars first because Dom was out of town. That song was originally all done on keyboards and I really wanted to hear it on guitar, but it was impossible — there was no way to play the keyboard part on the guitar. We spent about two days back-engineering what the keyboard part was on guitar. So it is actually a guitar that is going through three different modular synths that are opening up at different times. Two of the synths are routed into different pitch shifters — one is an octave up, the other is an octave down. Then we chose what octave we wanted to hear based on which synth we wanted to open up at which time. We had like an ARP 2600, some other things and a little spring reverb that was sort of playing the high octave. It was all done with hardware and the guitar was split into three: One went into the ARP 2600, Korg MS-20, and an EMS Synthi AKS.

EQ: How much of a technical understanding does Matt and the others have? How much of these sounds did he get on his own?

RC: Each song was a little bit different, but on "Map of the Problematique," I basically put that whole guitar sound together. Matt just wanted to use a keyboard — he was a little unsure of whether a guitar was going to work. I really wanted a guitar sound and we did manage to back-engineer it to make it work. It took a couple of days, but we did manage to do it.

EQ: Where did you go next?

RC: Avatar. We left Miraval and all the songs had gone through pre-production to a point where we were comfortable. We also achieved a bunch of basic tracks as well. By the time we went to Avatar, we had our focus and things started to happen really fast. We made it through the basics in really short order. The band was able to take in a little of the city entertainment as well — being in the woods for so long, it was turning into a little of *The Shining* out there.

EQ: Then you went to Electric Lady?

RC: Yes, by the time we left Avatar, all the basics were done, and quite a few of the songs were in an advanced state. For instance, "Soldier's Poem" was done in one take — that is totally live, except there is a piano in there and some backing vocals. By the time we got to Electric Lady, we were going through guitars and synths and that sort of thing.

I'd been to Electric Lady, but I hadn't actually worked there before. I think all of us just wanted to work there, partly for the history of it and partly because I think the room is set up really well for those guys. I think the fact that Hendrix had played there was pretty inspiring, and the room is sort of set up to feel like a giant spaceship, which worked well for the band because they are pretty inspired by outer space [*laughs*].

We used **samples of dropping forks** on the strings and plucking them with guitar picks, **putting putty on the strings**, a few different tricks.

In many ways, it's a very, very modern studio. You don't feel like you're walking into 1969, unlike Oceanway where you walk in and the rooms, including the control room, are exactly how they were 30 years ago. The control room is very, very modern and the lounge is ultra modern. Quite often, that's where you find yourself being.

It was interesting — there were a lot of overdubs going on in the control room, and I think we were all getting kind of sick of that. In fact, any time Matt or anyone else walked out into the live room, something great happened. So one of the things we've realized is to stop doing overdubs in the control room whenever possible. Control rooms are not very inspiring places to hang out if you are a musician. There are knobs everywhere and it's very analytical; it's not a great place to get loose and creative. Live rooms and all other kinds of rooms are better for that.

EQ: How about all the complex vocal harmonies on the album? Many of these could give Queen's *A Night at the Opera* a run for its money. . . .

RC: He had all those harmonies in his back pocket before we started recording. The demos have all that stuff. As far as the vocal harmonies, that stuff goes very, very quickly for him. Chris, who plays bass, actually sings a lot as well. They're both actually very good singers — very rarely was there a moment when we were grinding something out.

EQ: On "Starlight," is that a bass guitar and a real piano at the beginning?

RC: Yes. A fair amount of the melody in that song happened at Electric Lady. The melody was originally always done on piano — I think there were two different pianos playing at two different octaves on that song. Also, we ended up sampling a treated piano and then that was playing the melody as well. We used samples of dropping forks on the strings and plucking them with guitar picks, putting putty on the strings, a few different tricks.

EQ: So you guys are pretty patient in searching out for the right sounds? That can take a long bit of time.

RC: Matt is really interested in searching out for the right sound, but like any great artist, they don't really like to sit around when things aren't happening. Usually we try to keep things rolling pretty quickly — when we have an idea, we execute and think about it later.

EQ: How much time did they have to focus on this project? Is it hard to get their focus on a recording project given their aggressive tour schedule and other commitments?

RC: They shut everything down and we were just making the record. We didn't have any idea how long it would take necessarily. We just felt like we were going to work on it until we feel like it's great. All bands, up until they reach a certain point, have someone telling them when a record needs to be handed in. That can be

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really debilitating — obviously when bands make their first record, they don't have that problem. They have forever to make a first record and very little time to write and record a second album. This is Muse's fourth album — they obviously can take some time and that's what we intended to do.

Having said that, the amount of time we actually spent recording was about four months including recording and mixing. Obviously it was drawn out over a longer period of time, and after Electric Lady, we went back to Italy where Matt lives — we spent about four or five weeks there at a studio working on vocals, but then we had to wrap it up. We sometimes had three different control rooms going at once because the band had booked the Reading Festival and simply had to get it done. The time period of standing around and dreaming about where the album was going to go was gone.

EQ: Did you have much leeway mixing *Black Holes and Revelations*, or was the band right there looking over your shoulder?

RC: If it's an album I'm producing, I feel that mixing is an extension of the recording process, not necessarily a different thing. It wasn't like we had rough mixes and just sat on it for three weeks and went to mix something. We were mixing the whole time throughout the project and the band was there the whole time. Occasionally, we'd have to do an overdub here or there, or put a guitar part down and mix it together.

EQ: How technical are the members when it comes to mixing?

RC: They're not technical when it comes to mixing, although they're getting a little more so. Matt has purchased a bunch of recording equipment and is really interested, but at this point they aren't really technical — they are interested in the arrangements and dynamics of every song though.

EQ: How did you use reverb on the album, and what was your overall philosophy of using it?

RC: There's very little reverb on that whole album. Occasionally you get a bit of spring reverb here and there, but what I really like are tape delays and oilcan delays that can create a blur behind an instrument without you knowing what it is. I'm really into Binson echo units. I've got quite a few different echoes, because it's something I've been interested in for quite a long time. I have a pair of Echoplexes, a Tel-Ray, a few weird pedals and other things I use for echoes. I tend to like these because they fit well behind the instruments instead of taking up the entire sound stage.

EQ: What was the basic mic setup on "A Soldier's Poem"?

RC: We were recording in the main room Studio A in Avatar, which emits this classic gigantic drum sound, and that was of course the opposite of what we wanted for that song. I couldn't find a room that was dead enough, so I stuck them in the lounge. The lounge in that room is really narrow and long. The lounge is split in half, so we put Dominic in one of the lounges, and basically just put a U47 on the bass drum and a Coles on top of the drum kit, and that was it.

I feel that mixing is **an extension** of the recording process, **not** necessarily a **different thing**.

EQ: So you only used two mics?

RC: Yeah, that was the funny thing about it! [*Laughs.*] Left of him, Chris was playing acoustic bass and I probably had a Coles on that and he was also going into a '50s Gibson amp that was in the live room. Then on the other side of the small door was Matt playing this very small-bodied Gibson guitar that was just a beautiful sounding. I think it was an antique from the '50s. We started out using a U47 on that, but it just couldn't capture the intimacy of the guitar. We ended up downsizing the microphone quite a lot, and ended up using a dynamic. It made total sense — we used a Shure SM-81.

EQ: What kind of amps does Matt use?

RC: We ended up settling on a couple of amps for the whole album. Most of the guitar sounds are just a few different amps. The interesting thing about Matt's guitar sound is that all of his guitars are custom made by this guy named Hugh Manson in England, and I think that just about every single note on the album was played with one of those guitars. Right before we started recording, we sort of felt that his guitar sound in the past had been a little bit muffled or we just weren't hearing his fingers as much as we wanted. So he went and came out to France and changed all the pickups. We ended up with a guitar sound that really kind of cut through and had a lot of brightness to it. I think that was just one of the Manson guitars going into an AC30.

EQ: What about for the rougher songs with a harder edge?

RC: The rougher songs were usually just a combination of a Marshall JMP and also an Ampeg V4 head that we use quite a lot of as well. The stuff that sounds quite rough is usually the V4 head.

EQ: And how about the bass tones?

RC: Chris has developed his bass tone over many, many years. At the beginning of the album, he was really interested in changing his bass tone. He brought in about five or six different amps to try out, and we ended up right back where we started [*laughs*]. They're basically these Marshall bass heads that nobody else has. I've never seen them anywhere else. They don't make them now, and they were never for sale in the U.S. Chris' bass tone between *Origin* and *Absolution*, from where I can tell, that's where he really settled on the system that he's got. And he's got a very well-defined system that sounds like nobody else.

EQ: The bottom end just jumps out on this record.

RC: Yeah. I also think that quite honestly, that's because he's one of the best bass players there are. I mean, his

technique is incredible, his finger strength is staggering. He always plays with his fingers pretty much, and he hits the strings really goddamn hard. It sounds that way because that's the way he plays. I've worked with Rage Against the Machine a bit as well, and Timmy C is the only other bass player that I'd put in the same conversation, because they both have a gigantic tone that reflects the way they play and in some ways their own personalities.

EQ: Was there any particular console at all these studios that you and the band jived with particularly well? Or did you find all the gear interchangeable?

RC: No, I have a Neve BCM 10 that I travel with, and most of the album was actually recorded through that. Avatar has a Neve 8088 that I thought was fantastic — I tend to like Neve's for tracking, and I usually end up mixing on an SSL G series, and that's what we used to mix it. The mixing all occurred at Townhouse in London, with the exception of "Hoodoo" and "Starlight," which were mixed in different rooms. Once you're mixing in a new room, it usually takes you about a week to sort the room out, and then you get it together and go through the material.

EQ: What was different in the band's approach from this album from the last album in terms of the process or the sensibilities in how you approached it?

RC: I think there were a couple of main differences. For one thing, there was a greater amount of fixed time in which we had to get things done. *Absolution* wasn't done very, very quickly, but it was done pretty much to schedule. There was more time on this album, and more time to think about what we wanted each song to be before we really got into it.

That's something we didn't have before. I guess there was much more intent in the recording this time than there necessarily was in *Absolution*. There was more discussion, and there were more routes taken. Some songs lend themselves to driving down a couple of roads, and seeing which ones fit the songs the best. We were able to do that on this album, and on *Absolution* we weren't able to do that quite as much.

EQ: Were you nervous about sending the final mixes off to mastering on this, and do you get really hands-on in mastering?

RC: Yeah, I'm usually really involved all the way to the end. I always attend the mastering if I can, and certainly in this case I did. You basically want to preserve what you've done and make it better. We did this at Masterdisk and Sony.

EQ: How would you characterize the mood during the recording at each place?

RC: Literally, each location had a different mood. Miraval ended up being tense and paranoid, New York was fun, getting it done, slamming through the stuff and really getting down to business. Italy was just loose and weird [*laughs*]!

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Black Holes and Revelations Studio Notes

"Take a Bow"

"Take a Bow" went through a few permutations. The concept for the track was that it would start out and carry through several different epochs of music. We started out in the classical realm, then went into some kind of techno-never-world, and there'd be sort of a heavy rock at the end. We kind of started with clean arpeggios, and to capture those arpeggios, we tried vocoding, we tried a technique from Laurie Anderson's "O Superman," we tried amping some arpeggiated analog synthesizers that didn't sound very good, and it was a shame because David Bowie came in the control room when we were working on that! [*Laughs.*] Caught with our pants down, we said, "Doesn't sound very good, does it?" We ended up kind of doing the straight up Philip Glass strings. I worked for Philip for a few years, I was his Chief Engineer — so that was pretty familiar territory.

To get string players to play that was pretty tough. We did them in Italy, and the Italian string players are very dynamic and very romantic. Then there is sort of a Moog on top of it so we ended up thinking of it as a Moog symphony where the Moog is playing the lead and you have an orchestra behind it.

"Starlight"

The interesting thing here was that we went down a couple of different roads with the drum pattern. There was one that was a little bit more of a groovy rock thing. There's an element in the song that I was sort of chasing for a little while that was a little bit glammy — for whatever reason it seemed to make sense. We recorded the song a few different times, and we settled on this kind of glam beat that we tracked at Avatar and it just added a tremendous amount of life to the track. I thought it really, really sounded great. Part of it was just having that giant piano riff. You can't go wrong with something like that.

"Supermassive Black Hole"

The drum track is basically a couple of samples that Matt got from God knows where. I think he just came in with a kick and a snare, then I processed a whole bunch of samples through a Kyma system which I have, which is basically just an open architecture sound designer box and you can build whatever you want. It's unbelievably deep — it's like a black hole of sound design. It's similar in context to Reactor, but I think it's much deeper and it sounds incredible. A lot of the drums on that track were processed by a Kyma. The sounds that are jumping out, and the fills and stuff, that's all processed by the Kyma.

"Map of the Problematique"

This song was originally worked up on synthesizer and had a really sort of inspired feel to it. Then by the time we transferred it over to guitar, it got much, much darker and just kind of really drives to it.

"A Soldier's Poem"

The vocals were all Matt with a Telefunken 251 going through an 1176. I am a big proponent of the vocals sound fitting the intent. The 251 didn't work on every situation at all. It works in a situation where you want a vocal that's really beautiful, but other times he sang into an SM7 and some other songs he sang through a bullet mic he got somewhere — I don't even remember where he got it. Sometimes background vocals would be done with the trash mic, and lead vocals would be done with the hi-fi mic, sometimes the other way around. In the case of "A Soldier's Poem," you want to put up a big fat tube mic and have it sound great.

"Invincible"

Invincible was originally played all on guitar, and then as we were in rehearsals in France, the song seemed to open to a few different concepts so Matt started transferring the intro to keyboards. Then the song took on a much more spiritual kind feel to it, and that ended up inspiring some lyrics out of him as well, I believe. That is a very live performance. I'm pretty sure all of that is a live performance with just a couple of overdubs on it.

When we recorded at Miraval, we had moved the drums into several different locations for several different songs. On that song, the drums were quartered off in the live room. It just had a very dead sound, which we were very into getting. We just wanted it to sound very dark and sort of in your face without a whole lot of decay to it. The core of that is really just them playing and then we just built overdubs on top of it.

"Assassin"

This started out as basically a 7-1/2 minute prog number. It had a huge piano break, and that version is going to be released as a B-side at some point. It was a big live number on their *Absolution* tour, and that song started out as a really strong contender. It is really influenced by bands like Lightning Bolt that Muse are really into. We ended up shortening it and taking some of the prog out of it, and that put a whole new face on the track. It put the song in a totally different dimension. There's a fair amount of working out the parts on this song.

Dom's a great drummer and the band is really good, so there's no sweating over takes. Miking up the drums on a song like this, it's a really busy drum part so you want the most definition possible. You want to be able to catch all the nuances of what he's doing, so I mic everything. The bass drum had a few extra mics — you have one inside and two on the outside. I tend to use a speaker as well to pick up some low stuff off the bass drum. On the snare, I tend to use condensers. Some of the album we used '57s, and on some of them we used the Josephson E22 mics that sound pretty good.

"Exo Politics"

That song went through a lot of different variations. I think one of the cool things about that song, one of the things that makes it really interesting, is in some ways it is Matt taking the piss out of himself in some ways, but there's a sort of Theremin sound that plays the melody in the intro of that song. And what that actually is Hugh Manson built a couple of guitars for Matt that a Kaoss pad controller built into the guitar. The Kaoss pad isn't in it, but the controller is. So essentially he's playing Theremin on the guitar.

It ended up being really funny, because when he first got that guitar he was sampling his voice over and over. Usually I have a lot of patience for doing many, many takes over and over again, by the second or third take, while we were trying to get a drum take, he was just kind of horsing around, sampling his voice into the Kaoss pad, taking the piss out of anything with the Kaoss pad while we were trying to record takes.

That song went through a bunch of permutations. At one point it had no drums, at one point it was straight up rock, and it ended up being a combination of the two. One of the interesting things is that the guitar solo on that song is actually just a very small amp, face down into a pillow with a mic on the back. The amp was a Masco, which I've never heard of. Matt picked it up at some store here in New York.

"City of Delusion"

One of the brilliant things about this is Mauro Pagani's string arrangement. That's probably the oldest song on the album — the band had written that quite a while ago, and they had in mind a certain sort of feeling. But at the time, when we were in France, I was quite interested in a lot of Eastern music, Arabic music. We were all listening to a lot of Arabic music. That song is one of the ones that took that feeling, texture, and sound and really going with it. Partly just because Mauro is a brilliant violinist, and the area that is really his vocation is Eastern music, Turkish music, that sort of thing. So we basically just asked him to do a string arrangement on it. He did a quick mock up, and it sounded amazing — I think that absolutely took the song to a whole new place.

