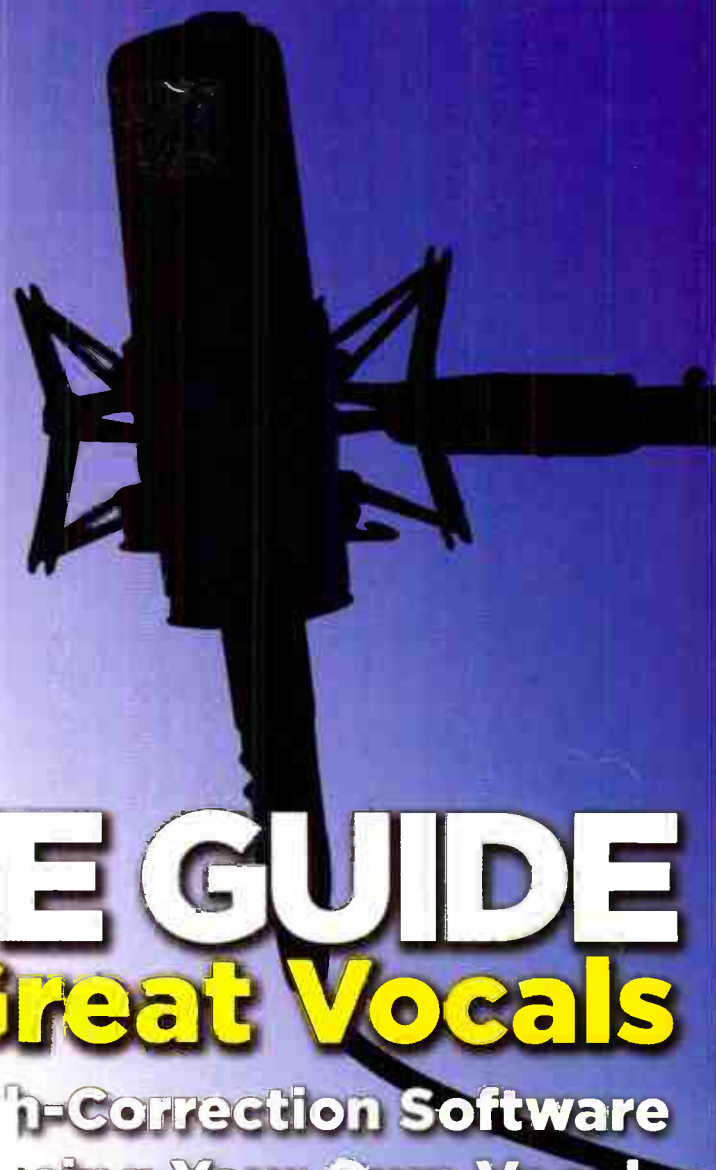www.eqmag.com

eQ ™

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ALESIS PROTRACK

MARCH 09
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Talk Box

TRANSITION TIME

Ten years ago, if you'd said multi-platinum acts would be creating CDs exclusively for Wal-Mart because it would be one of the few big chains left selling CDs, people would have thought you were crazy. But that's the reality. The mighty Tower Records has fallen, Circuit City is on the ropes, and the Mom and Pop stores are pretty much gone—except, interestingly enough, for the ones specializing in vinyl.

What happened?

There are plenty of potential scapegoats: Shawn Fanning, for starting Napster. The record labels, who failed to embrace a shift in consumer tastes. Greedy acts. The death of music radio, making it hard to hear new music. DVDs and video games competing for consumer dollars. Overcompression that made many CDs unlistenable. The lack of live venues that formerly provided up-and-coming bands an infrastructure.

But why bother assigning blame? That doesn't solve anything. The physical is transitioning to the virtual, and there's no turning back. Nor is the music industry a special case; just ask travel agents, Polaroid, newspapers, and typewriter manufacturers, among others.

Rather than deny reality, we need to embrace it. Someone will figure out a model for selling music in the virtual world that will make CD sales look like a blip. Someone will figure out a new distribution method that gets more music in the hands of more people than ever. And someone (maybe *you!*) will make a lot of money for figuring it out.

Don't fight the future, because the future will always win. Make friends with it instead—because when the future is on your side, you have an *extremely* powerful ally.

Speaking of transitions, I'm sorry to say Editor Matt Harper has left us to take a very sweet gig outside of the music industry. Aside from being a hard worker and a great friend, Matt has been an essential part of *EQ*'s resurgence in the past couple years. But *mea culpa:* Part of his departure is my fault. When his prospective employer called me up as a reference, I stupidly told the truth instead of lying through my teeth ("He's a great worker, except of course for Thursday, when he has to report to the parole board . . . and Friday, when he goes for drug rehab . . .").

The good news is he left on excellent terms, and is looking forward to continuing to contribute to *EQ* as a freelancer. Please join us in thanking Matt for all the great work he did in the past, and wishing him all the best for the future. He deserves it!

World Radio History

A PICTURE IS WORTH 1,000 APOLOGIES

I finally got a chance to see the issue of *EQ* with the 500-series "'Lunchbox Preamps'" feature (12/08). It's great and I'm happy to see it, but the section describing the Roll Music Systems RMS5A7 Tubule contains a photo of the Atlas Juggernaut instead. Would it be possible to run the correct photo?

Justin Ulysses Morse
Roll Music Systems, Inc.

Executive Editor Craig Anderton responds:
Interestingly, I made a correction on the PDF proof and so did our Art Director, but for a reason we'll never know, the wrong picture got in there anyway. So here's the correct picture—which is well worth running, if only because it has that cool-looking tube in it!

AND WE EVEN HAD IT FACT-CHECKED . . .

I just received the 01/09 issue of *EQ* magazine. Thank you so much for doing the article regarding my involvement with Bob Dylan's *Modern Times* and *Love and Theft*, but I must point out a few factual errors.

Bob's current band consists of bassist Tony Garnier, drummer George Receli, and guitarists Stu Kimball, Denny Freeman and multi-instrumentalist Donnie Heron. Charlie Sexton and Larry Campbell have not been members of the band for some time now.

Modern Times was *not* mixed "'in the box'" as stated on page 18. I have never mixed anybody's record in the box. *Love and Theft* and *Modern Times* were mixed through a vintage Neve 8068 at Clinton Recording. Mixes were printed back to Pro Tools. The very idea of mixing a Bob Dylan record "'in the box'" makes me shudder—I don't want anyone thinking I would do so.

The slide guitar heard on "Someday Baby" was played by the incredible Danny Herron and not Larry Campbell.

The photos on page 18 should have been credited to Bob Coulter.

Chris Shaw

YOU GUYS ARE WRONG ABOUT VISTA, TOO

I couldn't believe that *EQ* published an ad for [Windows] Vista disguised as an editorial (". . . Now I'm a Believer," 01/09 issue). Just ask around, everyone knows that Vista is a pile of crap. Microsoft is pushing Windows 7 out the door because Vista has been a disaster for consumers and for the company. I expected more from you guys than sucking up to Microsoft.

Terry Hallowell

Executive Editor Craig Anderton responds:
Read the editorial again—it was about being a believer in *64-bit computing.* Windows Vista was mentioned in the context of being a mainstream 64-bit operating system I've been able to use with an application optimized for a 64-bit operating system. I indeed noted the problems people have had with Vista, but regardless of what the "conventional wisdom" is, if I can increase my productivity when rendering videos by almost 200% simply by using a different operating system, that's significant. As the editorial stated, this doesn't mean people should run out and buy 64-bit systems; personally, I also use Mac OS X on Intel and PPC, as well as Windows XP. But the handwriting is on the wall: 64 bits is in our future, and as the technology matures, we'll see even more benefits than we're seeing now.

AND SOMETIMES WE GET IT RIGHT!

I've subscribed to *EQ* since the '90s

but I'd never written before. Well, I am now because your roundup features are so helpful I figured I'd better give you some props. My favorites so far were the ones on Portable Recorders (09/08) and "Lite" software (01/09). I ended up buying [Sony] Vegas Movie Studio and am finally getting into video because of it. Let's see if I get a billion hits on YouTube. Keep up the good work. How about a DAW roundup?

Sorcererj (via email)

Executive Editor Craig Anderton responds:
Thanks for the kind words, roundups are a ton of work but they've been a big hit with readers. Fortunately, with *very* few exceptions we've gotten great feedback from manufacturers too—they realize the roundups are more about educating consumers to make the right decision, not just to slam or praise products. A couple manufacturers don't quite "get it," but they will eventually.

As to a DAW roundup, that's unlikely for now. They are so feature-laden that to cover the needs of every possible user and to relate them to individual DAWs would be a daunting task, if it's even possible. But don't worry, we have plenty of roundups planned for the future, and we think you'll enjoy them as much as the ones we've done so far.

World Radio History

PUNCH IN

FASTIDIOUS FIDELITY

Mr. Scruff Squeezes Every Last Frequency Band Out of his Grooves

BY RICHARD THOMAS

In this age of portable music collections and ultra-compressed mp3s, the life of a fastidious audiophile is a tricky one—especially if you happen to be a DJ like Andy Carthy (*a.k.a.* Mr. Scruff). Known as much for his relentless pursuit of high fidelity as he is for his love of cartoons and a good brew—he moonlights as CEO of his own organic, fair-trade tea company—Carthy's soundchecks run longer than most DJ's actual gigs. But it's exactly this keen attention to detail that separates him from more plug-and-play performers.

"In order to be made well, tea, beer, or anything has to be made by very obsessive, geeky people who really love what they're doing," says Carthy. "It's a blend of being very serious, but also being light-hearted and relaxed."

Vinyl is Carthy's weapon of choice, and his entire DJ setup is perched atop a rumble-free steel platform bolstered with huge concrete slabs. He uses a Formula Sound PM-100 mixer—a modular system more commonly found in broadcast studios—hooked up to three Vestax PDX-2300 turntables outfitted with Rega tonearms and Grado 200i cartridges. The decks are modified with custom-made Isonoe

preamps with single-ended transformer outputs. Isonoe Isolation Feet—reinforced with Sorbothane shock and vibration absorption material—cut down on resonance, and external power supplies are encased in separate boxes to cut down on any unwanted hum picked up by the ultra-sensitive tonearms and cartridges. Supplemental outboard gear includes a TC Electronics D2 Digital Delay on an auxiliary send, and a Drawmer 1961 EQ on the master effects loop. Everything is connected with loads of posh Van Damme cables, and Carthy's personal engineer is present at every gig to ensure sound quality is up to snuff.

"I don't want anyone to have sore ears after hearing me play," Carthy says. "The system also helps me bring different genres of music together—some old Latin stuff, some Northern Soul, or some dubstep—so that a thin, old pressing can stand up to a very modern and well-mixed one. I'm sure in three or four years my entire DJ setup will be up to *mastering studio* standards—never mind the basic recording studio standards."

Due to a perpetually flooding basement, Carthy's living space isn't able to accommodate much of a home studio, so most of his tinkering occurs via his laptop and a pair of headphones. To record *Ninja Tuna* [Ninja Tune], his

fourth full-length release, Carthy transplanted all his outboard gear to Manchester's Zombie Studios, which is owned and operated by Andy Kingslow and longtime friend Phil Kerby. Like his DJ sets, the album is a festive experiment in groove, ranging from the Latin swing of "Stockport Carnival," to the disco house of the Moog-infused "Get On Down," to the haunting organ-driven funk of "Music

Mr. Scruff.

Takes Me Up" (that features singer Alice Russell). Elsewhere, "Whiplash" starts off with a frenetic jazz beat accented with muted trumpets and a twittering Roland SH-5 bass, but then Carthy cuts the tempo in half to transform the song into head-nodder.

"I like to separate and individually process my drum loops," says Carthy. "For example, on a one-bar drum loop, I'll typically put the bass drum, snare, and hi-hats on their own tracks. Then, I ensure that the only sub lows are coming from turntable rumble in order to leave space in the groove for bass, percussion, and other stuff. To do this, I might set a high-pass filter at about 25Hz on the bass drum, at about 80Hz on the snare, and then at around 150Hz—or as high as I can get away with—on the hi-hats."

Mixing the fluid energy of live music with the relentless predictability of repetitive programming gives *Ninja Tuna* a heavy yet natural feel, and even though it took nearly three years to come to fruition, Carthy is proud of the final result.

"I was curious to see what type of music I'd come up with if I didn't put any restrictions on myself," he says. "I was totally at the mercy of the groove." **EQ**

MIXED MEDIA
Apollo Sunshine's Democratic Creative Process
Involves Many Different Studios

BY GREG REYNOLDS

"It was really about finding a space where we felt comfortable to create a sonically diverse album," says Apollo Sunshine's Jeremy Black concerning the recording of *Shall Noise Upon* [Headless Heroes/Black and Greene].

With the discovery of Old Soul Studios in Catskill, New York, Black, along with band mates Sam Cohen and Jesse Gallagher, found their guiding light.

"It's this beautiful old mansion that was built back in the early 1800s," explains Black. "Every room is filled

with different organs, autoharps, mellotrons, drums, and guitars. For our style of music—which jumps around so frequently—the environment was perfect. We just walked in, and we couldn't help but start making some unique-sounding music."

As the prolific multi-instrumentalists settled into their new surroundings for two different three-week sessions, they also invited a multitude of friends to play strings, brass, and percussion, recording everything to analog without any preconceived notions about what they were going to do, or how the finished album would sound.

"We had a couple of ideas going into the studio, but a lot of the pieces evolved whenever something came to mind," says Black. "We just kept building things up until we got to the point where we found ourselves deconstructing everything. Eventually, we got what we got."

Drums were tracked with Shure SM57s on the top and bottom snare heads and the toms, an AKG D12 on the kick, a lone Nady RSM-1 ribbon as an overhead mic, and a Lomo 19A9 was positioned on top of a staircase to capture the reflections of the studio's expansive live room. The bass

Apollo Sunshine (left to right)—Jesse Gallagher, Sam Cohen, and Jeremy Black.

guitars were recorded using a combination of a direct box through an Ampex tube preamp, and an Electro-Voice RE20 placed up close on the speaker cabinet. Capturing the electric-guitar tones required a trinity of mics routed through a Purple Audio MC77: a Nady RSM-1 positioned a couple of inches from the neck to grab the sound of the strings, a Shure SM57 placed directly on the amp's speaker cone, and a Beyerdynamic M88 set down about six inches from the back of the cab to cover some of the low frequencies.

When it came time for vocals, the band liked the "up close and personal" approach. Lead vocals were tracked with the Lomo, and Cohen and Gallagher sang harmonies simultaneously into a Royer R-121 ribbon.

"We'd often record the background vocals four to six times—each time moving to differ-ent positions away from the mic to capture various senses of space," says Black. "We ended up with a huge layer of vocals, and we intensified the effect by panning each track differently in the mix."

A sense of whimsey directed the tracking of "Brotherhood of Death," where the rhythm tracks were soloed, played through the monitors, and then recorded again through a portable cassette deck with a built-in mic. The cassette tracks were slowed down a bit (using the unit's limited vari-speed control), and the result was deemed cool enough to port over to Pro Tools. Some strings and a baritone sax part that were already recorded on the "clean" digital tracks had to be slowed down to match the "dirty" cassette-recorded drums and bass, and then the vocals were tracked.

"It's definitely not a full-spectrum sounding tune," admits Black. "But the dirty, yet crisp mishmash of lo-fi and hi-fi really makes the song jump out at you."

After their stint at Old Soul was complete, each band member took a copy of the tracks to their respective home studios to review and enhance. Black added even more percussion at his Coyote Hearing studios in Oakland, California, and these, along with the Cohen and Gallagher additions, were auditioned at Headgear Recording in Brooklyn, where the musicians compared notes and started creating the final mix.

"We spent a lot of time on this album, because we work very democratically to make sure everyone is happy, as well as to make sure nothing falls through the cracks," says Black. "All the details can really be a pain in the ass, but I think we ended up with a stellar album." ■

Roy Hargrove.

TRACK NATURALLY
Al Schmitt on the Recording of Roy Hargrove's *Earfood*

BY SHANE MEHLING

Ever since Wynton Marsalis discovered him in high school, Roy Hargrove has been known as someone who can smoke on the trumpet. The Grammy

winner's skill at the instrument has led to more than a dozen records and collaborations with some of the finest musicians out there. His latest album with the Roy Hargrove Quintet, *Earfood*, [Emarcy] is a delicious mix of

smooth, contemporary jazz.

But to get the smoky live sound the Quintet was looking for, Hargrove asked legendary producer and engineer Al Schmitt to come aboard. Schmitt—who has worked with Sam

Cooke, Frank Sinatra, Neil Young, and scores of other artists—won his first of 19 Grammys in 1962, and he has recorded and mixed more than 150 gold and platinum albums. He is definitely a man who knows what he's doing, and Schmitt's thoughts on the recording and mixing of *Earfood* are tidbits to be savored.

What was the basic vibe of the sessions?

We recorded everything pretty much live in the studio, and the neat thing about the record was that the guys had just come off the road, and their chops were at a high level. When we started recording, they nailed almost everything in one take. We rarely went to take two, and we did 30 songs! As a result, the track assignments didn't change much, so most of the mix was balancing things, and putting a little echo here and there. Because I didn't have to audition a bunch of retakes or overdubs, I was able to mix 23 songs in just two days.

Did you isolate the instruments?

