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"I did it myself...
...Primacoustic made it easy!"

A conversation with jazz/blues guitar legend Scott Henderson
(Tribal Tech, Chick Corea, Jean Luc Ponty, Joe Zawinul, Jeff Berlin, Victor Wooten)

Scott, tell us about your studio.

It's a two room overdub studio - a control room and a room to mic guitar cabs, horn players, singers, etc...

What do you do there as opposed to in commercial studios?

I use commercial studios when there's a drummer involved, but I get the best guitar tones at home.

What were some of the problems you noticed with the acoustics?

Actually I never thought there were any problems, until I A/B'd the Primacoustic Broadway panels with what I was using before.

What type of panels did you have?

I had a popular brand of foam and I needed to take it down because after 3 years it started to crumble and fall apart.

Did you do the set up yourself?

I did it all myself. Primacoustic made it easy and fast. Believe me, if I can do it, anyone can. All you need is a drill, screws and a level.

How did you configure the panels?

In the control room, because there's a lot of gear to work around, I just put them where they fit. The mic'ing room was just bare walls so it required planning. I configured them randomly to cover about 30% of the walls.

What improvements did you hear?

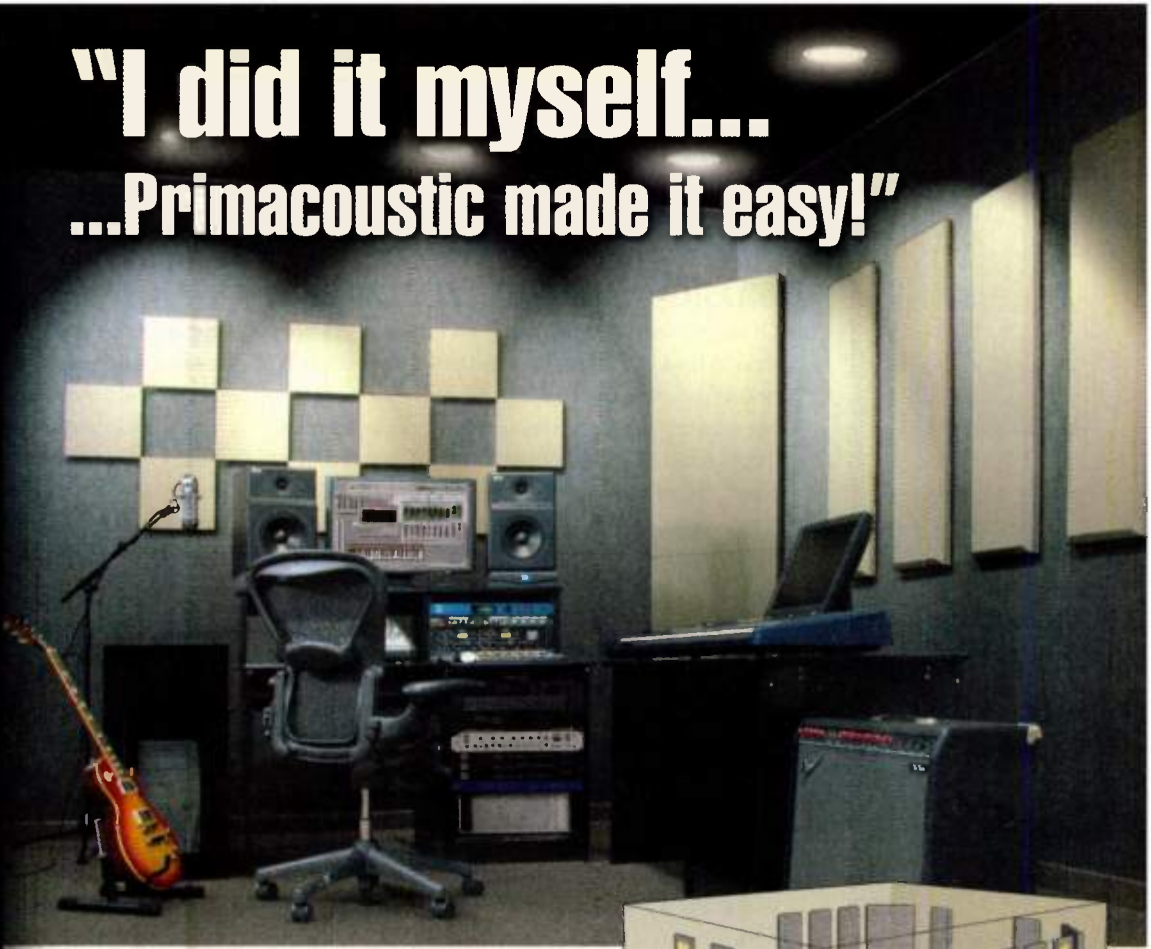
A big difference! Tighter low end with more of it, plus a sweeter top end and a clearer, open sound.

How would you compare it to foam?

The foam gave the guitar a bit of a nasal sound - more emphasis on mid frequencies, and not good ones in my case.

What would you tell someone thinking about acoustic treatment?

Whatever you do, don't use foam, especially attached with glue. The foam turns into dust after a while and is a total mess. Even worse is trying to get the glue residue off your walls. Mine had to be completely sanded and re-painted. Plus foam doesn't sound nearly as good as the Broadway acoustic panels.



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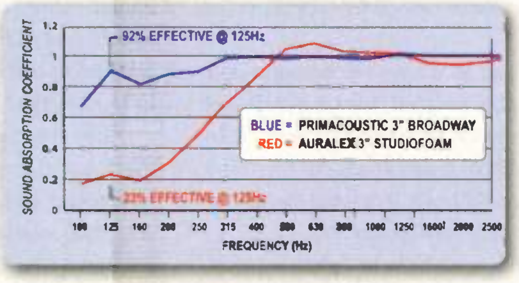

Tests performed by Riverbank Labs on 3" Primacoustic Broadway panels and common acoustic foam. Both absorb high frequencies but as sound shifts to bass, the foam stops working.

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TALKBOX

MUSIC—THE GATEWAY DRUG?

Of all the weird Internet flaps that hit the world from time to time, the whole concept of i-drugs has to be one of the more unusual. Based on the theory of binaural beats–that certain sounds, when played back through headphones, can emulate the effect that different drugs have on the brain–i-drugs have become a new bogeyman for those who find things like the Internet and electronic music evil. Some go so far as to say that this type of sound serves as a kind of gateway drug, either by getting people more accepting of real drugs, or because if they don't get the promised high from the i-drugs, they'll go get real drugs.

News flash!! Music has been getting people high for centuries. Whether we're talking about the pan pipers of Joujouka, electronic trance music, *Dark Side of the Moon,* or just someone getting all misty-eyed when they hear Cyndi Lauper sing "Time after Time," music has profound effects on the brain. This is news?

I admit it: Bach makes me high. However, I never take off the headphones after listening to the Branderburgs and say, "Well, I guess I should go get some heroin now!" A lot of the fear-mongering seems to involve electronic music, like trance, techno, etc. Admittedly, these already have a reputation of being associated with drug use, particularly ecstasy. But seriously, *it's just music.* I have yet to see a study that shows i-drugs provide anything more than a placebo effect, or that they create effects beyond what you'd get from listening to any trancey-type music when you're relaxed and grooving with a pair of good headphones.

C'mon, watchdogs of the public good . . . you have many more important things to worry about than whether people playing synthesizers in studios are going to turn your kids into drug addicts. And to the readers of this magazine, all I can say is that if the music you make gets me as high as the Brandenburgs, more power to you–and thanks!

STUDIO HORROR STORY

BY BOB KETCHUM

This incident happened several years ago here at my studio. I had just earned a couple of gold records working with Krokus (http://clients.oznet.com/cedarcrest/krokus.html) on Arista, and received some album credits as well. A guitarist in Los Angeles had somehow heard about my studio, and wanted to come here to Arkansas and cut some demos for a prospective record company.

This guitarist had an *enormous* ego and upon arriving at the studio, insisted that he be allowed to engineer the session as well as produce it. In cases like this I simply back off and let the client do what they want. After all, it *is* what the studio business is all about–making money.

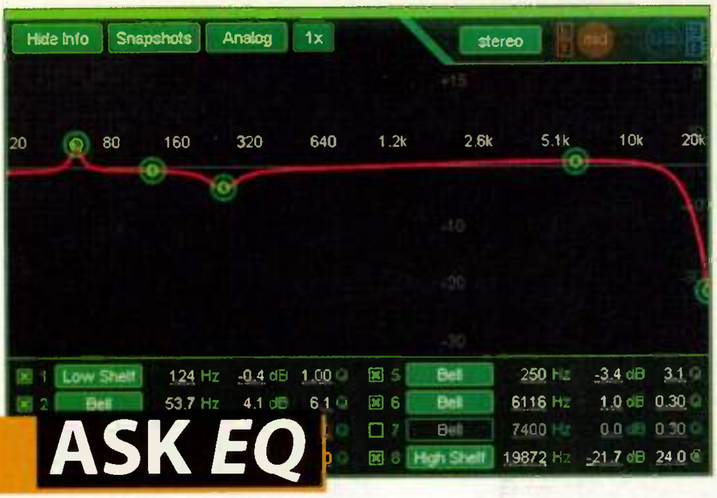
Well, this control freak blew his entire budget fooling around before he even had all the basic tracks done, much less overdubs. It was painfully obvious to the rest of the band that he didn't know the signal flow of my setup, but he refused any suggestions on my part and waved me away whenever I approached him. I finally shrugged my shoulders and went back to the kitchen, where I spent the rest of the session hanging with the band.

Every once in a while one of the guys would show up in the kitchen with a real scared look and tell some horrific new tale of Mr. Ego's ill-fated journey into engineering. I wandered into the control room during mixdown and couldn't believe my ears. I had *never* heard something *sound so bad* coming out of my facility. This guy had EQ'ed all the guitars way off the scale! There was not one channel strip that did not have the EQ cranked all the way up in some fashion.

After the mixes were done, I informed the guy that I would prefer the studio's name not be included anywhere on the tape box, citing that it was "his project," not mine. But I felt so sorry for the rest of the band that I actually sat down after they left and remixed the entire project (four songs). I sent those mixes to the other guys in the band with instructions that this was on me and not to tell Mr. Ego. I received several grateful letters of thanks from California about a week later.

Needless to say, Mr. Ego did *not* get the record deal.

ASK EQ



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☒ 8 High Shelf 19872 Hz -21.7 dB 24.0

Having to master an MP3 is always problematic, but sometimes a sharp high-end cutoff, coupled with additional fixes to take care of other problems, can improve the sound.

I am not a professional mastering engineer, but have become pretty good at it over the years, and help my friends from time to time by doing their mastering. However, sometimes the only mix someone will have is an MP3 version, and for whatever reason, they can't go back to the original tracks and do a proper mix to WAV file. Sometimes they even give me a 128kbps MP3, which of course, would never be anyone's first choice for mastering!

I do the best I can but was wondering if you know any techniques that can help make better-sounding masters from MP3 format files.

Benjamin Mills, Lagos, Nigeria

***EQ*:** We've noticed this disturbing trend as well, where musicians convert directly to MP3 because they want to put their music on the web, and either don't keep—or don't even create in the first place—a high-resolution file without data compression.

Some MP3 files lend themselves to mastering better than others. Often, if the person thought that an MP3 would suffice as a master, then there are other "rookie errors" in the recording that mastering can't fix. But sometimes an MP3 was created from a quality recording that got lost over the years and is no longer available. In that case there's hope, especially if the MP3 was recorded at a higher bit rate.

Like any mastering, you need to consider each piece of music on a case-by-case basis. However, we've noticed that usually, the high frequencies have an annoying quality that "smells" of data compression. Often, applying a sharp high-cut filter somewhere between 10 and 20kHz will make the high end sound much sweeter. If this "dulls" the sound too much, a slight boost below the range where you've cut—for example, a dB or two at 5–8kHz or so—will give a brighter, shinier sound.

Another problem with some MP3s seems to be a muddy-sounding bass, although that can be the result of the recording or mixing. Adding a narrow peak and tuning it to the kick drum's fundamental can give more power in the low end, and drive the song a bit more. Good luck!

Ask EQ a technical audio-related question, and EQ will answer it. Send it to eqeditor@musicplayer.com.

EQ'S FACEBOOK JURY

Is it important to record the real-deal instrument, or is it possible to create a great-sounding album using samples and modeled soft-synths/plug-ins?

"Real deal. However, there is something to using some of that stuff as last resort. In my amateur world, I see a lot of drummers with poorly maintained kits. Sometimes replacement is good for the record. That's about it. I have yet to find samples of strings or horns that sound as good as the real deal. And amp simulators never stack up." **Scot Gallop**

"What sounds good, sounds good. I do not care if it is a real Hammond, Wurly, Moog or whatever. Now if we're talking about orchestral instruments, it depends: Real deal is better if you have a great musician, a superb instrument to record, awesome mics, a well-prepared room, etc. Otherwise, use the best sampled library and program those damned articulations good." **Gus Lozada**

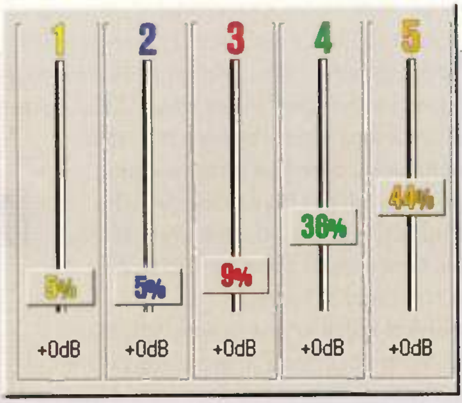
"Usually the real deal. But using software instruments, etc. can give you added flexibility that allows you to work a lot faster and often more comfortably (*e.g.*, laptop on couch vs. in big studio atmosphere), which is nice." **Matt Biggers**

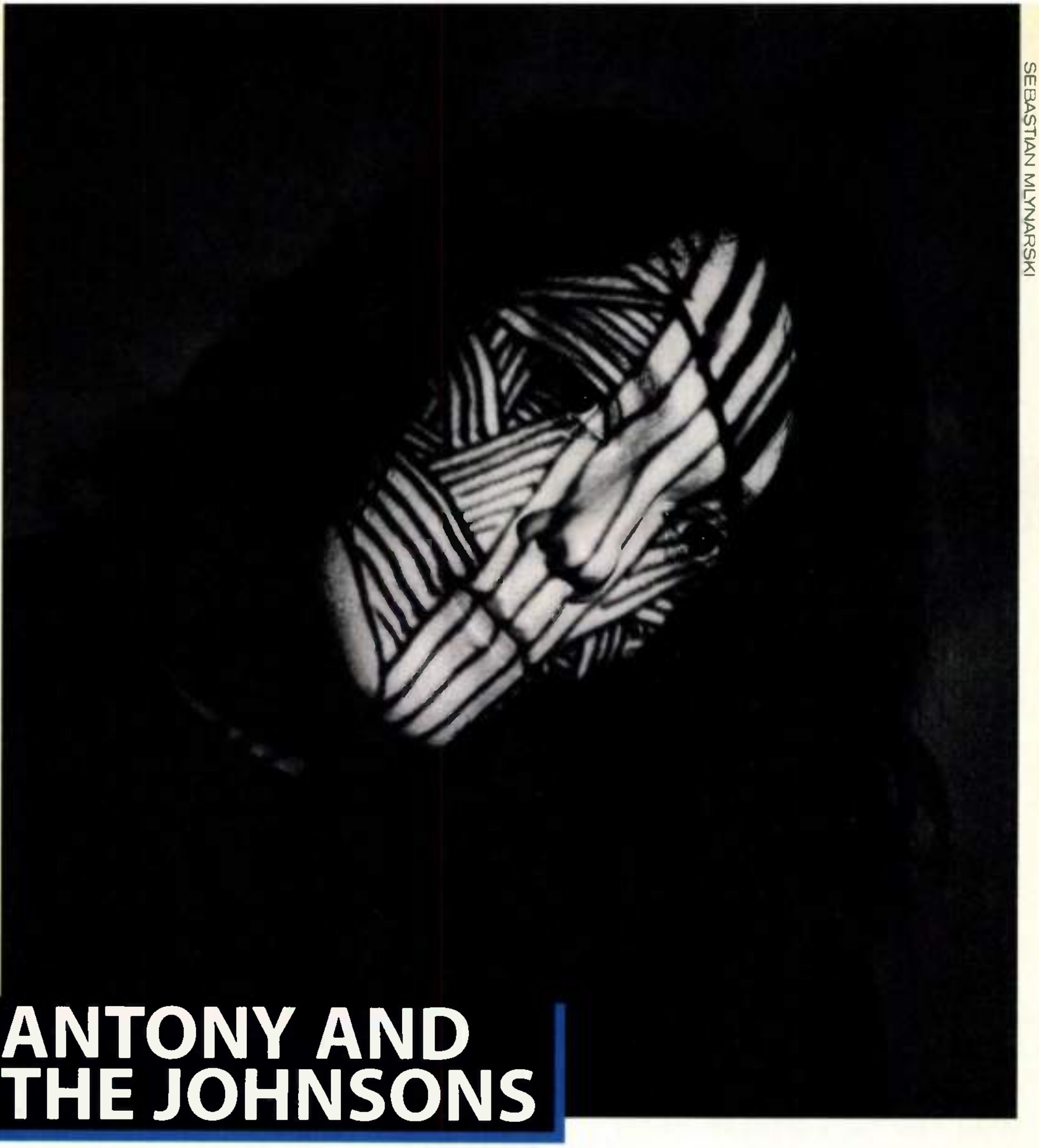
"There is nothing like the feel of your fingers on the keys or strings. It is the organic expression that turns me on. But, I am experimenting with sampled drums, strings, and guitar modeling software and I love it. Yet, for me, there always has to be something organic other than my voice at work in a song." **Derek Raven**

EQ POLL

What's Your Songwriting Process?

1. Writing ideas with a songwriting partner.
2. Assembling parts in a sampler/hard-disk recorder.
3. Jamming with a group of musicians.
4. Writing alone with one instrument and vocals.
5. Tracking layers of instruments in a DAW.




SEBASTIAN MLYNARSKI

ANTONY AND THE JOHNSONS

Comping Performances to Capture Fiery Vocals

Transforming from paper-thin whispers to an emotional tempest, Antony Hegarty's vocals are revelatory. A centerpiece of Antony and the Johnsons' intimate chamber pop, Hegarty's dynamic voice offers a challenge to engineers who want to capture his acrobatic range without clipping parts of the performance. The vocal sessions for the band's new album *Swanlights* took place independently from the instrumental tracks, over four months—giving engineer/producer Bryce Goggin, who has worked with the vocalist since 2003, ample time to craft complex voice parts from hundreds of takes.

Hegarty spent extensive time recording, often laying down long, improvised performances that were later cut up and re-assembled. Goggin estimates that for every one note that appears on the record, they recorded 35–40 ideas in his Trout Recording Studio in Brooklyn. With so much editing required to assemble the right vocal track, he decided to track straight to Pro Tools. "It's amazing compositing with him, because I can play back five passes and he recalls phrases from each one," says Goggin. "His recall is fantastic, and the objectivity he brings is incredible."

More Online

Watch the offical video for "Thank You for Your Love."

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Hegarty's flexible, dynamic voice presented a unique miking challenge, due to Hegarty's intense, quick-changing, near-operatic vocal style, and his method of listening to himself on headphones and reflexively altering vocal melodies to shape and color his performance. Goggin's standard setup included a Neumann (FET) SM69 microphone, set about two-and-a-half feet back, run through a Langevin AM 16 preamp and Neve 2254 compressors, which were robust enough to handle the extreme dynamic range that the singer put out. "One of my major concerns was his dynamic performance, so I needed a bulletproof mic," Goggin says.