"Hoodoo"

That song used to be all on piano. I think Matt felt like the intro and the outro sounded a little bit too posh on the piano so we ended up just deconstructing it and doing a straight live guitar and vocal. Then that sort of crossfaded into the live take of the band playing piano, bass, and drums together, and it also had a string arrangement on that as well. Most of that was done at Avatar, and the strings and the intro and outro were done in Italy. There was cross-continent editing [*laughs*]!

"Knights of Cydonia"

Telstar became sort of the prime inspiration for that track. Also, you sort of have that "Bohemian Rhapsody" break in the middle of it. That song went through a couple of changes — it was originally very surfy, but ended up getting very, very Telstar before it was done. The vocals in the mid-section were essentially done live, and I have a distorted EMS synth running underneath it.

It's interesting — a lot of people like to take bass and drums and put them to tape, then do the rest in the computer. That's fine and dandy, but I think that vocals benefit quite a lot from going to tape. So a lot of times if there was a big vocal section on the album, we would dump it to tape and hit it real hard on the tape machine then put it back in the computer — this song was an example of this. All those vocals went to tape. EQ

Hunting the Wild Waveform

SOUNDS ARE ALL AROUND US, AND THEY'RE YOURS FOR THE TAKING

by CRAIG ANDERTON

They're out there, and they're everywhere: sounds. And they're just waiting for you . . . all you need to do is find them, which is maybe why they're called "found sounds."

You've probably heard more found sounds in recordings than you realize. Although capturing and warping sounds was a mainstay of classic electronic music, artists as diverse as Pink Floyd, John Cage, the Beatles, and a zillion techno producers have all used found sounds in musical — and not so musical — ways. Whether it's the nature sounds behind a new age recording, sound effects in an audio-for-video production, "quotes" from old movies in a dance floor hit, or even swarms of bees providing a menacing backdrop to the TV show *Cold Case* (see the related article on page 54), having a collection of unique samples sitting around can come in *very* handy.

YOU WON'T GET THE SOUND IF YOU DON'T HAVE THE RECORDER

Capturing sounds requires a certain attitude that's very much like a good photographer, who never leaves the house without a camera. If you're serious about treating the world as your waveform, you need the audio equivalent of a camera: something simple, small, and convenient enough to use that you actually use it. Here are some of the options:

Fig. 1: Sony's PCM-D1 is a high-end, solid-state field recording with high-quality built-in mics.

■ **Solid-state recorder.** Typical models are made by Edirol, Sony, M-Audio, Zoom, Marantz, Fostex, and others (Figure 1). These have no moving parts, which means they're dead quiet, and save audio to memory cartridges.

■ **Hard disk-based recorders.** These move up a notch in terms of storage, but go through batteries faster and make some noise (although the subcompact hard drives they use are pretty quiet). You'll find products from Sound Devices, Korg, iRiver, iaudio, and others.

■ **MP3 player with voice recording.** Sure, it has a little tiny mic designed to capture audio notes like "Don't forget to pick up the cat litter." But when all else fails, they work — and you can capture some gloriously lo-fi samples that are the perfect complement to experimental electronic music.

■ **Cell phone.** Some cell phones have voice recording options; if not, call yourself and record into your voicemail.

■ **Minidisc.** I admit to a bias toward these "always a bridesmaid, never a bride" devices because they've served me well for almost a decade. They sound good, are convenient, get good battery life, and of course, are totally unhip in the Age of iPod.

■ **Video camcorder.** The audio recorder inside a camcorder is basically a DAT. Although clunkier than carrying around a tiny solid-state recorder, you can get good fidelity and video to boot.

I hardly go anywhere without at least one of these — just in case. The MP3 player/recorder and cell phone are with me pretty much all the time; for extensive sampling expeditions, I take my Minidisc (go ahead, laugh — I don't care). However, having had the chance to work with the Korg MR-1, that's going to get the call for high-end sampling sessions in the future.

ACCESSORIZE, BABY!

If you're just trying to grab a few sounds here and there, a recorder is all you need. But if you're on a serious sonic safari, you'll need accessories.

■ **Additional recording media.** This will also determine what type of recorder to take with you. If the only way to offload files is via a computer, then you gotta bring a computer. With cartridge-based solid state recorders, you'll need to bring plenty of memory cartridges — unless you've also brought a computer to which you can transfer files. And for Minidisc, bring extra discs.

■ **Additional power.** You don't want your batteries to die just as you're capturing the sound of a lifetime. That's why I always like devices that have rechargeable batteries, but the option to slip in additional batteries if needed. Some older Minidiscs had "sidecars" that held batteries to provide extra oomph; for serious battery power, make a box with D cells or lantern batteries, and go through the AC adapter input. Once while in Alaska sampling whales, I had a Casio DAT recorder (really) and because it went through batteries like a glutton through filet mignon, I brought several 6V lantern batteries with me — a pain in the butt, but I got the samples.

■ **Mics.** The internal mics on many recorders are surprisingly good, but it's worth bringing some external mics. This is particularly important if your recorder of choice has moving parts; for quiet sounds, you'll want the mic as far away from the recorder as possible.

■ **Plastic freezer bag.** Fold this up, and put it in your pocket. If there's rain, ocean spray, or other environmental nastiness, put the recorder in the bag and seal it up. If you still need to record, feed the mic cable out one corner of the bag; it's almost certain you'll be able to manipulate the buttons and work things while it's in the bag.

■ **Notepad.** Keep notes on what you've recorded, as you really don't want to have several gigabytes of data staring you in the face without a clue as to what sounds are where.

SEEK OUT THE OPTIMUM RECORDING SPACE

Airports are great for found sounds: You get crowd noises, announcements of planes going to exotic destinations, restaurant sounds, cars in the parking garage (including door slams with killer ambience), and of course, the roar of airplane engines and the strangely annoying announcements for shuttle trains and such. But whatever you record, consider the best way to record it.

For example, with one project I needed to get some airport announcements in isolation, especially the one in the Atlanta airport warning you to watch your luggage ("Maintain control . . .") which with a little cut and paste, would make the perfect "Big Brother" counterpoint to a hip-hop tune. What to do?

Well, they have speakers in the bathrooms, and as it was 2 A.M. and I was delayed coming back from Europe due to a hurricane, I just camped out in a bathroom, found where the speaker was, stood on a toilet seat to get as close to it as possible, and waited for a stretch of time when no one came in and flushed. (However, I do wonder what one guy thought when he came in and saw me pointing a mic in the general direction of the ceiling, while the announcer said "Report any suspicious behavior...")

When you're looking for found sounds, *there's always a sweet spot to record them.* For best results, wear earphones that enclose your ear to block out noise, and listen as you test different miking positions. I used to use big honkin' headphones but found that I could use those $15 Koss ear buds from Radio Shack, which go in your ear and effectively seal out ambient sounds. They also allow for surreptitious recording, as people think I'm just listening to an iPod or whatever.

LEGAL ISSUES

Be careful, because nothing spoils your day faster than a lawyer's phone call. For example, once I thought it would be very cool to record the cacophony of slot machines in Las Vegas. Only problem: There was almost constant background music. Aside from interfering with the vibe, the music was readily identifiable. The solution was to move as far away from the house speakers as possible, and as close to the machines as possible, so the music would get drowned out. Also because of the general noise and chaos level, there was no problem isolating parts with little or no music, and crossfading them to create what sounded like a continuous recording.

Sometimes there is no real solution. I recorded a bunch of phone sex line commercials off French TV, and thought the voices would work well in one of my tunes. But I got cold feet at the last minute, as again, what I sampled could be readily identified. The solution: I changed the song's slant from girl-wants-boy to boy-wants-girl, and did the vocals myself . . . but kept the phrasing, and even the phrases, as they were sufficiently nondescript that I doubted anyone would sue.

Then there are the judgment calls. I recorded some street preachers in New York who were at the absolute top of their form, shouting "The Lord will come with fire!" and a bunch of other apocalyptic messages. It was great stuff, and I plan to release it someday as part of a tune . . . but it's not like I can find their publishing company and get clearance. So I'm going to assume that one of three things will happen: They'll never hear it and the point will be moot, they'll be flattered that I'm spreading their message, or they will want to kill me. I guess I'll find out.

Fig. 2: Convolving sounds with unusual impulses, such as guitar bodies or even thunder (as shown here with BIAS Peak 5.2), can turn garden-variety found sounds into truly otherworldly effects.

A RECORDER'S BEST FRIEND: DIGITAL AUDIO EDITORS

It's not just enough to record the sounds — you need to massage them with a good digital audio editor. It's hard to recommend a specific one, because they all have their own cool little DSP processes; and convolving samples using a convolution reverb (no one says they have to be used only for reverb — see Figure 2) can make just about anything sound cool.

Excessive pitch transposition is a sure-fire route to uniqueness (just remember to remove DC offset if you're shifting way down), as are vocoding, delays, resonant filters, ring modulators, and those other cool tools in the sound designer's arsenal. I also recommend noise reduction: In some whale samples, I could hear motor sounds from a boat several miles away. Taking a "noiseprint" of the offending signal got rid of most of it; a few well-placed notch filters got rid of the rest.

Also, don't forget gating and enveloping. For example, "radical recording" enthusiast Dr. Walker is a fan of taking vinyl hiss, amplifying it way up, gating it, and using it to replace the hi-hat sample in drum kits. Gated shortwave radio noises with really fast decays can sound like weird percussion, and just about *anything* mixed in with a snare drum can sound pretty cool.

AND FINALLY . . .

Treat the sounds you've found as a real sample library. Back them up, document them, and keep both the original and processed versions. I've even used some samples made way back in the '80s in music I'm working on now . . . you never know when a found sound will turn out to be a found treasure. EQ

Zoom H4 Handy Recorder

WHEN THE WORLD IS YOUR STUDIO, GET A RECORDER TO GO

by David Miles Huber

Occasionally, a device appears that does so many things it has to be thought of as a "Swiss Army knife"-type tool — like Zoom's Handy Recorder H4. Weighing in at 8.75 ounces (with its two AA batteries), this palm-sized recorder includes two front-mounted, quality condenser mics (in a 90° stereo X-Y configuration) to record audio at 44.1/48/96kHz (16/24-bit), along with multiple MP3 rates, to an SD memory card. With a 2GB card, total recording time is over six hours at 44.1kHz, or 34 hours of MP3 stereo audio.

The H4 also includes two XLR/1/4" mic/line jacks with phantom power, so you can use your own favorite mics. Add 1/8" stereo line and headphone outs, plus a USB computer interface, and the result is a super-flexible, on-the-go recording system.

APPLYING THE H4

The H4 has two main operating modes. The Stereo mode records audio directly to the card, using a one-button operation. To start recording, you press the Rec button to set levels (using the side input gain L/M/H switches), then press Rec again — it's that simple. Using the backlit, 128x64 pixel LCD display and a side jog-dial control, you can change the rate/bit/format settings easily.

In 4-Track mode, the H4 works with the jog-dial and LCD display to give you what's probably the world's smallest virtual mixer. This mode lets you lay down a mono or stereo set of tracks into a "project," where you can make volume and panning changes with the virtual mixer. Once done, you can bounce the basic tracks down to a mono or stereo composite track, or import the mixdown into a new project and keep on overdubbing new tracks. You can also apply a wide range of effects (including delays, reverbs, cabinet simulation and mic modeling) to a stereo recording or 4-track project during the recording phase, but not during mixdown.

In the real world, the H4 can sample sounds cut in the field, record live concerts (I record my live gigs and post them on the web as a free podcast), record business meetings, or capture those magical musical ideas that can hit at any time. However, the H4 goes a step further: It doubles as a high-quality USB audio interface for Mac or PC (it's self-powered when plugged in), with the advantage of built-in recording mics. When you throw in the fact that it's an SD card reader, has a built-in metronome, digital instrument tuner, and is bundled with Cubase LE (Steinberg's entry-level DAW that doesn't require a copy protect dongle), the H4 really does add up to being an on-the road powerhouse.

The only real inconvenience is that the stand cradle is a little strange, as it can be used only with a camera stand (what, no additional mic stand mount?). It also requires that you use a set of supplied Velcro straps to secure the H4 to the cradle — an awkward approach that could've been avoided by using a form factor that would simply snap the two together.

CONCLUSIONS

In the studio, the mics sounded really good. It was interesting to listen to the mic modeling change as I switched to the warmer U87 or the full, yet brighter C414 (SM57 and MD421 models are also included). They sounded very respectable and could fit into a final mix without apologies. It was also fun to see the H4 power a U87 and then a pair of MXL V67i mics . . . all recording to an SD card off of battery! Sonically, I've heard better preamps, but I've also heard far worse; the sound had a slight digital edge to it, but is fine given the H4's price and multi-functionality. In fact, the internal mic modeling compared favorably with the H4's recordings using my external, large-diaphragm condensers . . . good job, Zoom.

If you're a computer digihead like me, you'll also love the fact that there are no moving parts — just transfer your files directly into a session and start working. Bottom line: For the on-the-move producer/musician, the H4 is a quality tool for recording your rehearsals, gigs, and podcasts. EQ

David Miles Huber's music can be seen and heard at www.MySpace/51bpm.

Product type: Portable SD cartridge-based recorder with built-in stereo electret-condenser mics.
Target market: Those who can benefit from an all-in-one, on-the-go recording setup.
Strengths: Quality recording system with external mic/line inputs. Includes phantom power. Doubles as an audio interface, SD card reader, tuner, and metronome. Includes Steinberg's Cubase LE DAW.
Limitations: Super-small display. Menus could be easier to navigate. The camera stand cradle needs a better design.
Price: $499.99 list
Contact: www.samsontech.com

Korg MR-1 1-Bit Mobile Recorder

KORG MADE A LOT OF PROMISES AT AES . . . DOES THE MR-1 DELIVER?

by Craig Anderton

This is a ground-breaking product, so why only a one-page review? Because the subject of 1-bit recording is deep, and well-documented: Start with the Korg white paper at www.korg.com/mr/Future_Proof_Recording_Explained.pdf. And you'll also find plenty of MR-1 specs on the Korg website. What we need to do here is dispel a few myths, explain why the MR-1 is so different, then tell what it's like to use the MR-1 — because frankly, what the MR-1 represents is almost more important than the product itself.

1-BIT RECORDING

Also called Direct Stream Digital (DSD), this is the same technology used in SACDs. One misconception is that the MR-1 (and the MR-1000 tabletop model) are some kind of extension of SACD. But the MR-1 is all about applying 1-bit *technology* in a professional recording/archiving context — not about an ill-fated consumer playback format.

And does it really sound better than standard PCM? *Absolutely.* DSD has the smoothness of tape, the clarity of high-resolution PCM, and a level of definition that neither achieves. And we're not talking subtle differences; it's obvious.

"PERFECT SOUND FOREVER"

Korg's tag line of "Future-Proof Digital Recording" sounds suspiciously like the above-mentioned statement about CDs. But I see where they're coming from. First off, it's oriented more toward the MR-1000, which samples at 5.6MHz — twice the rate of the MR-1 or an SACD. Furthermore, you can convert DSD from the MR-1000 or MR-1 to just about any other format, from 44.1/16-bit to 192/24-bit (the included AudioGate software — a pretty amazing piece of technology in itself — does the heavy lifting).

Even though the MR-1 doesn't sample at 5.6MHz, it *still* sounds fantastic because a lot of 1-bit recording's sonic superiority is less about the sampling rate than about the outboard "glue" you *don't* need. Arguments about "which converter sounds better" in a 1-bit system don't exist: There are no decimation filters. There are no input or output "brickwall" filters, just a gentle filter to keep the clock out of the audio range. When you hear the MR-1, there's no question that it just plain sounds better than what you've heard before from any portable digital audio. And despite being a mobile recorder, it seems like Korg put some serious juice into the analog front end, because it sounds way better than I expected.

RECORDING THE WORLD WITH THE MR-1

It's not perfect: The rechargeable battery is not user-replaceable when it reaches the end of its useful life (you have to get the unit serviced), and provides only about 2 hours of DSD recording time (or about 2.5 hours with standard PCM recording, which it also does — up to 24/192). There's an AC adapter, but no way to slide in a couple of AA batteries if your battery runs down (the MR-1000, however, can run off standard batteries). While Korg is apparently looking into compatibility with some external battery packs, nothing has been finalized yet.

As the MR-1 is hard disk-based with 20GB of storage, there are the usual fragility, noise (although very minor, on the order of an iPod), and reliability issues compared to solid-state memory — but getting real, I've yet to see a 20GB memory cartridge.

