

CRAIG ANDERTON ON TRACKING WITHOUT A DAW

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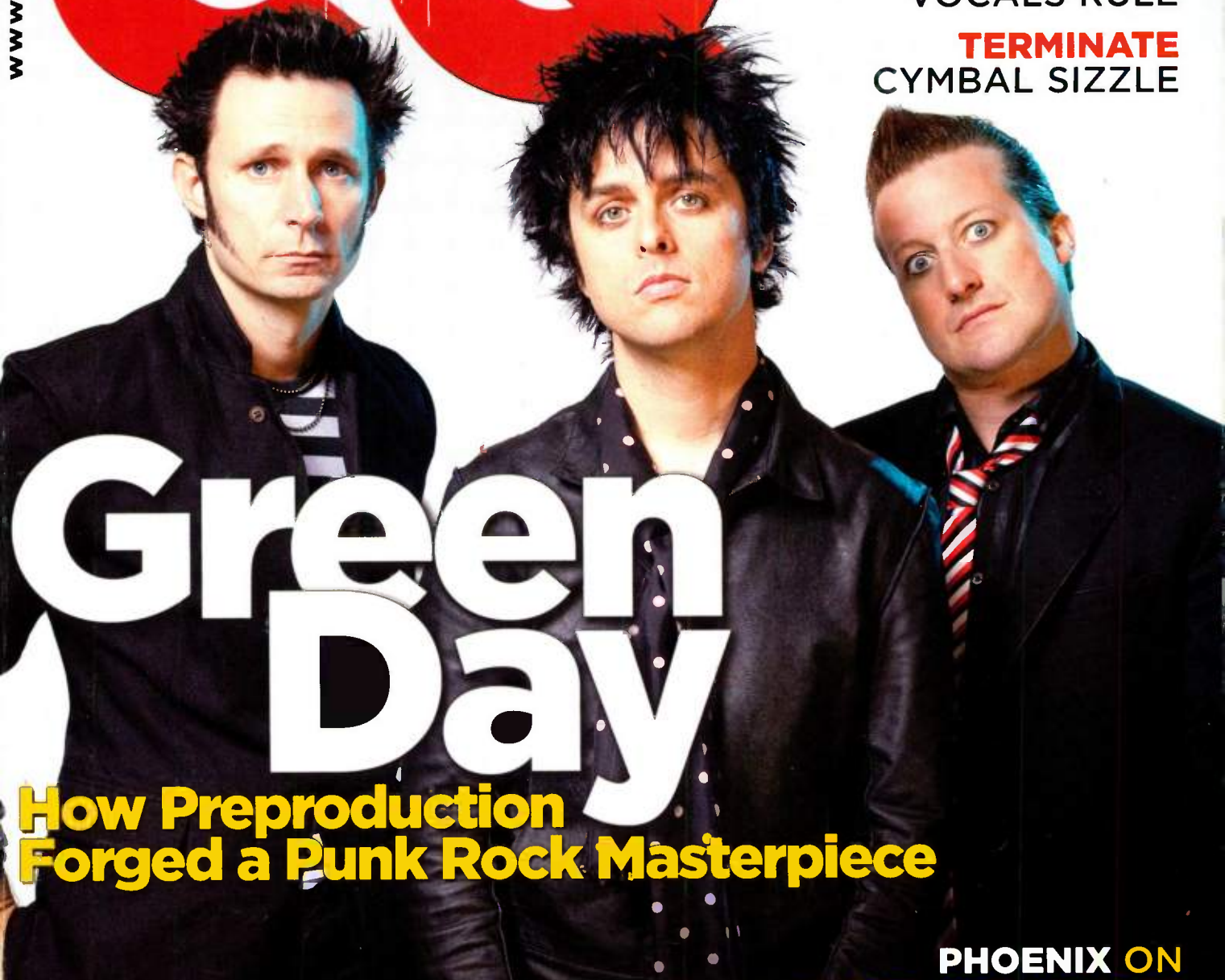


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TERMINATE
CYMBAL SIZZLE



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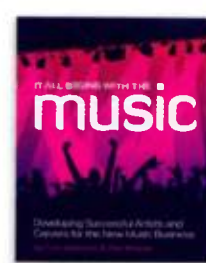
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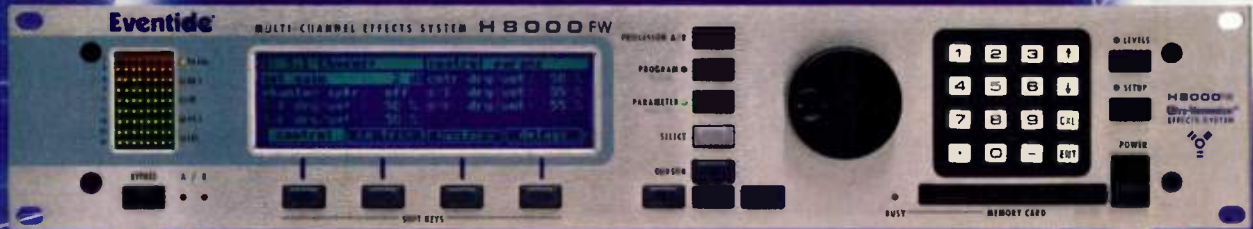
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Cover Photo by Sebastian Artz

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ROLL THOSE DICE!

The lousy economy is on everyone's mind these days. But in my travels, I've run into some music industry companies that are not only holding their own, but prospering. Huh?

I tried to analyze what they all had in common. One was people who understand the industry—but several troubled companies have sharp people too. Treating employees with respect? That helps, but it's not the whole picture. Eventually, one trait stood out above all the others: Taking gambles.

I don't mean mindless risks, but calculated gambles based on a combination of gut instinct and reasoned analysis. Who would be dumb enough to buy a fading software company in an intensely competitive environment? Yamaha, that's who, and Steinberg is back to being both innovative and profitable. How dumb is it to kill off your flagship product and replace it with something unknown? Yet that's what Cakewalk did when they introduced Sonar, and they've reaped the benefits ever since. What's more, we all know the world doesn't need another bass amp. But TC Electronic didn't know that, and now they have the hottest bass amp going. And how stupid an idea is a robot guitar that tunes itself? Apparently so stupid that it became a *gigantic* hit for Gibson.

What else do all these gambles have in common? Innovation. The companies that took the gambles improved their odds by offering something new, not just putting lip-stick on a corpse and hoping for the best. Sure, gambles don't always pay off. But when they do, you win big.

Besides, in today's economy, if your business is on a downward slide you *have* to roll the dice. Worst case is you'll just sink a little faster than you would have anyway. Best case is that you'll not only weather the bad times, you'll be on top when the good times return.

Speaking of a sure bet, please welcome Editor Kylee Swenson to *EQ*. Kylee has a journalistic résumé that could fill this page, but that's not necessarily why she's here: Kylee isn't a writer who plays music, but a musician who writes . . . and she's the archetypal *EQ* reader. She tours regularly with the band Loquat (www.myspace.com/loquat), and her journalistic side is driven by her own personal quest to become a better musician and recordist—a quest that ends up benefiting our readers, as you discover what she discovers. So welcome aboard, Kylee, and it's a joy to have your considerable talents added to the mix. (And a tip o' the hat to Editorial Director Mike Molenda for somehow convincing her to take this gig. I hope she wasn't too disappointed when she found out he fabricated the part about access to the corporate jet and the timeshare in Maui.)

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SOUNDING BOARD

THE CASE OF THE CLUELESS AUTHOR?

Re: Power App Alley on Sonar/Reason (05/09): My first thought on scanning the article was "Why would you use a step sequencer on a drum machine?" I then read the article and realized "because the author doesn't know what he's talking about!" He says that you can't copy one ReDrum pattern to another. That is absolutely wrong! It's a simple copy/paste!

By using Sonar's step sequencer, you are simply replacing one step sequencer with another. For something more flexible, do a copy pattern to track from ReDrum, which allows manipulating note data on Reason's MIDI tracks.

Octathorpe (via the forums)

Executive Editor Craig Anderton responds:

I didn't say you can't copy one ReDrum pattern to another. I said "With ReDrum, you can produce sequences with up to 64 steps—but that requires 'bank switching' among sets of 16 steps. Nor can you copy a sequence from one set of 16 steps to another." This is not the same as copying a Pattern. I checked with Propellerheads before writing the article and they confirmed this is currently not possible.

Using Sonar's step sequencer means no bank-switching, you can have as many steps as you want, there's a controller strip, and a variety of ways to manipulate rows that aren't available in Reason. This is no diss on Reason, by the way; I love it. But using Sonar's step sequencer is faster and easier for drum sequences longer than 16 steps.

QUALITY DOES MATTER . . .

I truly enjoyed reading [Craig's] words of wisdom in Talk Box ("Does Quality Matter?"). Very, very well put and I could not be more in agreement. It is my wish that people near and far, and in disparate walks of life, could read your words and take them to heart.

Benjy King

NOW SEE THIS!

There is a wonderful documentary about the record industry called "Before the Music Dies" at www.hulu.com. Toward the end it looks at the future of the music industry and how many record company executives,

who couldn't continue working for labels that were just accountant-driven, have embraced new music business models.

This is a video every musician who wants to make a living in the world of music should watch—several times.

Gary Smith

WHY PRO TOOLS LE, AND EQ, SUCK

Why do magazines like yours keep PTLE's shortcomings a secret? For example, do PTLE FireWire interfaces (the ones recommended for pro studios) feature zero-latency monitoring of inputs like every other non-PT interface on the market today? No. Does PTLE have a graphic pitch-correction window for tuning vocals like MOTU's Digital Performer? No. These two features alone could be a deal-breaker for the serious user, yet they were not addressed. Other PTLE deficiencies include the arbitrary playback track limit, 18-channel input limit, and the lack of AAF and OMF functionality—a file protocol supported by every other major DAW.

It's sad to see so many ill-informed users buy into the PTLE hype, only to show up on forums asking "how do I monitor my inputs without latency?", or "how do I transfer audio from a 24-track to my computer?". PTLE is a midget among giants, but the readers of your magazine would never know it. Do you all work for DigiDesign, by any chance?

