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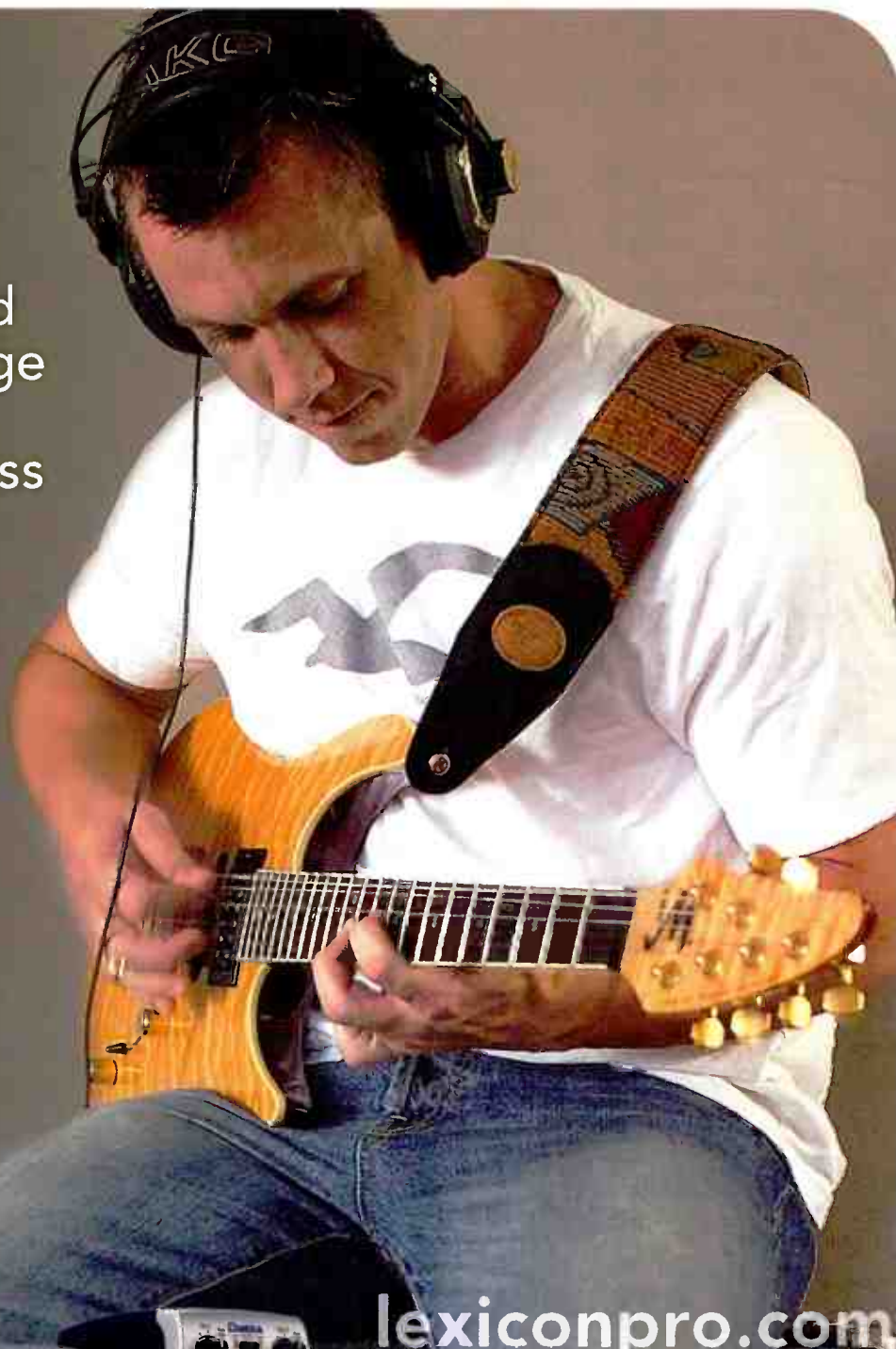
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07/06



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Tip Top Vocal Tips + Tricks
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Talk Box



Vol. 17 No. 7
July 2006

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THE MYSTERY OF ULTRAVOXING

It was one of those legendarily inscribed, oxymoronically genius moments of extreme inebriated clarity and in full-blown Li'l Rascals fashion we, that is me and a bunch of other singers, had decided to do the heretofore unimaginable: we were going to start a magazine for *vocalists*. It'd be *great* and all of the gathered vocalists in attendance nodded sagely at the overdue-ness of a magazine that focused on the unsung singer, the poor beleaguered near-musician, oft-ridiculed ("first to start talking, last to stop talking, and never around to carry equipment" — Ron Isa), under-appreciated SINGER.

Ooo . . . this was a good one and we stood around congratulating ourselves for great insight until one oddly perceptive young wag spoke up and, with a nod to the God of Buzz Kill, said "There are no magazines specifically for vocalists because doing vocals doesn't require much outside of a willingness to forego the social restraints connected to public exhibitions and shame. Moreover, have you ever seen a singer open his wallet for anything?"

Cue the *wah-wah-wah* sound effect and flash forward to now where, with the benefit of hindsight and better quality booze, we can see that while the original idea might have been befouled, the instinct was dead on because while we can't do anything for vocalists that *Rolling Stone*, *Spin*, and *Vibe* have not already done, we CAN talk about how some of the most important recording you're ever going to do will be vocals.

Inarguably so, since vocals and the lyrics they live through articulate the emotional center of any recorded effort that includes them. So doing it *right*, doing it *well*, and doing it *better than* — and your consistent desire for the same — are all the exact reasons why you're holding this, our July Vocal issue, in your hands.

So whether we're launching our mic shootout marathon that will eventually corral over 240+ mics (but here includes a vocal mics' rogue's gallery of some of the best), or are listening raptly to CHUCK AINLAY, PAUL OROFINO, JOHN HOLBROOK, PETE MOSHAY, and BRIAN MACKEWICH talking about making vocal magic, we are in the friggin' mix of the best VOCAL issue ever. Add to that a sneak engineering peek into the RED HOT CHILI PEPPERS' new *Stadium Arcadium* and our MOST HUGE Gearhead ever and you got yourself a cure for the summer doldrums, baby.

Now, did I ever tell you about that time I was singing with Exene Cervenka? Right before I got knocked unconscious? Well, you see. . . .

Cheers,



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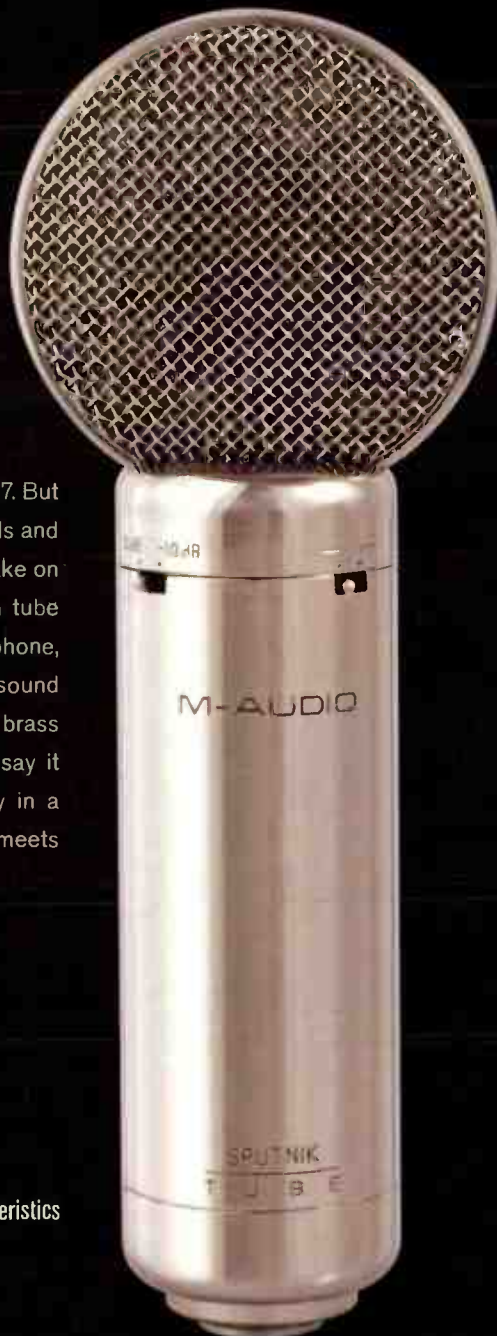
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World Radio History

SCALING BACK

PROJECT: Matthew Herbert's *Scale*

DATES OF RECORDING:

Aug 2005–Jan 2006

STUDIO(S): Abbey Road.

Country Witness

LOCATION(S):

London, Kent UK

OFFICIAL ALBUM TITLE:

Scale

PRODUCER:

Matthew Herbert

ENGINEER(S):

Chris Bolster,

Alexis Smith

Scale is all about the detail. There were more than 140 hours of original recordings made specifically for it to sift through, though I have a rule of not reusing any sounds, therefore I had to be very aware that in just one minute of any given recording I do, there would often be enough new noise to make three albums. It was important that I relax about it. Accidents will happen but, after all, sound isn't a permanent or consumable force. It is infinite. If the integrity of the recording is right, any moment will sometimes do.

I am usually very explicit about my sources, but this time I wanted to retain more of the mystery — though I will release a few: 12 coffins recorded closing from the inside, 12 meteorites, 12 golf tee shots. I recorded onto a Nagra V, which I also use to master to. These sounds were all recorded at 48k/24-bit then transferred directly to

I consider jail, pneumonia, electrocution . . . drowning, and death as more stimulating to the musical process than a monitor screen and a mouse.

the computer. I then played them back, through the desk (Harrison Series 10) and EQ'd them as I went; sampling the interesting bits in to an E-MU e6400 whilst editing and choosing decent sections to loop. All objects recorded/sampled in the studio rather than in the field were recorded in to a LOMO 19a19, an API preamp, through the desk and in to the computer. By using a quality signal path at every stage, I found I had more control in the end, and it also makes the EQ much more dramatic. For the longer sampling, I used Native Instrument's Kontakt and the CAD24 in Logic. Abbey Road met my demands easily, as well as an in-house engineer, Chris Bolster, who obviously knew the room, and crucially knew my previous sessions there. Extra recording, mixing and mastering, however, was done in the temporary studio we built around the Harrison desk in our living room.

I've learned to always be prepared for an accident, to always be ready to listen when the machines join in. For



example, my sampler takes a feed from the master out of the desk, so no matter what comes out, I can always capture it, with effects, EQ, pan, and so on already in place. The Harrison desk has a habit of creating random feedback loops, but rather than seeing it as an annoyance, I just record 10" of it and make a synth patch out of it. My Fairchild spring reverb used to pick up foreign radio stations — on a big band album I did, you could hear bits of Chinese and French radio coming through, and I loved it. It's the difference, the humanity, the flaws; I don't want to make music that sounds like it could have been made anywhere.

I think digital will be seen as a foolhardy diversion in studios. It's so colorless, so uniform — and all built on a lie. I love the ability to transfer huge amounts of audio back and forth, but the idea that digital is a perfect copy each time is a myth. After A/Bing my recordings to LaCie hard drives, I found the FireWire 800s had much more high-end definition than the 400 drives — more clarity and a wider stereo image. This is supposed to be impossible. . . .

I'm not a big fan of drums or drum machines. Why, when you can use anything in the world to make percussion noises, would you use the same thing as everybody else? There were occasional times however, when I wanted to use those sounds, but they had to be recorded differently. So we took the drums underground, up in a hot air balloon, into the sea to record under water, and at 100 mph in the back of my car. I was interested in hearing Leo Taylor, the drummer, playing this familiar feel in a situation where he was breaking the law and at some personal danger. If music in general is to emerge out of this bland funk, we need to start taking a few more risks. I consider jail, pneumonia, electrocution (as the balloon came down), drowning, and death as more stimulating to the musical process than a monitor screen and a mouse. EQ

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GROUP VOCAL TRICKERY

Quite a few years back, I was approached to produce and record a jingle package for a minor league baseball team. I got an old time Dixie band to perform the piece, with a great lead voice, but I needed backing vocal tracks to simulate a large crowd cheering the team's name from the stands, to give the effect that the recording was of a baseball game. Being way over budget (and pressed for time), I had no idea how the hell I was going to effectively gather an entire crowd to generate the sounds I needed, and getting professional vocalists to stand behind the lead voice in the room simply wasn't in the realm of financial possibility.

I was, however, slated to give a tour of my studio to a local girl scout troop later on in the day, and I figured if I could elicit some free help from this band of cookie-slingers then my troubles would be officially over. So with a little smooth talking, I ended up with an extremely energetic group of young girls that were more than happy to have their voices put to tape.

But there was a problem. I didn't have 23 sets of headphones readily available, so I had to improvise. I had



I had to find a way of monitoring that would not, of course, be heard on the final track. So I decided to pull off the old phase cancellation trick, as well as try out a few tricks that have since proved invaluable.

to find a way of monitoring that would not, of course, be heard on the final track. So I decided to pull off the old phase cancellation trick, as well as try out a few tricks that have since proved invaluable.

A lot of artists have employed the phase cancellation tactic in their sessions throughout the past, as it is a great way to cut vocals without having the burden of using headphones. To start off, you place your monitors in an exact equilateral triangle with a microphone set to a cardioid pattern. It's important that you make sure that all three objects are on the same plane, or level with the others. Then, throw one of the monitors out of phase and position them so that the two monitors cancel each other out at the exact point of the rear of the microphone. Sure, some monitors have a phase reversal switch on them, however most do not — so know that you can make a cable that is out of phase simply by switching the hot and cold wires. In setting up this way,

you have two things that are ultimately working in your favor. The cardioid mic is not going to be picking up any sound from behind it, and if your speakers are set in the correct position — directly out of phase — there will be no sound to pick up in the first place.

This procedure ended up working quite well. We emptied out the live room as much as we could so that there was a natural, almost slap-back, room reverb. We placed the girls at one end of the room, and the mic and speakers at the other. Since we had used the aforementioned technique, the mic was not picking up the playback, so we were ready to cut the track. The first track really just sounded like a bunch of girl scouts screaming "St. Joe Saints," so we decided to stack the tracks by recording a bunch of additional takes. To achieve sonic disparity (so it didn't sound like the same voices merely layered) we moved the group around the room for each track and set them up in different positions and then proceeded to record 10 extra tracks.

But when it came time to mix, I still just had 10 tracks of girls screaming — and I needed to make it sound like an entire crowd. So I decided to take an Eventide Harmonizer and pitch four of the 10 tracks down various degrees. It was pretty scary how well this worked. Using my digital audio workstation (Pro Tools), I then physically moved (or "offset") each of the tracks by 3–15 milliseconds so that they each started at different spots, which really made the sound thicker (this is a great tactic even if you only have one track that you want to "beef up"). A large room with a long decay time served as the perfect reverb for a project like this, and after adding a few banked sound effects of a bat cracking and some cheering in the background, I had accomplished my goal of effectively recreating a large crowd sound with a small group of people. And you can too — with a little smart placement of your mics and monitors, a little multi-tracking, a little reverb, a little harmonization, and a little help from your friends. **EQ**



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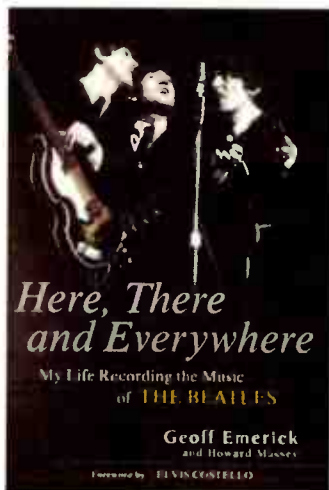
Punch In

TUNE IN. TURN ON, PUNCH OUT BY
THE EQ STAFF

LOOK SEE

HERE, THERE AND EVERYWHERE: MY LIFE RECORDING THE MUSIC OF THE BEATLES

Among the most easily neglected aspects of life in pop music is the value of remembering. The ephemeral nature of a form, which all too often is overwhelmed by the inexorable forces of fashion orientation, the search for the Next Big Thing, and what Ian MacDonald called "pose and noise," may mean we miss learning how we got from point A to point B. Thus, the singular importance of memory — no, not digital storage capacity, but the synthesis of experience, judgment, and soul by those who were present at the creation.



Geoff Emerick was indeed present as engineer on innumerable groundbreaking recordings by The Beatles during the era of their most creative output. He draws on this unique opportunity for *Here, There and Everywhere: My Life Recording the Music of The Beatles* — a memoir from the perspective of audio and an indispensable primer for aspiring professionals. Emerick, along with Howard Massey, tells a great story of a young man's passion for music and sound, combined with a willingness to break stultifying rules, which helped revolutionize the very concept of the modern recording studio through innovations from phasing to close-mic techniques and the general application of unbridled curiosity.

Ever the humanist, often kind but not uncritical, Emerick repeatedly emphasizes that collaborative effort and good psychology are as vital as technical skills in the

successful conduct of studio work, insisting that "the music comes first."

This book should not be turned to as a source of profound inquiry into personal or social history. There are plenty of other volumes available for that. It does, however, belong on the very small shelf reserved for those works that elegantly reveal *how the music was made*, by someone in a position to know.

When Emerick had finally accomplished the now-legendary joining of two different versions, in two different keys, of "Strawberry Fields Forever" into one coherent masterpiece, John Lennon kept repeating three words, "Brilliant. Just brilliant." To which we may add but two: Hear, hear. —David Flitner

THREE ON A TREE

Max "Cipeua" Bacchin

If pleasing anyone else wasn't an issue, do you have some whacky effect you use behind closed doors?

Max Bacchin: I'll use this whacky effect I found outside the studio: an abandoned toilet seat. Send a signal to a small speaker placed over the seat, placing a SM-57 just at the end of the hole. Then the signal runs from the mic into a Roland distortion pedal for a kind of whacky, low-fi reverb.

Do you remember any particular effect on a recording you've heard that changed your life?

MB: The sound of the reverb passing through a phaser in an old movie of Jenna Jameson. The sound of the moaning was outstanding. It freaked me out.

What's your favorite hangout after a mix?

MB: Drive through the Liberty Bridge to a decent "baccaro" in Venice for some wine with my friends. —Cookie Marengo

LISTEN HEAR

SONIC YOUTH
S/T (Geffen)

Produced/Mastered by:
Sonic Youth, John Golden



Sonic Youth's first release, their seminal, self-titled offering, has been re-

mastered by John Golden (of Golden Mastering fame) and represented with the addition of seven live tracks from their *Music for Millions* live performance in 1981, as well as a studio outtake of *Where the Fern Grows*, making this a mandatory addition to any Sonic Youth, or any early "alternative" music fan's collection. Screaming feedback-laden indie rock from way before indie rock was the hip thing to listen to. Beautiful.

LISTEN HEAR

THE DISCO BISCUITS
The Wind at Four to Fly
(Scifidelity)



Ah, jam bands. Nature's own Ambient alternative. While many

like to fool themselves into thinking that mindless meandering somehow translates to the right to put "jazz" on their résumés, we have never been one to be fooled into thinking style overrides substance. Given this predilection, we were actually surprised by this double-live album — as it wasn't quite as pointless as expected. The Disco Biscuits actually manage to grab our attention with their unique take on the genre. In addition, the sound is pretty good for a live release, if not a bit vocal heavy. This passes the class, while every other band of this ilk tends to fail miserably.

BIGGER THAN BIG

Massive Attack

Over 20 years ago, an inimitable sound came pouring from the British port city of Bristol. Thumping beats mixed with shivering bass glazed with vocals that were as seductive as they were threatening. It was reggae. It was dub. It was hip-hop. It was rock. It was punk. It was a conglomerate of *everything*, produced in a manner that was unlike anything previously heard. It was Massive Attack.

Collaborating with a pantheon of musical personalities over the years — from David Bowie to Madonna, Tricky to Mos Def — Massive Attack have created a virtual aggregate of relevant audio that is wide-spanning but incredibly focused, always recognizably “Massive Attack.” These experiments in music have recently been assembled in the career retrospect *Collected*, a part “greatest hits,” part rarities package that reflects years of technological change in both performance and production.

In the olden days, Massive Attack, like all their peers, worked with what amounted to just a series of MIDI controlled “boxes” chained together. Starting with an Atari ST and shifting the Cubase Audio on the Macintosh, everything was separate and an Akai MPC 3000 drove all the beats. With all the elements running live, tweaking was just done on the fly — an invitingly problematic process; with retracing steps to recapture lost vibes being at best frustrating and, at worst, impossible. With the onset of technological advancements, Massive Attack’s studio has shifted from purely hardware-based to somewhat software-laden, with their current set-up revolving around ProTools TDM and an Apple PowerMac G5; though they are quick to assure that the live room still gets a good work out. “There is a lot to be said for the way we used to do things,” says longtime producer/collaborator Neil Davidge. “It was tedious, but it took more time to mess around with a sound, its source, rather than just getting something in there, treating and effecting it. To some degree we’re trying to get back to that way of working, but without losing flexibility, because we’re always changing our minds.”

According to the band, every plug-in available is part of their Pro Tools rig, including TASCAM’s GigaSampler (the springboard for their more “traditional” samples), which has taken the place of their trusty MPC 3000. “We’re mixing up a lot between the real stuff and the technology-driven sounds and virtual instruments,” says Davidge. “You get an unusual clash from using the two. There is inevitable difficulty mixing acoustic with electronic, analog, and digital. It’s a case of experimentation in the studio — careful use of tools in terms of the arrangement and how they interact.”

Davidge uses “Live With Me,” a new track found on *Collected* as an example: “[It’s] a programmed drum pattern, very simple and rooted. That is the mainstay of the track. But the live drum is this military snare drum, which builds through the track. We’ve double tracked that so it diffuses the sound of the live stuff. It works better with the metronomic, electronic part because you get this hazy quality to the live stuff, so it doesn’t really matter that they are slightly out of time with each other.”

Whether it’s via the old tactics and techniques or the new technology, there are definitely certain easily identifiable characteristics of the “Massive Attack sound.” The spine chilling bass, the unpredictably syncopated beats, and their unique interpretation of any number of vocals are among their more notable trademarks. Davidge assures, “We don’t necessarily set out to do Massive Attack ‘things.’ Whenever we’re working a track, we try to treat it as something fresh — not necessarily follow the same rules we played by in the past. For ‘Angel,’ it was just two notes being played, but on one of the inputs on the back we were laying a drum loop into a VCF so you were getting this weird rhythm pattern coming through, like the semi-tone for the bassline . . . but then you have the pulse of the bassline. We put that into the Roland S-750, found the bit we liked, put that into the MPC and ran it live with the beats, and then recorded it.”

Another example of this kind of unorthodox tracking ethos is the distorted bassline halfway through on “Risingson.” “This started as a sample of a *tamparaua* — a droning stringed instrument played live by a multi-instrumentalist Indian musician. Sampled onto a keyboard, performed, then put through loads of effect — the Mutronics Mutator for filtering and then through various delays and distortion boxes. The end result is but a convoluted version of what the original sounds started as.”

Davidge continues, “There’s a bass sound on ‘Butterfly Caught’ that’s actually a manipulation of Del Naja’s voice. The original sound sources can come from absolutely anywhere. It’s fewer of these devices that are used and more about the attitude of how you approach a sound and how you take a lateral view to a sound. That’s what creates these ‘trademark’ Massive Attack sounds.” —Lily Moayeri

PUTTING *TSOTSI* TOGETHER

by Mark Kilian and Paul Hepker



We left our L.A. studios for about six months and recorded the score in Johannesburg, South Africa. It wasn't an easy thing to do logistically, but it was so much easier to be where they were editing the picture — not to mention that we really wanted to work with local musicians.

The main components of the score are vocals (lead and choir), strings, percussion, and pad-like ambience textures. We felt the score called for a warm vocal approach to make the trajectory of the main character's story arc believable. The human voice is also the main component of South

African music, so it made sense. Because of a limited budget, we decided to hire the best vocalists we could find and an 8-piece choir in lieu of real strings, programming the strings using East West's string sample library.

We decided from the onset that we would make all our own sounds, with the exception of the vocals and strings of course. We raided my dad's garage and used everything from engine plates to hubcaps and metal sheets to create the textures and much of the percussion. We hired a percussionist and recorded some ourselves and made a fairly eclectic but extensive loop library, which we used as a starting point in many of the compositions.

We also made pads with multi-layered recordings of our voices and pitched them down a couple of octaves and added some EQ and compression. Same with recordings of whirley tubes (like pool pipes that you swing above your head to create a sound) and guitars with a low string tuned down to its lowest workable pitch. All these pads have an inherent motion and sound organic. We also made a wineglass choir and used that for some rhythmic patterns.

Getting Vusi Mahlasela to contribute his highly original and lyrical voice was an absolute scoop. He was brought into the project at a point where we had scored the majority of the scenes — minus vocals — and so we were able to put him in the booth and see what he came up with over various takes. Most of the time, the first take captured beautifully the lyricism and emotion required to elevate the scene. We created an EXS24 library of various phrases that we were then able to work into the score.

We enlisted an instrument designer in Johannesburg, who found us some interesting local instruments that we used in the score. We recorded using a umakhweyana (zulu bow, similar to a Brazilian berimbau) and a small resonating marimba, as well as some odd shakers and things.

Everything was recorded in a rented studio space in Johannesburg. We each had a separate setup in adjacent rooms. We used a Neumann TLM 103 for all the vocals and close percussion stuff, and a pair of AKG 414s for the room mics and for the choir. These all went through a Buzz Audio mic pre and an Avalon stereo compressor. We both used MOTU 828 audio interfaces running Logic and Live, along with Phatmatik and the Waves plug-ins.

The score was mixed at Gravy Street Studios, by Casey Stone. We employed a Lexicon 9600 to sweeten the sound of the sampled strings, and to bind the score in a transparent and definite space. The splits were then sent to the final mix at Chris Fellowes Studios in Johannesburg, and ported to 5:1 during that process.

As uncredited music supervisors (and music editors) on the film — and having had the opportunity to work on it during its conceptual stage — we found ourselves in the fortunate position of being able to design and pace the musical arc in the film from the intense and upbeat kwaito (South African hip-hop) that dominates the first act — right through to the spiritual (almost religious) choral music that brings the journey to completion.

In general, the musical landscape we tried to define was all about small. Take one sound and give it place to breathe. This is how the movie develops and it mimics, in a way, the photographic concept of the movie, which is all about somewhat static, but large, framing that captures the emotion of the characters without the camera bobbing up and down à la MTV. The sophisticated and mature style of editing needed a score that played to the subtlety of the story telling, letting it unfold in an unhurried and organic fashion.

THREE ON A TREE

Terri Winston, Women's Audio Mission

If pleasing anyone else wasn't an issue, do you have some whacky effect you use behind closed doors?

Terri Winston: I like weird acoustic chamber environments as an effect, instead of using outboard FX — the problem is that it is time consuming — I am assuming not pleasing anyone else means budget, too? If that's not the case, re-amping vocals/drums, old Boss analog delay pedals, Frankenstein pedals/amps, and mic it all up with my modified telephone handset microphone.

Do you remember any particular effect on a recording you've heard that changed your life?

TW: Tony Visconti and the harmonizer on Bowie's *Low* was the first riddle for me. I was also really influenced by Visconti's ambient space manipulations on "Heroes." Then there was that multi-tap on "Julie Ocean" by the Undertones. . . .