On the other hand, there's plenty of recording time: 1-bit recording at 2.8MHz takes about 40MB/stereo minute, for about eight hours total of DSD recording; the longest single recording you can do is about six hours. There's an included stereo condenser mic that's remarkably good, USB 2.0 port for computer communications, a clear backlit display and straightforward operating system, and two balanced line/mic ins (albeit with mini jacks). Some complain the output isn't balanced, but who cares? Once you've captured the sound, you'll likely save it to your computer for archiving or convert it to a "present-day" file format using AudioGate; the output seems to me like it's for monitoring.

CONCLUSIONS

There's no Sound Forge or Wavelab for 1-bit recording, so currently, for most musicians it remains a capture/playback medium — exactly what Korg claims. But what a capture medium! One listen, and you'll know exactly what I mean: It's truly a new day for those who record with digital audio. EQ

Product type: Hard disk-based mobile recorder.
Target market: Mobile recording, journalists, archivists, mastering studios (particularly analog-based) for archiving.
Strengths: The sound quality recordists have been waiting for from digital audio. Mac/Windows AudioGate software (ME, 2K, XP, Mac OS 9.0.4 and up) lets it work with all present-day formats. Compact. USB 2.0 for computer transfers. Records PCM formats too. AutoGain actually sounds okay for situations with widely varying levels. Can create playlists.
Limitations: Battery not user-replaceable. Can't use standard batteries. Hard disk generates a faint amount of noise.
Price: $799 list
Contact: www.korg.com

Classical Guitar in the Surround Era

WHAT HAPPENS WHEN CLASSIC INSTRUMENTS MEET MODERN TOOLS?

by Matt Harper

Classical guitar is steeped in tradition, but as technology has changed, the process of recording guitar is changing as well. So when Nestor Ausqui (an internationally-acclaimed classical guitarist from Santa Fe, Argentina, who founded the Santa Fe Guitar Quartet and Del Sur Guitar Quartet) started work on his latest CD *De Aquella Luz*, he wanted not just a studio with classical-friendly gear, but also a willingness to try new approaches.

He booked a month at Maricam Studio in Santa Fe, New Mexico — now in its fifth year, and one of the few high-end project studios that specializes in classical music. The plan was to do tracking at Maricam, then have the raw tracks edited/mixed by Marcelo Cornut in Argentina (with MP3s emailed for reference), and the final tracks shipped back to New Mexico for mastering.

THE SETUP

Scott Irving, the Director of Maricam Studio, says that "There's a reason why 'get a good sound at the source' is a cliché: It's true. Nestor plays a $25,000 Daniel Friederich guitar and unlike some guitars that have big resonances in order to project live, the Friederich has a very balanced, even tone that pretty much dictated what kind of mics we should use. At AES Dirk Brauner told me his Phantom C was ideal for classical guitar; I was familiar with them, having used them as vocal mics on female singers, so we set them up in a X-Y configuration (Figure 1). Dirk was right: They were able to capture the guitar's 'large' sound, which the other mics we tried couldn't do. Also, we were fortunate that the style of the Argentinian and Uruguayan music Nestor plays puts a premium on not having finger squeaks — we could mic pretty close to the guitar."

The surround element required overhead mics, but here the story was more about the room. Irving elaborates, "The secret to getting really good ambience for classical guitar is that we use Brazilian rosewood acoustic panels; it's thinner and less dense than Indian rosewood, so the overtones almost 'explode' out of the wood."

To pick up the ambience (Figure 2), Irving chose Røde NT2A mics. "That may seem surprising, but they're dead quiet — quieter even than my Neumann U67s — which was crucial. We ran them through D. W. Fearn VT-2 tube preamps, which added a little bit of 'character' that brought out the best of the rosewood. However, for the Brauners, Dan Kennedy's superb Great River MP-2NV solid-state preamps got the call. Of all my preamps it sounds the clearest, and provided a proper balance to the warmer room sound." Irving favors Zaolla cables; compared to other cables, Irving says, "The clarity is outstanding. It may just be a case of being the right match for the mics and pres, but they take nothing away from the sound."

THE TECHNOLOGY

Irving uses Pro Tools 7.3 HD running on a Mac dual G5 computer (2.7GHz, 8GB RAM) at 48kHz. "I had just gotten Digital Performer before starting this project, as I was hoping to work with a local mixing engineer who uses DP on the Mac. However, due to schedule conflicts he couldn't do the mix, and Marcelo is a Pro Tools guy. It was a good lesson, though: Certain people are most comfortable with certain tools, and they need to be accommodated. And frankly, having now seen DP in action, I'm impressed."

As a break from recording, Nestor had played a concert in a church and fell in love with the room sound; so Irving, along with producer Peter Sheehey, made a decision to augment the natural ambience with a taste of digital reverb applied only to the overhead mics. Irving notes, though, "We didn't actually do an impulse of the church, as both the Waves IR-1 and Sony Oxford reverbs have stock settings that come really close."

Ultimately, Irving used the technology with one purpose in mind: "The goal of recording classical guitar is to record a virtuoso player in a natural setting. That means ambience and 'real' acoustics, and for surround, it means using 5.1 to produce the most life-like, natural 'he's sitting in the room with me' effect. Sometimes it seems classical recordings lack a certain amount of 'life' in their sound, but we believe this CD will convey Nestor's playing with an immediacy that's possible thanks to decidedly non-classical technology." EQ

Fig. 1: The dual Brauner Phantom C mics, set up for classical guitar.

Fig. 2: Two Røde NT-2 overhead mics were located at some distance from the guitar, which captured the richness of the room but necessitated very quiet mics.

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Where's That Sound?

FOR THESE EXPERIMENTAL RECORDING ENTHUSIASTS, LEAVING THE STUDIO IS BUSINESS AS USUAL

by Will Romano

"If a tree falls in the forest, and there isn't a studio around, will anybody hear it?" While Zen-obsessed engineers try to wrap their brains around this question, many experimental musicians/engineers explore the real-world possibilities and ramifications of such enigmas. Oftentimes it's the sound engineers who are charged with bringing unorthodox musical visions to life, having to record sounds that aren't necessarily easily accessible. So when a musician goes off the deep end, how, why, and where do engineers follow?

PLAYING THE FIELD

Some musicians/engineers go to incredible lengths to capture noise patterns and manipulate them. Case in point: Recently Aussie musical experimentalist Phil Dadson chartered a weeklong found-sound fishing expedition in The Dry Valleys of the Antarctic (to study the sonic properties of stone and ice) where he discovered — and recorded — the flapping of a wind-blown safety flag and the natural Aeolian tones of a communication aerial at Scott Base.

Armed with nothing more than one omni-directional, stereo/mono, shotgun capsule mic (equipped with wind sock/catcher and mainly switched to "stereo") and two Sony PD10 video cameras (both with XLR inputs; the Sony PD10 had adjustable volume input levels), Dadson waited for the ecology to reveal itself to him. "Because it was early summer [in the Antarctic], there were slight trickles of water off the face of the glacier," says Dadson. "There was this delicate sound of water trickling through ice. I kept following the trickle at various stages, down the valley from the glacier face until the point it became a little stream and it was joined by trickles from other glaciers. Eventually it becomes a roaring torrent. I didn't have to do much to it."

SERENDIPITY (AND MORE)

"I take trips into industrial areas where there are a lot of weird machines working," says Colorado-based ambient musician Kelly David, a former radio DJ of 17 years. "You can just stand in an alleyway outside of some factory and capture the sounds and then take it and manipulate it later with time stretching. I used train sounds I had recorded in Vancouver, British Columbia, at a yard around midnight for 'Outside the Temperate Zone', a track on my *Angkor* (2006) record, time strecthing so that you hear a slow repeating 'woomph,' 'woomph,' 'woomph.'

"In the field I use lavalier mics," David says. "They are good quality (but they are subject to wind noise) and, being small, I can use some putty and attach them to tree backs (as I did in the Arizona Chiricahua Mountains to limit wind noise), or, for example, to the two sides of a milk carton sitting at the edge of the Kenai River in Alaska. That allowed me to get an interesting audio perspective along the river. Basically, because of their flexibility, it is easy to set up a stereo field that works for the particular application. I run the mics into the Lunatec preamp, which gives me some nice gain but little noise, and then into the portable [Sound Devices] 722 via a digital connection. I can then throw these samples into artificial ambiences with digital reverbs and mix them in the background, especially if I'm doing real deep space music."

Brit Pete Lockett, percussionist extraordinaire (Nelly Furtado, Evan Dando, Jeff Beck) utilizes sound samples from the environment and everyday life. Lockett has captured sound via Minidiscs and DAT recorders, but now he simply uses the mic on a Panasonic NV-GS5 camcorder (equipped with a "zoom" mic function). "I usually transfer [the samples] digitally via USB into Vegas, the video software," Lockett says. "These files are AVI, which open in Sound Forge. I then save them as WAV files, to the multiple LaCie FireWire hard drives I have for video storage, for audio applications . . . sometimes I edit within Vegas, because it has so many easy crossfade functions. I also use a number of programs within Logic Pro: Stylus RMX, EXS24, and others. I use Stylus RMX for REX files I've prepared in ReCycle,

Kelly David working in the field, capturing sounds of the wild.

Steve Roach readying his keys for some (un)natural input.

which is usually more rhythmic stuff, for example, a lorry [truck] engine turning over."

CAPTURE AND RELEASE

Steve Roach, a pioneer of the ambient genre, creates soundscapes through sampling found objects and sounds, then processing them through his collection of synth modules. "Through synthesis — taking sounds from the real world and layering them and then editing them — I place natural sounds into an electronic world through experimentation," says Roach.

Through his willingness to sample the sounds of rocks and sticks being struck, birds chirping, pre-Hispanic Native American flutes, and even human breathing, Roach has literally infused life into his recordings. Listen to records such as *Early Man, Magnificent Void*, and *Structures from Silence* and you'll hear how his evolving soundscapes operate much like elements of the natural world (that is, the sonic components of Roach's compositions themselves have life cycles in which aspects are born and then decay). "I'll combine a lot of elements with techniques of transposition and extreme filtering, pitch shifting, and layering," Roach says. "By combining natural sounds that have been processed, and the more straightforward versions of these sources, the listener has a perspective of the integrity of the original sound but at the same time can almost feel it coming apart at a cellular level."

Before an ambient work can be declared finished, it first must burrow a hole inside Roach's psyche and soul — a process that requires Roach to eat, sleep, dream, and breathe nothing but the work he's focused on at the moment. This organic obsessive-compulsive approach, or "zone" as he calls it, fuses with (and is a byproduct of) Roach's real-time manipulation of found sounds. The end result is a kind of ambient musical organism, a continuum full of cavernous noise, echoing voids, deep drones, and synchronous loops moving in cloud-like shifts. "Doing this outboard external processing over the years and then having the DAW platform come in — having the ability to take these acoustical/electronic forms that I am actually shaping as I go along, then to put them into Acid and Vegas — to have that whole thing added to the mix — pretty much doesn't let me sleep anymore."

THE WRONG WAY?

Given what we know about recording found sounds, is there any wrong way to approach them in the studio? "A good thing to remember is, if it sounds good and translates well, then it works," says Merrick Blackwood.

"The easy part of a recording like this is that no one can compare it to a tradition of such recording," says New Zealand musician/engineer Wayne Laird. "What I don't worry about with these sources is their quirks — they all have them abundantly. The whirs, fizzes, rattles, and squeaks? I keep [those noises] with this kind of recording. It's part of the uniqueness." EQ

THE SUITCASE STUDIO: ARE WE THERE YET?

PORTABLE STUDIOS MAY NOT RIVAL DESKTOPS JUST YET, BUT THEY'RE CERTAINLY GETTING CLOSER

by Craig Anderton

It would have been unthinkable just a decade ago: People are using inexpensive laptops to record, play back, master, do sessions, play live, and of course, download questionable material from the Internet at the hotel room after the gig. Just the idea of a laptop is liberating, but the idea of it serving as your lightweight, portable, low noise studio is even better.

In the world of business, it's getting more common for executives to ditch their desktops and bring a laptop to the office, which they can take with them wherever they go. But the demands of recording or mixing audio are far more stringent. Can a laptop really replace a good desktop machine?

GOOD NEWS, BAD NEWS

Laptops are not as powerful as today's desktop computers, and probably never will be — all the "good stuff" shows up in desktops first, then migrates to the portable world once a bunch of engineers figure out how to put all that technology in a tiny box. Being optimized for portability and low battery life means processors run slower, hard drives don't spin as fast, and any internal audio I/O is . . . well, let's just say it won't put Apogee out of business. However, today's laptops are more powerful than desktops that were considered pro-level just a few short years ago. For many — but not all — applications, laptops will indeed do the job. I've used both Apple (Figure 1) and Windows laptops as the heart of my solo musical act for a few years, and (knock on wood!) they've worked flawlessly.

Getting quality audio I/O used to be a major problem, but these days, there are so many FireWire, USB, and USB 2.0 interfaces (Figure 2) that are perfectly suited for laptops that I/O is simply not an issue. And if you don't want to go through a port, you can use a PCMCIA interface, such as those made by Digigram, Echo, and E-mu. One advantage to using an external interface is that you can connect it via a reasonably long cable, and secure the interface to a table, stand, etc. You can then plug all your cables into the external box; if cables get ripped out of that, you're much better off than having them ripped out of your laptop.

If you're absolutely dead set on using a PCI card with your laptop, companies like Magma make PCI expansion adapters that do the job for Mac or Windows. Bear in mind, though, that an expansion chassis is one more piece of gear, one more cable, and one more thing to go wrong.

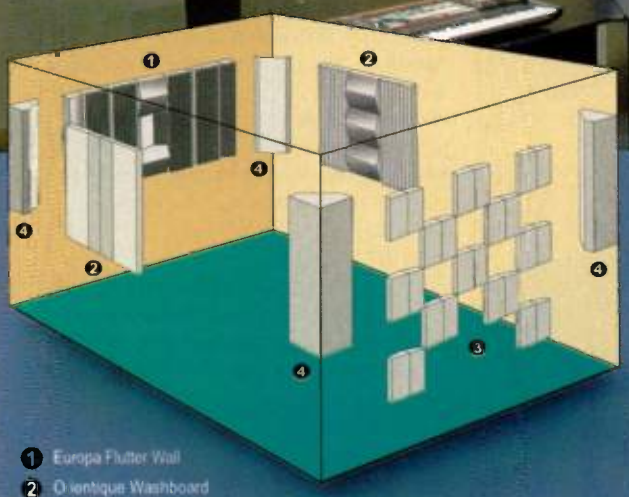
Another problem is the average laptop's slower hard drive speed, which limits the number of tracks that can stream from disk. But there are workarounds, such as adding a fast external FireWire drive, or installing as much RAM as the laptop allows. This means it won't have to swap data to the hard drive as often, which translates to faster operation, longer battery live, and more bandwidth for your drive.

But also consider limitations that extend beyond performance. If a desktop computer breaks down, it's not too hard to swap out a few pieces of hardware and get back in action. Although laptops are getting better about user-replaceable parts — often the hard drive is user-replaceable, as is the keyboard — installation can be much more "fiddly" or require specialized tools.

Fig. 1: Apple's new MacBook Pros combine Intel processor technology with a musician-friendly operating system.

Fig. 2: E-mu's 0404 USB is one of the select group of interfaces that uses USB 2.0 instead of FireWire.

Take Control of Your Room!℠



1. Europa Flutter Wall
2. Orientique Washboard
3. Scandia Scatter Blocks
4. Australis Bass Trap

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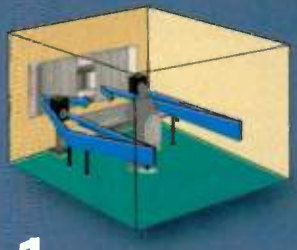
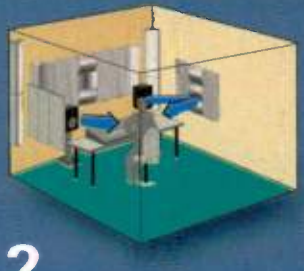


1

Europa Flutter Wall

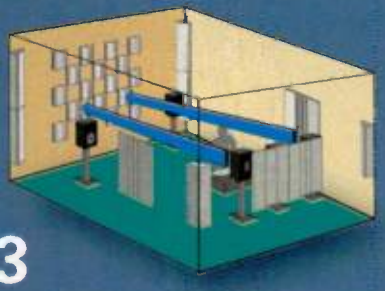
Reduces 'front-to-back' echo, standing waves and monitor feedback. Dozens of creative patterns to choose from.
Prices start at $189**.



2

Orientique Washboard

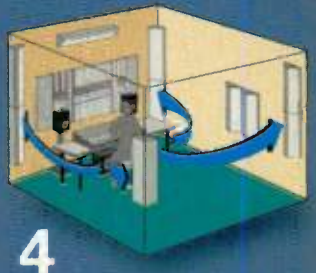
Absorbs primary reflections and side-to-side flutter. Eight creative patterns to choose from. Priced from $189**.