We isolated the drums, but the rest of the guys were out in the open. I had the trumpet and the saxophone facing the rhythm section. The little bleed we got between the trumpet and sax filled out the sound of both instruments, and I could still pan the trumpet a little to the right, and the sax a little to the left . . . then, the bass in the center, along with the kick drum and snare. The drum overheads were panned left and right, and the toms were spread across the stereo field. For the piano, I put the low end on the left, and the high end on the right.

What was the main gear you used to record and mix *Earfood*?

I'm a big fan of the Neve VRP Series consoles. I've been using them ever since I can remember, and I started mixing records when I was a

Al Schmitt.

teenager. What I like about them is that they're so musical-sounding. They sound natural, and they tend not to color anything. For my speakers, I've been using these hybrids by Doug Sax from The Mastering Lab. They have 10-inch drivers, and the cabinets and crossovers are all Doug Sax. They're incredible. Whenever I bring something in to be mastered by Doug, he always says to me, "Never sell those speakers!" I'll check the mix on other speakers—including the ones in my car—but I mix so that it sounds good on *my* speakers, because then it usually sounds good everywhere. I don't tweak anything for mp3s or radio. I try to make records that sound good or anything, but my records are going to sound a hell of a lot better on my speakers than on your iPod.

During the mix, did you find yourself adjusting or refining any of the original sounds you recorded?

No. In fact, I don't use *any* equalization. I just adjust the mics until I get the sound we're looking for. It's just my style. It's the way I learned. I also use very little compression. I may put

the bass through a tube limiter to get the sound of the tube, but, at most, I'll pull down a dB. I'm pretty much a simple analog kind of guy.

Did you do any digital editing?

No. I mixed down to half-inch analog tape. Of course, Pro Tools makes editing easier, but tape hits you in the chest. Most people can't tell the difference, but. . . .

You've made scores of hit records, but can you think back and remember one of your worst session gaffes?

In the late '50s, Tommy Dowd—who was my mentor—and I were in the studio joking around, and I erased three or four bars on this project. We were just playing around, and my reflexes hit the wrong button, and he looked at me, and I looked at him, and we both dove for the tape machine. Then we spent the next six hours combing through outtakes trying to piece everything back together. I learned to be a little more careful after that. **eq**
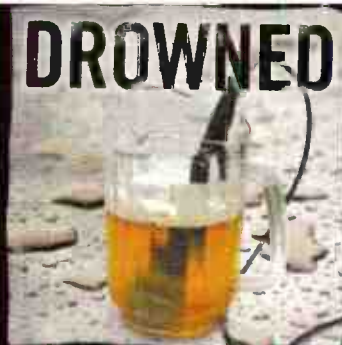
TOOL BOX

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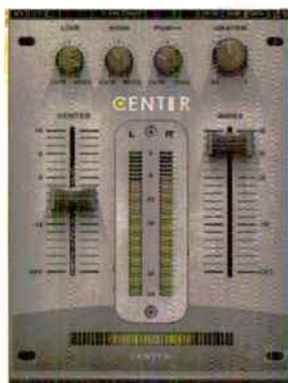
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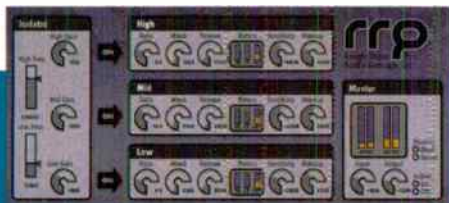
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FIGHT FOR YOUR RIGHT TO CREATE

Alliance aims to protect the rights of artists through political action
The Recording Artists' Coalition (RAC) announced an alliance with The Recording Academy that will allow it to continue its mission of vigorous advocacy for recording artists as a program of The Recording Academy, rather than as a separate nonprofit organization. RAC will become an integral program of The Academy's "GRAMMYs on the Hill" initiative, which advances the rights of music creators through advocacy, education, and dialogue. The first objective of the GRAMMYs on the Hill/RAC program will be to educate new and returning policy makers about the critical issues facing music creators, and the need to ensure fair compensation for all music creators on all platforms.

RAC was founded in 2000 by Don Henley and Sheryl Crow to address legislative issues that affect the recording artist community. On behalf of its membership of more than 150 recording artists, RAC has addressed issues such as artist contract reform, media consolidation, and artist compensation.

The Academy opened its Washington, D.C., office in 1998 and has since launched numerous programs to advance music makers' rights, including the music community's only annual grassroots lobbying day in Washington, D.C. Academy leaders are frequently called upon to testify before Congress and to educate and advance critical music policy. www.grammy.com

Victorian Arts
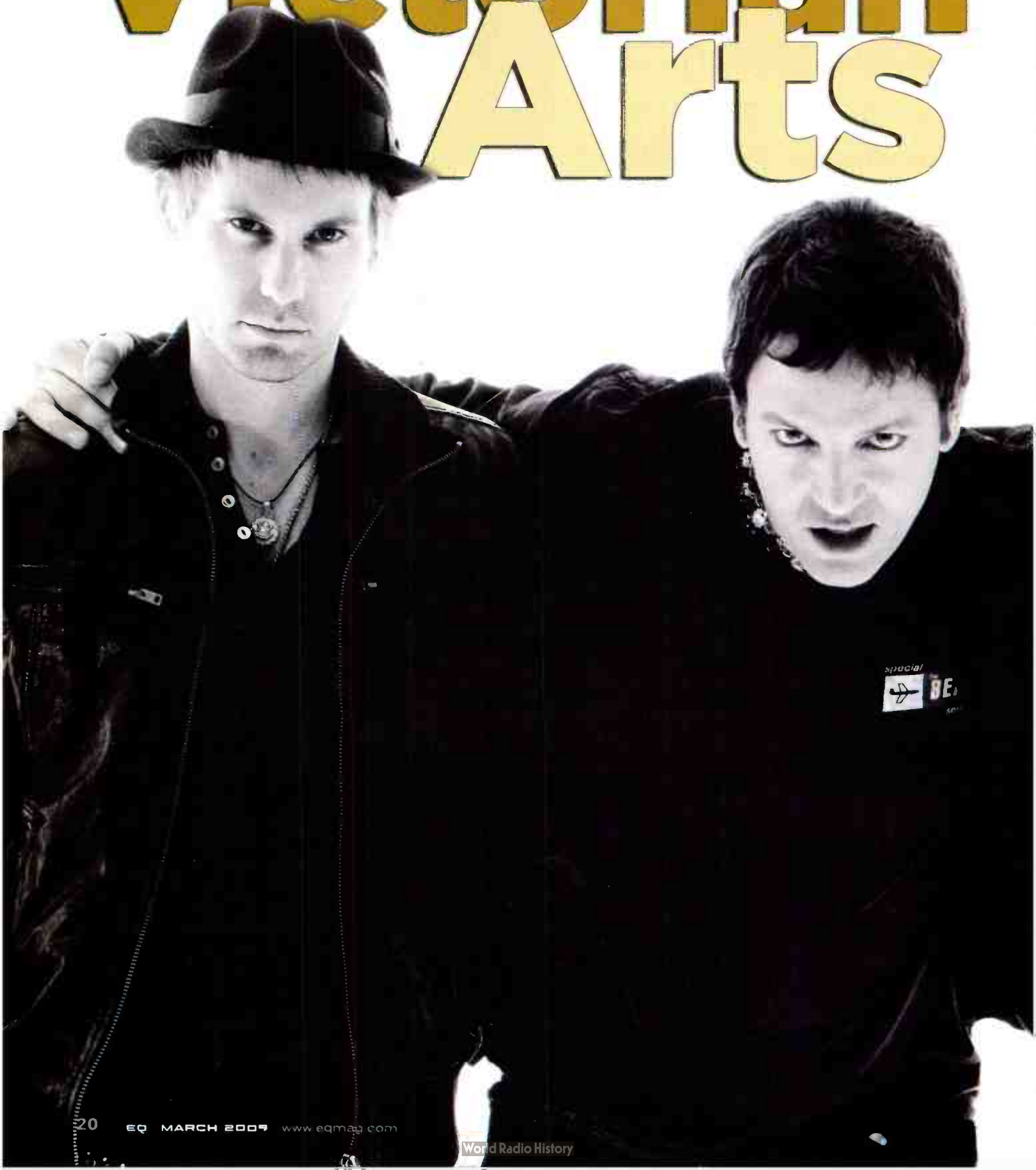
Third Eye Blind's Stephan Jenkins Crafts Sounds in the Ballroom of his 1870s San Francisco Mansion

by Greg Reynolds
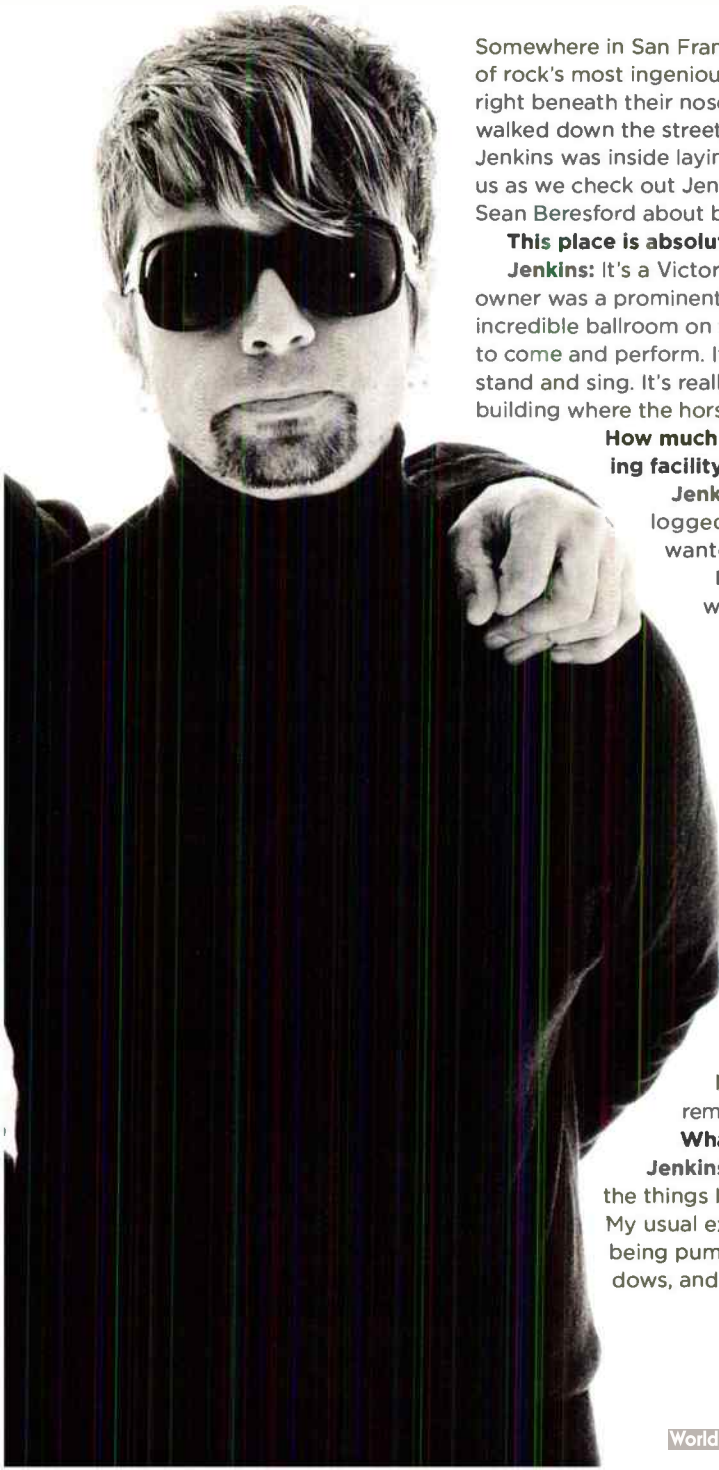
Somewhere in San Francisco, an upscale neighborhood is oblivious to the fact that one of rock's most ingenious vocalists/producers is banging out yet another masterpiece right beneath their noses. Hell, if it wasn't for the video crew packing up their van as we walked down the street, we might have never known that Third Eye Blind's Stephan Jenkins was inside laying down some tracks in his new recording facility. So, come join us as we check out Jenkins' new digs, and speak with him and his in-house engineer Sean Beresford about building a studio, choosing gear, and tracking hits.

This place is absolutely amazing. Tell us a little bit about your pad.

Jenkins: It's a Victorian-era mansion that was built during the 1870s. The original owner was a prominent figure in the early 20th-century music business, so there's an incredible ballroom on the west side of the house where some popular musicians used to come and perform. It even has a balcony in the corner where opera singers would stand and sing. It's really cool. The mixing room is separated from the main house in a building where the horses and carriages were kept.

How much time and planning went into turning the house into a recording facility?

Jenkins: Sean and I designed my last studio, so already had logged a lot of time in figuring out all of the ergonomics of how we wanted to work.

Beresford: It was two years ago when we first came in here, and we spent three months going through everything and deciding how everything would fit together. After the designs were completed, it took about six months before the first hammer fell.

Did you guys design everything yourself?

Jenkins: We had our friend Chris Pelonis [of *Pelonis Sound and Acoustics*] come in and design the studio. He has done many well-known studios, and he's really good at what he does. Basically, I wanted to be able to say, "This is what I want to do," and then get it done. I didn't want to deal with a lot of set up, so everything is interconnected and wired. For example, we have a 6' x 6' amp closet that is plugged in and ready to go, and we even wired the bathroom for mics.

What considerations did you keep in mind when designing the rooms?

Jenkins: Even though we are blessed to have these grounds, we're still in an urban environment—which means we have neighbors all around us, and cars driving by. Also, as the house is considered an historical building, the outside could not be remodeled or changed. The inside, though, was completely redone.

What were the most important changes that had to be made?

Jenkins: We had a big argument about keeping the windows. One of the things I love about this studio is that it has natural light and natural air. My usual experience with studios is that you're in a dark hole where air is being pumped in, and it's always too hot or too cold. So we kept the windows, and then installed another set of thick, half-inch panes on the inside

(Continued)

to keep noise in and noise out. The room had a tile floor, and we took it down to the concrete, and left it pretty hard so that it would reflect bright sounds. Some walls had to be sheared, some had to be rebuilt, and then we built a classic "w"-shaped rear wall to offset reflections and act as a bass trap.

How many rooms did you end up with?

Jenkins: We closed off one section to make it a small live room. We originally laid down some carpet, but we pulled it out, and put in a slate floor to make the area a little more live. We do rehearsals with the band in here, and even though it's really tight, it's bigger than the room the Beach Boys made *Pet Sounds* in. The piano sounds really nice in there. I don't use it for drums—except for rehearsing—but it's great for guitars. All the amps are set up and good to go, so it's kind of like having a [Line 6] Pod, but with real amps. If there's a guitar sound you're looking for, you can just go in there and grab it.

What about the main house and that massive ballroom?

Jenkins: The main house has not been messed with at all. Before I bought the place it was a popular bed and breakfast, and it's still completely decked out with Victorian-era furnishings and trim. The three-story ballroom is acoustically flawless—there wasn't anything we could have done to improve it. The only thing we had to do was have the wiring done, and that took a lot of time to test everything to make sure it all worked.

Beresford: We were really concerned about running 200 feet of cable. I think it's supposed to be around 150 feet where a twisted-pair maxes out, and by the time we got the snake running halfway across the floor, we were somewhere around 230 feet. I kept thinking, "Is this going to be horrible? Are we going to degrade our signals to the point of no return?"

Did you look into digital snakes?

Beresford: At one point, I was convinced that would be the way to go. We tried these $25,000 systems with beams and all this crazy stuff, but none of them seemed to work.

Jenkins: Although, we were totally stoked about the prospect of laser beams flying around.

Beresford: Yeah, it sounded really

Third Eye Blind (left to right)—Stephan Jenkins, Tony Fredianelli, and Brad Hargreaves.

cool, but when push came to shove, we ended up running a cable of 48 tie lines—or 24 pairs—up to the main house The second we got the console in, we put up some microphones, and started testing. We did some classical recordings with the grand piano up there, and there was only one- or two-percent signal degradation after running through all that copper. Most of our microphones didn't react too badly by taking them at mic level, and powering them from the console. But we've kept some Millenia HV-3D preamps up there, because if we do any serious string or classical recording, we'll run the microphones straight into the preamps, and then route the signals to the cable run.

How did you decide on what gear to purchase?

Jenkins: We acquire a lot of gear after listening to it.

Beresford: And stealing it.

Jenkins: Yeah, we just go down to a lot of studios and take their stuff. Isn't that what everybody does? But really, we tend to do a lot of gear shootouts and blind taste tests. We have Helios Olympic Studio preamps, a rack of Neve 1073s and 1081s, and a bunch of other stuff, such as Brent Avril API knockoffs. I really like the Brent Avril API because it has this terrific presence and crispness. The Mercury Audio Grand Pre also tended to win a lot of our listening tests, and we used it on Vanessa Carlton's last album because you actually felt you

were in a better mood when you listened to it. But ever since the Wunder Audio Wunderbar console arrived, we practically don't need our mass of mic preamps anymore, because everything on that console is so good.

Beresford: We really messed around with recording media, too. For a while, I was convinced the iZ Technology RADAR V Nyquist was the best-sounding thing, and we did almost all of Vanessa's albums on the system. It was really painful to edit on, but it just sounded so good compared to everything else. We borrowed the RADAR for like three months because we just had to discover which medium was better—analog, RADAR, or Pro Tools?

And what did you find?