What's your favorite hangout after a mix?

TW: Somewhere pretty quiet with human distraction and a lot of good food. —*Cookie Marengo*



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HOB NOBBING WITH BOB

I've got to hand it to you. Great article! Bob (Heil) is probably one of the most underappreciated members of the music world. Not only for his inventions and innovations, but for the role he played in the Southern Illinois region supporting local musicians. I remember my first trip to Bob's Ye Olde Music Shoppe in Marissa. The guys in my high school rock band and I had just seen The Guild at a local parking lot dance in Mt. Vernon, IL, and we marveled at their clean, clear sound. It was a first for us, because, as Bob described in your article, everyone was using column PAs. We were using four Shure columns, each with 6 eight-inch speakers. You can imagine how those sounded. Especially at an outdoor gig. The Guild was using Altec "Voice of the Theater" modular PA cabinets. At their first break, we rushed up to the stage and asked these guys, "Where did you get that PA gear?" The rest was history for us. We made many trips to see Bob over those years. I'm guessing 1967-1973. Bob was great to us, as he was to the rest of his local bands. We could call Bob, desperate that we had blown a 15 in one of our cabinets, or because one of our Macs was overheating, and Bob would do a quick exchange, and tell us, "Don't worry, I'll put it on your bill and you can pay when you get a chance." Not many people would do that for a bunch of hippie musicians back then, and I'm pretty sure they wouldn't now. About 1970, Bob introduced us to Sunn amplifiers. They were light years ahead of what everyone was using then. My senior year I traded in my weenie Fender Showman on a Sunn Orion with two 15-inch JBLs in it, and I was happening. Heavy metal here I come! Yup, Bob was like a big brother to us and I probably never got a chance to tell him how much we appreciated him. My only regret is that I never bought one of his albums. Yup. He had an album of organ greats, displayed, for sale, right there in the store. I'm not sure how many (if any) he sold, and I doubt that any of us appreciated the fact that Bob was an accomplished musician. But we sure appreciated his support. I could think of a thousand stories to tell about Bob and our experiences at Ye Olde Music Shoppe, but then you guys



already realize the obvious. Bob Heil is one hell of a guy! Thanks Bob, wherever you are!

Dave Davenport
The MENTOR ABI Group

THE HATE J.J. CLUB

A friend of mine told me about the February 2006 *EQ* magazine with the 200 plus tips, so I bought it. I think the tips were great and most were very helpful. But I have a small problem with tips number 174 to 182 by J.J. Blair. Could you tell me why he has to use profanity and take God's name in vain? This does not only make J.J. Blair look unprofessional but *EQ* magazine as well for printing this language. Please tell me why I should subscribe to your magazine? If *EQ* magazine is a professional publication, then its contents should be as such.

Sincerely,
Richard Smith

EDDIE KRAMER VS. SAM PURA

I hope I'm not the only one sick of reading and hearing Eddie Kramer speak about recording Hendrix over 30 years ago (*EQ*, January 2006). Eddie recently came to my school in the SF Bay Area and bad mouthed all current engineers stating, "There isn't a good sounding record to come out recently, because it's all over-compressed." He then went on to state "it's impossible to get great drum and guitar tones, because Bonham and Hendrix are dead." Reading your interview with Eddie stating the same crap about over-compression, and how it's killing our recordings and music today, blah blah blah. I listen to plenty of records today and hear some amazing mixes, and some amazing drum and guitar tones. Tell that guy to quit tooting his horn. Sure his work was solid in the past. However, I have yet to hear a recent Eddie Kramer record that is jaw dropping. Actually, listen to a current CD of Eddie's . . . it's over-compressed.

Sam Pura

OH, YEAH?

Here's our comment about a recent article: Mic preamp comparisons (April '06) are a lot like wine-with-food pairings (we do both).

One thing that didn't come across in the article was that they were really comparing different flavors of mic amps — not unlike comparing a

Cabernet to a Riesling. Yes they are all mic pre-amps, but very different flavors. Just as you might love a particular wine-food pairing, there's probably no single one that works perfectly with everything. And when producing pop music, sometimes the deepest coloration is desired.

Millennia takes pride in making products that let the sound come through with minimal coloration. Often we get the comment that "It sounds like me." Of course that might not be what the engineer is looking for with that particular sound at that particular time. Since there is no undo on a mic pre, our approach allows for more flexibility down the road when the opinions change.

Now what's for dessert?

Regards,
Joel Silverman
- Millennia



KILL..

. . . For your fine magazine. . . MORE DAVE PENSADO! MORE DAVE PENSADO! MORE DAVE PENSADO! MORE DAVE PENSADO! MORE DAVE PENSADO! MORE DAVE PENSADO!

He's funny, educational, and the best mixer in the world IMO. If anyone deserves to be on the cover of a magazine called *EQ*, it's him! MORE DAVE PENSADO!

Sincerely,
BT [buck toofus]

PS.: I love the fact that you guys show good photos in your reviews. I like the reviews in *TapeOp*, but I'm always asking myself, "huh? What's that function look like on the unit?"

Editor's Note: Well technically to have MORE of DAVE PENSADO, we'd have to have SOME DAVE PENSADO and we have had NO DAVE PENSADO. But fear not, next month is our HOW THE HELL THEY DID IT ISSUE. That's right. PROFESSOR IRWIN COREY. Oh, um, we mean Dave Pensado.

DID YOU KNOW...?

I read your back-of-book piece about Pro Tools with interest (*EQ*, May '06). You realize, of course, that all those features have been part of Nuendo for a long time. . . ?

Jay Rose
DV magazine columnist

Scott Colburn replies: *Of course.*

YOU KNOW YOU LOVE IT

I normally just read the mag and move on, but the article "END NOTES: A FEW THINGS I DON'T LIKE ABOUT PRO TOOLS" by Scott Colburn (May '06) prompted me to write.

Scott . . . amen brother. I'm a longtime user of Cakewalk products (from Cakewalk DOS to Sonar 5 Producer Edition). I recently felt the need to (ahem, "had to") purchase Pro Tools since everyone on the planet asks, "Do you have Pro Tools?" My engineer warmed up to Pro Tools pretty quick, but I am still a bit frustrated. We do

everything from bands to corporate voiceover projects.

Sometimes the VO projects' recording times can go over an hour. It would be nice to bounce these projects in computer time since they need to be split into regions in Sound Forge for output. I realize it's billable, but c'mon. And

how about an option to mix multiple interface outputs to multiple files if need be or to a stereo file from multiple outputs?

And how about "smart" monitoring from the computer. We don't ALWAYS want to hear the signal from the interface output and get the echo effect it produces due to latency. We monitor the mic from the board in real time, period. Just give me the hard disk output (or maybe I'm missing something). Sonar has a little switch on the channel strip. Hmm. Easy, peazy.

Then there's track height. Why can't I just grab the bottom of the track and resize it to whatever height I want (with any tool enabled)? And/or resize all tracks at once? Track folders would be a nice feature, too.

\$495.00??? Stalag 13 is violating the Geneva Convention. Or they just screwed up on licensing the technology to other vendors.

MIDI sysex is a pain too. Why do I have to create a whole session file to move system exclusive to and from any piece of equipment in my studio? How about a simple screen that just dumps it back and forth right in the session I'm working on? Then everything is in one place. Makes sense to me. Especially if you do your mix automation on your hardware.

And it seems as though being the "industry standard" affords Pro Tools/Avid to shirk their tech support responsibilities. Some of the plugins purchased with the system are STILL not showing up in Pro Tools. This after sitting on the phone for an hour waiting for a rep to pick up. I got frustrated, gave up and left it to my engineer

to figure out. Still missing some. Also, why no DirectX support capability? I feel so trapped.

It's too bad so many people are indoctrinated into believing Pro Tools is the end-all, be-all audio software program. Maybe if Pro Tools saw a little market share decline, they would sharpen these (and other) aspects of their product, and support other hardware interfaces than just their own.

Kudos to *EQ* and their writers for exposing more and more people to other software programs out there. Now if we could just educate the masses that a studio without Pro Tools IS NOT a day without sunshine.

Walter W. Treppler
Above the Dogs Recording
St. Louis, MO

THE CHINESE CONNECTION CONNECTS

I read your article "The Chinese Connection" (March '06) with both interest and dismay. While I guess it's good at some level to have any publicity for affordable ribbon mics, even in this form, as it helps educate more potential users of their availability, I was nevertheless very unhappy about the bad light it has cast on our personal efforts to make ribbon mics affordable for anyone. You may not be aware that almost three years ago I approached a Chinese supplier, who had manufactured several of our studio condenser mics, with the idea of producing a low-cost ribbon mic capitalizing on China's manufacturing savings. This seemed like a good niche since Royer, AEA, Beyers, and others only offered ribbon mics at more than \$1,000.

I sent them the circuit technology and housing information necessary and was instrumental in their producing the first model, our RSM-2. I thought my efforts were protected from potential predatory marketing on their end because I had an exclusivity agreement with them under a written contract with jurisdiction under California law. In spite of that, our supplier secretly sold these units to other Chinese traders, as well as several U.S. and European distributors. He also apparently started selling to end users such as yourself, as described in your article. Whereas we have a lawsuit against Yorkville currently for interfering with our exclusivity contract with their distribution of our mic, we cannot realistically hope to stop everyone who has been offered these units from buying them.

It is no secret that more and more Chinese suppliers are becoming unscrupulous and greedy in this way, and we have been pirated before, as

have numerous other U.S. name brands. For example, you could just as easily have written an article about available fake Shure SM-58s that are virtually identical in every way to the real thing. However, I'm sure you wouldn't as it would be consciously promoting and helping dishonest suppliers.

While your article seemed almost to revel in the exposé humor of the situation, it is no laughing matter to my company, as it has already cost us the loss of thousands of sales. Although I'm sure not consciously intended to further such activity, I'm afraid your article will result in even more losses for us. I guess my main gripe is that you did not really present the whole story, or research fully what you were writing about. You easily dismiss our efforts indirectly as those of "badgers," which is not only not true in this case, but personally insulting to me considering the efforts I made in developing and pioneering affordable ribbon mic production in China. You could easily have contacted us, since we advertise our ribbon mics every month in *EQ*, to get our side of the story. Perhaps then you would not even have written it. I fully realize the back door sales had already been happening before your article, in fact prompting your writing it. Now, however, I can only hope your story will not help complete the full undermining of our efforts.

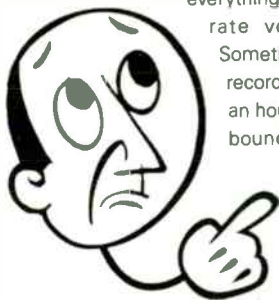
Sincerely,
John Nady
President
Nady Systems, Inc.



Lynn Fuston responds: *My intention was not to hurt your company. Far from it. My intention was to see just how much was involved in negotiating deals like this and what, if any, the true savings were. If you read all the way to the end of my article, you realize that I personally decided it was not worth the time or energy for the meager savings. That's why I clearly summarized "If you want an adventure, buy from China. If you want a mic, call a dealer." For the investment in time and energy it's just not worth the \$50 someone might save.*

There are some other points that I think you should consider as well.

1) *You took the article as a personal or corporate affront, but Nady's name is not mentioned anywhere in the article. Not once did I refer to you or your company. It seems from your letter that you are insulted by my including a corporate model for re-branding mics. You are not the first one to do this. It's been done for years, most successfully by Telefunken, who rebranded AKG mics and sold them as ELAs, the M251 being the*



most historically significant and valuable.

2) I did not mention the name of my Chinese contact, nor the company, nor the company's region in China, nor any info about them at all. That was intentional because I specifically did not want to provide a road map for those who might decide to try the same thing.

3) I did not mention by name any of your competitors or any company that is rebranding the same mics that you sell.

4) I think my story will likely increase sales and awareness of your Chinese ribbons because of the conclusions I drew and the details of how time consuming it was. If I had read an article like that before I started, I never would have attempted it.

5) I wrote the story because of the phenomenal growth of Chinese imports and the trend to rebrand and resell, just like you are doing. The only reason I targeted ribbon mics was because of my personal interest in them. If I had written an article about imitation SM-57s and never mentioned Nady, would you have been offended or felt like I was targeting your company?

6) I'm not a pioneer in importing Chinese mics. Since the article was first conceived last May (2005), I've heard from several people who have organized "group buys" associated with different Internet forums. It's been going on for some

time now. I was just the one who put the story into print about how it's done. Those same details are already out there on the Web. And sources are not hard to find, as I pointed out in my article.

7) I think you offer a valuable product. That's why I ordered 12 mics from your company, because Nady offered to do stereo matching, something I couldn't get from China. So I actually am not just a writer, but a customer as well. And I've sent many people to your site and suggested that the Nady ribbons serve as a great introduction to ribbon mics. You can read the "Ribbon Roundup" article that I wrote for EQ in September 2005 to see my opinions there. I don't know how many mics you sold because of that referral. I do know that I hear from people frequently who bought RSM-2s based on my recommendation. Here's the story in full: <http://www.eqmag.com/story.asp?storycode=10585>.

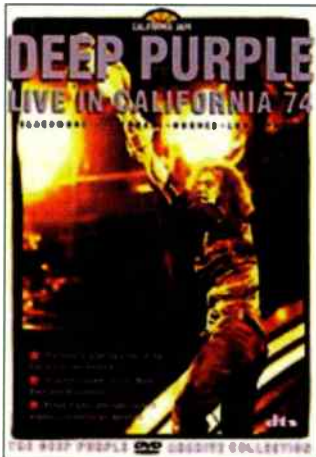
Here is my summary statement from that article:

Nady RSM-2
Frequently referred to as "the Chinese ribbon," this mic is the least expensive of the group by a long shot, by more than half. Borrowing from previous designs, it's establishing a niche for itself by

introducing the ribbon sound to engineers who have been curious about ribbons but wouldn't spend \$1000+ to satisfy their curiosity. Think of it as a "ribbon primer" for the uninitiated. Ribbon zealots, like myself, who seem to always run out of ribbon mics before they run out of instruments to put them on, will be thankful to have an extra ribbon or two, even if it sees less action than the standards. The RSM-2 has very low output, second only to the R92, and is one of the darkest mics in this lineup. So make sure you have a high-gain preamp and EQ ready. Still, it does have those characteristics of a ribbon mic that are so endearing — warmth, bi-directionality, proximity effect. Some have likened it to the R84, but it is very different sonically. I found the Nady sounded good on electric guitar, with a woolly, gnarly tone. On sax, it felt restricted. For voice, it sounded too dark. On drums, I might find it useful but more like an effect. I think it has a place in the market. For the engineer who is just getting started, there are mics like SM-57s that will be used more and cost less. But for someone who has a decent mic collection, but no ribbons yet, this is a good starting point.

I look forward to hearing the other ribbon mics that you have added to your lineup, the RSM-3, 4, and 5.

LOOK SEE DEEP PURPLE LIVE IN CALIFORNIA 1974



California Jam, 1974. Can you smell the dirt weed, muscle cars, the freshly disgraced hippie "movement"? This was a good time to be alive if you were a rockstar, and if you don't believe me, just take a look at the outfits worn by these guys: white, open-chested shirts with 12" platform shoes and black silk pajama pants. I think we all need to come to terms with how much cocaine has influenced fashion in our time from the not-so-innocent days just after "free love" and 25 years before crack brought it all full circle.

At first glance, I was immediately disappointed that Ian Gillan and Roger Glover weren't with the band at this point in their career. However, the most important thing about Deep Purple is their unbelievable power and wall of sound, and that is all here. Jon Lord is in his full glory raging on his Hammond stacks, Glenn Hughes and Ian Paice are locked in their bottom groove, and Ritchie Blackmore is at the peak of his destructive mountain.

This is a great concert: 275,000 people at Ontario Motor Speedway. Purple is supporting Emerson, Lake, and Palmer (who could not have been too happy to follow this set with the finale of "Space Truckin'") and awesome, full-blown rock violence complete with pyro, guitar smashing, and apparently an arrest warrant for Blackmore from a cameraman who was in the wrong (right) place at the wrong (right) time.

Although in the wake of "Smoke on the Water," these guys had huge commercial success (they were the Number One selling band in the States at the time), they have been overlooked for their influence on heavy metal and power music in general, this live document puts it all in perspective. Deep Purple had a sound and energy that shook the earth. —Scott Kelly, founding member of *Neurosis* and *combatmusicradio.com*

LISTEN HEAR

ALAN PARSONS

A Valid Path (Immergent)

Produced/Engineered by Alan Parsons and PJ Olsson



Having worked as an engineer on both *Abbey Road* and *Dark Side of the Moon*, Alan Parsons is a name that's

only too at home in the pages of this magazine. Moving away from the studio, to a degree, and into various other corners of the music world, Parsons has since collaborated with a wide range of prolific individuals, and this is best evidenced on *A Valid Path* which, for the neophytes, was released in 2004 to much critical acclaim and is now being re-issued as a DualDisc in 5.1 surround in both DTS and Dolby Digital, the results of which are quite literally "music to our ears." Part-electronic, part-visceral, *A Valid Path* spans the musical spectrum; and with everyone from David Gilmour to John Cleese providing their talents on this record, you can rest assured that this is worthy of your time and attention.



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It's Yosh, Man!

Making A Joyful Noise: A Primer

by Jeff Anderson

John Jaszcz. The man whose mixing abilities graced no less than four nominated songs at this past year's Grammy Awards. The man behind Kirk Franklin's critically acclaimed *Hero*. John Jaszcz: He who is graceful enough to grant EQ a candid interview wherein he speaks of cutting vocal tracks, confesses to a preoccupation with plug-ins, and much, much more.

This month we're focusing on vocal recording. So, if you don't mind me asking, what's your signal chain when you're tracking vocals?

John Jaszcz: I usually use a Martech through a Summit. You can color the sound by using a Neve, or a Telefunken, or something like that, but with a Martech . . . you can put up four different microphones to do a shoot out and you can really hear the difference. You hear exactly what you're getting on each microphone. If you're going through a V72 or something, you hear the coloration of the Telefunken before you hear the sound of the microphone. So that's why I usually use the Martech. I discovered it in '97 or '98, and I've been with it ever since then.

So on the mix end of things, are you using the board compressors, or out-board gear, or . . .

JJ: I'll use . . . it's funny, depending on how bad it is . . . I'll use a combination of plug-ins with, say, a Tube Tech compressor or a Summit going back into the console.

That's interesting. Which plug-ins do you tend to use?

JJ: I'll use the UADs, Fairchild sometimes, and the LA2A. If you really have to squeeze something hard I'll even use those Waves R-compressors, but I'll try anything to make it all work.

It surprises me that you use so many plug-ins on your recordings. . .

JJ: I think anything can be your friend; you just have to find out how to use it. Having started in the '70s, there are things that we're doing today that we were only dreaming about then. The things I said about P-pops and de-essers were issues that we were going totally insane about. Now when you're in the middle of a mix, and the producer didn't notice that the drums are out of time in the second verse, you can fix it. The only problem that I have is when producers leave everything to the mix, and they've missed 90 percent of it. Then it becomes a problem — when they expect you to fix everything.

Do you end up automating the vocals much in the mix?

JJ: Oh yeah. When I use compression, I try to use it so you can't hear it — and I'll ride vocals constantly, to get it right. So it feels right. But since you mentioned vocals during mixing, one of the things that I'll use a lot is Audio Suite EQs on lead vocals when there are such extreme differences between choruses and verses. Or maybe the producer didn't pick the best line; maybe the emotion wasn't there? It might have been dull in the verse; you know just one line that doesn't match up? I'll EQ to match



the next line. I usually use a filter bank for that. That's also a way for me to get rid of P-pops: I'll shelf so much

on my mix EQ, but when there's a serious P-pop I always make it a habit to go through the song and listen for bad Ps and filter them out with an Audio Suite plug-in.

So you do most of the editing yourself?

JJ: I have an assistant, but sometimes it's just faster for me as I'm working, and it also enables me to get used to the vocal performance when I'm working it. Most of the times with Ss, you can get away by using a good de-esser. But if someone really has a problem with Ss, or it wasn't recorded properly, I'll go and do the same thing with Audio Suite and just reduce the Ss. If it's a 3–4 minute song, it only takes about 20 or 25 minutes to do that.

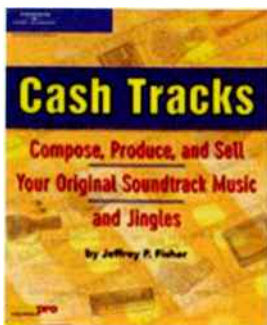
How much editing do you end up doing on a common vocal track?

JJ: It's different for every session; with gospel music, the artists usually know their parts and can nail it in three or four takes. While recently working on a Kirk Franklin record, there was a song that Stevie Wonder was featured on. Just pushing up the fader and hearing Stevie's voice was a treat. We didn't really have to do a lot to his vocals. It just goes to show you that when you have a great vocalist, it's really not that hard.

What comes in goes out . . . with polish.

JJ: That is so true.

LOOK SEE CASH TRACKS



Given the tumultuous tides we modern-day "recordophiliacs" must swim through on the journey to the ever-coveted position of "making a living from all this nonsense," it's perhaps wise to step away from our ideal (being the next Eddie Kramer or Ken Scott) and construct a back-up plan that would still keep us behind the console, doing all those things that we, for reasons probably unbeknownst to ourselves, love to do. To exist in spite of the wonderful technological advancements of our field — which

make being a monetarily successful studio cat as unlikely as being a monetarily successful studio rat . . . err musician — may appear to be increasingly difficult; the fact of the matter remains that, while "Johnny and the Johnsons" down the street may opt for recording on their lap-top instead

of in your project studio so as to save more money for cheap booze and hard women, the area of "commercial" commercial recording is still wholly ours.

Perhaps Jeffrey Fisher is attempting to unearth our covenant; or maybe he's trying to offer some practical advice as to how to keep us dinosaurs out of the proverbial tar pits. With *Cash Tracks*, Fisher offers a "how-to" guide that is, potentially, of great utility to any/all of us that wish to carve out our niche in the recording business without resorting to the company of A&R puppeteers and the fickleness of the popular music business — and he manages to do it in both a useful and entertaining manner; presenting the information in an easily digestible format and riddling the chapters with personal stories and anecdotes that effectively display exactly why you would benefit from employing Mr. Fisher as your tactical, and technical, consultant.

The ins and the outs of nearly all aspects of commercial recording are laid out for all to see, with particular emphasis being placed on composing soundtracks and jingles; but information regarding building and equipping your project studio is also offered — making this book an indispensable resource for anybody that wishes to participate in, or even just gain a basic understanding of, the business at hand.

Highly recommended.

In a world filled with suppliers Sweetwater's staff always stands out. Although I am a small customer I always feel they CARE about my business.

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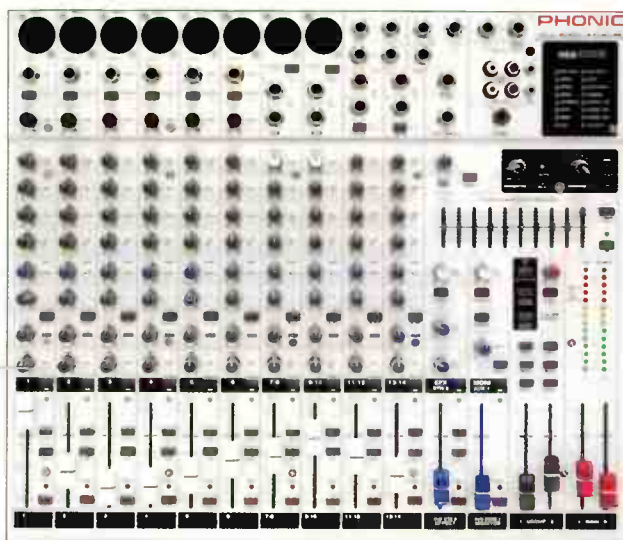
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BY MATT HARPER



01 MA-200 (\$995)

Packing three micron capsules, Jensen audio transformers, and military-grade JAN 5840 tubes, the, until recently, scarcely available MA-200 has now been properly unleashed on the public. Using a one-inch gold sputtered capsule in conjunction with the 5840 and the Jensen transformer, and a competitive price, the MA-200 is a great addition to the upper/mid-level studio mic locker. And with its cardioid polar pattern it's perfect, for everything from spot-miking to piano. mojaveaudio.com

02 HELIX 18 FIREWIRE (\$269)

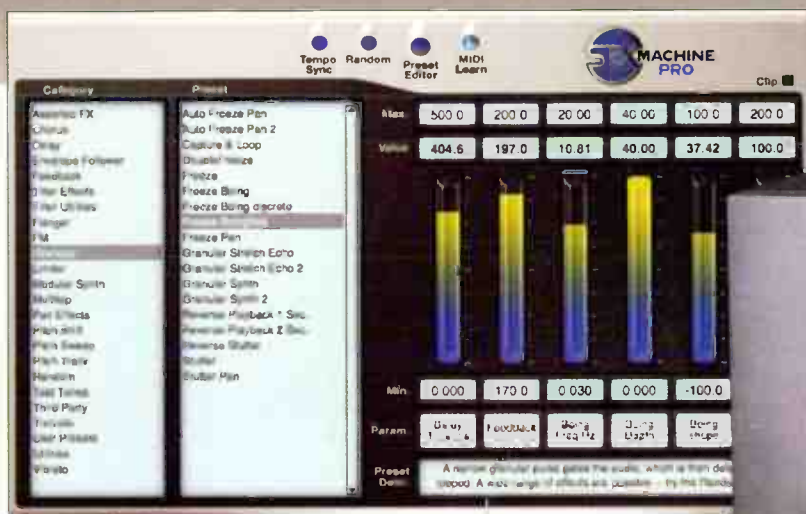
As an ideal front to your home workstation, the Helix Board 18 has a 24-bit/96kHz FireWire interface that allows up to 16 independent channels of audio to computer with near-zero latency and two return monitor tracks. Eight low noise mic pres, a 10-band graphic EQ, and 16 hi-def effects round out the package. Comes with Cubase LE too, so you can get right into the thick of it. phonic.com

03 H3-D (\$1,695)

Keeping in step with the 5.1 surround revolution, Holophone drops the H3-D, boasting the ability to eliminate pesky multi-mic setups. With a 20Hz–20kHz frequency response on five perimeter channels and a discrete LFE mic nestled inside — as well as being phantom powered (with an LED indicator) — the H3-D is truly a work of art; and is at home everywhere from the project studio to the Superbowl and anywhere in-between. holophone.com

04 AV-S15 (\$1,499)

This power conditioner, courtesy of the fine folks at American Power Conversion, offers 12 surge protected outlets, six of which are adorned with EMI/RFI noise filtering, ultimately preventing audio signal distortion. The S15 also features Automatic Voltage Regulation and a battery back-up, which means that it essentially saves your ass. apcav.com



05 H7600 (\$3,999)

With over 1000 pre-set algorithms, 230 stereo effects modules, and a 174-sec. sampler, the H7600 is probably one of the most comprehensive stereo effects processors on the market. The ever-celebrated Building Block Architecture even allows you to construct your own preset algorithms. Tight like that.

eventide.com

06 SFX MACHINE PRO (\$199)

An audio multi-effect plug-in for both Mac and Windows, the SFX Machine Pro is pimped out with over 300 effects — 50 of which are brand new. In addition, this plug-in has a modular preset editor that allows you the ability to create your own effects from scratch; which means you can stop making all those airplane noises with your mouth, and possibly even get rid of that racecar waterbed of yours. Or maybe not.

sfxmachine.com

07 LAMBDA (\$299)

Lexicon drops a new USB desk-top station for hobbyists and non-hobbyists alike. This hardware interface has 1/4" and phantom-powered XLR inputs crafted by dbx, balanced TRS outs, and touts zero latency in direct/playback monitoring. And as a freebie, it comes bundled with the Pantheon plug-in. Sweetness.

lexicon.com

08 SUBB (\$699)

An excellent match for any of your nearfield monitors, this small yet mighty subwoofer holds an 8" with a large 50mm voice coil, driven by a 160W ICE power amp. Two motorized knobs on the front baffle allow tailoring of input level and cross-over frequency settings; both of which are controllable via wireless remote — which is perfect for those who don't want to leave their listening position or are just too damn lazy to get up out of their seats.

adam-audio.com

MAKING VOCAL

Capturing great vocals is arguably one of the most difficult parts in the making of a record. When that magic take is finally down on tape, it can literally be the difference between a hit and a dog. So with all that pressure on the moment, how do great engineer/producers do it?

by Rich Tozzoli

We wanted them to span multiple genres of music and post production. We wanted the straight dope. We got it. And with the following crew, some might even say, we got it good.