3

Scandia Scatter Blocks

Affordable alternative to diffusion. Keeps room live and reduces standing waves. 12 creative patterns to choose from. Prices start at $149**.



4

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Laptops are also more fragile and unfortunately, fairly easy to steal so back-up becomes even more essential than usual. One ham-fisted airport security person, or one solid drop to the floor, may mean the end of not just your laptop but your data as well. And while the portability of laptops is a major selling point, running from battery rather than the AC adapter may bring battery-saving measures into play that degrade performance even further.

One laptop bonus is that it can also serve as an "expansion module" to a desktop setup. Load it up with some software synths and trigger it via MIDI; or with appropriate Steinberg software, use their VST System Link. As the laptop will have a display, this also provides some of the benefits of a dual monitor setup.

PLAYING IT SAFE

Having your studio dependent on a laptop is not a secure feeling, but there are also some reliability advantages to laptops: You can hand-carry them on a plane rather than check them, so they needn't be subjected to the uncertainties of baggage handlers. They also are fairly immune to power problems; most laptop adapters will run on 115 or 240VAC, and if there's a power outage, your battery will take over. The adapter/battery combo will also absorb a lot of transients and spikes that could sink other gear.

Even if your data is backed up, though, there's something else to consider when you're far away from home: software or hardware failures that require re-installation or other drastic measures. If you're truly dependent on your laptop, carry a copy of your operating system or software restore software, as well as crucial program discs. If your computer fails while traveling, you may be able to find a loaner or buy a new machine outright, load up your files, and carry on. That's also a good argument for using cross-platform software — you'll be covered with either Mac or Windows. Also, if you know how to do basic computer maintenance, carry whatever tools are necessary to disassemble your computer. Once I was working in Belize when a PowerBook floppy drive got stuck, and because I had a Torx wrench, was able to take it apart, massage the drive's worm gear, and get back into business. (This certainly

beat going to the nearest Apple service center, which was somewhere in Guatemala.)

Copy-protected software is particularly problematic. If you're miles from home and need to insert a CD periodically for authorization, you're in trouble if you didn't remember to bring it along. Most software license agreements prohibit running programs on multiple machines; applications that tie protection into running on a specific hardware configuration are especially problematic, because you can't easily uninstall/reinstall every time you want to move from desktop to laptop.

There are a few workarounds. Morally, I have no problem with installing a program on both my desktop and laptop if it's possible. After all, I use only one machine at a time, so I don't feel that violates the spirit of the "only one machine" license. Sometimes you can call the software company, explain your situation, and get another install as long as you're a legit user. Companies don't want to upset paying customers; they just want to discourage the ones who aren't.

Dongles may or may not be a good solution. Those who use only programs with iLok copy protection can stick all their authorizations on one dongle, bring their distribution media with them, and install wherever they like — desktop, laptop, or even when guesting at another studio. Multiple dongles are harder to manage; adding a USB hub reduces portability. In any event, for USB dongles buy a USB extension cord so the dongle doesn't plug directly into your machine. It's way too easy for a dongle to break off when you're on the road.

ACCESSORIZING YOUR SUITCASE STUDIO

There are definitely a few items you'll need to pack when you're bringing along a suitcase studio.

- **Small near-field monitors.** Listening to headphones all the time can be very fatiguing, and some small speakers don't sound too bad.
- **USB memory stick.** Get a 1 or 2GB model, as it provides a super-simple way to transfer files from one computer to another — no burning CDs or even going online. Also, you can use it for temporary file backup.
- **AC barrier strip.** Whoever designed hotel rooms seems to have a problem with AC outlets, because there are never enough of them for a zillion little chargers and AC-powered thingamajigs. A plastic barrier strip doesn't weigh much, and besides, can be a good conversation starter with TSA people at the airport.
- **External hard drive.** You can get really tiny portable drives these days for a little over a hundred dollars; think of it as insurance. You can mirror your data on it and store it separately from your laptop, so in case thieves make off with your computer, you still have its data. Or, use it as an audio-only drive for recording so you don't have to work your poor system drive too hard.
- **Why you don't need a printer.** If you need to print out lead sheets, session notes, chord charts, etc. while on the road, you might be tempted to go for one of those small, portable printers. But unless you really need high-quality printing or color, it's often easier to plug your computer into the hotel's phone line in your room, and fax what needs to be printed to the hotel — to your attention, of course. If you need higher quality, drop the data on to your USB stick, and take it to a Kinko's.
- **A really, really good computer case.** Go for something as sturdy as humanly possible, because one drop and it could be curtains for your pet brain. A foam-lined hard case is better, although bulkier and heavier, than a Tenba or similar bag.
- **USB microphone.** Even if you have an audio interface, a USB mic is great for backup. I frankly thought the idea was kind of stupid until I got one, and found out that it can come in very useful when you least expect it.

SO . . . ARE WE THERE YET?

As long as you treat your laptop with kid gloves, and preferably have a backup available, you should be able to keep Murphy's Law at bay in the world of your portable studio. Make sure your computer is well-secured, buy the best laptop case you can afford, and never leave it unattended: Theft is harder to deal with than a hard drive crash. EQ

World Your Rock!

IF YOU WANT TO ROCK YOUR WORLD, PUT SOME WORLD IN YOUR ROCK

by Craig Anderton

George Harrison did it with "Norwegian Wood." So did the Police, with "Roxanne" — as did Paul Simon with "Graceland," Led Zeppelin with "Kashmir," the Stones with "Paint it Black," No Doubt with ska, and the Byrds with "Eight Miles High." "It," of course, is the integration of "world" music with popular music.

Those examples are by no means isolated, and the concept goes back a while — check out the Middle Eastern flavor of "Caravan," done by Duke Ellington's band in 1937. We could go back even further, but you probably get the point: Not only is there a rich tradition of blending musical cultures, the results can be *very* successful.

Want to expand your recording horizons? Let's explore.

LISTEN TO THE WORLD

Step one: Listen to some of the music being made outside the standard U.S. pop mainstream. A great place to start is the Internet radio über-station Live365.com, at www.live365.com/cgi-bin/directory.cgi?genre=international. You'll find 394 international stations including hardcore soca, mandarin pop, Pakistani bhangra, Lebanese trance, retro Haitian music, Arabic pop, J-pop, and a whole lot more. Even AOL, the Rodney Dangerfield of online services, offers 21 international radio stations.

Also, seek out CD stores with listening stations that let you audition CDs, and spend some time in the international section. If listening to all this musical diversity doesn't get you at least somewhat inspired, you may be clinically dead; stop reading this article, and see a doctor.

ADDING EXOTIC SPICES TO THE MIX

You need to exercise some taste while exploring the world, lest your experiments scream "gimmick!" You have three basic options; we'll start with the simplest.

■ **Use ethnic instrumental sounds in place of traditional ones.** For example, you might play a lead line using a sitar or erhu sound instead of a synthesizer or guitar. Another possibility is to adopt a different tonality, such as the trebly, semi-clean guitar sound associated with African hi-life music in place of a standard Western pop guitar sound. This technique can add interest and variation without having to stray too far off the beaten path.

■ **Adopt selected rhythms and phrasings from world music.** Here, you incorporate certain world elements — the call-and-response vocals of African tribal music, or the complex polyrhythms of Brazilian percussion — in a way that makes musical sense. A good example is how the Police wove the traditional Balinese "monkey chant" into "Voices Inside My Head," or built "Canary in a Coal Mine" on top of a ska rhythm; both are from the *Zenyatta Mondatta* album, which reflected their experiences touring in exotic places.

■ **Write and create in a totally different musical style.** This is the hardest to pull off, because unless you're, say, Haitian, you probably don't have Haitian music in your blood. But Paul Simon stayed pretty true to hi-life in "Graceland," no doubt partly due to using musicians from that genre, but also because that type of music must have resonated on some level with him — as it obviously did with millions of listeners.

WORLD TOOLS, PART 1: SAMPLE CDS

Sample CDs — either those with exotic instrument sounds, or with loops suitable for dropping into your music — can provide a fine springboard for experimentation. I've used a lot of these over the years; here are a few favorites.

Electro-World Percussion, Alex Spurkel (Sony). This loop CD of Acidized WAV files emphasizes Middle Eastern percussion with djembes, doumbeks, bendir, and the like. The performances are tight, appropriate, and loaded with vibe.

Roots of South America (Big Fish Audio). More loops, with a great ethnic feel, lots of energy, and a "construction kit" approach so you can take individual elements of a mix or just go for the full mix. Versatile? You bet: I used these in a mash-up with the Neville Brothers' "Hey Pocky Way" during a live performance.

EarthBeat, Greg Morrow and Eric Darken (Discrete Drums). These multitracked drum/percussion loops are more like "impressionistic ethnic" than something to thrill a musicologist with their

Fig. 1: RA is based on the Native Instruments' Kontakt player, and offers outstanding instrument articulations.

Fig. 2: MOTU's Ethno Instrument does a great job of letting you mix and match loops to tempo.

authenticity, but as such, they make a good bridge between world and pop music.

Heart of Africa, produced by Eric Persing (Spectrasonics). This *is* a musicologist's dream, with one CD of instrument samples and another with phrases and loops, thus covering a couple different bases. These are so authentic they need to be incorporated in music with great care, lest they sound like a fish out of water.

Latin Element, produced by James Galvez (M-Audio). When you want to add a little Latin salsa to your tunes, this is great — the construction kit approach means you can grab full loops or individual elements.

Planet Earth X (E-mu). This works only with E-mu's Proteus or Emulator software instruments, but provides the soundset from E-mu's Planet Earth sound module.

Ethno World Library, Marcel Barsotti (Best Service). If you're looking for lots of ethnic instrument samples, this Gigasampler-compatible library (a separate version is EXS24- and HALion-compatible) has almost 3GB of samples of both ethnic and historical instruments. It also has plenty of idiomatically-played loops and licks.

WORLD TOOLS, PART 2: VIRTUAL INSTRUMENTS

The sample library-meets-software-instrument trend has also touched world music. My two current favorites are East West's *Ra* (Figure 1), and MOTU's *Ethno Instrument* (Figure 2). Both contain a wide selection of instruments and loops; MOTU's offering has 4GB of samples and 4GB of loops (to me, the instrument's real standout), whereas *Ra* (with a 14GB library, but also a much heftier price tag) has instruments and lots of sampled articulations, making it easy to get highly "authentic" sounds. Between the two of them, you can cover a whole lot of bases. Those with tight budgets will be well-served by *Ethno Instrument*, which is extremely cost-effective — down to including an on-board convolution reverb.

Two other exceptional virtual instruments are *Latigo* (Latin percussion) and *Darbuka* (Middle Eastern percussion), both by Wizoo and sold through M-Audio. What makes these unique is that you have serious control over complexity, timing, variations, and swing. So while you can't create original beats — you can use only the ones included in the programs — you can get a *lot* of mileage out of them. Of the two I find *Darbuka* the more intriguing, but either will get you where you want to go in terms of adding interesting percussion to your tunes.

Of course, these descriptions are quite superficial, but all of the above instruments were reviewed previously (and favorably) in *EQ* — they've definitely passed the "test of time" in my studio.

ARE YOU READY TO WORLD YOUR ROCK?

You bet you are! Why be normal? There's a whole world of great sounds ready to open up your sonic horizons. Whether you go for adding a subtle percussion track or become a total convert to a whole new type of music, there's an interesting voyage ahead of you. EQ

KARMA AUDIO K6

It's affordable — let's find out if it's any good

by Jay Matheson

When the first wave of inexpensive ribbon mics hit, I immediately dropped $150 for the express purpose of thickening up certain sources — especially thin-sounding guitars (and amp combinations), violins and, in certain cases, horns. After all, the low price made it easy to justify the expenditure, and the level of commitment was low. I had even heard that using a ribbon on certain voices could add a retro flare to their takes.

Perhaps I had aimed a little low with my checkbook, though, because the mic just didn't cut it. The "ribbon novelty" wore off quickly; the retro rumor turned out to be little more than a myth, the mic was too dark to be useful in any sessions I was running, and the thing needed tons of gain to work properly.

So I scrapped the idea of using this breed of mic . . . until the Karma K6 showed up.

OVERVIEW

The K6 is phantom-powered — an historically anomalous feature for ribbons, but a design that has grown in popularity (such as with the Royer 122). Sturdily designed, the K6 is a handsome side address mic that boasts a quoted frequency response of 40Hz–15kHz, and contains a 2-micron aluminum ribbon. Housed in a modest, plastic foam-lined case, the K6 is packaged along with a surprisingly sturdy shockmount that seems to be of better quality than what you'd expect in this price range (*i.e.*, it didn't slip when adjusted, and featured a full 180° swivel). Most of the less expensive ribbons I've encountered had excessively flimsy mounting hardware, so the K6's shockmount was a relief.

The K6 looks sharp enough, allowing it to stand out aesthetically in the rather swollen mic market, but how it sounds is what's really important. So we tested it on a few sources that we thought would benefit from the ribbon treatment . . . here's what we found.

APPLYING THE K6

During an audio workshop I was conducting, I decided to see if the K6 would help the voice of a singer/songwriter. As the artist's style was more rock-based, the K6's dark quality didn't seem to be appropriate, so we instead set up the K6 on acoustic guitar — with much better results. Having no real '50s style crooners at hand with which we could match the K6, we again tested the mic on a more rock-oriented source. Bottom line: While a bit too dark for a vocalist who wants a more bright, cutting presence in their vocal tracks, the K6's smooth, round, and thick quality would definitely work in a session requiring a more retro vibe.

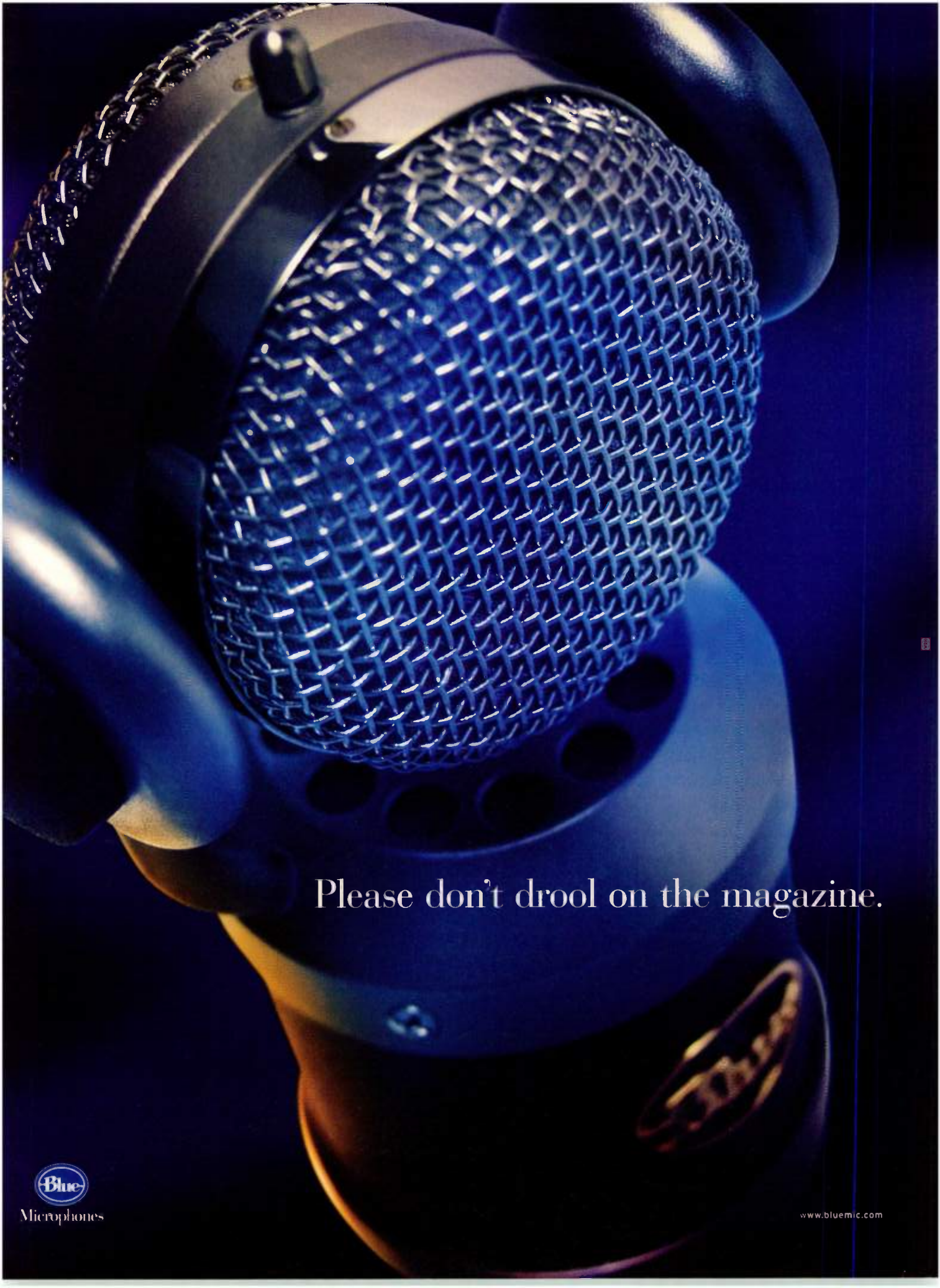
Later on, my assumption that the K6 fits best in a more "retro" domain was proven correct when a band came in to record what is probably best described as the stereotypical '70s big rock record. We had already achieved our tone for the main guitar tracks, but hadn't quite decided on how to approach a slide guitar track that needed to sound very smooth. Throwing the K6 up on the guitarist's cabinet, we were immediately astonished at how well the old school slide sound was established. There was just the right amount of edge and bite while still maintaining a huge, yet silky sound.