Duncan Stitt

Executive Editor Craig Anderton responds:

We mentioned several limitations: not being able to run without Digi interfaces, no native VST support, Digi's proprietary approach, arcane file management, clumsy crossfading, no provision for MIDI effects, and notation limitations. In an article of this scope with limited page count, we can't mention all of a program's drawbacks—or strengths. This applies to all the DAWs we covered. As to working for DigiDesign, you'll note they choose not to advertise. We are beholden to no one, but space limitations are always an issue.

WHY EQ ROCKS

I found the DAW roundup in your latest issue extremely helpful and informative. The one element missing from my perspective is where the rubber meets



the road: in the actual computing environment. What are the minimum CPU/memory/soundcard requirements to run these platforms effectively, or insert multiple VST effects on multiple channels? Perhaps a "so you want to go digital" article explaining what's involved would be a great next step.

Every time a monthly issue hits my mailbox it makes my day. Keep up the great work!

Gustav Hoffman

Executive Editor Craig Anderton responds:

Most companies give minimum system requirements, but it's a moving target—what constitutes "effective" differs for different users. For example, convolution reverbs suck way more CPU than "algorithmic" reverbs. I like your idea of an article explaining all these tradeoffs, though. For now, the rule of thumb is "fast processor and lots of RAM—good!"

HEY! WANNA BE AN ASSISTANT EDITOR FOR EQ?

We're really curious about which parts of the magazine you like most, and which you like the least, so we can continue to tweak the mix of articles. So, hop on over to www.eqmag.com's forums, where we've put up some polls, and give us your feedback . . . we truly value your opinion.

Of course, whenever you have something to say, you can always drop us a line in our Letters to the Editor forum at www.eqmag.com, send an email to equeditor@musicplayer.com, or address snail mail c/o EQ Magazine, 1111 Bayhill Dr. Suite 125, San Bruno, CA 94066 for possible inclusion in Sounding Board.

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PUNCH INH



BASS TRAP

Shout Out Out Out Out on Negotiating Low Frequencies With Four Bassists and Two Drummers

BY KYLEE SWENSON

Here's one you most likely haven't heard before: a live dance-music band from Edmonton, Canada, with two drummers and *four* bass players. Sounds a bit over the top, but Shout Out Out Out Out's U.S.

debut album, *Reintegration Time* [Normals Welcome] is infectious and well-balanced electro-rock.

While four of the guys are bass players, it's not all bass all the time. Two of them switch between synth duty and doing bit parts on bass. However, on "How Do I Maintain Pt. II,"

it's all bass players on deck: Nik Kozub, Lyle Bell, Will Zimmerman, and Jason Troock.

With so many sounds competing for the same frequency space, it's amazing the low end doesn't sound like sludge. Fortunately, producer/multi-instrumentalist Kozub makes it work



Shout Out Out Out Out (left to right)—Gravy, Jason Troock, Clint Frazier, Nik Kozub, Will Zimmerman, and Lyle Bell.

with Digidesign's 7-band EQ and Bomb Factory's Pultec.

For "How Do I Maintain," Kozub asked Bell to lay down a direct Michael Jackson-esque line, followed by over-driven, complementary bass parts from himself and Zimmerman.

"I would high-pass filter those so that you're mostly just hearing the harmonics of the distortion on the basses, while Lyle's bass is maintaining the low-end groove," Kozub says. "Then, Jason is just accenting on low notes,

and that was low-pass filtered with no upper harmonics at all, so it gets a little bit more punch."

In Kozub's Pro Tools 8 studios (one with a Digi 003 and one with a Digi 002), synths are wall-to-wall, and cables run everywhere like an endless pile of spaghetti. Two Minimoog Voyagers, several Rolands (HS-60, SH-1, SH-3, and SH-101), an Oberheim Matrix 1000, a Korg MS10, a Doepfer A-100 Analog Modular System, a Future Retro Revolution, and a Sequential Circuits Pro-One are all ready to go anytime.

Kozub digs deep to tweak synth parameters. "It's the really fun part of the job," he says. "If we want a synth bass line to be an electro thing with a big sawtooth wave, we'll start with that. Then, it might make sense to add a lead that is more percussive with a triangle waveform and a bit of a ping on the beginning. With all the different synths we have, a lot of the sound has to do with what kind of filters we want, and how steep we want the slope to be on the filters. So if we want something that sounds really acid-y, for example, we'll go for a three-pole filter to try and get the sound of the old Roland TB-303."

The guys don't use a single software synth, but they mix in the box. Kozub tracks everything with compression—sometimes through outboard stuff such as his Empirical Labs Distressor or reissue Universal Audio 1176s—but he uses plug-in comps for sidechain effects and bus compression on the master. For the pulsing, synth-ducking sound in "Remind Me in Dark Times," the Digidesign Smack! compressor is applied to the synth pad and triggered by the bass drum.

Meanwhile, combining delays with panning is a favorite pastime for Kozub, who often relies on the MXR Carbon Copy, DeltaLab Effectron,

Roland Space Echo, and Massey TD5 plug-in.

"One of my favorite tricks is to take a mono bass-synth part and run it into a stereo delay," he says. "I'll have one side completely dry, and the other side completely wet with a really short delay—like 20 milliseconds—and no repeats, and then I'll compress the snot out of that. This produces a huge, weird stereo image of a mono synth that slams it to either side of your mix to suddenly feel louder, but without actually eating up any headroom."

With two drummers (Clint Frazier and Gravy) and drum samples going simultaneously, Kozub constructs grooves that cater to both rock clubs and the dancefloor.

"We are aware of what is needed for DJs to play our music in clubs," he says, "and it's important that the beat doesn't disappear—even if the live drums drop out for a second. At that point, the groove should go down to a sampled drum that's still banging on the club system. But the live drums create a lot of the dynamics that I don't think we'd get from just using sampled drums."

It's a true wonder that a band from one of the coldest major cities in Canada can sound so upbeat (although their lyrics—sung through a Roland SVC-350 vocoder and by guest singer San Serac and rapper Cadence Weapon—are more down-trodden), but there's an upside to the long, cold winters in Edmonton.

"It's winter from the end of August to the beginning of May," Kozub says. "And, during the winter months, you pretty much have to spend the whole time indoors, and we spend that time making music. It's easier to resign yourself to spending 12 hours in the studio when you wouldn't really want to go outside anyway." ●●

OFF-ROAD RIDING

High-Speed Rapper **Busdriver** Explores New Indie-Electronic Territory

BY TONY WARE

Los Angeles-based MC Busdriver, born Regan Farquhar, has an archrival—himself. In 2008, the hyper-conscious, ultra-kinetic MC found himself listening to *Temporary Forever*, the independently released 2002 album that introduced him to a wider audience. Even before *Temporary Forever*, Busdriver was established at the open-mic nights/hip-hop workshops in South Central called Good Life Café and Project Blowed. There, you had to know how to chop it up no matter what beat got thrown at you, or the mic would be heckled from your hands.

Surveying his 15 years of experience, Busdriver decided to up his own ante. Listening to Four Tet, Portishead, the Olivia Tremor Control, Brian Eno, My Bloody Valentine—all records washed, bleached, rinsed, and softened with psychedelic minor chords—Busdriver invested in texturing and layering. He called on production associates from L.A.'s avant glitch-hop Low End Theory weekly—including Nobody, Nosaj Thing, Omid, and Daedelus, as well as long-time engineer Daddy Kev—to corral tracks over which he could look at the malleable underpinnings of his life. The result is *Jhelli Beam* [Anti-], the follow-up to 2007's *RoadKillOvercoat*. Busdriver oddly describes the 14 tracks of his latest as "Tuberculosis plus."

"Sonically, it's everything wrong maxed out and treated as if it was right," he says.

Demoing in GarageBand and Reason, Busdriver shaved off the odd sample and chord, banged on hardwood floors for rhythms, modulated the pitch of vocal takes, and re-configured sequences.

"For the most part, the methods I use I internalized and applied in my own way from watching someone like Daedelus in Pro Tools," Busdriver says. "When working alone, I spend most of my time messing with performances, bouncing things down, and chopping them. Some of that will get used, but the real production is by more gifted folk."

Moving on to Daedelus' Pro Tools rig, the production was ratcheted up a couple of notches with attention to the beats on "Scoliosis Jones," "Do the Wop," "Happy Insider," and "Fishy Face."

"I find that a short delay with low feedback on a minimal hi-hat pattern can be enough to give a sampled beat some swing," says Daedelus. "Another trick is to automate the delay time on straight-forward patterns to inject some changing textures by moving the delay signal in time to rhythmic changes."

For the track "Fishy Face," Daedelus worked with both his own sounds and some provided by John Dieterich of the playfully jagged indie-jangle band Deerhoof. Dieterich's synth and guitar parts were recorded both direct and through a Studio Projects C mic through the preamps on a Digi 002 interface. The takes were then blended, reamped,

and re-recorded in the room with stereo mics. Similarly, Daedelus opted to reamp portions through his Event PS8 monitors to give the electric bass extra thump.

Busdriver's high-tenor vocals—which cram in more words-per-minute than the USPS receives manila envelopes on April 15—are often recorded through a Shure KSM44.

"I treated the vocals as any instrument," Daedelus says, "but I pushed them slightly harder, and sat them in EQ zones relatively free of drum clatter and low-mid synths."

Most of the final vocal takes were recorded with Daddy Kev at his Echo Chamber studio, using a Great River MP-500 preamp, an Avedis E27 EQ, an Apogee converter, and Pro Tools. The main mic was an M-Audio Sputnik, chosen for being "clean, pristine, and crisp." For vocals used more as musical devices, they ran a Shure SM57 through a DigiTech Vocal 300 processor, using a heavily saturated, slap-back delay. Busdriver's vocals were recorded with no compression and low gain to compensate for his loud delivery, and Daddy Kev also used an unusual EQ trick up.