Multiple Grammy-winner **JOHN HOLBROOK** started his career in London as an apprentice at I.B.C. Studios, where he was responsible for the disc mastering of several classic albums of the period including



Tommy (The Who) and *Electric Ladyland* (Jimi Hendrix). He then moved to the States and worked out of Bearsville Studios, recording such acts as Todd Rundgren and the Isley Brothers.

More recently, he has continued engineering/producing on a freelance basis — notably several platinum albums with Natalie Merchant, Brian Setzer, and Elton John.

Producer/engineer **CHUCK AINLAY** has also picked up several Grammys, most recently for his 5.1 work on Dire Straits' classic album *Brothers in Arms*. A long-time



Nashville resident and owner of BackStage Studios, his extensive list of recordings includes work with the likes of George Strait, Vince Gill, Trisha Yearwood, Waylon Jennings, and The

Dixie Chicks. And speaking of records, he held the Tennessee State Men's III slalom water skiing record from 1998 to 2002.

BRIAN MACKEWICH is a 25-year veteran picture and sound editor in the highly competitive New York post-production industry. He's co-owner of Gizmo Enterprises, Inc., a totally digital, hi-def production facility. From his work on feature films such as *Chasing Amy* to countless long-form television programs for the likes of VH-1, TNT, HBO, and ESPN, he's pretty much seen it all.

PAUL OROFINO is the owner of Millbrook Studios, a gear-packed, multi-room facility in Millbrook, NY. A veteran of countless recordings — starting with demos for



bands such as Anthrax and Kiss — he has since worked with the likes of Cradle Of Filth, Blue Oyster Cult, Zakk Wylde, and Golden Earring. It also helps that he's got a fully stocked, private bar in the place.

Producer/engineer/mixer **PETE MOSHAY** began his early career touring the world with acts such as Journey and The Cars. After moving to the East Coast, he settled in at A-Pawling Studios in Upstate New York, and spent the next 19 years recording and hitting the road with Hall & Oates.



Many platinum and Grammy-nominated records later, he's also recently worked on projects such as Barbra Streisand, Average White Band, and the upcoming Ian Hunter release.

On the last session you did, what vocal mic did you use and is it normally what you might put up?

John Holbrook: M49. If possible I would try a shootout between three or four different mics, but a good U47 wins a lot.

Chuck Ainlay: A couple of weeks ago we tracked down in Key West at Jimmy Buffet's studio, Shrimp Boat Sound, for George Strait's new record. I've been making records with George for about 20 years and I've always used a U47 on him. I guess you can't argue with over 50 Number One singles and that many albums, all selling platinum or better. For other artists, I'd generally have a mic shootout prior to tracking and pick the one that best suited the artist and style of music. The worst thing is when a singer looks at a mic and says, "what's that" They need to be totally con-

vinced they aren't wasting a performance.

Brian Mackewich: I generally put up an U87. We have several models, new and old. I find that some female voices are not best represented by the 87, so my next choice is a Sennheiser 414UL. I love its character. Sometimes I will break out my vintage AKG tube for a real big female vocal sound.

Paul Orofino: Since the last thing I did was a hardcore band . . . I opted for a Shure SM-7. Obviously it depends what I'm doing (the kind of singer, music, etc.) But my current favorites are the Neumann U-87, Soundelux U-99, and Gefell Um-170.

Pete Moshay: I ended up using a C12VR, but I always put up a few to try, i.e. M149, KSM32, SM7, Audix VX10, and U87. Ian Hunter wanted to hold the C12VR and wouldn't use a windscreen or pop filter. I tried to talk him out of it, but he insisted it would be OK, and he was 85% right. There were quite a few blasts and pops that had to be dealt with later.

What preamp was inline?

JH: Neve 1073.

CA: For this record and generally my first choice for vocals is my Martech MSS 10 pre-amp, serial #002 for vocals, although I'll try some of my other favorites, like a Neve 1073 module, a GML 8300, JMK JM 130, or the new Presonus ADL 600. I've also got these killer prototype preamps that ought to be available later this year made by Upstate Audio that blow just about everything else away, definitely be looking for them.

BM: It was the Aphex 1100A stereo pre, which is a real unsung hero. We also used the Amek 9098, as well, which has great filters.

PO: While using the SM-7, I went to a Geoff Daking 52270 mic pre without using any EQ. I also happen to love DW Fearn, TL Audio, and my Manley Vox Box for some things.

PM: Either the ADL600, Avalon 737sp, Focusrite ISA115 or Liquid Channel. I changed with each song as needed.

Do cables matter?

JH: I think they can make a difference, but sometimes not in the way you'd

MAGIC

expect — when I was working on *Tigerlily* with Natalie Merchant, when we started on vocals the assistant set up the U47 with a boutique mic cable and I was going, “Why does it sound so screechy and edgy?” I said, “Let’s try a regular mic cable on it.” We did and it came out sounding normal again!

CA: Cables do matter and particularly at mic level so I’ll use just a short run to the mic pre, out in the studio and then run line level to the control room. I don’t go nuts with the esoteric cables, Mogami will do.

BM: Definitely — we happen to use only Canare Star Quad. New York City may be the hardest environment in which to record. Building construction, earthborn noises, and RF is everywhere. Cheap or less shielded cables can cause problems.

PO: I’ve tried most of the exotics (trust me), but still go back to just the standard Mogami, Belden, or Redco, and so on.

PM: Yes, and I especially do not like patchbays and avoid them if possible. I have individual Canare Star Quad cables that I ran directly from the mic to the pre and directly connect a cable to the ADL1000 compressor, then to tape or an Apogee converter. I have used patchbays at studios that sounded so bad that I had to run wires across the control room directly to a tape machine to avoid them. Just because it’s a TT patchbay does not mean it will sound good.

Do you typically use a popscreen?

JH: Yes. I have a Popless Voice Screen that I take with me. At least I know where it’s been! I haven’t tried one of those groovy metal ones yet — I’m curious about those. We used to make our own back in the day — I found that a piece of thin air filter foam worked fairly well. The thick foam things they gave you with the mics changed the sound too much. If you look at photos of the Beatles doing vocals in Abbey Road, you can see the curved screens on the U47s and U48s — I’m assuming they were custom made by the EMI boffins — pretty slick!

CA: I always use the knitting hoop type stretched with nylon, either one layer or two. The foam type supplied with the mics suck up too much highs.

BM: For close mic work, yes. Each room has new dual-screen pop filters, as some voices overpower a single screen. I like the small 3” screens since they keep the sight lines open for seeing scripts and/or video monitors.

PO: ALWAYS! I never record vocals without it. You take a chance of ruining a great take and/or your microphone. I’ve tried all

the major brands but really love the metal-screened version that is now sold by Royer. It works great, lasts forever, and is easy to clean!

PM: I’ve been using one of the metal screen popper stoppers with good results. My SM-7 sounds better without one and so do handheld mics as they are designed with air blasts in mind.

Do you use compression to “tape”, during the mix, or both?

JH: Both, usually. I often like an LA2A with moderate GR going to tape, then an 1176 or Distressor in the mix. Female singers may need a different approach. Some female voices can make a mic pre or compressor sound strained. If you want a natural sound, I’ve found the GML compressor can work wonders, allowing a hefty amount of gain reduction without sounding strained. (Thanks, George!) Sometimes I’ll daisy-chain two compressors on the way in, so that each one doesn’t have to work so hard. And don’t forget to try the RNC in SuperNice mode! I’ve found that some singers respond better to more compression in the cans, so I’ll patch something into the monitor path (or use a plug-in) so they can hear themselves well-compressed, while the recorded signal is less extreme. I like to leave a bit of leeway for whoever’s going to mix it. However, if the super-compressed sound is creating a vibe I would go ahead and print it on another track — you never know. . . .

CA: I generally use my Vintech CL 1a for tracking on a soft setting just to contain the dynamics a bit and then mix with a GML 8900, where I can work the vocal into the mix in more detail. I may mult the vocal track and do some even more extreme compression with a Urei 1176 and mix that back in with the other track. I also use the Waves Linear Phase Multiband plug-in for problematic vocals.

BM: Yes, but just enough to tape to control the transient peaks. The Aphex 1100A has a wonderful “mic lim” feature that keeps spikes under control before the preamp stage and does not distort, even with high SPLs. For post mixing, I will compress the vocal a fair amount, since it has to cut through the broadcast. Many shows are being aired from servers and captured into Mpeg2 and Mpeg4 formats for distribution. I need to make sure that the elements of my mix stay in place.

PO: I always hit the vocal with a bit of

compression to tape, usually very lightly. Typically, to help smooth it out a little, it would be an LA2A/3A, Manley Vox Box, Daking 91579, and just recently, Anthony DeMaria’s ADL 670. Upon mixdown, it gets compressed again, although the setting here totally depends on the kind of music that the voice has to sit in. In this mode, I usually go for a UA1176, Distressor, or the Chandler TG-1 Limiter, which I happen to love.

PM: Both, but if I use the ADL600, I don’t seem to need much at all. There’s something about the way it sounds that makes me not want to use any when tracking (or very little). If I use the Avalon 737sp, the fastest attack and release at 2:1 or 3:1 is very transparent even when in gain reduction. A very important thing for me is to have a smooth gain control knob to ride levels. I always like to look at the first take’s waveform and anticipate any loud peaks by riding the level a bit as it goes down to tape. Humans are excellent at gain reduction. For a tracking compressor, I use the ADL1000. For mixing, I love my Urei LA-22s. I will use two on a LV on a mix and maybe even a UA plug-in compressor.

How about EQ?

JH: I try not to use EQ on the way in. I will use an HPF though, if it needs it. My theory is if you’ve found the right mic for the singer, it shouldn’t need a whole lot of EQ. Having said that, Walter Sear has this cool old tube EQ from the film industry that was specifically designed to lift dialog out of a track — I want one!

CA: I rarely ever use EQ while tracking. If the mic doesn’t sound right, then change it. For me, all the other tracks are built around the vocal sound so you got to get that part right to begin with. I may add a touch of EQ when mixing. I like either my Avalon 2055 or Millennia NSEQ for this. They both have a very different character and the Millennia can be switched to either tube or FET. I’ve changed the tubes in it as I thought it was a bit too neutral when originally shipped.

BM: Just a touch. I like to print a vocal that sounds natural. Each voice is a little different and needs some contouring. Most of the time I EQ the voice so it stands out, but it very much depends on the type of content that we are working on. An HBO comedy special is different than a live concert for DVD in 5.1, which is different from a promo

MAKING VOCAL MAGIC

for the Food Network. Long form and short form are worlds apart.

PO: I've never EQ'd a vocal channel on the way into the recorder, EVER! During mix-down it depends on what I'm doing musically, and how the vocal has to sit within the mix. I'm a big fan of subtractive EQing. If I've chosen the right mic during tracking, I usually have to use less EQ during the mix stage.

PM: If you find the right mic, EQ is usually not necessary, but there are always times when a touch will help it sit right. The GML is my first go to EQ for vocals, also my SPL Qure.

Do you have a favorite vocal reverb?

JH: We seem to be using reverb less these days. EMT plate still works for me. I also like Lexicon units. Lately it seems like there's some renewed interest in live chambers, which I'm all for. The sonic character of so many classic records came directly from the chamber. It was pretty much the only effect they had, so they used it a lot! Generally, delays seem to work better on vocals in denser modern tracks. My beat-up, old Echoplex still works great on vocals. I figured out a while ago that if you use the footswitch jack as the output you get a wet-only signal, so I can use it in a send-return mode.

CA: Nope, I'll craft something for each song. It may be just short delays, a Harmonizer, a combination of 'verbs, a long delay, man, whatever.

BM: The Waves IR-1. Hands down for a post-production, plug-in reverb.

PO: Once again it depends on what style of music I'm doing at that moment, although lately I've been using hardly anything on vocals. I love when the vocal is in your face, and it sounds like the vocalist is singing right next to you. But if I had to, I've become a big fan of the Kurzweil KSP-8 digital reverb, which is very natural sounding. I could always go to one of my standbys, the EMT 140 stereo tube plate with something as a pre delay, and I absolutely love my old MicMix Masteroom XL-305 Spring Reverb. I find that the plate and the spring need much less level to be audible. For some reason, they just sit very nicely in a mix.

PM: My old favorite is my Lexicon 300 Plates or TC M6000. My new favorite is the TL Space plug-in "Ecoplate" convolution — an old piece of gear (sampled) that has an instant

vibe. Also Revibe is nice and blends well. For delays it's definitely a PCM-42 or Echoboy!

Any tips or tricks you use to get a great vocal sound?

JH: Start with a great singer! Then do a shootout to find out which mic works best for that individual. Try to keep an optimum working distance, the popscreen will help with that. Remember to put gobos, foam and so on behind the singer if you want to minimize the room sound. Recently I've noticed that some records seem to have "nasal"-sounding vocals (like the singer has a cold or something). I think that comes from letting the vocalist get too close to a large-capsule condenser — the mic is literally picking up sound through the nasal passages. If you look at old photos of Sinatra or whoever in the studio, the mic is slightly up and away from the mouth, and angled down a bit — something to think about (and nobody complains too much about the vocal sound they got back then). Another trick is to put up two mics — one that's close for the quieter sections, and one that's farther away for the screaming — you can optimize the preamp gain for each. I like that story about Bowie recording *Heroes*, where they set up a whole series of mics at increasing distances and gated them so that as he sang louder more and more of the distant mics opened up. In a similar vein, I made myself a high quality mic splitter box from a Sowter transformer, which can feed up to three mic pres from the same mic. I can then use different preamps and processing for different sections of the tune. For rock 'n' roll screamers who push a lot of air, often the best mic choice is a good dynamic, like an SM-7 or RE20.

CA: Some singers just have it. They step right up and deliver the magic. You could put the mic anywhere and it would be amazing. Great song, great singer, job done but just so we can feel we were part of it, there are a few tricks that do make a difference. Begin with a good acoustic space — preferably with no walls closer than six feet from the mic. Use the directionality of the mic to dampen unfavorable situations like windows. If the room is too ambient, then surround the vocal position with large baffles. Carpet is a must so you don't pick up feet movement. Music stands can be dampened with a piece of carpet. Use the wind screen to keep the singer from chomping down on the mic and moisture off the

capsule. Warm a tube mic up at least two hours prior to recording. Try moving the mic slightly up from the mouth to help the singer open up but comfort is most important, particularly if they are reading lyrics.

The headphone mix cannot be stressed enough. I've seen where small changes in the mix have made huge differences in performance. I always set up a separate, pre send mix so we can scrutinize the vocal in the control room. If the singer is singing sharp, they may be listening too loud. Keep slippery-pitched instruments low in the mix. **BM:** You have to match the mic to the voice. Post voice recording is a little different than for music. Most voice talents have great mic techniques, which is key. If they hit the sweet spot, you are off to a good start. We also have to plan on revising shows right up until it airs. So we keep the record set-up simple — nothing fancy. If we need to get back in days later to do a quick patch, it has to match.

One of the most important elements in getting a great voice recording is the headphone mix. Not too loud, so the talent performs too softly. Not too soft and you wear them out by making them work too hard to hear it how they want it. But just right — so they can hear subtleties, mic placement, other track elements, and vibe. It is a very psychological thing. Try it sometime. If you want a vocalist to "push it," bring down the voice in the cans just before a take. They will naturally either move closer, or bring the volume up themselves. But it can also backfire big time, so tread lightly.

PO: Praying is always good!

PM: First, get your singer a great headphone mix. If your singer isn't inspired, their performance won't be either. Make sure that you have the same headphone setup in the control room so that you can listen to what they are hearing. If you like the mix, they probably will too. Don't let singers eat a large diaphragm condenser mic. Keep them 6"-16" from the mic and if a singer wants the "in your face" sound, just put a limiter on the insert AFTER tape. Generally if a singer is singing flat, turn them up . . . if they are singing sharp, turn them down. Usually before cutting a vocal, I like to listen to other incredible singers/songs in the same vein as the song we are doing, to help set a bar of where we want to go. There's nothing like a little inspiration to help you get the blood flowing. Also, nobody said you have to use the same mic for the whole song, try a handheld for the chorus and a condenser for the verses, and so on. **EQ**

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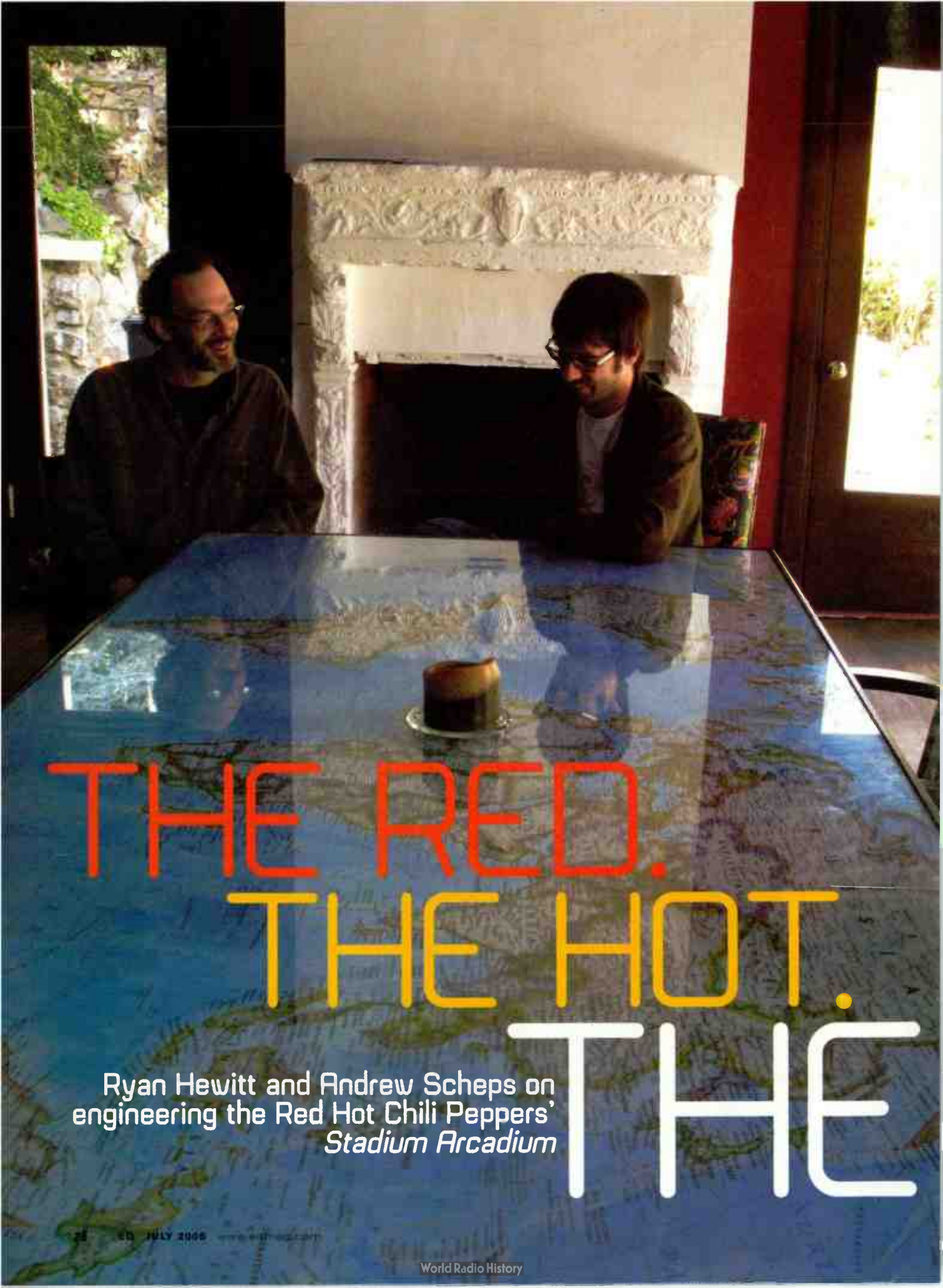


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Ryan Hewitt and Andrew Scheps on engineering the Red Hot Chili Peppers' Stadium Arcadium

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It's been four years. A lot can happen in four years. You can graduate from any decent university in four years. You can get ready for the Olympics or run for president. Or you can write an ambitious, new double-CD set called *Stadium Arcadium*, the first in four years — which is what engineers Ryan Hewitt and Andrew Scheps got the nod to mix when they were called in to cook up the new Rick Rubin-helmed Red Hot Chili Peppers record at his Hollywood Hills mansion. So *EQ* caught up with Hewitt and Scheps at The Pass studio in Burbank to discuss Anthony Kiedis' vocal trickery, the saddest note, and their work on *Stadium*.

Ryan, your father David is a recording engineer, right?

RH: Yeah, my father does live recording and TV shows. He ran the Remote Recording Services truck, and he was at the Record Plant in New York. I've been working with him since I was 13 years old, more than half my life now, and I've been around studios since I was born. Going to work with Dad was like going to the studio and seeing John Lennon and Elton John hanging out, Blue Oyster Cult, all these legends.

Were you actually getting hands-on training at 13?

RH: I was a runner when I was 13, but I was always watching, and he was showing me stuff. I started recording when I was in high school; I had this studio in my back yard. I could do records with my buddy from school. Then I went to college for electrical engineering and did a bunch of recording there, and played in bands, and that's when I really started to know the studio for real. Then I went to work at Sony Studios in New York, worked with Elliot Scheiner, Michael Brauer, and Jim Scott; did a bunch of freelancing [Blink-182, John Frusciante, Alkaline Trio].

How about you, Andy?

AS: I got interested in live sound when I realized I wasn't gonna be in a band playing trumpet. I grew up on Long Island, and always wanted to be in bands. My buddies had bands, so I was doing live sound for them, and then somewhere I saw a copy of a recording magazine or something, and said, "That's what I want to do instead," and went to the University of Miami. Then after college I worked for New England Digital, in the last heyday of the Synclavier.

What were you studying in Miami?

AS: It was a recording program, so it's a major in music and a minor in electrical engineering. And like Ryan, I'd spend all my time in the school's studio; they have an MCI board in a 3,000-seat concert hall with about a 12-second [delay] time, and a freight elevator you could lower the Marshalls down into and stuff. So we did a lot of crazy experimental recording, did demos, which of course we weren't supposed to do with this equipment. The program was really packed with people who were out here doing well, too.

I was working with New England Digital in '90-'91, which was right when they started introducing sampling and then hard disk recording. SoundTools sort of existed, but with the Synclavs — at half a million bucks — you could have 16 tracks.

How many of those did they sell, I wonder?

AS: Enough to keep going longer than they should have. [Laughs.] It's still around now, people are using it, but now that company's scaled down to where it should have been. But when I was there it was huge, and I worked for them out here in L.A. and I also based out of London. It was a great time to be doing that, 'cause only rich, successful people have Synclaviers, so you know you'd get to work with Sting and Benny Anderson and — just all over the place. It was really great.

But I realized that I wasn't making records, so I came back to L.A. and freelanced some assistant engineering and some Synclav programming.

So what brought you guys together for this Chili Peppers album? Ryan, you'd been working on this record already?

RH: Yeah, I started as the tape-op on this project, because there was no one else involved who knew how to run a tape machine. So I got the call to come in and run the tape machine, and we could do overdubs quickly; they would do, like, a whole day of tracking, and maybe track two or three songs, and then they'd want to do fixes and overdubs at night. Those tracks were done at Rick Rubin's house in the Laurel Canyon mansion. It was all two-inch; we had two Studer 800s, and pretty much all vintage stuff. That's pretty much it — and a bunch of compressors. [Laughs].

AS: The thing about the tracking is that they were all in one room, so five feet to Chad's right is the loudest bass you've ever heard, and five feet to his left is a pretty loud guitar rig.

Small room, huh?

AS: I mean, if it were my house, it'd be a nice big room, but if you put a band in, it's like a little ballroom kind of thing.

RH: It's probably the size of the average live room like at Cello 2, but they set it up with all the amps close to the drums, like the drum kit was on a riser maybe half the size of this room, and then right next to the riser on one side there's a guitar amp facing away, and the other side with the bass amps facing away. So there was a good amount of bleed. The room's pretty dead, so there wasn't a whole lot of reflection going out; the bleed was mainly the back end of the cabinet, there was a lot of the low end kind of hanging out around the drum kit.

And then Anthony had his own whisper booth to do scratch vocals, right in front of the drum kit. That's a little isolation booth that's portable. He just stood in there so he could be isolated. So they were all just physically standing real close together. And I'd say a good 85 percent of the tracks they played were keepers.

AS: At least.

RH: I'd probably say more like 90 percent.

AS: Ninety percent of the bass, and probably 85 percent of the guitar.

by John Payne

CHILI PEPPERS

RED HOT CHILI PEPPERS

RH: The vast majority of everything was kept — guitar, bass and drums. So what you hear on the record is three guys playing all together, looking at each other. And there are these long breaks sometimes, where it's like they hit it and there's a bar of silence, and they're all just looking at each other, grooving along, and they come in. And it might speed up, it might slow down over the course of that bar, but they are like [snaps fingers]. . . .

AS: Right there.

RH: Right there.

AS: There are very few things done with a click, too, so the tempos are really moving, which is great, natural. It's great 'cause they can see each other.

John told me that when they were doing *BloodSugarSexMagik*, their first record with Rick, he would come to preproduction and sometimes sit there for three hours and not say a word, and then leave. And John's like, "That's how we knew we were doing good." [Laughs.]

You say most of it was done without a click?

AS: I think there were a few where they would get a click to get the tempo and then they'd turn it off.

RH: There was one where it was on the whole time, but that's all.

AS: So after 30 seconds, those boys are playing.

You got the sense, then, that these guys were not about wasting time, and that in fact they had a new energy about them, like they really wanted to do something incredible.

RH: Yeah. Rick's thing was mainly working in preproduction. Like, they had the songs down; they came into the studio, they would play them each a few times, and that was pretty much it. I'm trying to think of the most takes we had . . . I can't even remember.

AS: Mostly it would be because a form change came up.

RH: Yeah, it was like, "Well, let's try this instead," or . . .

AS: Or it was an alternate drum beat or something. But yeah, the song was the song — two or three takes, you're done.