Although electric guitar is one of the K6's most complimentary sources, I did encounter a problem: The design of the shockmount (which is the K6's only mounting option) made it impossible to place the mic closer than two inches from the cabinet. Even with ribbons, I prefer the sound of the mic placed right up to the grille cloth, and this wasn't an option. So when working with this mic, if you want to employ any additional, simultaneous miking techniques, I suggest that you place the other mics equidistant from the K6 so as not to encounter phasing issues.

CONCLUSIONS

The K6 is both well-built and eminently useful in very specific applications — it's a clear winner if you're searching for that "retro" '50s vocal, or that smooth '70s rock guitar sound. At a street price of under $400, the K6 is a fair bargain, and I would recommend spending extra for this mid-priced ribbon instead of opting for one of the $100–$200 low-end ribbons. While the dark quality of the K6 (and ribbons in general) keeps it from being an all-purpose piece, if you want to thicken the sound of certain sources and get that flair of old, this mic does the job. EQ

Product type: Phantom-powered ribbon microphone.
Target market: Studios seeking a relatively inexpensive ribbon mic that offers a unique sonic character rather than being general-purpose.
Strengths: Adds lots of smooth thickness to sounds, especially electric guitars. Requires less gain than many ribbons. Reasonable price point.
Limitations: Shock mount can be cumbersome in cabinet miking applications.
Price: $600 list
Contact: www.karmamics.com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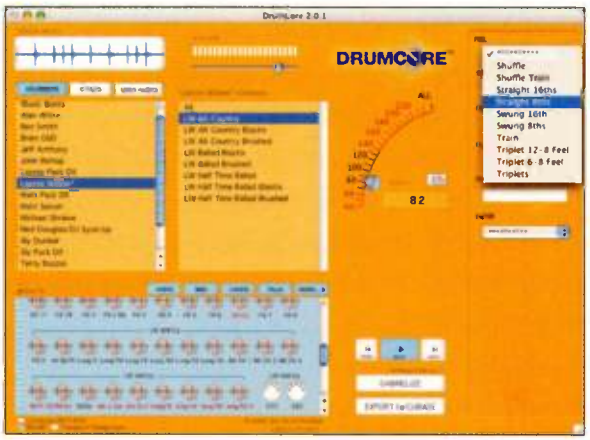
SUBMERSIBLE MUSIC DRUMCORE 2

If you think this is anything like a standard drum loop library . . . think again

by John Krogh

No sample-based instrument (or sample library) based on live drum loops is quite like Submersible Music's DrumCore. Part REX player and ReWire client, part loop librarian, part songwriting partner, and part drum module, DrumCore packs a ton of usability and musicality into a simple, smart interface that helps you assemble drum tracks faster than it takes to rip a single construction kit CD.



Audio and MIDI drum loops are accessible on the lower left, with tempo control along the right. Note the librarian tools (upper right), which can manage virtually any audio or MIDI file on your computer.

WHAT IS IT?

DrumCore's tagline — "Legendary drummers. Signature Grooves." — sums it up nicely. You get 8GB of audio and MIDI loops and fills played by an impressive line-up of A-list drummers, each of whom performed on their own kit or kits, so you not only get a wide range of feels and styles, but also a variety of drum tones (including acoustic, electronic, and Latin sounds). Some of the heavy hitters include Matt Sorum (Guns N' Roses, Velvet Revolver), Alan White (John Lennon, Yes), Jeff Anthony (Sheryl Crow), and Zoro (Lenny Kravitz). Submersible also offers expansion packs based on individual drummers and styles.

What makes DrumCore an effective songwriting tool is its streamlined interface, which provides a smooth workflow. For example, loops automatically adjust to tempo in real time, so you're free to try different tempo options without stopping. You can browse the material by style or drummer, and you're not limited to the included content. REX files are fair game, too. As you find a loop or fill that fits the bill, press the Export button and it's saved to your hard drive. This is a quick way to build up a group of related samples.

To add variation, the Gabrielizer randomization feature rearranges a loop's slices as it plays. If you like what you hear, export it. If not, "Gabrielize" it again and see what happens. It's all very fluid and makes the process of finding and working with loops more of a creative act and less of a chore.

DC works in stand-alone and ReWire modes, so you can pipe it directly into a ReWire-compatible sequencer. Once you do, you'll be able to drag and drop files directly from DC into your host, as well as play individual drum kit sounds from a MIDI keyboard or drum pad (MIDI functionality will be added to stand-alone mode in the next incremental update). This is another area where DC shines: It provides a wealth of multisampled kits, so you can program your own grooves from scratch. Nice.

What's more, DC's librarian feature can tag and archive any REX, WAV, AIFF, SDII, and MIDI file with metadata, making DC a viable "hub" for managing all of your loops.

Drawbacks? Only a few. None of the loops are multitrack — they're stereo only. I didn't find this to be a dealbreaker, however. What threw me was the lack of uniformity among the collection of drummers. Some players offer many variations for each of their grooves, while others offer only one or two (or in some cases, none). Also, most of the grooves are just two bars long, which can be a limiting factor when you're trying to assemble drum tracks that fit typical song structures.

CONCLUSIONS

The recording quality and performances are world class, the selection of grooves (available as both MIDI and digital audio) reaches beyond the typical loop library, and there are additional downloadable MIDI files on the website. Sure, there's a strong collection of rock and funk loops. But you'll also find New Orleans second line grooves, jazz brushes, swinging ride cymbals, driving country "train" beats, and more.

For songwriters, DrumCore is attractive on several levels: as a practice tool, writing partner, and a go-to resource to help kick-start the creative process. For anyone producing music for TV, DC is nearly indispensable. The convenience of having so many styles and drum tones available in one place is invaluable. Of course, the browser/librarian aspect is compelling for anyone with a large loop library.

So what's it boil down to? If you don't need multitrack drum parts *à la* Discrete Drums or Drums On Demand, DrumCore could be the only *faux* drums you'll ever need to create convincing, live-sounding beats without hiring a real drummer.

(Breaking news: DrumCore 2.5, with several improvements added to the MIDI drum kit options, and a player-only version, DrumCore LT, will have been introduced at NAMM by the time you read this.) EQ

Product type: Drum loop player/librarian with built-in time-stretching
Target market: Singer/songwritings and producers who want live-sounding drum parts that can be assembled into song structures.
Copy protection: Serial number and online registration.
Strengths: Diverse set of styles. Solid performances. Multisampled kits are included. Imports WAV, AIF, and REX files.
Limitations: Stereo only, not multitrack. Some styles don't offer much pattern variation.
Contact: www.drumcore.com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D-TAR MAMA BEAR DIGITAL ACOUSTIC GUITAR PREAMP

Acoustic modeling meets acoustic guitars

by Jon Chappell

Why should electric guitarists have all the fun when it comes to digitally modeled sound? Isn't there just as much quest for variety, experimentation, and a spirit of technological adventurousness from those of us who have round holes in the tops of our guitars? Apparently D-TAR thinks so, and has released the Mama Bear, a digital modeling preamp for acoustic guitars.

But doesn't a review like this belong in a magazine like *Guitar Player* or *Frets?* Keep reading. The ability of a single instrument to sound like multiple guitars — and most importantly, to do so convincingly — is a valuable tool for any studio that records acoustic guitars. As a bonus, Mama Bear also offers a lot for onstage use.

OVERVIEW

The Mama Bear features proprietary AGE (Acoustic Guitar Emulation; see "AGE Before Beauty" sidebar page 52) modeling technology. Driven by a 32-bit, 100MHz floating-point 600MFLOPS microprocessor, Mama Bear emulates the sounds of classic, iconic guitars — including parlors, orchestra models, dreadnoughts, jumbos, resonators, and more. You can use the Mama Bear in two distinct ways:

- Correct, optimize, and enrich the tone of your existing acoustic
- Transform your guitar into an entirely different instrument — convert, say, your muddy-mellow dreadnought into a brassy biscuit-resonator blues axe or a sizz'ling Selmer/Maccaferri gypsy jazzer

Either way, the easy-to-use Mama Bear is tons of fun, and provides a wide variety of realistic, usable acoustic-guitar emulations . . . but it's not just a one-trick pony.

IT'S A PREAMP

In addition to modeling, Mama Bear has the usual signal-prepping features you'd expect from a quality acoustic guitar preamp. The front panel offers a single 1/4" hi-Z input (4.7M) and two continuous-level controls: Input, to match your guitar's strength to the box's processing circuitry, and Output, which does not affect the level from the XLR balanced out but does affect the 1/4" output, as an onstage monitoring benefit. Five switches provide on/off (with LED), phase, mute, analog low-cut (for eliminating rumble), and bypass functions, all of which come into play when wrangling acoustic signals (there's also an Overload indicator LED). The back panel features separate 1/4" and XLR mono outputs. There's also a ground lift switch and a jack for the wall-wart power supply.

To get up and running, just plug in, glance at the Quick Start card if you must, and go — it's not even necessary to read the manual. Once you've matched levels for your particular system, it's time for the fun stuff: modeling.

IT'S A MODELER

The Mama Bear devotes three controls to modeling: two 16-position rotary switches, and a continuous, center-detented wet/dry Blend control. The latency is undetectable (the manual lists 3ms), and the 24-bit A/D-D/A conversion and 94dB S/N ratio make for a very clean, studio-quiet component.

The Mama Bear's strategy for modeled sounds considers both sides of the equation — input and output — for optimal effect. The Input Source control is a 16-setting source-matching selector, which "neutralizes" the sound of your guitar's existing pickup and provides a baseline for the Mama Bear to perform its modeling magic. You choose the setting based on your guitar's pickup — ceramic under-saddle transducer, magnetic soundhole pickup, etc. There are plenty of variations here to match virtually any pickup technology for all acoustic, acoustic-electric, and piezo-configured guitars out there. Position 16 gives no compensation.

Of course, you don't *have* to stick with the matched setting; after you play around with the modeled instruments (called Target Instruments), you can come back to the Input Source and experiment with different compensation settings. This is analogous to how your digital camera applies lighting filters, like incandescent, fluorescent, flash, etc. It boosts the aspects that are lacking with the respective light source, but you can "misapply" them to amplify their compensation effect. The Mama Bear even offers some of the same pickup technologies, but with alternate EQ curves.

THE SOUNDS

The Target Instruments control offers 16 different instruments (see the sidebar "On Target" on page 53) that touch on all the great acoustic models in history. For this review, I used a Martin J-40M with a

The Mama Bear isn't just a preamp; its modeling engine provides realistic emulations of iconic acoustic guitars, from parlors to dreadnoughts to jumbos to resonators.

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Martin Thinline 332 under-the-saddle piezo pickup. I immediately went to the more radical incarnations — the Tricone Resonator, Biscuit Blues Resonator, Gypsy Jazz, and Hollow Body Archtop Jazz — to test the modeling engine's mettle.

I was blown away. These were not caricatures of those well-known instruments, but living, breathing renditions. If you really play in the style that suits the Target Instrument, you will be rewarded with rich sounds. For example, in #16, Tricone Resonator, I tuned to an open A and played bottleneck licks and really steeled out the metallic, ring-modulated sound of a vintage Regal RC-51. Then, switching over to #14, Gypsy Jazz, I brushed up on my staccato alternate picking and went through my Django transcriptions of "I Got Rhythm" and "Lady Be Good." When it was time to mellow out a bit, I played Johnny Smith's classic chord-melody version of "Moonlight in Vermont" using the Hollow Body Archtop Jazz setting. The well-rendered results from these settings actually helped inspire my playing.

Switching over to the more subtle applications, the Mahogany Dreadnought sounded a little sharper and more focused for single-line passages than the Rosewood Dreadnought, which was warmer and fuller for chords and arpeggio work. Though the sounds went from the delightfully canny to the realistic, my only quibble is that I had to run both the input and output levels quite high to approximate the levels of other preamps in my studio. Fortunately, the Mama Bear is quiet, so running it hot doesn't introduce any noise; I wouldn't hesitate to use the Mama Bear in an exposed, critical-listening setting.

AGE BEFORE BEAUTY

It's easy to imagine that for acoustic modeling, all you'd need was a parametric EQ to turn your signal from warm and midrangey to metallic and brassy or boomy and sparkly. And while you can capture these qualities with just an EQ, the Mama Bear's AGE (Acoustic Guitar Emulation) technology goes much further. It modifies the frequency response, yes, but it also considers — and emulates — what happens to a sound over time, when different areas of a guitar's top are excited into motion as you play. The soundboard moves in and out of phase, certain frequencies are delayed as they're tuned into acoustic energy, and the air body's resonant properties store and release energy over time — all of which contribute to the overall tone of the instruments. AGE crunches all of this data, and even considers that the sound coalesces in a spot in space beyond the body — where your ears hear it, several feet away from the soundboard. The Mama Bear brings the sound of your guitar's electronics closer to what listeners hear in an intimate setting.

CONCLUSIONS

The Mama Bear is a rugged, well-built device that comes with all the usual controls you'd expect in an acoustic guitar preamp. The modeling section gives you a possibility of 256 sounds, though you'll have to derive any further shaping through an outboard EQ. There's no footswitch operation — either for bypass or stepping between Target Instruments. That, with the table-top housing and front-faced control configuration, makes Mama Bear more studio-friendly than stage-friendly.

But for the modeled sounds, and the subtle but perceptible gradations between different but related instruments, Mama Bear nails it. The distinctions between rosewood vs. mahogany versions of orchestra models and dreadnoughts, plus the dead-nuts accurate renditions of Jumbos and Dreadnoughts are real, convincing, and do come alive through playing, giving testimony to the Mama Bear's AGE technology. (For my particular style, the Boutique Fingerstyle was a standout.) The Input Source compensations, when matched with your particular model, really do produce a fuller and more listener-accurate version of your own guitar, and the resonators and jazz instruments are not only great, they're delightful and inspiring. Couple that with the additional tonal shaping that "unmatching" the Input Source provides (against your guitar's type), and you have a wide, lustrous palette for shaping your acoustic sound. EQ

ON TARGET

The following table shows the 16 Target Instruments available in the Mama Bear.

1 Parlor
2 Small Body Fingerstyle
3 Small Body Blues
4 Mahogany Orchestra Model
5 Rosewood Orchestra Model
6 Boutique Fingerstyle
7 Slope-shouldered Dreadnought
8 Grand Auditorium
9 Slope-shouldered Jumbo
10 Mahogany Dreadnought
11 Rosewood Dreadnought
12 Super Jumbo
13 Hollow Body Archtop Jazz
14 Gypsy Jazz
15 Biscuit Blues Resonator

Jon Chappell is the author of three "Dummies" books, including his latest, Blues Guitar for Dummies *(Wiley Publishing).*

Product type: Acoustic guitar modeling preamp.
Target market: Performing and recording acoustic guitarists who want to derive multiple acoustic guitar sounds from a single instrument.
Strengths: Highly realistic modeling. Musically useful (*i.e.*, no over-the-top throw-away presets). Complete selection of acoustic guitar types. Great sound.
Limitations: No onboard EQ.
Price: $499 list
Contact: www.d-tar.com

SOUND DEVICES 702T FIELD RECORDER

Making a bee line to field recording

by Michael Levine (with Kayla Schmah and Ryan Leach)

When I was approached about doing this review, I was a bit unsure as to whether I was the right person. After all, I'm a film and TV composer who rarely ventures beyond the womb-like confines of my studio to do anything, much less record outside.