Jenkins: I think certain things sound better recorded in different ways. Drum sets and bass guitars are more pleasing to me in analog. In the digital realm, a lot of it is in the converters. A mediocre converter versus a really good converter is a much bigger difference than a good converter versus analog tape.

Beresford: So we use a Studer A827 analog 24-track for some stuff, and everything else runs through a Lynx Aurora converter and an Apogee Big Ben Master Digital Clock into Pro Tools at 24/96.

What do you like to use for monitoring?

Beresford: Chris Pelonis built us these great speakers that are recessed into the wall. We use those a lot for

glory. We've always had Yamaha NS10s as basic reference monitors, but we were looking for something we could listen to for hours and hours on end without getting fatigued. Of course, we did another one of our shootouts—this time with every pro-audio speaker we could find. At the last minute, we found these really wacky-looking Barefoot Micromain MM27s with subs on their sides. They were by far the sweetest-sounding speakers all the way across the spectrum. We never looked back. I even bought a pair for myself to use at home.

How about microphones?

Jenkins: On my first album, I was extremely uptight about what to do, so I begged and borrowed every vocal mic by every dead German you could think of, and the Telefunken 251 won out repeatedly. I ended up using it for the whole record, and I finally convinced the guy I was renting it from to sell it to me. I must have paid for it three times—including rental fees—but it was still worth it.

Is that the only vocal mic you ever use?

Jenkins: If I'm doing something where I want to move around, or if I'm working with an artist who wants to move around, the Shure SM7 is a really good mic. We use those a lot, and the Neumann U67s often get used for backing vocals.

Do you have tried-and-true ways of recording, or are you constantly experimenting with new techniques?

Beresford: We still use traditional methods so you don't regret something later on, but, for me, it's all about randomly trying things. For instance, I haven't used a Coles 4038 in a long time, because I never found an application where they sounded good. But we had to put the drum kit up in the corner of the chamber just to tidy up, so I thought, "What if I put the Coles behind the drum kit?" Suddenly, they sounded amazing. So, you see, sometimes it's just pure experimentation—something a little different.

Jenkins: Some very successful producers tend to go, "This is my trick. This is my setup. This is how you do it. We'll double the guitars on the verses, quadruple them on the

choruses, and then put everything on the grid." That's *not* the approach we are taking at all.

Beresford: It's not really an esoteric type of thing—it's just fun to try new things. Like today, we got this Heil PR30 top-address microphone, and we set it up on an amp. After listening to it, we thought, "God, it sounds horrible." Then, I accidentally knocked it almost upright, but I left it there, and it ended up sounding absolutely fantastic. If you look at it now, you might think I'm using the mic wrong—like it's a side address—but it just sounds really good in the "wrong" position.

Like you're getting the off-axis response?

Beresford: Right! But it's not like we think we know better than anyone else—it's just like, hmm, we'd like to give that a try.

Jenkins: I think what Sean's trying to say is that we have no idea what we're doing. We're just trying to figure out what these things do [*laughs*]. But, really, I think that's a much more exciting way to record. You start with a song, and you get excited about it. There's something appealing that energizes it, and you say, "Great, how do we put it together? What amps should we use?" Then, you choose something, check out how it makes the song feel, and you start fiddling with things until you like the result. I mean, we're being funny about not being thoughtful about the recording process, but *not* thinking too much does allow for spontaneous creativity.

Do you track with EQ and compression, or do you save those until the mixdown?

Jenkins: We've definitely been taking a more natural approach. Our focus is on the player and where it all starts—the part, the fingers, the instrument, the microphone, the mic preamp, and just trying to get everything in that combination. So we basically leave EQ and compression out. For example, we have a really beautiful chamber to work with, so we've been tracking vocals more "Sinatra style." If you want the vocal to sound more open, just back away from the mic. If you want the feel of some compression, then get closer

to the mic. Sean always has his hand on the gain, so *he's* the compressor.

Beresford: [*Laughs.*] I'm not nearly fast enough to actually work like a compressor, but that technique has been working very well. I like tracking things raw. I used to try too hard. I'd hit the EQ hard, and I'd really hit the compressors hard. Now, it's so much more about having a great instrument in a great space with a great player.

Jenkins: At the end, when everything is together, is when we'll go, "Okay, there are still too many mids." That's when we bust out the EQ and compressors, and start to explore the sound more thoroughly.

Beresford: We use quite a bit of compression when mixing. Sometimes, every last piece we have is being used for the mixes. We're using the Mercury Audio M66 compressor on the vocals a lot.

Jenkins: We're also using the Thermionic Culture on vocals to add a little sweet harmonic distortion to my life. We also put a lot of the guitars through it, because it just sounds fantastic.

Beresford: We don't use a lot of outboard gear for spatial effects. In fact, the only outboard units we have are an old Sony SRE-777 sampling reverb and an AMS RMX16. So far, we haven't even turned up the aux sends on the console. We do use a fair amount of plug-ins. We love the SoundToys stuff and Altiverb for creating environments and thickening things.

What is the greatest benefit you discovered while recording your upcoming album in this new space?

Jenkins: The thing I've realized from having such a great space to record in is this: When you're tracking an acoustic instrument—particularly drums—you're not really recording the drum, you're recording the room that it's in. That's the reason Led Zeppelin's drums sound so amazing—the engineers were focused on the sound of the room. So when you listen to our new tracks, a lot of what you'll be hearing is the sound of the ballroom. That natural approach definitely gives the instruments a larger-thanlife sound that is going to punch you in the face. ⏻
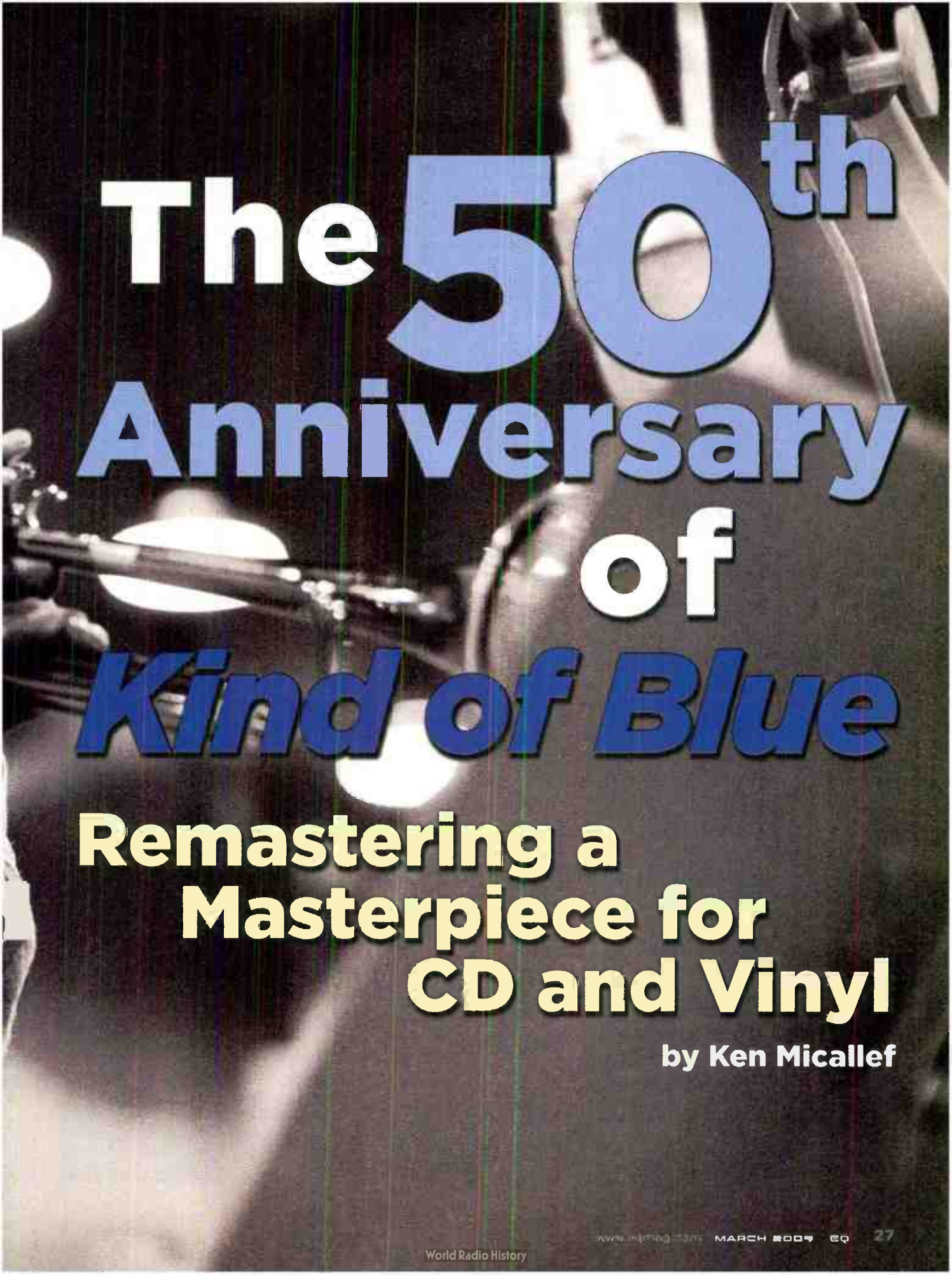
The 50th Anniversary of *Kind of Blue*

Remastering a Masterpiece for CD and Vinyl

by Ken Micallef

The 50th Anniversary of *Kind of Blue*

The best-selling jazz album of all time, the stark modal style of Miles Davis' *Kind of Blue* has inspired countless musicians—everyone from the Doors and James Brown to Weather Report, Q-Tip, and Portishead. Recorded in 1959, at Columbia's legendary 30th Street Studio in Manhattan—which also was the home for celebrated recordings by Bob Dylan, Aretha Franklin, Johnny Cash, Billie Holiday, Charles Mingus, and Sly & The Family Stone—*Kind of Blue* was the dividing line between Davis' cool period, and the exploratory music that began with his revolutionary '60s quintet. Housed in an abandoned Greek Orthodox church at 207 East 30th Street, 30th Street Studio measured 100 feet by 100 feet with very high ceilings and gorgeous wooden arches. The enormous space was converted to suit the acoustic desires of each artist with the use of gobos and baffles, allowing the studio to record everything from small jazz groups to pop singers to massive choral and orchestral pieces.

"I always liked the drum sound in there," says Jimmy Cobb, the last surviving member of the *Kind of Blue* band. "You could play the way you wanted to play, because the engineers had control over everything. They knew every spot on the floor where the drums would sound best. For the *Kind of Blues* sessions, they put a mic right close to the cymbal, so you can hear it ping—you clearly hear the wood of the drumstick against the cymbal. I think there was one mic positioned overhead, one mic placed between the snare and hi-hat, and maybe one more mic near the front of the drums."

Produced by Irving Townsend with engineer Fred Plaut, *Kind of Blue* brought together the greatest jazz musicians of the era: pianists Bill Evans and Wynton Kelly, tenor saxophonist John Coltrane, alto saxophonist Julian "Cannonball" Adderley, drummer Jimmy Cobb, and acoustic bassist Paul Chambers. It was supposed to be just another recording session before the band returned to the road, but Davis enforced a template of instantaneous creation by handing the compositions to the musicians practically on the spot, and insisting on cutting the pieces in one complete take.

"He liked the energy in the first take," says Cobb. "Miles always felt like the more you did it, the worse it was going to get. And with those kinds of musicians, you could just tell them what you wanted, and they'd give it to you the first time."

To commemorate the album's 50th anniversary, Columbia Legacy has issued *Kind of Blue: 50th Anniversary Collector's Edition*—a comprehensive box set that includes two CDs, a DVD, and a 180-gram, blue vinyl LP. CD One encompasses the March 2, 1959 session that produced *Kind of Blue*'s "Freddie Freeloader," "So What," and "Blue in Green;" the April 22, 1959 session that brought forth "Flamenco Sketches" and "All Blues;" and some false starts and studio sequences. CD Two presents a May 26, 1958 session—the only other studio recording of the sextet (Davis, Evans, Coltrane, Adderley, Cobb, and Chambers)—with producer Cal Lampley that produced "On Green Dolphin Street," "Fran-Dance," "Stella By Starlight," "Love for Sale," and "So What," as well as a 17-minute live version of "So What" captured at an April 1960 concert in Holland. The DVD includes interviews with prominent musicians, as well as the complete 1959 television program, *Robert Herridge Theatre: The Sound of Miles Davis*. The vinyl LP is a worthy addition to this historical box set.

MASTERING FOR VINYL

Given the task of remastering Mark Wilder's 1997 two-track remix of *Kind of Blue* for the *50th Anniversary Collector's Edition*, mastering engineer Greg Calbi broke out his usual setup at Sterling Sound: a Studer A80 2-track, Digidesign Pro Tools,

The original Blue men (left to right): John Coltrane (tenor sax), Cannonball Adderley (alto sax), Miles Davis, and Bill Evans (piano).

The 50th Anniversary of *Kind of Blue*

Merging Technologies Pyramix software, a custom Muth console, a Dangerous 2-Bus Analog Summing Mixer, a Focusrite Blue 330 mastering compressor, a Blue 315 isomorphic equalizer, a pair of EAR DAR 822Q equalizers, a custom Wolifson tube amp, a Manley Massive Passive tube equalizer and Variable Mu Limiter Compressor, ProAc Four monitors, and Wireworld and Harmonic Technology cables.

"I had Mark's 2-track tapes that were mixed from the original 3-track tapes," says Calbi, "as well as three or four pressings of *Kind of Blue* from different eras. The early versions had a bit of a different bass sound than the '97 remix, and I wanted to get as close to the original bass sound as I could, because I thought it spoke a little bit better. We tried several different pieces of equipment to get the roundness we wanted on the bass. I ran the audio into a custom line-stage amplifier designed by Barry Wolifson, then into an EAR DAR822Q equalizer—boosting around 100Hz to get the bottom as full as possible—and then into the Muth console. Other than that, I didn't want anything in my signal chain that might change the original relationships of the instruments. I didn't want to start EQing and changing the tone of things. It was basically a transfer of the mix, but fattened up to get it as smooth as possible. That was my job with *Kind of Blue*—to transfer the mix flat, but with a color that would enhance the sound of the horns and the bass. The original mix tended to be a little bit on the bright side. There was a period in the early '60s where everything was really bright."

Calbi also worked hard to accurately represent the original sonic spectrum of the album.

"The elements that make *Kind of Blue* most interesting to me are the sound of the room itself, the horns being panned hard right and hard left in the stereo version, and the natural dynamics," he says. "The expressiveness and detail you can hear from each player is amazing. And, when mastering for vinyl, you can keep full dynamic range without having to compress everything to be louder. Today, people love their sh*t to be loud in order to compete on the radio, or with

other CDs. But for *Kind of Blue*, that approach is irrelevant. This is music that you want to cherish, and try to enhance. You know, people always use words such as 'organic' and 'natural,' but the only natural thing is sitting in a room and hearing some guy play. Everything else is all technology and artifice."

MASTERING FOR CD

As Sony's Senior Mastering Engineer, Mark Wilder typically spends his days remixing tracks both classic and modern out of Sony's Battery Mastering Studios on West 54th in Manhattan (formerly the Record Plant). Wilder has more experience with *Kind of Blue* than almost any other living person on the planet except Jimmy Cobb. Wilder not only remastered the quintessential *Kind of Blue* mix from the original 1959 3-track tapes, he discovered a playback-speed flaw that remained on all *Kind of Blue* pressings until 1992. At that time, Wilder was revisiting the 3-track safety reels from the original 1959 session for the Sony Mastersound reissue of *Kind of Blue*, and he noticed the three songs on Side A were a bit sharp in pitch compared to the same tunes on the backup reels. Apparently, the main 3-track deck was turning slower than
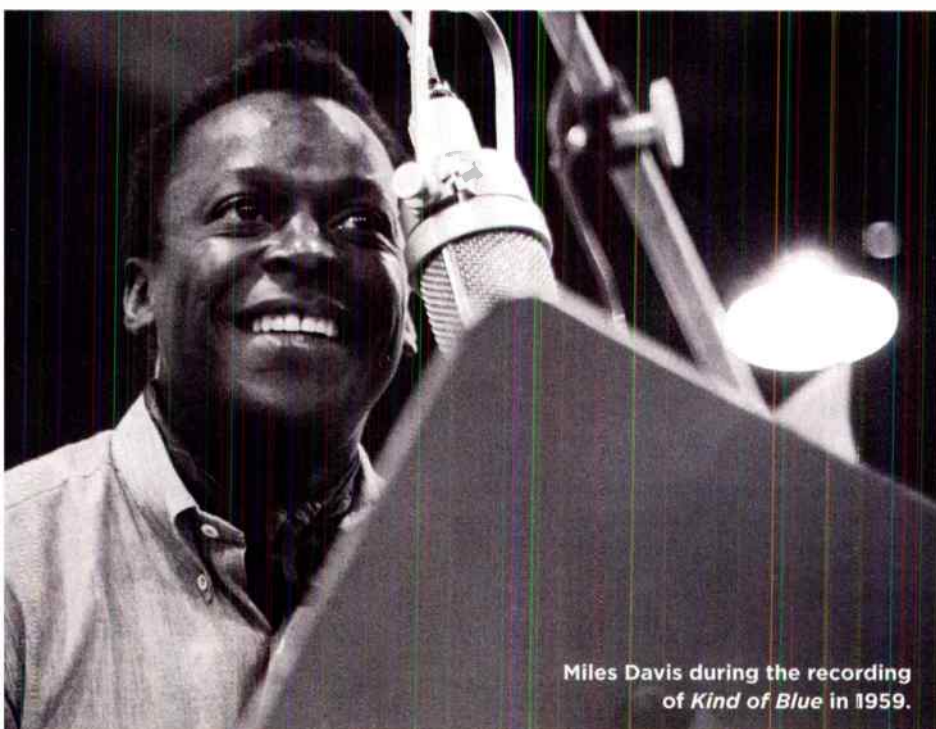
normal during the March 2 session, and when these tracks were played on a machine running at the proper speed, the slightly faster playback produced the higher pitch. This is why the CDs and LPs made from that reel were sharp. Wilder surmised that the main 3-track had received some maintenance by the time of the April 22 session, and therefore the pieces on Side B were tracked at the standard speed. Realizing that the backup reels had never been played, Wilder decided to use them to remaster Kind of Blue for Columbia's 1992 Mastersound SBM Gold CD release, thus ensuring both "sides" of the classic album were playing at their proper pitches.