RH: But of the songs that made the record, I can honestly say were no more than four or five takes.

AS: But once they decided the way it was gonna be, that was it.

These guys have been playing together so long, they must know each other's jock size. Tell me some more about Rick Rubin's role in putting together a Chili Peppers record.

SCHEPS: I think his role is actually pretty consistent from record to record. He's the one guy not playing, so they finish something and he will very honestly just say, "That was great" or "That

wasn't so great, you guys can do it better," or "I'm getting bored in the chorus, let's cut it down" or whatever. It's really a lot about the song structure, as a listener.

RH: I wish I could be there for pre-production. John Frusciante told me a story: We were discussing Rick's involvement and how they started working together; John told me that when they were doing *BloodSugarSexMagik*, their first record with Rick, he would come to preproduction and sometimes sit there for three hours and not say a word, and then leave. And John's like, "That's how we knew we were doing good." [Laughs.] But if he had something to say, he would say it. He's a man of minimal words in that regard. If something needs to be said, he'll say it, but he's not gonna say something just because he's excited. If he's honestly excited, he'll say, "That's awesome." But if he's not feeling it, he'll be like, "I'm not feeling it." Or if it's good, he'll just say, "Yeah, that was good."

Just the honesty of that, and his rapport with the band that he creates — no one's guessing what he's thinking, because he's just gonna tell you what he thinks in so many words.

AS: And also there's no chance of any of it being about anything other than the music. If you get done, and he says, "It's not happening," it's not 'cause, you know, he doesn't like you anymore [laughs], it's just that that wasn't the best take and he thinks you can do it better.

When it came time to do the mixing, I understand that there was some sort of competition among mixers for the honor.

RH: I don't think the band had a clear idea of who it was they wanted to have mix the record, and it seems to be Rick's favorite thing to have an A-B comparison of a thing. Like even when we were recording the record, he'd be like, "Make an edit so it goes from this part to this part." And we'd go, "Okay, here's A." "Okay, cool." "Here's B." "I like B. What do you guys think?"

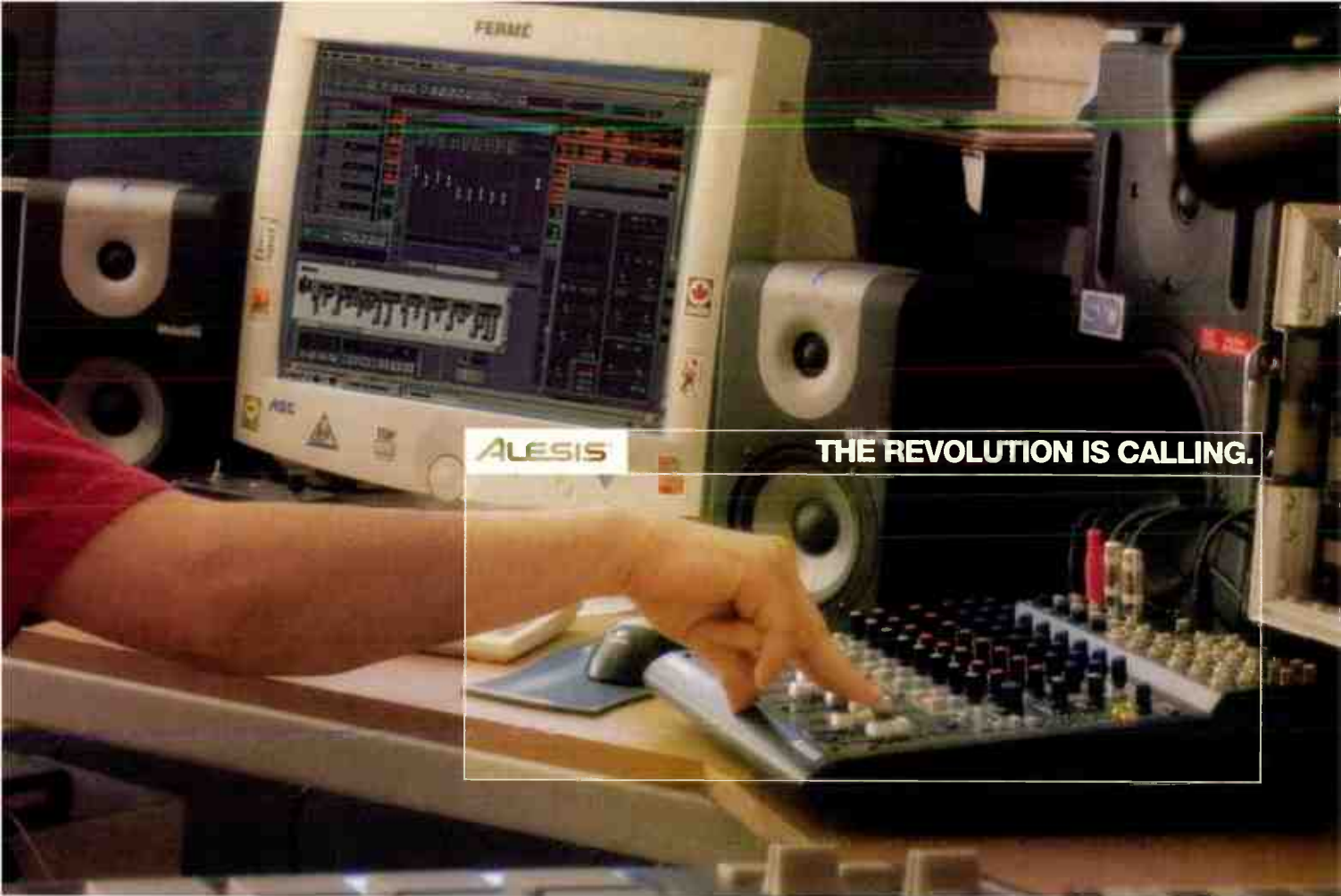
AS: He'd listen to them back-to-back as well. Not "Okay, I like that, I don't need to hear the other take." Just "Prove me wrong or prove me right."

RH: So when it came time to make the record, I think people had different ideas of who it was they wanted to have do it. I was there doing rough mixes all the time, and Andrew was there doing rough mixes all the time, so we would be in the running to do it. And then they had people who'd mixed previous Chili Peppers records, and then people who'd started working with them more recently. And so they decided to have a mix-off, a mix party. And Andrew and I were really familiar with the songs, and really familiar with the band, which was a huge leg up.

AS: I think we also knew exactly what we wanted the songs to sound like, so we didn't have to put up all the tracks and figure out what it was. We could just start in on the kick drums, if that's what we felt like starting out on.

RH: So Andrew and I had a definite advantage, a head start.

AS: And we kicked ass, too! [Laughs.]



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RH: Yeah, we kicked ass. So we had this mix-off, and we had two days; they would pay for two days of studio time to do this, and we all had the same three songs, and we had to hand them in and . . . wait. At first, *Stadium Arcadium* was gonna be one record, and I was gonna do that, and then when it became two records, they called up Andrew also, and we'd be like, "All right, let's tag team and do this." And initially, we were like, "Oh, it'll take two days to mix." But nope.

AS: No!

RH: [laughs] This thing took a lot longer than anyone had anticipated. That was the other reason that we're teaming it. Because it's just taking a long time.

So now at least temporarily you're working as a team. How are you doing it? Are you each doing individual tracks, or working side-by-side, or trading ideas, or what?

AS: I mean, we talk about stuff all the time — it's like, "Hey, what was the deal with the guitar on this thing?" because Ryan recorded it. Or "Hey, what's the vocal arrangement supposed to be?" because I recorded it. But in terms of the mixing, I mean, he's

Well, as always, we did a little mic shoot-out, at the beginning of doing the vocals. We put up a 250, put up the C-12, put up the 67, and then we put up the SM-7 Shure, which was used on every record so far. And all the other ones sounded really great, but the SM-7 sounded like the Chili Peppers.

here, I'm at my studio, and we just, like, "Okay, what song am I mixing next?" And I'd go get the tapes and I'd just mix that song. We haven't worked on a song together at all.

RH: Well, we'll trade ideas, like, "Hey, what did you do with the bass on that song? It sounds good." We'll trade ideas back and forth about how to make things sound good, so it becomes more coherent in the end.

AS: Surprisingly, the mixes go together. I mean, there's been no effort at, like, "Oh, make sure you're listening to the other guy's mixes." We just mix what we hear, and then we go through the process of getting it approved by the band. And I think that helps bring it into the middle ground.

RH: It's the band.

AS: It's the Chili Peppers.

RH: Same band playing in the same room, same guitars.

AS: We both make them sound like the Chili Peppers.

The Chili Peppers are a very high-profile band, and presumably there are gigantic egos and personalities involved, so it's interesting to hear that you seemed to have a lot of creative input of your own on this album.

AS: The way the process works is, so far, like, John's been to my house once. And that's it.

RH: He's been here twice.

AS: Nobody comes, and it's a great thing, actually, because what we do is, we just send mixes, and everybody goes by what they hear. They don't walk in and say, like, "Hey man, what do you have on the bass?" or "What do you have on the snare?" There's no distraction at all. They get the CD, they listen to it, and they comment based on what they hear. And it's brilliant.

What kind of comments do you get?

RH: It runs from, like, "Turn the snare up" to "I don't like the guitar sound" [laughs], or "We need something more present on the vocals."

AS: It could be anything. It can be an overall mixing, or it can be really specific, or both. There's some songs where I'll have three comments, and it'll take me two days to get through 'em, and then there's some songs I've got literally four or five pages of comments, and it takes an hour to get through all that. It just depends on what it is. You know, if it's "At 2:37 there's a thing in this guitar that's gotta come up," well, you know, just do it. And sometimes it's [in a spacy voice] "It doesn't get into the chorus."

RH: Or "It's not dropping hard enough" — that was the hardest one for me to overcome. "You know when the thing comes in, and then this part? It's just not hitting me. Make it kick me in the face." Then it's up to us to try to figure out how to interpret that. Or "Make it more blue." [Laughs.]

AS: I haven't got anything that vague . . . My favorite one I've ever got from a director was "What's the saddest note you can play?" [Laughs.]

RH: B-minor.

AS: No, not a key, a note! "Play that sad note." We haven't gotten anything that crazy.

Meanwhile, in this process, is Rick Rubin commenting as well?

RH: He gets it first. We get it past Rick, make him happy, and then we go to the band. And then we make the band happy, and then we go back to Rick and make sure he's still happy. And if he's not so happy, then we go more rounds, and then we go back to the band again for final approval.

So it's several iterations of, like, calculus, 'cause you're just in with the solutions, where you start with what you think is good — you go to one guy, he says, "Fix this, fix this," you do it again, so you're getting closer and closer to this ideal mix. And then you take it to the band, and you're honing it down even more. So you're really close.

AS: And the focus you'll keep.

RH: The focus just keeps getting more and more intense on minute details, like John will say, "The third note of my solo, turn it up." It's just very microscopic things — "The third bass note on the bridge, turn that one up just a tiny bit."

AS: They're also not always commenting on their own stuff; you know, they comment on the *song*. And we've got the luxury of the time to do it, so it's not like we'll fix 18 things and have totally screwed up the drums.

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What do you do, though, when it's the delicate issue of one member of the band commenting negatively on somebody else's playing?

AS: It's never about the playing.

About the sound, then?

RH: Sometimes the mix will go to the band and Anthony will be like, "Do the guitar licks have to be so loud?" Or sometimes someone will say, "It's not a *band* anymore, it sounds like there's just too much shit flying around. I want to hear it with no overdubs." And then we'll start over again with just the ground tracks.

Sometimes it's just like "I just need to hear this. No one else needs to hear it, but I just want to hear a version of it with no overdubs, because I just want to hear the band playing. So give me two versions, one with no overdubs and one with all the overdubs, and let me hear what's going on." And maybe they'll be "I like this one but I don't like this one," and then they'll talk amongst themselves and figure it out.

On this project, would you say there's been a minimum of overdubbing? They wanted to retain a live band feel, right?

AS: Yeah. There's a huge live band feel, and there are very, very few things that aren't played by the band. They had a couple of percussionists come in, couple of horn players, whatever. But it's all the band. But then again, sometimes there are 28 tracks of overdubs. But it's not like it's a string section and B3 and stuff that doesn't go with the Chili Peppers. It'll be 12 of those tracks all

And I'm mixing into half-inch, so everything's gonna have a uniform level. And when I'm working in Pro Tools, I wind up using the noisiest compressors and the noisiest everything I can to create that vibe, 'cause to me it's a vibe. It's this bed, and it becomes this kind of warm, comfortable feeling.

going together to create one guitar thing in the second half of the third chorus.

John is responsible for the vast majority of the overdubs. But it also varies from song to song; I just did one song with one overdub — it's guitar, bass, drums, lead vocal, and one guitar overdub, and that's the whole song. And there are other songs where it's like Andrew's saying, "there could be a 12-part harmony, 12 guitars playing the same part in one little part of the song." There's a lot of harmony stuff on the record.

John's main theme on this record in terms of overdubs was creating sounds. He'll make several little different sounds — it could be a keyboard, a guitar and a processor part — but all creating one sound, or in one part in the first chorus it'll be one guitar, and in the second chorus it'll be three guitars, and then the last chorus will be five guitars, Mellotron, synthesizers. But they're all creating one sound; you couldn't say there's four guitars and synthesizers, etc. — you'd say, "That's a *sound*." And when we're mixing, sometimes it'll be too dispersed or we'll pan it differently than how he heard it, and he'll say, "No, that's *one sound*, to be treated as one sound; put it over *here*. And we need more of this and more of that, this is poking out too much, this is EQ'd too bright." Or "This is not one sound, this is several sounds; it needs to be one sound creating its own vibe over here in this part of the song."

I met Frusciante when he was doing that series of solo records three years ago.

RH: Yeah, I did most of those with him, too.

He's a really interesting guy, with so many ideas about sound. Where is he doing all these overdubs? Is he working in his own studio and sending you all this stuff? I mean, is he changing his mind about some of these parts?

RH: Yeah, he'll call me up and [*to Scheps*] — you haven't had to deal with this. [*Laughs.*] The songs that I'm doing, he'll call and be like 'We need to do an overdub,' and I'll just take the tape over to his house, 'cause he's just down the street. So we'll take an hour and do an overdub. The first half of the record there was a lot of that; we'd just go over there and do an overdub that he knew earlier he wanted to do but just never got around to, or we'll go up there and do a treatment with his modular synthesizer; there's a lot of that on the record, where we'll take vocal, guitars, and drums and stick it through an old-school analog modular synthesizer.

Or Rick will hear the songs and say, "Hey, we need to try something else. We need something in this part of the song."

How particular is Anthony Keidis about his vocal sound?

AS: Well, as always, we did a little mic shoot-out, at the beginning of doing the vocals. We put up a 250, put up the C-12, put up the 67, and then we put up the SM 7 Shure, which was used on every record so far. And all the other ones sounded really great, but the SM-7 sounded like the Chili Peppers. But his sound is more dictated by the range he's in, and the melody, and the song itself. He has so many different personalities that'll come through, and I don't think he consciously chooses one. I don't ever remember a conversation about the sound of the vocal, it was always just more lyric choices and melody stuff, and more arrangement on the chorus, where we were gonna double some things and stuff like that.

But you pop an SM-7 in front of that guy, and that's Anthony.

RH: And the sound really will come through in the mix when the song is being finished, as to what it's really gonna sound like. I'm not really doing that much EQ on it. He sounds like he sounds. And Andrew got a great sound when he was recording it, so there's really not that much to do in the mix other than, like, how are you gonna treat things and where is it gonna be?

AS: There were a couple of songs where he's singing really quietly where it might have been nice to get him on some different mics. On any other project, I probably would've said, "Let's go get an M 50 and get right up on it," or something like that. But no, because — it just sounds like him. When we did that shoot-out with the microphones, we saved the SM-7 for last, because we thought that's our benchmark thing. And it was astounding — it didn't matter that the low end wasn't as warm or it wasn't as crisp as the C-12, it absolutely didn't matter. It's just, "that's Anthony, done." Anything else we need to do, if we have to compress him a little more or pop him through a tube something, then we do it. But it hasn't even been an issue; I've done very little of that.

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RH: Sometimes Rick'll be like "Put an Aphex on it" [laughs] or whatever.

AS: It's pretty minimal. I never once wished that we could've put something else on it.

I gather that the band wanted a kind of old-school feel on this record. How much thought did you put into using vintage equipment?

AS: It was a choice to mix the record on Neves, which is one of the reasons I ended up at my studio, 'cause of all the studios that are close now, this is the only really viable Neve mixer that was available and big enough. Also, since we're coming off tape, you have at least 46 faders you have to fill up on some of these songs, and a lot of times tracks 9 through 18 have 12 things each. We're melting all over the place, so we need a big board.

RH: I think for both of us, 'cause we're using a lot of the same gear, it's just kind of whatever works. I'm using all kinds of new stuff, like I've got all the ToneLux stuff down there, Expressors and Fatsos and all kinds of fun equipment, and just all this new stuff that I've been discovering, as well as the Fairchild and the 1176s and all the classic stuff, but it's whatever you need to make the sound great. Or we'll both discover all kinds of new gear and it's like "Hey, did you try this, did you try that?" And I'll go out and rent one or borrow one.

Did you get any particular directives from Flea about the bass sound?

AS: The thing about Flea is he's not laying down roots, he's playing a huge melodic part in every song — a lot of times to the point where John's not playing any melody. John could be just putting down a wall and Flea is the melodic complement to the vocal. So there's a lot of treating the bass as an instrument, and not just as a low-end machine. You gotta hear every single note that he's playing, because he's playing a lot of notes, and they're all really important to the song. And I think if you don't hear the bass clearly, the songs don't fall apart, but you're missing a huge part of the song.

RH: What makes mixing this band so hard is that you have three musicians who are all laying down serious stuff, and the balance between them will change from part to part of the song; maybe Chad is doing his thing here and really driving it, and then there's another part where we've taken over and are really pushing a part where John's really pushing, and then you have the overdub; and to balance those things together, and always make sure that the appropriate person is stepping forward, that's the hardest part. But everyone's always doing something cool all the time.

AS: You can hear every note that everybody's done on every instrument that they've done it on, or we'll delete it.



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RH: There are parts that are endearing to people, even to the people who play the overdubs, that will just wind up going away. And they'll be, like, "You know what? It's just not helping the song." And so it goes away — "That was a cool part, but yeah, you take that part away and now you really hear the song, you really hear what's driving the song in that part," and you're not putting superfluous shit on top of it.

How'd you work with Chad Smith on his drum sound?

RH: Chad's been to the studio more than anyone else, especially at the beginning. But again, we were hired for our sound, and they like our sound, so it's like we do our thing, and Chad will say, like, "A little more impact," "A little more chest," and "Put a little more level on the cymbals, I'm really getting into that part."

AS: Chad is such a balanced player that if you start building up the drums and it feels weird, listen to what he did and you will figure out what you're doing wrong about balancing the kit. You'll figure out, "Wait a minute, I can't hear the hi-hat, and that's why this beat's not happening."

RH: Every single thing he plays is so important to the groove. I like you can't have an imbalance in the kit, which would just ruin the song; you won't feel the pocket if you don't have the perfect balance of the kit. It's like not having a pickup on the A string. But every single thing he plays is important.

Any effects on the drums in the mixing stage?

AS: John's treated the drums on a couple of songs, and filtered stuff, and every once in a while I'll sneak something in on the bridge on the overheads or something, just something to change it up a little bit. But for the most part, even with all the overdub stuff we've talked about, it sounds like a four-piece band. This record really is just a band in a room playing, so sonically you don't stray too far from that. It's the sound of their instruments. It's like John choosing a guitar and an amp — well, you don't then go re-amp it and EQ the crap out of it, 'cause it sounds that way for a reason. And Chad's the same way, he chooses drums, and how hard he hits 'em and where he tunes 'em. That really is as important as choosing a guitar.

It's a pretty straight-ahead sounding record in a lot of ways. Which is cool.

RH: There are no real room mics, that's my only gripe about the recording. I'm a drummer also, and when I'm listening to a performance at the drum kit, there are times

when it's appropriate to have it super-tight, really dry-sounding and intimate, and there are times where it should be big and bombastic and fuckin' John Bonham-sounding, and if you don't have that on the tape, it's really hard to fake it and sound good. You can put on a big reverb and shit, but that doesn't sound like Chad playing in a room and making a record. And it's really hard to create that when you don't have that source.

At the same time, you can use some elaborate compression and stuff like that and, provided there's no major fixes on guitars and basses, you can make that sound happen.

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RED HOT CHILI PEPPERS

A lot of people seem to find it aggravating trying to get the right effect with compression.

AS: Yeah, I mean, I'm still learning how to use compressors, and still discovering compressors. But I used to try and use them and it always sounded terrible, and now like I kinda get it and use them. But I saw something on one of these message boards, and someone's talking about mixing with no compression, and as a concept, that's a cool thing to try and do, absolutely. They're saying if you can just do rides to be like a compressor . . . but if you've got a 15-microsecond attack time and an adaptive release time, how do you

wire the fader to mimic that?

RH: Compression is a sound, and every compressor sounds different, and every compressor is gonna treat the sound going through it differently. It's gonna attack it differently, and bring out different aspects of a performance. There are times when you don't need compression, and there are times when you need lots of compression. There are times when you can compress the buss and smash it and it sounds good, and there are times when it doesn't sound good.

AS: Yeah, I think on half my mixes there's no compressor on the buss at all. Nothing.

RH: Well, maybe a quarter of mine.

AS: By the time it comes out on CD, it'll all be compressed, but sometimes it just doesn't need it. And sometimes it's because I've compressed other things to the point where I don't need it, and sometimes it's just because it starts sucking the life out of it. Sometimes without it, it just sounds dead and boring.

RH: It can add excitement or make it really boring. Especially with a lot of parallel compression, it's really fun, where you play it up on aux send and two compressors and bring it back and add it into the uncompressed sound. It's a really powerful tool. When you still have the original sound source in there so you still have this real thing poking through and then you have artificial height or whatever backing it up, so you can make it sound longer or bigger. . . .

AS: Half of the compressors I use on sends and half of 'em are on inserts.

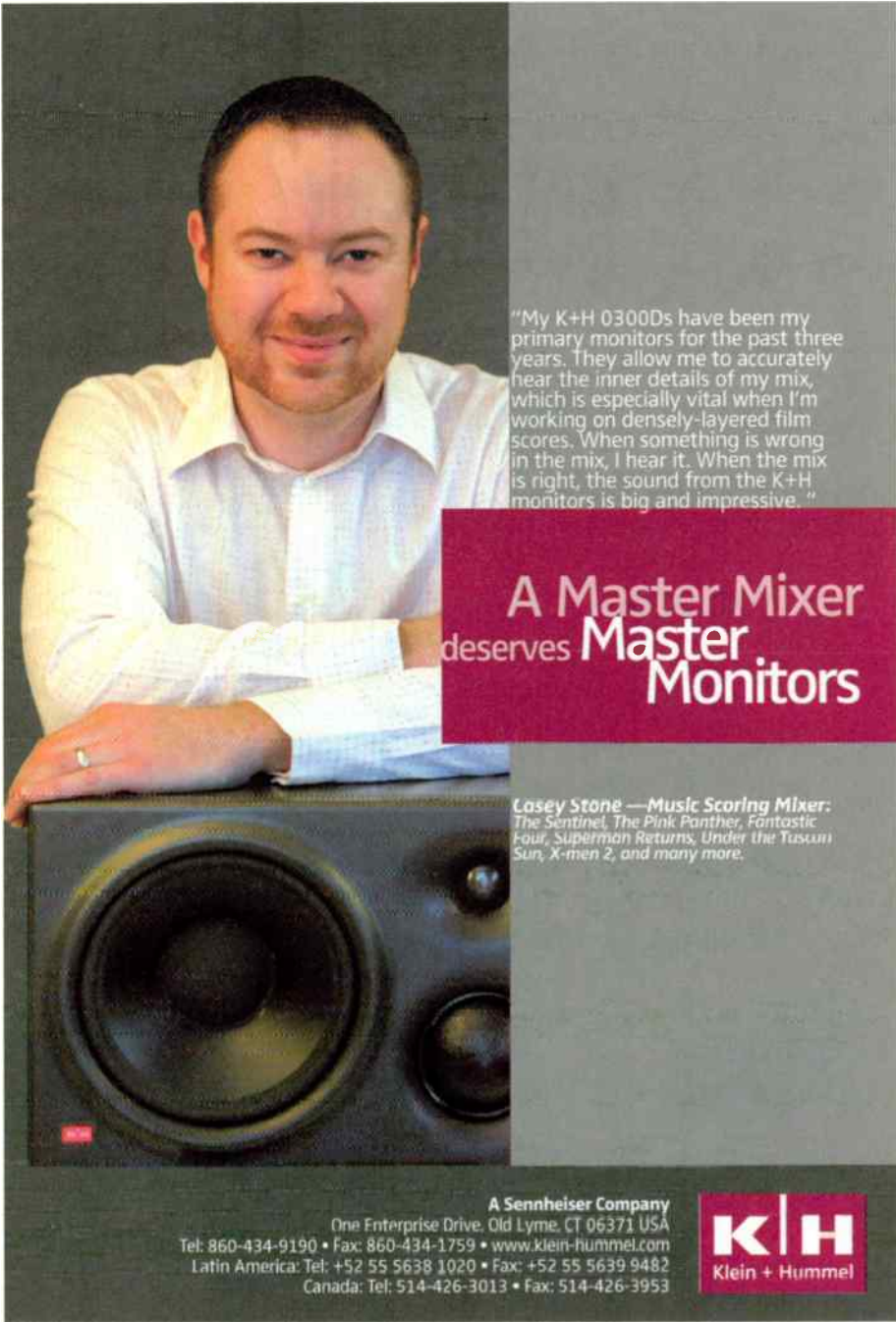
RH: Yeah, I did that.

AS: Usually there's one for drums and stuff, but five or six probably on every song that are just coming back off standard busses.

You like the API 525 compressor. What's so special about that one?

AS: I don't completely understand the theory of how it works. It's a feedback-based compressor, so I'm assuming it's slightly . . . oh, I'm not even going to guess, I'll be wrong. But it just doesn't sound like any other compressor. You cannot adjust the attack time at all, and the release time I don't think I've ever used.

RH: It's pretty slow.



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RED HOT CHILI PEPPERS

AS: But it just makes things go pop! Especially guitars and things like that. There's an input knob, which is what affects the amount of compression, and there's a tiny little spot where it's amazing, and if you're below it or above it, it sounds terrible, absolutely horrible — it's either doing nothing, or it's squeezing it so it's dead. But you find the spot, and all of a sudden it just jumps to life.

So much of what you guys do seems to get back to gut instinct.

AS: Yeah. I mean, we're both pretty technical, which for me is great because when I can actually find out how something works, I'm better at tweaking it, 'cause I know what direction it's gonna go. But it's all based on the sound in my head that it needs to be. If it keeps getting farther away, you just use another piece of gear. I don't care how it works, what it does. I've had some very random gear searches on this record. I think I need a compressor and I end up with a delay, you know?