"The Avedis EQ is one of very few EQs that allows you to boost frequencies as high as 28kHz," Kev says. "So I add a high shelf at 28kHz to the vocals when recording, and I boost around 3dB. This adds a nice sparkle without hyping—truly a magical effect."

As a whole, *Jhelli Beam* features



Busdriver.

slippery riddims that play more naturally next to TTC, Hot Chip, and edit than boom-bap hip-hop, offering assertive and speed-driven freestyles over veering drones.

"This is message-oriented rap music, but a lot of the effect is to underline musicality, and to throw some dissonance and humor in the midst," Busdriver declares. "This isn't indie rap as statement against the establishment—it's just glorifying inventing, and going in new directions from where I've been before." **EQ**

What? You Boosted 28kHz?

Boosting frequencies at 28kHz, as Daddy Kev does with the Avedis E27 EQ, might seem strange considering the range of human hearing is said to end at 20kHz. But an FAQ answer from Avedis' website (www.avedisaudio.com) explains: "When you boost or cut a chosen frequency, it is shaped like a bell, unless you push in the shelving button. Then, it's half a bell, where the top of it extends beyond the selected frequency. The top of the bell would be 28kHz, for example, but the curve leading up to the top starts at frequencies within the fundamentals, or within 20kHz. So you will easily hear the effect at the very tail end of the audible spectrum without accentuating sibilance or already aggressive high frequency in the source."



WHITNEY BRADSHAW

Tortoise's John McEntire on the Joys of Triggers, Miking, and Phase Relations

BY KYLEE SWENSON

It's easy for an experimental, instrumental jazz-dub-electronic-rock band like Tortoise to be mistaken for lovers of the late-night jam. But Chicago-based producer/engineer/drummer John McEntire has been at it with Tortoise for 20 years now, and he can say with conviction that it does not work for them.

"Jamming doesn't really yield great results," he admits. "I think some of the improv stuff we've done has turned out okay, but, ultimately, we don't really feel like it has a place in an album context."

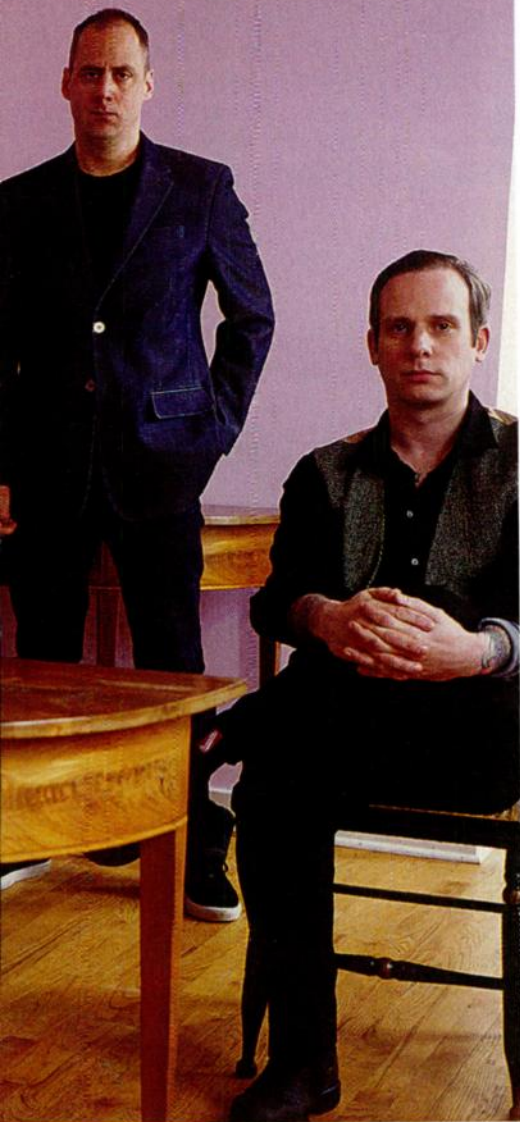
So band members toil away at the demo process, each bringing in ideas and hammering them out in various stages. Meanwhile, McEntire squeezes in time to work with dozens of other artists, including The Sea

and Cake, Spoon, and Stereolab. But Tortoise slowly and steadily keeps up the pace, releasing a new album every few years.

On *Beacons of Ancestralship* [Thrill Jockey], the band's sixth full-length, intertwining melodies and cycling rhythms are still in full effect, but two key elements are missing. . . .

"We wanted to get away from the vibes and marimba," McEntire says. "It was becoming a bit of a cliché, so

Tortoise (left to right)—Jeff Parker, Doug McCombs, John Herndon, Dan Bitney, and John McEntire.



to fill in that gap, there ended up being a lot more keyboards.”

Tortoise’s writing process is deliberate and meticulous, but with no vocals to guide an obvious structure, song lengths vary wildly. For example, “High Class Slim Came Floatin’ In” is 8:14 minutes, while “Penumbra” is 1:08. Although the band doesn’t adhere to a stringent three-and-a-half-minute pop format, tracks were extended and cut down until they felt right. Originally,

the pulsing and ever-evolving “Monument Six One Thousand” was only a minute long, but the band stumbled upon an interesting idea to build on it.

“We came up with this thing where the drums were triggering modular synth sounds that gave it a whole new dimension,” McEntire says.

To do that, they routed the audio output from the acoustic drums in Pro Tools|HD 2 to the comparator modules in a C.M.S. modular system to trigger a gate.

“You can set a threshold in these modules, and then it will send out a +10-volt gate signal to whatever you want that’s on the trigger,” McEntire explains.

Modules from The Harvestman, quirky synths (including the EDP Wasp), and ideas molded in Ableton Live were responsible for other experiments throughout the album, but sound-shaping creativity aside, McEntire is a stickler for getting the fundamentals down right. He spends hours tuning drums, finding the right spot for the kit in the room, and placing mics. To deal with mic bleed, he starts with baffles and steps up to samples where needed.

“Hi-hats can be a bit of a problem if they really overpower the snare,” he says. “So we sometimes try to make a physical baffle between the hat and the snare. But I’m also not opposed to using SoundReplacer when it seems helpful, although I use it more as an add-on than a full-on replacement.”

McEntire is a fan of wide stereo imaging, but he is careful with phase relationships when positioning mics.

“If you have two channels completely out-of-phase, you’re going to get this crazy, hurts-your-head stereo thing happening,” he says.

He appreciates near-coincident mic pairs for their wide, stereo-imaging effect, but using mid-side pairs is his favorite overhead drum-miking technique.

“That works really well, because you can control the stereo field in post-production,” McEntire says. “And you can adjust the side level relative to the mid in your mix, as opposed to having a coincident pair, where you’re

stuck with the left and right channels as they are.”

For both the mid and side positions, McEntire uses small-diaphragm Schoeps condensers that are easy to position, although he’ll sometimes use a ribbon mic as the side element to capture a different tone. He also uses spectral panning to achieve a wide stereo image.


“I’ve got a couple of multiband band-pass equalizers from SND and C.M.S., and you can take the output of each channel and pan those around so you get the spectrum dispersed throughout the stereo field.”

Other outboard gear includes a Massenburg DesignWorks MDW EQ and 8900 compressor, an Empirical Labs Distressor, and an EAR 660 limiter/compressor—all routed to a Trident A Range console.

For guitar, McEntire often mics low-wattage amps from a distance of three inches, blending signals from ribbon and dynamic mics. The band also uses Bassman 4x10 and Music Man 2x12 amps, and favor ’60s Fender Jazzmaster and ’80s Gibson ES-335 guitars.

But gear and techniques aside, there’s always time for recording tomfoolery. On “The Fall of Seven Diamonds Plus One,” percussion sounds like bags of chains hitting the ground. McEntire mixed spring-drum and thunder-sheet samples from the Vienna Symphonic Library with real drums, and, yes, chains.

“We took this pile of chains and dropped them on a bass drum,” McEntire says.

After all, all work and no play makes studio time a dull chore. 

WHAT IS MID-SIDE MIKING?

Mid-side miking gives you control over the stereo image *and* ambient information. It’s typically achieved using a mic with a cardioid pattern for the mid (capturing the direct sound), and a mic set to a figure-8 pattern for the side (capturing the ambient sound). The mid mic faces the source directly, and the side mic’s diaphragm is placed perpendicular to the diaphragm of the mid mic.

PUNCH IN

ROUGH AND REAL



White Rabbits (left to right)—Jamie Levinson, Gregory Roberts, Stephen Patterson, Matt Clark, and Alex Even.

White Rabbits and Spoon's Britt Daniel Mine the Tarnished Glory of Demos

BY RICHARD THOMAS

The cover of White Rabbits' *It's Frightening* [TBD Records] is a black-and-white photo of a motion-blurred figure with two sets of flailing arms. One pair, equipped with sticks, bangs on an invisible snare drum, while the other attacks the keys of a vintage Helpinstill Roadmaster 64 piano. Raucous and beautiful, the picture is the perfect visual summation of the band's ability to find balance between their clamorous nature—three of the six members are capable drummers—and the uncomplicated way in which they embrace melody.

"The last record was definitely six people firing on all cylinders all the time—just creating a racket," says singer and keyboardist Stephen Patterson. "With this record, we were much more selective about where to drop in what instruments. We took a much sparser approach."

Produced by Britt Daniel of indie-rock darlings Spoon and tracked by Nicolas Vernhes (Fischerspooner, Animal Collective), *It's Frightening* has a more dynamic sound than its predecessor—due in part to the vintage boards and outboard gear used throughout its creation.

Demos were recorded through a


TASCAM Model 5A mixing board belonging to rehearsal space cohabitants the Walkmen, and the album was tracked through a 1979 MCI JH-536 console onto a 1971 3M M79 recorder at Rare Book Room in Brooklyn. For Daniel, preserving the unhinged spirit of those original demos was paramount to the process, and he even incorporated a portion of the early material into the final versions. For example, Patterson's meandering piano line and haunting, choral-esque hums on "Leave It at the Door" are products of the band's rehearsal-space sketches.