"For the 1992 Mastersound disc where we did the speed correction, I used a Studer 807 3-track and a Neve 8108 console to mix direct to a customized Sony PCM 3402 DASH reel-to-reel digital 2-track during that period of time when Sony had its proprietary 20-bit converter," explains Wilder. "For the final assembly, we used the U-Matic 1630 digital format tape. Basically, you recorded 16 bit/44.1kHz to a 3/4-inch videotape. These were all modified machines, and the connections were SDIF 2 instead of AES. For its time, it was great. Editing was very linear. Unlike a workstation,

it was hard to bounce around in time—you pretty much had to assemble the master from start to end.

"In 1997, when we wanted to address Kind of Blue again, I had a GML custom line mixer, and a basically pristine, all-tube Presto 3-track—possibly the R-II [1956] or Model 825 [1957]—which had a unique sound. The GML console was a true step up—it was by far more transparent than the Neve. I did a flat transfer—no EQ or compression—from the Presto and GML to an analog Ampex ATR-102 with Dolby SR running at 15ips. Printing to analog allowed me to move those original mixes into the future for any technology change that may come along, and these are now the reference standard mixes of Kind of Blue.

"We wanted the 50th Anniversary reissue to be special in some way, so I went with a different tape machine—the Studer A80—and, instead of using the newer Dolby SR 363 units, I went with some standalone SR cards that fit into the old Dolby 360 racks. We used Grado cables to connect everything, and, keeping in mind that we wanted a different interpretation of the original tape, I ran it through an EAR 825 Mastering EQ completely flat. I just wanted to get that Tim de Paravicini [a renowned high-end analog engineer who designed the EAR

Miles Davis during the recording of *Kind of Blue* in 1959.

The 50th Anniversary of *Kind of Blue*

John Coltrane and
Miles Davis (background).

825] sound without fiddling with the
tonal balance—which I didn't want to
change. If you compare the 50th
Anniversary CD with the 1997 release,
you'll find the 50th Anniversary disc a
little warmer, and more inviting. It's not
that the '97 version is abrasive—it's simply
11 years later. I am at a different place as a
listener, and as an engineer, and my inter-
pretation was different then than now."

Still, retaining the original audio
character of what Wilder considers
"one of the best recordings Fred Plaut
ever did" was a paramount goal. He
also wanted to scrupulously document
the sounds of the vintage tools likely
used to craft *Kind of Blue* at 30th
Street Studio in 1959—a custom
Columbia console, Neumann M49
mics, Telefunken or custom-made mic
preamps, Ampex 300 or 350 tape
machines, Scotch 190 tape, and Altec

Lansing Voice of the Theater monitors.

"You have three horns and a
rhythm section together in a huge
room, and Fred Plaut—the original
engineer—placed the mics with a
sense of where he wanted the per-
formers to be in the speakers," says
Wilder. "The left, center, and right
balance was done before it hit the 3-
track tape. It's mostly a simple, static,
'all faders up' mix—even though Fred
was doing what was known as a live
mix. He was aware of the solos,
where the heads were, and who was
playing what—turning the mic pre-
amps up or down as needed. A per-
fect example is "Freddie Freeloader,"
where Fred is a little late on John
Coltrane's entrance. The saxophone
sounds very echoey, and then, all of a
sudden, he's *there*. Fred was a little
slow on the fader." ⊖

World Radio History

Warren Haynes.

WARREN HAYNES'
I 1PROVISATIONAL TIPS
FOR STAGE & STUDIO

by Joel Patterson

Last year marked the 20th anniversary of Warren Haynes' annual Christmas Jam in Asheville, North Carolina. In the past five years alone, Haynes' charity jam has raised almost one million dollars for Habitat For Humanity. Truly marathon events, the shows crisscross musical boundaries and are driven by spontaneity. Past performers have included the Allman

Brothers Band, Jackson Browne, Peter Frampton, Gov't Mule, John Hiatt, Bruce Hornsby, Hot Tuna, Phil Lesh & Friends, Little Feat, Living Colour, Branford Marsalis, Dave Matthews, the Neville Brothers, North Mississippi Allstars, Trey Anastasio, Robert Randolph & the Family Band, John Scofield, Marty Stuart, Taj Mahal, Susan Tedeschi, Derek Trucks, and Bob Weir.

"It's not like setting up and making a live record where you've rehearsed

everything, and everybody knows exactly what's going on at every moment," says Haynes. "It's kind of the opposite. We're trying to save money so more money can go to the charity, so there's always going to be a lack of gear to accommodate the 51 musicians that may appear throughout the night. And there is very little soundchecking. In the spirit of the event, it's almost like the sound people are improvising, too."

Of course, it takes a certain mindset to improvise comfortably—even for a jam-band guitar hero such as Haynes, who has logged tenures in Gov't Mule, the Allman Brothers, and the Grateful Dead. Decoding that improvisatory mindset can pay big dividends in the studio, where "happy accidents" are often the elements that can transform rather ordinary music into something truly magical. Here, then, are a few "codebreakers" from Haynes himself.

FIND YOUR MUSE

"The Gibson Les Paul is my guitar of choice," says Haynes. "I have a Gibson signature model that is a combination reissue of a '58 and a '59 Les Paul. I've always been drawn to creamy and rich guitar sounds. I'm not one of those people who gravitates toward more thin or harsh sounds, and, for some reason, a lot of my favorite sounds growing up were either made by someone playing a Les Paul, or someone playing something that sounded like a Les Paul. Like any musician, it's important to find your own sound. You're always searching for it, and you never completely find it. But sometimes you get close to it, and you want to stick with that approach. This is why the Les Paul is a big part of my voice."

SEEK LIFE-LONG INSPIRATION

"The first sounds I remember moving me were the sounds of regional black gospel music coming over the radio in North Carolina, where I grew up. It made the hair on my arm stand up. I was perhaps too young to know what was going on, but something happened. Then, shortly after that, I discovered soul music—James Brown, the Four Tops, the Temptations, Sam and Dave, Wilson Pickett, and Otis Redding. That was my first love, musically speaking. Long before I ever heard rock and roll music, I was in my room singing along with soul records. It was the sound of the singer. The voice itself. I fell in love with voices. Levi Stubbs from the Four Tops, Dennis Edwards from the Temptations, Otis Redding, James Brown, and Sam Moore from Sam and Dave—they all had these phenomenal voices. I remember at an early age hearing B.B.

King and Ray Charles, being moved by their voices, and then eventually putting together that they also played their instruments very well. That was a light bulb for me—'Hey, you can sing *and* play an instrument!'"

PLAY WITH OTHERS

"When I was 12 years old, I found some like-minded kids my age who became my best friends because we all shared an interest in music. We would get together in somebody's house, and annoy their parents by playing really bad music. We thought we were doing the right thing. In hindsight, we started out screeching, but I think we thought it was better than it was at the time. But the main thing here, is that it's really important you never forget the impulse, the spark, and the desire of making music with other people. It's a critical connection, and that connection is even more important than sitting in your room and practicing and practicing—even if you know you're getting better and better. It's only through other people that you can verify you're able to communicate through music."

SHAKE OFF THE SELF-LOATHING

"There are always moments when something technically goes wrong, or musically goes wrong, or things just aren't gelling or clicking. I think many musicians tend to over-amplify what that really means. In our brains, it's a catastrophe. You tell yourself, 'Everyone in the audience knows exactly how bad this is.' You have to remind yourself that it's never as bad as you think. I don't think an audience's reaction, and what a musician thinks are the same. As an example, some nights I might walk off stage thinking I had a terrible night, and yet someone who has seen me play many times might come up to me and say, 'Wow, that's the best I've ever heard you.' And I may walk off stage one night thinking, 'Wow, I had a *really* good show. I discovered some new territory.' But, again, someone who has seen me many times could come up and say, 'Eh, I've heard you play a *lot* better.' The lesson here is not to self-edit too much. Just *play*, because no matter what you do,

someone other than yourself is going to decide whether it's great or not."

SCREW THE CRITICS

"On the other hand, you can't care too much about someone else's opinion of what you just did. That can freeze you up. It's more important that what you played remains important to *you*."

FEARLESSLY SEEK THE UNKNOWN

"For musicians hooked on improvisation, a good night is when you discover something new."

CHECK YOUR MAP

"Some of the bands I play in—such as Gov't Mule, and, to a certain extent, the Dead—are enhanced by my using effects, such as wahs, tremolos, octave dividers, Leslie simulators, and such. When we first started Gov't Mule, for example, I wanted to utilize effects, because, in a trio, it's nice to have the different textures, because you don't have keyboards, additional guitars, and all that kind of stuff. But in the Allman Brothers, I just go straight into the amp, because that's the sound of the band. You have to keep your ears open to what will work in different musical environments, because it's often different for every situation."

LET GO

"When musicians come together to raise money for charity—like the Christmas Jam—it can kick you into a different mindset because of the spirit and the intent of the event. For one thing, you think back to why you started playing music in the first place. You didn't start to get paid, or to achieve some sort of chart success, or whatever different musicians end up aspiring to. You probably started because something moved you, and made you want to play or sing. Of course, you don't need to play a charity event to get into that mindset. Whatever you're doing—playing a show or making a recording—just keep in mind that some beautiful music can be made with very little structure and very little scripting or rehearsal if the right elements are combined at the right time with the right intent." **EQ**

CREATIVE ALTERNATIVES TO ELECTRIC BASS GUITAR

by Scott Mathews

As a music producer who spends most of my waking hours in the recording studio, it's safe to say I work on a lot of bass parts. As the majority of my projects are in the rock, pop, or singer/songwriter field, it is also safe to assume the bass parts I use are done on an electric-bass guitar. By and large, a great bass guitar part expresses what I typically go after in my productions, and the sound of that instrument fits perfectly into the sonic spectrum I wish to create. But there *are* situations that call for other approaches than the tried-and-true "bass into a direct box and/or amp" method.

When establishing a bass pattern and feel for a song, many things come into play. How well does the groove support the phrasing of the vocal? Does it feel too busy, or perhaps too lifeless? Sometimes, the part is great, but the instrument itself needs to change. As a result, I like to view the bottom end of a recording as something that can be accomplished with a plethora of instruments. Even if I am working with a band that presents its signature sound with a bass guitar, that doesn't mean we have to stop there to capture the best sound on the recording. Hey, think of all the overdubs the guitarists and vocalists get? Let's give the bass player some!

SYNTH BASS
One of the most common additions to the sound of an electric bass I employ is a synth. I am not alone in this practice, as some of the biggest selling bands in history (the Police, U2, the Killers) have used this technique to great effect. Often times, the synth part will hold down some subsonic tones that simply ape or accentuate elements of the bass guitar part to enhance the overall dynamics and sound to be more interesting, and, possibly, *huge*. As each song should

always be approached separately, some may want an aggressive and punctuated top end to the bass guitar. When that part is recorded, see what happens if you tease in a lower sound you can feel, but not really hear in the mix. You may be pleasantly surprised.

ORGANS
Other times, a bass guitar might want to be replaced entirely by another instrument. I particularly like using organ bass pedals for songs (or sections of songs) that call for a long tone that needs no real percussive quality. There is an ominous tone that organ pedals provide that sends a very unique vibe to the bottom end. Brian Wilson used this technique to perfection in the quiet instrumental section of the timeless classic "Good Vibrations." Of course, other choices of instruments can be used to replace the electric bass, such as upright bass, synth, and tuba (for you brave ones).

Another expressive organ option I love to use is the "black keys" section of a vintage Farfisa Organ. The same effect can be achieved with a Vox Continental, or any organ that has black keys on the far left side of the keyboard. These sounds are not exactly "pretty," and when a bit of distortion is applied, you can get a grainy tone that can blend very well into an aggressive track.

UPRIGHT BASS
I've also used an upright bass to double an electric bass part. Listen closely to The Police's "Every Breath You Take," and you'll hear that combination. Intonation is key when attempting this, so I suggest you record the fretted bass first, and then the upright (or fretless bass)
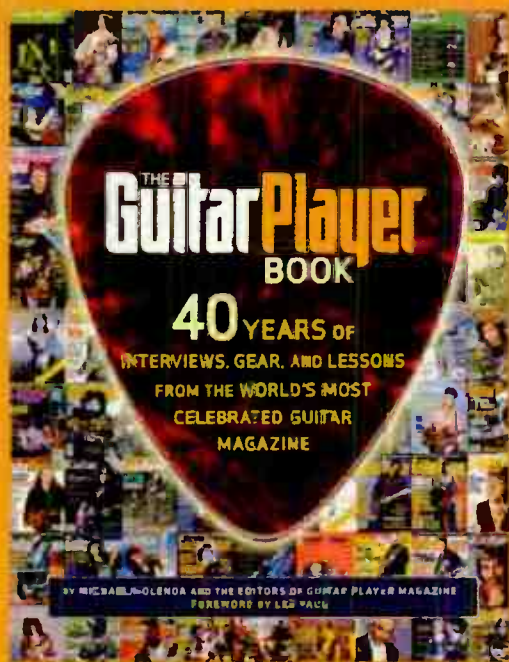

The Killers often combine electric bass with synth bass.
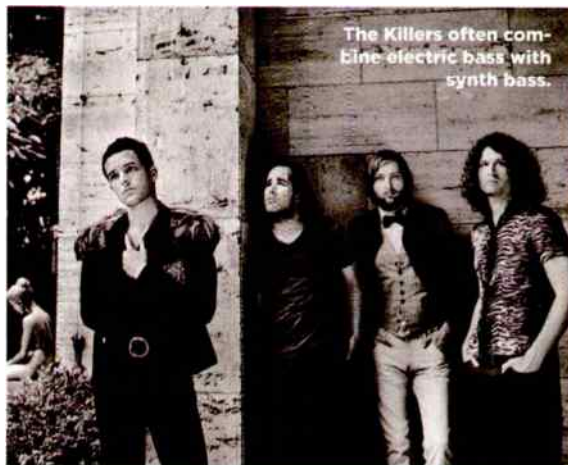
afterwards. Mess around with the balances in the mix to get the flavor you want.

LOW END CAN BE ANYTHING
The basic premise here is that your bass parts don't have to be performed the usual or more literal way. Experiment with other textures in different sections of your songs, and see if the results make improvements to your track.

In addition, if you are a bassist who can play keyboards (even just one note at a time), you may find yourself to be more in demand as a studio session player. And if you are a bass player who feels this article is aiming to somehow take your gig away, now you know how drummers have felt ever since the invention of the drum machine! But we all know that drummers playing real drums will never be replaced—even if it's just to add a human element to digital loops. The same concept applies to bass players. You will always be needed to lay down the bottom line, but the instrument and approach required to best serve a track might be something other than an electric bass guitar. **EQ**

Check out producer Scott Mathews at www.scottmathews.com.

World Radio History

ROGER O'DONNELL: MAKING MUSIC À LA MOOG

O'Donnell staring in space as he composes.

by Joel Patterson

For a word that started out as some-one's name, "Moog" has entered the lexicon as a synonym for electronic keyboard wizardry. From building and popularizing the Theremin during the '50s, to introducing a keyboard device that expanded on this concept by allowing the creation of sounds without any real world counterpart, the late Bob Moog's work led directly to the ability of a single musician to compose and record multi-layered audio productions. In other words, it led to *you*.

And there is no one more Moogy than Roger O'Donnell. Having served an apprenticeship in a succession of rock bands (Thompson Twins, Psychedelic Furs, The Cure), he's arrived at poster-child status for the possibilities of the Moog Voyager, the latest and most versatile Moog synthesizer. His new album, *Songs from the Silver Box* [Great Society], is a tour-de-force that demonstrates the limitless potential for crafting profoundly expressive, emotionally stunning music by sitting at a keyboard, staring into space, and letting your imagination run wild.

COMPOSING VIA LOOPING

"The Voyager is an incredible instrument," O'Donnel declares. "I compare it to a paint palette: You can mix any color you want, in any kind of time signature. Usually I'll just be fooling around, I'll find a sound, and then the sound will suggest the rhythm and the pattern. That's how each song starts. Then, when I have a groove going, I release the loops, let them play, and

play over top of it. For example, take 'The Prince of Time' and that plucking sound in the first phrase. I will have played that for maybe a minute or two—maybe more—and then found the best bit of it, cut it out, and looped it. From the discovery of the first sound, it's a very quick process. I usually have finished the whole song within two or three hours."