Goggin bounced the Pro Tools tracks off his Studer A80 MKI 16-inch 2-track and ran them through an RCA BA-45 solid-state stereo limiter/compressor/preamp to add analog warmth and provide sonic consistency. "There's disparity in source on that record," he says, "so by sitting down and taking each track and putting it down to a 2-inch machine, I could effect each track dynamically and do quality control. When I run it through a tape machine, I'm already limited by [a 30 dB dynamic range]. Being forced to work in that limited dynamic range means I'm policing the dynamics while I'm bouncing to tape; I'm riding a fader to tape. It would be impossible for me to do that while I'm tracking him live, because he's so unpredictable."

"When you're deep in the micro, you sort of lose sight of the big picture sometimes, but I have to tip my hat to Antony," says Goggin. "He always keeps an objective overview of the arc, and all the revising helped the arc of the song." **Patrick Sisson**

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MATTHEW DEAR

Playing with Imperfections

WILL CALCUTT

Black City, the latest offering from Brooklyn-by-way-of-Detroit-and-Austin-based DJ/producer Matthew Dear, picks up where his previous CD, *Asa Breed*, left off. As the title implies, it's a dark affair, with production built on traditional song structures, Dear's vocals, and '80s synth-pop influences.

Dear created *Black City* in his home studio, using a roughly 60/40 split of digital and analog gear, including Korg Poly 6 and MS-20 synths, effects such as the Roland Chorus Echo RE-501 (it adds great warmth to the tracks, he says) and Eventide H8000, and Ohmforce, Audio Damage, PSP Audioware, and Native Instruments Komplete 6 plug-ins. Sampling played a big role in production; Dear often traveled around looking for new and unique sounds, which he captured using Native Instruments' Kontakt sampler. "I like to take a little recorder and set it up in a hotel room while hanging with friends on tour, or sometimes I'll record in the subways here in New York City," Dear explains. "Some sounds that made it on to the CD include my dog snoring and my wife crunching on tortilla chips; on the track 'I Can't Feel,' there's a weird breakdown where there's one loud crunch," he says, laughing. "The Kontakt sampler is a beast, and you can always get so many sounds out of it; especially atonal instrument sounds. Sometimes I'll use my own voice and build instruments right off of it, and I always rely on happy accidents for sounds that I don't plan."

Although *Black City* leans heavily on Dear's vocals, he admits to not being able to sing very well and he relies on a series of processes and quality microphones (Coles 4038 stereo matched pair and a Korby KAT67) to make his voice work in the context of the record: "I've been under the impression that you can work with your imperfections and create a unique sound personalized to you," says Dear. "What I come up with lyrically is rhythmic, and I like to sing within the music rather than on top of it, as it's like an instrument in itself. Then, I make my voice sound good by using spatial effects and a bit of panning with overdubs. I do three takes: low baritone, middle, and falsetto which sound bad but I sweeten them up with equalization and reverbs. I think you need to find a sweet spot within your own voice by experimenting hours and hours on end," he says. "Phil Collins is a good example of someone who defined his sound with effects. He's not the most gifted vocalist, but he's recognizable with that short delay which gives a choral, synthetic effect." **Justin Kleinfeld**

> "I've been under the impression that you can work with your imperfections."
>
> —Matthew Dear

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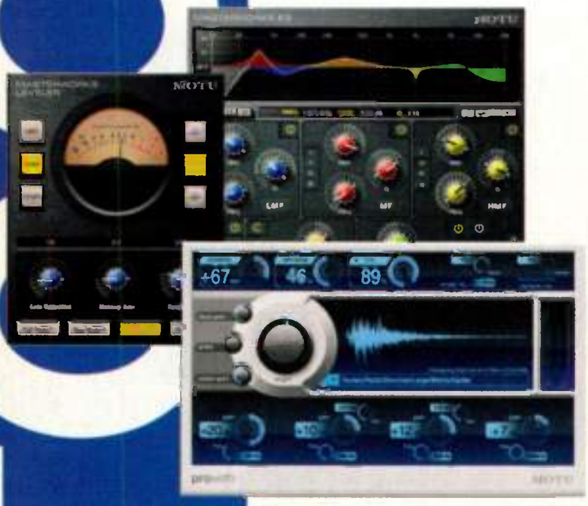

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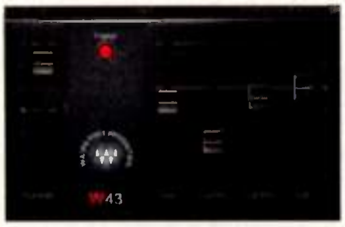

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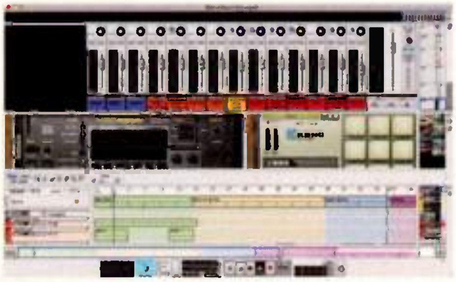

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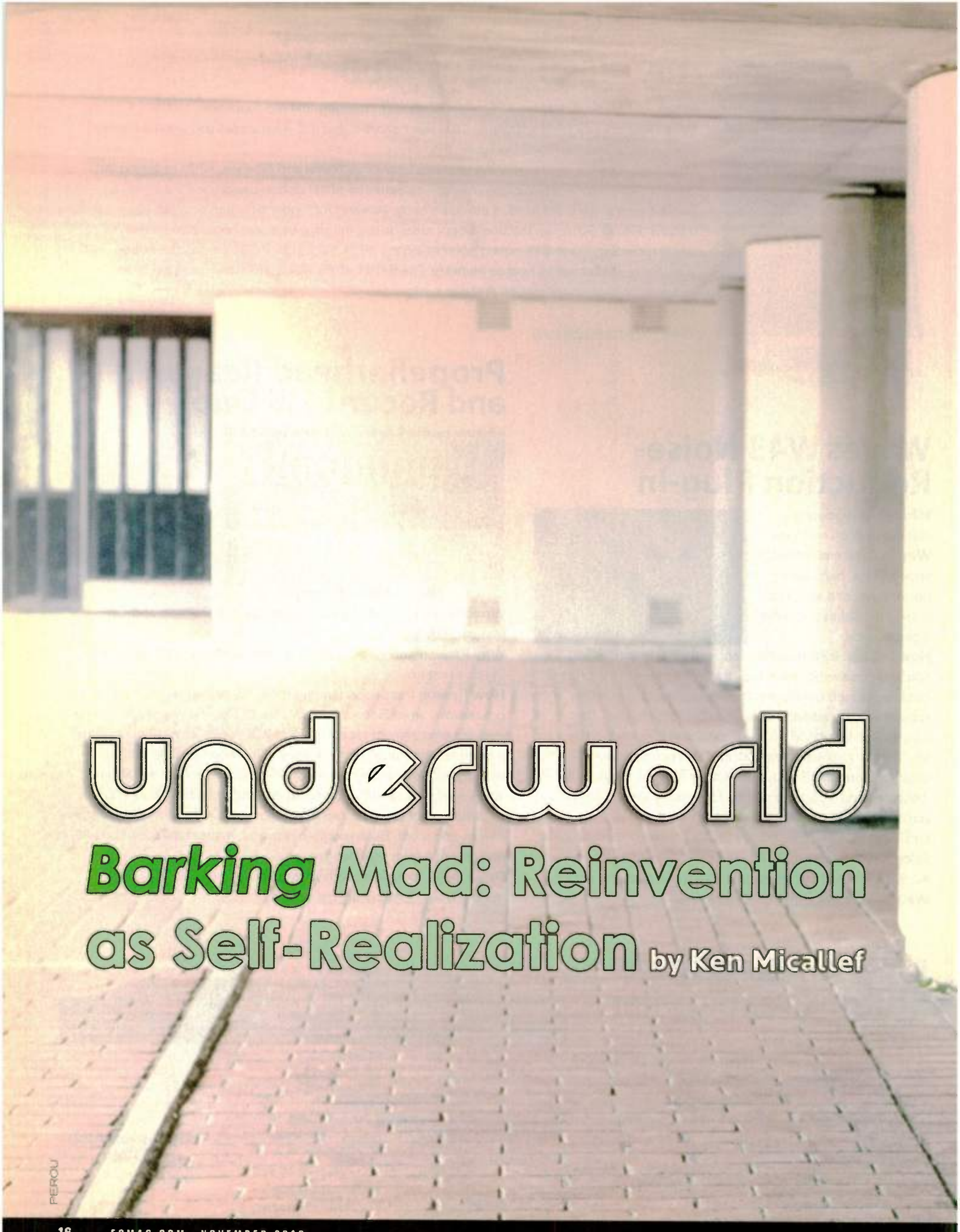

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Underworld

Barking Mad: Reinvention as Self-Realization

by Ken Micallef

Underworld–Rick Smith (left) and Karl Hyde.

When Underworld's Rick Smith and Karl Hyde realized time (and perhaps life, at least as recording artists) was passing them by, they knew that drastic measures were required. Appraising their own catalog, from 1993's *Dubnobasswithmyheadman* to 2007's *Oblivion with Bells*, Underworld wondered if they still had the goods intact, much less any goods to deliver.

"Sometime in 2009, I started listening to German electronic music again, especially La Dusseldorf," Karl Hyde recalls while driving the Autobahn between Berlin and Leipzig. "That music blew me away again. This is why we like synthesizers! That German sound was chemical, alchemic. Machine music was an animal; it was just a strange animal. I started to fuse those ideas together with a rediscovery of the enjoyment of melody. Then I wondered, 'Is this allowed in Underworld?' We needed to change things radically. We wanted to redefine what was okay in the Underworld sound of palettes and instruments."

What Underworld needed was a youthful shot of adrenaline, which they eventually injected into their 10th album, *Barking* (OM Records). Calling on the best dance producers in Europe and the U.K.—High Contrast, Dubfire, Mark Knight, Dean Ramirez, Appleblim, Al Tourettes and Paul van Dyk—Underworld realized that reinvention was just a matter of letting down their guard and opening up Logic.

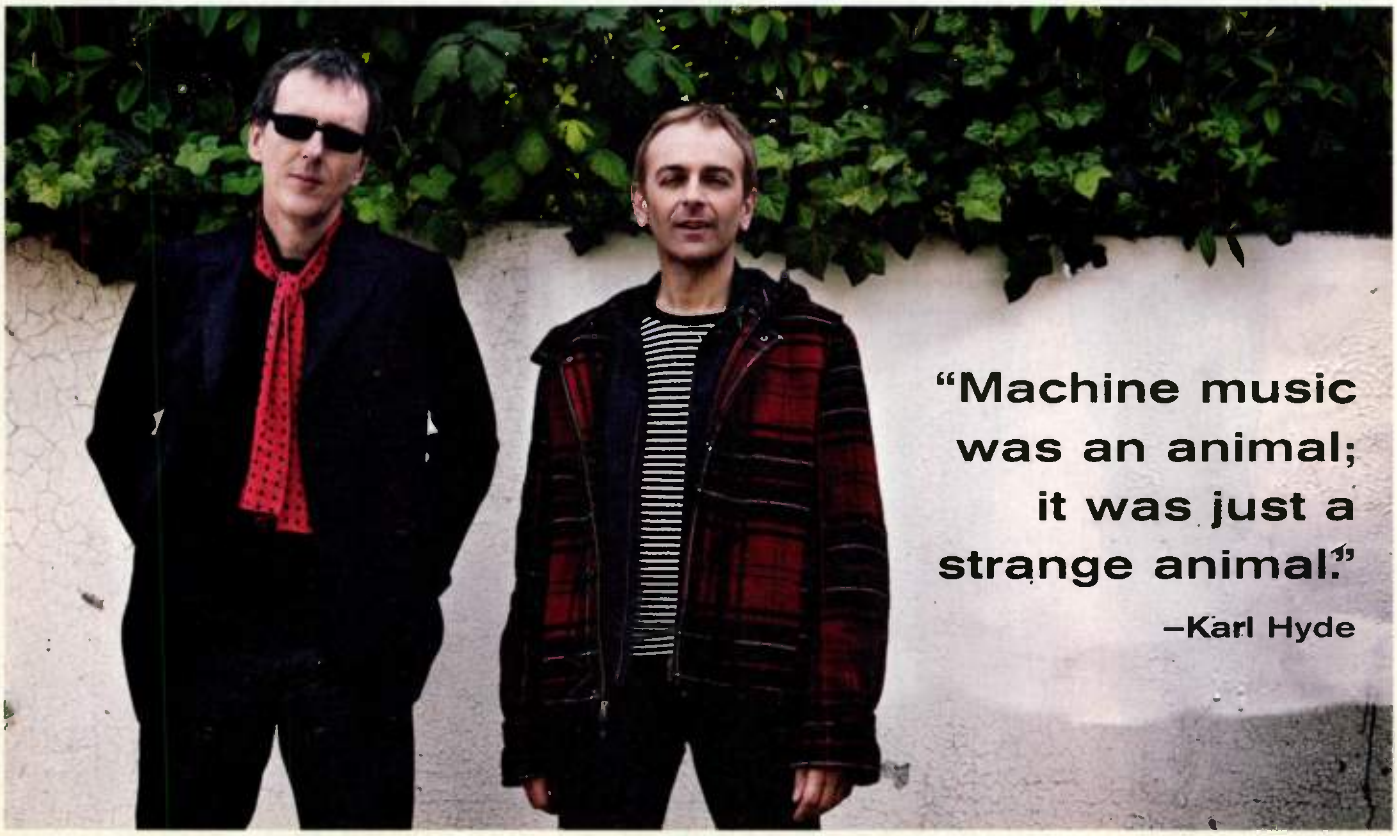
"Collaborating with different producers came about as a result of 20 years of being inspired by remixes of our music and wanting to enter into a musical dialog with the remixers," Hyde continues. "But it was always after the album. We've frequently benefitted from dialog with other musicians, but Underworld has typically been a closed shop."

Tamla Motown Machine Music

Underworld are old-worlders, when you get down to it; Hyde, raised on Tamla Motown and power pop, Smith on New Wave and Kraftwerk. It wasn't until they discovered DJ Darren Emerson that Underworld truly ignited, with Emerson adding acid house and dub excursion beats to the Hyde/Smith melodic brain trust. Underworld's *Barking* isn't as radical a departure as *Dubnobasswithmyheadman*; that was a first salvo in the so-called electronic revolution of the early '90s, of which Underworld were founding members. *Barking* shows reinvention, reinvigoration, and a rethink of what made Underworld great to begin with.

"Our last album didn't give us material for the live show," Hyde admits. "Our set was starting to sound pretty old. It didn't lift our spirits. It was time to move on."

Barking is easily the duo's best album in a decade, perhaps the best since the mid-'90s classics *Dubnobasswithmyheadman* and *Second Toughest in the Infants* and the singles "Born



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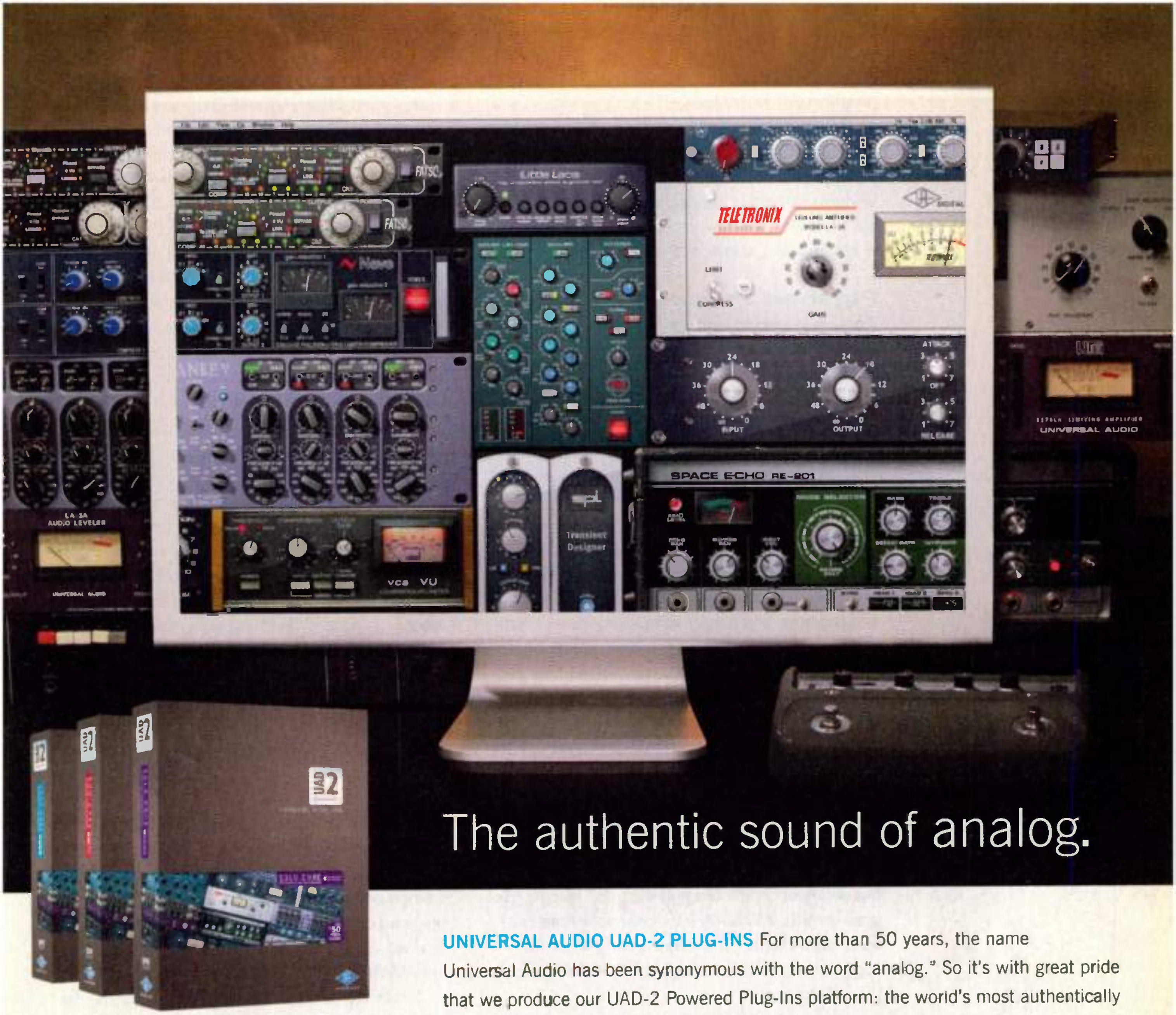
"Machine music was an animal; it was just a strange animal."
—Karl Hyde



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Slippy" (from the 1996 soundtrack, *Trainspotting*), "Pearl's Girl," and "Moaner."

How did Underworld find new fulfillment where previously there was none? Like the Roland VP-330 vocoder they've used since the late '80s, Underworld simply needed a retrofit. Cue the roll call of collaborators who shook up Underworld's world. But first, a look at the Pigshed process.

Pigshed Process

Tracking in Underworld's three studios in Essex, England—the communal Pigshed, and Hyde and Smith's respective studios—they began writing with guitars, synths, various drum machines, and vocals. Identical setups of Apple Mac Pro 8-Core Intel Xeon computers, Apple Logic Studio (versions 7, 8, and 9), Midas Heritage 1000 consoles, and assorted plug-ins were replicated at each studio.

"We used every possible means of making a track," Rick Smith reports while "squatting on a concrete block outside the tour bus" in Salzburg, Germany. "From playing live, to playing individually and together, and sequencing. Sometimes I worked with just a trackpad on a Mac PowerBook because I was on a plane. I love electronics, and how you can manipulate real sounds. Live takes with real instruments are particularly intriguing because of what's available to manipulate digital audio."