But I also live and work in Topanga Canyon, home to hundreds of species of interesting natural sounds — from birds to mudslides. Having always had a secret desire to incorporate some of these sounds into my scores, and being stymied by my lack of a decent way to record them, I realized the 702T might provide me with a chance to finally see if this concept that I heard in my head would work in the mix.

(OUT) SOURCING

I was beginning work on the season-ending episode of *Cold Case*, and searching for a musical sound design element to serve as a mysteriously threatening thread that could tie a number of investigative scenes together. I kept envisioning a kind of throbbing sustained sound with a lot of menacing activity but no distinctive individual events. I suddenly realized what it was: the bees in the wisteria grove outside my window!

Being a danger-averse, pampered, and somewhat overscheduled composer, I assigned the recording to my staff producer who then did the intelligent thing: delegate the task to our two assistants, Kayla Schmah and Ryan Leach. And this is what they had to say about it.

FIELD OF BEES

"The 702T was very easy to use. It didn't require any setup time, which is crucial when you are trying to capture an unpredictable sound source. Toggling in and out of record mode creates new takes automatically, and names them sequentially. Furthermore, the 702T is small and light enough to be held in one hand, and feels durable enough to survive the occasional clumsy field recordist.

"Because it uses an internal hard drive and not tape, the 702T was extremely quiet. This helped us avoid getting noticed and stung by the bees we were recording, and preserved the source's sonic purity. We decided on a JVC MU-Z1 battery-powered condenser stereo mic designed specifically for field work, and connected it via an adapter to the 702T's XLR ins.

"Sound Devices put all of its functions within menus, and scrolling through them in the heat of the moment can be time-consuming. It would have been nice to have some functions, such as phantom power on/off, on the face of the device.

"We didn't need to use the 702T's time stamping or sync features, though a cursory check indicated all was in order. You can transfer files to a hard disk recorder via FireWire, where the 702T looks like another hard drive, and just drag and drop its files.

"Upon playback, the actual recording was stunning in its clarity and depth. When it was played back initially, everyone standing near the speakers involuntarily jumped back in alarm. But to integrate these sounds in a musical track, they couldn't be so literal. So, we processed them through Ableton Live's pitch transpose feature and a few filters; this gave us the opportunity to create additional menace, and tune it to the track.

"The fun thing about using a portable recorder with natural sources is the unpredictability of the outcome. Besides the bees themselves, other noises on the recording (birds, wind, a passing jet) provided a textural complexity that is impossible to match with a purely electronic source."

TO THE AIR

I ended up using variations of our processed bees sounds in five cues, most notably in a scene where the cops discover the dead body of what they think is the title character. At the dub, I was complimented several times by the producers and post-crew on the music, with the "bee moments" in particular garnering praise for their creepiness and life-like quality: thanks, 702T. Now I'm eager to start including hawks, tree frogs, coyotes, and the seasonal Santa Ana winds in future compositions. A mountain lion might be nice as well; I wonder if Kayla and Ryan are available. . . .EQ

Product type: Two channel, two-track, hard disk-based digital audio recorder with timecode.
Target market: Field recordists.
Strengths: Solid construction. Incredibly portable. Generates virtually no noise. User friendly. Preamps lend themselves to stunningly faithful sound.
Limitations: Using menus for critical features can be inconvenient in the field.
Price: $2,650 (list)
Contact: www.sounddevices.com

Michael A. Levine is the composer for the CBS dramas Cold Case *and* Close To Home. *You can also see him onscreen (if you don't blink) as a fiddle-playing pirate in* Pirates of the Caribbean II, Dead Man's Chest.

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MOTU ULTRALITE

Another interface with a twist

by Craig Anderton

It never ceases to amaze me how many different approaches there are to audio interfaces; now MOTU has decided that your portable interface really needs a hands-on mixer, not just a little applet — basically, it's like a miniature version of those FireWire mixer/interfaces making the rounds. But that's not all there is to the bus-powered Ultralite, so let's take a closer look.

BASICS

MOTU has been at the interface game a long time, so it's not surprising that the UltraLite has stable ASIO/WDM/MME support/GSIF/Core Audio drivers for Windows XP, Vista, and Mac OS X 10.3 or above. Although UltraLite obviously works with a bunch of hosts, MOTU includes their AudioDesk software (Mac only), which allows for recording, editing, mixing, and processing — it's basically DP lite (and not really that lite, either).

There are several other features of note. The dual FireWire 400 ports allow connecting another FireWire device, and at 44.1/48kHz, you can daisy-chain up to four MOTU interfaces (three at 88.2/96; the UltraLite doesn't do 192kHz, and frankly, I don't care that it doesn't). You can't bus-power this many interfaces, so just use the included adapter. Also, there's MIDI I/O (which I consider important), and while the case looks like plastic, it's actually aluminum and very sturdy.

As to I/O, this is a 10 x 14 device (with S/PDIF and headphones counting as four of those outs). Don't be thrown off by the single front-panel XLR/TRS input; there's a second one on the back, and both have phantom power and a three-way pad switch (off, –18dB, –36d-B). Other I/O includes S/PDIF, six balanced/unbalanced TRS 1/4" ins, eight individual outs, and two main (stereo) outs.

APPLYING THE ULTRALITE

The UltraLite's "special sauce" is all about control built into the *hardware*, so you're not dependent on doing everything in the computer (although you can use their CueMix applet as well, and even set up different mixes with it). Starting with the mic pres, you can record just about any level by tweaking the pad switches and the detented (1dB steps) trim controls; when combined with the input's baseline gain, plus the three-way pad, there's 42dB of total gain, 24 of which is adjustable in 1dB increments. But the Big Deal here is the built-in mixer, as accessed through page/cursor/value controls, with metering shown in a relatively expansive backlit LCD.

The UltraLite mixer provides four stereo mix buses; any of the inputs can be assigned to these buses, with panning, level, etc. In a nice touch, you can even copy and paste mix settings among buses. And while all these signals can show up in your computer, the plethora of hardware outs means that you can set up serious mix, cue mix, and headphone mix options. For example, when doing a concert recording, you could record into the computer and send the hardware outs simultaneously to a standalone hard disk recorder for backup . . . or send the outs to a monitor mixer.

Given the size, this isn't something with faders where you're going to be making big mix adjustments; the mixing capabilities are more for setting up a signal path "environment" you can tweak if needed. In this respect the LCD is helpful, as even in very bright light, you can make out what's going on. In addition to being used for editing, the LCD also provides level metering.

The other big deal is that all of this is zero-latency mixing, whether you're using the hardware in the mixer or the CueMix applet.

CONCLUSIONS

If you're just sitting at home with a computer and want to lay down a couple tracks at a time, the UltraLite may be overkill — then again, having all those inputs (and MIDI, and the option for cue mixes) means you can have a lot of gear plugged in and ready to go, without having to re-patch. But its ruggedness and ability to stack additional units also makes it a natural for remote recording, and it's a decent standalone, compact digital mixer — I could easily see this as a keyboard mixer for live use. Overall, the fine-sounding UltraLite seems designed for those who are willing to pay a bit more to get a significant amount of extra functionality; if you need that functionality, it's a great choice. EQ

Product type: Mobile or desktop 10-in/14-out FireWire 400 audio interface.
Target market: Desktop recording, field recording, and basic standalone digital mixing applications.
Strengths: Solid drivers on Mac and Windows, including Vista. Rugged. Syncs to SMPTE. Built-in mixer and gain/trim setting for the mic/instrument ins. Backlit LCD. Gold-plated connectors. MIDI I/O. CueMix applet and AudioDesk (Mac only) software. Bus-powered or use AC adapter.
Limitations: No ADAT light pipe I/O. Cramped control surface due to compact size.
Price: $595 list.
Contact: www.motu.com

MERCURY DUAL CHANNEL GRAND PRE

Vintage vibe, anyone?

by Jeff Anderson

Many of us have learned that the key to compensating for the perceived "coldness" of some digital tools is not in reverting to the pres of overtly expensive vintage consoles, but by investing in outboard gear that can help warm up our tones. This is where a piece such as Mercury's Grand Pre, at least in concept, can be of greatest utility.

Touted as "not another 1272 clone," the solid state Grand Pre is claimed to be the new "Alternative British Classic." Not exactly a modest proposal, but what marketing slogan is? And while marketing hype doesn't cut it around these parts, our interest was piqued; so we called Mercury up and asked them to "put up or shut up" . . . they chose the former.

OVERVIEW

The dual-channel Grand Pre (available as single channel model as well, Mercury GP1) is a 2U, 19" rackmount unit with a pretty foolproof design. The front panel's input gain control knob is fairly elaborate, in that it covers 0–60dB in 12dB increments. This works in conjunction with an additional fine gain control, or trim, knob (±8dB). An output, or fader, knob controls the output level to tape, and there are toggle switches for phantom power (with indicator light), phase flip, and mic/FET Direct Input (the latter has a 1/4" jack for instrument level input sources). The internal power supply uses a toroidal transformer for low noise, and the back of the unit offers two XLR male and female jacks, along with an IEC cable plug and fuse holder.

APPLYING THE GRAND PRE

With two Shure SM81s set in XY pattern and feeding the Grand Pre, we recorded an absolutely beautiful sounding Martin for a bluegrass Pro Tools session. The first, and most apparent, aspect I noticed was that you could greatly adjust the amount of color given by the unit by using different gain stage settings. For example, with a high input level and low output level, the Grand Pre added significant mid and bottom end character. By keeping a nominal input and output level, there was a more transparent (though not entirely unaffected) sound. Given the style of the music I was recording, the Grand Pre's flexibility in terms of added color was incredibly useful.

Next up was a local rock band. I suspected the Grand Pre would do well with bass guitar, so we toggled into DI mode on the first channel and plugged directly in. On the second channel, we hooked up a Neumann U47 FET, placing it 3" off-axis to the cone of an Ampeg SVT Pro cabinet. We decided to overdrive the DI channel, and were pleasantly surprised by the results: As we turned the input up and output down, you could feel the bass clear up while accelerating in aggression. At first, the U47 FET on the SVT wasn't sounding so hot, so we moved the mic back a bit, cut back on the gain, and added a touch of EQ (cut around 200kHz); we ended up with the solid yet boom-y sound we sought. Adding the two channels together achieved a great, warm punchy bass tone — with channel two (U47 FET) bringing the beef of the bass and channel one (DI) adding in both clarity and warmth.

For American Idol season four finalist Jared Yates, as his voice is very poppy and peaks naturally around 8kHz, we set up a Neumann U87i going to channel one and a Neumann U47 going to channel two to see which pairing worked best. Setting the input and output up identically on both channels, we settled on channel one, adjusting the input to around 3:00 and the output to around 1:00. This gave a nice midrange warmth, though I did have to cut about 4dB around 400Hz and boost 2dB around 8.5kHz to compensate for both Jared's voice and the Grand Pre's tonal addition.

CONCLUSION

With its ability to replicate that warm, vintage sound, the Grand Pre can be an asset for many studios. Furthermore, the ability to adjust both tonality and color by playing with its comprehensive gain staging options offers a fair amount of tonal flexibility, though the Grand Pre would not be my first recommendation if you want a very transparent-sounding unit. But if you're looking for that British sound, you can't go wrong here — and as more studios move away from vintage consoles and start dropping their bucks on external pres instead, I think you'll see the Mercury Grand Pre racked with a lot more regularity. EQ

Product type: Dual-channel solid state mic preamp.
Target market: Mid to pro level studio owners who want that characteristic vintage British sound.
Strengths: Classic, colorful tones. Tonal flexibility. User-friendly design.
Limitations: Nothing significant.
Price: $2,000 list
Contact: www.mercuryrecordingequipment.com

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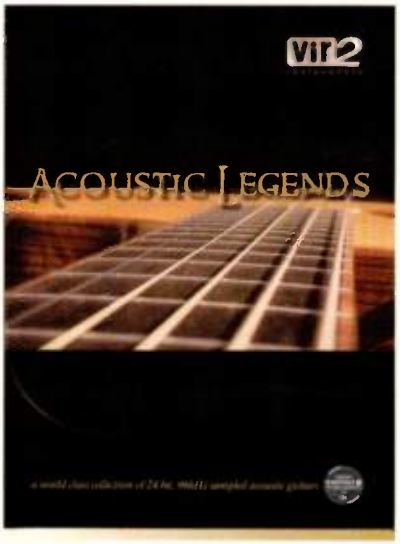


Contact: Vir2 Instruments, www.vir2.com
Format: Plug-in virtual instrument with sample library; standalone; (Mac) VST, RTAS, AU; (Windows) VST, RTAS, DXi
Price: $299 list

Based on the cross-platform Kontakt 2 player, *Acoustic Legends HD* provides 19GB of guitar samples, recorded at 24 bit/94kHz. The new player is a step up, as it's multi-timbral (64 channels standalone, 16 channels as plug-in), and all presets include EQ, reverb, and stereo width controls. There's also a total of 32 mono outs (VST/DXi) or 16 with AU/RTAS; surround is supported in most hosts too. Each out and aux has four insert slots for various effects, including 19 filter types.

In addition to samples of acoustic guitars and some bonus material (acoustic bass, banjo, and ukelele), there are "chord banks" for 6- and 12-string guitars that provide expressive playing options. Up- and down-strokes, single notes, mute strums, and body knocks are mapped across their own octaves, while the lowest octave provides keyswitches for playing different chord types. (Other presets use this keyswitching feature as well.) Creating a convincing part takes some practice — but it's easier than learning how to play guitar.

The samples are all top shelf, and several presets include "reality enhancers" like adding in fret noise and slides.

The samples are all top shelf, and several presets include "reality enhancers" like adding in fret noise and slides. Furthermore, you can do things guitars can't do, like play harmonics chromatically with ease. Fun stuff? Yes indeed. —*Craig Anderton* EQ

SONY
ICED

Contact: Sony, www.sony.com/mediasoftware
Format: CD-ROM with 630 files (mostly Acidized WAV loops but also one-shots); 16-bit/44.1kHz
Price: $59.95 list

The cover pretty much says it all: "*Iced* — Minimalist Electronica." But if you want to get specific, there are bleeps, bloops, 44 "deep kicks," 49 one-shot percussion samples, 27 sonic hits, equal amounts (about 55MB) of noise and drone layers, basses, and synths, 75MB of abstract percussion, and the centerpiece of the CD: 237MB of static rhythms. The latter are relatively short, repetitive loops that mesh well with the other material. There are also some cool processed breakbeats, noise/texture loops, and other sounds that live in a zone somewhere between Kraftwerk and glitch, but with a hint (and only a hint) of romanticism.

To get an idea of the overall vibe, imagine robot icicles in a cave, whose drops melt rhythmically and fall on weird percussive instruments connected through various processors, and you're pretty much there. Add a bunch of radios tuned to anything *except* radio stations, and you got it. Don't confuse "iced" with "chill," though; this ice is definitely more like a cold night in Berlin at a small underground club, watching a guy with a shaved head, shades, and a bit of an existential attitude working away at Ableton Live on a laptop.

There are also some cool processed breakbeats, noise/texture loops, and other sounds that live in a zone somewhere between Kraftwerk and glitch, but with a hint (and only a hint) of romanticism.

One point worth mentioning is the inclusion of multiple one-shots and accents, which help "customize" your sound as opposed to using only loops. However, the loops lend themselves to deconstruction as well — grab an eighth note here, a quarter note there — and can be fun to map on a sampling keyboard when you want to create groovy little hand-played percussion lines.