O'Donnell records these performances into Apple Logic (through a MOTU 828 into a Macintosh computer) with a fairly sparse complement of controllers and peripherals: Mackie Control Surface, two 20" Apple Cinema displays, a Mackie Big Knob for monitoring, and Mackie 824 monitors.

RECONCILING THE RIGHT AND LEFT BRAIN

"I think of Logic in the computer as my left hand, and the music goes through the middle of me and out to my right into the Voyager. It's like one fluid, conjoined organic thing. The song will suggest a slight change in an envelope, tightening the filter slightly, or using a different wave shape; there's not a distinction between those aspects."

FORGET THE HOUSEKEEPING, KEEP THE CREATIVITY

"I pay attention to [housekeeping, like setting tempo, levels, and naming tracks] only at the start, because I can't stop [the creative process]. If I stop it, then I lose the process, lose the creativity. So, yeah, the housekeeping things tend to get overlooked. When the rhythmic part of the song starts, I'm going 'Okay, yeah, what's that . . . 90 . . . yeah, 95 beats per minute,

that'll do it.' All of my songs are either on the ten or the five BPMs.

"Engineers hate it when I give them tracks for remixes, because my levels are all over the place, and sometimes I'll start before the Voyager's tuning is stable—the whole track ends up sharp. Creating my music is a very instant thing, but sometimes when it's all over I wish I had set things up differently at the beginning."

ON THE "DEMOCRATIZATION" OF MUSIC

"I think it's great—it allows millions and millions of people to make music—and it just shows the level of creativity in a lot of people is incredibly high. In the old days, when it cost a million pounds to record an album, who could do that? Who could afford a multitrack machine? But now, you can walk into a shop, buy a little setup, and bang out an amazingly good-sounding record. I'm still blown away I can burn a CD—when I started, all I had was a Fender Rhodes!"

On his new disc, O'Donnell worked with Bryan Michael (beats programmer), his partner Erin Lang who sings on three songs, and Australian singer Lenka Kripac, a long-distance collaboration that yielded the infectious "In Your Hands Now." The title and lyric came from a tossed-off comment of Lang's: After O'Donnell had finished the instrumental track and was ready to send it off, she commented, "Well, it's in her hands, now."

His website, www.rogerodonnell.com, includes detailed discussions of his career, a guided tour of his studio gear, his favorite keyboards, videos of live performances, and even a tasteful, tinkling ringtone. ●●

World Radio History

Aron pumping up the groove with his
weapon of choice—an SSL 4000.

DAVE "DIZZLE" ARON
)N RECORDING
HIP-HOP DRUMS

by Roberto Martinelli

Dave "Dizzle" Aron is one of the
biggest names in hip-hop recording.
He has worked on big albums by top
artists such as Snoop Dogg, Tupac
Shakur, P. Diddy, and Tha Dogg
Pound. He's also no stranger to other
kinds of music, having recorded with
U2, Prince, Sublime, and Dubb Union.
If there's a guy to ask about how to
get phat, organic beats to go along
with your drum loops, it's him.

**What's the main challenge to
recording live drums for a typical
hip-hop track?**

It's that you're often dealing
with a sequenced version of a song.
So, if you're adding drums, you're
adding them to something
sequenced, or you're going to loop
the drums, or you're going to
match those drums to a loop or a
sequenced drum pattern. Initially,

it's about choosing the drum sounds to match the song.

Are there other considerations?

It's also important to make sure the drummer is locking to the loops. When I was working on the *Gridlock* soundtrack, Steve Ferrone came in, and he's a fantastic pocket drummer. There was no doubt he would match the loop exactly, and there would be no flams. I don't like moving the drums in the computer to match the loop. Having a drummer being *naturally* locked in is what gives a live feel to the recordings.

When you're putting live drums on a sequenced track, do you prefer certain types or sizes of kits to deliver the sound you want?

It doesn't really matter if the kit is small or large, because the focus is typically on the kick and snare. I might go for a clean, dry recording of those elements alone, and then overdub toms and cymbals later. There's no rule that says you have to do it that way, but I've taken that approach many times. Now, if I'm going for a more old-school feel for the live drums, I might go with more room mics, and record the kit as a whole. As I said earlier, the most important aspect is ensuring the drum sounds match the feel of the song.

How do you prep the kit for recording?

You have to start off with a good-sounding acoustic kit. If the kit is rinky-dink, it's going to be much harder to get a good sound—even if you have excellent engineering skills. I'll stand next to the kit, and listen to what it sounds like in the room. Then, I'll add tape, padding, a ring on the snare, or even a little tissue paper to dampen the ring and resonance if necessary. Even before the mics are set up, 90 percent of the job is

already done. Of course, if you have a bad-sounding kit, you can always use something like Drumagog Drum Replacer to change out the drums for some samples. I don't like to go that route, though, because it means I wasn't able to get good sounds to begin with. If I use samples, it's to *supplement* the acoustic sound—not replace it.

What size room do you find works best for tracking hip-hop drums?

A medium-sized room—nothing too large. I'd rather lean toward something more dead for hip-hop drums, because the lack of ambience works better with drier-sounding drums.

What's your usual approach to miking?

For close-miked sounds, I might position an Electro-Voice RE20 or a Shure SM57 pointing directly at the top of the snare, moved in as close as possible to the center of the drum, and sitting about two fingers from the head. I'll also put a Shure SM81 on the bottom head of the snare. I like to put a mic away from the kick drum to get the standing waves as they develop, and mix in that sound with a close-miked kick drum. I might even delay the close-miked kick, because it's good to play with the phase relations when you're trying to get a big drum sound. As far as mics go, I like the AKG D112 for clicky and direct kick sounds, and the RE20 for warmer, beefier sounds, and I never fight with the drummer if he wants the front head on or off. For room mics, I might throw up some Neumann U87s or AKG 451s. Those are sensitive mics, but they capture a good low end. I like them on toms, too. I generally use a stereo pair of AKG C414s as overheads. For the hi-hat, I like to

use a Shure SM81, a Shure SM51, or an AKG C451.

You mentioned playing with phase relationships—which is something that recording engineers seem to talk about a lot. How do you determine when your mics are in proper phase?

You have to listen, but it's more about whether the sound you hear is the sound you want. For example, if you're bringing up a second kick-drum mic, and it has a fully developed bottom end, that's all that matters if that's what you're going for. It might be out of phase, but it sounds good. Now, if you hit the Phase button on your console or mic preamp, and the low end goes away, then the signal might be in phase, but the sound isn't what you want.

How do you like to mix drums?

I like mixing on the same board I track with, and then busing straight to tape. Ha! When I say "tape," it's straight to Pro Tools [*laughs*]. My preference is an SSL 4000, but if I don't have access to the SSL, and I have to use plug-ins, I'll run the drums through an 1176 emulation. I might run the kick drum through a dbx 160x or a Pultec EQ, and the snare tracks would go through a 160x, as well, or maybe an API EQ to add some snap.

What's your position regarding EQing drum tracks?

A long time ago, a guy told me if you take 500Hz out of the kick drum, it seems to tighten it up a lot. But, with hip-hop, I might not want that attack. With hip-hop, it's often better to go for all the low end you can get. For the snare, there are no basic EQ moves. I'll just use a high-pass filter on the snare and toms so they won't rumble through the whole song. I rarely like to gate drums, as the gates always seem to cut off the sound at the wrong times. **EQ**

SIX GOLDEN RULES FOR PRODUCING YOUR OWN VOCALS

by Cliff Goldmacher

Few studio gigs are as torturous as cutting transcendent vocals. So much is as stake, and everything from phrasing to timbre to pitch and emotional delivery has to be absolutely compelling in order to seduce a listener's ears. It's bad enough when you're trying to coax a magnificent performance out of an artist, but the stress levels can really slam into the red when you're tasked with recording your *own* vocals, and must simultaneously juggle the responsibilities of artist, engineer, and producer. To help you succeed in such tricky endeavors, here are six "golden rules" for cutting your own vocal tracks.

GET COMFORTABLE

This is not the time to drive yourself batty with logistical issues. You need to focus on the vocal performance, not how difficult it is to reach your mouse from the mic position. Make sure all necessary gear is within reach. Then, devise a self-recording scheme that is conducive to a hassle-free performance—no mic or headphone cables twisting annoyingly around your feet or head, nothing closing in around you (boxes, furniture, or walls) that might invite claustrophobia, and so on. If you hate singing to a mic on a straight stand, make sure you have a boom stand available. In short, viciously terminate any elements that will prevent you from having a good time singing.

DON'T SWEAT YOUR ENVIRONMENT

There are no rules that require you to be in a soundproof vocal booth to get a great vocal sound. Some of my best-sounding vocals were recorded sitting backwards in a chair in the control room. There are some general considerations such as making sure the space you're recording in isn't too noisy or too reverberant (unless you're prepared to have

those sounds in the mix, of course). You can minimize a lot of these concerns by tracking in a quiet, carpeted room, or by placing some blankets or towels on a hardwood floor (positioned to minimize unwanted reflections). Outside noise can be diminished by shoving towels under door jams, and muffling windows by positioning foam or thick blankets around them. You should also set your mic to its cardioid pattern, and sing close to it (perhaps an inch or two away), using a pop guard or turning your mouth slightly off-axis to the mic in order to avoid major plosives and sibilance

REMEMBER THAT YOU'RE AN ARTIST

Singing is a musical endeavor, and, too often, this concept gets lost in technical concerns. So, as soon as you set up your vocal chain and test levels, forget about all the gadgets and lights and just *sing*. When you approach the microphone, your only task should be to let the song move you, and to communicate that emotion to the listener. Stay away from any and all production concerns, such as whether you're hitting the notes exactly on key, or whether your timing is good.

COMP FREELY

Of course, it's easier to forget about production concerns when you know you can deal with any imperfections later. For this reason—and many others—I am a firm believer in composite (comp) vocal tracks, because they allow a vocalist to sing a song from beginning to end multiple times. You can simply feel your way through the material as many times as you want, freely allowing the music to guide your performance without your having to worry about details. After all, getting bogged down in trying to fix a word or a line by punching-in immediately after a take

can be draining, and you shouldn't do anything that might take the life out of a vocal performance. So just sing multiple passes without allowing your editor/critic/producer into the equation. Just remember to label and save each take as you go. When you feel you've given it your all, and you are done singing, *then* you can put on your producer hat, listen back to each vocal take, and mark on a lyric sheet where the current take includes some good lines. After you've listened to every pass, and have taken the appropriate notes, there may still be a few lines that need work. Now, you can go after them knowing exactly what you're missing and how to fix it. The more you keep the producer and artist separate during the comp vocal process, the more effective you'll be in getting a great performance.

KNOW WHEN TO STOP

Even when freeing your mind by taking the comp track approach, there's always a danger your "producer head" will still creep into your "artist head," and drive you to keep singing and singing. Your brain will torment you by causing you to think, "I know the perfect vocal is just one take away," and you'll lose the perspective to determine when things are going well and improving, or when enough is enough. My recommendation is to take a short break every hour or so, and listen back to what you've sung. You may discover your best performance was five takes ago, and you've been wearing yourself out needlessly.

THE LYRICS RULE

The best singers sound as if they're talking directly to you. You believe what they're saying, because *they* believe what they're saying. Simply put—just tell the story. When you truly understand the lyrical content of a song, the emotions, phrasing, pitch, vibe, and performance should follow. ■

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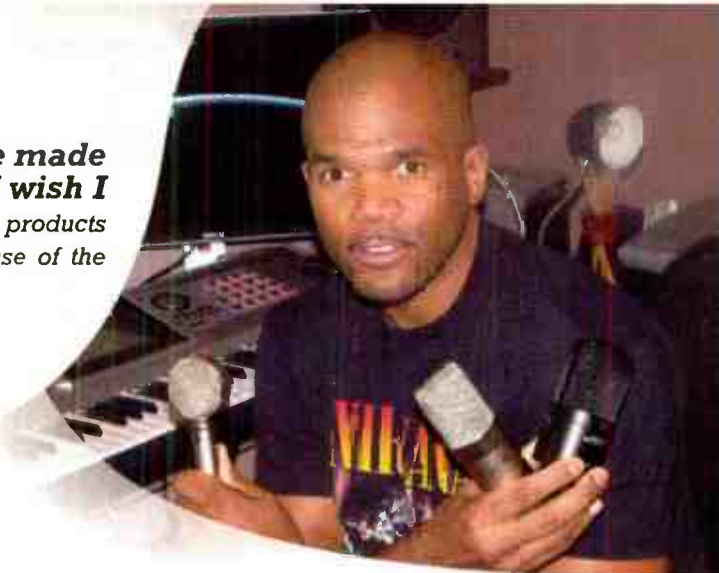
THE S-7

The S-7 is the perfect mic to record shredding guitars, booming drums and other loud sound sources. How loud? It delivers absolute clarity at 150dB!! Very versatile mic - if you can only afford one mic for your studio this is the one!

Best use:

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- ✓ Ideal for tracking loud sources
- ✓ Kick, snare and floor toms
- ✓ Great multi-use mic

A-6

The A6 was specifically designed with digital recording in mind, so that is why it delivers ultra clear results when tracking a wide range of instruments and voices. Your acoustic guitar will love the A6!

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- ✓ Your acoustic guitar will never sound better!
- ✓ Outstanding voice-over mic
- ✓ Overhead / Room mic for drums
- ✓ Intimate recording.

THE TC

The TC is a Class A tube mic that will give you all the sparkling presence, lush warmth and superb definition that tube mics are known for. This is a high-end, tube microphone at a great price.

Great mic for:

- ✓ Male and Female lead vocals
- ✓ Perfect for reed and strings
- ✓ Great for all guitars and pianos
- ✓ Outstanding drum overhead mic

THE TT

The TT is simply one of the best mics you can get for the price. It is similar to the TC but has nine polar patterns that gives it more colors and applications. Spending the extra money will get you a great tube mic that can be used in almost every situation.

Best applications:

- ✓ Same as the TC, but with the added flexibility of nine polar patterns

THE VIENNA

The Vienna Mk8 has a tone that is naturally brighter than the Hamburg and is ideal for adding a sparkling tone to your vocals and instruments.

Perfect for:

- ✓ "Front of mix" vocals
- ✓ Adding brightness to help define vocals
- ✓ Ideal mic for percussion instruments
- ✓ Perfect for all guitars
- ✓ Wonderful piano mic
- ✓ Killer voice-over/podcast mic

THE HAMBURG

A great mic will do more to improve your recordings than a closet full of outboard gear, and the Hamburg is a great mic. It has a crystal clear sound that is full, warm and round. This mic could actually save you money!

Best use:

- ✓ Ideal for vocals needing a rounder tone
- ✓ Perfect for harsh cymbals
- ✓ Wonderful for brass
- ✓ Great for strings or reeds
- ✓ Emulates expensive, late 50's vintage German mics

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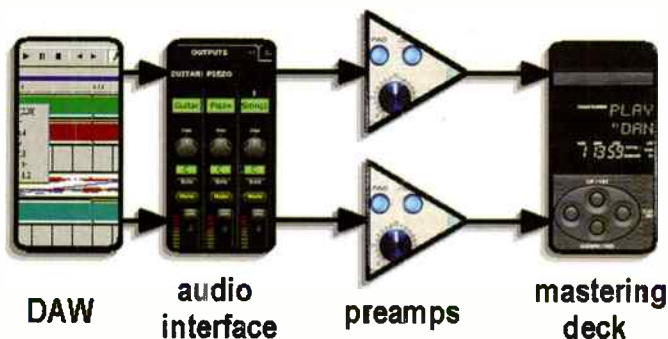
Fig. 1. Adding analog components to the recording chain.

Fig. 2. The SSL G-Equalizer from Waves.

SING ANALOG GEAR
WITH DAW MIXDOWNS

by Robert J. Shimonski

With DAWs, most engineers use digital plug-ins for effects processing when recording ana mixing. Although digital recordings are well-known for their low noise, low cost, near perfect audio quality, and easy editing, this doesn't mean they're the best solution for every situation; in fact, all-digital productions run the risk of sounding "sterile" and one-dimensional. On the other hand, analog systems are known for the character and "shape" they give to your sound, so let's explore how combining the two can benefit you and your recordings.

USING AN ANALOG PREAMPLIFIER

If your overall mix lacks character or is too dry, try sending your final mixdown through class-A preamp circuitry to add the color and warmth of analog before final processing. Figure 1 shows the DAW's output signal being sent through a pair of class-A preamps, and then to a mastering deck for adding final tweaks and getting the product ready for Red Book creation. Even if you don't use a mastering deck and bounce back into two DAW tracks for export, the analog element still makes a difference. Most preamps (see sidebar) come with high-end circuitry that allows enhancing the sound, as well as manipulating the frequency response utilizing filters and other features. Of course, the "core" technology makes a difference as well; a tube preamp

will sound different compared to a solid-state type.

USING ANALOG COMPRESSION

Another way to interject analog sound into your final mixdown is with an analog compressor and/or limiter—this makes the perfect complement to the analog preamp. A good compressor provides the flexibility to add analog dynamics control to any recorded element: individual tracks, a submix, or your final mix sent to a mastering deck (if you run out of hardware, bounce the track through the analog gear). You can send your signal from your DAW, through the analog compressor, then the analog preamp, and finally into the mastering deck—this gives the best sequence for tweaking your sound after final mixdown.