While recording, Smith used the Midas console as a summing amplifier, bringing up the audio through three RME interfaces, and 24 channels of stems. A month before they were ready to finish the album, they set up an identical computer system at mix engineer Simon Gogerly's studio, Hub II. "He uses an SSL AWS900+ 24 channel hybrid console," says Smith. "The mixes were printed from Logic through RME through the SSL to Pro Tools [7.4 HD2 Accel]."

Underworld relied on both software and hardware synthesizers. Soft-horses included Logic ES2; GForce ImpOSCar, ImpOSCar2, String Machine, and Oddity; Sonic Charge's Synplant; Synthogy Ivory (piano); Rob Papen BLUE; and Native Instruments' Battery 3, FM8, Reaktor 5, and Massive. Hardware synths Clavia Nord Lead 1 and 2, Moog Minimoog, and Yamaha DX7 MK1 still reign at the Pigshed.

"Logic ES2 is all over the record," Smith says. "I love the GForce soft synths, too—particularly String Machine, which is a glorious modeling of dozens of ancient string machines. String Machine was particularly lovely and multiplied on 'Always Loved a Film.' The producers of that track, Dean Ramirez and Mark Knight, added analog Moog Voyager, which was significant to the bass midrange pulse; that was mixed in with String Machine playing the vamping chordal thing. Dean did what he called 'an homage to Rick' at the end of 'Always Loved a Film'—a bell sequence. That was amusing and nice."

The Roland VP-330 vocoder is Underworld's longest-running usable piece. They just can't shake the hardware addiction. "I always play the vocoder in by hand, either as a live part or working bar by bar, mostly for vocals," Smith explains. "It works particularly well with Karl's voice, either as something really subtle that just involves tracking his voice in a particular way, or to draw the melody out of the note he's singing, or to use as a kind of mad harmony.

"Bass-wise," Smith continues, "I used the ES2 in combination with [Spectrasonics] Trilogy. One of my favorite hardware synths is the Yamaha DX7 MKI. People think it's 'cause I like bell tones. But actually, it's the organ principle behind the DX7 that appeals to me—the idea of layering sine waves in particular tunings and harmonic clusters. I'm a still fan of breaking down something into components that are sine waves in a sense, and thinking 'What do I need here? Which octave and in what quantity?'"

Smith favors Logic's default plug-ins ("They're cheap and not so processor hungry!" he exclaims), and also uses Waves' Gold Bundle, but he's hard-pressed to explain Underworld's groove machinery. "It's difficult to name a main drum machine," Smith says. "The sounds come in from [iZotope] iDrum, [FXpansion] Guru, Logic's Ultrabeat and ESX24 sampler, and Drumazon, which is this TR-909 modeled plug-in from D16 Group. I use all of that, really, with some Addictive Drums, a live drum plug-in."

Dubnovocalwithmyheadman

After instrumentation, the most important element in any Underworld track is Karl Hyde's unique vocals. More narrator than singer, Hyde's a commentator, not a frontman.

"Unlike in the '80s, when the singer stood in front of the bass and the drums, I envision Underworld as the bass and drums out front and

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Simon Gogerly: Mixing *Barking*

Gogerly in Hub II.

Grammy Award-winning mix engineer Simon Gogerly has worked with U2, Gwen Stefani, N.E.R.D., Massive Attack, Tracey Thorn, and New Order, among many other artists. Calling his Hub II studio home, Gogerly says, "Rick Smith was very keen to have the all tracks in progress at the same time, which was an unusual approach."

Underworld weren't looking for uniformity across the tracks, Gogerly explains, but to maintain similar levels of quality and detail. "We did want consistency in areas of bass lines and bass drums," Gogerly says. "We would have to be careful about making sure that we didn't have a track where one bass drum was much more subby than one on another track. So I used highpass filters and basic EQ plug-ins to make sure we had a certain consistency. Quite often, we would split up bass sounds into different frequencies, and generate sub-bass to add to an existing bass frequency with MIDI or the Moogerfooger lowpass plug-in (Bomb Factory Moogerfooger Bundle).

"We used Microphaser in Logic on Karl's vocals quite a bit," he continues. "It gives vocals a really nice stereo quality. It helped widen the vocals and add movement. It seemed to compliment what Rick did with the vocoder, as well. In general, I try to have movement in the stereo field. I keep drums static: maybe a little panning on the hi-hats and percussion, but kicks and snares are up the middle. Little details, sequencers, effects, they would most of the time be moving to take you somewhere else."

Gogerly created an illusion of space in what he calls Underworld's "epic tracks," judiciously using reverbs and EQ to balance the mix. "We used Logic Space Designer quite a lot for reverb," Gogerly says. "I used impulse responses from the Bricasti M7 [reverb] and imported those into Space Designer. I love the sound of the Bricasti; the impulse responses for it sound 99 percent like a proper Bricasti. That meant I could use a lot of the presets and types of reverbs that I use when I normally mix. That was particularly beneficial for this record because there's a lot of use of generated space in it. I've used Lexicons for many years, but when I heard the Bricasti, it sounded open and clear and natural. It's one of the best reverbs that I've heard."

"We've frequently benefitted from dialog with other musicians."

—Karl Hyde

the singer in the back," Hyde says. "It's the singer's job to support the rhythm section. And to listen to the rhythm section as one would a film director to figure out where are the spaces that I can use to enhance the rhythm and what is the rhythm telling me to do."

A careful musician, Hyde loves a challenge. A former session guitarist, he enjoys meeting a producer's expectations. Hyde's vocal approach for "Louisiana," the lone track on the album that didn't involve an outside producer, evolved over 36 months. "The vocal in the first verse and first chorus of 'Louisiana' are original recordings from three years ago; the job for me was to match the vocals in the second verse and chorus. That meant not only using the same microphone but also the same mic position, the same attitude in my head, the same lip shapes," he says. "I worked out that I sat down, kind of slightly hunched forward. Then I sang. It took weeks of sending takes back and forth to Rick. And finally, there was something wrong in the sound. I realized I was singing across the mic, not *at* the mic. I originally recorded it in a much smaller space, where there wasn't enough room for me to sing at the mic. In general, there were lots of demands made on our musicianship—a fascinating project in that respect."

Smith supplies microphone and preamp details: "We used a Neumann TLM170 for Karl, quite an old one. In terms of a mic pre, Karl used an Apogee Mini Me at his home studio. In my studio, it was the Midas console preamp, or possibly a Focusrite ISA 430 MkII Producer Pack. We use that at the Pigshed, or a gain just going directly into the Midas console and the internal preamps and EQs. That creates a beautiful analog circuit.

"The Neumann is a good fit with Karl's voice," Smith continues. "Often you're making a choice in what to pursue at what time. There are times to be experimenting with mic technique and placement, and there are times to just get a great vocal down as quickly as possible." "The Neumann allows me through," Hyde adds. "It's more transparent to my voice. When I listen to the results of the recording, the Neumann sounds like what was coming out of my mouth during the session. It captures the resonant cavities of my body and my bones vibrating. It captures the breath."

EQ and compression were applied by one of three rusting vocoders, and various plug-ins. "The single biggest effect on Karl's vocal is the VP-330 vocoder," Smith says. "Roland also makes a V-Synth, a rack-mounted emulation of various vocoders, and it's beautiful. But it doesn't do what the old VP-330 does. Also, there's an effect in Logic called Scanner Vibrato, a modulation effect. It's a fairly drastic effect . . . it almost introduces a constant vibrato.

"In terms of compression," he continues, "Eiosis' E^{2}Deesser is one of the very few software de-essers that actually does the trick. Beyond that, it would be anything: Waves Renaissance, or default Logic channel plug-ins. My engineering skills only go so far, which is not a bad thing. When I hit a sound that I feel is happening, then that tends to stick. If there is tweaking needed beyond that, it's not

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always tweaking the plug-ins or the settings—it might be the addition of another set of stuff to deal with the sound that already exists."

Once the tracks were completed, the co-producers (enlisted with the help of executive producer Steven Hall) received the songs via email, and the party started all over again.

"The collaborations were largely done on the Internet," Smith says. "That was fantastic: You send your thing off, you get something back. But in terms of deadlines and keeping communication moving quickly, it was difficult. The different sequencer formats, or even if one of the producers was using Logic, as we do, there would be issues of plug-in compatibility. It was an unbelievable amount of work, really, trying to reconstruct and rebuild tracks, and keeping the quality, trying not to just reduce and go down in generations. It involved email, chatting on the phone, and often just bouncing their ideas off sections of a particular synth or plug-in."

The Breakdown: Smith Vs. Ramirez

Producers Dean Ramirez and Mark Knight collaborated on two tracks: "Always Loved a Film" and "Between Stars." Ramirez spoke from his Creator Studio in Sheffield, England.

"Mark Knight and I thought the basic tracks needed more contemporary drums, synth work, more drama, etc.," he says. "The work was done but the production wasn't there." Working with Logic on a Mac Pro 8-Core and an SSL G Series desk, Ramirez constructed new bass and drum parts, rearranged vocals, and introduced a breakdown section and a new outtro with numerous software and hardware effects.

"The bass sounds came from the Moog Voyager; Nord Lead 3, which is the more MIDI, detuned sound; and Spectrasonics Trilian," Ramirez confirms. "The actual chords came from three different synths: One is the Circle (Future Audio Workshop), another is GForce's VSM. One of the main plug-ins I like is SoundToys Decapitator. I have a Thermionic Culture Vulture, too—it's a valve distortion compressor that fattens up the sound no matter how hard you drive it. The Decapitator is a plug-in version of that. I ran everything through the Decapitator to fatten it up and make it warmer sounding. That's the problem with digital synths and plug-ins; they can sound sterile."

Ramirez replaced Underworld's drums with sounds from his own sample library ("We liked Underworld's TR-909 sounds, but they sounded 10 to 15 years too late") and created a breakdown using a hidden guitar part. "The breakdown didn't exist initially, their arrangement was quite linear," Ramirez recalls. "We wanted to keep that big, euphoric moment, so we stripped it down to Karl's guitar, which was originally buried very low in the mix just as a thickening element. We really liked it, so we made the guitar into the main breakdown element. There was a middle eight-vocal bit, we put that over the breakdown. And Rick hated that bit! He was really against it. We had to fight with him to put it in. After a few months, he admitted he liked it."

Born Slippy, Born Again

"Born Slippy," the 1996 dance anthem used as a soundtrack to the misdeeds of four Scottish lads in *Trainspotting*, introduced not only Underworld, but a new sound: ethereal, layered synths; lashing, deeply booming beats; and weird, cut-up vocals reminiscent of a military commander shouting orders in his sleep. Fourteen years later, Underworld can fondly remember the past, assured they still have a future.

"I do see *Barking* as a reinvention," Karl Hyde states. "It's a redefining of the group. At the end of our last tour, we were playing an old set and it was sounding very tired. It felt wrong; it didn't feel like a group being true to itself. It was time to move on. Now we walk out onstage and it feels like I'm in an exciting, vibrant group that I would've dreamed I could be in. And what's better, it's with the same people." EQ

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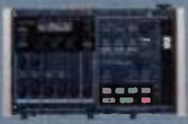

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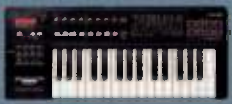

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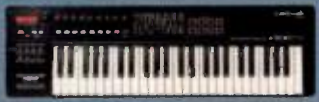

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COMING OF AGE

On *Flamingo*, The Killers' frontman Brandon Flowers finds his inner troubadour with the help of producers Daniel Lanois, Brendan O'Brien, and Stuart Price

by Bill Murphy

About 250 miles north of Las Vegas, U.S. Highway 50, nicknamed "The Loneliest Road in America," winds its way across the desolate landscape of central Nevada like an ornery old rattlesnake of dust and asphalt. It's the typical lonesome highway, conjuring up near-mythical images of the American wilderness–images that have inspired music from the likes of Bob Dylan, Tom Petty, and Johnny Cash, to name a few.

"This album feels like the place where I'm from," says Vegas native Brandon Flowers, describing the rootsy alt-country rock sound he had in mind for many of the songs on *Flamingo* (Island), his first solo effort apart from The Killers. When the band decided to take a break after more than a year on tour supporting their 2008 dance-rock slab *Day & Age*, Flowers saw an opening to start tracking his own material.

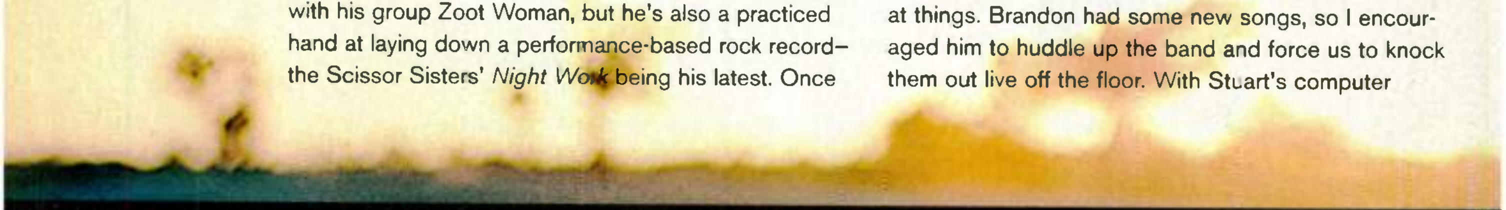
"I've tried to do this kind of music with The Killers," he explains, "but sometimes it's difficult when you've got four different people coming from four different places. That 'dusty roads' sound is something I've always admired about some of my favorite albums, and I had a pretty clear vision of how I wanted to get it."

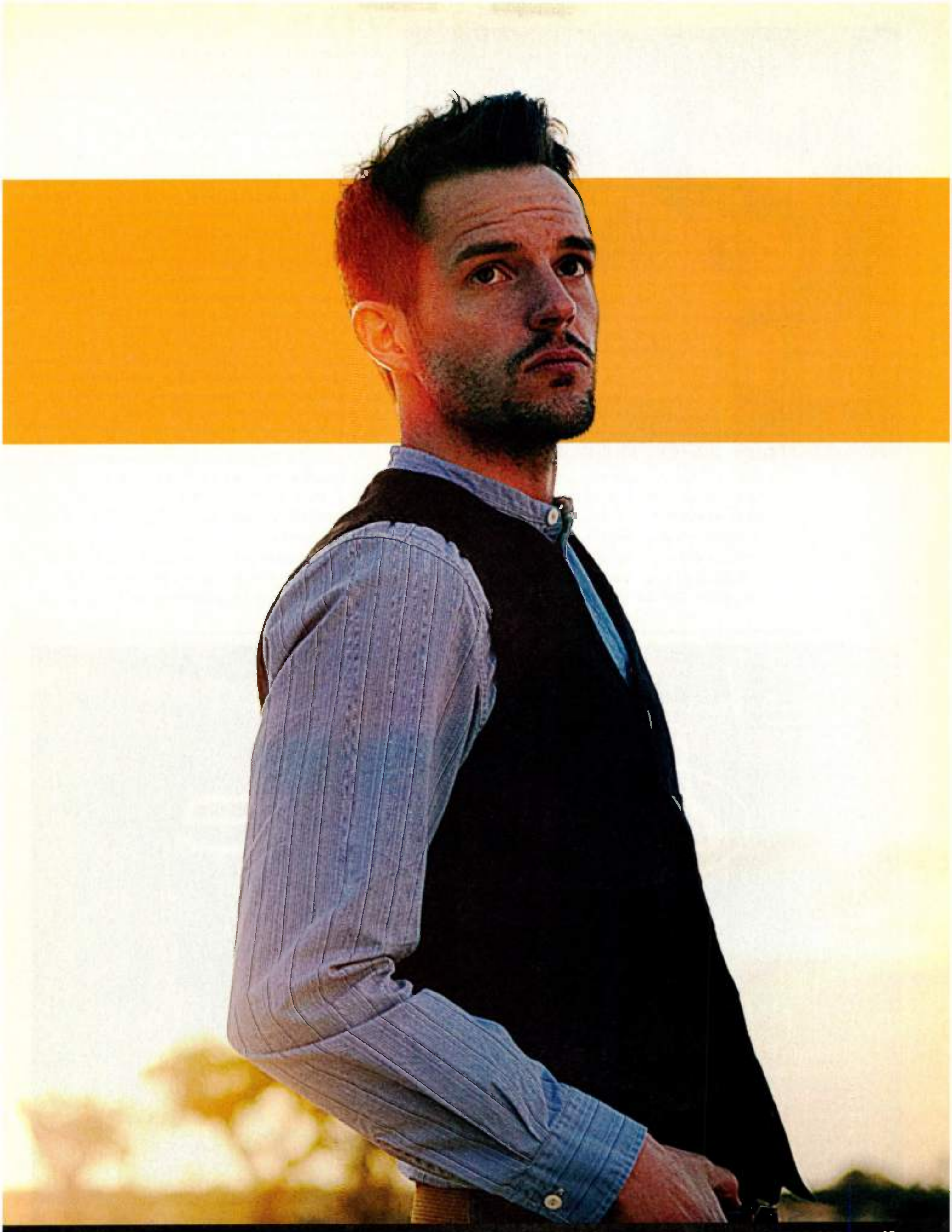
The picture came into focus with Stuart Price, who worked with The Killers on *Day & Age*. Price might be more well-known for his electropop forays, particularly with his group Zoot Woman, but he's also a practiced hand at laying down a performance-based rock record–the Scissor Sisters' *Night Work* being his latest. Once he and Flowers settled in behind the API 1608 console (outfitted with Apple Logic Pro 9) at The Killers' Battle Born Studios in Vegas, the ideas started flowing.

"At first I didn't realize the steps that I was taking away from synth and pop music," Flowers recalls. "I was already knee-deep in the album with Stuart when I thought it would be great to bring somebody in who had already been down the road I was traveling. Daniel Lanois came to mind because I knew he likes organic roots music, but he's obviously not afraid of synthesizers and experimentation."

Intrigued by the invitation, Lanois loaded up his car in L.A. with his Sho-Bud LDG pedal steel guitar, a Suzuki Omnichord, a Korg SDD-3000 digital delay, an AMS Harmonizer, a vintage Moog Taurus 1 bass pedal synth, and a smattering of guitars and gadgets. As soon as he arrived at Battle Born, he set up the Sho-Bud and a Gibson Les Paul guitar, plugged into a Vox AC30 amp and started jamming–with Price on bass, ex-Ambulance LTD members Benji Lysaght on guitar and Darren Beckett on drums, and Flowers on synths (primarily a Nord Lead 2 and a Juno-G).

"They actually already had a record," Lanois says, "but sometimes when you've been in the trenches for a while, a new face can wake up another way of looking at things. Brandon had some new songs, so I encouraged him to huddle up the band and force us to knock them out live off the floor. With Stuart's computer





skills—I mean, you just pour yourself a coffee and suddenly he's got a track together—and with my more renegade approach, I think we ended up with a nice blend."

Lanois' guitar atmospherics and richly textured electronic treatments—a signature sound that he has brought, both as producer and musician, to classic albums by U2, Brian Eno, and Bob Dylan—fuel the dusky heart of *Flamingo*, especially on the spooky desert rocker "Playing With Fire." Opening with cascading synth and guitar washes and a quietly plucked slide figure on pedal steel, the song settles into a midnight groove, with Flowers singing the verses (using only a Shure Beta 58) in his lower register, and the chorus in a Roy Orbison-channeling falsetto.

"I can't claim the Beta 58 is the ultimate mic," Price jokes, "but it has a great character when Brandon wants to bite a line; the cupping happens naturally for emphasis. The chain we usually have is straight into the API with no EQ, with a Purple Audio 1176 500 Series compressor on him—low ratio, high input, fast release. It's easily pulling 12 to 16dB of gain reduction."