But anyway, a tune is worth a thousand words, so hustle on over to www.eqmag.com and listen to an audio concoction that's loaded with *Iced* . . . stirred, not shaken. —*Craig Anderton* EQ

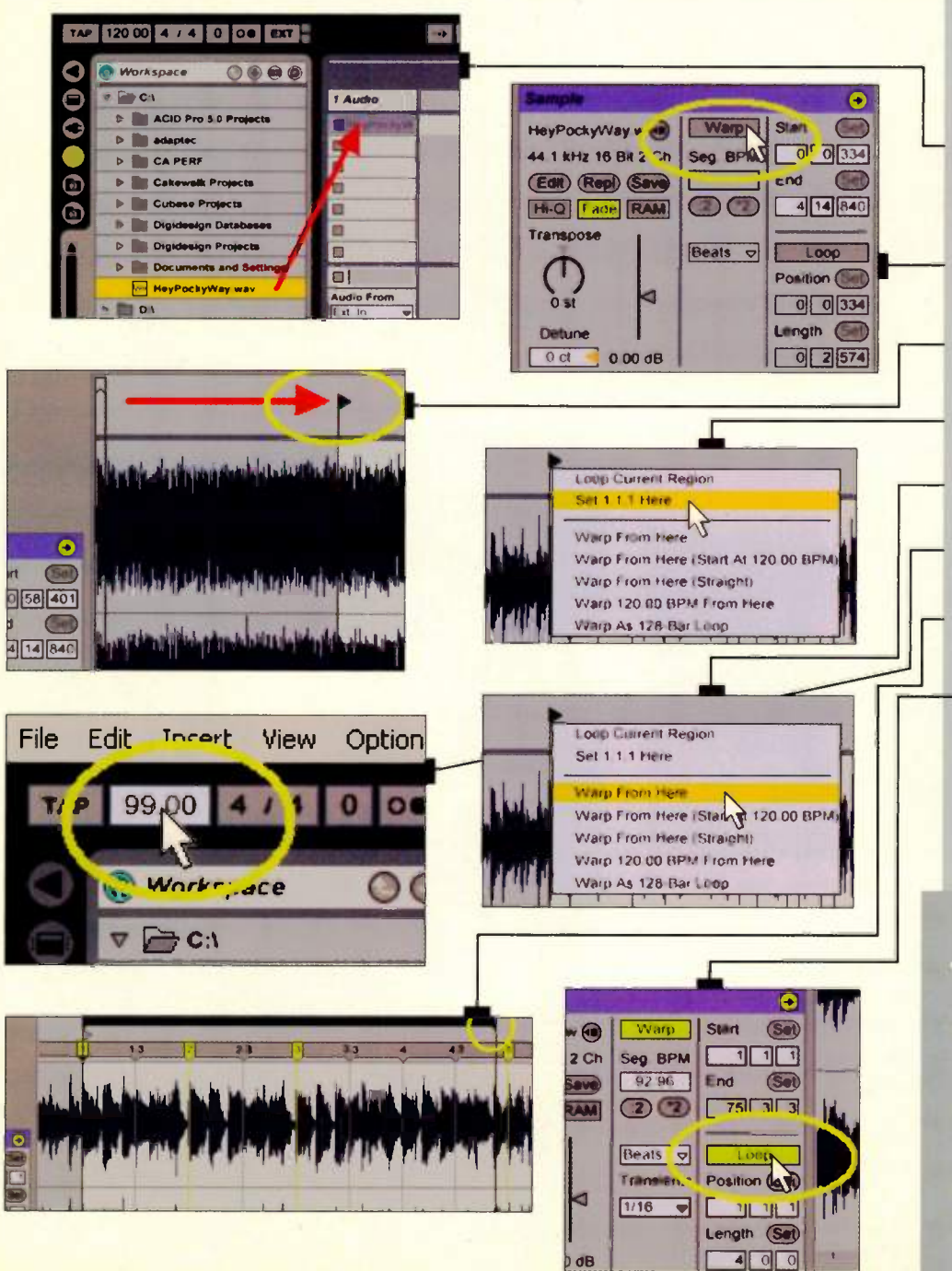
Power App Alley
by Gus Lozada

ABLETON LIVE

Use Live to practice and remix a song

OBJECTIVE: Extract a song's timing and select a section to play along with, or remix it.

BACKGROUND: Live's warp engine can import any audio file in WAV, AIFF, MP3, Ogg Vorbis, Ogg FLAC, and FLAC formats. Once it is imported into the system, its tempo is extracted and then a section or the entire song can be played at different tempos and pitches, so you can learn the song, play along with it, or even create a remix out of it by playing it against other extracted sections, and/or playing sections in a different order.



steps

1. Find a song in Live's browser. With Clip Overview selected toward the bottom right, drag and drop the file into a clip in the Session view. Wait until Live finishes the analysis process.

2. In the Clip Overview, de-select "Warp" at the bottom of the screen.

3. Slide the "Start Marker" to where you want the song to start.

4. Right click on the start marker and select "Set 1.1.1 here."

5. Right-click again, and select "Warp from here."

6. Adjust the project tempo if desired.

7. Drag the "Loop Brace" to select the point where you want the clip to repeat.

8. Click on "Loop" in the Loop Switch box for looped playback.

9. If you want to mark different sections for a remix, repeat this procedure with as many instances of the song as you want.

tips

- The song's timing could vary a bit from the original tempo; in step 6, adjust the tempo manually if required.
- Experiment with changing Live's Warp Mode (beats, tone, texture, etc.) to find the best-sounding option.
- In step 6, click on :2 to cut the tempo in half, thus playing it faster, or *2 to double the tempo.

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Power App Alley
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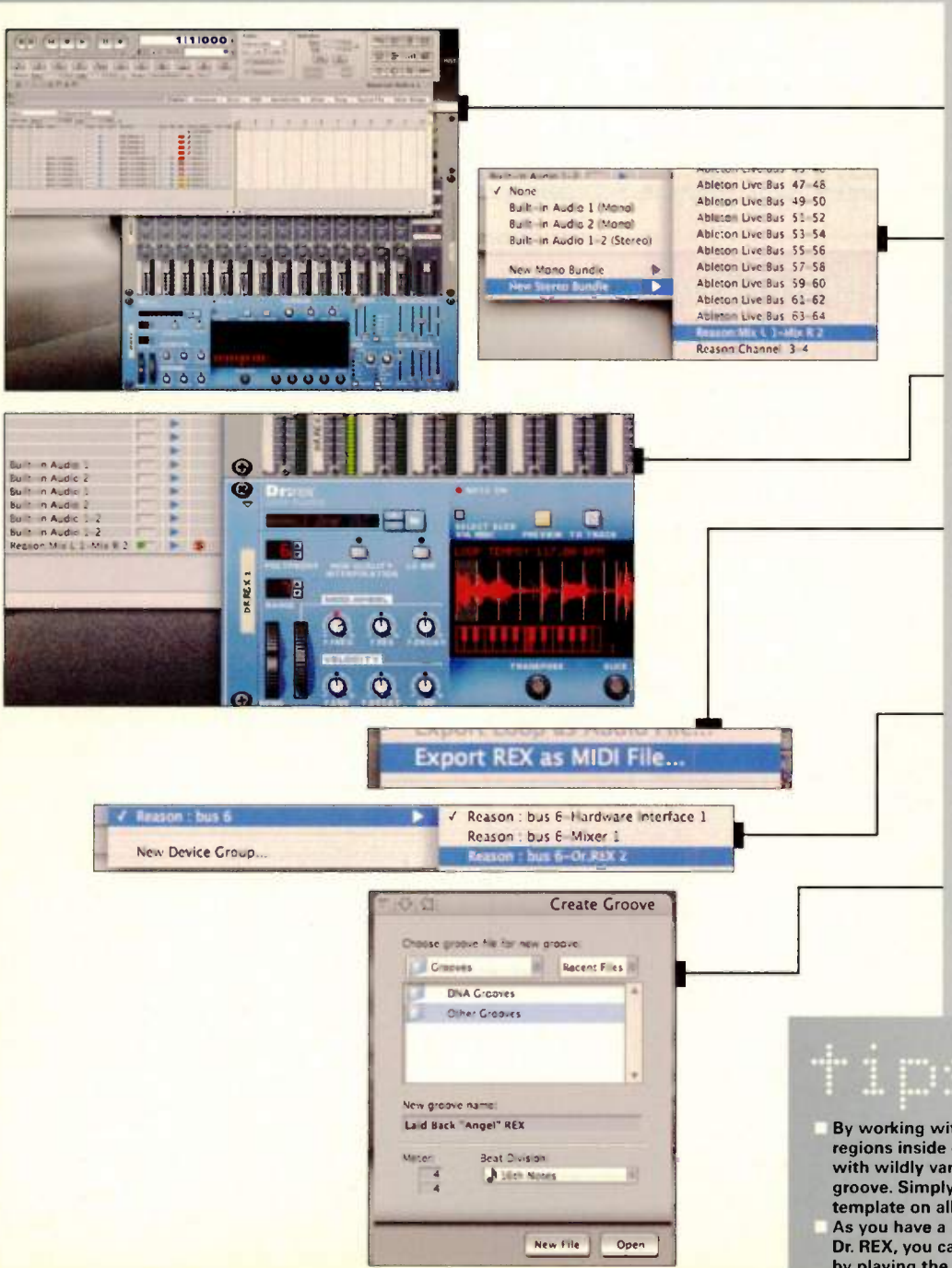
MOTU DIGITAL PERFORMER

Advanced ReWiring with Reason's Dr. REX

OBJECTIVE: Extract and alter the feel of Dr. REX loops using DP's MIDI editing.

BACKGROUND: Playing a REX loop from Reason's Dr. REX into DP's virtual mixer is easy, but it doesn't give you much room for tweaking the feel or correcting the timing of the actual loop. Fortunately, Reason lets you export a REX file's associated MIDI file, which you can then load into DP. From there you can apply groove quantization to the MIDI data, or use it as the basis of a new groove template in DP. Extracting the MIDI data for a REX file gives you much more control over your Dr. REX loops, and once you've tried it you'll be hooked.



steps

1. Create a new session in DP, then launch Reason and create a new session with a mixer and a Dr. REX player.

2. To hear our loop(s), we need to route audio from Reason into DP. In DP, create an Aux track (go Project menu > Add Track > Aux Track), then set its input to accept audio from Reason's stereo mix bus.

3. Load a loop into the Dr. REX player. When you click on "Preview," you should hear the loop play back through the aux track in DP.

4. Now export the REX loop's MIDI file. Click on the Dr. REX player so it's highlighted in the rack. Go to Reason's File menu and choose Export REX as MIDI File. Save the file to your desktop — this will make it easier to drag-and-drop the MIDI file into DP.

5. To use this MIDI data to trigger the loop slices in Reason we need to create a MIDI track in DP and assign its output to Dr. REX. After you've set this up, drag-and-drop the MIDI file onto the Dr. REX MIDI track.

6. With the MIDI data inside of DP you're free to use any MIDI editing or quantize functions to deconstruct or alter the loop. Alternatively, you can create a groove template by selecting the MIDI region and then choosing "Create Groove" from the Region menu.

tips

- By working with Dr. REX loops as MIDI regions inside of DP, you can "conform" loops with wildly varying feels to one particular groove. Simply use the same quantization template on all of the MIDI files.
- As you have a MIDI track assigned to trigger Dr. REX, you can program your own patterns by playing the slices directly from a MIDI keyboard.

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by Phil O'Keefe

WHY IS IT SO HARD?

Identify and remove obstacles that get in the way of great recordings

Why is it so hard to get tracks that *kill?* Mixes that scream with emotional impact — music that holds up to the work of the masters of our craft? Experienced pro or newbie neophyte, we all share a desire to improve the sound, relevance, and "vibe" of our recordings. But sometimes the way to do this isn't just by doing the right thing, but avoiding doing the *wrong* thing — and that in turn will indeed make things easier.

BAD GEAR

Everyone's favorite whipping boy, bad gear is often the first place many of us look to and point the finger at when something about our recordings doesn't knock us out. And let's face it: First-class gear sounds great, and that can't help but make things sound better — *but only if you know what you're doing with it.* I've been amazed by the quality of some recordings I've heard that were done on primitive or inexpensive gear, however, that says more about the engineer than the gear. Still, it's important to scrutinize your system from time to time and probe for weak links. Did you upgrade your mixer, but not your monitor speakers? Nothing works in isolation, so consider where the best improvements can be made to enhance your system's sound quality as a whole, and don't obsess on any single area (like having the best mic cabinet in the world if you don't have preamps that are equal to the task).

THE CURSE OF THE ADAPTIVE EAR

Even in a well-designed control room with great monitors, our ears adapt to EQ changes very quickly — that's how you can enjoy hearing your favorite song on a cheap TV speaker or a high quality system. Our ears perceive the extremes of the audible frequency spectrum differently at different playback levels, with the flattest response being at about 85dB SPL. Our ears also tire after long hours, especially at unsafe monitoring levels. That EQ tweak that sounded great last night after 10 hours of playback at 105dB might not sound so hot the next morning. Having high-quality reference material that you can A/B with your mix can help you get back to reality when EQ changes start to throw off your perspective over time, and so can watching your levels and knowing when to quit when your ears have had enough for the day.

NASTY CONTROL ROOM ACOUSTICS

Thankfully, more people are starting to understand the importance of room acoustics (both for mixing and tracking), so we won't belabor the point. But some people just throw up their hands and say, "My room was never designed to do acoustics, so it's hopeless." No it isn't! Just a few strategically-placed bass traps or diffusors can make a huge difference, as can monitoring at lower levels if you use near-field monitors; that way, room acoustics become less of a factor.

LACK OF TECHNIQUE

There's a certain charm in just randomly placing mics and turning knobs until you find something that pleases you, and you may be lucky and come up with a masterpiece that way. However, your odds of success are better if you have a basic understanding of how your gear was designed and how it works. But note that it's equally important to know your gear *so well* you can make it do things it wasn't originally designed to do; some of the classic sounds of all time came from people who knew how to mis-apply their gear as well as apply it — and created their own musical voice in the process.

SELF-DOUBT

Arrogance isn't the answer, and self-examination of your weaknesses is a good thing now and then . . . but a little confidence is also crucial. Second-guessing everything you do and doubting your own hard-earned experience and skills can kill you, so "trust your feelings, Luke!" If something sounds great to you, and it makes everyone else in the room nod, sing along, play air guitar, or all of the above, you might be on to something.

NO SUBSTITUTE FOR PERFORMANCES

The best edit is a performance that doesn't need one. If you have to edit, it's a lot easier to do if you have tracks with generally solid performances, few errors, and great feel. Piecing something together from sub-standard performances is inherently doomed; if things are not quite "there" with the artists with whom you work, take some time to do pre-production rehearsals before you get into the studio so that you can help get things as tight as possible before you start waxing tracks. *More rehearsal = less editing.*

AND NUMBER ONE, WITH A BULLET!

Two words: *the material.* A so-so recording of a great song still leaves you with a *great song.* Of course, we're not in the business of making so-so recordings, and everything matters, so take a moment to evaluate the weaker areas of your whole rig — including your personal skills and musicianship — and plan out a strategy for improving each of them. This might mean books on music theory, spending time going to songwriting panels, more collaborations, or even returning to school for a few classes . . . your recordings and productions will only get better as a result. EQ

Phil O'Keefe is a producer/engineer, and the owner of Sound Sanctuary Recording in Riverside, California. He can be contacted at www.philokeefe.com, or via the Studio Trenches forum at www.harmony-central.com.

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by Michael Molenda

MOVABLE FEASTS

Making the Most of Stereo Location Demos

As essential as inspiration is to an artist's craft, it can be a Machiavellian little bugger. For one thing, it doesn't always make the scene when you're ready for it. You can meticulously set up your recording gear, put all your creative talismans in their proper places of honor, and brew a truly magnificent pot of coffee or tea, and absolutely nothing will happen. On the other hand, you can be driving to work, and inspiration will wallop you with an absolutely transcendent motif that you have no way of documenting, because the faithful mini-recorder you always carry in your glove box needed new batteries about seven months ago.

By the same token, your band can unleash a ferociously inspired performance at a rehearsal, and, unless you're recording every minute of the session, you'll lose that moment forever. Unfortunately, it's seldom feasible to hold every rehearsal in a studio setting, with microphones fastidiously positioned on every sound source, and a workstation set to capture spurts of musical genius. For most bands, location recording is confined to affordable cassette, MiniDisc, or compact digital-recording decks. These machines are fabulous for stereo (or, sometimes, 4-track) documentation of rehearsal sessions, but as they are not professional multitrack workstations, many players consider them as extremely poor vessels for moving practice recordings to the master stage. If you're one of these people — shame on you! Such perceptions are very narrow, and they may deny you the use of a kick-ass performance that your closed little mind relegated to the demo heap.

The trick is to create an environment where your stereo rehearsal tracks can sound tight, dimensional, and punchy, so that you always have the option of transferring performances to your full-on multitrack system for overdubs and sweetening. You want the drums and bass to drive hard without sounding washy, the vocals to be clean and clear, and, of course, your guitar must rage like a rabid demon without destroying a balanced mix. Capturing these types of sounds requires only a little planning, some common sense, and a few techniques from early '50s recording engineers.

TAME THE ROOM

Too much room sound can pepper your tracks with a distracting, tinny ambience — especially if your rehearsal space is basically a garage. Diminish the effects of hard, reflective surfaces by covering them with cheap blankets and rugs. If you can afford it, many companies sell absorptive foam panels that work great. You can Google information on room treatment, but the basic gig is to prevent signals from ricocheting around, so grab a hammer, some tacks, and a bunch of duct tape, and blanket anything that dropkicks signals across the rehearsal area. Don't forget the floor. Put drums on a thick carpet, and place amps atop a rug or mattress foam cut to the appropriate size.