Daniel also noticed that most of the demo drum tracks had a crispy, overdriven quality—the result of miking the kits with a single Shure SM58. To retain that thin, barebones sound, the TASCAM Model 5A was brought down to the Rare Book Room and used as a mic preamp before going into the MCI console. Daniel also encouraged the band to embrace "incidental moments" and imperfections on the demos—such as the intimate room noise captured by an overhead Neumann U 67 on "Midnight and I" (if you listen closely, you can even hear Patterson light up a smoke at the 55-second mark), and the ragtime sound of the keys on "Rudie

Fails" (attributed to the fact that no one bothered to clean out all the junk that fell into the back of the piano over the years).

Echoing the band's desire to "treat mixing as a performance rather than a perfected process," Mike McCarthy (Trail Of Dead, Lee Ann Womack) performed his mixes without automation, moving faders on the fly, and then editing the best mix moments together before the mastering session. He also relied heavily on panning to create extra space. For example, the multiple percussion tracks on "Lionesse" are panned hard right and hard left to make room for the traipsing piano lick that sits in the middle.

But while lo-fi sonics, vintage gear, and self-imposed technical limitations played significant roles in the production of *It's Frightening*, the album's biggest creative decision may have been opting to use analog tape.

"It was our first time recording analog, and that proved to be very beneficial for us," Patterson says. "There are so many guys in the band, and it's really tempting to keep putting on layers upon layers. But being limited to a certain number of tracks helped us stay focused on which pieces really mattered." 

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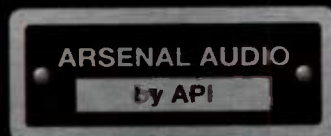
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by Mike Rozkin

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A partial view of a person's arm and hand on the left side of the page. The hand is holding a pair of wooden drumsticks. Below the hand, the headstock of a black electric guitar is visible, with the brand name 'Ibanez' partially seen. The person is wearing a black t-shirt.

A Simple Plan

Green Day and Butch Vig devote serious time to preproduction and demos before recording *21st Century Breakdown*

by Ken Micallef

It's late March 2009, and New York City is covered in a haze of dark clouds that hug the metropolis like a mask. Hunkered down in Sterling Sound overlooking the Hudson River, Green Day is working on the final mix of *21st Century Breakdown*. Billie Joe Armstrong, Mike Dirnt, Tre Cool, and producer Butch Vig have spent months jockeying between Ocean Way in Los Angeles and Studio 880 in Oakland recording the 18-track follow-up to the band's 12-million selling *American Idiot*.

Later that night, after the final mix is printed and the master placed under lock and key, the Green Day dudes get emotional. The album has taken almost three years to complete, and Green Day doesn't know how to call it quits. So they start drinking, imbibing 16 bottles of wine and 40 beers before falling into a Chelsea recording studio to jam the night away.

Continued

A Simple Plan

They play a single song for six hours straight, juiced on adrenaline, booze, and pure inspiration. From 2:00 A.M. to 8:30 A.M., Green Day is just another band jamming like there's no tomorrow with nothing at stake and no expectations. Nothing could be further from the truth.

Resisting the temptation to take a stripped-down approach after the pop-punk opera of *American Idiot*, *21st Century Breakdown* takes bigger chances with songs that are more ambitious than anything the band has done before. Arranged in three acts (surprisingly similar to the musical version of *American Idiot* that will hit the Berkeley Repertory Theater in September), *21st Century Breakdown* is the result of a deeper approach to songwriting, copious preproduction, hours of demos, and even a homegrown pirate radio station.

TAMING THE BEASTS

An inveterate walker who enjoys "writing in his head," Armstrong often composed the songs for *21st Century Breakdown* while driving, singing in the shower, and even sitting on the toilet. And before doing a single demo or enlisting Vig, Armstrong raised the creative stakes.

"It was about taking this thing that's like a simple version of rock and roll, but making it sound more complex, and keeping it from getting boring," he explains. "We didn't have to make a record like this, but I felt it was an opportunity to take *American Idiot* a step further. On our previous records, we were gathering experiences and allowing ourselves to write songs from exactly where we were at that moment. With this one, I really wanted to go deeper than I've ever gone before. This is the first time I've written songs at the piano, which allowed me a lot more freedom to use falsetto, and experiment with chord progressions I've never used before. I also wanted to hear melody—a line could be inspired by a musical or something Randy Newman would write. I love songs that are based in some tradition from the Ramones to Simon & Garfunkel to the Beatles. My DNA is finding melody."

Following Armstrong's decree that the band should master the new material before hitting Ocean Way,

Green Day demoed every track, in sequence, until they could play the songs in their sleep. Early on, rumor had it that Vig wouldn't sign on to the project until Green Day produced a handful of demos for his approval.

"I didn't force them to do demos," Vig insists, "but the band wanted to have a really clear direction of what we were doing. When we began working together, the songs we were equally attracted to were called 'The Beasts.' They were untamable—overly long or complicated songs with lots of interesting ideas that weren't focused. Doing the demos—which we recorded on their TASCAM 8-track—allowed them to rehearse a song until it sounded good. When you know what you are doing, you can go in and execute. Then, in the studio, you're going for performances—not scratching your head and wondering what to do in a bridge or chorus. It makes the recording process a lot simpler."

"I like using the studio as a compositional tool when we are doing demos," adds Armstrong. "Recording to Pro Tools is like composing, as well, because you can shift things around and come up with a good arrangement. Then, when you go to track the song for real, you can just crank it out so it has a completely live feel to it."

Green Day recorded demos from early March 2008 at Costa Mesa Studios, JEL in Newport Beach, and Studio 880 in Oakland. Later, the demos would function as the band's reference tracks, and some elements would even end up in the final mix.

"We had the entire album mapped out with demos," Armstrong recalls. "Then, it was just a matter of going into Ocean Way and making the songs sound gigantic."

But the recording process at Ocean Way turned out to be more involved than that, as Vig wanted to push Green Day through a few barriers.

"After mega success, a band will often return to their roots to make a stripped-down record," Vig says. "I was not into making that kind of record with Green Day. What I loved about *American Idiot* was that they were shooting for the stars. I was trying to push them to go into areas that were almost uncomfortable for them, but still make it sound like Green Day. How wide of a palette can they paint on? Where can they go in terms of style and execution, but still make sure it felt like them as a band? They would record, I'd make suggestions, then they'd go and rehearse for hours, and then they'd record some more. This went on for weeks. By early summer, we had a good rapport."

REBEL RADIO

While recording demos in Southern California, Green Day purchased a pirate radio transmitter and started broadcasting under the call letters KCUF. Vig, Green Day, and engineer Chris Dugan created playlists, recorded fake station IDs ("Listen to Rebel Radio KCUF!"), and flipped the switch. The bonus for unsuspecting Orange County commuters was hearing new Green Day material, live and unfiltered. Later, the band inserted bits



Butch Vig (left) and Chris Dugan.

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of the pirate broadcasts into the final mix. The compressed, crunchy sections in "Christian's Inferno," "East Jesus Nowhere," "¡Viva La Gloria!," "Before the Lobotomy," and "Last of the American Girls" are straight from KCUF.

"The band tried setting up the transmitter at their house in Los Feliz," Vig adds, "but we weren't getting a signal, so we turned up the power. It blew out all the power on the block! The next day, we found a note on the door from the FCC saying, 'Maybe you should cease and desist before you get into any trouble.' So we shut it down."

OLD-SCHOOL SONICS

"I like things that sound a bit lo-fi," Armstrong says, "like the sound of Foxboro Hot Tubs [*Green Day's 2008 side-project album, titled Stop Drop and Roll!!!!*], which was recorded live on our TASCAM 8-track. In the past, we've always had a lot of midrange and punch on our records. But, for *21st Century Breakdown*, we went for a kind of warmth and low end and top end that I don't think we've ever achieved before."

Even so, Vig's goal was to keep signal chains as simple as possible.

"As high tech as we are with current recording technology, we did *21st Century Breakdown* as old-school as possible," Vig recalls. "We used signal paths with the least amount of EQ and processing involved so what was playing back sounded amazing. That is always a good step when you are starting to record an album—making sure everything sounds good dry with nothing done to it. As soon as you start over-processing, you will hit more problems down the line."

Dugan brought his Barefoot Sound monitors, and Chandler, Vintech, and Neve mic preamps and EQs to Ocean Way, incorporating his setup with Studio B's custom-built Dalcon 32x24 console with its API sidecar that offers 40 channels of API EQ.

"The Dalcon doesn't impose any sonic coloring—what you hear is what you get," Dugan says. "But we only used the console to listen back. All the mics would hit the external preamps, and then go directly to an Ampex ATR 124 tape deck and an HD3 Accel Pro Tools rig."

THE GROOVE

Having worked with Green Day since 2000's *Warning*, Dugan

recorded the band's basic tracks quickly and efficiently.

"For the kick drum, I placed a Shure Beta 52 inside the shell—there was no front head—and routed the signal to a Chandler Limited TG Channel MKII preamp. I also lined up a Neumann U 47 fet right next to the Beta 52. If you have the two mics in the same spot, and you don't reverse the phase, you get a really nice sound with a lot of attack. In addition, I put a sub speaker/mic in front of the bass drum to add low-end thump."

Dugan used a Telefunken Ela M 80 through a Vintech X73 preamp to mic the top snare head, and positioned a Shure SM57 on the bottom head, which was routed to a Vintech 473 preamp.

"I usually EQ some crispness into the snare sound," he explains, "but the M 80 already had it."

A couple of AKG C 12 As through the Dalcon's API 550 EQs covered the toms, with AKG C 414s placed on the bottom tom heads "for more sustain." Overhead, a pair of Telefunken Ela M 251s were Dugan's ace in the hole.

"Bringing up overheads in the mix is about more than just cymbals—they bring up the entire kit and open it up,"



Tre Cool at Ocean Way Studio B, surrounded by all the tambourines and drum gear he can handle.

says Dugan. "It's like room mics, but on a much closer scale. You feel like you are in the seat with the drummer. And Ocean Way B is *the* room for drums—it's amazing."