Lanois is credited with the song's "dub sonics"—a process he says has taken 20 years to get right. "Basically I'll take any available ingredient, extract it, process it, and then surgically stick it back into the song," he explains, referring to the swirling intro section. "It might just be a split second of guitar that I sample with the SDD-3000 or the AMS Harmonizer, and then I might add an echo or put it through a distortion box and then back into the amp. But you have to be *musical* with it; it has to make harmonic sense when you put it all back together."

Price elaborates further. "We'd send a guitar or an organ—anything, really—out of a Logic aux to the Korg or the AMS. The goal is to make the sound unrecognizable,

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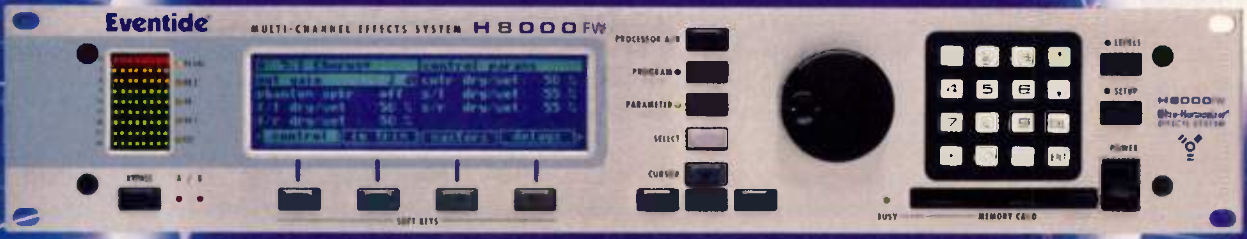

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WRH

so the choice is less relevant. This send would go to Dan's rig; then we'd do a few passes back into Logic and go through it to find the magic."

Flamingo is rife with effects processing, but never to the point where it trumps the album's organic feel. On the upbeat "Jilted Lovers & Broken Hearts"—one of just two songs mixed on the API desk—Flowers' vocal cycles through a modulating effects stream that originates with an AMS DMX 15-80S, with brief swims through a Roland RE-201 for further delay and Logic's Platinum Verb plug-in for reverb. "Overall, it's close to a resonator-type effect that subtly changes throughout the song," Price notes. "It brings out harmonics in Brandon's voice to give you a sense that it's evolving."

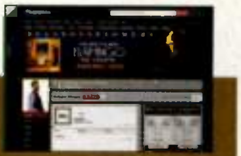
After three weeks of recording, Flowers still had one more card to play. "Stuart was back in England and Daniel was working with Neil Young," he recalls, "so at the time I thought I might as well shoot for the stars and try Brendan O'Brien." The legendary rock producer rarely takes on a project that isn't his from the ground up, but when he heard an early demo of "Crossfire," the stirring anthem that eventually became *Flamingo*'s first single, he was hooked. "He told me it could be a great song if I changed the way I sang the chorus," Flowers says. "We ended up making it a bit more bombastic and recorded it right away."

Price mixed the bulk of *Flamingo* on his SSL G-Series desk back in London, relying on Logic for automation and riding the faders only on vocals. ("The red light does wonders for vocal perception!" he quips.) To say that Flowers was pleased with the results is putting it mildly; from the Springsteen-like inflections of "Hard Enough" (with backing vocals by Rilo Kiley's Jenny Lewis) to the gospel stirrings of "On The Floor," this is the grown-up rock album that he set out to make.

"I think what's great about a lot of these songs is that you hear five guys in a room, and we're not playing to a click," he says. "We're just hammering it out. To me, it sounds like five guys that have been through something. That's one of the first things I really recognized. There's a serious and even holy feeling that you can get out of making music this way, and I want to hold on to that." **eq**

More Online

Daniel Lanois talks about songwriting and production.



Hear "Crossfire" and read Brandon Flowers' newsletter.

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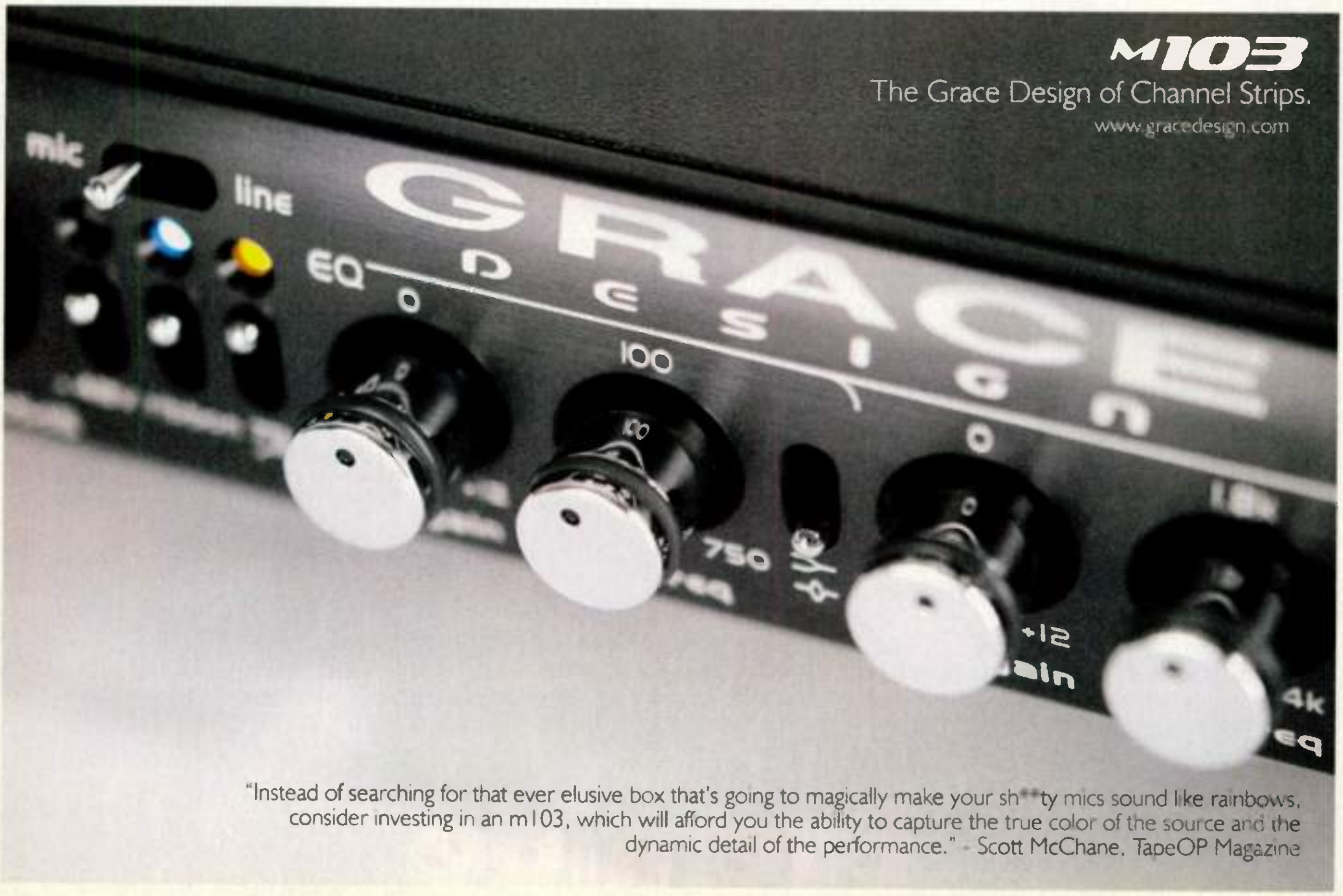

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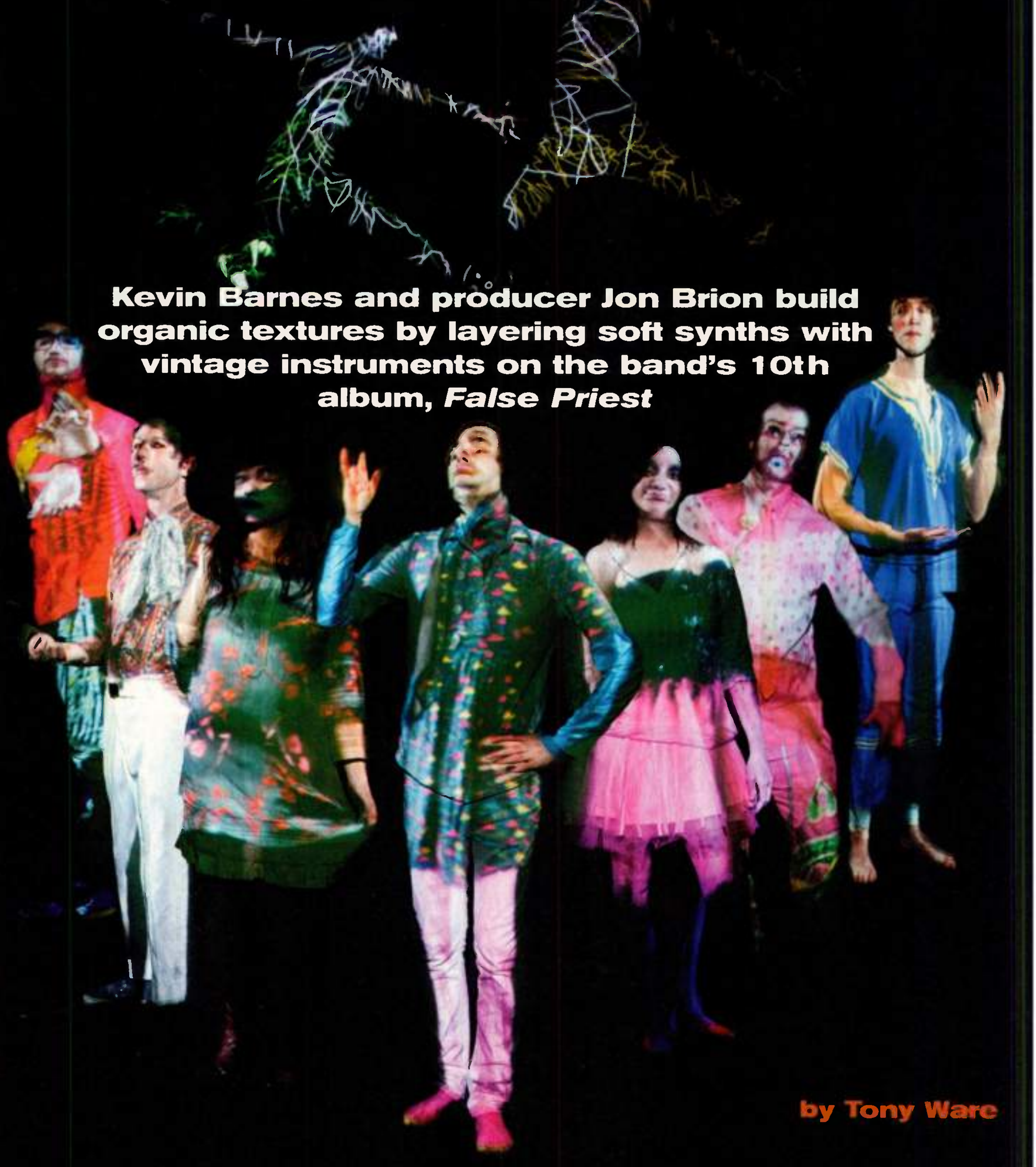

Kevin Barnes and producer Jon Brion build organic textures by layering soft synths with vintage instruments on the band's 10th album, *False Priest*

by Tony Ware

PATRICK HEAGNEY

PATRICK HEAGNEY

of Montreal (top, left to right)–Nicolas Dobbratz, Thayer Sarrano, Matt Wheeler, Dan Korn, Paul Nunn, Nick Gould, Clayton Rychlik, and Jerrod Porter. Seated–Bryan Poole and Kevin Barnes. Front–Michael Wheeler, Davey Pierce, Dottie Alexander, and Nikki Martin.

On stage, Athens, GA-based octet of Montreal is a kaleidoscopic menagerie, a polymorphous vaudeville performance set to an avant ADD electro-disco-glam-funk beat. In the studio, of Montreal is historically the project of songwriter Kevin Barnes, a Beatles enthusiast who has indulged some inner *Camille*-era Prince through a series of psychosexual lysergic mood shifts. Like Os Mutantes, Eno-era David Bowie, Sly Stone and P-Funk cavorting around in Todd Rundgren's I/Os, Barnes' songs exhibit prog-sleaze and rhythmic moxie.

Recording since 1997, Barnes transitioned his influences from the straightforward, prismatic retro-pop of bands like The Kinks to a far more coltish, just-plain-kinky R&B synth-pop. Along the way, he progressed from old-school, 8-track, 1/4-inch tape-based recording to programming synths and mixing "in the box" in Apple Logic. Now, with *False Priest*, of Montreal's 10th album, Barnes collaborated with producer Jon Brion on a hybrid production approach that resulted in the most accessible and most theatrical of Montreal work to date.

Sessions for *False Priest*, like those of the past four of Montreal albums, began in Barnes' Apollinaire Rave home studio in Athens. Barnes recorded the majority of the album parts as he composed them: "I ran pretty much everything through Logic Pro 9.1.1, an Apogee Rosetta 800 A/D interface, an Apogee Big Ben master clock, a Tube-Tech MP 1A two-channel tube mic preamp, a Tube-Tech CL 1B compressor, a Lawson L251 tube mic, and a Toft Audio ATB24 mixing console," Barnes recounts of the preliminary recordings. "For the most part, I only use one channel and just build things up an instrument at a time."

Despite having a wealth of multi-instrumentalists in his live ensemble, Barnes has been programming drums and soft synths since 2004's *Satanic Panic in the Attic*. Initially, he worked in Propellerheads Reason

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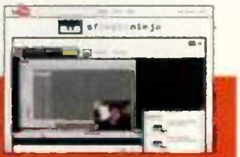
Interview extras: arranging strings, mastering.



The SFLogicNinja's YouTube channel.

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> "I feel [Logic isn't] built for an engineer; it's built for people who write." —Greg Koller

slaved to Steinberg's Cubase, but around 2007 Barnes abandoned both and made the move to Logic to facilitate making his own percussion maps and sampler instruments (augmented by a drum library from Atlanta-based Ben H. Allen, engineer for Gnarls Barkley, among other projects). While Barnes praises Logic's EXS24 sampler, Ultrabeat drum synthesizer, and Delay Designer and Space Designer effects, he especially appreciates Logic's composition features such as drag-and-drop patterns and arrangements, as well as efficient workflow features such as the marquee tools. (A crash course in integrating Logic's editing shortcuts would become a theme for *False Priest*; Barnes credits the SFLogicNinja's YouTube channel as invaluable for shortening his learning curve.)

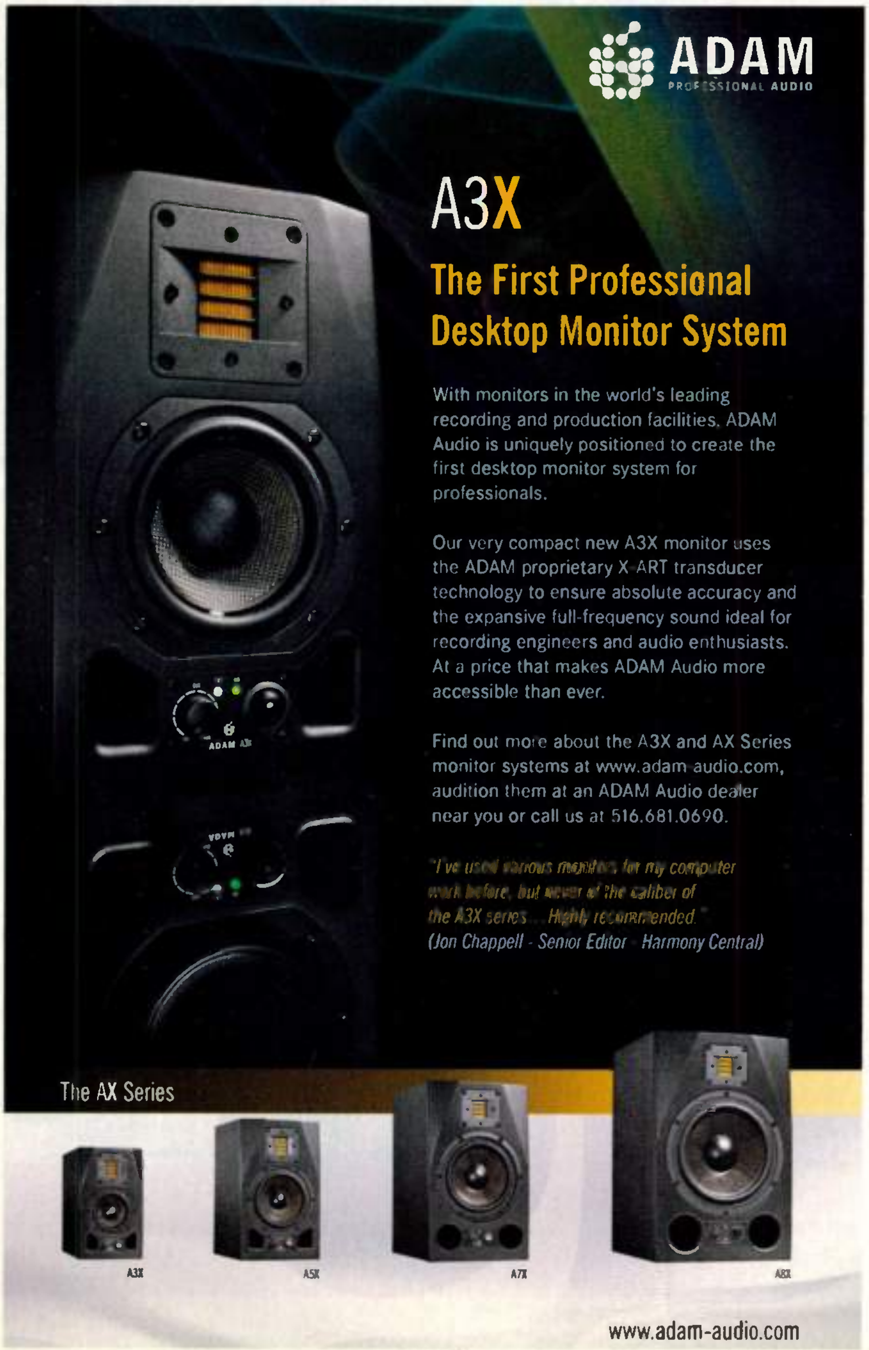
When he played a show with songwriter/producer Jon Brion (Fiona Apple, Kanye West, Spoon), Brion asked to hear some tracks, and then suggested Barnes come out to Los Angeles for a few weeks to use his vintage gear trove to supplement virtually modeled instruments.

The pair convened in Studio B at Ocean Way Recording in Hollywood. Brion, engineer Greg Koller, and crew are Pro Tools-based, and making mix stems to swap from Logic was proving too time-consuming and sound-compromising, so Apogee provided a Symphony I/O and Mac rig, which allowed Koller to integrate newly-recorded tracks as he quickly came up to speed within Logic. "I feel [Logic isn't] built for an engineer; it's built for people who write," says Koller. "When I started looking at it like that, I really grasped it."

With all systems patched in, tracking commenced. In the live room, Brion and Barnes set about tracking enhancements to the primary, mid-fi home recordings. For example, where Barnes had recorded with emulations of the LinnDrum or the Yamaha CS-80 polyphonic synthesizer, Brion would draw from vintage units to lead him through reseating the parts while preserving the original arrangements. "I really like the idea of this foreign . . . weird, 'wrong' element being there," says Barnes of layering sequences with the analog synths' sometimes unpredictable harmonic signatures. "It makes it seem more exciting to me . . . when it's not just this homogeneous landscape." With the overdub process proceeding quickly, editor Eric Caudieux performed pitch correction when needed.