RH: It's fun to have the luxury of time to be able to experiment with stuff and really find the deal. I came up under Michael Bauer, and he's got like 24 boxes of shit that he can just go "Ah, that doesn't sound good; *that* sounds good." I always have a guitar distortion pedal or something, and I'm always "Let's try this pedal, let's try this one," and you go through more iterations of finding the ideal sound for all this stuff. And then the cool thing about trying out all compressors and pedals is that later on you'll be like, "Hear that? You know what did that? *This* did." And then you plug that in and you have that sound.

Since the new Chili Peppers album was recorded on tape, hiss must've reared its ugly head. How'd you deal with that?

AS: For whatever reason, it was set up at +3 on the two-inch, and so for the loud stuff, that's fine. But there have been a couple of quiet songs where it was pretty noisy. A lot of the stuff was done very quickly — "Okay, now we're gonna do the loudest song ever in the whole world," and "Now we're gonna do the quiet song." And it's not like you have time to change the whole setup. But we do a lot of mutes, and you can't just mute something in the chorus of a quiet song, you have to ride it in; you set your hiss presentation.

RH: It becomes a comfort rather than an annoyance.

AS: Yeah, you treat it like vinyl noise, where it becomes a nice part of the song.

RH: And I'm mixing into half-inch, so everything's gonna have a uniform level. And when I'm working in Pro Tools, I wind up using the noisiest compressors and the noisiest everything I can to create that vibe, 'cause to me it's a vibe. It's this bed, and it becomes this kind of warm, comfortable feeling. **EQ**

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THE MIC MINI-MARATHON

A sneak peek into the 250+ mic mini-run-a-thon courtesy of the cats at Jam Room and Front End.

Last year we, well, actually *me*, Warren Dent from Front End Audio, approached Jay Matheson of the Jam Room Recording Studio with an idea about shooting out a bunch of mics in his studio, over 250 in all. Jay jumped all over the chance to satisfy his own curiosity about new mics and volunteered his studio for the project. After juggling schedules with Jay and our vendors, we jumped in the studio with the first 60+ mics, which mainly consisted of large diaphragm condensers. The focus of this first set of sessions was to listen to the mics on several different vocal types. We brought in three local artists, which included both female and male hip-hop vocalists.

Some of these mics we personally own and some were hitting our ears fresh. It was a very informative mic session to say the least. Some differences were subtle, some were just gigantic, and other times you could tell a mic was useful but maybe not on that particular application. In an

effort to better educate ourselves and the average mic seeker out there, we are scheduling many more of these tests and recording sessions in the near future. For now? Well, both Jay and I thought we'd share some thoughts on some old timers of ours, and first impressions of a few newcomers.

CAD M179

The CAD M179 is one of those pieces of gear that under promises and over delivers on sound and usefulness. Its flattish response makes it a great fit on tons of sources, but for vocals it is pretty neutral in a "poor man's 414" kind of way. The midrange is pleasing, not overly emphasized or hard, but somewhat forgiving. The top end isn't sizzly or sparkly, it just handles things well without getting nasty or spitty. Sibilance isn't much of an issue and it sounds good being worked close when needed. The mic sounded



sE Electronics Titan

great on each of our vocalists, and I wouldn't hesitate grabbing it for a vocal session. The completely variable pattern also allows for more choices when it comes to how much room sound you want in the track. A crazy mic for anybody to pass up, I use it on vocals, overheads, toms, acoustics and more every day in my personal collection. Bang for the buck, this mic is priced right and is one of the most versatile, budget-friendly mics on the market. —WD

ADK GC3 (Generis)

This mic was my pick for value. I teach several audio classes, and my students always want advice on mics for their home studios. This seems to be a great one for someone getting their first nice mic. It's multi pattern, has a pad, has a low cut filter and comes with a usable shock mount. The main problem that most entry-level made in China mics exhibit is excess sibilance. This mic seems to have a warm low end, as well as a balanced, moderately crisp high end. It's no U47, but I would be comfortable tracking with it on a vocal session. A value for an entry-level, all-in-one mic. —JM

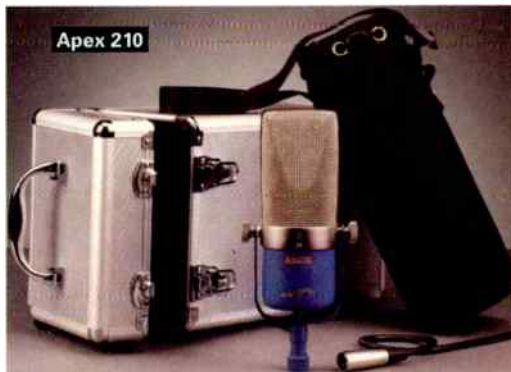
AEA R92

When it comes to real ribbons that actually perform at reasonable prices, Wes Dooley has the gig sewed up pretty well. The R92 is tuned higher than AEA's top selling R84 ribbon, giving it more bite in the high end and less boom on the bottom. This allows the R92 to be used in closer proximity compared to many ribbons, without being too woofy on the bass side of things. The midrange is very smooth, with a full present sound in the mids. The high end, while offering more response than many other ribbons, is still very forgiving

toward sibilance. You just don't get a crunchy/essy top end thing going on with this mic like you do with many condensers; the R92 is smooth, top to bottom, with a rich sound that offers more presence than many ribbons on vocals. The ability to work it close is a big benefit for some vocals, and instrument miking, as well. —WD



B.L.U.E. Bluebird



Apex 210

Apex 210

For \$169.00 this mic was a no brainer. It's worked well on violin, trombone and trumpet, as well as in combination with a 57 on guitar cabinets. I found this mic too dark for many applications, but

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MIC MINI-MARATHON

for adding body to thin sounding instruments, it's a champ. When in conjunction with another brighter mic on a Fender clean amp, some really huge sounds were easy to come by. The horns that I recorded sounded like an old Chicago record when I hit the tracks with moderate compression. On fiddle, it was smooth and thick, as well. If you are having problems with thin sounds, this mic can be a huge asset. Beware though, it can be too dark for certain applications. —JM

sE Electronics Titan

One of the few mics that made everybody in the room say "wow" was the sE Electronics Titan. If you like condensers but you're looking for something different, the Titan is an excellent pick in a crowded field. The Titan has just about the silkiest high-end response of any mic I've ever heard, period. There is this amazing stuff going on up top (the words "airy" and "smoky" both come to mind at the same time): It's exciting without being crunchy and adds a lot of life up there. The midrange is very nice, giving a nice pre-EQ'd sort of sound. The low end is even in response, no problems working in close or at a distance while still getting a full and present sound. The titanium diaphragm is certainly part of the different sound we heard, but different isn't always good. In this case though, different is superb if you need air without being overly bright, and a forgiving midrange/low end. Sounded great on all the vocalists. —WD

Coles 4040

This is a huge sounding mic. It's a bit pricey, but for those that can afford one or two, they would be the king of their mic locker. These mics look impressive and sound impressive. After listening to this mic on various sources, I realized the low end was so big that a good pop filter would be needed. For certain vocals this mic would work really well, but because of its overly huge sound, really loud or screaming vocals wouldn't be a very good application for this mic. I would love to use this mic on overheads, but its use on vocals seems a bit limited. It would be a great piece to have as long as it wasn't your only vocal mic. —JM

Coles 4038

The Coles 4038 is one of those ancient mics that's been used on tons of stuff for decades, so it was interesting to bring the 4038 into the mix of mostly modern mics (and mainly condensers) to hear the 4038 on vocals. In my experience it's pretty easy to hear the BBC designed mic's own personality coming



Coles 4040

through on vocals, it has that old school broadcast sound. The lows are full but can be a bit woofy on some vocals, the midrange is strong in response, and there is a bit of a bump in the upper mids, which can be somewhat sibilant on some vocals and did not translate into the sort of "sweet" high end the AEA ribbons exhibited. The 4038 was a little more aggressive sounding on vocals compared to the newer designed ribbons, which can be a plus or a minus. —WD

sE Electronics Z3300A

When you need a little better than real life (*i.e.*, a little hype), the Z3300A from sE Electronics is a good reach. The Z3300A has a subtle hype to it on the top end, giving a more extended response for smooth and present highs. "Sheen" comes to mind when describing the sound, present but not crunchy. The multi patterned

design can also be

handy when using

on a close source by switching to the omni pattern so that it exhibits less proximity effect. Overall, it is a balanced sounding mic with a clear sound and plenty of detail on vocals. We found it to have a very all purpose sound. —WD

B.L.U.E. Bluebird

The Bluebird is a bit more of a workhorse kind of mic compared to many of its other BLUE cousins. It has this even sort of response that works well on a lot of sources and voices. Everybody commented on how cool looking it was, and were surprised by its price. The midrange detail on the mic particularly stands out, which is nice on sources like vocals in most cases. Not a bright or boomy mic, but pretty realistic sounding and doesn't impart much of its own flavor on things. For vocals, it'd be nice to have for many studios, not only for some retro "vibe" to its look, but a sort of unhyped sound when you need a pretty flat response. It's not going to deliver "sheen". —WD



AEA R92



CAD M179



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MIC MINI-MARATHON

Pearl CC22

This was my introduction to Pearl mics. At first impression, we thought the CC22 was a small diaphragm microphone because of its unique rectangular-capsule

design, when in fact the CC22 is a large diaphragm. When we got around to using this mic, everyone's eyebrows rose and both engineers present and the artists commented on their overall happiness with it. It's a very impressive sounding mic that would be ideal for a vocalist who is looking for an intimate, up-front sound. It seems to have the lows of a very expensive ribbon mic with a very smooth, crisp U47 type top end that sounded really nice on both the female and male vocalists. This mic sounds both silky and up front at the same time. It sounds like an expensive mic and ain't cheap either. —JM



B.L.U.E. Mouse

condenser mic that can compete with a ribbon on low end, and it does low end very well. The Mouse is traditionally designed for use on low frequency instruments such as kick drums, and I can certainly see that as a starting point for this mic. However, it really is a multi-purpose mic that can lend itself to a huge sound for vocals, which we found during our sessions. The midrange response is strong and there is a little upper-midrange dip going on that is either going to work really well or not work on a given source. It's not super pronounced, but we all heard it. The very top end is pretty balanced, not a bright mic. It is hard to beat this one for full low end and low mid response. —WD



ADK Hamburg/Vienna



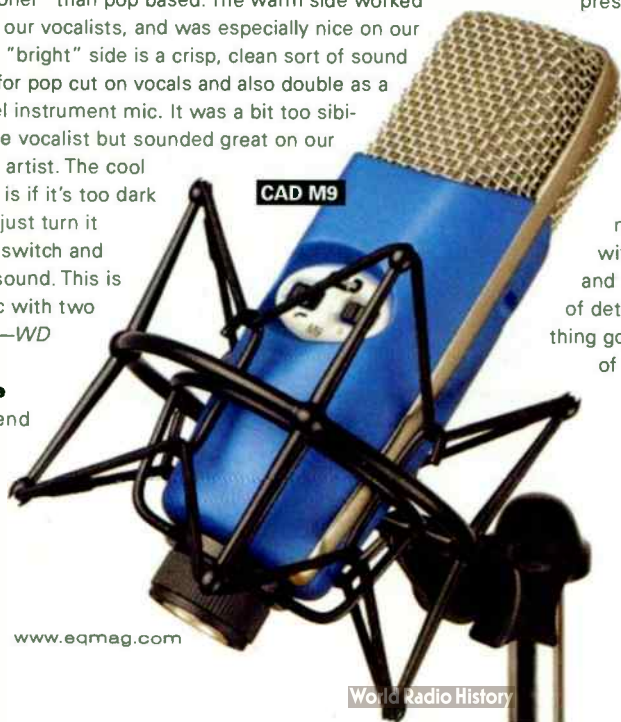
MXL V67i

MXL V67i

The V67i is a new mic with a new twist: dual capsule design that has two distinctly tuned sounds coming from both sides of the mic. The sides are labeled "warm" and "bright," and when compared to each other, that's what they deliver. The "warm" side is a somewhat darker condenser sound (same capsule as the V67G), with a thicker midrange response, as well. This would work best on more sibilant singers, or tracks that need to sound more "crooner" than pop based. The warm side worked well with each of our vocalists, and was especially nice on our female artist. The "bright" side is a crisp, clean sort of sound that would work for pop cut on vocals and also double as a decent entry-level instrument mic. It was a bit too sibilant for our female vocalist but sounded great on our male and hip-hop artist. The cool factor of this mic is if it's too dark on one side, you just turn it around and flip a switch and bam, a different sound. This is a very unique mic with two distinct sounds. —WD

B.L.U.E. Mouse

HUGE! The low end of the BLUE Mouse is big, beautiful, and full. This is just about the only



CAD M9

ADK Hamburg / Vienna

On the entry level price end of things, the Hamburg and Vienna stood out very well, giving a rich sort of sound, each in their own way. The Vienna has a more present sound in the high end, with a clear midrange and low end response. It sounds great on a pop style vocalist and can handle instruments just as well. The Hamburg has a more natural sounding top end with a creamier midrange response, again with it an unhyped low end. The Hamburg works well on smoother types of vocalists and instruments that don't need as much cut in the sound. There is a richness, though, to each of the mics that wasn't really present on others in their price range. —WD

CAD M9

Kind of hi-fi sounding, the M9 has a complimentary type of sound. It has an extended low end that is pretty smooth, and a nice rich midrange thing going on with a bit of an upper mid scoop, and an extended high end with tons of detail. The M9 sort of has its own thing going on, and seems to impart a bit of a glassy, hi-fi sound on a lot of sources. It sounds pre-EQ'd so it's not exactly a flat response "point it at anything" type of mic. If you need some hi-fi hype that's not overdone I'd say the M9 is worth giving a listen to. —WD EQ



Pearl CC22



IN MEMORIAM

On May 2, the music industry lost a true leader. Michael Kovins, president of Korg USA, passed away after a long battle with leukemia.

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Although you may not be familiar with his name, chances are that you've benefited from Michael's legacy. He touched all our lives through the instruments we play, the lessons we practice and the music that inspires us.

Donations in Michael's memory can be made to The Leukemia & Lymphoma Society (www.leukemia.org).

We will miss Michael, and we offer our most sincere condolences to his family, friends and colleagues.

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SAY WHAT? IN SEARCH OF THE PERFECT PITCH

The fix is in...

by Craig Anderton

Fixing vocal pitch problems has been around since the first time an engineer hit a "punch" button and the vocalist tried for a better take. I even wrote an article back in the '80s about using a sampler to sample an out-of-tune note, then tweaking the pitch bend control to correct the pitch. But kids, don't try this at home — not because it's dangerous, but because there are much better ways to fix pitch issues. Like what? Like what we're going to cover.

BUT FIRST: A REALITY CHECK

If a singer is having pitch issues, don't automatically reach for a fix: The problem may be a symptom of something deeper. For example, if the monitor level is too low and the singer can't hear the vocals well enough to produce proper pitch, the vocals might be *sung* at too low a level as well, which leads to dynamics issues. Pitch problems might also mean a singer who's tired, in which case the performance itself will suffer — not just the pitch. As with so many aspects of recording, check for the root of the problem and try to solve that, rather than put a band-aid on the symptoms.

And if you *do* need a fix, try punching first. I believe that processing such as pitch correction is a last resort to be used sparingly, unless you're consciously using the process as an effect. No matter how little the pitch corrector messes with the sound — and these days, pitch correction algorithms are uncanny in their ability to fix problems unobtrusively — a natural vocal will always be, well, more natural.

Finally, just because you *can* fix something doesn't mean you *should*. It's like the early days of MIDI quantization . . . here's a quick story. I had just fired up a Commodore-64 MIDI sequencer and called up Spencer Brewer, a superb piano player with a great "touch," to check it out. He played into it, and as we looked at the data, he

was shocked at how "bad" his timing was compared to the quantized "ideal." So we quantized it, and his beautiful expressiveness disappeared faster than Kenny G at a Nine Inch Nails concert. The lesson: His timing was fine; it was the sequencer that didn't understand music.

So it is with pitch correction. When you start using pitch correction, you'll see that your voice has all kind of "pitch problems." But despite the superb graphical tools present in today's programs, listen with your *ears*, not your eyes. Fix only those notes that sound wrong. If a note's a little off pitch, don't worry about it. Quantizing pitch and rhythm too tightly can remove much of a vocal's expressiveness.

HOW PITCH CORRECTION WORKS

Almost all pitch correction uses the same basic principle. The process begins by analyzing the input signal, then comparing it to a scale (usually user-definable). If there's a difference, then the program pitch-shifts the original signal so it matches the ideal. However, how it applies this correction is subject to various user constraints. For example, you might want to have the input jump instantly to the new pitch, or slide to it over time instead.

There may also 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.

AND NOT JUST VOCALS...

Pitch correction is good for a lot more than vocals; any monophonic line is fair game (although the about-to-be-released Melodyne Studio 3 from Celemony handles polyphonic material as well). I've actually used Sonar's V-Vocal feature more on bass than vocals to create slides and add "humanizing" elements to MIDI bass parts. Wind instruments and lead guitar can also benefit from vocal pitch correction tools. You can even apply processors designed for monophonic material to polyphonic material; the results will be unpredictable, but try pitch correcting a full drum set and see if it doesn't have some potential for your latest post-punk industrial masterpiece.

Pitch correction can also be an effect (commonly known as the "Cher effect" because of the way correction was used in her hit "Do You Believe"). While the effect is now a cliché, extreme amounts can still sound cool sometimes.

BUT I WOULD RATHER SWIM IN SEWAGE THAN USE PITCH CORRECTION!

When Antares introduced the ATR-1 — the first pitch-correction-in-a-box device — in 1998, it not only fixed vocals, but brought new meaning to the term "machines don't kill music, people do." It was overapplied and misapplied to the point where pitch correction got a bad name. The irony was that people didn't realize pitch correction could sound transparent, because when it *was* transparent,



Fig. 1: Antares' ATR-1a is the latest version of their pitch correcting hardware.

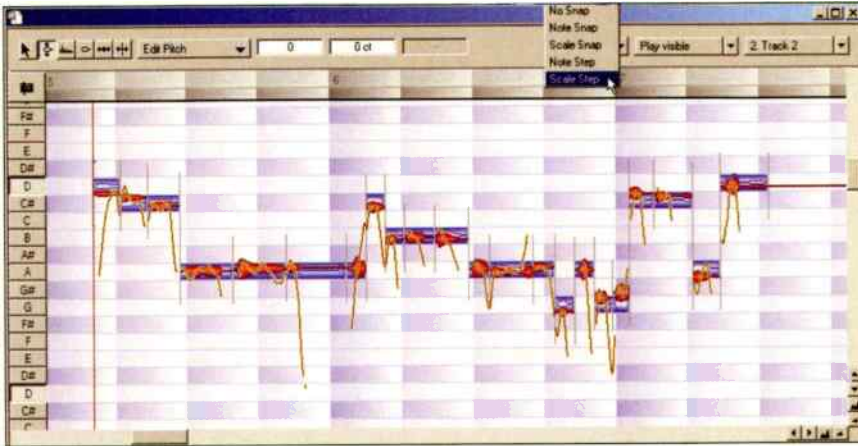


Fig. 2: Celemony's Melodyne was the first program to represent audio data similarly to MIDI data.



Fig. 3: Melodyne is shown here ReWired into Ableton Live.

they didn't know it was being used. Bottom line: Unless you're applying fairly drastic fixes, no one will know you're using correction — if you know what you're doing.

HARDWARE OPTIONS

DigiTech's Vocalist line was one of the first families of commercially available products designed specifically for vocal pitch manipulation. The main way it worked with pitch was by synthesizing harmonies, either based on a preset scale or in reaction to MIDI note input.

Antares' Auto-Tune was a step up, as it

didn't just *shift* pitch, but *fixed* pitch problems in near-real time. Their latest version, the ATR-1a (Figure 1), extends the correction range down to 25Hz (guess I'm not the only one who uses pitch correction for bass), and allows creation of custom scales to which pitches are referenced — as well as lets you correct only specific notes, like if the singer can't hit high "C" quite right but gets everything else. You can also specify a melody with MIDI to which the pitch will "snap."

Roland's contribution to vocal processing was VariPhrase, although it was also intended for other instruments. It was innovative too, as

it bridged the classic Antares approach with something more like the stretching options in Acid. It was ahead of its time, but its technology re-surfaced as part of Sonar 5's V-Vocal processor, described later.

Also in hardware-land, TC-Helicon offers multiple pitch correction products: VoicePro, VoiceWorks, and VoiceOne 2.0 are studio processors, whereas VoiceLive is a floor processor optimized for live use. These also throw other functions into the equation, such as vocal modeling, doubling, reverb, and various effects.

THE SOFT SOLUTION

Just as Antares defined hardware-based pitch correction, Celemony's Melodyne did the same thing for software. Its breakthrough was to analyze incoming audio, and present it as graphical "blobs" (Figure 2) with pitch, rhythm, and amplitude information. You could actually "see" a melody with as much detail — actually, more so — than MIDI, and manipulate not just pitch but rhythm, formant, and dynamics as well.

Although Melodyne remains stand-alone at heart, the Melodyne bridge option is a plugin that hooks into a host application, so Melodyne can run concurrently with the host. It's also possible to ReWire Melodyne into a host (Figure 3), 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 Reason together, you can record vocals in Melodyne that run in parallel with Reason, but also do all the cool Melodyne editing tricks.

Although Melodyne Studio is expensive, there are two alternatives: Melodyne cre8 is quite similar but handles eight tracks instead of as many as your computer can handle, and goes up to 24-bit/48kHz instead of Melodyne Studio's 32 bit/192kHz operation. There's also Melodyne Uno, which handles only one track at a time — although often, that's all you need.

Editing seems complex at first, because there are separate tools and sub-tools for editing amplitude, formant, pitch, and duration. But this is necessary because each process is quite different.

There's also cool MIDI stuff: Control freaks can use MIDI to automate most Melodyne parameters, but even better, once you've detected audio, you can export it as MIDI data including pitch, dynamics, phrasing, and so on. You may need to touch things up, but if you ever wanted to "sing" a synth part, Melodyne is pretty effective.

DO THE RIGHT THING

Part of pitch correction is using the controls correctly. One of the main ones determines the speed with which the input pitch slides to the corrected pitch. Set this too fast, and the pitch “snaps” to the new pitch in a stepped, unnatural way (not that there’s necessarily anything wrong with that). Set it too slow, and there’s an almost equally unnatural slide effect that can negate vibrato and glissando. A lot of the bad attitude about pitch correction comes from misadjusting this parameter.

Speaking of vibrato, it’s often possible to either accentuate existing vibrato, which is a good thing if the singer’s vibrato is weak and you want to emphasize it, or “flatten” the pitch and add artificial vibrato, like the LFO does in a synthesizer. Unfortunately, some people think of artificial vibrato as what you add after you destroyed the original vibrato

by setting the speed too slow. No! Try to preserve the existing vibrato, and choose accentuation over synthesized vibrato if you want the most natural sound.

On the other hand, if you have an angelic backup choir, you can get some interesting effects by flattening pitch and adding synthetic vibrato — it adds a kinda cool ethereal-meets-mechanical quality.

Another variable parameter sets the transition time between notes. Although you generally won’t want to add much, you can use transitions to create more of a “glide” effect between notes, sort of like synth portamento.

What may be the most important control sets the depth of the correction. At maximum, this clamps the vocal to the specified pitch. But no one sings that way; give a little slack and don’t overcorrect the pitch. After all, where would B. B. King be if he always bent

held notes right up to pitch, instead of pausing, tantalizing, just before hitting the pitch?

MORE SOFTWARE SOLUTIONS

Antares made the move from hardware to software with their Auto-Tune 4 plug-in. You can use it the same basic way you’d use the box — plug ‘er in and let ‘er fix, with maybe a couple control tweaks — or use a graphical mode where you can draw out pitch changes. Like most pitch correction software, the graphics are pretty intuitive and make it easy to see where the pitch deviates from the “ideal.”

TC offers the Intonator HS (Hybrid Shifting) realtime pitch correction plug-in (Figure 4) for the PowerCore platform, thus blending hardware and software. It uses the same basic intonation correction technology as TC-Helicon’s hardware products.

NOT-SO-QUICK PICK

BRENT AVERILL ENTERPRISES 312A MIC PRE [single channel \$949, two channel \$1,549, brentaverill.com]

Brent Averill got inspired. To? Well, to start his own company and design mic pres that were similar to the old APIs. Though API used a couple of different transformers, the one that Brent liked best were the Jensen JT115s. He found the Jensen’s were the most consistent and had the best overall quality. But besides developing the 312A, Brent also manufactures the 1272 pres. In comparison, the 1272 pres tend to compress the sound slightly, and add more second harmonic distortion, which results in added color. For now, though, let’s just take a look at the 312A.

The 312A is a passive device. There are no chips or capacitors inside (which have higher noise rejection) to slow down the signal. Transformers often have common mode rejection (CMR) of about 110dB at 60Hz. A big part of the dynamic sound the 312A has is because of the high step-up ratio of the input transformer. This adds 20dB of gain right from the start. Anything adding 20dB of gain is going to also add some of its own character and color.

I found a good amount of shielding inside the case. The unit is hand built and uses tested and matched parts. It has lots of output current designed to push transformers without creaking up, losing low end and compromising headroom. The circuit board is single sided with thick traces, which prevents tracks from lifting off or becoming intermittent over time.

The back of the unit is simplicity at its best. There are XLR input and outputs for channels 1 and 2 — that’s it. The cable coming out of the unit you need to plug into the separate transformer by the XLR input. Interestingly enough, they added a second input on the transformer in case you want to buy a second 312A. You save roughly \$200 when you buy a unit without a transformer.

On the front of the unit, (from left to right) there’s a 20dB pad, phase reverse button, 48 phantom power button, and gain knob. To the right are a mic and instrument switch and a quarter-inch input jack. The unbalanced DI input impedance is set at 250K ohms, which is roughly 10 times the average output impedance from many passive pickup instruments making it a great DI tool in the studio. It comes out of the preamp transformer balanced and ready to be compressed or EQ’d, if needed. The -20dB pad is designed to stay neutral when it’s engaged by maintaining a steady input impedance



of 1400 ohms on the mic input. This may sound trivial but many manufacturers making similar preamps needing a pad often overlook this, which can explain why sound can change slightly when the pad is engaged. The pad does not affect the DI.

There are no led or VU meters on the unit. Though you can look at your signal in your DAW mixer to check the signal strength, I always appreciated having meters on the units themselves. There is a difference with the input signal into the unit compared to the output level going into your DAW. But why quibble over something this minor?

Mark Loughman of BAE stressed that this pre was designed to be very punchy and fast sounding. After hearing this in action, I must say, this is exactly what the pre delivers. This pre is fantastic for drum kits, for overheads, and to mic a snare drum to get a crisp sound. I compared it to several other mic pres in my studio, including the Langevin DVC and Neve Portico. On bass guitar, the Langevin gave a nice, clean, even sound, while the 312A has a slightly smoother sound. This smooth character was very useful when using solid state mics on vocal track, as well. In going through my Blue Blueberry and Audio-Technica 4033, the pre sounded good on both male and female vocalists. Though there is a character to the pre, it’s a gentle one. Some stronger colored pres if used on numerous tracks could result in getting a muddy sound on your mix. Though I’m not a big fan of going direct into a DI for bass, I found the 312A to give a much better sound than I expected. It had a good punch with a touch of smoothness added to the sound. So with this pre, you get a very dynamic and lively sounding preamp with just a little character and color without adding a bump in the response. If you’re looking for a high end pre that has a very quick response, is lively, and adds a touch of color, it would be a mistake not to try this pre out. —Glenn Bucci EQ



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Fig. 4: TC's Intonator is a pitch correction plug-in for their PowerCore platform.