One of the final pieces to the drum-sound puzzle was a large, hat-shaped flying gobo that could be lowered over drummer Tre Cool's kit to diminish a room's natural reverberation—which the band called the "Happy Hour Sound."

Another important aspect of the sound and feel of the basic tracks was that Vig created tempo maps to monitor grooves during the demo process.

"When they were jamming, I'd note if a tempo worked particularly well in a song," says Vig. "There are also parts when we were recording where I'd move a tempo map around in Pro Tools to match how the band achieved what I thought was the best feel. Sometimes, I would recall the tempo to a song that perhaps sounded better than what they were currently tracking, and we would drop back to that. When we felt it was right early in the demo process, we made a point not to lose sight of that."

THE BOTTOM END

Dugan knows what it takes to get a raunchy, ripping bass sound, and Dirnt's Fender Precision was routed to an Avalon U5 direct box and an Ampeg SVT miked with a Sennheiser MD421 and a Neumann U 47 fet. The Avalon and U 47 were sent to a Vintech X73 preamp, and the 421 was patched to a Neve 1073 preamp.

"I like the 1073 for its bite and cool low end, but due to their age and inexact specs between modules, the sound isn't always consistent," says Dugan. "The X73 is a remake of the 1073, and it has the 1073's characteristics, but with more smoothness, clarity, and consistency. All signals hit tape first before going to Pro Tools in order to fatten up the bass sound with tape compression/coloration. I used the 421 to capture the top end, while the U 47 got the bottom end and warmth. I kept the mics close to one another and aimed at the same driver, back about ten inches from the cabinet. Regarding placement, I always start at the center of the cab, and then I move the mic around, listen in different positions, and go back and forth between listening in

the live room and monitoring in the control room to gauge the final sound. I tracked each mic on a separate track, so if we needed a little more attack out of the amp, we'd raise up the 421. If we needed more warmth or a softer sound, we'd lower the 421, and bring up the U 47. Most of the time, we would have the Avalon U5 blended in, as well, even though I personally like to hear an amp tone over a direct sound."

Dirnt typically did a couple of run-throughs while Dugan dialed in levels, and then the performance went to tape.

"He always hits it by the third take," says Dugan. "Although, we'll sometimes piece together a comp of his different takes for the final mix."

THE GUITARS

Armstrong sweats his songs, but when it's time to record, he cuts guitars and vocals fast and furious. After the band records each track live in the studio—primarily to capture Cool's drum tracks—Armstrong and Dirnt will often head back to the control room to overdub parts. But capturing Armstrong's live sound is paramount.

"I have a Park/Marshall plexi head and two 4x12 cabinets, a '58 Fender Twin, a Victoria Victorilux combo, and an old Gibson Les Paul GA-40 amp and a Gibson GA-19RVT Falcon amp," says Armstrong. "Those old Gibsons spit out a killer raunchy sound—clean, but with a lot of attitude. I used the Falcon on the breakdown parts, because it made the dynamics jump out. I also plugged a '52 Fender Telecaster into a Divided by 13 amp for pretty much the entire record. My '56 Les Paul Junior was typically used with the Park, along with a reissue Les Paul sunburst and a Slash signature Les Paul, and I played the solos with a Jimmy Page signature Les Paul."

Dugan used a mic-blending approach for Armstrong's various amps.

"For the Park/Marshall, I miked one cabinet with a Shure SM57 and a Royer R-121," Dugan explains, "both running through a Chandler Limited Germanium preamp, and then summed together and dumped to one track. Blending the mics together at different levels can create a cool, unique sound that gives you the best of both mics. If you can do it without adding much EQ, you're in an even

better place. On the other cab, I used an AKG C 414 and a Shure SM57 through a couple of Neve 1073 pramps, also mixed down to one track. For the combo amps, we used Royer ribbon mics."

VOCALS

"Billie is the fastest singer I've ever worked with," Vig says. "We'd usually do one take to make sure the headphone mix was right, and the mic preamp settings would depend on how hard he pushed it. Then, he would do a couple of more takes, and that was it. He would walk out of the room. I'd look at my notes, and maybe we'd comp a few parts, but that process would be really fast, as well. I'm not used to that. It usually takes a lot longer to get vocals down."

"Billie Joe loves the Telefunken U 47 M," says Dugan, who did a minor mic shootout with Armstrong to determine the best mic for the vocal sessions.

"I like a little crispness on the top," Armstrong says. "My voice has a natural compression to it, and I just want enough EQ added to make it pop out of the mix. The U 47 captured my voice in the right way. In the past, I would always hear my vocal back in the studio,

The Billie Joe Vocal Method

"I've always been quick at recording vocals," says Armstrong. "It's about warming up, getting my throat and chest in the right position, and then emotionally preparing to go for it. When you go through the demo process, you know what kind of emotion the song will need, and when to scream and when to whisper. This is why I like to take time and really get all the arrangements done and know what kind of vocal take I am going to end up doing before I start recording the album tracks. At the vocal session, I start softly and try not to overdo it, so I don't ruin myself for the day. I get myself in the zone, and eventually, my voice just starts to happen. I sing about eight inches from the mic, and throw down around three takes. We'll comp performances if necessary, but, most of the time, it's all pretty much live takes." —Ken Micallef

A Simple Plan

and I'd want to add compression and some slapback echo, because you are so naked when it's hitting you dry. But with the 47, I'd hear my vocal back dry, and I loved the sound the microphone was capturing."

Dugan ran Armstrong's U 47 through a Chandler Limited LTD-1 into a Retro Instruments 176 Limiting Amplifier.

"The Retro has an asymmetry switch and another switch that engages a transformer," Dugan says. "I went with the Interstage setting, which delivered a warm, clean, rich compression—nothing jumps out at you. It's one of those compressors

that you don't really hear, but you know it's working. Then, I simply rolled off everything from 80Hz down, and notched a little bit at 110Hz. It scared me at first that nothing else was done for Billie's voice, but it was the right thing to do."

BREAKING IT DOWN

21st Century Breakdown's themes of revolution and apocalyptic doom seem out of place in a nation still psyched at a new presidency. But political context aside, Green Day has recorded the most epically melodic and stylistically diverse album of their mega-Platinum career.

"Rock and roll is supposed to be flamboyant," says Armstrong. "It's supposed to be ambitious. But something has happened in the last 15 years. A lot of bands aren't hitting the potential of how rock is supposed to move people. I think rock music can change lives. At least it can inspire someone to change *their* life, and create a soundtrack for it. That is really important, and it's not easy. One thing about Green Day is that we second-guess ourselves more than everybody else does to make the absolute best music—to reach that bar we set for ourselves." **EQ**

Try This at Home!

You may not be lucky enough to record at Ocean Way with producer Butch Vig and Green Day engineer Chris Dugan, but that doesn't mean you can't steal a few of their licks and adapt them to *your* project. Let's look at a couple of the techniques employed to record *21st Century Breakdown*, and see how we might reorient them to work within the limitations of the typical home studio.

Preproduction

You don't need fabulous gear or a magnificent studio to work your songs until they're lean, mean, and full of impact, but you do have to jettison any tendencies to creative laziness, malaise, and mediocrity. In Billy Joe's own words: "One thing about Green Day, we work harder than everybody else does." That may or may not be true, but Armstrong's fervent commitment to honing songs until they are the best they can be is a lesson all musicians should inject into their RAM buffers. So before you start tracking, take a good look in the mirror and determine whether the songs you plan to record are 100-percent brilliant. Then, look in the mirror again, because a significant number of musicians lie to themselves about the "studio readiness" of their material.

Signal Chain

How lucky are you that Green Day went with a very simple signal chain

to track *21st Century Breakdown*? Now, you don't have to complain about having a crap mixer or less-than-audiophile processors. All you have to do is find some good-quality mic preamps and a decent interface, and route your signals direct to your DAW. The goal is to document the source sounds as organically as possible without inviting audible hiss or other noises, and the less devices fighting for space along your audio chain, the cleaner and more robust the sounds will be. You can do this!

Drums

If you're recording an acoustic drum kit, your mic cabinet is probably not as hip or as fully stocked as Dugan's. But Dugan's approach to the overheads gives you an opportunity to track huge drum sounds with minimal mics. "Bringing up overheads in the mix is about more than just cymbals—they bring up the entire kit and open it up," he says. Brilliant advice! You also get a chance to explore your inner Beatles and document a drum kit as simply as the engineers of the early '60s. Here's the basic recipe: Position a dynamic mic over the top snare head, place a large-diaphragm condenser just outside the kick drum and pointed towards the beater, and then put two small-diaphragm condensers about two feet over the drummer's head, one pointed left and the other pointed right. (If you're shy a mic or

two, you can use one small-diaphragm condenser, but the stereo spectrum will be limited.) Listen critically, and move the mics as needed to capture a natural, beefy, and dimensional image of the drums. At this point, try to keep your hands off the EQ knobs—it's better to tweak tones when the drums are heard in context with the other instruments as you dial in the final mix.