Brion used a Moog Modular synth to add subsonics to Barnes' Rickenbacker bass parts (many of which he re-recorded for consistency). "My bass lines are really more baritone guitar parts," says Barnes. "It's not just low, it's more noodle-ly and almost percussive . . . I'm usually doing a lot of stuff on the *G* string, way up by the 12th fret. It really worked well having the synthesizers filling in the gaps."

The weight of some tracks, such as "Like a Tourist" and "Our Riotous Defects," was augmented by recordings of a Mighty Wurlitzer pipe organ, miked in surround sound (it was also being tracked for a film project) with Shure SM50s and Neumann KM53s through an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Standout session drummer Matt Chamberlain contributed on many tracks, such as *False Priest* lead single "Coquet Coquette"; for drum sessions, Koller would typically set up an AKG D12 on the kick, Neumann U67s on snares, plus an overhead mono (either a Neumann U47, AKG Elam or D19), with Neumann M50s and sometimes RCA 44 ribbon mics in the room for ambiance. However, for the song "Black Lion Massacre" (on the upcoming *Controller's Sphere*, an EP of additional songs written during the *False Priest* period), the team created a tight, ringing, highly effected groove by placing contact mics on each piece of the drum kit, having Brion and Barnes mute parts as Chamberlain played, and running the result through guitar amps, which he then miked and recorded.

On the same track, as well as ones such as "Sex Karma" (a duet with Solange Knowles), Brion applied what Barnes jokingly calls "the most expensive fuzz pedal in the world"–an EMI TG 12345 portable console that served as the Abbey Road mobile unit in the '70s. "You can overdrive it in a specific way, because John has a special relationship with the gain structure," says Koller. "We'd push channels in the group master at different levels for effect, and even for parts we didn't re-track, I'd run them out of Logic through the EMI to open them up, drive them with that sonic character."

When recording, the team used the EMI board and/or what they dubbed "the God chain"–the best-sounding outboard modules for each application, pulled from tube preamps, a rare pair of Pultec shelving EQs, a Fairchild limiter, Altec RS124 compressors, a boutique Overstayer stereo compressor, and Sontec parametric mastering EQs.

The same outboard gear was used to detail out and fatten up pre-recorded material in the mix, as Koller dealt with a lot of "mid-range build-up . . . I find a lot of modern gear and recording compounds [frequencies] in the 3–5kHz range." Other processors included the Sonnox Oxford SuprEsser, the SofTube FET Compressor, and Trident A-Range EQ.

"I used a lot of synth filters to take off nasty high end, make mids more aggressive, and add low end," says Koller. "Some were plug-ins, such as the UAD Moog Multimode Filter, and others were outboard filters like the Schippmann EBBE und Flut and the Moogerfooger pedals." Koller, however, avoided using main bus compression before mastering, which gave him more opportunities to preserve dynamics in the complex mixes. (By the time the sessions were completed, each of the 13 songs contained 30–50 tracks.)

Reflecting on what was the most technically complex recording process of his career to date, Barnes has nothing but glowing things to say about what Brion and his team brought to the punchy soul-punk of *False Priest*. "Jon's a beautiful person, an amazing musician; he has a great ear, he has soul, and he has technical proficiency to top it all," he says. "Next to him, I felt almost like how Brian Eno describes himself, like a 'non-musician.' I'm more about quickly getting the ideas out and having the excitement come through in the texture, rather than playing or engineering with perfect tone. He really helped bring out all the body I'd heard before and imagined and wondered how to fully incorporate, but I'd never seen the real gear. And no one ever did anything generic through any of it."

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BY MICHAEL MOLENDA

3 Reasons Guitarists Should Love Logic

Recording software and hardware manufacturers have been courting guitarists for some time, and many have been savvy enough to turn our fickle little heads with uncomplicated features that embrace the way guitar players like to work. While working with Apple Logic Pro 9 ($499 retail) isn't as easy as kicking on an overdrive pedal, this DAW does offer some fabulous tools for crafting trippy guitar sounds. (And, really, it ain't *that* hard to use–especially if you've already taken GarageBand for a couple of spins.) Here are three features of this super-powerful DAW that even the most techno-fearful guitarists will applaud.

Varispeed

Back in my analog-tape-machine days, I always rocked the deck's Varispeed (or pitch control) to add a little zip to a lackluster groove, or slow down the tape to sing parts that sounded like a pixie chorus when the deck was brought back to normal speed, or speed things up to gain 300 pounds and vocalize like a gorilla armed with a chest-mounted subwoofer. Of course, these tricks worked for guitars and drums and everything else, as well. Logic's Varispeed can work just like the old-school tape versions to create pitch-manipulated madness, and it also has a Speed Only mode that lets you slow down playback without pitch being affected. This is a great option if you need a little help laying down a blazing-fast solo. Just slow down the track until you can perform the part, and then go back to the original speed to hear your supersonic riffing. And, as pitch is magically unchanged in Speed Only mode, you won't have to deal with your guitar being "sour" to the pitch of the song as you play. You can also use this mode to increase or decrease the tempo of an entire track without also goofing with the pitch. In the old days, manipulating tempo with a reel-to-reel Varispeed meant that you made the track a little sharp or a little flat. Sometimes that was cool–such as the famous pitch-shifted edit in the Beatles' "Strawberry Fields"–and, other times, rocking the Varispeed could make a song a tad too lugubrious, or unnaturally cheery.

Amp Designer

Logic also includes the Amp Designer plug-in. Graphically, you're pretty much in cartoon territory, but the renderings are very cool, and the sounds are excellent. While Logic *implies* certain classic amps with obvious visual clues, all of the controls are the same for each amp. So you won't get the precise tweakage options of, say, a non-master-volume Marshall, because *every* amp offers Gain, Bass, Mids, Treble, Reverb Level, Tremolo Depth and Speed, Presence, and Master. This doesn't bother me, because the advantage is that the control knobs remain in the same positions when you switch amps, so you can dial in your desired tone, and then critically audition the tonal variations of each amp model with identical settings. As with many amp modelers, you can mix-and-match heads and cabinets. You also get three mic types (dynamic, condenser, and ribbon), and the ability to change mic positions.

Are the digital models accurate to the amps they represent? Who cares? The glory here is exploring unique tones and textures by messing sh*t up. Mate a tiny cab with a Marshall. Mic a pawnshop amp with a ribbon. Go alien with the EQ. As it's so easy to try different combos and immediately determine whether something brings life–or aural shock value–to a work, why would you even *want* to go conventional?

Pedalboard

Logic also includes Pedalboard, which lets you arrange stompboxes in any order, and, here, the control knobs are different, depending on the pedal you select. There's also a zany "Complete Pedalboards" menu that serves up Logic's interpretation of pedal paths for Dub Reggae, Grunge, Jazz Fusion, Funkadelia, and so on. I typically like to choose my own effects chain, but I must admit it was giddy fun calling up, say, the Cool Jazz pedalboard, and then seeing whether I could use it to devise some punk-rock sounds. There are a lot of options in the 30 available pedals, and every one of them delivered something so cool that I only reached into my own bag of tricks on two occasions when I wanted a Mick Ronson wah sound and a more realistic tape delay. Again, half the fun is in cooking up something blissfully horrible, in a good way. If that sentence makes sense to your style of playing and creative concepts, you'll adore these three Logic features. Far out!

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BY BUDDY SALEMAN

Back to the Future

Sometimes, you need to look back at where you have been in order to see where you are going—this includes working in your home studio. Let's look at ways that adhering to old-school mixing models can help maximize your efficiency "in the box."

Most home DAWs run on a native environment. This means that your computer performs all of your audio effects processing, drives the audio engine, and runs your Facebook page, all at the same time. Well, it doesn't take a genius to know that too much of a good thing can be a drag. So ask yourself this question: Which resources do you need on every track, and which can be shared among tracks?

A common problem in today's digital audio environment is the overuse of effects in the mix. They are cheap (even free) and readily available, much like Big Macs! Does every track needs its own reverb? Some folks say yes, by applying individual effects, each track has an individual character. At the same time, I can hear that collective moan as their systems crash for the tenth time in a session.

To Each (Track) Its Own

With old analog boards, each channel had its own EQ and dynamics sections, which could not be shared. I like this concept, so I still use it in today's digital world. On individual tracks, I apply effects that cannot be duplicated, such as EQ or compression, because their settings are usually specific to particular instruments or voices. That doesn't mean that you can't use the same EQ settings on more than one track, but the instance of a plug-in will be specific.

Using Your Aux Bus to Share Effects

Reverbs, delays, even harmonic effects can be shared if they're configured properly. I run the effects as an aux bus and share them between tracks, bringing the effects back on their own dedicated aux return and mixing them like audio channels.

As an example, let's take three audio tracks: snare, background vocal, and acoustic guitar. I assign each track to the same aux bus (let's say bus 1 and 2). I then bring up an aux return and place a reverb on that return. Then I assign the input of the return to bus 1 and 2. This configuration gives me the freedom of a wet/dry mix at the board as well as the ability to put some of the tracks into prefader mode for added flexibility.

This may seem like a lot of steps, but you'll save substantial processor resources by adding a single dedicated track to a mix instead of running numerous reverbs. There are side benefits to this work flow as well. When you use a single reverb for an entire drum kit or choral section, it makes the individual instruments or voices sound like they are contained in the same space, lending believability to the mix.

Don't Bounce, Sub-Mix

Since a lot of workstation effects process in real time, you'll need to do a full bounce at the end of the session or song in order to save them. This can be a huge burden on the client clock, one that you should alleviate whenever possible.

If you put a stereo aux send on each channel, return it to a stereo audio return and place that return in Record, then on your last go-around, you can mix in real time, just like the old days.

You are probably asking yourself why you would work this way. Sometimes, it can be better to do something yourself than have a machine do it for you. Something intangible has been lost since the era of automation; mixes can sound very staid and lacking in urgency. Think about it: You have the ability to play the mix in real time, much like a musician playing an instrument!

By easing the burden on your computer, you can sometimes find yourself in a place that resembles the past but looks toward the future.

The King
Back

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VOCALS

BY TERI DANZ

Five Studio Disasters and How to Avoid Them

Disaster #1: The Honeymoon is Over

At first, you see eye to eye with the producer, and it is beautiful. Then, the honeymoon fades. Perhaps the producer needs something that is not in your ability range (cutting harmonies on the spot, getting that gospel growl, being available at a moment's notice), or, on your end, you have a vision for your music (genre and instrumentation, for example) that the producer cannot realize. (Been there, done that!) The result: a less-than-desirable product, possible hard feelings or conflict, misused resources, and having to start over.

Solution: Do your homework when choosing a producer. Get references and trust your gut. Have a conversation (or many) before you decide whether you should proceed together. Once you decide to go ahead, get a contract and specify what will happen and when it will happen. Don't end up with a *Chinese Democracy* on your hands (re-doing and re-doing, then, years later, finally getting the project out).

Disaster #2: There Are Conflicting Ideas About the Project's Scope

You start the project, and then everyone (musicians, singers, engineer, etc.) starts to bitch about how it's taking more time, more money, etc. than they thought (or are being compensated for). Or, you agree to do a project for a certain price, and production runs way over what you expected or wanted. Ouch! The result: frustration, tension, strained relationships, less-than-stellar performances, and ultimately, an unfinished project.

Solution: Break the project down into pieces for yourself, your band, your musicians, the producer, and engineer. Have clear expectations and a realistic estimate of the time it will take (plus two hours or so). Charge and compensate accordingly. Accomplish only what you can achieve successfully within your timeframe and budget, and don't compromise on quality.

Disaster #3: You Can't Cut It, Performance-Wise

Thinking that you know the parts and *knowing* the parts are very different. When you sing in the studio, every detail is under a microscope–pitch, attitude, timing, resonance, lyrics, etc.–so *how* you perform is just as important as *what* you perform. When I studied with Raz Kennedy (of Bobby McFerrin's Voicestra), his mantra was that every note has an attitude. It's a high bar, but hey, why do something mediocre? A poor performance can result in paying for extra studio time, re-cutting over and over, and group frustration.

Solution: Practice! Get a coach, break down the parts, pay attention to detail, and don't record until you're ready.

Disaster #4: The Song Isn't Finished

Bottom line: The song is everything. You can finish that bridge in the studio–no problem! You didn't memorize the lyrics, or you just wrote them–not a problem. Yes, it is a problem! Unless you're a studio rat who enjoys the challenge of finishing a song on the fly and you can hustle under pressure, don't go into the studio with half a song.

Solution: Get the song completed, *then* get it down.

And finally, the showstopper . . .

Disaster #5: People Behaving Badly

Frustrated, tired, stressed people get ugly fast. Unprofessional people get more unprofessional as the project goes on. Late people screw up sessions by holding up the process. Professional people get fed up with unprepared and uncooperative people. Heavy partiers have a good time at everyone's expense while their recording becomes either a rare fluke of genius or a total waste of time. People who hire producers, engineers, or vocal coaches to work with an artist, without setting clear boundaries of who does what and who has the final say, set people up for conflict and power plays. The result: disaster #5 on steroids. Once the yelling, rising tension, and kicking people out of the studio start, you know you're in a "people behaving badly" moment.

Solution: Keep a level head, plan the session carefully, avoid working with impossible people (even if they have a Grammy–true story!), get clarity about everyone's roles, and set ground rules before you record!

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Photo by Nolan Wells

TRACKING

BY KENT CARMICAL

Bluegrass in Your Living Room

You've just been informed that your cousins from West Virginia are on a Greyhound bus heading directly to your house, and they want you to record their bluegrass masterpiece. Your entire understanding of bluegrass is based upon a documentary about the Hatfield and McCoys and a movie scene where Ned Beatty is squealing like a pig–what do you do?

First things first, collect all the mics you can; you are gonna need 'em. Bluegrass isn't an overdub recording scene; bluegrass players like to play live, all together, all at once, no matter the individual degrees of virtuosity. You'll need enough mics to cover every instrument, and possibly vocals. If you have only one condenser mic, reserve it for vocals and substitute dynamics for the instruments. Because dynamic mics aren't as sensitive as condensers, you'll have to jack up preamp gain and place the mics closer to the instruments than you would place condensers.

When you experiment with these miking techniques, remember that, as with any music recording, vibe is king, so if the player is spooked by close mics, opt for a less-intrusive set-up.

Fiddle

Fiddle is a tough instrument to mic in a live recording; its timbre can change when it is played in different keys. For fat fiddle tones, you can't beat a large-diaphragm condenser: Start by placing the mic above the fiddle, about eight to ten inches away. Point the mic toward the top of the fiddle, where the bow strikes the strings. Position the mic right over the lower f-hole for that down-home, scritchy, rosin-coated bluegrass sound. If the fiddle sounds weak in the mix, sweep the 2 to 3kHz range with a 1 or 2dB boost until you get more "presence."

Mandolin

You can get a great mandolin sound with a single small-diaphragm condenser: Position the mic above the mandolin, pointing down at the strings, aiming between the neck and bridge. A distance of six to ten inches is ideal for picking up high-end articulation and detail. If you're looking for more plectrum/string interaction–as well as a nice dose of body punch–point the mic at the lower soundhole, seven to nine inches from the top of the instrument. Be aware that a mandolin player's hand and wrists flick about like your grandma shaking a Polaroid picture, which can cause a weird audio modulating effect that gets worse the closer you place the mic.

Acoustic Guitar

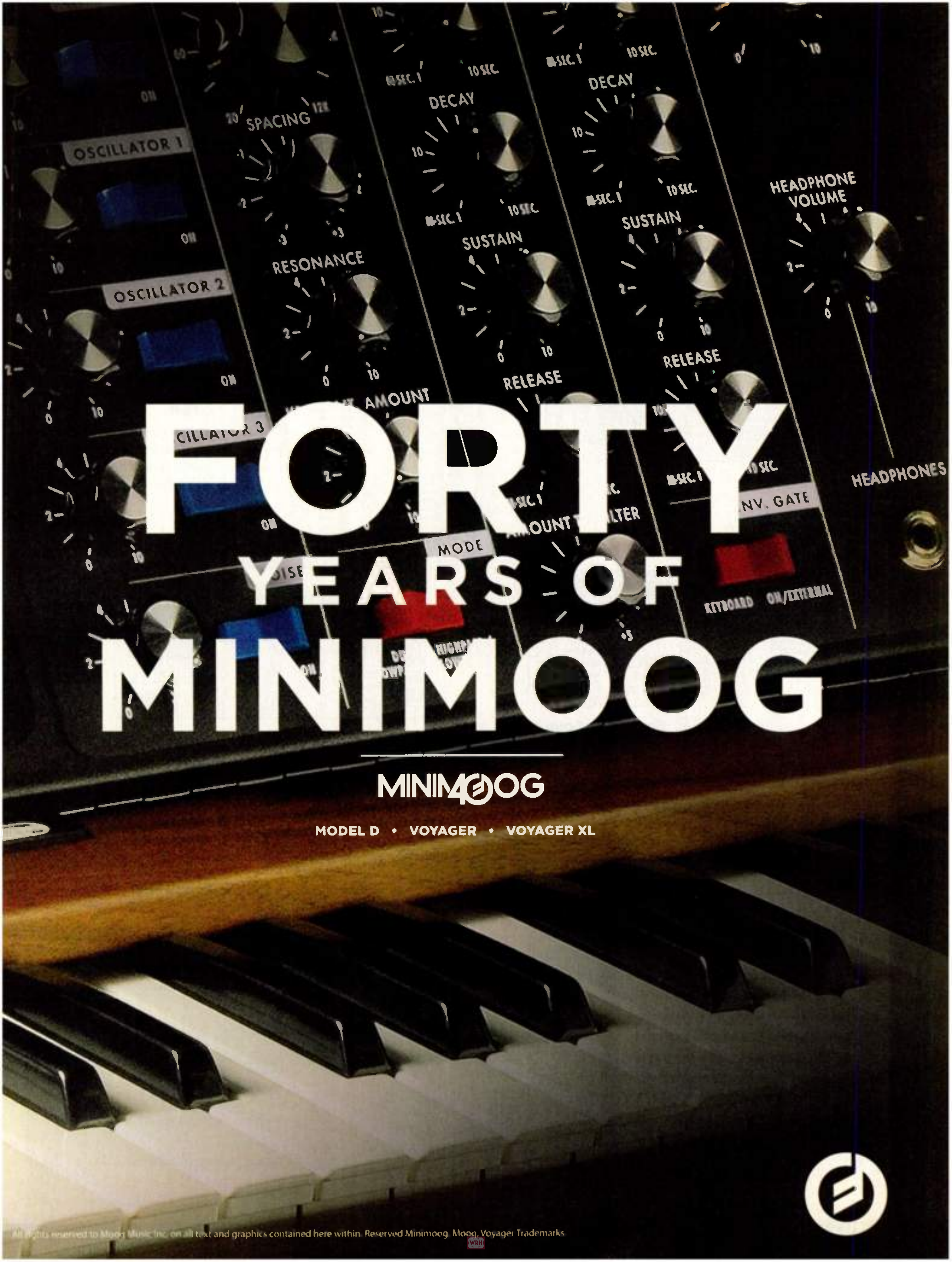
If the guitar has a naturally boomy low end, accentuate articulation by pointing a small-diaphragm condenser around 10–12 inches from where the neck joins the body. If you find the overall sound lacks a certain "woodiness," angle the mic more toward the soundhole. If fingerpicking sounds wimpy, move the mic three or four inches closer to the guitar and patch in some light compression with a 3:1 ratio with a medium attack.

Banjo

A large-diaphragm condenser is ideal for capturing the nuances of a banjo, but by this time you are probably running out of them. If the picker plays hard, you can get great results with a dynamic mic, but use the most sensitive one that you own. A tube preamp can add a nice level of down-home filth. Most decent banjos have a sweet spot around the point where the neck joins the head, so start by placing the mic six to eight inches from that spot. Experiment with the angle of the mic until you find the desired mix of twang and warmth. Applying a light compression ratio of 2:1 with a fast attack can make the notes really pop.