However, be *very* careful about applying compression in your final mix. Over-compressing your signal can make the overall product sound "squashed," ana may add hiss. Make sure you test each mix on a few different sets of monitors (including ones that accentuate the frequencies you are looking to pull out in your mix, so you can hear that part of spectrum as clearly as possible).

COMBINING ANALOG AND DIGITAL EFFECTS

Although there are some amazing plug-ins that really can augment your recordings, many would still argue that nothing adds the warmth and

color obtained by sending your digital signal through an analog device. But then there's the issue of budget, as you can't necessarily afford every piece of outboard gear you want. Fortunately, there's a compromise between remaining 100% digital ana using tons of analog gear: Using digital plug-ins in conjunction with some carefully-selected analog equipment.

Just like the hardware mentioned in the sidebar, you can buy plug-ins that are digital remakes of celebrated analog equipment. For example, Waves is a company well-known for their quality plug-ins that many would

ANALOG INSERTS IN A DIGITAL WORLD

Many DAWs now provide a way to treat external audio gear as "plug-ins" within tracks or buses. Basically, you insert an "external gear" plug-in that sends the signal to an unused output (or output pair) on your audio interface. This patches to your analog gear, which then returns to two unused inputs on the audio interface and appears at the plug-in's output. The only downside is the latency caused by going through additional stages of A/D conversion and interfacing, but several programs provide automatic compensation, and with those that don't, you can always do manual timing adjustments by moving tracks forward and backward in time. —*Craig Anderton*

also argue come extremely close to emulating vintage Neve, API, and SSL console sounds. With the release of their SSL-inspired line of software as a more specific example, you can use SSL filters to tighten up your sound as well as make gain adjustments to your production within your DAW. The four-band equalizer in Figure 2, modeled on the SSL G Series EQ292, is very helpful in giving your productions that "vintage SSL" sound. Nonetheless, as mentioned before it's a good idea to infuse some true analog processes into your productions if you want to nail that sound exactly. Plug-ins are great tools, but they're still reliant on digital technology.

There's no need to keep everything in the digital domain, or for that matter, go all-analog. Using all of these tools together can help you produce great-sounding work, help your mixing process, and prep your work for final mastering—and provide an analog quality to a digital production. **◐**

KILLER GEAR WITHOUT KILLING YOUR BUDGET: TRY A REMAKE
Since even a single Neve channel may be too costly for many studio owners looking to expand their systems, an antidote to the huge price tag associated with high-end 'vintage' gear is to try a remake or emulation of products like the famous Neve 1073. Vintech Audio has come out with a great line of analog equipment, such as the X73i (pictured above), which captur1es the "vintage" sound.

The X73i is a single-channel preamp with the layout of the original Neve 1073 design. The X73i also comes with added enhancements, such as a 1/4" instrument input on the front panel and additional equalization options (e.g., expanded midrange choices) essential for both recording and mixing. Or, consider a stereo unit such as the Vintech Dual 72, which consists of two class-A, all discrete, transformer-balanced mic pres built with the same basic circuit design and components as the classic Neve 1272 module. (You could also use a pair of X73i pres—one for the left and one for the right channel.)

Once you've sent the mix to the mastering deck, you can further compress, limit, normalize, or equalize your final sound and lastly, make a Red Book master that retains an "analog" sound quality. A home studio owner could set up a DAW, use a pair of X73is and an Alesis MasterLink, and create amazing recordings for a comparatively low cost.

QUICK VOCAL FIXES

by Craig Anderton

Cheat Sheet delivers concise, explicit information about specific record- ing/audio-related tasks or processes. This installment describes basic vocal processing.

TO POP FILTER OR NOT TO POP FILTER?

Some engineers feel pop filters detract from a vocal, but pops detract from a vocal even more. If the singer doesn't need a pop filter, fine. Otherwise, use one.

NATURAL DYNAMICS PROCESSING

The most natural dynamics control is great mic technique—moving closer for more intimate sections, and further away when singing more forcefully. This can go a long way toward reducing the need for drastic electronic compression.

COMPRESSOR GAIN REDUCTION

When compressing vocals, pay close attention to the compressor's gain reduction meter as this shows the amount by which the input signal level is being reduced. You generally don't want more than 6dB of reduction. To lower the amount of gain reduction, either raise the threshold parameter, or reduce the compression ratio.

NATURAL COMPRESSION EFFECTS

Lower compression ratios (1.2:1 to 3:1) give a more natural sound than higher ones.

USE COMPRESSION TO TAME PEAKS WHILE RETAINING DYNAMICS

To clamp down on peaks while leaving the rest of the vocal dynamics intact, choose a high ratio (10:1 or greater) and a relatively high threshold (around –1 to –6dB). To compress a wider range of the vocal, use a lower ratio (e.g., 1.5 or 2:1) and a lower threshold, like –15dB.

COMPRESSOR ATTACK AND DECAY TIMES

An attack time of 0 clamps peaks instantly, producing the most drastic compression action; use this if it's crucial that the signal not hit 0dB, yet you want high average levels. But con- sider using an attack time of 5-20ms to let through some peaks. The decay (release) setting is not as critical as attack; 100–250ms works well. Note: Some compressors can automatically adjust attack and decay times according to the signal passing through the sys- tem. This often gives the optimum effect, so try it first.

SOFT KNEE OR HARD KNEE?

A compressor's knee parameter, if pre- sent, controls how rapidly the compres- sion kicks in. With soft knee, when the input exceeds the threshold, the com- pression ratio is less at first, then increases up to the specified ratio as the input increases. With hard knee, once the input signal crosses the threshold, it's subject to the full amount of com- pression. Use hard knee when control- ling peaks is a priority, and soft knee for a less colored sound.

TOO MUCH OF A GOOD THING

Compression has other uses, like giving a vocal a more intimate feel by bringing up lower level sounds. However, be care- ful not to use too much compression, as excessive squeezing of dynamics can also squeeze the life out of the vocals.

NOISE GATING VOCALS

Because mics are sensitive and preamps are high-gain devices, there may be hiss or other noises when the singer isn't singing. A noise gate can help tame this, but if the action is too abrupt the voice will sound unnatural. Use a fast attack and moderate decay (around 200ms). Also, instead of having the audio totally off when the gate is closed, try attenu- ating the gain by around 10dB or so instead. This will still cut most of the noise, but may sound more natural.

SHIFT PITCHES FOR RICHER VOCALS

One technique for creating thicker vocals is to double the vocal line by singing along with the original take, then mixing the doubled take at anywhere from 0 to –12dB behind the original. However, sometimes it isn't always pos- sible to cut a doubled line—like when you're mixing, and the vocalist isn't around. One workaround is to copy the original vocal, then apply a pitch shift plug-in (try a shift setting of –15 to –30 cents, with processed sound only). Mix the doubled track so it doesn't com- pete with, but instead complements, the lead vocal.

FIXING A DOUBLED VOCAL

Sometimes an occasional doubled word or phrase won't gel properly with the original take. Rather than punch a sec- tion, copy the same section from the *original* (non-doubled) vocal. Paste it into the doubled track about 20–30ms late compared to the original. As long as the segment is short, it will sound fine (longer segments may sound echoed; this can work, but destroys the sense of two individual parts being played).

REVERB AND VOCALS

Low reverb diffusion settings work well with vocals, as the sparser number of reflections prevents the voice from being overwhelmed by a "lush" reverb sound. 50–100ms pre-delay works well with voice, as the first part of the vocal can punch through without reverb.

INCREASING INTELLIGIBILITY

A slight upper midrange EQ boost (around 3–4kHz) adds intelligibility and "snap." Be *very* sparing; the ear is highly sensitive in this frequency range.

"MOTION" FILTERING

For more "animation" than a static EQ boost, copy the vocal track and run it through an envelope follower plug-in (processed sound only, bandpass mode, little resonance). Sweep this over 2.5 to 4kHz; adjust the envelope to follow the voice. Mix the envelope-followed signal *way* behind the main vocal track; the shifting EQ frequency highlights the upper midrange in a dynamic, changing way. Note: If the effect is obvious, it's mixed in too high. ❧

POWER APP ALLEY

BY CRAIG ANDERTON

ABLETON LIVE

Use Clip Envelopes for more animated, expressive clips

OBJECTIVE Add variety and expressiveness to MIDI sequences and audio tracks by modulating parameters with Clip Envelopes.
BACKGROUND Ableton Live makes it easy to create modulation envelopes, as well as edit them "on the fly," for both MIDI and audio tracks. All of this takes place in the Clip Overview pane for the sequence you want to edit. This example uses a MIDI track; the procedure is very similar for audio tracks.
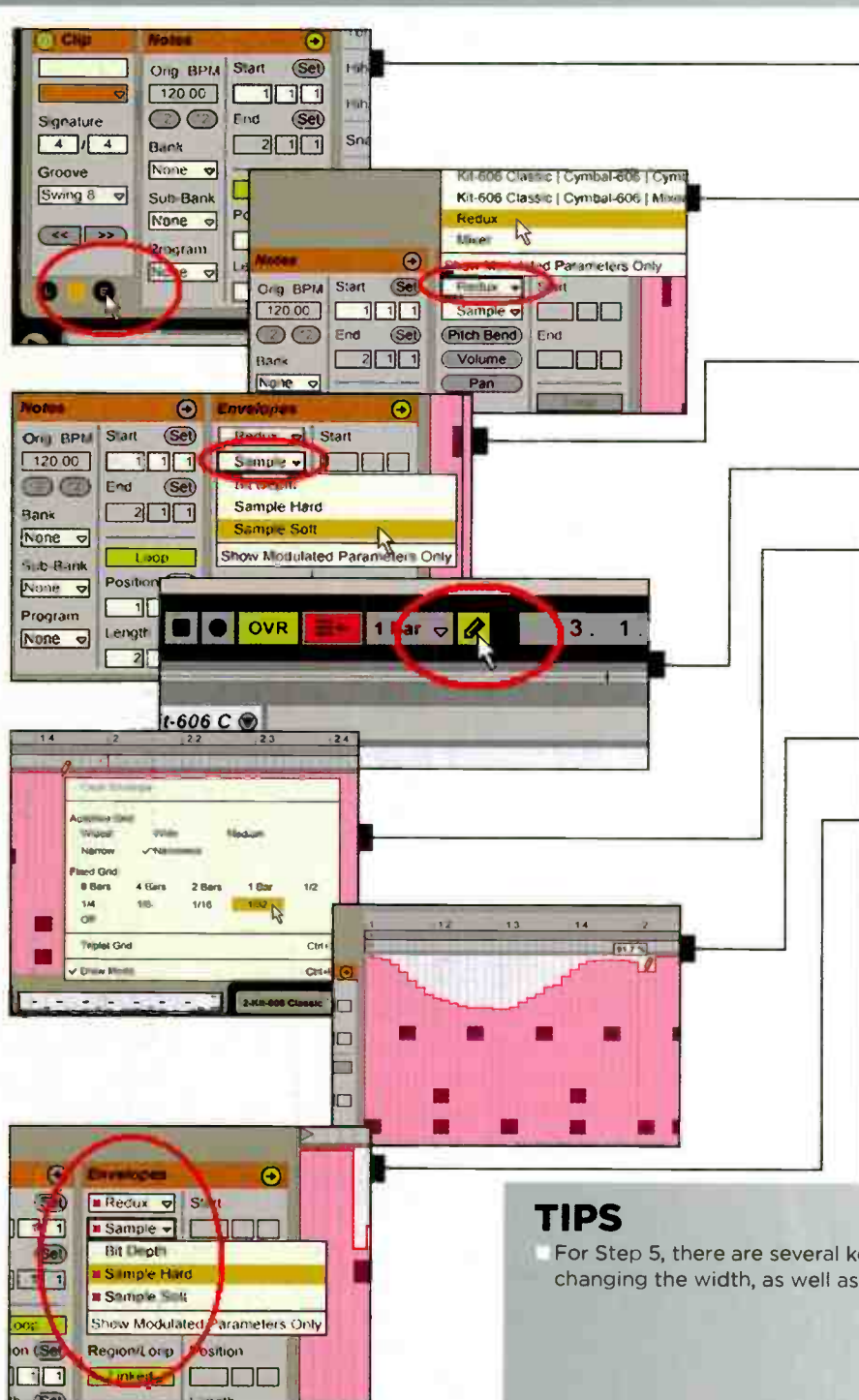
STEPS

1. In the Clip Overview pane, click on the E button (in the Clip View box).

2. Click on the Device Chooser; a pop-up menu appears. Choose the target Device for the automation (the screen shot shows Redux being selected).

3. Select the parameter you want to modulate in the Control Chooser.

4. Choose the Pencil Tool.

5. Right-click within the sequence using the Pencil Tool; this calls up a context-sensitive menu. Here you can change the grid to which envelopes will snap, choose a triplet grid, or turn off the grid altogether.

6. Draw the envelope shape as desired.

7. If you click on the Device Chooser or Control Chooser, devices and controls with automation have small red squares to the left of the device or control's name.

TIPS

■ For Step 5, there are several keyboard shortcuts (check the manual) for changing the width, as well as turning snap on and off.

VOCAL TOOLS N THE VIRTUAL WORLD

WITH TODAY'S DAWS, THE SKY'S THE LIMIT ON PROCESSING THE HUMAN VOICE

by Craig Anderton

As much as your lead guitarist might not want to admit it, it's usually the vocals that provide a musical focus. In fact it's been said that the human voice is the ultimate instrument, but it's also an imperfect one: Unlike the frets that guide you through a guitar or the keyboard keys that constrain you to perfect half-steps, when it comes to making a great vocal sound, you're on your own.

Or are you? Today's tools for vocalists are far more evolved than the equalizers and plate reverbs used when dinosaurs roamed the earth: You can change pitch, change gender, change timbre, fix clams, enhance vibrato, add harmonies, and a whole lot more.

We've collected a bunch of information on vocal helpers, and also reviewed four software tools that stand out from the pack, to help you work your way through the terrain of recording vocals in the new century. So grab that mic, plug it in, and as it says in the tune immortalized by Benny Goodman's band . . . "Sing, Sing, Sing!"

HOW PITCH-CORRECTION TOOLS WORK

All pitch correction tools work pretty similarly: They analyze a note's pitch, compare it to a scale, then apply the appropriate amount of pitch-shifting to have the note conform to the scale. Nor does this have to be a traditional scale; for example, both Waves' Tune and Antares Evo Auto-Correct let you specify standard but also highly exotic scales.

You often determine how a device applies this correction. For example, you might want to have the input jump instantly to the new pitch, or slide to it over time instead. There may be various bells and whistles, such as being able to accentuate vibrato, "flatten" the natural vibrato and synthesize a new vibrato, change the formant (vocal characteristics, such as transforming male to female), and the like.

Furthermore, in most correction devices you can turn off "auto-pilot" and see a display that indicates how far off the note is from the scale. Then you can adjust the note for the desired degree of accuracy. As this usually

ANTARES HARMONY ENGINE

Fig. 1. When you want "in the box" harmonies, Antares' Harmony Engine is tough to beat on the basis of usefulness, functionality, and cost.

If any company has made a name for itself with vocal software processing, it's Antares. From the original Auto-Tune through Kantos to AVOX to Harmony Engine ($349), the company has come up with consistently interesting vocal tools—and you can download demo versions that are fully functional for 10 days. Translation: just long enough to get you hooked.

What it does: Harmony Engine (RTAS, VST, AU; see Figure 1) provides up to four voices of harmonies, and these are "intelligent"—not parallel—harmonies that follow a specified scale. How you specify that scale, though, is where things get interesting. You can simply provide a root note and scale for simple harmonies, play the four harmony voices as if your vocal was recorded in a sampler and you were playing the samples, have Harmony Engine listen to a MIDI track that provides a "chord guide" (like the way DigiTech's VL-series processors "listen" to a guitar to figure out the harmony), or program a chord progression.

That's the basic idea, but within the way big GUI (I think the designer may have been paid by the pixel) there are a wealth of other tools and effects. Each of the four voices has pan, interval, level, solo, and mute controls, as well as vibrato. But there's also a "throat length" parameter than can change the harmony line's character, from (for lack of a better description) looser to more constricted. You don't have to include the input signal in the mix; it can be harmonies only.

What's cool: For the harmonies you're most likely to use, such as thirds, the sound quality may not stand up

to the scrutiny of the solo button but when blended in behind the main vocal, sounds exceptionally convincing. I was even able to add an octave above "female" voice that was more than credible (editing the throat length improved the realism; try 0.90, it worked for me). Again, I wouldn't promote the harmony into a lead vocal, but it worked fine as a background voice. Octave lower effects are harder to pull off, but mixing them considerably in the background gave my voice a nice degree of gravitas. (Or perhaps a timbre more like an NFL linebacker, come to think of it.)

Other thumbs-up features are humanizing options that add variety (pitch, timing, glide, and natural vibrato keep/suppress), a "freeze" effect, and the ability to store 15 different harmony presets that you can call up via automation—when the song modulates, you needn't panic. You also have multiple outputs if you want to run the vocals through different mixer channels and processing (e.g., reverb), assuming your host supports this. Even cooler: the "Chord By Name" mode where you simply program a song's chord progression, then use the Register and Spread controls to "arrange" the harmonies by ear. Easy.

Limitations: Harmony Engine is definitely a "garbage in—garbage out" device, and the cleaner the vocal, the better the tracking. It's important to select the right vocal range, and there's a tracking control labeled with Trial at the top and Error at the bottom. The labeling is correct: I couldn't figure out what it was doing, but some settings worked better than others. In extreme cases, you can copy the vocal track, clean it up with de-essing, EQ, compression, etc., process it through the Harmony Engine, and mix it in with the original track. Also, several programs aren't officially supported—Ableton Live being one of them. So of course I had to try it out, and to my delight, it worked just fine.