Guitars

Yeah, Billie Joe plugged into a raging Marshall half-stack, but he also used two small Gibson combos. A big amp doesn't necessarily translate to a huge amp sound on tape. You can dial in extremely aggressive sounds with a cranked, low-wattage combo, and save your ears (as well as the sanity of your neighbors and/or housemates). For mics, a dynamic (such as a Shure SM57) placed right on the speaker grille is one of the classic positions for achieving punchy and articulate mids. Want a warmer, more natural sound? Buy or borrow a ribbon mic and position it about a foot or so from the speaker. If you want less room tone, move the mic closer to the amp. As always, listen critically, and don't be scared to keep moving the mic around until you hit the spot where the tone explodes from the monitors and zig-zags up your spine. —Michael Molenda

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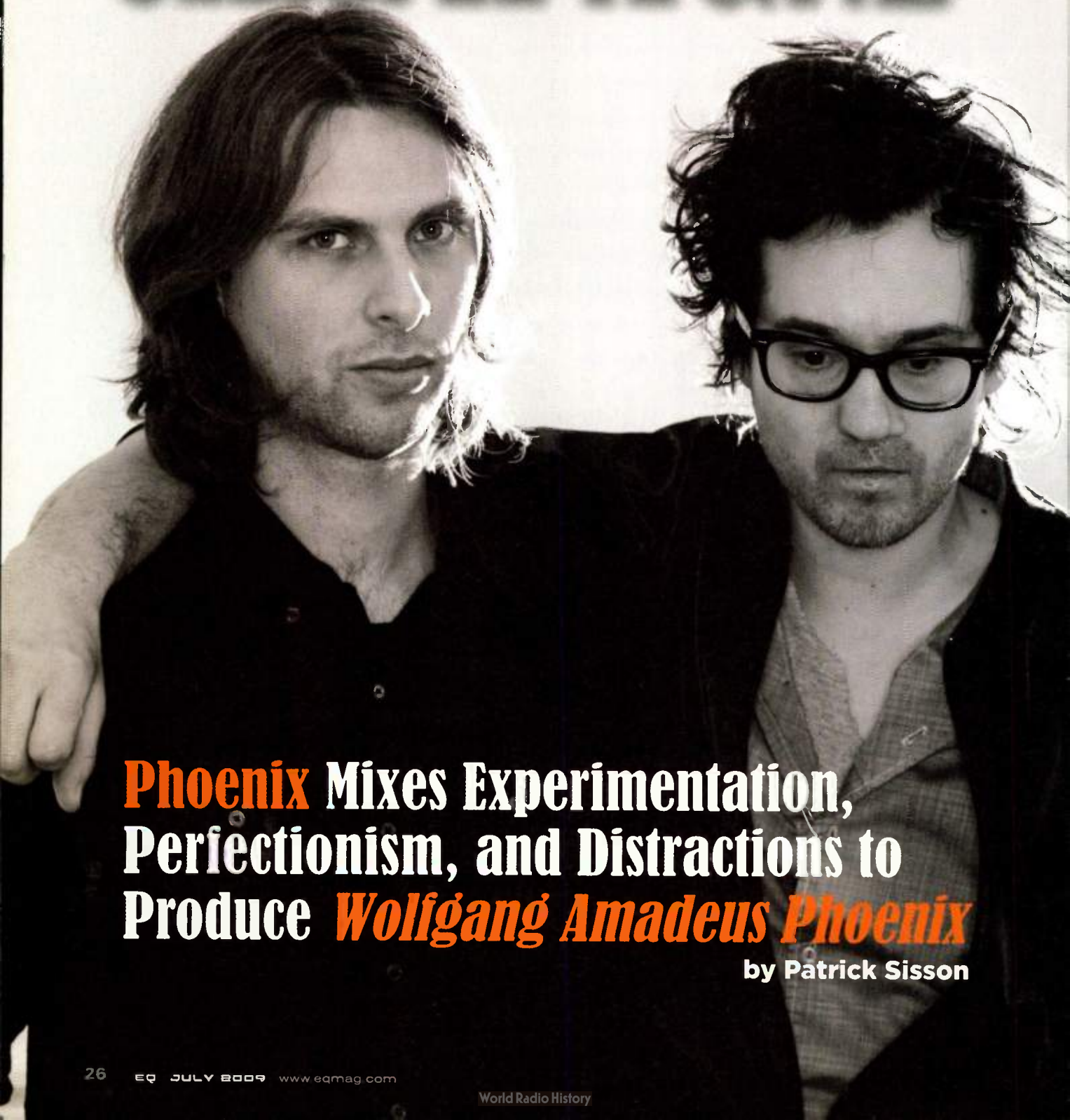
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CHAMPAGNE



Phoenix Mixes Experimentation, Perfectionism, and Distractions to Produce *Wolfgang Amadeus Phoenix*

by Patrick Sisson

AND PLASTIC



CHAMPAGNE AND PLASTIC

Somber French poets and friendly prostitutes sound like fitting inspirations for a raucous, balls-out rock album. While these characters were part of the neighborhood color near the studio where chic French foursome Phoenix—comprised of Thomas Mars, Laurent “Branco” Brancowitz, Christian Mazzalai, and Deck D’Arcy—recorded the bulk of *Wolfgang Amadeus Phoenix* [Loyaute/Glassnote], their album wasn’t the by-product of wicked indulgence, especially on the inflated rock-and-roll scale of indecent behavior.

A glittering slab of well-crafted electronic pop, the band’s follow-up to 2006’s *It’s Never Been Like That* is a result of the group’s perfectionist tendencies (they recorded over 14 hours of music in total), a long recording process, and an attempt to be more abstract. According to guitarist Brancowitz, the group even listened to a soundtrack of modern classical and

ambient music to cleanse their auditory palette, and they used Eno’s famous Oblique Strategies cards to get through creative roadblocks.

“As a creator, you’re always frustrated by your limits,” he says. “You want to find strategies to go further. I actually learned Morse code at one point, and I tried to type words rhythmically to see what kind of patterns they would create.”

After a search for inspiration that took them to New York and back, the group asked friend Philippe Zdar to co-produce *Wolfgang Amadeus Phoenix*, camping out in his studio in Paris’ Montmartre district for nearly a year and a half. Designed in the early ’80s by audio guru Tom Hidley—a famed engineer and studio designer—Zdar’s studio was an ideal place for the band to challenge its creative process. Half of French house duo Cassius, the producer owns a cache of

vintage gear, giving the group plenty of equipment to work with, and his helpful approach kept them focused.

“I think Phoenix has very good taste,” Zdar says. “The band members are great producers, and they just needed someone to guide them and keep them on track. It’s like directing Marlon Brando. I don’t think Brando needed help—he just needed a little guidance.”

Zdar felt strongly that the album should sound modern, diverse, and informed by contemporary music and production. His whole approach was to respect the group, give them the time and space to compose and record, and occasionally “make a tackle” in the studio, providing momentary distractions to keep them from getting too caught up in their work.

“He would sometimes come for five minutes a day, and arrive six hours late with a bottle of champagne,” Brancowitz says. “He’d say, ‘This is

Phoenix (left to right)—
Christian Mazzalai, Laurent
Brancowitz, Deck D’Arcy,
and Thomas Mars.



PASCAL TEXTIERA

great' or 'boring.' He brought the energy. We knew if a song pleased us and pleased him, it was a solid song."

PLASTIC GUITARS

During sessions, the band normally recorded straight to Pro Tools|HD, preferring minimal equipment and a very dry sound. Many songs went through multiple versions, so they often needed to add and subtract layers. Plus, Zdar wanted guitars recorded as straight as possible so he wouldn't be hamstrung during the mixing process.

"We wanted to record fast and capture the performance, instead of obsessing about the sound," Zdar says.

Much of the charm of Phoenix's tightly constructed songs comes from the clipped, artificial guitar lines. Guitarists Brancowitz and Mazzalai both used Fender Bullet Stratocasters—cheaper and less-popular models of a guitar chosen for its unique sound.



"It's very dry and really plays only one specific style," Mazzalai says. "But they fit perfectly with our style of playing. The sound that comes out is almost plastic."

For "Rome," which opens with a part that Brancowitz compares to the sound of a kid playing alone in his bedroom, the guys recorded their guitar lines through a Telefunken V76 preamp, a Telefunken U73 compressor, and a direct box—standard practice for most of the album. Later, when the tracks were mixed, they were sent through a Helios preamp to add more character, a UREI 1176 compressor, and an AKG BX20 spring reverb.

SYNTHS & TOYS

As befitting a band that has backed up Air, Phoenix deployed an army of analog synthesizers during the recording process, including a Roland JX-3P, a Korg Trident, a Yamaha CS-80, and a Jen Carousel organ. On "1901," weird, wispy notes from a Yamaha Tenori-On—a step-sequencing synth that was fed through an AMS S-DMX delay—float in the background as big, fuzzy chords from the Korg Trident streak across the song. The group also used a few toy synthesizers, often cranking up the preamp in the recording chain to capture the buzz and hum. It fit the band's philosophy of combining very cheap and very expensive instruments.

"What's good about these instruments is that their beauty lies in their limits," Brancowitz says. "Their utility comes from the mistakes their engineers made."

Zdar normally utilizes a Neve 1073 EQ and a Telefunken V76 preamp to record synths. When mixing, he often sends tracks through a UREI LA-4 compressor—which he feels is especially good for making synths sound tight—and a Massenburg GML 8200 EQ, which helps emphasize bass.

HYBRID GROOVES

To achieve the modern feel of R&B or techno-style beats, the percussion on *Wolfgang Amadeus Phoenix* required the hybrid approach of blending live and electronic drums. Mars used an Akai MPC sampler to trigger his favorite percussion samples, which were often mixed with live percussion, as well as software samplers such as Native Instruments Battery 3. Signal-chain

strategies included feeding the toms, hi-hats, and crash cymbals through an SSL compressor; running sidechains for the snare (a Neve EQ, UREI 1176 compressor, and an AMS reverb) and kick drums (Neve 1073 preamp, Massenburg EQ, and Neve 33609 compressor); and dumping toms into an SPL Transient Designer.

Meanwhile, in the realm of bass, Zdar sometimes aimed for a blend of organic and electronic sounds, as on "Fences." For that song, a Fender Mustang Bass part played through an Ampeg SVT Amp was fused with the synth bass of a Yamaha DX100 synth, and then heavily compressed.

"I wanted to blur the real and the synthetic, and make a big, bubbling thing—a real magma of sound," Zdar says.


DRY VOCALS

One of the few sounds on the album that remained relatively straightforward were the vocals, which were recorded with Neumann U 67 and AKG C 12 microphones, and sent through a UREI 1176 compressor, and an EMT 252 for slight reverb. During mixing, Zdar also applied a Lexicon PCM42 Digital Delay and an EAR 660 compressor.

"We love dry sounds," says Mazzalai. Consequently, Zdar used vocal effects sparingly to heighten their impact. On "Rome," he placed reverb on the verse and first chorus, and then cut it out after the break. He believes this approach made the music more poetic, evoking the feel of walking out of a dark restaurant into the bright sun of the Italian capital.