GET THE MIX

Getting a viable band mix is typically a matter of volume and instrument position. Play a few songs, and adjust the levels of the amps to taste. Take care not to "overplay" the room. If you get too loud for the dimensions of the space, no amount of sonic treatment will prevent the tracks from sounding like muck. Every room has a sweet spot where sound can be delivered with impact and dimension. Find your room's optimum volume level, and make sure that the selfish noise fiends in your band don't crank themselves above it. Of course, acoustic drums don't have a volume knob, so if your hulking drummer is hammering louder than your amps (and vocalist), pull an old trick from the 1950s, and simply move the drums back, or the amps forward. Absent a console with faders, you'll have to move your people and gear like a chess master to construct the best mix.

DELAY THE GOODIES

It's best to record your guitar tone dry and free of effects in order to facilitate overdub options when you transfer the tracks to a DAW. As legendary engineer Eddie Kramer once told me (twice), "Once you have reverb on your [live] tracks, you can't take it off. Period." So don't blow a fabulous performance by committing to signal processing that you might hate later on. You can always sweeten things by doubling the track with a unison part bathed in the effects you desire, and mixing it subtly under the live guitar part.

GO TO IT!

Most of these little tips are, admittedly, pretty obvious. But I'm a big fan of capturing impassioned basic tracks — little "diamonds in the rough, so to speak — and refining them later (but not too much, of course). I've bounced tracks between cassette decks, CD-R mixes from hardware digital multitracks, GarageBand, Pro Tools HD, and all modes of analog machinery. My goal is saving an inspired performance — on whatever medium it exists, and at whatever quality it was recorded — because those flashes are glorious and rare. So if these silly hints help just one of you save and refine a brilliant location performance, then I can sleep well. EQ

Michael Molenda is a seminal San Francisco punk, multimedia artist, and producer who has recorded tracks for everyone from NASA to Paramount Pictures to various major and minor labels to hundreds of bands you've never heard. He currently co-owns Tiki Town Studios with producer Scott Mathews, and is signed to MI5 Recordings.

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OUTSTANDING IN THE FIELD

Exploring alternate spaces

by Lee Flier

Given the portability of today's DAWs and standalone recorders, it seems a shame that most recordings are now made in tiny bedrooms and basements, relying on plug-ins to add "character" to the sound after the fact. To me, not having to lug a tape deck and console around means something entirely different: We're free to explore sonic spaces that we couldn't before unless we had a truckload of gear. We're no longer confined to actual "studios" — recordings can be done outdoors, in a church, a warehouse, or any sonically pleasing place. If you've ever walked into a space, been inspired by its acoustics, and said "Wow, wouldn't it be great to record in here?" Well . . . now you can!

There are potential pitfalls: A "real" studio has likely been treated to reduce various acoustic nightmares, and even if you have acoustical problems in your bedroom studio, you've probably learned to work around them. But with field recording, you'll have to make on-the-fly judgment calls regarding acoustics, and you probably won't have the greatest monitoring environment. So how do you ensure the best possible results?

CHOOSING YOUR SPACE

Larger, less reflective rooms (or outdoor spaces) will generally have fewer problems than smaller, or highly reflective, ones. Also, louder sound sources present more problems. It probably isn't a good idea to record a drum kit in a 6 x 6 foot tiled bathroom, but the same space might be fine for recording vocals, which aren't as loud.

If you're determined to get that John Bonham drum sound and record in a large reverberant space, look for a room with high ceilings and at least *some* kind of sound diffusion. A full warehouse stocked with boxes trumps an empty one. Churches, office buildings, and bookstores can also be good candidates, having the right combination of reflective and absorptive surfaces.

Recording outdoors presents few acoustical problems (just make sure you have windscreens for your mics), as there are no reflections or standing waves. But if you find that outdoor spaces are *too* problem-free and lack sonic character, consider finding an outdoor amphitheatre, alleyway, or other semi-enclosed space where there will still be some reflections. Natural echo from a canyon (or strip mall parking lot) can also be interesting. Choose a day where there's little wind, and be prepared to deal with ambient noise (*e.g.*, traffic, birds, etc. — which I find add to the recording's character, but tastes differ).

GETTING DOWN TO BUSINESS

Once you've chosen your space, how will the actual session differ from recording in a traditional studio? Apart from acoustics, you likely won't have a separate control room for playback, nor will you be hauling your best monitor speakers around. Sound isolating headphones work well for monitoring; I use Ultraphones from GK Music (www.gk-music.com), which are basically Sony 7506 headphone drivers mounted in heavy duty, sound isolating earmuffs. I find them detailed enough to get a decent sense of what's happening in the field, but be aware that the closed cans will attenuate the highs considerably. If you have a small pair of powered nearfields that you trust, and the field conditions are conducive to setting them up, you might want to use them.

If you're doing multitrack recording intended to substitute for studio tracks, consider bringing some portable baffles or bass traps. These can reduce the room sound and early reflections immediately in front of the sound source, as well as provide a bit of isolation between sources. Sometimes you can improvise by putting an amp in a different room or a stairwell, or using a shelf full of books as a baffle.

If you're doing live to 2-track stereo recording with two mics, walk around the space while the musicians are playing to determine the room's "sweet spot." Miking with an XY configuration works well if you have a pair of cardioid mics and want maximum phase coherency, but oftentimes using a spaced mono pair is rewarding too — just listen carefully for phase issues, which can often be corrected by moving one or both mics by a few inches.

With a multitracking session, you can both close mic each of the instruments *and* throw several ambient mics in different parts of the room. This provides maximum insurance against acoustical problems — if one placement has too much of the room (or not enough), you'll have another to try. Again, just listen carefully with your phones as you walk around the room with each mic, and check the phase coherency between each set of mics. I've used as many as eight different ambient mics at a time, then whittled it down to the best-sounding two or three during mixdown.

It's especially important to avoid any peaks that overload your preamp or DAW. Err on the side of caution with your levels; you can always boost the signal and limit the peaks later if necessary. With ambient mics, make sure that background noise doesn't overwhelm the instruments if your music isn't loud.

IS IT WORTH IT?

You may be thinking, "Isn't it easier to just record in my bedroom and use plug-ins?" Yes, it is. But is it more inspiring? Does it sound better or have a unique sonic character? You won't know until you expand your horizons! EQ

Lee Flier is a guitarist, songwriter, engineer, and producer based in Atlanta, Georgia. Her band, What The...?, is a fixture in the Atlanta area, and has released two independent CDs. Contact her via the band's website at www.what-the.com; she also moderates the "Backstage With the Band" forum at www.harmony-central.com.

Key Tips for Recording Keys

Why settle for recording synths when you can record super-synths?

Supposedly, recording a synthesizer is easy: Just plug its outputs into your mixer or soundcard's inputs, press record, and cash your royalty check. Or for a virtual one, just create an instrument track, open the plug-in, and let the DAW do the rest. And actually, it is easy unless you want to add your own signature to its sound . . . which of course, you want to do!

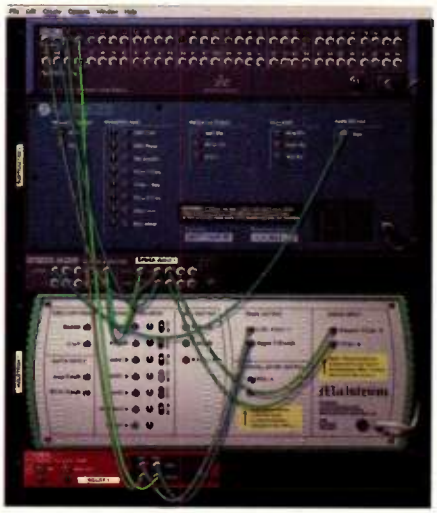

Fig. 1: A "Meta Patch" is the combination of various synth modules, connected together to create a new patch. This example uses Reason, Pro Tools, and a couple RTAS plug-ins.

MEET THE "META PATCHES"

Remember when having a modular synth was as fun and nightmarish as finding the right modulation path? Well, "Meta Patches" are patches created by using more than one synth, including other synth's filters and your DAW's plug-ins, and you can create them very easily — especially if you have access to the ReWire protocol, which nowadays is a common feature in most DAWs. The big advantage is that you can route audio from a hardware synth into a virtual synth's filters (or go from virtual to hardware if desired), add as many plug-ins as you want, then *save* all the routing into a project (or save a "track preset") so you can use it later in other sessions.

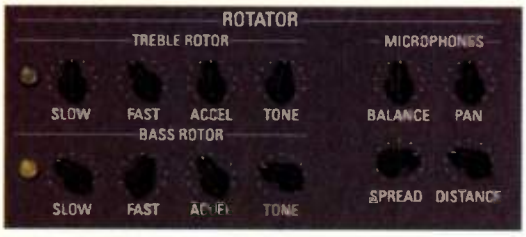

Fig. 2: Playing with the "spread" and "distance" setting of B4's rotating speaker simulator can lead to a fuller sound when miking its output.

This technique lets you pump real life into an otherwise boring patch from any synth; Figure 1 shows one example. It all happens in Pro Tools, and started with a patch in Reason's SubTractor virtual analog synth. I split the audio signal to ReWire channels 1 and 2 (*RW 1/2*) and to the filters of a Malström instance, whose outputs were sent to a delay and then to ReWire channels 3 and 4 (*RW 3/4*). In Pro Tools, channel 1 receives the signal from RW 1/2; that in turn feeds a Waves Morphoder to give the sound a vocoder flavor. Channel 2 picks up the signal from RW 3/4, which also passes through a 10-band EQ. If I was using a hardware synth I could not use it in conjunction with Reason, but I could use any other RTAS synth engine or FX plug-in to process its signal. And don't forget that many virtual synths have "external" inputs that can process not just audio tracks, but the outputs of other synths as well.

2007: A SPACE ODYSSEY

A standard trick to add some space into a lead synth track is to send its output to an external amp, mic it, then record both signals — this can do wonders for synth sounds (and try plugging some pedals into the signal path, too).

But what happens with virtual organs and electric pianos? If you do not have a pair of rotating speakers, to get the best from a hardware "clone-wheel" with a rotary speaker effect, just send its output to a preamp (a SpeakEasy Dyno Preamp works pretty great for this), then to an amp or straight into your recording system. Some of these units may not work great with poorly sampled (*e.g.*, lacking a lot of harmonics) Rhodes patches, but otherwise you can make those harmonics scream, and give a nice big low end to your synths together with a healthy amount of extra gain.

For clone-wheels or even for virtual organs with a rotating speaker effect, route the outputs to a decent pair of studio speakers and mic them. Even better, place the speakers far enough away so you can mix the direct signal with the miked one (but be careful with phase issues). Figure 2 shows how I set my Native Instruments' B4 rotating speaker's settings to get the best stereo imaging when miking its output from my monitor speakers. If the tracks are already recorded, just try re-amping them (see the Jan. '07 issue).

As a bonus . . . try the same technique for strings and stereo pad patches, but this time set the mics as if you were miking a real string section, and mix in the original signal for a more natural reverb. And *please* — never use a full "strings pad" with ten fingers! Layer one patch for violins, one for violas and one for cellos, use them in their actual tonal range, and mix as if you were mixing an orchestra. Your sound will thank you for it. EQ

Gus Lozada is a contributing editor to several printed and web media. He is currently touring as the front man of WoM (www.wom.com.mx), hosts clinics around Latin America about music production, and moderates "Nuestro Foro," Harmony Central's Spanish-language community. Drop him a line at gus@guslozada.com.

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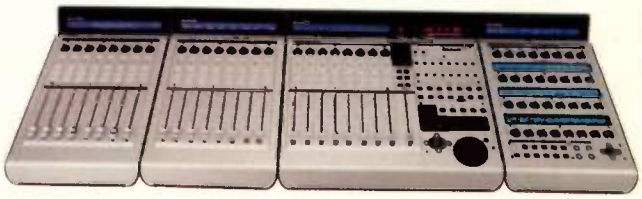

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March 2007
The new Mackie Control Pro series controllers give you ultimate command of your mix and plug-in parameters. Make your music production software whole with complete hands-on control.
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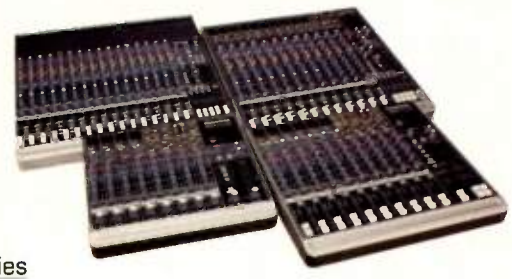

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Mackie Onyx 1620

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Now Available
The FireWire capable Onyx 1620 Premium Analog Mixer features eight of Mackie's acclaimed Onyx mic preamps and their Perkins EQ, a new design that captures the musicality of the classic British EQ.
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800-898-3211

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Mackie's Tracktion 3 is the fastest, most natural way to produce music on your Mac or PC. Tracktion's single-screen interface and vast array of professional plug-ins will accelerate your project from concept to finished master.
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The Mackie Onyx Satellite is the world's first two-piece FireWire recording system, featuring a portable Satellite pod with Onyx preamps, and a separate Base Station...so you never have to unplug your studio again!
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Room with a VU

by Matt Harper

STUDIO NAME: JT Studios
LOCATION: Memphis, TN
KEY CREW: JT
CONTACT: www.jtstudios.net
CONSOLE: Yamaha 02R96 v2 with 48 ADAT I/O, Meter Bridge and REV-X effects
COMPUTERS: ADK Pro Audio Custom with AMD 2x Opteron 270 (4 CPUs), 2GB RAM, 2x SATA 300GB, IDE 80GB; ADK Pro Audio Custom with AMD 3500, 1GB RAM, (2) 120GB IDE
RECORDING HARDWARE: (2) RME Audio HDSP Digiface; Steinberg VSL2020; (2) Universal Audio UAD-1
RECORDING SOFTWARE: Cubase SX2; Nuendo 3.2; Pro Tools LE 6.9
MASTERING SOFTWARE: Steinberg Wavelab Studio 6
MONITORS: Mackie HR824s
MICS: Blue Dragonfly; (2) Neumann U-87Ai; (4) Røde NT5; (4) Sennheiser MD421; Shure 520DX, (2) KSM-32S, SM-81, (2) Beta52, Beta57A, (4) SM-57; Studio Projects C1
OUTBOARD: (4) API 3124+; Chandler Germanium, LTD-1; dbx 1066; (2) Focusrite ISA 428 with digital option, VoiceMaster; Joe Meek VC1Q; Lucid GENx6-96 Word/Super Clock Generator; Universal Audio 2-1176, LA-610
SOFT SYNTHS/VIRTUAL INSTRUMENTS: FXpansion BFD; Native Instruments Battery, B4, Kontakt, Pro-53, Reaktor; Propellerhead Reason 3.0; Steinberg LM-4, LM-4 Mk II, Model E, Grand 2, Virtual Guitarist; TASCAM GigaStudio 3 Orchestra; Waldorf PPG Wave 2.V
NOTES: When it came time for former Neville Brothers keyboardist JT to redesign his studio space, the decision was made to do so with no concerns about expense. But instead of going the route of recreating the studios of lore — spending hundreds of thousands on every old Studer or STA-Level he could find — JT decided to integrate some tried and true equipment and design models with a technologically modern approach. Marrying some choice premium analog, vintage equipment with state-of-the art digital technology, what was to become known in his neighborhood as simply "The Studio" began to take shape: a playhouse where he could indulge in his passion of not only making his own music, but also supporting and developing artists he believes in to help them better record their own.

Contracting Elite Multimedia to handle the redesign, JT got ahold of Auralex and RealTraps (the former of which also was responsible for the CAD designs of the facility) to come in and handle acoustic treatment in the brand new 20' x 35' x 8' live room, the 17' x 14' x 12' control room, and the 10' x 12' x 9' iso booth. But as soon as the last floor was floated and the last seal was finished, it was time for the real fun to begin — flying in some truly great gear, modding existing stalwarts, and having just a few more components tailored specifically to his proclivities.

Having a penchant for working in the box, JT elicited the aid of ADK Pro Audio in custom designing his two computers, building one under the pretense that it was to be used almost solely to power his vast array of soft synths and virtual instruments. He also upgraded to version 2 of the Yamaha 02R96 to satisfy his DAWest desires, and decided on some choice outboard gear, lest he get too lost in the technological shuffle. One API 3124+ wasn't enough pre for him, so he opted for four. After all, it seemed reasonable at the time. Right?

Right.

After the makeover, "The Studio" became one of the top contenders for "place I'd most like to record an album at" in the greater Memphis area, bringing bands from all over the region looking to take advantage of JT's expertise for everything from commercial recording for TV post to cutting first albums on threadbare budgets. For the independent mid-south musician, JT Studios is the place to beat; if you're ever in the neighborhood, poke your head in and say "hi." Tell him we recommended it. EQ

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