Upright Bass

To capture lots of detail with plenty of body, wrap a cheap omnidirectional condenser in foam rubber and wedge it between the bass' bridge and body, with the capsule pointing up toward the neck. Cut everything below 30Hz. You won't hear those frequencies,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WRH

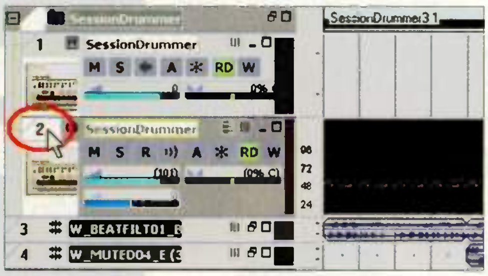
CAKEWALK SONAR

BY CRAIG ANDERTON

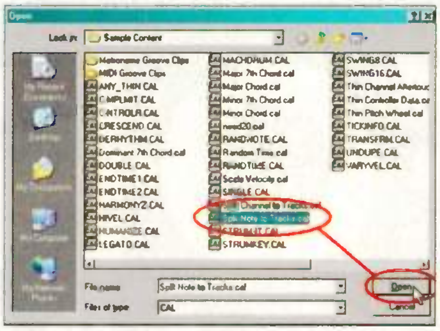
Provide more flexible editing for MIDI drum parts

OBJECTIVE: Take a drum part recorded in one MIDI track, and split its notes–kick, open hat, snare, etc.–to individual tracks.

BACKGROUND: It's convenient to record a drum part into a single MIDI track, but splitting each note off to its own track simplifies editing (*e.g.*, adding swing to only a closed hi-hat part). Sonar includes a CAL (Cakewalk Application Language) routine that makes this easy to do.


SessionDrummer
SessionDrummer3 1
1 SessionDrummer
M S A RD W
2 SessionDrummer
M S R A RD W
3 W_BEATFILT01_B
4 W_MUTED04_E(3

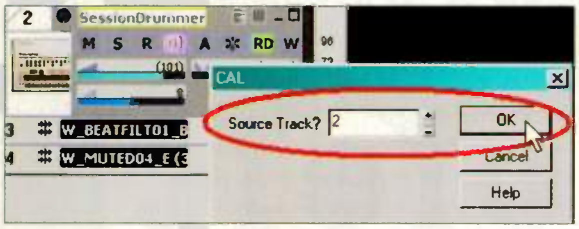
1 **Select the track with the MIDI data you want to split to separate tracks, then type Ctrl-F1.**


Look in: Sample Content

File name: Split Note to Tracks.cal

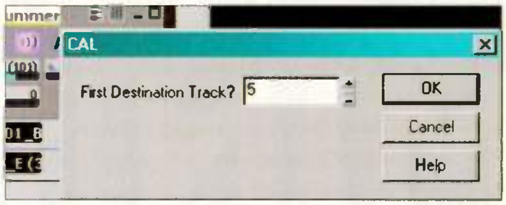
Files of type: CAL
Open
Split Note to Tracks.cal
Open
Cancel

2 **A list of CAL files appears. Click on *Split Note to Tracks.cal*, then click on *Open*.**


CAL

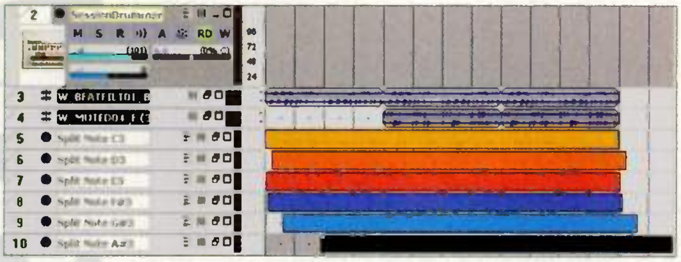
Source Track? 2
OK
Cancel
Help

3 **Specify the Source track (the one selected in Step 1), then click on *OK*.**


CAL

First Destination Track? 5
OK
Cancel
Help

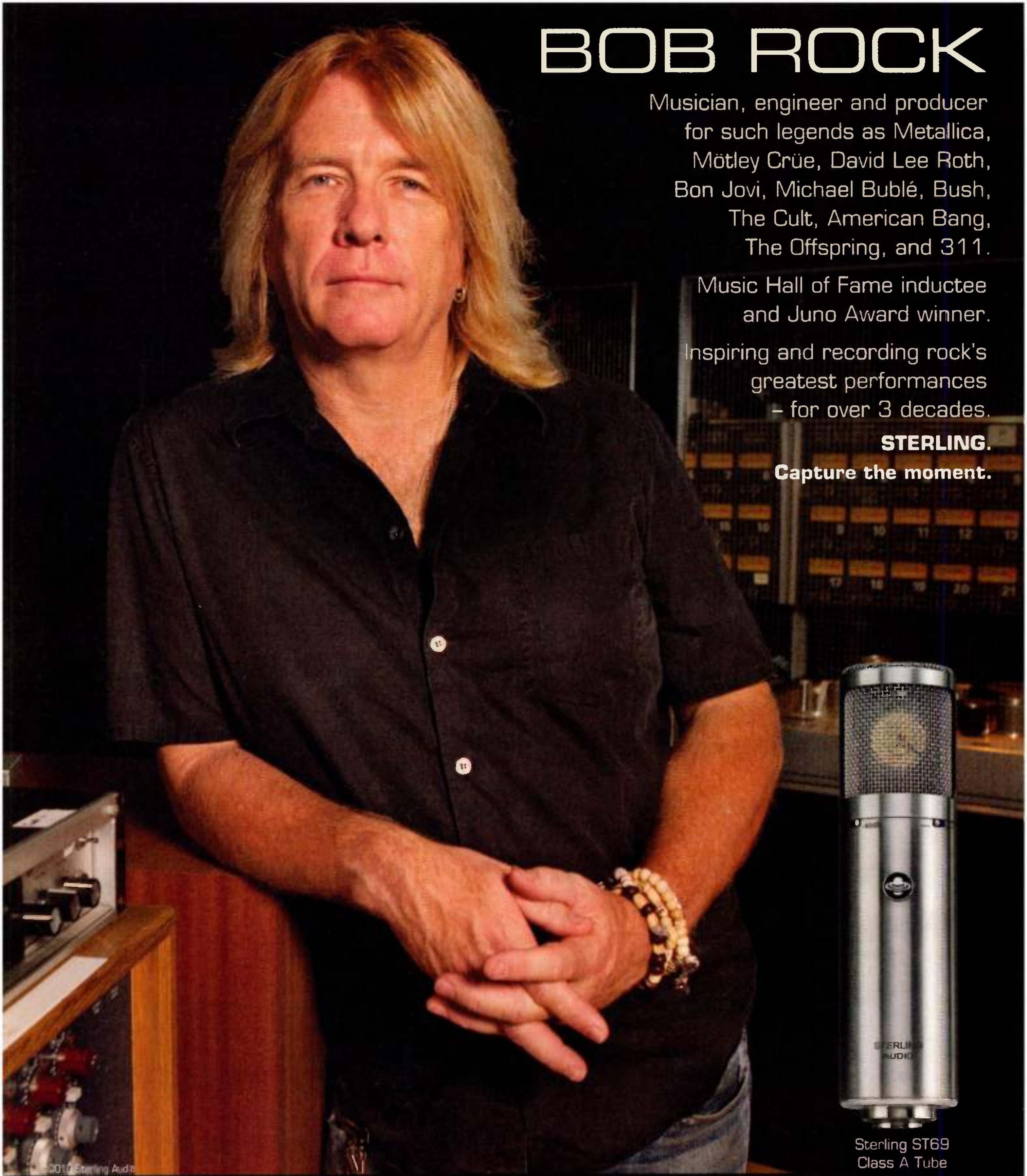
4 **Specify the first Destination track for the series of split notes (typically one track higher than the current highest-numbered track), then click on *OK*. You'll similarly be asked to specify the Destination Channel (*e.g.*, channel 10 for a drum part) and Destination Port; click on *OK* after each selection.**


2 SessionDrummer
3 W_BEATFILT01_B
4 W_MUTED04_E(3
5 Split Note C3
6 Split Note D3
7 Split Note E3
8 Split Note F#3
9 Split Note G#3
10 Split Note A#3

5 **The notes from the original track split to multiple tracks, starting with the track specified in Step 4. Each track's name is the note name.**

Tips

- Step 1: You can also go *Process > Run CAL*; if CAL isn't visible, click on the Arrow bar (menu bottom) for additional options.
- Step 4: If the destination tracks include any existing tracks, MIDI data will be placed on those tracks.
- If you can't find the folder with CAL routines, go *Options > Global > Folders* tab, then look for the CAL Files folder path.
- You can't undo this operation other than going *Edit > History*, then picking a step prior to the CAL operation.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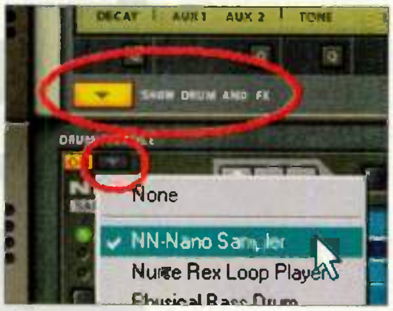
PROPELLERHEAD REASON 5

BY CRAIG ANDERTON

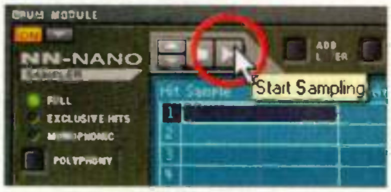
Sample your own drum (and other) sounds

OBJECTIVE: Create your own drum sounds for the Kong Drum Designer module.

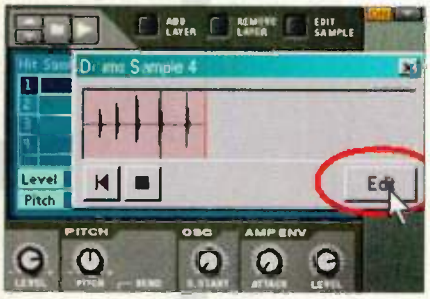
BACKGROUND: Reason 5's Kong is an extremely flexible drum module that even lets you sample your own drum sounds. We'll assume you have an audio interface with an audio input, have selected it under *Edit > Preferences*, and have a sound source you want to sample.


DECAY
AUX 1
AUX 2
TONE
SHOW DRUM AND FX
None
NN-Nano Sampler
Nurse Rex Loop Player
Physical Bass Drum

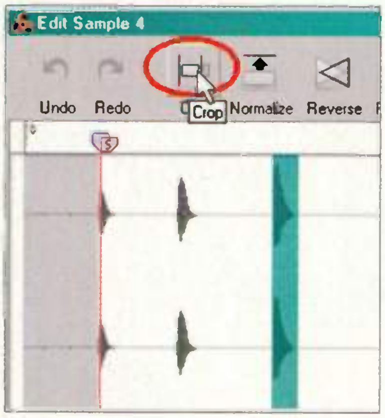
1 Click on Kong's *Show Drum and FX* button; in the Drum Module, select *NN-Nano Sampler.*


DRUM MODULE
NN-NANO
SAMPLER
ADD LAYER
Hit Sample
Start Sampling
FULL
EXCLUSIVE HITS
MONOPHONIC
POLYPHONY
1
2
3
4

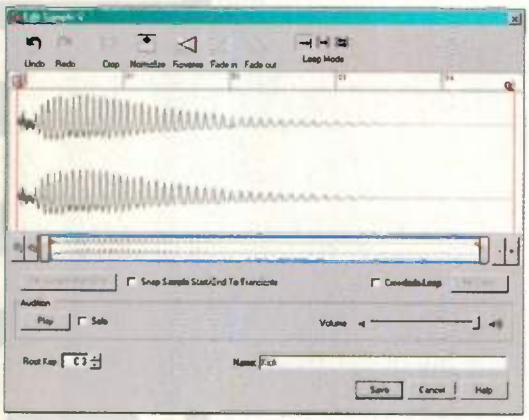
2 Select one of four sample slots, then click on *Start Sampling.*


ADD LAYER
REMOVE LAYER
EDIT SAMPLE
Drums Sample 4
Level
Pitch
Edit
PITCH
OSC
AMP ENV
LEVEL
PITCH
BEND
S.START
ATTACK
LEVEL

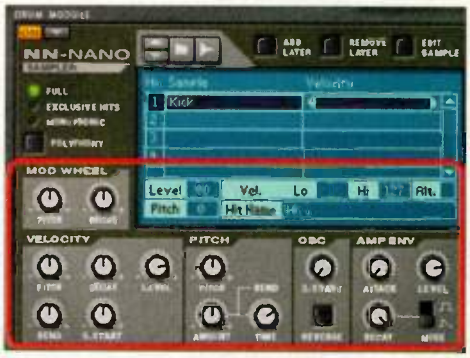
3 When you've finished sampling, click on *Edit.*


Edit Sample 4
Undo
Redo
Crop
Normalize
Reverse

4 Click-drag across the region you want as your sample, then click on *Crop.*


Edit Sample 4
Undo
Redo
Crop
Normalize
Reverse
Fade in
Fade out
Loop Mode
Snap Sample Start/End To Transients
Crossfade Loop
Audition
Play
Solo
Volume
Root Key
C3
Name
Kick
Save
Cancel
Help

5 On the Edit screen, you can also normalize, reverse, fade, audition, set the root key, name the sample, and more. When done, click on *Save.*


DRUM MODULE
NN-NANO
SAMPLER
ADD LAYER
REMOVE LAYER
EDIT SAMPLE
Hit Sample
Velocity
Kick
FULL
EXCLUSIVE HITS
MONOPHONIC
POLYPHONY
MOD WHEEL
Level
Vel.
Lo
Hi
Alt.
Pitch
Hit Name
VELOCITY
PITCH
OSC
AMP ENV
ATTACK
LEVEL
DECAY
REVERSE
S.START
AMOUNT
TIME
BEND

6 Use the NN-Nano's processing options to further modify the sample.

Tips

- Step 3: You don't have to edit immediately after sampling. For example hit Stop, continue sampling into other slots, then edit any sample at any time by selecting its slot and clicking on the Edit Sample button.
- Step 5: You can also loop samples in this window.

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WRH

THE GREAT BIG VOCAL ROUNDUP

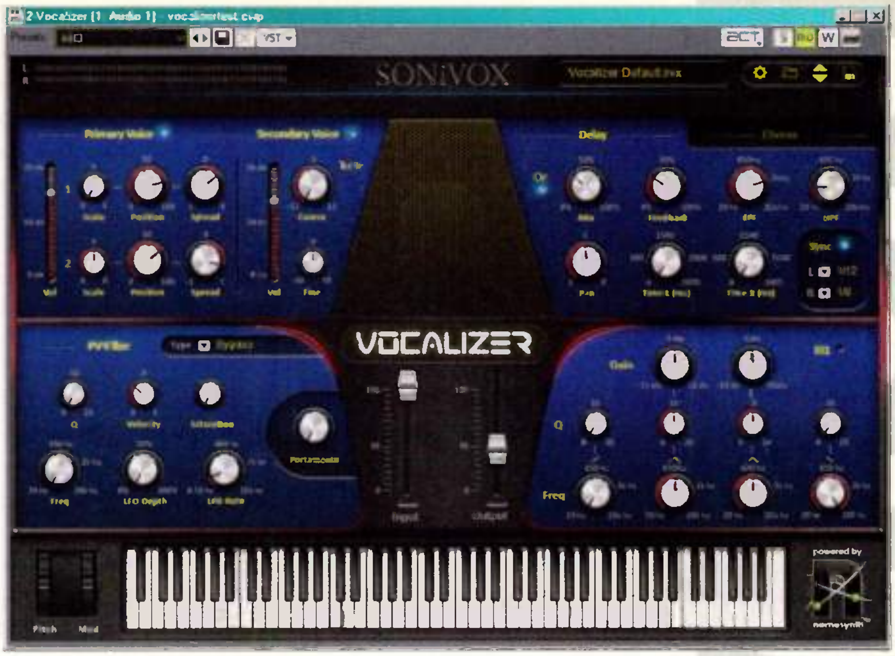
BY CRAIG ANDERTON

Recording vocals is actually easy: Get a singer to give a great performance, and make sure a mic is set up to capture it. Done!

Well . . . okay, that might be a bit of an oversimplification. Or not. In any event, there are new tools for fixing vocals, new techniques (like a DAW's loop recording option) so singers can get good takes more easily, and a new awareness of the importance of acoustics in getting good vocal sounds.

In this roundup, we have reviews of two unique products tailored for vocals, ways to get more natural sounds from Antares' Auto-Tune Evo, some great insights from super-engineer Bruce Swedien, and tips from those "in the trenches." So do those vocal exercises, drink plenty of water, practice your scales, and let's hit "Record"!

Fig. 1. The Vocalizer has an uncluttered layout; while most controls will be familiar, the Primary and Second Voice sections open up new possibilities for vocal processing.



SONiVOX VOCALIZER

Format: VST/AU/RTAS, cross-platform
Price: $149.99 MSRP, $100 street
Info: www.sonivoxmi.com

Think of it this way: The guy who invented "Auto-Tuning the news" walks into SONiVOX and says "I need to take this to the next level. I want weird resonances, and processing, and the ability to get fairly standard vocal sounds or really twist things around. Oh, and I want to be able to put other instruments through this processor too; the warbling vocal fad won't last forever. And I don't want it to be too expensive. Can you do it?"

If this is what happened, then apparently SONiVOX said "yes." It's been ages since I ran into a product where I had no idea what some of the parameters were actually controlling, but the Vocalizer is not like any other processor. If pressed, I'd relate it to a vocoder; but that's only one of the possible sounds it delivers, not the technology behind it. Even the term "Vocalizer" isn't very descriptive, as it works with signal sources other than voice, and creates effects that aren't necessarily vocal in nature.

BASICS

The Vocalizer is a MIDI-controlled audio processor, and different DAWs handle this type of plug-in differently. For example, in Ableton Live, you insert the Vocalizer as a processor in an audio track, then create a MIDI track and assign its output to the audio track. In Sonar, you need to use the Plug-In Manager to specify Vocalizer as an instrument, not just a processor. You can then insert it in an audio track as you would an audio effect, and create a MIDI track whose output "sees" the Vocalizer's MIDI input.

The interface has four main sections (Figure 1), along with a virtual keyboard along the bottom. Let's look at three familiar sections first.

- Time-based effect, with delay up to three seconds and chorus on separate tabs. The stereo delay is fairly conventional, aside from the inclusion of lowpass and highpass filters. Each delay can have its own sync-to-tempo. The chorus has the standard initial delay, feedback, LFO, and mix controls. The long delay should delight looping fans.
- Four-band EQ. The outer bands are low and high shelves, with two parametric stages. The frequency control for all stages covers from 20Hz to 20kHz.
- Primary Voice filter. There are two "voices," and this filter affects one of them. It has five different filter responses, velocity control over frequency, saturation (nice), and LFO.

There's also a non-polyphonic portamento control for the MIDI keyboard.

PRIMARY AND SECONDARY VOICES

This is the fouth section and the Vocalizer's heart, which is definitely uncharted territory. The Secondary Voice by itself is the most "vocoder-like"—speak into a mic, play the keyboard, and whatever you "say" is transformed into "sung," including harmonies. The only controls are Volume and Tune (Coarse and Fine). The sound is rather resonant, like a vocoder with a lot of bands, and any words are quite intelligible unless you drop pitch considerably. You're going to hear this on a lot of hits.