Fig. 5: Waves' Tune is one of the more recent, and sophisticated, entries into the pitch correction market.

Waves recently introduced Tune (Figure 5), which aside from having the Waves pedigree, includes some unusual features like the ability to create custom scales and use non-Western tunings. It also supports ReWire; all edits are non-destructive, and saved as part of your host's project. Another cool feature is the ability to export MIDI files for doubling instrument parts with synths or samplers, or even to do transcriptions.

What's more, some host sequencers now include built-in pitch correction. Magix Samplitude includes an "elastic audio" window with an intuitive graphical interface (Figure 6); starting with Digital Performer 4.6, MOTU added a pitch automation function that allows

drawing in pitch correction, directly within the host program.

Sonar 5 Producer Edition incorporates Roland's VariPhrase technology in their V-Vocal plug-in (Figure 7), which offers separate tools for altering pitch, time, formant, and dynamics. The way it works is by converting standard audio clips into "V-Vocal Clips," which run concurrently with your host. After tweaking, you can apply the edits to the audio clip, thus making them permanent.

SO... IS IT WORTH THE EFFORT?

Some people have commented to me that using pitch correction is a hassle, what with drawing in little changes and such. Hello!?!?

What they're really saying is either the singer couldn't sing (solution: new singer, not extensive pitch correction) or they were obsessing over the vocal just because they could. I recommend listening to a vocal, isolating the few notes that are a problem, tweaking those, and then forgetting you have pitch correction available.

It's been said that the government that governs least, governs best . . . and so it is with pitch correction. Use it wisely, and you'll be able to take that vocal that was perfect except for a few glitches, and ban those glitches forever — as well as do some really creative sound design tricks if you're so inclined. **EQ**

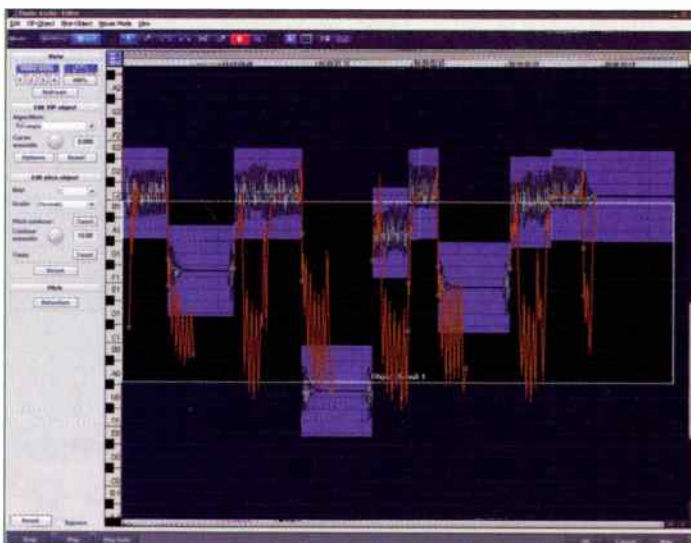


Fig. 6: Magix Samplitude builds pitch correction into the host.



Fig. 7: V-Vocal, based on Roland's VariPhrase technology, comes bundled with Sonar 5 Producer Edition.

NOT-SO-QUICK PICK

GROOVE TUBES GT-30 + GT-60 MICS [GT-30 \$399,GT-60 \$699, groovetubes.com]

I recently received a pair of Groove Tubes mics: one solid-state medium diaphragm class A condenser (GT-30) and a large diaphragm tube condenser (GT-60). My first thought was, "more made-in-China condenser mics?" I must have listened to 40 mics in this general price range in the past month, but undaunted I put these two up for some tracking to see how they stood up.

On opening the package, I saw that Groove Tubes had decided on a more reasonable style of packaging than some manufacturers. Instead of briefcase style flight cases and expensive-looking wooden boxes, they chose a more economical and appropriate mini flight case style box. And the GT-30 is a front address mic with a standard mount, while the GT-60 is a side address, single pattern, with both a standard mount and a nice shock mount. Both mics have a 10dB pad and a low-cut switch. The build quality of both is about average for mics in this price range: adequate but not overly heavy duty.

At first, I thought that the GT-30 could be a good handheld for vocals. However, I soon realized that it lacks an adequate internal windscreen to keep wind and popping Ps off of the diaphragm. Hmmmm. . . .

Well, the first opportunity that I had to listen to the mics was on a hip-hop vocal session. I used a **Daking 52270H** mic pre into a **Distressor** and tried both mics one at a time. In past times, I usually used a **414** on this vocalist and it seemed like both GT mics were a bit too bright for his voice and the style of his music in general. Back to the 414 for that session.

The very next opportunity for me to use these mics, however, was on

an acoustic guitar recording. I decided to use both mics, although unmatched, as a stereo pair since there was only guitar and vocals. I used two **Chameleon 7602s** into a **Manley Variable MU**. I was quite surprised at the pronounced midrange in the mics. I ended up cutting about 2dB at 700Hz on the GT-60 and about 2dB at 1.6k on the GT-30. Both the artist and I were happy with the sound and we used the pair on the session.

My third listen to the mics was on a session with a female vocalist. I tracked her with an **AT4033** through a Chameleon 7602 into a **Manley VOXBOX** for compression and de-essing. At the end of the session we put up both Groove Tubes mics for comparison. Again, the Groove Tubes mics exhibited a more pronounced midrange that gave the vocals a little better clarity than the 4033. The 4033 was a bit bigger and smoother sounding though, so we ended up using those tracks.

The GT mics both exhibit a common, low midrange presence that can be useful for certain voices and miking applications. One has to be careful of excess low end on the GT-30 though. It seems to be a little woofy on vocals and loud guitar rigs. The GT-60 does not exhibit this quality, though. This midrange could also add a stiffness or lack of richness for the wrong application. These mics definitely have their own sound though, so give them a try on your own if you plan on picking one up. —Jay Matheson **EQ**



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THE VOICE THAT IS BEER, HERRING AND THE HUMAN VOICE: THE TC-HELICON VOICEPRO



TC-Helicon is on a mission to save your vocal tracks.

Over a meal of Canadian beer and Danish herring, IVL Technologies, Ltd. and TC Group posed a question: "Isn't it time that someone finally provided dedicated tools and solutions for voice?" They answered their own question by forming TC-Helicon and releasing a series of processing units based on Canada's finest vocal modeling algorithms and Denmark's best acoustical models. The latest in this series to come our way is the VoicePro professional voice processor, which promises to "allow all of the dimensions of the voice to be refined."

Refined is the word. The subtlety required for detailed work with vocal tracks and spoken word recordings requires very precise control, and the VoicePro is precise. A jog wheel and four arrow keys allow for quick and easy navigation, and fine adjustment of the many presets and options available on this comprehensive, voice-oriented device. Do yourself a favor and just play around with one of these if you have a chance. It's actually very easy to get going on your own, and loads of fun. (Be warned, however, there are some creepy effects on this box. And when you're ready to read the manual, we can get down to the nuts and bolts.)

The VoicePro provides 24-bit DSP processing at up to 96kHz using three proprietary algorithms, as well as EQs, compressors, de-essers, reverb, delay, μ Mod, transducer, and a multi-path mixer. It is Ethernet-connectible, MIDI compatible, and equipped with an AES/EBU I/O port (DB-25 with supplied breakout-to-2-in/8-out-XLR connector), as well as analog stereo XLR outs. Analog

Equipment is definitely no replacement for vocal talent, but it sure does help sometimes.

input is available through two XLR inputs (one voice, one auxiliary). There's a standard BNC word clock connection, as well as a ponderous RS-232 port that's not currently supported (except perhaps in Canada or Denmark?). There are no preamps, but anyone who needs to beef up their talent's voice should have a decent preamp to start with. You will definitely need one, as the VoicePro is a little soft on the input side. Nonetheless, once you put a nice mic and pre on the voice input, the VoicePro's backlit LCD lights up with a thick, rich signal ready to be trimmed or boosted, and tweaked or twisted.

The sound is mighty nice, too. Reproduction is so faithful that you hardly notice the subtle stuff, like compression and EQ: it just sounds better. It also makes it all the more surprising when you use more noticeable effects like four-part harmony or pitch shifting. For starters, I tested it out on myself. My main vocal weakness has always been, well, weakness. VoicePro to the rescue! After two-hours of headphone-karaoke I had a handle on some beefy presets (four-part harmony with compression and

de-essing) giving me a handful of confidence. Then I turned the mic over to the beast: a friend and collaborator of mine I shall only refer to as Mr. G. His voice is, perhaps, a little unruly: robust, indeed, but raw as hell. The VoicePro can beef up my wimpy whining, but can it also tame the rebel yell?

How'd it go? Well, let's just say that Howard Dean might be our president right now if he'd had a VoicePro on the night of "The Scream." As it turned out, Mr. G was in rare form for our session, pumping out high SPLs, a plethora of popped Ps and super-sibilant Ss along with his infamous throat-singing techniques. Aside from copious compression (after copious limiting on the preamp, of course), a nice combo of HF and LF rolloff with a healthy dose of the de-esser took out the worst of it. What remained was intelligible, but now a little dark and flat, so I added resonance back to the high end using the Spectral interface.

Apparently, the VoicePro's resonance effect "simulates changes in the physiology of the vocal tract." The Spectral interface does not resemble anything I saw in my A&P classes, but it is an insightful and remarkably intuitive way to visualize vocal sounds. TC-Helicon refers to Spectral as "an intelligent EQ" on the basis of its ability to isolate sibilants from the EQ processing. This means that I could brighten the high-end without bringing back the *ssslur*. Mr. G didn't seem to notice the effects up to this point, but it kept his attention on the vocal mix and focused the performance more than what I am used to from him. This, to me, is the best test of any vocal processing device. Subtlety is important in order for

the talent to engage with the sound in the monitors. When the vocalist gets a good sound in the monitors, they are more confident and more focused on putting in a good performance. Equipment is definitely no replacement for vocal talent, but it sure does help sometimes. In this case, I managed to avoid having to use any pitch correction, a major victory for Mr. G and a pretty successful track for both of us. I bet both of our fans will agree.

In summary, the VoicePro's interface is intuitive and adaptable; the sound is fantastic, and the capability immense. There are great benefits to a versatile unit like this in music, broadcast, and film. Talent in a home or project studio is likely to be more familiar, allowing the VoicePro to be used as a front-end, analog device with a detailed, easily recalled and personalized setup. Larger studios can use the VoicePro's AES/EBU capabilities for front-end recording, as well

as an add-on effect with the same level of control. Broadcast and film studios will appreciate how well the unit handles dialogue. MIDI connectivity rounds out the VoicePro's capabilities for live performances as well as in the studio. I'll leave it to the Canadians and Danes to figure out what to do with the RS-232 connector. Whatever you may think of beer and herring, the VoicePro is a tasty addition to any studio. (Sorry about that.) —*Sam Wheeler* □

MILLENNIA, NOW MY INTERVIEW WITH JOHN LA GROU

I was going to review the unit anyway but they were close now, real close. This is about my trip to Placerville. And after it was over, I'd never want for another.

by Monte Vallier

As I sit in the studio with one of the products that John La Grou from Millennia Media had his hands on, certain words keep coming to mind: well structured, rich, clean, vibrant, an abundance of different flavors, and a strong backbone. These words not only come in handy to describe Millennia Media's professional audio components, but the fine glass of 2004 Syrah in my hand that came from grapes John had grown on his property outside of Placerville, California.

And like the wine, the complex flavors of the STT-1 Origin bear profound investigation. First of all, the STT-1 Origin is kind of like, to quote the owner's manual, a "greatest hits" compilation of essential products from the Millennia line of gear. It's a mono recording channel featuring the "Twin Topology" of the HV3 solid-state mic pre and the M-2b transformerless tube pre amp that can be switched between with the push of a button. The next fine element is the four-band NSEQ parametric EQ with shelf/peak switchable high and low frequency bands and con-



Joel Silverman and John La Grou

tinuously sweepable mids. Following that is the TCL opto-compressor de-esser. It's a deep piece of gear. So deep that it inspired me to go the source.

Specifically the STT-1 Origin recording channel.

Hey, John: Let's start at the start.

I've been doing pro audio design on and off since I was young, building mixers and preamps and things. When I started recording

classical music with the Sacramento Symphony in the late '80s, I realized that the preamps I was using were not cutting it. I realized that my equipment was getting in the way. And with my background in design I thought, "Well, I'm going to try and do it better."

It took a couple of years of design effort and trial and error to finally to get to the HV3. I kept designing different things, but I kept coming back to that circuit and finally realized that this was the best one I could do for that era. So that became my preamp — I built up eight channels for myself. It wasn't a business and I wasn't thinking business at all when a friend of mine, Jack Vad at the San Francisco Symphony, asked if he could try my preamp. I sent him a stereo pair and he loved it and wanted to buy some. So I built him four channels in my garage and living room. Then he told some people about them and I sold some more to his friends. But then he knew a magazine editor, Nick Badstorf, from *Home and Studio Recording* [which became *Recording* in 1994] and I got a call one day saying that they were doing a preamp shootout with like the 10 preamps that were available then — now there are hundreds — and he said that he'd like to include my preamp in the

shootout. I said that I wasn't really a business. And he said that was alright, they would just really like to have it there. So they reviewed it and I got a call from the reviewer and he said that it was their favorite one. They did the review and that was it. It just sparked the business. All of a sudden, dealers were reading it, users were reading it, and I was getting calls to build them. So I built 50 of them in my living room and garage and sold them; then another 50; then I realized in a very

short period of time that this was going to become a viable business. I went out and got a 400 square foot space and hired Peggy, who is still with us. That's the history. That's how the company started.

I was working in Silicon Valley — doing technical and business management. And we were very successful at it and the company grew to a multibillion dollar company. But I realized that I didn't want to do that. When I started Millennia as a business, I wanted to keep it as my passion and never compromise for business reasons. And that whatever we did was always the best audio path we could do: not compromise to meet a marketing goal, or a price point, but always to achieve the best that we could do — the best we could offer. We've always maintained that.

So what made you want to do a "channel strip"-type of product?

It made sense. Because we had developed the mic pre, the compressor, and the equalizer, and there seemed to be a trend in the market for everybody wanting all of that function in one box, so we acted on the need from the market and put everything we made into one box. The one thing we didn't do is compromise anything that went into it. So in the Origin is an HV3 preamp, M2-b tube preamp, NSEQ equalizer, and a TCL compressor



without any compromise of the individual circuits. In a broader sense, everything we do at Millennia follows our need for our own studio. Remote recording, mastering, editing, some studio recording, and I've always looked at products and said,

"Can I use this?" and if I can, we've done it. While we continue to take that philosophy, we expand it as well. The Origin was driven by a number of factors — we've got the components, there is a market need, and I can use these in my studio.

How's the "Twin Topology" work?

Joel Silverman (business manager): You have the option of using either a tube op amp or a FET op amp in the circuit. They sound completely different. When John was putting these things together, he had both op amps and came up with a clever way to switch between the two and have the choice of what kind of sound you want. It comes down to more flexibility and more differentiation between the two types of sounds. These days, everyone is pretty much using the same recorders: some kind of digital box and recording to hard drive, so the days are over when you could bias a tape machine to get different sounds that would make your studio sound different from everyone else's — so it's all down to front end gear and mix gear. With these pieces, because you do have the flexibility of the tube or solid state, you can get a lot more flavors on your recordings.

And the transformer coupling circuit? I mean you've been making such clean,

QUICK PICK

AKG C419 + AKG C409 CONDENSER AND DYNAMIC MICRO MICS

[C419 \$428, C409 ~\$179, akg.com/usa]

The MicroMic line from AKG seemed like another way to generate new techniques in the studio and on stage. A friend of mine — Dave McDonnell, who plays in a sax/keyboards and drums duo named Michael Columbia — checked out the AKG c419 on one of his recent gigs. The 419 is a micro-capsule condenser mic that's capable of handling some pretty high SPLs (130dB to be exact) making it perfect for close miked horns and drums. He had been using a Shure SM57 for his horn and a crude construction paper baffling system to keep the drums and stuff from getting into his samples. With the 419 he was able to move around and manipulate knobs while sampling. The mic also had much more signal before feeding back and sounded more natural overall. I think jazz players in particular shy away from using seemingly modern gear such as clip-on mics — but the flexibility of the 419 enabled my friend to experiment with his sound in his set, and he was able to crank more level to his effects and tweak more EQ without feeding back. Handy!

Another friend of mine, Nick Broste, who plays

trombone checked out the 409. This mic is similar to the 419 but a dynamic. He also enjoyed the sound of the mic and the feedback-free performance, but had a couple of gripes. It seems the cord coming off the end of the mic is too long and can get in the way if not collected properly. Also, the cable is not detachable, which would be convenient when trying to free yourself from the apparatus. A mute switch would also be handy for horn players. As far as studio use goes, I had less use for the mics. I didn't like the 409 so much on toms. It sounded boxy. The 419 was nice on the snare although the clip doesn't work that well on the rims. It had a nice, airy sound to it, though it did make the hi-hat considerably louder. Overall, these mics are excellent for live horn and drum use. I think more horn players should use them live over a 58 or 57. They are a little bit more money but I think they're worth it. I think the main desirable function of any mic should be to make it easier to get great sounds, and these mics sound great and won't break the studio bank. —Griffin Rodriguez EQ



transformerless gear, was this a market decision?

It just happened that I had a design for a type of transformer that wasn't real accurate and that had a coloration that I found really useful for low-end punch. I was drawing a curve this morning, showing Joel that this transformer has a bit of what's called inductive leakage and it's a problem. When you design transformers you don't want inductive leakage. But this certain design delivers it. What it does, in consort with the circuit that exists around it, is give a bump around 100Hz. But it's not a bump that you can achieve via EQ; the leading edge is almost straight — which would be almost an infinite "Q" on an EQ, and the trailing edge falls off very gradually. It's a result of a thing called "ringing" in the transformer. I don't know if you've noticed

There are some programs where you may need really fast attack and you'd have to go for a VCA- or FET- based compressor. That's the trade off. Which technology do you use in a generalized, all in one box?

it — especially with a kick drum or a tom — where the lows are going boom normally — with the transformer coupled, they go BooM!

I thought this would be cool to have in a product, and the Origin would be a good place to put it even though our general philosophy is to keep everything as accurate and transparent as possible. This gives the user a bit of extra flavor.

What about the compressor?

The compressor is an opto design. Optos are good at certain things. Some of the ideal applications for optos would be low to medium ratios and program material that doesn't require extremely fast attack times. That turns out to be about 95 percent of most programs. There are some programs where you may need really fast attack and you'd have to go for a VCA- or FET- based compressor. That's the trade off. Which technology do you use in a generalized, all in one

QUICK PICK

MILLENNIA MEDIA STT-1 ORIGIN

[\$2,995, mil-media.com]

I was able to use the STT-1 in a variety of normal recording tasks using most configurations of the mic pres and processing stages. I used it for kick, snare, vocals, direct bass, and in line as a processor for mixing. I loved using the all tube path with little EQ cuts and miniscule amount of peak control for recording kick and snare especially. I realized how really cranky and buzzy and sort of awful my old Fender Precision really sounded when I went direct through the solid-state path. I was confronted with too much sonic reality. Too many frequencies. I had to tone it down with the transformer coupling and hit it hard to get the hair that I was used to. Fun. With vocals, I used a tube mic through the tube path and used a little bit of compression (2:1, slow attack, medium release, 2 or 3dB GR) and was able to get scary detail. The only complaint that I have is that with my AEA R92 ribbon on a medium loud source, I wasn't able to get enough gain. I have been told that there is an option to get an extra 10dB of gain on each preamp with a phone call when you order the unit. I would recommend this option.



To sum up what I think of this powerful piece of gear is easy. This is a deep box that takes time to get to know. Once you learn your way around the various ways to make this box sing, you will have a hard time going back to anything else you've been using. The palette of sonic colors (and non colors) that are available is extensive and finding ways to fit this tool into a session is satisfying. The way that you can change back and forth between elements, and stack elements, and then remove some to shape sound either going in or coming out in the mix stage is very cool.

Whether you are looking for a front end piece of gear for your DAW to increase your input quality or an unique addition to a collection of mic pres and such in your professional facility you will find this flexible, ultra-high quality recording channel to be everything that it's cracked up to be. It's an excellent sounding box. EQ

Pros

- High quality in every way.
- Ability to switch between solid state and tube pres with one button.
- Incredibly versatile.
- Solid company behind the gear.

Cons

- Needed more gain for a ribbon mic
- No detent on "0" on the output make up gain pot.
- Clean sound may frighten you with too much reality

box? It turns out that to my ears, opto is the best sounding technique for gain reduction. Compared to the VCA especially, the Origin is optimized toward those programs that don't require really fast attack and don't require high ratio limiting. We offer it in the box, but it's not its sweet spot. The Origin's sweet spot would be ratios up to about 6:1, and within that range it's as good as it gets. It really shines on guitars and bass. . . . and Gwen Stefani's voice. Also, program 2-mix is very nice. The sweet spot for the amount of gain reduction with the Origin is up to about 10dB of gain reduction. When you start getting up to 12–15dB and it's not as happy — it works, but it's not ideal.

It's a traditional compressor. It's not an easy, one-slider kind of deal. It doesn't have short-cuts or presets. It's a very traditional engineer's compressor that interacts with the side chain controls, not interacting inappropriately, but

in ways that an engineer knows about. You have to learn about attack, release, ratio, and amounts of gain reduction. It's a dynamic process for an engineer to work with. If someone expects a real quick fix, they're not going to find it. What I've found is that when you do dial in a TCL compressor it disappears and that's the sweetness of it. It may take a while to find it and get it dialed in — there's no way around it. You have to work with it. It's not an effects tool.

Any tricks or pointers to get the most out of the box?

Joel Silverman: There's a direct out from the pre and a main out from the whole chain. I always suggest recording both so you have your straight mic pre out and your processed out so that you can always go back in case you did something with the knobs that you didn't like when you get into the mix. EQ

POINT-COUNTERPOINT

HEIL PR 40

Griffin Rodriguez and Robert Hoffman. Chicago and L.A.
Two sessions. Two mics. And the deal? Read on...

GRIFFIN: Heil Proline PR 40

New microphones get me excited to try things a different way. Whether it's a snare mic placement in the studio or flexibility during a live performance, different microphones will make me think about new ways to do familiar tasks. I was pleased to experiment with the range of new sounds I could get from the PR40 from Heil's proline division. It's a valuable entry into the field of high-performance dynamic mics.

Everything about it seems reminiscent of the **EV RE20** and I was excited to compare its performance on a few standard RE 20 tasks. The first sound source I could test this on was a kick drum. The PR40 packs quite a low punch in this task and also has a nice attack. It had a great fullness when combined with an attacky inside kick mic. It sounded even and punchy on a bass amp-excellent. Next I tried the mic on some vocals. Compared to the other dynamic I use often for scratch vox – the **Sennheiser 421** – the PR40 had a kind of 2 to 3k peak, which gave it

extra sibilance. It didn't seem as neutral to me as the **421** or some of the other condensers I tried. When I checked later it did have much more level at the same gain than the RE20 or **SM7** did. Compared to the RE20 the PR40 seemed hyped to me – especially in the lows. It had more presence than an SM7, which was nice. In general it sounds huge, like a condenser. It is also almost half the price of an RE20, which makes it very attractive. The gently hyped upper mid might make it harsh on a saxophone—another favorite RE20 application – though I would choose it over most cheaper condensers. The literature on the web site will make you think that it outperforms the RE20 in almost every facet. Though this may not be true it is very flexi-

ble and worthwhile for the dollar and includes nice touches like a fresh finish and a beautiful case and polishing cloth.

ROBERT: Heil PR 40 Wide

Frequency Response Dynamic Mic

If you've been reading any of the Internet recording forums in the last six months you may have seen the name Heil show up quite a bit. There's a lot of hype on his new mics



and I was anxious to find out if they could live up to the reviews. Designer Bob Heil has been in the pro sound industry for over 37 years doing everything from live sound for The Who to custom home theaters. Some of you may be familiar with the Heil Talkbox made famous by Peter Dinklage . . .

The PR 40 is a rare beast, in that it is a large diaphragm dynamic that uses a Neodymium motor for high output (the marriage of which makes this mic truly one-of-a-kind). It comes in a nice wood box and includes a mic clip, and a spec sheet. Though looking like a side address microphone, the PR 40 is a cardioid end fire mic and is clearly labeled as such from the factory. A nice touch I thought, I can't tell you how many times I've seen an assistant

setup an **AKG 414** backward or a **Neumann FET47** on end. The included mic clip is a heavy duty affair though it has no shock-mount. It actually reminds me of the old 414 clips, heavy metal with a plastic clip that tightens around the neck of the microphone. There's a more substantial shockmount available called the SM-2 if vibrations are a problem in your recording environment. The mic is surprisingly light but feels well built with no plastic parts. The diaphragm is a low-mass aluminum type with a manufacturers stated frequency response of 28hz to 18khz. Oddly, the literature says that response is perfectly flat with a "beautiful mid range rise." So is it flat or is there a mid range rise? With no included graph we'll just have to try it in the real world to find out.

While Heil has clearly targeted the broadcast market, I thought I'd try the PR 40 in the same places I'd use several other well known broadcast industry standards - the **Electro Voice RE-20** and the **Shure SM7b**. Typically you'll see these mics on voice overs, sung vocals, bass amps, kick drums and more. The RE-20 has been my "go to" microphone choice for loud rock vocals a la Joe Cocker, and the SM7b is perhaps most famous for being used as the vocal microphone on Michael Jackson's *Thriller* engineered by Bruce Swedien.

I first tried the PR 40 on a female vocal session through a Daking mic pre and the Daking FET compressor with no more than 1-2db of compression. The PR 40 was quite bright to the point that I actually had to take off a couple dB at 8khz. I can't recall ever hearing a dynamic mic this bright, though this could be attributed to the fact that the Daking is a very mid-forward pre. We tried the mic without a pop screen for the first couple takes but this proved to be problematic. The plosives (Ps and Bs) and sibilance were overwhelming—something I have never encountered with this particular singer before—but again something that may have resulted from my choice of mic pre. A pop screen and a de-esser took care of that. Overall the microphone performed very well, I needed to add a little bump at 125hz for some body but the mix sounded great with no other EQ added.

Head Gearhead Gearhead Gearhead Gear

Next I put the PR 40 up on my Martin acoustic guitar aimed about midway between the 12th fret and the sound hole. I don't always use a dynamic mic on acoustics but once in a while an SM57 works great in the middle of a rock track. The PR 40 did exactly as I expected. A nice grungy mid-range with not too much dynamic range. I wouldn't use it for a solo guitar piece or even for a track where the acoustics were prominent but if you need an acoustic guitar to break through some drums and electric guitars this might just do the trick. We then moved right on to electric guitars. My assistant Mike



screaming but I kind of liked it. It made the Dr. Z sound very Fender-ish.

Finally, we tried the PR 40 out on drums, inside the kick drum a few inches inside the front head pointed at the beater. The Heil showed great definition but not as much low-end as I wanted for this particular piece. This time the mic was very representative of

what the instrument actually sounded like. I typically use a Shure Beta 52 inside the kick, which tends to be more round, more chunky, and kind of exaggerated in the low-end. I think the PR 40 would be nice on a jazz kit by itself, or in combination with a condenser outside the kick to provide more low-end for pop and rock music.