Bottom Line: Despite what may appear to be a daunting interface, Harmony Engine is actually quite easy to use. The well-written manual is also very helpful in terms of not just understanding, but applying, the feature set. This harmony tool is no one-trick pony, especially if you feed it with MIDI to change presets and such; I also found that just tuning to unison and adding humanizing could enhance vocals considerably. Harmony Engine does lots of things, does them well, and is reasonably-priced . . . it's tough to beat.

relies on converting notes to MIDI data, manipulating vocals is like manipulating MIDI: You can move the note, transpose it, alter pitch, quantize, and so on. In fact, Celemony Melodyne, Antares Auto-Tune Evo, Waves Tune, and Sonar V-Vocal allow pulling out the MIDI file so you can use it to drive something other than

voice—want to sing a trumpet part, then have it played by a trumpet sound? Yes, you can. Celemony's Melodyne cre8 even installs a synth when you install the program, just to get the point across. (Those with long memories might recall that Opcode's StudioVision included audio-to-MIDI conversion, but it lacked the sophisti-

cated pitch and formant correction we associate with today's tools.) Sometimes MIDI works both ways, too, where MIDI input can constrain notes within a scale you play.

Should you use correction to make sure all pitches are "perfect"? No. Not everyone wants to sing *exactly* on key—hitting a seventh note just a tiny

SSL VOCALSTRIP FOR DUENDE

Fig. 2. SSL's Vocalstrip, which includes vocal-specific modules with vocal-specific features, runs on their Duende and Duende Mini hardware platforms.

There are plenty of fine hardware/software combos, including Universal Audio's UAD-2 and TC's PowerCore. Duende ($399) is SSL's answer to the concept, and the Vocalstrip runs on both the standard Duende and the less expensive Duende Mini (both support VST, AU, and RTAS).

What it does: Vocalstrip (Figure 2) is a mono plug-in with four vocal-specific sub-sections. The De-Esser has Threshold and Amount controls, with an indicator to show when de-essing takes place. The best feature, though, is the Aud button so you can hear what's being removed—this really simplifies the adjustment process. A complementary De-Ploser takes out low frequencies, like "P" and "B" sounds, and has an identical complement of controls (although of course, they are tailored for different frequencies).

The EQ includes a low shelf with a slight bump at its cutoff, hi-Q bandpass/notch filter with 12dB boot/36dB attenuation, and a low-Q high band EQ for adding "air" or intelligibility. The EQ is more limited than a standard parametric—there's no resonance control for any of the bands—but its virtue is that the filters themselves, and their characteristics, are optimized for finding good vocal sounds as quickly as possible. (If you need a more traditional EQ, the Channel Strip that's bundled with the Duende hardware does the job.)

The Compander is also vocal-friendly, as it first has an expander to help reduce mic pre hiss, room ambience, low-level mouth sounds, and the like before heading into the compressor, which has the expected controls: Ratio,

Threshold, Release, Attack, and Makeup Gain. You also have a choice of hard or soft knee curve.

Cool stuff: The Drive button can definitely add "character" to the voice. This seems to be a saturation stage after the Makeup Gain control, where increasing the gain increases an overdrive-type of distortion. Another interesting feature is you can put the various modules in any order—for example, if the compressor "pops" because you want a really squashed sound, you can put the De-Ploser *after* it instead of the more traditional pre-compressor position.

But one feature that really differentiates Vocalstrip is the set of displays that monitor the signal. The EQ curves are accurate, while an FFT display can monitor the input (to see if there are anomalies that need to be tamed) or output, which reveals the effect of the EQ. As soon as you touch a compander control, the display changes to show the typical compression curve display on the left, while the right half shows an I/O Difference Display—in short, it makes it easy to see how compression affects the signal.

Of course, you don't adjust controls with your eyes, but with your ears. But in keeping with Vocalstrip's "get it done fast" attitude, these visual displays help you zero in faster on optimum sounds.

Limitations: It's only mono, which makes sense if you're dealing with vocals—but if you want to do something like use it on a stereo choir track, you'll lose the imaging. I also wish the EQ were more flexible; although I was able to get the sounds I wanted, I would like a bandwidth control on the mid EQ and the ability to change the low EQ between bandpass and shelf. And it probably goes without saying that you have to have the Duende host hardware.

Bottom line: Vocalstrip's main competition is actually the EQ and Dynamics Channel Strip that's bundled with Duende, because it performs very well with vocals and the sidechaining means you can set up de-essing and plosive reduction (albeit with more effort than Vocalstrip). It doesn't surprise me that quite a few Duende users with limited budgets seem to go for the Drumstrip, Bus Compressor, X-Comp, and X-EQ plug-ins first; but there's no denying that the Vocalstrip brings a lot to the Duende platform, and also, that it's an extremely fast way to get solid vocal sounds.

bit flat before swooping up to the tonic can put the "tension" into "tension and release." Besidses, processing a vocal note can produce audible artifacts, and the more you shift, the more audible these artifacts become. Finally, the human ear expects vocals to have slight inconsistencies—removing those can give vocals an artificial feel.

While this works for certain types of music, it's hard to imagine a sensitive jazz ballad given this kind of treatment.

THE VOCAL PITCH-CORRECTION TOOLBOX

There are two basic types of harmonization plug-ins. The simpler ones, such as Waves' UltraPitch, do

straight pitch transposition (actually, UltraPitch can generate multiple parallel transposed lines, but it doesn't generate "intelligent" harmonies). With slight pitch variations, these plug-ins can also produce grandiose chorusing and thickening effects.

The second type breaks audio down into events that you can edit

individually. The grand-daddy of this genre is Celemony's Melodyne (Example 1); like all other harmonizing programs so far it's restricted to working with monophonic lines, but a polyphonic version is in the pipeline. Originally, Melodyne was a stand-alone program but it later added a "bridge" program that allowed treating it more like a plug-in for host applications. It's also possible to ReWire Melodyne into a host, or ReWire clients into Melodyne's mixer. This is where Melodyne's ability to act as a stand-alone recorder comes in really handy; for example, if you ReWire Melodyne and Propellerheads' Reason together, you can record vocals in Melodyne that run in parallel with Reason, but also do all the cool Melodyne editing tricks.

Waves' Tune works by rewiring into a host; all edits are non-destructive, and saved as part of your host's project, whereas Antares Auto-Tune Evo is a true plug-in.

However, your DAW might already have some of those tools built in. For example, Cakewalk Sonar appropriated Roland's VariPhrase technology in the V-Vocal processor (Eample 2) bundled with Sonar Producer Edition. Unlike plugins, you first turn a clip into a V-Vocal Clip, at which point the various V-Vocal options for timing, pitch, dynamics, and formant manipulation come into play. As expected, you can render the V-Vocal clip back into a standard audio clip that includes whatever changes you made.

MOTU's Digital Performer has sophisticated pitch corrections options as well (Example 3), as detailed in the

Ex. 1. Melodyne's "blobs" display audio in a MIDI piano roll fashion—but these blobs can also be manipulated like MIDI data. Melodyne is known for unusually high sound quality, even when shifting pitch over a considerable range.

02/08 issue's Power App Alley. However, it also lets you draw in pitch changes very simply with a pencil tool, so it's easy to make quick fixes without having to go deeper into the program. Magix Samplitude's "elastic" window (Example 4) allows for pitch manipulation, again by drawing in new curves.

TC ELECTRONIC VOICESTRIP

Fig. 3. TC's VoiceStrip, designed for the PowerCore platform, provides traditional vocal strip functions.

TC's PowerCore platform has a lot of plug-in support, some of which are optional at extra cost, but VoiceStrip (Figure 3) comes bundled with most PowerCore bundles and works with VST, AU, and RTAS.

Like any vocal strip, one of the questions is "why bother?" After all, it's not hard to cobble together a compressor, EQ, and de-esser. However, a strip is convenient because one preset recalls all parameters at once. When you work with different vocalists and different mics, it

saves time to be able to jump to an appropriate preset without a lot of fuss.

What it does: As with Duende, the EQ is tailored for voice with Lo, Mid, and High gain; only the Lo and Mid stages have frequency controls. There's also a Saturation switch, and a low cut filter. While the low cut isn't as effective as the Duende De-Ploser, it helps considerably in reducing unwanted low-frequency energy.

The compressor has Input Drive (there's no threshold control; slamming the input harder gives more compression), Output Drive (makeup gain), Ratio, Attack, Release, and a pre-EQ/post-EQ switch for positioning, while the De-Esser serves up a Threshold and Frequency controls, along with a monitor so you can audition the sidechain signal coming into the De-Esser. The final piece of the puzzle is a noise gate, with Threshold and Intensity (amount of reduction when gated) controls.

The EQ and Compressor are claimed to model tube circuits, and I can hear that vibe. Comparing the Duende VocalStrip definitely reveals some differences: Overall, I'd say TC's sound is more precise and neutral, while Duende isn't shy about imparting its own character to the sound. Which one is better-suited to a particular task is a subjective call, as it depends mostly on the mic and vocalist. For narration and vocals where detail is important, the scale tips more toward TC. When having a vocal cut through a mix is the overriding concern, I think you'd get there faster with Duende.

Cool stuff: VoiceStrip is no slouch when it comes to

(CONTINUED)

metering. There are reduction meters for the Compressor, De-Esser, and Gate, as well as good input/output meters. And, VoiceStrip is available in both mono and stereo configurations, so you can use it to process those massed background vocals you bused down to two tracks. The Soft Sat saturation option is welcome too, as it can add some grit and funk to potentially clinical sounds.

Limitations: The EQ bands not only have no resonance controls, the high end frequency is fixed. This seems like a situation where you're expected to get the

sound you want with the mic and mic placement (which you should anyway!), and the EQ serves mainly as a way to "touch up" the sound.

Bottom line: PowerCore's bundling of multiple desirable plug-ins has been a strong point of theirs, as you get more than just the hardware when you take the box home. As expected, the optional-at-extra-cost ones are where you'll find the more complex plugs, but VoiceStrip need make no apologies—it's eminently useful, and the price is right.

Ex. 2. Sonar's V-Vocal, which is based on Roland's VariPhrase technology and is bundled with Sonar Producer Edition, can edit pitch, formant, dynamics, and timing.

While all these types of programs have many similarities, they also have differences. For example, Waves Tune (Example 5) handles vibrato extremely elegantly: It highlights vibrato in pink, which you can increase or decrease (or add an attack). And you can substitute synth vibrato instead, with a choice of waveforms as well as depth, predelay, attack, and rate. Like MIDI sequencers, Tune also has a "glue" tool for connecting separate notes,

and a scissors tool for splitting notes into multiple notes.

HARMONIES BY HAND
You say you don't have a harmony synthesizer? During mixdown, everyone decided the lead vocal could use a harmony line, but the singer is on tour in Ulan Bator? You can sing harmonies, but you want them to have a bit of a different timbral quality?

All is not lost, if your DAW has decent pitch-stretching algorithms. However, it's crucial that you can

TC-HELICON VOICEMODELER
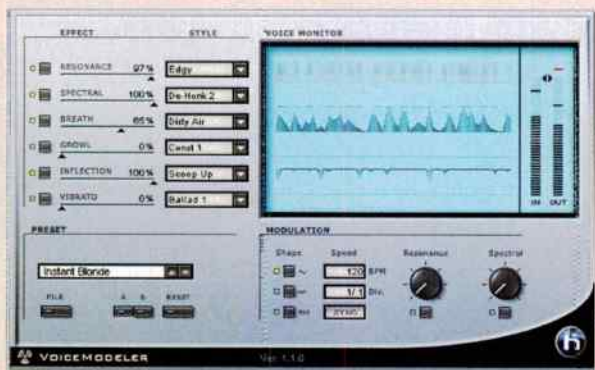
Fig. 4. TC-Helicon's VoiceModeler for PowerCore makes it easy to add interesting "characters" to vocals.

TC-Helicon makes three plug-ins for PowerCore: Harmony4 (four line parallel harmony generator), Intonator HS (realtime pitch corrector), and VoiceModeler (Figure 4)—which is definitely my favorite. After all, when it comes to harmonies, Harmony4 seems somewhat dated compared to hardware like the DigiTech VL4 and software like Antares' Harmony Engine; and Intonator HS works as advertised, so if you have a PowerCore and need realtime pitch correction, you're set. But VoiceModeler ($249) is a very creative tool that can transform voices in novel ways. It reminds me a bit of Antares' AVOX, but more streamlined.

What it does: The heart of VoiceModeler is the Effects Section, which lets you impart qualities like Breath (good for adding a diaphanous quality to choir sounds), Resonance (sharp, filtering-type effects that change timbre), Vibrato, Growl (good for sounding like you blew out your voice out, so you don't have to), Spectral (changes character), and Inflection (adds pitch-shifting effects, like scooping up to a

note). Each of these offers various "Styles" (typically a couple dozen, each of which sounds seriously different), while a slider controls the amount of the added effect.

A Modulation section can affect the Resonance and Spectral effect with different LFO amounts (although not different parameter values for the two effects; there's also sync-to-tempo for the LFO—extra credit for including a random waveform option, which is very useful.

Cool stuff: As you might imagine, there are a lot of options here, and when you find the right combination (believe me, it's also possible to find wrong combinations!), you'll want to save it. Fortunately, there's a convenient preset architecture that allows for easy choice of defaults and the creation of sub-folders, as well as A-B comparisons so you can decide if that edited version really is better before you save it.

Another cool feature, albeit in eye candy-land, is the VoiceModeler display. This has several "lanes" that show the amount of signal contributed by the various effects.

Limitations: There's no way to get rid of the original vocal sound, which is too bad—sometimes I'd like to hear just the process itself. I tried putting another dry track in parallel, switching it out of phase, and hoping it would cancel out the original vocal component; nope.

Bottom line: Before you actually use this for a mission critical project, experiment with it and get all the "funny sound" experiments out of your system. While you can obtain some novel effects by slamming the Effect sliders all the way to the right ("Hey! I've made Dexter sound like a girl!"), some of the best uses of VoiceModeler are subtle ones that add just a little bit of "shading" to the voice. Maybe I'm just a sucker for things that work simply and elegantly, but overall, if you have a PowerCore system and work with vocals, I think you'll find this an exceptionally useful tool.
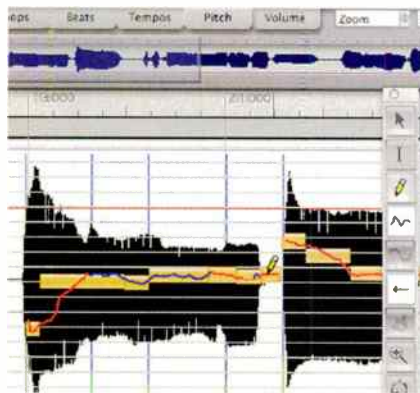
Ex. 3. MOTU's Digital Performer makes it easy to redraw pitches and correct vocal mistakes, but you can do deeper as well.

change pitch without changing duration; with programs that do "Acidized" looping (Sony Acid, Cakewalk Sonar), upon looping a clip you can change pitch without changing length. Ableton Live can do this as well, albeit with a different process.

With programs that use DSP algorithms for pitch-shifting, there will usually be some kind of check box called "Preserve Duration" or "Time Correction" for when you stretch pitch. Make sure this is enabled.

Here's how to add harmonies with Pro Tools 7 LE. but the procedure is similar for other hosts.

1. In Edit view, right-click in the track header of the track you want to harmonize, and select "Duplicate." In the dialog box that appears, enter 2 for the Number of Duplicates.

2. Click on the first copy to select it, and go *AudioSuite > Pitch Shift*. Enter +4 for "Coarse" to create a major 3rd harmony.

3. Make sure "Time Correction" is checked so that the clip duration doesn't change.

4. Click on "Process."

5. Click on the second copy to select it, and go *AudioSuite > Pitch Shift*. This time, enter +3 for "Coarse" to create a minor 3rd harmony and again,
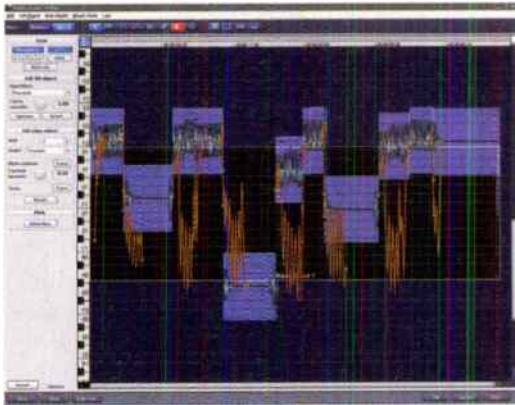
Ex. 4. Like Melodyne, Samplitude's "elastic" window shows audio in a MIDI-type style.

make sure "Time Correction" is checked.

6. Solo the original track and major 3rd harmony. Note which parts sound right together; cut away those pieces of the harmony track that clash with the main vocal because they should have a minor 3rd harmony.

7. Solo the original track and minor 3rd harmony. Cut out any sections of the minor third harmony where there's already a major third harmony.