FINAL MIX

Ultimately, Zdar took the Pro Tools tracks and mixed them on one of his two SSL 4000 E mixing consoles (he has a spare in case he needs to get one repaired), because he favors the unit's analog sound. He also zeros in on the highs and lows when doing EQ adjustments in order to craft crystal clear, deep bass, and a very tight sound.

"I'll boost highs on a Helios EQ, and, at the same time, I use the filters on the console to take out highs," says Zdar. "This gives you the feeling that you have lots of treble, while simultaneously giving you high frequencies that are more rounded and less tiring to listen to. After all, if you want girls to love an album all their life, it's important to mix it well." 

8 WAYS TO PRISTINE CLEAN TONES

by Kent Carmical

Guitarists talk a lot about recording killer distortion tones, but sometimes go kind of silent on the subject of achieving great clean sounds. Is the quest for clean so obvious that tips and suggestions are as welcome as a field mouse swimming in your Captain Crunch? I don't think so. You see, crafting great clean tones can be just as difficult—and no less rewarding—than dialing in the holy grunge. Here are eight tips that point the way to cleaner, meaner, and more freshly scrubbed guitar sounds.

Honor Your Friend

Clean sounds don't start at the amp, they start at your instrument. So if you're one of those players who never clean their guitar or wipe down the neck, chances are there is enough mung and drool glued to the bottom of your strings and fretboard to make the back pickup of a Strat sound like a Tal Farlow album being played underwater. Cut those gruesome wires off, and clean the frets and fretboard with the appropriate cleaning products. Then, put on a nice shiny set of your favorite strings—my experience is that a .010 set or larger produces the best clean sound—at least two days prior to recording.

Go Direct

The path to a time-honored clean sound is to simply plug your guitar

into a direct box and into your audio interface or mixer. Your sound should be round and full and innocent of any overdrive. Some cagey engineers add a bit of twinkle and snap to the direct sound by positioning a mic near the fretboard of the electric guitar to capture some unamplified string attack. Recordists desiring a bit of goop in their direct tones can switch out a conventional direct box for a tube direct box that adds a touch of pre-amp tube bluster.

Take the Low Road

If your amp has two inputs, the "low" input should operate at a lower gain compared to the "high" input. Conventional wisdom dictates that less gain equals more clean, so let's not argue with conventional wisdom. Plug into the lowest-gain channel so that your amp isn't predisposed to producing growl, grit, and overdrive.

Exercise Balance

Everyone should know that, when using amps (or amp emulations) with master volumes, cranking the preamp gain and backing off the Master knob will only get you dirty. But how many players actually experiment with the levels of the preamp and master levels so that they work to bring out the hippest clean sound from *your* guitar? The lesson is simple: Spin those knobs until you're bathed in the cleanest tone your amp and guitar can muster. If you want a chime-y

tone with just a hint of grizzled sizzle, turn up the master volume to the point where the sound starts to distort, and then back off the volume until the tone is cooked to near-pristine perfection.

Think Subtractive

Depending on your amp or plug-in, boosting EQ can sometimes get you into trouble when creating clean sounds, because the frequency boosts may add just enough edginess to sully your shine. I like to cut midrange frequencies with extreme prejudice, and then back off the bass, as well. If boosting treble adds some harmonic shimmer without introducing spittle, then save your boosts for the high end.

Mic Selection

In most people's opinion, you can always stick a dynamic Shure SM57 right up to the speaker grille, and never feel the need for anything better. There's a lot of truth to that—the SM57 is inexpensive, and it sounds good on just about everything. The SM57 does "hear" midrange frequencies somewhat aggressively, however, so take that into account when you're attempting to capture your dream tone. Clean freaks should also check out large-diaphragm condenser mics, as they typically deliver enhanced sensitivity and more transparent highs. An added little trick is to further diminish the volume of the signal chain by switching on the




condenser's 10dB pad (if the mic is so equipped). A lot of times, this won't be necessary—and, in some instances an activated pad may lower your ideal recording levels too much—but if you're paranoid about "hitting the red" and introducing some distortion to the signal path, a pad can be a fabulous friend. If you want a warm, smooth, organic, and detailed sound, try one of the many affordable ribbon mics on the market.

Mic Positions

You can obviously get a clean and detailed tone by shoving a microphone practically right against the speaker cone, but it may also sound somewhat jagged and dry. This is not the time to go with "whatever works," and leave well enough alone. You could be missing a wonderful clean tone just because you're too

tired, lazy, or preoccupied to experiment with different mic positions. Try moving the mic back a few inches to allow a bit of room tone and "air" into the signal. Or you could position the mic off-axis to the speaker cone at an angle of about 45 degrees to capture some zing and chime. For less aggressive parts, you could even move the mic back a good yard or so away from the amp. You'll get a fair amount of room reflections mixed in with the source sound—the amp—but the gentle wash of ambience should make for a seductive timbre. All of these mic positions will work whether you use a dynamic, a condenser, or a ribbon, and you shouldn't stop with these three suggestions. Make that mic work for a living! Move it all over, listen critically to each position, and decide which clean tone gives you the most bliss.

Persevere

If you're working with amp-emulation software, don't be reluctant to go beyond the presets. Some presets are slathered with effects, compression, and other pieces of ear candy that may twist a tone from nicely clean to annoyingly overwrought (yes, even presets can take themselves too seriously). There's no law against finding a basic "clean amp" preset you like, and then diving into the parameters to program a pristine tone that's exactly what your song needs. No software engineers will leap out from under your bed and kick your ass. I guarantee it. And if you think this tip is useless and silly, then try to remember all the times you've gleefully accepted whatever an effects processor gave you verbatim. Yeah—not so innocent, huh? Happy tweaking! 



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4 SAFEGUARDS FOR HEALTHY LOWS

by Michael Molenda

Like a well-oiled horn section, bass players usually know exactly what to do to make a track magical. You can't always trust guitarists or drummers to shred their egos and do the right thing—and vocalists are a whole 'nother encyclopedia of hurt—but bassists are solid senders, team players, and keepers of the deep groove.

But this doesn't mean they are *impervious* to poor judgment.

And it's those rare times when you're hearing something suspect from the bass that your production chops, taste, and paranoia will be put to the test. But don't freak out—simply use this short and handy checklist to evaluate the low end.

First, Always Assume You're Wrong

Of course, you won't be able to do this gig right if your ego crashes the studio party. A good bassist is a master at bridging the sonic, rhythmic, and musical gaps between the guitar and the drums, so it's far from a sign of weakness to assume he or she is spot on. It would suck, however, if you opened your mouth simply because you wanted a perfectly excellent bass part done *your* way. If everything pops, freeze—the bass track is done. Go torment the drummer.

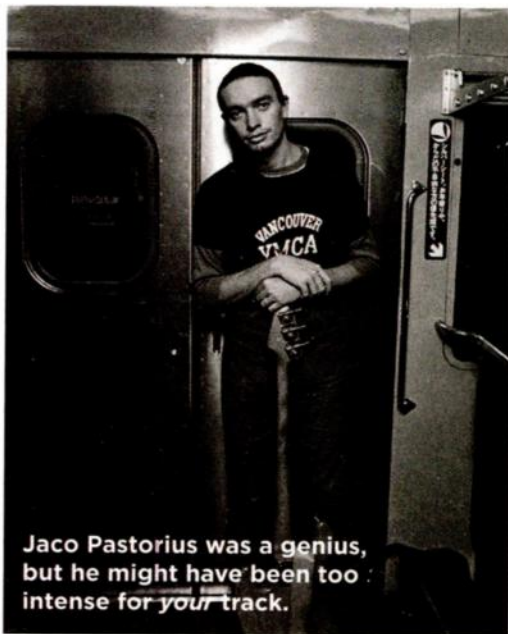
Define the Objective

I made a huge mistake on a recent production by letting the bassist play a fretless upright, when I knew a fretted electric was the best option for driving a straight-ahead rock song. Melodyne took care of the upright track's out-of-tune bits (the guy was one of those self-professed "perfect pitch" wunderkinds who nonetheless play a slew of poorly intonated notes),

but nothing could fix the distracting slaps and snaps or the wobbly low end. If I had a clear "groove goal," this miscue might not have occurred. Before tracking, tell the bassist, "I want this to rock as hard as an ice-road trucker blasting through snow banks," or "I need this to slip and slide like an old jazz cat three whiskeys into an all-night set." You get the idea. Lay out the right scene, and the bassist won't try to foist a fretless on you when a Fender Precision is obviously the ideal cast member.

Watch the Energy Meter

You're listening to a playback, and everything is played well, but something isn't right with the groove. In these instances, I find it helpful to forget about technical performance issues, and focus on energy concerns such as, "Is the rhythm track matching the vibe and vitality implied by the song?" A bassist may like to punch precisely with the kick-drum beats, for example, but that approach might be too uptight and segmented for a fast rocker or punk track. Perhaps it's better to rock eighth notes. Try it and see. On the other hand, a pulsating part might sound too anxious for the plaintive energy of a ballad. Your "energy meter" should even chart the ramifications of the bassist using a pick or fingers to perform his or her parts. Different feels, right? You may need to overrule a player's preference for fingertips and nails if the sharp and consistent attack of a pick serves up the intensity you're looking for. These are obvious examples, of course, but the point is to zero in on



Jaco Pastorius was a genius, but he might have been too intense for *your* track.

the energy you'd like the track to unleash, and share that information with the bassist. Otherwise, the player may default to personal preferences that don't deliver the vibe you wish to achieve, and, ultimately, it'll be the song that loses out.

Hedge Your Bet

Unless your bassist is John Entwistle, Jaco, Paul McCartney, Stanley Clarke, or a similar genius, simple parts and tones are typically "best bets" when tracking songs. Then again, an intricately wild part on a very simple tune may turn out to be a brilliant musical dichotomy. So, if your bassist is committed to the complex, it might be smart to lay down two bass tracks: a butt-simple, dum-dum version, and a much more complicated part. Don't listen to the track for a day or two, and then a few playbacks should tell you which version truly rocks the joint. Choices are good. **62**

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HIDE YOUR TECHNICAL SINS

by **Jake Wood**

Not everyone has been blessed with an early childhood of fervently forced piano lessons. For those with no memories of running scales from the womb, there are now software shortcuts to help compensate for any lack of keyboard experience and skill. These programs play a significant role with non-piano-playing musicians, as they are most commonly the ones picking up synths as secondary instruments due to the fact that MIDI controllers have become a staple of the producer's tackle box.