The Primary Voice is—well, just turn the dials and listen to what happens. Some settings resemble a flanger set for a long delay but with no sweep, others like some strange digital filtering, and one setting made my voice seem as if it had been morphed with some kind of Harmonium, both of which had ingested a potent psychedelic. There are two identical sets of controls (Scale, Position, and Spread), and if those labels don't make sense to you, don't feel bad—they don't make sense to me either. The Primary voice gives useful effects all by itself, but also provides interesting layering with the somewhat more conventional Secondary voice.

CONCLUSIONS

I'd like to see a MIDI learn option for the controls, because you can do amazing effects by altering parameter values in real time. One workaround is automating a parameter, then tying the automation to a MIDI controller. There are also no "tooltips" to show parameter values as you alter them. For example, the Secondary Voice Tune control has markings at −12, 0, and +12; double-clicking returns to zero. After that, you're on your own. You can always listen, but for finding a particular pitch fast, better calibrations, tooltips, or adding a modifier key to quantize to semitones would be helpful. Finally, the delay has only one dotted value—quarter note. I'd like to see at least a dotted half-note option (I'm sure a lot of other DJs would, too) and dotted whole note; of course, you can always add a delay plug-in afterward for other delays.

But these are relatively minor points—the bottom line is that the Vocalizer is big fun. With voice, it can do amazing effects for dance tracks, commercials, background vocals, alien voices, and a lot more; check out the SONiVOX site for examples. It's also intriguing with other instruments—I've posted eight examples with drums on the *EQ* magazine site.

Overall, the Vocalizer is one of the most original and unusual effects to come across my path in a long time—I plan to use the daylights out of it before everyone else does.

More Online!

Find vocal examples at www.sonivoxmi.com*, and examples with drum processing at* www.eqmag.com.

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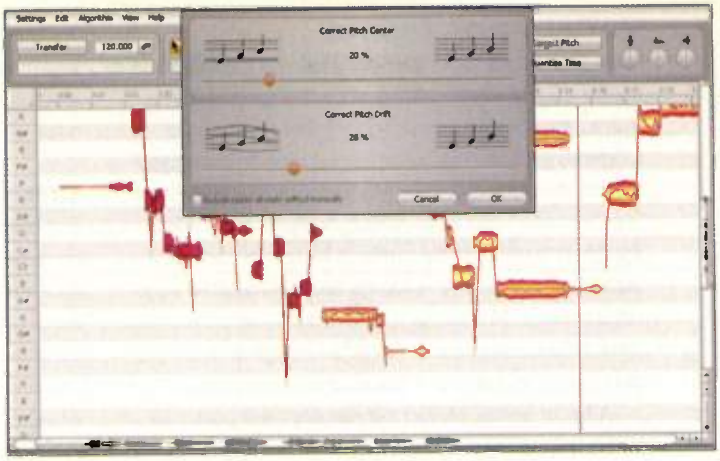

Correct Pitch Center 20 %
Correct Pitch Drift 28 %

Fig. 2. Melodyne transforms audio into editable "blobs," much like a MIDI piano roll editor. Pitch Center and Pitch Drift are being lightly corrected for the selected group of notes toward the left.

The Melodyne line consists of several products: Assistant (pitch correction and processing essentials), Studio (editing on multiple tracks, with arranging and mixing), and Editor–the subject of this review. Editor works in stand-alone or plug-in mode, and is the first Celemony product to include their DNA (Direct Note Access) technology. DNA can extract individual notes from polyphonic material for editing, which isn't really relevant to vocals but–with certain limitations–can work miracles with guitar, piano, and other instruments.

We won't dwell on DNA here, because of the focus on vocals. To summarize, though, it works better than expected, because I wouldn't expect this kind of technology to work at all! Depending on the source material, DNA requires "prepping" the file before Melodyne can work its magic. This can be anything from minimal–with classical guitar, I was shocked at how effortlessly DNA did the job with no prepping whatsoever–to impossible, as there was no way to separate out the notes from a distorted power chord. It seems DNA likes distinct, defined notes with clearly identifiable harmonic structures and start times, and wants to work on a single instrument at a time. Within those constraints, and if you're willing to do any required preparations, DNA is more like science fiction than a plug-in.

Note that in addition to DNA, Melodyne Editor has algorithms for melodic and percussive material. I used the melodic algorithm for vocals.

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VOCAL PROCESSING

Melodyne has a reputation for retaining excellent sound quality when shifting pitch, but part of that is due to an inherent advantage: Unlike most audio plug-ins, it doesn't process in real time. Instead, you record the audio you want to process into Melodyne (the "transfer" process), which analyzes the audio. You then work with the audio in Melodyne; when you start playback on the host, transferred material plays back through Melodyne. This process happens in real time, without hiccups (I moved the original audio just to prove to myself that I wasn't hearing it instead).

After analysis, Melodyne displays the notes as audio "blobs" that not only resemble MIDI piano roll notation, but can be manipulated in the same ways: transpose, move, change start time, lengthen, and shorten (Figure 2). There are also audio-specific tools that work "inside" the note; two of my favorites are the Pitch Drift and Pitch Modulation correction tools.

Pitch Drift linearizes pitch changes within a note. For example, if the pitch sort of drifts flat toward the end of the note, you can lessen (or even eliminate) this drift. Pitch Modulation can increase vibrato or flatten it—and even change the vibrato's phase. Other tools include change amplitude, change formant, and even copy/paste so you can build harmonies and doubling based on the original vocal.

It's possible to work on anything from individual notes to groups of notes, but the important point is that—like "quantize strength" commands in MIDI—you can make subtle or obvious edits. For example, if you select Correct Pitch, you can nudge the notes a little closer to pitch, or quantize them precisely to pitch—it's the same with Correct Pitch Drift.

CONCLUSIONS

Full disclosure: When I contacted the company for a copy to review, I was upfront and said I really wasn't that interested, because I rarely use pitch correction. Also, I had used some very early versions of Melodyne, and while impressed by the technology, it seemed awkward to use. I also had doubts about whether DNA could actually work, so I reviewed this more out of a sense of duty to the readers than personal interest.

Well, I stand corrected. Melodyne was easy to use, and gave zero problems. The classical guitar DNA experience was very impressive, and when modifying vocals, the sound quality was far more natural than I expected; with relatively minor edits, you cannot tell edits were made. But I also liked that I could completely transform voices if I wanted to, and make no-apology alien voices. When you couple all those capabilities with a clean interface and excellent documentation, and solid online support, you have a winner.

This isn't just about pitch correction; it's also about vocal processing. After spending some quality time with Melodyne, I think I'm going to give it quite a bit of use in the future.

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REALISTIC PITCH CORRECTION WITH AUTO-TUNE EVO

With all of the attention these past few years on the Auto-Tune Vocal Effect (the T-Pain/Cher style effect), it's easy to forget that Auto-Tune was initially designed for natural-sounding pitch correction. However, not everyone takes advantage of the available tools to avoid that "pitch-corrected" sound, so here's a primer on how to get the most realistic pitch correction.

RETUNE SPEEED

This is the most important parameter for natural pitch correction, as it adjusts the speed at which out-of-tune notes are changed to the "right" notes (Figure 3). The speed should be fast enough to get out-of-tune notes in tune quickly, but not so fast that it sounds unnatural. This is tricky, as the optimum Retune Speed depends on song

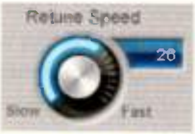
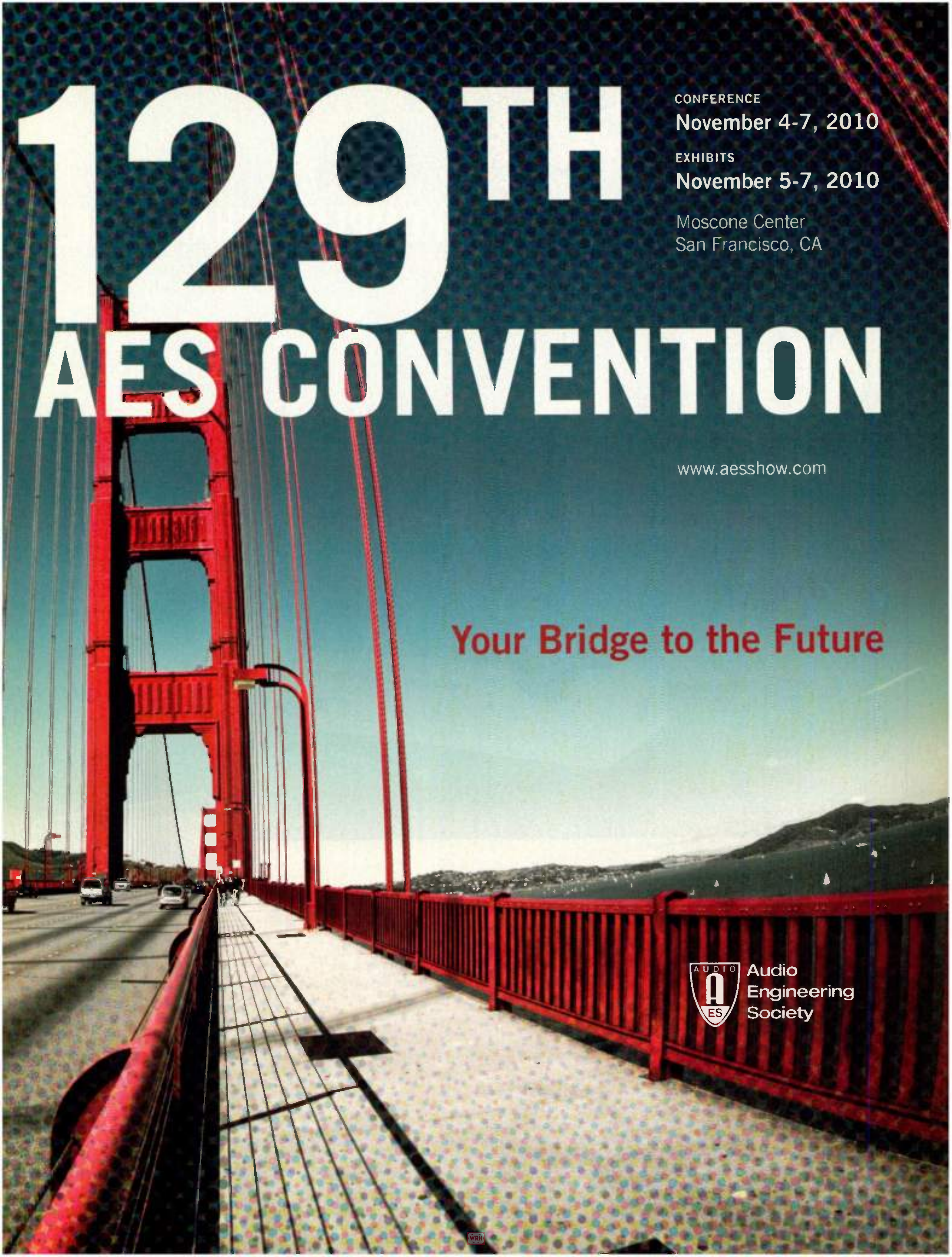


Fig. 3. The proper Retune Speed control setting is crucial for natural-sounding pitch correction.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tempo, note duration, vocal style, etc., and can often change from note to note. Fortunately, Auto-Tune Evo includes tools in both Automatic and Graphical Modes that simplify setting the optimum Retune Speed.

HUMANIZE

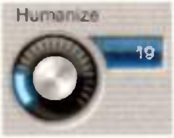


Fig. 4. Use Humanize to make sure both short and sustained notes receive the proper amount of correction.

In Automatic Mode, a performance that includes both very short notes and longer sustained notes can be problematic because in order to get the short notes in tune, you have to set a fast Retune Speed, which would then make any sustained notes sound unnaturally static. To solve this problem, use Automatic Mode's Humanize function.

The Humanize function (Figure 4) differentiates between short and sustained notes, so you can apply a slower Retune Speed just to the sustained notes. This lets those notes retain the natural variations of the original performance.

To adjust Humanize start by setting it to 0, then edit the Retune Speed until the shortest "problem notes" are in tune. If any sustained notes sound unnaturally static, start advancing the Humanize control. Higher settings slow the Retune Speed more for sustained notes. Find the point where the sustained notes are also in tune, but have enough natural variation to sound realistic (if Humanize is too high, any problematic sustained notes may not be fully corrected).

INDIVIDUAL CORRECTION OBJECT RETUNE SPEEDS

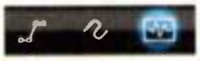


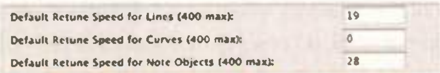
Fig. 5. These buttons represent the three different types of editable objects in Auto-Tune Evo.

Prior to Auto-Tune Evo, it was necessary to select a single Graphical Mode Retune Speed that applied to all of your pitch corrections. Your choice was typically picking a Retune Speed that was a "good enough" compromise for an entire track, or painstakingly automating the Retune Speed from phrase to phrase or even note to note.

Auto-Tune Evo allows setting independent Retune Speeds for every individual correction object, whether Line, Curve, or Note (Figure 5); select one or more objects, then set the Retune Speed that provides the most natural result.

Of course, in practice you don't need to set an individual Retune Speed for every object. To streamline the process, start by selecting all your audio and setting a Retune Speed that works for the majority of the performance. Then listen to the result and note which notes or phrases could still use improvement. Select those notes or phrases, adjust their Retune Speeds for the most natural result, and you're done.

DEFAULT GRAPHICAL RETUNE SPEEDS



Default Retune Speed for Lines (400 max): 19
Default Retune Speed for Curves (400 max): 0
Default Retune Speed for Note Objects (400 max): 28

Fig. 6. You can set useful defaults for the three object types to serve as a point of departure for editing.

Auto-Tune Evo lets you set custom default Retune Speeds for each of the three object types: Lines, Curves, and Notes. These initial Retune Speed values (Figure 6) are automatically assigned to each newly created object.

To choose your own default values, just pay attention to what values you most commonly use for the various objects and set those as defaults in Auto-Tune Evo's Option dialog. Update as necessary.

Continued

Acknowledgement:

Thanks to Antares for permission to adapt this article, which originally appeared in their online newsletter, for print.

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TEN DO'S AND DON'TS FOR SOLID VOCALS

1. *Don't* tell the singer that this is going to be the take that will be forever imprinted in the recording. There's no better recipe for a bad vocal performance than having a wound-up, nerve-struck singer.
2. *Do* drink tons of water before doing a vocal take.
3. *Do* know the lyrics–you can hear when someone is reading the freakin' words off a sheet.
4. *Don't* do a vocal performance with the mindset that you can fix it later–no matter how good your technological tools. Give it all you have the first time around.
5. *Do* vocal warmups. Start with a yawning-like motion while softly portamenting from your highest to your lowest note. Then do some triad scales. Then do ascending and descending scales while saying "picky-ticky" to exercise your lips and get better enunciation.
6. *Do* use the best vocal mic you can find. I use an ELUX 251 whenever possible; your voice may like something different, so use that.
7. *Do* stretch your body. Loosen the muscles of your legs, diaphragm, neck, and back before singing.
8. *Do* a ton of takes. Mix engineers seldom say "I wish we had less stuff to choose from."
9. *Do* rest your voice every half hour. Don't blow out your voice, and then try and record anyway; you'll just have to re-do it.
10. *Don't* be shy . . . tell the engineer what you need. More volume? A little reverb in the cans for confidence? Less drums? Don't accept no for an answer. *–Jeff Klopmeyer*

BRUCE SWEDIEN'S SIX TIPS ON RECORDING IN SMALL ROOMS

- 8' by 10' by 6' will actually work for recording high quality lead vocals. This is about half the size of the average bedroom.
- A 12' by 10' by 8' room will work quite well for recording lead vocals, but start by trapping the bass in the corners.
- A 7' by 7' by 7' will absolutely not work. This is a "cube"room that stores too much energy.
- The object of what we are doing here in recording lead vocals is to control the room's "sonic signature." Keep that in mind at all times!
- A small room can have a great deal of "proximity effect."
- Locate the node-free zones of your recording room, because that's where mics and sound sources should be located.

BRUCE SWEDIEN ON THE PROXIMITY EFFECT AND DIRECTIVITY

The proximity effect in audio is an increase in low frequency response as the sound source moves closer to the mic. You can think of the proximity effect as a "distortion" caused by the use of ports to create directional polar pickup patterns, so omni-directional mics are not affected. To me, the proximity effect is more like distortion-free EQ. Depending on the mic design, proximity effect may easily result in a boost of up to 16dB, usually focused at about 100Hz or below.

Singers tend to like the proximity effect, as it fattens up their voice. When I recorded Michael Jackson singing the lead vocal on "Earth Song," I had him sing as close as possible to my Neumann M-49–about two inches or less, from the mic's front grille. The resultant proximity effect is quite dramatic.

Incidentally, in case you've wondered how a mic acquires directivity, a microphone is constructed with a diaphragm whose mechanical movement is converted to electrical signals (via a magnetic coil, for example). The movement of the diaphragm is a function of the air pressure difference across the diaphragm arising from incident sound waves. In a directional microphone, sound reflected from surfaces behind the diaphragm is permitted to be incident on the rear side of the diaphragm.

As the sound reaching the rear of the diaphragm travels slightly farther than the sound at the front, it's slightly out of phase. The greater this phase difference, the greater the pressure difference and the greater the diaphragm movement.

As the sound source moves off the diaphragm axis, this phase difference decreases due to decreasing path length difference. This is what gives directional microphones their directivity.

THE VOCAL TIPS ROUNDTABLE

We threw out a request for miking tips from the forumites at Craig Anderton's Sound, Studio, and Stage forum, and got some great ones. Here are the contributors.