During our test sessions I also paid careful attention to how spoken voice sounded through the PR 40. Proximity effect seemed nonexistent at any distance with each of the persons speaking into the mic. This could be a good thing but if I was looking for that larger than life vocal I don't think the PR 40 would be my first choice.

Is the Heil PR 40 a replacement for the venerable RE-20 or SM7b ?

It's a nice alternative. I'd like to get one for kick drum duty for sure and I certainly would have no problem pulling it out when the RE-20 or SM7b are already in use on a big tracking session. **EQ**

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EQ0512

NECK & NECK

THE SE Z5600A TUBE MIC
+ THE CAD E350

The SE Z5600a tube microphone arrived and immediately all the nerds surrounded it to check out the new toy. "Performance-enhancing looks" said the box, sounded a bit cheesy. . . . I ripped it open to reveal an aluminum case that contained the mic inside a simple wooden box, next to the external power supply, shock mount, and cables. It really did look pro, but nowadays, what mid-level mic doesn't come with some sort of cheap flight case, wooden box, or half decent shock mount? It seems that even the lowest end mics come dressed to impress. This begs the old question: "Put a new skirt on an old whore, and what do you have?"

SE's company website addresses the issue. "You can be confident that every aspect of both the mic and its accessories has had the same unrivalled level of care and passion right throughout its design and manufacture," it claims. "Even to the level that every single microphone that leaves the facility has undergone a personal listening test rather than simply being put through a machine." The website even offers a free 7-day trial through their website. Hmm. It's enough to make you think there's something under that skirt.

So it was time to take it for a ride. Out of the box and into my hands, the mic had the look, feel, and build quality of higher end mics. The shock mount was not some crappy plastic add-on, but it was both effective and built strong with classically simple design. The heavy-duty, thick outside casing, long durable cabling, and seemingly rugged power supply all were manufactured with the same classic, simple, almost German-looking construction. The pattern selection on the power supply has nine options, from omni to cardioid to figure eight, and six stages in between.

I tried it on quieter male vocals, where we wanted a very close intimate sound. Using the cardioid setting for two different mics, we went back and forth between a **CAD e350**, and the SE z5600 — no pop filter, just from the mics through the **Focusrite Voicemaster** preamp, and then out to a protocols set up. Both mics sat nicely in the mix right away. The



SE was definitely brighter, more colored and, with the same settings, had noticeably higher output. The mic is low noise, with a medium high max SPL of 130 dB. Overall this mic shines the "brightest" for vocals, warm, sharp and detailed. The SE mic was neck-and-neck with the CAD e350 for this critical vocal overdub session. The low end for the SE was thicker and, for this application, a bit too rich and bright. After looking at the charts, this could be because of the bump around 80Hz, 5kHz and also again around 12kHz (in cardioid).

For this particular session, the SE lost out in the end to the CAD e350. On these particular vocals, sibilance was a bit of a problem, and the added high-end detail of the z5600a did not help the situation. But it was a very close race. I also tried this mic out as a drum overhead, room mic, and on a **Wurlitzer 200a** electric piano. It paired nicely with the **dbx 586**, as well as Focusrite preamps. Set in omni, the SE's response is

less accurate than what I've gotten from more expensive small capsule fixed omni mics, *i.e.*, the Earthworks, or even the Stapes. The figure 8 and cardioid positions hold their own next to some of my favorite moderately priced mics. With six other positions to choose from, this mic wins out for versatility alone.

A pad, and a LF roll off, would be welcome changes in the next generation of this line. I would also like to try switching the tube out, maybe trying the **GE 6072a**. Overall, I have to say I liked this mic a lot. It's well-built and versatile. For the price, its options and capabilities are beyond that of similarly priced competitors. I have used other tube and solid-state fixed pattern mics that sound just as good, and sometimes slightly better, but always with the limitation of only one pattern, one sound. The z5600a SE has struck a balance between versatility, quality, and cost that no other mics I have tried have come close to. —*Jim Zespy* EQ

MACKIE ATTACK

MACKIE ONYX 400F + A CUSTOM MOD ONYX 1640

There seems to be quite a lot of mid-grade mic preamp/FireWire interfaces around these days. Mackie's entry into the field puts an emphasis on its new Onyx mic preamps, which are the first four of ten total inputs. For me this makes it more functional than your



standard 2 mic pre FireWire interface, but not enough to do an involved field recording. That's what the more pro 1200f with 12 pres is for. The Onyx 400f is more for small personal setups and is around \$700 — a thousand dollars less than its big brother. It's a combination of a quality multi-channel mic preamp and a music production interface complete with MIDI, SPDIF, and sync capabilities. It's also bundled with a program called **Traktion2** — a simple but powerful audio and MIDI sequencer.

The Onyx control panel and Traktion were very easy to install on my Mac G5. The control panel has a simple and effective layout with a digital mixer that can work (with last saved settings) as a stand-alone mixer without a computer. In typical Mackie fashion, the manual is well laid out and easy to read. The big question is, how do Onyx preamps sound? I thought they sounded great for a unit like this and found myself turning to them often while tracking drums and bass for my band Icy Demons. They have a nice body to them and sound far superior to what I remember the pres on a **Mackie 1604** to sound like. They seem more robust than the **Focusrite Octopre** preamps I reviewed a couple months back. I like the Focusrites

for their crispness with drums, whereas the Mackie sounded very well balanced for bass and synths. The instrument inputs on channels 1 and 2 sound great and were used often. Playback sounded nice through the control room outputs and the two separate headphone amps on the front panel seemed handy for quick two-person recording sessions. The unit can do 192kHz, which is impressive for the \$600–\$700 range. The Traktion software is confusing at first — but it looks cool. Its modern interface looks like **Ableton Live** and has functions that make it well suited for sequencing type work — like ReWire support and a built-in sampler. I wouldn't use it as my main tracking program, but I could see having some fun with its refreshing layout and features (by the way, the mutes and solos are on the right instead of the left).

You can use the Onyx audio and MIDI drivers with any program as well and its MIDI inputs are a welcome addition to my new HD system. The Onyx sounds great and has many of the features I would need to make music on the go or to be the center of a small production room. Well done. —*Griffin Rodriguez*

MACKIE ONYX 1640 FRONT END AUDIO/SOUNDLAB MOD

I purchased a Mackie 1640 Onyx about a year ago. I planned on using it for teaching signal flow in an audio class and for doing live remote recording. I was doing a demonstration for a class and realized that the direct outs on the DB25 connectors were pre EQ. After all of the hype about these new improved **Mackie Perkins** EQs I couldn't believe that there were no way to route them to the direct outs. I asked my dealer (Front End Audio) about it and told them of my disappointment and that I thought that it was a serious design flaw. I'm sure that many people wanted to use these EQ's for tracking drums and other EQ hungry sources. About six months later, I learned that the Front End Audio guys had taken the bull by the horns and arranged to have a local tech mod the consoles so the direct outs (and

FireWire outputs) could be made post EQ. Other options for the modification include making the outputs pre/post fader and/or pre/post insert. Mackie agreed to let them do it under warranty as well. I had this modification done and put it to work.

My first test of the console was a live remote recording. I tracked a live band that included drums, bass, four guitars, and three vocals through the console, while doing the house mix on the same console. I routed the direct outs to my **Mackie HDR 24/96** digital recorder via DB25 connectors. It was a very simplistic setup. The house sound was much better than when the old Mackie 1604-VLZ was used. I took the tracks back to the studio and transferred them to my Pro Tools HD rig and did a quick mix for the band. I was quite happy with the results. The EQ that I printed for the drums sounded very good — not thin like my previous experience tracking with Mackies. The band was very happy with the results as well.

After that recording worked out, I decided to test out the console in the studio. I usually use **Daking, ADL, Chameleon, Toft, Neve**, and other outboard pre's when tracking drums. I took the modified Onyx into the studio and ran the entire kit through



the console and into my HD rig via the DB25 outputs. I used my usual mics (D112s, 421s, 441, 57, KM100s, and a Yamaha Subkick) for this session. The kit was my house vintage Ludwigs that I've recorded hundreds of times. I used the trim plug in on my HD rig to make up for the lack of phase reverse on the console. I found

myself very comfortable with the sound of the 1640. The EQs were useful in cutting the low mid mud out of the kick and toms and adding attack to kick and snare. The sound of the pres and EQs did have a bit more of a Trident/Toft meets Mackie sort of sound. Mackie's attempt to make the EQ's sound British was noticeable. The bandwidth and frequency selection of the EQ covered my needs very well. The drum recording had a

very open quality. It lacked the serious low-end thud of my Dakings on kick, but using the Yamaha Subkick kept the low end very big and sounding. The snare sounded very big and crisp with a good low-end punch as well. The artists were quite happy with the results.

Needless to say I'm not getting rid of any of my outboard pre/eqs, but I will be using my modified Onyx 1640 for many tasks in the

future. I have lined up several more remote live recordings in which I plan on using this console to do the house mix and the recording sends simultaneously. I currently use the analog outs to a digital multitrack but I may install the FireWire card at some point and take a laptop out instead. For some people this modification may not be useful, but for me it doubled the usefulness of the console. —Jason Chaffee **EQ**

NOT-SO-QUICK PICK

YAMAHA AW1600 16-TRACK HARD DISC RECORDER [[\\$1499, yamaha.com](http://www.yamaha.com)]

Do you remember getting your first four track? The joy of rushing home and holing up in the basement for weeks at a time recording, recording, recording. It was pure bliss!

That same excitement filled me when this unit arrived. What will I be able to do with it? How much like my O2R is this unit? What's the quality like?

I was pleasantly surprised.

The AW1600 is a compact digital audio workstation that has eight inputs for mic or line level equipment. The eighth input also has a high impedance input for electric guitar or bass. Phantom power can be applied to any input in banks of four (i.e., 1–4 and/or 5–8). This unit can record 16 tracks at 16 bit. The first eight tracks are mono. The second eight tracks are stereo pairs. In 24-bit mode you can also record eight tracks at once, but when you switch to an additional eight tracks, the audio is recorded but can not be played back! However, this whole unit can be connected to your computer via USB and all the files can be exported to the waiting computer for further editing or processing. Then the same tracks can be exported back into the AW1600. It's sort of like a high tech ping-ponging exercise. This is the kind of feature I like in any digital recording gear, the ability to move the data out and in with no fuss! Because of this feature, I see this unit having applications for the professional audio engineer for a remote gig — maybe to record a piano in someone's home or importing a submix from a current studio project to do an overdub in another digitally incompatible studio with a nice room or nice mic without having to haul your entire studio with you.

The back of the AW1600 also has coaxial S/PDIF ins and outs. MIDI I/O, foot switch control, stereo out and monitor out (both at –10), and headphone out

There is one channel strip that is assignable to every channel by selecting that channel. The controls are for pan, 4-band parametric EQ, and dynamics processing, but watch out: As with the O2R you can't hit these compressors very hard or they crap out. You also get two aux sends with internal effects. The internal effects are similar to the O2R in that they include reverb, delay, amp simulation, Leslie simulation, auto panning, and distortion. Each effect is customizable and you can store your custom patches in the library for future recall. These effects are similar to what you would find in a SPX900.

One cool feature is the ability to record, edit, and loop samples that can be played in realtime or recorded via four touch pads making this a nice unit for hip-hop beat composers or a live performance unit for experimental noise artists. The unfortunate thing is that the unit is just a bit too wide to fit in a rack. *C'est la vie!*



The transport controls are the same you'd find on any remote control for most machines. Stop, play, fast forward, reverse, record. You can program insert recording, loop a to b, and scrub playback. This unit can also be connected via MIDI to a computer to control a sequencer or other software. This allows you to sync MIDI land with acoustic land so you could potentially achieve higher track counts than just the ones available in the unit itself. It also works in reverse, a sequencer or editing software could send MIDI messages to control the 1600. This applies to transport control and parameter changes.

The actual audio editing functions are chaotic and difficult at best, but they can be accomplished. Your basic erase, delete, insert, copy, and move can help, as well as pitch correction and time compression and expansion. I tried a neat experiment using the vari-speed function. I turned on the internal click track and sped the machine up to its maximum, which is +6%. I recorded some drums with this setting. While recording, the click track got off time but I ignored it and was still able to record the track. Then I played it back at normal speed to get that fatter drum sound. It worked! Except for that click. Details. . . .

Actually the learning curve on the deeper functions is pretty steep. It's hard to remember how to route inputs sometimes, record a sample, access virtual tracks and the like, but the manual is well written and organized so finding the answer is a snap. Just be prepared for a lot of button pushing.

The AW1600 also sports a CD recorder drive that allows you to work entirely in the box to produce a finished CD. You can create a mix directly to the internal hard drive and compile a CD from there. It also functions as a way of backing up the contents or moving the contents to another location. It even allows you to rip samples from CD (if you agree to the copyright restriction laid out in the manual)

Even though some of the functions are difficult to navigate and computers are so cheap these days, I still find value in this type of unit given its footprint and portability. The quality of the recorded sound is top notch. Couple this with a quality mic and mic pre and you won't be able to tell the difference. Maybe you can record demos on the road while touring. Maybe you can record your live shows on tour. Maybe you can produce your hip-hop masterpiece in a closet and bring the whole kit and caboodle to a pro studio for mixing. Maybe you can create an atmospheric drone for an avant garde dance piece and control the mix in real time on stage left. The possibilities are endless and the street price isn't much more than I paid for my cassette 4 track with no mixer in the mid-'80s.

Well done. —Scott Colburn **EQ**

ON THE ROAD AGAIN

TASCAM HD-P2 PORTABLE FLASH RECORDER

Times have changed.

I used to think cutting-edge portable recording technology required some fashion of metal-coated mylar orbiting around a magnet. Optical media, such as CD-R and MiniDisc, took a step away from the magnet, but there is still that motor in there, spinning around and making noise. Now, we are entering another new age of recording media technology with no moving parts. Non-volatile read write memory (NVRWM, or flash memory) devices are already in widespread use, most notably for digital cameras, MP3 players and USB memory sticks, but the memory limitations have only recently been lifted to the point where useful quantities of

high-quality audio can be recorded. There are already a number of handheld audio flash recorders on the market, but they rely on severely compressed recording formats that limit them to the same fidelity level of the now-endangered microcassette recorder. Professional quality, removable media flash devices are now upon us, however. **Edirol's R-1** and **M-Audio's MicroTrack 24/96** units were both released last year to mixed reviews. (See Craig Anderton's review of the R-1 in our Dec. '05 issue versus Scott Colburn's review of the MicroTrack in March '06, both of which compare the flash recorders to the redoubtable **Sony MZ-M100 MiniDisc** recorder.) The former, however, only handles

by Sam Wheeler

up to 44.1kHz in WAV format, while the latter handles a more respectable 96kHz. Portability and affordability are great, but overall capability is lacking.

Now we have the TASCAM HD-P2, which records up to 192kHz/24-bit and offers many of the same features as the R-1 and the MicroTrack. I had the opportunity to pick up one of these while visiting Seattle and it has been a faithful companion since. The HD-P2 has served well in a variety of situations, including interviews, nature/location recording, live performance recording (ranging from high-SPL noise shows to semi-ambient, acoustic performances), as well as tracking sessions at home and in the studio.

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The major drawback to the HD-P2 in comparison to the R-1 and MicroTrack is definitely size. The HD-P2 is about the size of a box of cereal (approximately 10"x 8 x 2.5") and weighs almost two pounds, whereas the other two occupy little more space than a pack of cigarettes. The benefits of higher sample rate recording format are obvious, however, and larger, easier controls make the unit more user-friendly, as well, so the TASCAM has more appeal to me for my location recordings when I'm less concerned about stealth than I am about fidelity (the only bootleg recordings I do now are for my friends, and they also appreciate the higher sample rates). Even so, the HD-P2 is still an easily portable unit that happens to fit well in my record bag alongside my faithful **Rode NT5s**.

At first glance, the unit does not give the user great confidence in its durability, as



the exterior is a mostly plastic affair. The majority of the controls are recessed buttons and switches, however, and the overall design is pretty sleek, so there is not much to get bashed in tight recording situations. The many connectors are also recessed on the side of the unit, and are built well enough

to keep the XLR ins and headphone outs from going loose after two and a half months of recording all across this continent and Europe. The plastic-buckled strap included with the unit did not inspire much confidence, either. Closer inspection of the unit did reveal that the strap mounts are not only metal themselves (and replaceable, too), but are also mounted to a metal chassis that immediately gave me greater hope for the future of my relationship with this little bundle of joy.

There are some other benefits to this unit over my current mobile setup (an overbuilt Dell laptop with breakout-style interface that takes at least 20 minutes to set up). The HD-P2 is a standalone unit capable of recording direct to a compact flash card through its internal microphone and playing back through its internal speaker. I do not recommend using either item for much else besides interviews and song-sketches, but they are there. One annoying feature is the fact that the

CONFESSIONS

of a Record Producer

How to Survive the **Scams** and **Shams** of the Music Business

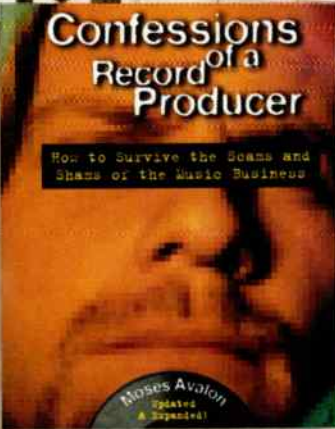
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speaker remains on unless you plug in headphones. I found an easy workaround for more stealthy recordings by using a 1/4" to 1/8" adapter that remains in the unit whether I am monitoring or not (my portable headphones are 1/8", anyway). The unit does offer 48V phantom power for the two XLR inputs. It's nothing special, but it gets the job done in the box. The fact that the XLR inputs are on the opposite side from the headphone jack also annoys me, as it would be far more streamlined with them both on one side, but I'm not going for James Bond-style, microcassette-in-the-G-string shit, anyway. The only other annoyance is that the plastic switches jiggle and clack like a bunch of tiny maracas when porting this thing around. It took me three or four sessions

before I figured out what it was, too. By then, I had acquired a new bag to put it in, which muffled the buttons quite well. If I use this thing out in the open, though, I put medical tape on all the buttons I'm not going to actually use.

All that aside, this has been an impressive unit for me. It's easy to use, with a programmable set of default settings that make setting it up for short-order interviews a breeze. For more involved projects, the limitations of CF media capacity do come to the fore. At 192kHz/24-bit in stereo, this thing barely gets 15 minutes onto a 1GB card. There are 4GB and even 8GB CF cards out there now, though, as long as you are willing to pay for them (±\$350 for 8GB). Although it's true that MiniDiscs cost much less, they

also hold much less. In comparison to HD recorders, the HD-P2 is a much better choice, as there is none of that annoying HD noise on the final recording. There's nothing worse than getting all-the-hell away from civilization to record unspoiled nature *in situ* and ending up with nothing but the sound of the damned disc buzzing away. Having recently done some recordings in the San Augustine National Forest in Texas with my big rig, I can tell you that hard discs are freakin' loud when you're really out there. Even my old Sony cassette recorder was quieter.

Regardless, this is a very capable rig. It uses FireWire to connect to the computer for download, and also has RCA and S/PDIF connections for recording, and both AES

NOT-SO-QUICK PICK

PEAK PRO XT 5 — XTENDED TECHNOLOGY EDITION [s1,199, bias-inc.com]

Last fall BIAS, Inc. released version 5 of its popular Peak editing software. Shortly thereafter the company announced an array of production bundles targeted at different user groups and price points. The Peak Pro XT 5 bundle includes Peak Pro 5, SoundSnap 2, SoundSoap Pro, multi-track software Deck, and the new Master Perfection Suite. Aimed at professional and advanced users, the XT pack, which stands for XTended Technology Edition, claims to provide the "ultimate bundle for the Peak audio professional." Hmmmm



... well over the past several weeks I have used this collection in real world situations to see if this claim holds any kind of merit at all.

THE KEY TO SETUP

Many Peak users do remote work or editing on the road. So, I decided to use my Mac PowerBook 17 as the test host. (It has a 1.5GHz PowerPC G4 CPU, 1GB DDR SDRAM and a 7200 RPM hard drive.) Additionally, laptops are notoriously weaker on CPU power when compared to their desktop counterparts, making host-based processing even tougher.

Installing the bundle wasn't quick. It took four CDs to load Peak Pro 5, SoundSnap2, SoundSoap Pro, and the Master Production Suite (I did not test Deck). Accompanying the CDs and manuals was a new member of the BIAS family — a HASP USB dongle. At about an inch long, it's a bit smaller than the iLok dongles many of us have seen. Fortunately, the key has a short cable with a mini-key ring on the end. I was able to connect it to my power cable to avoid losing it.

I don't want to get into a debate over copy protection. I've been a fan of the iLok because it allows me to move plug-ins to another studio or take them on location. I can't do that with disc-based authorization schemes. Two drawbacks of a dongle-based scheme are: It takes up a USB slot and you can lose your key. My laptop has two USB ports, but I have an audio interface (Mbox), a mouse, an iLok, and now a HASP key. When I asked BIAS why they chose the HASP key over the iLok, Vice President Christine Berkley explained that the HASP was "the most secure of all the available solutions, has the smallest form factor, and offers

additional benefits to users who require network-based solutions."

Great.

And my laptop still has two USB ports, so I ended up getting a mini USB hub to give everyone a place to live, but I'm worried about losing dongles and/or complicating my road setup. By the time you read this, BIAS should have released a Peak 5.2 update. It will give users the option of authorizing via hard drive or HASP key. My complaining aside, I like

the dongle. But if you don't, BIAS will let you opt for a code-based scheme.

Speaking of set up, there is one thing all potential owners need to know. MP3 support is not ready out of the box. In this era of the iPod, this might seem like a major gaffe by BIAS. In fact, it has more to do with the licensing agreement requirements set forth by Thomson Consumer Electronics and the Fraunhofer Society, the controllers of mp3 patent rights. Consequently, users will need to go to a website, download, and install a library app. This will allow Peak to encode mp3s without issue. The whole process takes just a few minutes, but you need to know this going in.

WHAT'S NEW: STYLE OR SUBSTANCE

I have been a long time Peak user. I find their interface and menus to be rather straightforward. In fact, I had been using it for a year before I opened the manual. I have always been pleased with stability and functionality, save one area: CD authoring. Prior versions of Peak required the assistance of Jam to burn audio CDs. Moreover, CD Text, ISRC, and PQ embedding was left to the auspices of Jam. With Peak 5, these issues are handled inside the application. As for track assembly, there is a graphic paint window that allows users to line up waveforms visually. Unfortunately, it displays files as a single stream graphic. The world is used to working with DAWs where mono files are single streams and stereo tracks are a pair of streams. I found this aspect of an otherwise great screen to be distracting.

Other improvements include the ability to have unicode and long file names (over 32 characters), automatic plug-in latency compensation, and MIDI support for virtual instruments. Numerous DSP programs and

SOUNDS



BIG FISH AUDIO RUSH

Contact: Big Fish Audio, bigfishaudio.com

Format: 1 DVD-ROM with Apple Loops, REX, and 16-bit/44.1kHz WAV files

Price: \$99.95

One might think making a trance CD would be easy, because of the music's repetitive nature. Hah! The *cognoscenti* know that what makes trance work is the way it evolves over time — and that doesn't lend itself to loops that last a few measures. Does *Rush* beat the odds?

Rush has 15 construction kits with authentic and groovacious loops. Each kit has a mix of all the separate elements, and the drum parts are broken down into individual loops for flexibility. You'll also find a ton of additional drum and percussion loops, tribal loops, pads, arpeggios, synth hits, synth loops, one-shot drum hits, FX loops, and more.

But a big part of trance is those majestic, sweeping chord progressions that change over time, with overlaid processing. Five kits are based on Cm 140 bpm and two on Cmaj 140, so they're easy to mix and match; ones in other keys and tempos require a bit more work, although the REX and Apple Loops stretching works reasonably well.

Bottom line: Need a bit of trance for a soundtrack? *Rush* delivers 110 percent. Aiming for a typical long trance track? *Rush* provides a very firm foundation, but you'll likely need to add some finishing touches. In either case, *Rush* comes the closest I've heard yet to a "one-stop shopping" trance/progressive house sample CD — and I've already used it in a video. —Craig Anderton

and coaxial time code connections. The preamps are no better than the Edirol R-1's, but they are there, and, since the unit runs on 12v DC power, they allow you to have a complete recording system running off your cigarette lighter if you want to. Having traveled with it from Seattle to Boston by car and then by plane to Prague and train to Vienna, I can vouch for its portability and durability. At a list price of \$1299, it's a bit pricier than one might expect from TASCAM, but it is well worth it (it can easily be found for under \$1k, anyway, so it's still way cheaper than a Nagra). NVRWM recording is the wave of the future, make no mistake about it, and the HD-P2 is one of the best offerings for the money right now in the world of flash recorders. **EQ**

plug-ins received processing and interface overhauls, as well. My favorite updates include a tape-style scrubbing feature, which is very helpful when trying to narrow in on a click or edit spot. Also, there is a recover audio file feature and your edit decision history is stored in a file drawer, allowing you to go back to a point in time and restore your work.

Behind the scenes, BIAS exerted considerable effort improving sample rate conversion accuracy. It's very common to work at many different rates, e.g. 44.1k for CDs, 48k for film, and 88.2k or 96k for higher resolution projects. Unfortunately, not all sample rate converters are created equally. It's difficult to code accurate algorithms, let alone ones that operate at a quick pace. The improvements made in Peak 5 are significant. Skeptics can download the documentation, source files, and procedure from the BIAS website and conduct their own tests. (It's kind of hard to find. From the main page, choose ABOUT, and then select PRESS. It's the first press release for 2006.)

BIAS also offers a DDP export program for a nominal fee. DDP, which stands for Disc Description Protocol, had been a standard delivery format required by many duplication houses. These days, fewer manufacturers mandate DDP delivery, so BIAS smartly chose to make this feature an optional add-on.

TINY BUBBLES

The inclusion of two noise reduction titles is confusing at first, but SoundSoap 2 and SoundSoap Pro have different purposes and drastically different interfaces. Originally targeted at video editors and the casual user, SoundSoap has a streamlined GUI, allowing users to achieve results with minimum fuss. For general duty noise and hum reduction, this fits the bill. However, power users and sound restoration professionals require the ability to adjust numerous aspects of the processing. SoundSoap Pro provides this flexibility, giving no less than five processing areas: global settings, hum and rumble, click and crackle, broadband, and noise gate.

I have used nearly every noise reduction plug-in available. They are all a compromise — you have to balance throwing out the baby (the audio) with the bathwater (the noise). Consequently, any application that allows me to adjust what stays and what goes (as opposed to a "smart" algorithm)

usually garners approval. I employed SoundSoap Pro on a transfer from an audio cassette. The source file had issues with hiss, rumble, and tape drag. In about 10 minutes, I was able to remove the hum, hiss, and rumble while retaining much of the source material. The tape drag was reduced, but not removed. But I don't know of any mass-market title that could resolve that problem. Short of spending thousands on a CEDAR noise reduction system, SoundSoap Pro is about as good as a solution there is — provided you take the time to do the proper adjustments.