8. Continue editing, and keep as much or as little harmonization as you like.

That does it (Example 6). However, with standard DSP-based pitch shifting the harmonies seldom track formant changes, so the greater the amount of pitch shifting, the more unrealistic the sound. Therefore, you'll probably want to mix the harmonies in the background, and apply some reverb (low diffusion settings work well, as that "thins out" the reverb a bit, and keeps the vocals from "stepping on" other parts).

Also, you'll need to cut the phrases with a fair amount of precision, as you want to cut in the spaces between words. Zoom in as far as necessary; it helps to turn off snap.

Finally, because you're shifting the vocals up in pitch, they'll have more high frequency content. Trim back the highs slightly to "warm up" the vocals.

Although this method will never replace doing harmonies with "real"

voices, for quick harmonies—or for those cases where the synthesized harmonies add a special effect—this is a very useful technique.

HARDWARE OPTIONS

While software is convenient if you're working "in the box," there are plenty of hardware vocal tools available. Two DigiTech vocal processors, the V300 and VX400, model a variety of vocal effects (and even include an expression pedal), but DigiTech's Big Deal is the Vocalist Live line—VL2, VL4, and VL Pro. What makes them cool is that if you plug in a guitar (VL2/4) or use guitar or keyboard (VL Pro), the box analyzes the key and chord progression, and generates harmonies automatically—you don't tell it what root and scale you're using, because your *instrument* tells it.

But are they really for live use only? I've run mic channels to the Vocalist and sent recorded tracks (including guitar, bass, or keyboard) into the Guitar input, and as long as I got the levels correct, everything worked properly. Of course, you have the additional

latency of going out through an interface and coming back in again, but that would be true of any "outside of the box" processor.

TC-Helicon also sells pedals that while billed for live performance, work very well in the studio. Create is basically a vocal strip on steroids, with reverb, modulation effects, delays, and the like. It's a good way to hit your recorder with an enhanced vocal sound. Double does what you'd suspect—although "Quadruple" would be more accurate, as it can generate four "virtual overdubs." Correct is very versatile, as it does compression, EQ, de-essing, and pitch correction; most interestingly, it has a function where it analyzes your vocal and applies EQ and dynamics as necessary to bring out what Correct thinks is the best tone—sometimes it hits it exactly, sometimes it needs a little tweak, but the concept is great.

In addition to these processors, TC-Helicon makes boxes with similar functionality to the DigiTech VL line: Harmony-G (for guitar) and Harmony-M (for MIDI keyboards), as well as more pro-oriented rack units, like VoiceWorks, VoiceWorks Plus, Voice Doubler, and Voice Pro.

DON'T BLAME AUTO-TUNE!
For some people, Antares' Auto-Tune—like MIDI quantization, Beat Detective, single-sample editing, and other "technique helpers"—is cited as a primary cause of the decline and fall of music as we know it. But remember, machines don't kill music: People do.

You gotta feel a little bit sorry for Antares (no, not because the Spice Girls broke up—I've heard from unreliable sources that they bought *a lot* of Auto-Tunes). When someone applies Auto-Tune intelligently, using it to fix a few errant notes that would have otherwise marred a perfect vocal performance, no one can tell Auto-Tune is in use—so it doesn't get the credit. But when someone uses Auto-Tune like a sledgehammer to convert a vocal part into a steaming pile of phonemes, Auto-Tune gets the blame. You can't win.

Unfortunately, some people reach for Auto-Tune as a quick fix rather than a last resort. Why not punch in, or let the singer warm up more? Worse yet, what if the reason for the pitch

Ex. 5. Tune, from Waves, does the usual pitch correction functions but also handles vibrato editing in a particularly elegant way.

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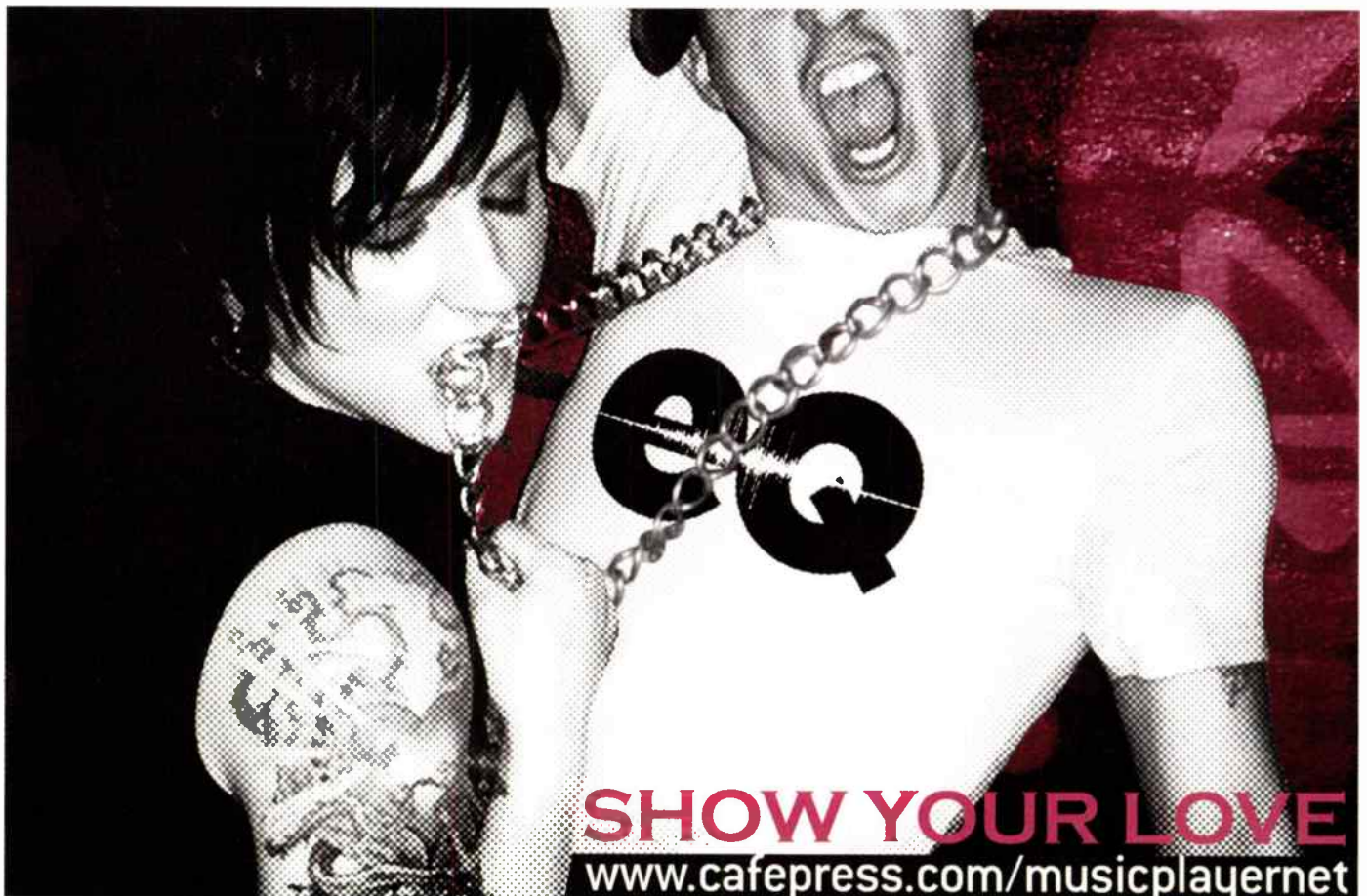
Ex. 6. A vocal track has been copied twice, once to create a major third harmony, and again for a minor third harmony. The DigiRack Pitch Shift window shows the settings for transposing an audio file up by four semitones (major third).

issues is that there's simply not enough vocals in the headphones? If you deal with fundamental problems first, you'll end up with a better vocal—and one that requires only light pitch correction.

But let's not forget that pitch correction can also be a cool effect. Sure, the Cher "Believe" thing is a bit old, but on the track "Jaded Love" (by Trona), the singer kept the "real" vocal up front, but doubled it—and then applied pitch

correction to only the doubled track. It's one of the coolest double-tracked vocal effects I've heard.

The most important point in using pitch correction is this: Don't correct based on what you see in the lovely GUI that shows the "real" notes not matching up with the "perfect" notes— *correct based on what you hear.* If a note *sounds* wrong, fix it. If it doesn't *sound* wrong, leave it alone. **eq**

GADGETS & GOODIES
CONTROL FREAKS, THIS ONE'S FOR YOU

Until we have Buck Rogers-type 3D touchscreens, you might as well pick up some cool little controllers while you're waiting. (All prices are MSRP.)

KORG NANOSERIES USB MIDI CONTROLLERS
($62 NANOKEY, $72 NANOPAD AND NANOKONTROL; WWW.KORG.COM)

A touchpad is less than ideal for expressive parameter control with laptop music, yet bulky external controllers work against portability. The solution? Korg's USB-MIDI controllers, which are bus-powered, made of lightweight (but solid) plastic, and quickly recognized as a MIDI input device by most programs (I used Ableton Live, Reason, and Pro Tools). And, the downloadable "Korg Kontrol Editor" software lets you tweak these devices to your recording/performing needs.

nanoPad: Designed for drum/triggering applications, the 12 pads are solid and responsive. Other charms include a Chord Trigger function that lets you program a single pad with a chord, and the ability to transmit Continuous Controller (CC) messages. I used this feature for soloing/muting tracks, turning effects on/off, and triggering clips during performances. The X-Y pad offers "Roll" and "Flam" modes for beats, but I preferred to use it as a CC controller for controlling plug-in parameters.

nanoKey: This slim MIDI controller keyboard is velocity-sensitive—in the editor, you can select one of three velocity curves or fixed velocity (just don't expect grand piano-level dynamics). Keyboardists may find the 25 equal-height keys off-putting, but those used to computer keys will revel in being able to easily identify black and white keys—while an Octave Shift function offers access to the entire MIDI note range. I particularly dig CC Mode, where the keys become MIDI controllers. The pitch and modulation buttons didn't sate my inner Jan Hammer, but did provide interesting effects, and their range is editable.

nanoKontrol: This mighty midget was my fave. With nine faders, nine knobs, 18 switches, a transport section (re-programmable to control other parameters), and four "scenes," it allows a total of 168 different CC messages, not counting the switches' MIDI note on and off function. Extra cool feature alert: You can specify attack and decay times for the 18 switches, letting them swell in and fade out wet/dry or volume levels, and perform filter sweeps. I also loved that

the software editor allows switches to have a latch or momentary response. This little box is ideal for manipulating plug-in parameters.

Combining nanoKey and nanoKontrol created a "nanoSynth"—at half the size of my Novation Remote 25SL. So don't be surprised when these white wonders start appearing next to you on airplane trays and Starbucks tables: With their modular capability, low price, and versatility, it's hard to imagine a laptop musician who won't want to throw a couple of these babies in the computer bag and go. —*Michael Ross*

TANAGER AUDIOWORKS CHIRP
($39.99; WWW.TANAGERAUDIOWORKS.COM)

While there are freeware/shareware options for converting a laptop's QWERTY keys into a virtual MIDI keyboard, they ultimately drove me nuts because if the focus wasn't on the virtual keyboard, I couldn't play any notes—making it impossible to tweak, say, filter cutoff while playing on the keys. Fortunately, the cross-platform Chirp keyboard utility solves the problem, but has much else to recommend it.

Chirp maps up to 21 keyboard notes, as well as ten trigger pads, to the QWERTY keys of your choice. While the ten trigger pads can trigger notes, they can also trigger program changes, control messages, or even sys ex.

There are two ways to generate notes with different velocities: vary the velocity slider to the desired value before hitting the note, or use the 1–8 number keys to choose a velocity range. While this helps overcome QWERTY keyboard limitations, I'd prefer an option where you could change velocity while playing by dragging the mouse.

The final assignment option is for the two virtual wheels, which you *can* manipulate with the mouse. They generate standard MIDI continuous control signals, or of course, pitchbend. Even the space bar is relevant, letting you send All Notes Off,

Sustain on/off, Poly mode on/off, etc.

There are more features, but the bottom line is if you have a laptop and can't carry a mini-keyboard with you, Chirp will let you play—not just program or step-record—your parts. Score! —*Craig Anderton* ❦

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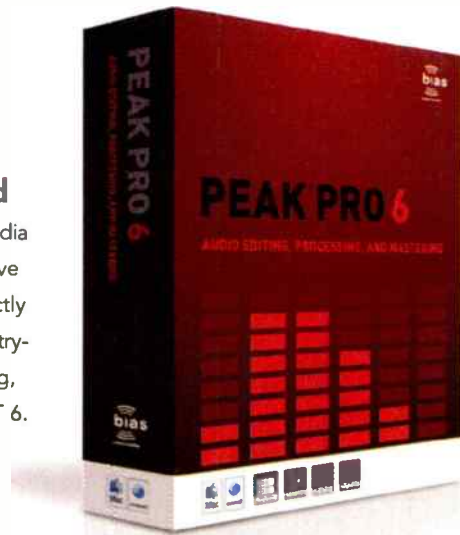
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World Radio History

ROOM w/a VU

by Chris Dunnett

STUDIO NAME: The Bamboo Room

LOCATION: Cincinnati, OH

CONTACT: www.studiothebambooroom.com

KEY PLAYERS: Erwin Musper

CONSOLE: Digidesign C|24

INTERFACE: Digidesign 192 I/O (3)

COMPUTER: Apple G5 dual processor w/ 2 x 23" Cinema monitor screens, G4 laptop

DAW: Digidesign Pro Tools|HD3 Accel

PLUG-INS: Antares Auto-Tune; Bomb Factory Fairchild 660; Crane Song Phoenix; Digidesign Massive Pack 4, Smack!; Line 6 Amp Farm, Echo Farm; Serato Pitch 'n Time; Sony Oxford EQ; TC Electronic MasterX3; Waves SSL bundle

RECORDERS: Mackie HD SDR 24/96; Otari MTR 90 2-inch 24-track w/ Dolby SR; Panasonic SV3700 DAT; Studer A80 1/4-inch; double-layer CD/DVD recorder; LaCie d2 storage

MONITORING: Auratone 5c; Aviom 16I1 16-channel cue headphone station (5); Dynaudio AIR 20 5.1 system; Mackie HR 626

PRES/DIRECT BOXES: Behringer Ultra-G (4); Focusrite Octopre (4); Mindprint DTC (4); Radial JD7; SPL Channel One; Toft Audio Designs ATC-2; Vintech Audio Neve 473 (4), X81 (2)

MICS: Audio-Technica A-T 3035; AKG 414 (3), C1000 (3); CAD GXL3000 (2); MXL V69M; Neumann TLM 103 (2), KM84 (2); Røde Classic, NT1-A (2); Sennheiser MD 421 (5); Shure SM 57 (10); Yamaha SKRM-100 Subkick

OUTBOARD: AMS RMX 16, 15-80s; dbx 266A; Furman AR-15 II, M-1500; Lexicon 480 w/LARC; Pultec EQP-1A (2); SPL Qure, Channel One, Transient Designer, Tube Vitalizer; Urei 1176 LN (2)

INSTRUMENTS: Ensoniq ZR-76 synth; Epiphone Les Paul junior guitar; Fender Rhodes Mark 2; Gibson Jumbo acoustic guitar; Hammond B3 organ with Leslie; Harmonium pump organ; Ludwig drum kit with two toms, floor tom; Steinway Boston Baby Grand piano; Fender Stratocaster guitar, Telecaster guitar; Squire jazz bass; Takamine acoustic guitar; Zildjian cymbals

AMPLIFICATION: Ampeg SVT bass amp, 4x10" classic speaker cabinet; Fender Dual Showman; H&K tri-amp, 4x12" cabinet; Hiwatt 4x12" cabinet. vintage 50W guitar amp; Marshall 4x12" cabinet; Vox Valvetronix amp

NOTES: Erwin Musper isn't a name to be taken lightly: His name appears (as producer, recorder, or mixing engineer) on more than 80 million albums that have become classics over the last 30 years. Musper has recorded with Van Halen and all its lead singers, piloted sessions for David Bowie, Def Leppard, Bon Jovi, Mick Jagger, Elton John, Scorpions, Jeff Beck, Chicago, Metallica, and Dutch superstar Anouk—and has engineered and mixed sessions for top-of-the-chart producers such as Glen Ballard, Mutt Lange, and Bruce Fairbairn.

"I made enough money to semi-retire, but not working would kill me. I always panic when I have a day off," Musper says. So instead of leading a retirement plan of panic, he built his own studio to make sure he never has to face a day without a recording session.

"It's basically a combination of all the big studios I've worked in for decades. I used to send a wish list to every studio manager before I started my sessions, so I sent myself the same wish list," he says. "The biggest challenge was to find vintage stuff that I could not live without. But I got it all in the end."

Musper spent nearly half his budget on acoustic treatments and fine-tuning the two tracking rooms, three isolation booths, control room, editing room, and lounge. "I am from a generation where the sounds were made in the room, not in the box. I love Pro Tools, but it is still what you feed into it that counts. And it still gives me the biggest thrill to see the band through the control room window and hear the thunder or whisper of a new song. That hasn't changed since I started over 30 years ago."

Built in 2004 and situated in a meadow where smoke breaks are accompanied by deer, Studio The Bamboo Room is an environmentally-sound music refuge. "Instead of using the usual hardwood, I decided to install bamboo flooring and bamboo custom consoles. It's a lot less damaging to the environment because bamboo grows back within a year, where other trees need about a hundred years to make up for the loss caused by our ever-growing needs. And it looks pretty cool, too." **EQ**