AB: Alan Barnes, BP: Bill Plummer, BS: Bruce Swedien, CA: Craig Anderton, EB: Ernest Buckley, JC: Jon Chappell, KL: Ken Lee, LF: Lee Flier, NW: Nat Whilk II, PK: Philbo King, RR: Russ Ragsdale

Minimize sibilance: Place the microphone so that it's slightly off-axis from the signer. This really helps. –KL

The importance of the lyric sheet: For me it all starts with the lyric sheet first–then microphone second, processing last. I get more done with the lyric sheet and a pencil, I can make the story pop off the page. –RR

Better composite recording: Ideally I have several copies of the lyrics, and as the singer is recording, I make marks under particularly strong performances for each take. This makes it easier to comp the vocal tracks after doing several complete vocal passes. –KL

Make mic-shy singers more comfortable: I usually have a large diaphragm condenser or two set up. But if the singer is really performance-oriented and feels uncomfortable wearing headphones and singing into a big mic, I occasionally set up speakers (putting one out of phase to try and minimize bleed), and give the singer a hand-held dynamic mic. I'd rather have a great vocal performance than an emotionally flat performance that sounds pristine. –KL

All hail Vocal Rider: Lately, I've been using Waves' Vocal Rider, which almost feels like cheating. I used to feel like I was getting carpal tunnel from automating my vocals, but now I just slap on Waves' Vocal Rider and need to do very little automation–just a few tweaks here and there. I love this because I'm not hitting the compressor very hard at all, which gives a big, natural-sounding vocal. This has worked well for really big rock vocals as well as hip-hop vocals. –KL

Minimize room sound when compressing: If you pick up too much room sound because you compress vocals heavily, use a relatively short release on your compressor to minimize the amount of "room" that it brings up. Or stop using so much compression and use gain riding, automation, or Vocal Rider. –KL

Acoustic fix: I record in a small living room with hideous acoustics. I place a couple of RealTraps MiniTraps around the mic, which greatly improves the acoustics going into the mic. As a bonus, I can tape lyric sheets to the acoustic treatment panels. I'll typically set up a small table nearby so the singer can place water or whatever for breaks. –KL

How *not* to deaden a room: Packing blankets, sleeping bags, etc. are mostly for upper mid/high frequency absorption, which is not generally considered good for vocals or anything else that has a wide frequency range. I prefer RealTraps, which do broadband absorption. –KL

Make a moveable iso-panel: Affix a moving blanket to a portable (on wheels) standing clothes rack to create a portable iso-panel. I usually put it about a foot behind the mic to help take the room out of the equation. –AB

Not *too* dry: I don't think that getting the driest possible sound is necessarily the way to go, even if you intend to add other processing. "Dry" often equates to "dead," which you don't want. If all the life has been sucked out of the track in the form of high frequency absorption, it's nigh impossible to put it back with processing. It also affects the singer's performance to sing in a dead space–they're used to hearing certain harmonics from the room reflections that affect the character of their voice. –LF

Reduce the proximity effect: If you want to minimize the proximity effect, put your favorite multipattern condenser in omni, and place something (like a bass trap

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or gobo) close behind the mic so you don't pick up too much of the room. The EV RE20 has almost no proximity effect, so that might be a good choice too if the vocalist sounds good through it–which many do. –LF

Don't work too hard: I'm pretty much a one take guy–I might comp verse B after verse A, but I almost never vocally comp a single section. That's more work to me than just singing it again. –AB

Switch mics before you switch in EQ: Instead of EQing, I tend to change mics instead. –EB

Choices are good: I record the vocal from the mic pre out and mult it. The first track goes straight, the second gets compression set to taste. I normally end up using the processed track, but like having the clean track in case the singer starts opening up and hitting the compressor too hard. –BP

Better vocal reverb/delay depth: For certain musical styles, I like to record a second mic about a foot or more away from the primary mic. The distant mic gets used for feeding reverbs and delays. It often gives a better sense of depth than taking the primary mic and feeding effects from it. The distant mic never hits the mix dry. –BP

Favorite vocal recordings: The vocal recordings I'm most proud of have mostly all been done with the mic in cardioid pattern–an extremely high quality condenser microphone, vintage or newer, will do nicely. I have a pair of Neumann U-47's that I bought new in 1953 that I absolutely adore . . . but I did use my SM7 most often on Michael Jackson for lead vocals. "Earth Song" is the one MJ vocal where I used a mic other than the SM7 on his lead vocal–I used one of my Neumann M-49s. I also used my MILAB VIP-50 on some of Michael's vocal recordings. –BS

Getting a better stereo field: I was tracking three backup vocals (and doing all the singing myself) on a song, and wanted a realistic stereo field. So I set up a figure-8 mic and an LDC up as a Mid-Side pair, then recorded each part separately onto to a stereo track to capture the two M-S channels. I stood a couple feet left of the mic for the first part, about the same distance back from the mic for the second part, and the same distance off to the right for the third part. I bused all three to a common mix bus, and stuck in a M-S decoder plugin on it. The result was a pretty amazing stereo field–I was shocked that it worked so well. –PK

Compression point of departure: Every singer is different but for the most part, with pop/rock music, start with the threshold around –15, a 2:1 ratio, medium attack, and fast release. –EB

Intimate vocal sounds: The closer you get to the mic, the more intimate the sound becomes, as the lip smacks, breath variations, and other mouth-generated artifacts become more audible. Singing "across the path of the mic" is really an off-axis approach that mitigates the proximity effect and distortion-causing plosives, while retaining these intimate qualities you describe. I always tell people that if they really want to hear good use of the proximity effect, they should listen to Bill Cosby's early comedy albums! –JC

Really quiet narration: When I need extreme quiet for narration, I'll run a long headphone line to a room that's away from the studio's fans and hard drives, then use a Line 6 XD-V70 digital wireless mic. As there's no long mic cable, the sound can actually be cleaner than using a standard mic, and the mic modeling options allow a variety of narration qualities. I set the DAW for cycle recording, and go for it. –CA

Better-fitting backup vocals: Although I use a large condenser mic for lead vocals–with as much mic technique as I can, moving in and out to smooth out the levels and avoid overs–for backup vocals I often switch to a small condenser or a dynamic, sing from about a foot away or so, and compress a bit heavier. The result is a sonic quality that fits "inside" the lead vocal easily. –NW

The three P's: I always reach for the 3 P's: Pitch, Passion, and Pocket. The first two should be self-explanatory. Pocket is timing–like a punchline, if the timing isn't right, impact is lost. If a vocal doesn't have all three, I'll call for a retake. –PK

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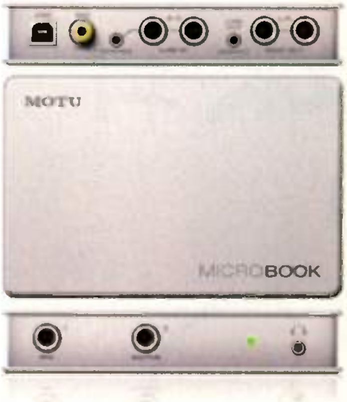
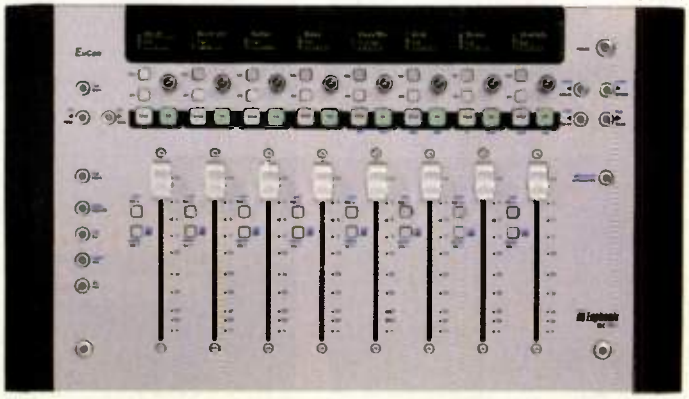


MC Mix



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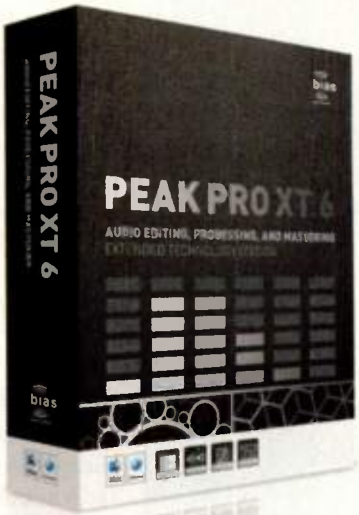

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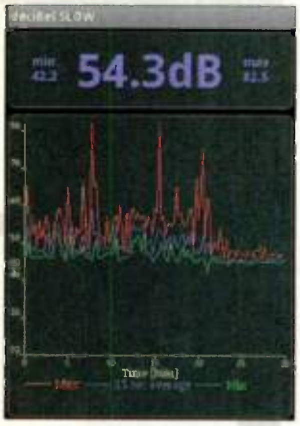
AUDIO APPS

BY CRAIG ANDERTON

for Android aficionados

As the Android smartphone's market share surges, so does the number of audio-related apps. Here are some of the best—and they're free.

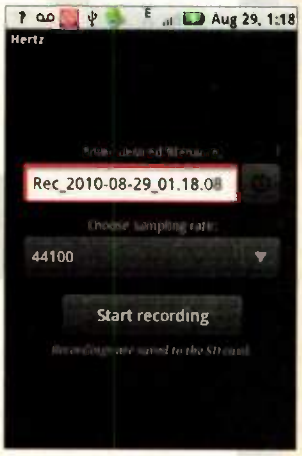


BSB.BZ: deciBel Sound Level Meter (www.bsb.bz)

While billed as not being up to professional sound level meter standards (remember, we're dealing with a telephone mic), after calibrating this app I compared the results to a Phonic PAA6 sound level meter and was surprised at how closely they tracked midrange frequencies. deciBel has multiple modes: Slow mode updates the maximum, minimum, and average values every 15 seconds, along a timeline that can be set to 15, 30, 60, or 120 minutes; fast mode updates the reading every second. Exposition mode is a histogram that shows the number of times the device was exposed to particular sound levels since measurements started.

The app's screenshot function saves the screen image to the phone's SD card; you can also rotate the image to make for easier viewing when taking some measurements, as the mic is at the bottom of the phone. Calibration involves going to a screen and hitting up/down buttons until the reading matches that of a calibrated meter.

Sure, it has limitations—but having a sound level meter in your phone is very handy. For example, shoot a tone with a consistent output level through your monitors, and you can check that you're monitoring at the same approximate level every time you fire up your studio.



Enter desired filename: Rec_2010-08-29_01.18.08

Choose sampling rate: 44100

Recordings are saved to the SD card

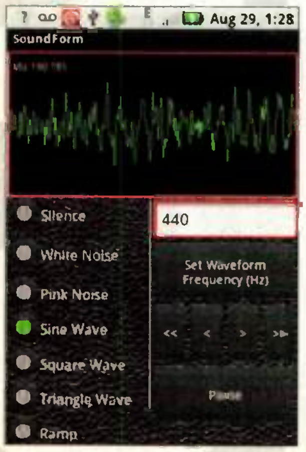
University of Cambridge: Hertz, the WAV Recorder (www.cl.cam.ac.uk/research/dtg/android)

Some Android recorders are low-fidelity affairs designed to record phone conversations or Internet radio stations playing on your phone, but Hertz records 16-bit WAV files up to 44.1kHz to the Android's SD card.

The GUI is Spartan. Enter the filename (or click on a clock button to automatically enter the date/time as the filename), choose the sample rate (8, 11.025, 16, 22.05, 44.1kHz), then select "Start Recording." There are no level controls, but for just grabbing samples or rehearsals, most Android mics suffice—especially because you're recording at 44.1kHz.

If you want to use a real audio interface instead of the mic, Peavey's AmpLiNK works well (it's designed for the iPhone, though, so you can't use the amp sim app with the Android)—yes, you can record electric guitar with full, high-impedance input fidelity. Regardless of whether or not you use an interface, retrieving files simply involves hooking the phone up to USB, and transferring the files from the SD card.

There are many other Android recorders; for more features, check out Virtual Recorder (www.andro-ix.com), which includes a mic preamp control, pitch change, and auto-level. It's a bit more of a hassle because it saves as .PCM files, but it's not a big deal to convert them.



440

Bofinit: SoundForm Signal Generator (https://sites.google.com/site/bofinit/)

Of course you want a signal generator in your pocket—especially one that can generate white and pink noise, sine, square, triangle and sawtooth waves, and impulses. You can specify the waveform frequency by direct numeric entry, or using up/down arrow buttons. Although you can hear the waveform coming out of the speaker, if you want to feed a piece of gear in a more pro manner, you'll need an interface like the AmpLiNK mentioned above, or a headphone adapter/splitter.

According to specs on the website, the frequency accuracy is about 1% on a Motorola Droid (I used a Motorola Backflip for testing these apps, so yes, they'll run on older Android operating systems). Waveform purity is reasonably good, although the upper range of harmonically-rich waveforms shows some degree of ringing and artifacts.

One very cool aspect is that the white and pink noise really are random, not periodic; when on the road, I even find the pink noise a welcome sleep aid. I also like the oscilloscope display for your Android mic, so you can more-or-less monitor the results of what's happening as you feed a signal into a particular piece of gear. And of course, you can always set up an A=440Hz for tuning. What's not to like?

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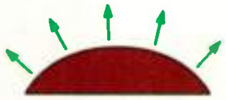

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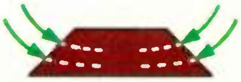

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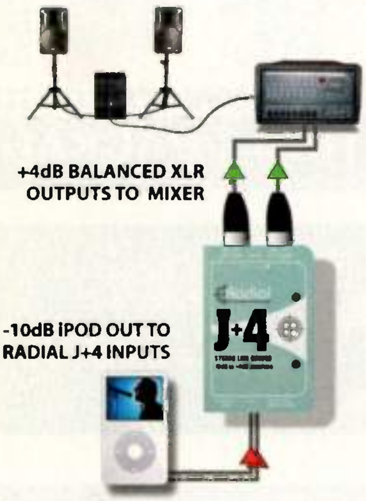
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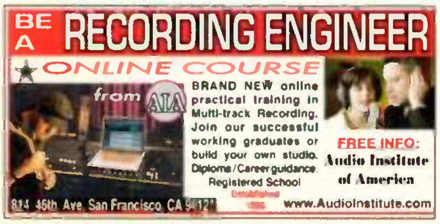
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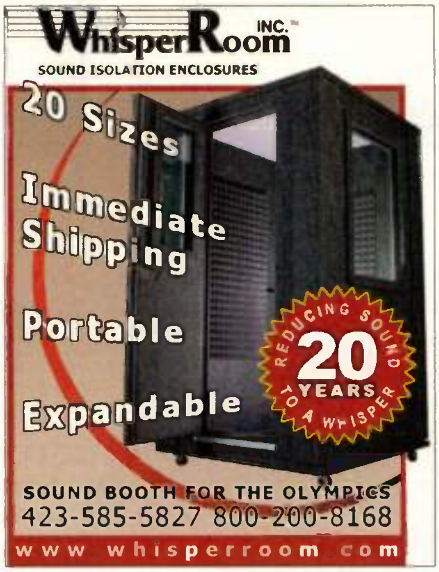
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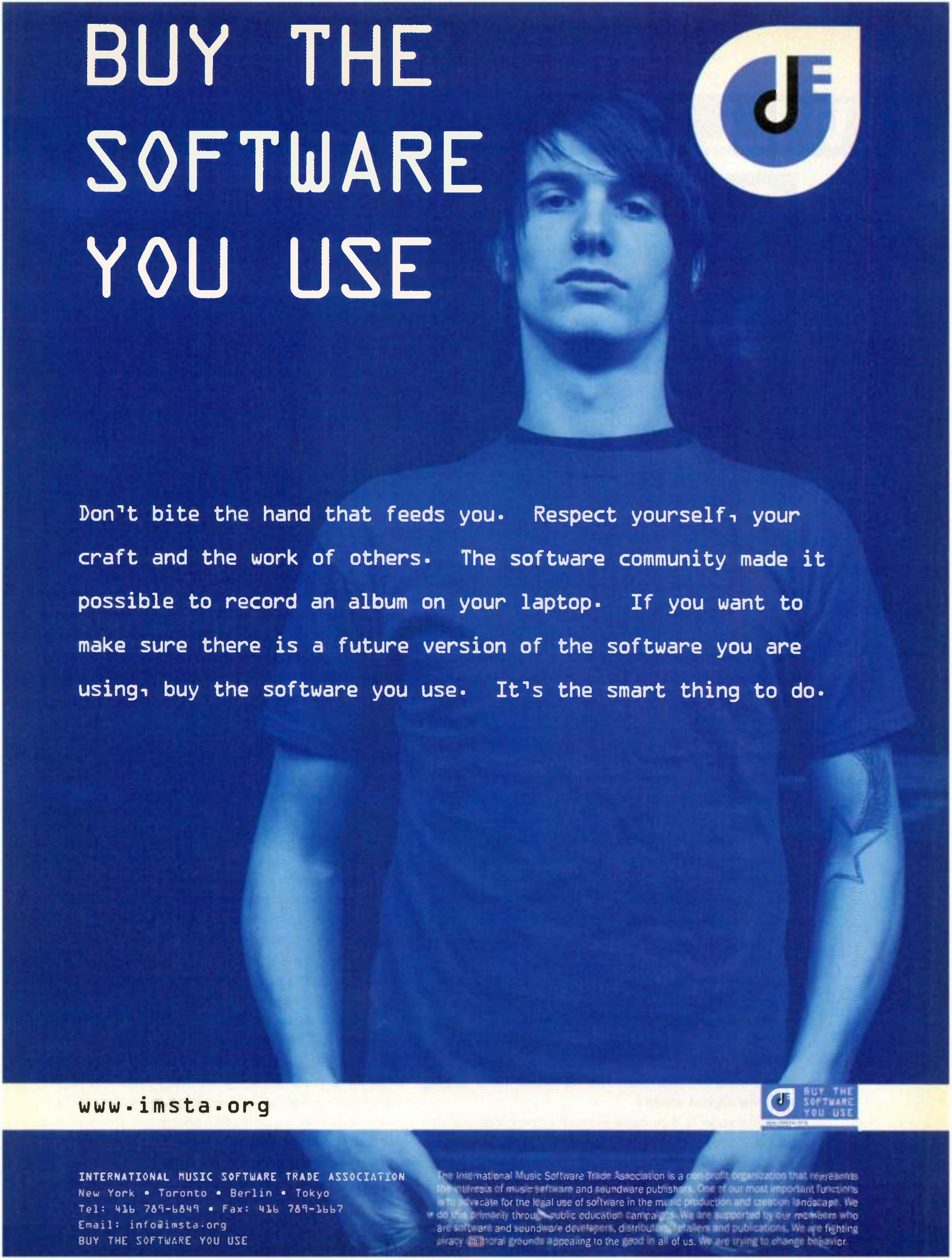

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+ 9 HOT PRODUCT REVIEWS

Lisa Roy interviewed Will I. Am on producing the Black Eyed Peas *Monkey Business* back in January 2005. Here's excerpts on Will's take on Pro Tools and the future, as well as a few tips for Pro Tools users.

EQ: Chris Lord-Alge said that when he worked with you he really respected you because as a producer and an engineer, "Will saw the finish line and I helped him get there. He heard in his head the way he wanted it, and all his comments were just, which I respect." How do you feel the role of the producer has changed?

Will.i.am: I think the role of the producer's the same as it ever was. There are just different tools to execute your thoughts and ideas. The tools have made it a little bit easier to articulate your thoughts, made it a little bit more user-friendly to those that are aspiring producers to bring forth the things they have in their heads. I remember recording and editing on two-inch tape. But now it's totally different; we can do so many things, it's limitless now.

How easily did you make the transition from analog into the digital world?

Dave Pensado said [imitates Pensado], "Hey, Will, you can do really good with this Pro Tools stuff, you should give it a shot. Go meet with Rhett Lawrence, he will teach you all the things you need to know about Pro Tools." So I went to meet Rhett. He showed me a couple of tricks. I would call them to troubleshoot. They were really, really helpful.

You've got a studio in your house in LA. Dish on the goodies?

Pro Tools: I've got the Digi 002, the Control 24, the M-box. Then, I have some vintage analog gear like a Clavi, Moog, Hammond organ, drum set.

And no going back from Pro Tools?

I don't program on a sequencer anymore. I do it all on Pro Tools. For me, it's the now and the future. I don't know what tomorrow's going to bring; all I know is that right now, the way I produce music, I wouldn't want to change it, because I see it on Pro Tools. I see the way it forms. I see the grid, I sequence on that, it gets played there and edited there and mixed there. I used to use the Akai MPC; I do everything on Pro Tools now. It wasn't designed to be a sequencer, but I sequence on that and program on that. So I get my drums right, or the combination of my stock sounds that I created and a live kit, and I manipulate it to make my program.

When you go into your studio what comes first?

The beat. I have a live kit, but instead of playing the whole kit or sampling a hi-hat, I just play hi-hat for three minutes. Then I'll go play the snare for three minutes; then I'll program the kick. That's what makes hip-hop, hip-hop—the focus the drum machine gives each drum without the bleed. So why don't I interpret what a drum machine does live, take out everything else and just play the hi-hat? Then, I will treat the drums the same way I would treat vocals. The way you would do a vocal and ad-lib a vocal, I have a drummer come in and ad-lib my drum program and put the fills and the crashes in.

What tips would you have for someone in the deep end of Pro Tools possibilities?

Well, I would like those people to keep this in mind: this equipment is becoming more and more affordable, so you're going to get a lot of young guys that are going to do all these crazy tricks. The one thing that technology can't mimic is that natural raw magic. Capturing that is worth more than any crazy trick and plug-in that you could put on a vocal. You can do all the editing tricks in the world, but natural magic is natural magic, and capturing that is priceless. EQ

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