THE DEAL

There is a lot going on with the BIAS Peak Pro XT bundle. But the core improvements with Peak Pro 5 are enough of a reason to upgrade. (Occasional users or those with limited budgets should consider the LE version without hesitation). Peak has always been a stable, easy to use program, albeit short on some features required for true CD authoring tasks. Well, those features are now included, and when combined with the sonic improvements and additional plug-in titles, make Peak the strongest option available for Mac-based audio engineers. —Garrett Haines **EQ**

Pros:

- Greatly improved sample rate conversion algorithms
- Advanced CD authoring tools, including ISRC and PQ subcodes, and so on
- Support for Unicode and long file names.
- Numerous sound design niceties including Vbox 2 matrix, ImpulseVerb, and MIDI support for virtual instruments.
- SoundSoap 2 and SoundSoap Pro can be lifesavers.
- DDP export feature is optional

Cons:

- Play list GUI can be confusing — it displays all tracks (stereo or mono) as mono waveforms
- Peak cannot play and record simultaneously
- Mp3 compatibility requires additional set up
- Peak is Mac only

MY PERSONAL PICKS THE RIGHT TOOLS FOR THE JOB

Although highly subjective, the stuff I like for vocals still gets the job done better than anything else I know.

by Cookie Marengo

To get a great performance, you need to be confident of your tools. Before the artist walks into the studio, you should have a handle on what mic you're going to use for the recording. If there's enough of a budget, I prefer to use a **Ditrik DeGeer** mic. These are incredible copper or brass mics running about \$18,000 each and last I heard, only 27 have been made. Most of the time, I place them about 18 inches or more from the vocalist. Aside from sounding amazingly true, the field it captures allows the vocalist to twist and turn their heads with less issue in off-axis sound.

If you're not familiar with what off-axis sounds like, take a cardioid mic and have a friend count to 1,000 while moving in a circular pattern around the mic. As the sound hits the capsule of the mic with less directness, you start to hear the bass frequency disappear. It's valuable to understand what this sounds like 'cause taping the toes of the artist to the floor can be fun, but usually problematic.

Artists will often move off axis, especially during the great take. You might be able to compensate later in the mix, but sometimes you can hear the problem coming and avoid the situation entirely. Mention to the artist to check their position . . . before each take if you need ('cause you've taped the floor, not their toes, for them to remember where to stand).

I'm of the mind that one should be able to achieve at least a tolerable vocal sound with proper mic placement. If popping Ps and sharp Ss are a problem, you might find an omni mic that can often reduce those effects. The omni position can sometimes be as close as a click away on some mics (the pattern looks like a circle on the mic or box the mic is plugged into). The omni position also tends to reduce the bass frequencies coming through the mic. In most cases, that won't be a problem. Adjustments can be made by bringing the artist closer to or farther from the mic. Generally, the farther



away the artist is from the mic, the less bass response.

My other choices for vocal mics are **AKG C-12s**, **Neumann U-47s**, **U-67s**, **U-87s**, and sometimes **SM-7s**. For years, I used **B&K 4011s** or **12s**, and sometimes still do. They are unconventional for vocals but can stand a lot of air pressure without creating distortion and the sonic qualities are quite stunning. In just about any mic shoot out they would win, hands down. One day, I needed a change in my palette and moved on to other adventures for recording vocals. I have used **SM-7s**, **RE-20s**, **AKGs**, **Telefunken**s, **SM-57**



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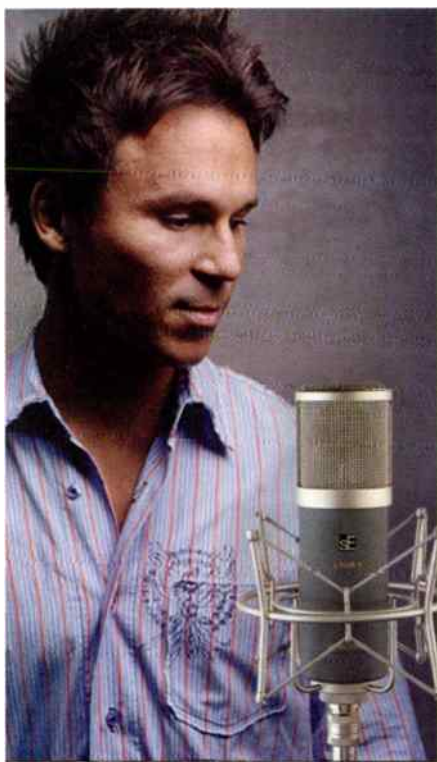
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and 58s, ribbon mics and "Mr. Microphone," which cost \$4 back in the day. . . .

There are so many choices out there, it's best you find something you like, learn its character and know you can fall back to using it on 90 percent of your sessions. If you're recording at home, rent a few mics first, decide what you like and buy it. One can't go wrong with a U-87 most of the time. If you're on a budget, the most versatile mic for about \$100 is an SM-57, in my opinion.

THE PREAMP

Next to consider is the preamp. For ease of use and great sound, I can always rely on the **Millennia solid-state preamps**. The Millennia preamps are quite stunning in their huge frequency response. Lately, I've taken a liking to the **Manley VOXBOX**, which is quite incredible. It has a very human character and natural compression with its tubes. I'm also a fan of **Neve** pres. These are all quite pricey items to purchase. More than mics, I have found that spending the money on the preamps can save me a lot of headaches later. Cheaper preamps will be noisy and not have nearly enough head room. Without headroom, you're going to distort your recording. If you're on a budget, see if you can borrow or rent the gear for a day to test out with your vocals. If you're a powerful singer, save up your money and buy the best you can.

THE CABLE

The cable from the mic to the pre can also have a huge effect on your sound. I've been using a silver cable from Jean-Marie Reynaud (a French manufacturer who built the cable for the French aerospace industry). It is quite expensive, but the full frequency response is there. **Mogami** and **Canare** are also good cables, though one exceptional cable in your collection can be used on almost every overdub, so it might be worth the expense for one. If you are building your own cables, make sure your cables are in phase.

THE JOB

I've adopted many of the techniques I've used with analog tape and Dolby SR to the digital mediums for recording. I don't compress to the recording medium, I avoid EQ and try to cut as clear a path from the preamp to the recording medium as possible. This means bypassing the board whenever possible. In my control room, we've got it set up to record direct to the medium and we monitor the outputs only. At the output stage, we'll add reverb, compression, and whatever else we need knowing that the sound to tape is clean and can be manipulated in the mix.

Many engineers also prefer to record with effects to the recording medium. I've opted for flexibility in the mix stage and avoid any possibility of over compression in

QUICK PICK

MXL V76T MIC [mxlmics.com]

Figuring out which microphones to buy can give you a headache almost as severe as the anxiety from many mics' sticker shock. The good news is that if you know where the great deals lie, you don't have to subsist on instant ramen for the rest of the decade.

The MXL v76t microphone is one such great deal. Sure, something legendary like the Neumann U87 will probably blow it away, but my personal studio doesn't happen to have one of those. And frankly, I could take this and have enough left over for a down payment on a new car.

It's a condenser mic with a 1" diaphragm and a tube amplifier circuit. What this means is that you plug the mic into a powered box, and then plug that box into your recording interface. This is supposedly what gives the unit its smooth response. Being simply a unidirectional microphone, the v76t isn't an all-purpose item, rather being designed to record singing or a single acoustic instrument.

We used the v76t for vocals, and they came out nice and steady. There was no background noise, the results were clear and warm, and the recordings were even and very easy to EQ. We put the v76t up against some mics that were twice the price, and the results were just as good. Sounds like a winner. So now you can even save money on aspirin. —Roberto Martinelli



the recording. Because I like to give the vocalist and other band members a compressed vocal in the headphone, that sound can be quite different than what I would use in the mix. (If possible, monitor as close to the final mix when you are cutting the vocal track. This will save you many hours.)

But when mixing a vocal, I'll generally run the output directly to a Millennia Origin channel and return to the board. If I need EQ, I'll use it there and often use the compression, which is quite clean, as a first stage of limiting. From the direct out of the board channel, I'll run it into a compressor, like the **Universal Audio LA2A, LA4A, or 1176**. I have used other compressors, but have settled on these for vocals . . . unless there's a **Fairchild** lying around, which often there isn't. I don't run the compressors in the inserts. Instead, I run it as a wet and dry effect so I can adjust the amount of compression relative to the original sound.

Compression can often remove some of the high and low frequencies. Making a delicate adjustment between the wet and dry signal can give you a more realistic sound while keeping the vocal in check in the mix.

For reverb and delays, you can check

the article in the June issue ["In Search of . . . the Perfect Speaker," page 36]. My tendency is to use a more realistic sound that comes with a good performance and great recording gear. I will combine reverbs and delays for effects and tend to use two or three varying qualities of effects to give a natural feel. **EQ**



Mahajan Says



The studio had a pair of R-121's when we were tracking Yeah Yeah Yeah's in 2002, so I put them on the electric guitars and they stayed there for the whole record. Since then I always use them on guitar amps; they're full and detailed without accentuating the harsh stuff. I'll blend other mics to get some of that hyped attack when I want it, but the R-121 is usually the meat of the guitar sound.

With The National, two 121's on the piano gave me the best piano sound that I've gotten. You can really hear it on "Daughters of the Soho Riots." I'm moving my Royers around a lot now and have gotten great results on just about everything, including cello, vocals and bass amp. They capture sound in a way that fits right into the mix.

Paul Mahajan

(Engineer - Yeah Yeah Yeah's, The National, GMFTPO)



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HERE COMES THE DRUMS

HOW TO EDIT DRUMS & NOT SUCK WHILE EDITING DRUMS

Want to know how to properly care and feed your Pro Tools' Beat Detective? Sure you do.

by Jim Kaufman



As with everything in life, the key to recording and editing drum tracks comes from a visceral sense that I can't easily explain. My overall intention is to take a basic track and tighten up the timing without affecting the dynamic texture. For example, the playing on a second verse might be more in the groove than the first; by analyzing the rhythmic patterns in that verse — when the drummer was really in the pocket — I can then apply that swing to the whole song, but with the same feel that the drummer achieved on the session. In fact, drummers who have heard my work are amazed at the clarity and precision I can bring to their tracks, but without taking away anything from their studio performance. My production catch phrase is "Nothing is Wrong." And I just work to achieve a consistent drum feel for the whole song.

But remember that drum and microphone selection and placement can make or break your record. While editing can clean up and help you achieve a better sound, without a great performance you will not get a great finished track. I have found that the use of good trigger pickups — preferably

drum — is a must. This way, even if the producer is not planning to use samples, the intricate transients and edit points can be located more easily, either by eye or using my favorite tool: Beat Detective for Digidesign's Pro Tools TDM systems.

Usually, I track anywhere from four to 10 drum takes, recording trigger outputs from the kick, snare, and toms, as well as all the microphones. Comping is done with the artist — finding the right feel in a verse or fill makes them comfortable before the real editing starts. Once the various takes have been comped, normally I use Beat Detective. If the beat is more straightforward, I select the kick and snare triggers for analyzing. But if the toms are used as more of a backbone in the beat, I'll select the kick, snare, and tom triggers.

I have found that selecting small sections — between eight to 16 bars at a time — works most efficiently. You also need to log the start and stop points of each selection to make sure that the audio at either end of the selection is not being pushed nor pulled. As can be seen by Figure 1, if the session was recorded to a click generated by Pro Tools, I start at the Region Separation Page and set the sensitivity anywhere between 26% and 43% on high emphasis and sub-beats, depending on the velocity of the triggers, making sure there are markers at my desired edit points. I then turn on my "Drum+Triggers" group and select those tracks. This will place the analyzed markers on all drum tracks, including the triggers.

Then I separate the tracks using the SEPARATE function provided by Beat Detective, at which point I switch to the REGION CONFORM screen. As can be seen from Figure 2, usually I conform the selection to 100% strength, which will place each piece of cut audio onto the Pro Tools grid. Because this will not necessarily give you a desired feel, I then move each piece to where my ears want it to be. I have noticed that, even if the per-



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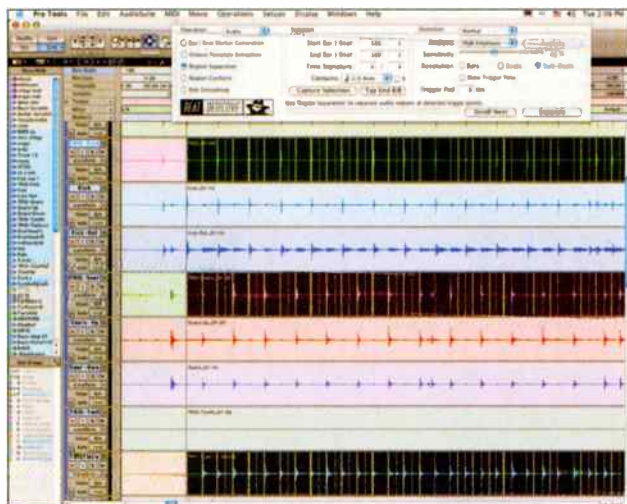


Fig. 1. If the session was recorded to a click generated by Pro Tools, start at the Region Separation Page and set the sensitivity anywhere between 26% and 43% on high emphasis and sub-beats, depending on the velocity of the triggers, making sure there are markers at desired edit points.



Fig. 2. Usually it is best to conform the selection to 100% strength, which will place each piece of cut audio onto the Pro Tools grid. Because this will not necessarily give a desired feel, move each piece to where your ears want it to be.

formance is completely gridded, the drummer's velocity will still keep a good amount of feel. Once each attack is where I want it, I then use the EDIT SMOOTHING function to fill the gaps and cross-fade — usually between 3 and 7 milliseconds, depending on tempo. Faster songs need shorter fill and cross fade times, while slower songs need longer fill and cross fade times.

Beat Detective is a great tool, but should not be used as a crutch. Editing is an art form, and a good editor can add to a good performance by focusing on original intent and groove, and applying a more consistent and clear interoperation of it. The idea is to have the drummer come in the next day and say: "Wow, I knew I nailed that track!"

Session Time: "Drown" from Opiate for the Masses' The Spore.

This song has a tempo of 163 bpm. As can be seen from Figure 3, I have used kick and snare and toms for analysis, since the song is pretty fussy and contains sixteenth notes — so I might choose to miss ghost notes, for example. I always listen to the results of each stage in the process, and re-apply a change if I think it isn't working on the feel — it's only a computer after all, and cannot take the place of human interpretation. You

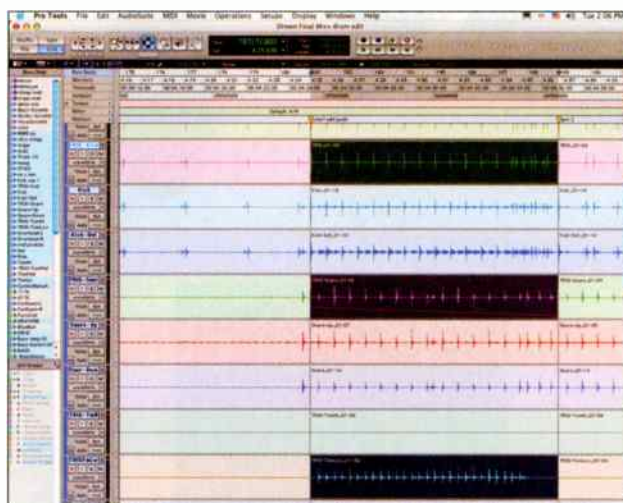


Fig. 3. Session example: "Drown" from Opiate for the Masses' The Spore, using kick and snare and toms for analysis, since the song is pretty fussy and contains sixteenth notes.

need to check for double attacks on tracks, for example, which can produce false hits. If you get into trouble, it's not a bad idea to use Beat Detective on regular tempos and let it make the cuts you will need between individual notes. That way I can go back into Pro Tools and apply the swing I want, since all the difficult (and time-consuming) segmentation was made for me.

And I always leave the hi-hat alone, because Beat Detective doesn't do a great job of locking into hi-hat tracks, and any automatic adjustments it applies take away from the drummer's feel. In my experience, our ears are much more forgiving about off-

tempo hi-hat strikes than with bass, snare, and tom tracks.

Practice = Perfect.

You can't be practicing on the job. In today's professional recording environments, there are many pressures: limited time, limited budgets, artistic control, production and label approval, and so on. In order to enter the world of editing fully prepared, an aspiring drum editor should practice off the job, or at home. A great way to start is by using a limited amount of tracks, essentially a kick mic, snare mic, and stereo overheads. Select the kick and snare tracks for analysis and generation of markers, and then apply the markers to the overhead tracks before separating, conforming, and smoothing. Using a small amount of tracks will seem easier to the novice editor although, in actuality, this is not true. Analysis of key tracks to find edit points can be applied to as many tracks as you need.

Another essential method of practice and improving your skill is to listen to records that have been pivotal in the history of drum editing. Anyone who is serious about learning how to master the art of drum editing should become very familiar with such records as Def Leppard's *Hysteria*, Alice In Chains' *Dirt*, Jane's Addiction's *Nothing's Shocking*, Tool's *Aenima*, and the Red Hot Chili Peppers' *Blood Sugar Sex Magik* — remembering that four out of those five records were edited on analog tape with yard

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sticks and razor blades. Today's digital editors have it a lot easier.

Before the guitars start on Alice In Chains' "Sick Man" (from the *Dirt* album), there are 144 cuts made to the drums — I know because I discussed the project with the engineer who tracked the sessions at Eldorado Studios here in L.A. What used to take six months can now be done in two

days, giving us a huge opportunity to save time and money. That being said, today's drum editor should take advantage of these technological breakthroughs and not take them for granted. We should strive for better editing by looking closely at every cut and every cross fade. We should rely on our ears and not our eyes. Most of all, we should always keep in the front of our mind

that it is our job to preserve the integrity of the drummer's style and performance, not to sterilize or over-exaggerate it. **EQ**

Jim Kaufman is guitarist/keyboardist/programmer with Opiate for the Masses and recently produced not only OFM's recent album The Spore, but Helmet's Size Matters and a six-song EP for The Black Moods.

NOT-SO-QUICK PICK

IK MULTIMEDIA AMPLITUDE 2 [399, amplitude.com]

Okay, I admit that I was a little prejudiced on this one. From an early age I've had a fascination with electronic hardware that led to countless hours of soldering together new pickup switching combos, preamps, and amps for a small army of cheap guitars. Although most of my "professional" playing has actually been done on transistor amps, I really prefer to get some real tubes into the chain at some point, especially when going for distortion. That said, I'm not too happy with lugging around all the gear that I've collected over the years, and I get even more upset when one of my precious hand-built contraptions goes on the fritz. Given my more recent embrace of digital recording technology, it would only seem logical that tube amp modeling would be the way for me to go.

There are a host of programs and digital hardware combos that provide much wider arrays of sounds in much smaller packages, with the ability to instantly recall any setup you create without having to wrestle with cabinets, pedals, and the giant patch cord octopus that lurks in the corner of my studio. Amplitude is one such program, providing all the aforementioned benefits along with an easy-to-use virtual interface that replicates the look, as well as the sound, of traditional guitar gear.

Nonetheless, I have been lukewarm on the whole idea. I have already spent half my life working my way through various solid state amps that claimed to have authentic tube sound but inevitably disappointed me, especially when stomping out the heavy, distorted sounds I crave. Once I got my hands on a true tube Marshall head and a nice 2x12 cabinet, I felt that I had found a happy sonic state in which to reside, and I was loathe to go back to modeling of any kind. Previous experience with Amplitude LE had left me somewhat cold, given the somewhat cumbersome interface, limited functionality, and rather artificial sound. Amplitude 2, however, brings a completely redesigned interface and DSP engine, using their new, patented DSM technology to provide emulations that really challenge the trained ear to pick the real amp sound. In addition, v2 adds a host of new features, including five different modules, separate pre, EQ, power amp, cabinet/mic combo modeling, 21 stomp effects and 11 rack effects (up to 20 total simultaneous effects), and two separate rigs that can be routed simultaneously in series or parallel.

There's certainly no shortage of flexibility and functionality in Amplitude 2, but the price is paid by the CPU. I was running this in ACID 5.0 on a 3GHz Pentium 4 laptop with a Gg of RAM, so I was able to run up to four instances of the plug-in without any problems, but there have been some complaints from users on different plat-



forms, notably Logic users and folks with Macs (even the G5, go figure). In my case, I did find limitations in performance at low latency rates even with only one instance of Amplitude, so I was a bit concerned. According to tech support, you can disable some of the oversampling while tracking to cut down on CPU usage, and then reactivate the full plug-in when mixing. They also promise to have some more CPU-friendly updates out soon, so you don't necessarily need to get a new computer to run it. And installation was relatively trouble-free, although I was a little disappointed that they have gone with a USB dongle key for licensing. It's not a huge problem for me, as I do most of my work at home, but I am dreading the time that I either forget that it's in the back of the laptop when shoving it into the case, or that I leave it at home on the way to a session. Nonetheless, the key is relatively unobtrusive other than the warm red glow from the LED.

Once loaded, I started in with some remixing and found Amplitude 2 very easy to use, and very impressive in its replication of many different amplifiers, including several that most of us would rarely get our hands on otherwise. Given how proudly IK Multimedia lists some of the amps this program is modeled on (Fender, Vox, Marshall, Mesa Boogie, and so on), it is rather amusing to read the manual on which model was based on which amp. The section on "British Tube 30TB" refers to "4 guys from Liverpool." Version 2 also builds on some of the version 1's homegrown models, just in case you want to try something completely different (FWIW, I swear that "Solid State Fuzz" was actually modeled on an old Peavey Band 1).

Purists will probably always find fault with any amp emulator, but I was very impressed with what v2 has to offer in its arsenal. However, after playing with Amplitude 2 for a few days, I got in a bit of a mood and had to plug in to the old rig and crank it for a little while. The raw, visceral *feeling* of turning those knobs is way more satisfying than sitting on my duff and clicking the mouse, I have to say. As far as the sound goes, though, even hard-core tube heads such as myself, my roommates, and my neighbors, were not able to accurately distinguish the virtual amps from the real deal. Everything is always subjective, of course, but this app comes closer to ousting my stack than anything else I've tried so far. And listing at \$399 (or \$320 at most retail outlets), it's a lot cheaper than collecting all the amps yourself. With all this virtual modeling, though, don't you think they should make the dials go to 11? —*Sam Wheeler* **EQ**

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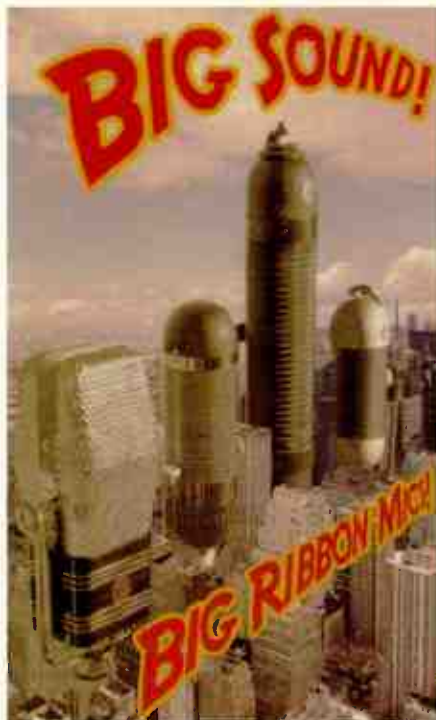
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Room with a VU

by Matt Harper

STUDIO NAME: Groove Tunes Studios

LOCATION: Alpharetta, Georgia

CONTACT: groovetunesstudios.com

KEY CREW: Eric Tunison

CONSOLE: Digidesign Control 24

RECORDERS: Apple Mac G5 Dual Processor with 1.5 Gig of RAM, Pro Tools HD Accel 3, 96i MIDI I/O HD Interface with 16-input channels, Sony 501ES, Tandberg TCD 340A, TASCAM 80-8 with DX-8 dbx noise reduction TEAC V-6030S, Technics 1500, Tiger OSX operating system

MONITORS: JBL LSR 6328P; Vandersteen Model 4a, VCC, Velodyne ULD-18

PLUG-INS & EFFECTS: Antares Auto-Tune, Aphex Aural Exciter, Master Room XL-305, Symmetrix CL-100, SG-200, Waves Diamond bundle (Amp Farm, Echo Farm, Morphoder, PS22 Spread, X-Noise HTDM, Sans Amp PSA-1, True Verb HTDM, L2 Ultramaximizer, Smack!)

MICS: AKG 451, D12E, Beyer Dynamics M-400, M-500, Neumann U-87, Sennheiser 421, Shure Beta 52, SM57, Soundelux U99B tube, Studio Project C3

PRE-AMPS & DI: Focusrite Control 24 preamps, ISA 220s preamp/compressor/limiter, Liquid Channel preamp/compressor/limiter, PreSonus MP 88s

KEYBOARDS: Yamaha Motif ES8, DX7, Melville Clark dual-voiced console piano, Sequential Circuits Prophet 10

STORAGE: Glyph GT 300, 160, and 120GB hard drives.

ACOUSTIC TREATMENTS: Acoustical Fabric Solutions cloth-covered acoustical fiberglass wall panels and ceiling clouds, ASC tube traps, Kinetics and Auralex wall panels and corner traps, "golden ratio" room dimensions, plush carpeting

STUDIO NOTES: "Atlanta has numerous recording studios, but few are north of the Chattahoochee River," says Groove Tunes figurehead Eric Tunison. "North Atlanta musicians had to drive great distances, sometimes into not-so-great parts of town, to

record in a professional studio. We saw the need for a top-of-the-line studio in the north end. As a result, we created what we feel is the finest and safest recording environment in North Atlanta."

Tunison reflects on his formative years and on his appreciation for constructing a studio based around his Pro Tools rig, "I grew up on analog, but I love what you can do with digital recording these days — speed and efficiency along with great sound. With the Pro Tools HD3 system, I can deliver on all accounts."

"I had studios in Seattle that were built inside of existing structures, with whatever walls, low ceilings, and electrical systems were already there. Those situations resulted in compromised designs with mixed results. When I moved to the Southeast, I had the luxury of designing and building my studio from the ground up. That allowed me to specify the room dimensions, high ceilings, wiring plans, sound isolation designs, and acoustical treatments prior to construction. The end result is extremely satisfying."

More than a musician and engineer, Tunison is an audiophile who has studied the physics of sound and studio design. With the assistance of Acoustical Fabric Solutions of Atlanta, Tunison believes Groove Tunes has achieved a special studio sound. "Having top-notch equipment is always an important consideration for a studio, but all too often I see studios with great gear but with acoustical plans that seem like an afterthought." Tunison explained, "The microphone hears not only the performance but also the room. Even if you have a so-called "great sounding room," whatever that sonic signature consists of (usually reverberant), it will be on your recording, too. So now, what if you want to change or eliminate the reflections on that track during the mix? You can't. Conversely, if you have a well-designed, acoustically treated room, you get a good, clean recording first, and then you can add whatever effects you want to the mix without having to fuss with non-compatible room reflections on the track. That, to me, makes perfect sense." **EQ**

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- ▶ Produces rich vocal harmony and memorable special effects
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- ▶ Harmony voices can sound like clones of the lead singer or 4 different singers

PRO TOOLS **HD** |  POWERCORE



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- **Across-the-board compatibility** — works with all major audio software for Mac OS X and Windows XP. Includes AudioDesk for Mac OS X.



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