The tools that make hiding these technical sins possible are called "MIDI plug-ins," and they process MIDI data in a way analogous to how audio plug-ins process audio data. Most DAWs, like Cubase, Sonar, DP, and others can accept MIDI plug-ins (although these tend not to be standardized, and therefore, work only with the programs for which they're designed).

For example, Ableton Live offers some easy-to-use MIDI solutions that can reshape a poor-playing keyboardist into a reasonably consistent and presentable performer. So put those heavy-handed, herky-jerky clam hands to work, and check out the array of Ableton's performance "safety buffers."

Velocity

If the song arrangement is a dynamic flatliner, but the synth disagreeably jumps up and drops in volume, a quick adjustment of the synth's velocity curve will smooth over any dynamically errant notes that continue to crash the party. Simply go to the Ableton browser, open MIDI/Effects, and drag over a Veloc-

ity patch. Set Compad to -1 for a brutishly desensitized experience. (For the opposite effect, set Compad to +1 for an exaggerated dynamic range that's touchier than Tipper Gore.) This can be particularly helpful with synths and controllers that only have a few velocity stages, and subsequently peak in volume and tone with minor keystrokes variations. For a one-size-fits-all volume range, change the mode to Fixed.

Scales

If dynamics are the least of your worries, and incorrect notes are the primary offenders, consider some serious airbags with the Scale effect. While it's always possible to play wrong notes, this patch allows users to eliminate any unused and potentially hazardous notes, thereby making the offending key silent, or reassigning it to a neighboring safety pitch. Unless the tune has chromatic runs, this is a wonder gem for all things diatonic, pentatonic, and monophonic. All scale programming is done through the note matrix, which can be daunting at first, but remember that the X-axis (horizontal) represents the physical key on the controller, the Y-axis (vertical) is for the assigned pitch, and every block moves in half steps. The bottom left corner represents the base pitch. (Hint: If finger splits aren't a favorite pastime, it's possible to assign octaves only a half-step apart.)

Chords

Beyond offering basic musicianship fixes, Ableton Live provides additional MIDI madness for fattening up a performance. The Chord patch—the sherpa of all MIDI

effects—is a great tool for those with many fingers, but little time. By dragging the device to a MIDI channel, a synth is immediately prepped to automatically add harmonies to individual notes. This is particularly helpful for playing single-digit octaves, fifths, fourths, and so on. If parallel chords aren't ideal, insert it before the Scale effect in the signal chain, and it's easy to tailor harmonies of each note to fit a specific key. Now, anyone can become a one-fingered, chicken-pecking virtuoso. Letterman, here I come. . . .

Arp Arp Arp

The Arpeggiator is the Excalibur of Electronics, the Ginsu of Gizmos, and the Tragedy of Techno. Perhaps that last jab is a little south of the equator, but there is no denying that arpeggiators have dominated and empowered the techno sound. Oddly enough, Ableton's arpeggiator falls short of its competition. For basic on/off rhythms it works fine (although there is a latency issue due to the fact that striking a key doesn't restart the cycle, thus making it impossible to use on stage), but it doesn't accept user patterns. For any arpeggiating depth, it's best to switch over to Reason, as Propellerhead has developed a much more versatile and powerful arpeggiator.

Don't Get Too Perfect

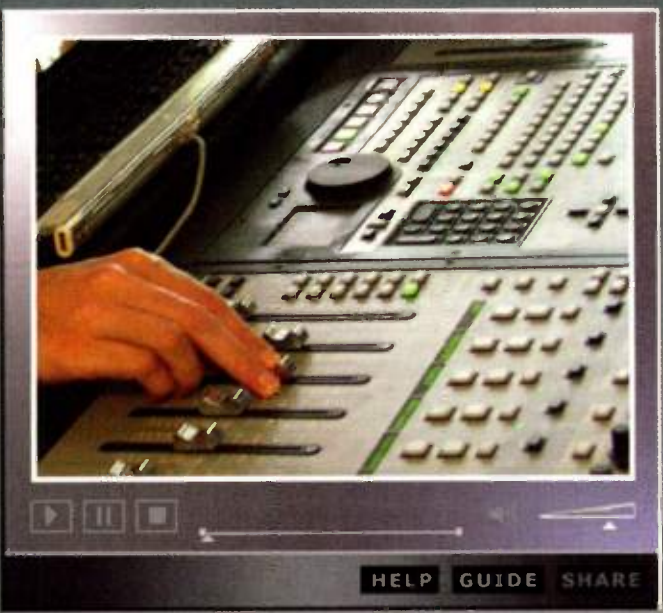
All of these tools make it much easier for players who have adopted keyboard as a "second language" to lay down consistent- and professional-sounding synth tracks. But don't get too obsessed with crafting perfection, as it's often the beauty of *inaccuracy* that makes for an interesting listen. Binary gets old real fast! ●●

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TOO MANY CYMBALS!

by Michael Molenda

Crash. Sizzle. Splash. Crash. Crash. Sizzle. Ting-ting-ting. Crash. Splash. Ah, the distinctive ringing attack of hi-hats and cymbals. If you're listening to a drum solo, the percussive cacophony of a frenzied wildman slamming sticks into brass spheres can be thrilling—if a bit loud and hearing-damage inducing. But fire off a non-stop high-frequency barrage into a verse or chorus, and you risk obliterating the vocals, the guitars, the keyboards, and any hope of a pleasant listening experience. It'll be a slaughter, and the saddest victim of the tonal massacre will be your song. So whether you record drums yourself or use samples, if you want balanced, dimensional, and dynamic mixes, keep those cymbals at bay!

Arrange & Conquer

One of the main benefits of cymbals—beyond keeping time—is that they can instantly spike excitement levels. A fabulous crash into a chorus or bridge can really ramp up the intensity, help separate song sections, and assist in charting the emotional journey of a song. But big gestures should be used sparingly to ensure crashes, ride cymbals, and hi-hats don't overwhelm other critical aspects of a song's dynamic range and frequency spectrum. You also don't want to cause listeners to wince



If someone like Animal happens to be your drummer, you'd better take measures to ensure your song isn't annihilated by cymbal crashes.

when the hammer comes down.

The simple trick is to arrange the drums so that they blast and drive when they need to, and take a back seat when other elements of the song need to slip into the foreground. In a sensitive orchestration, each drum part will enhance the song narrative, rather than act like a petulant bully who plows over his playmates. Unfortunately, some drummers may take affront at being asked to, say, run closed hi-hits through a verse, instead of leaning on the ride and smacking the crash every other downbeat. Now if you can't get the drummer to cool it on the cymbals, you're kind of hosed, but there are a few tech tactics you can employ to clear the air of abusive high-frequency blitzkriegs.

• **Mute the overheads.** This is a relatively organic approach. You simply remove the overhead drum mics from the drum mix and depend upon the snare, hi-hat, tom, and kick mics to document the cymbal work. As those mics are not pointed directly at the cymbals (with the exception of the hi-hat mic), and tend to be dynamics rather than condensers (which can be more sensitive to high frequencies), the overall sizzle should diminish somewhat.

• **De-ess.** An old trick from the analog-tape era is to route the overhead and hi-hat tracks to a de-esser. As de-essers were developed to diminish vocal sibilance, they can

sometimes calm the more searing frequencies and bright stick-to-cymbal attacks from your drum track.

• **Compress.** I don't recommend this strategy wholeheartedly, but Who producers/managers Kit Lambert and Chris Stamp often compressed the crap out of Keith Moon's drums until lows and highs were pulverized into a raging fireball of percussive energy. Now, Lambert and Stamp didn't really know what they were doing—a small problem—but the massive compression did keep the cymbals from swallowing up Pete's guitars, John's midrange-heavy bass, and Roger's vocals. If you're brave enough to try this hostile takeover, dial in a 10:1 ratio at a threshold of -10dB.

• **Tone it down.** This is a last resort, as messing too much with EQ can compromise other aspects of the drum sound, such as the snare crack, tom impacts, and kick-drum smacks. Sometimes, you can even "threaten" a drummer with treble-reducing EQ tweaks. Just say something like, "Hey, your cymbal crashes and hi-hats are really throwing the high-frequencies over the top, so here's how I'll need to deal with the EQ to ensure the track is balanced." Then, activate the EQ, and when the drummer hears how neutered his or her drum sound is, they'll probably *beg* you to let them go back in the studio and cut a less-cymbal-intensive performance. Sometimes, an audio picture is worth a thousand nags! **EQ**

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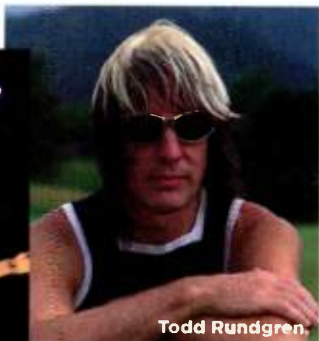
Bonnie Raitt.



John Lee Hooker.



Elvis Costello.



Todd Rundgren.

by Scott Mathews

Have you ever experienced a live show where the vocalist blew your socks off and right into the dryer? The energy, the purity, the commitment—it was all there. Then, you hear the studio version of the same song by the same artist, and it's a huge letdown because the vocals lacked all that you loved from the show?

You are not alone, my friend. I think most of us who see live music often have the same experience. But why is this so common? Can't people sing the same in the studio as they do on stage?

Well, it *is* true that singing in the studio and performing live are horses of a very different color. The live experience is primarily about energy, vibe, and becoming one with the audience. The recording world tends to be more about expertise, pitch, and control. And yet, a great studio vocal should encompass both worlds.

Don't Fight the Feeling

The most important aspect of any lead vocal—irrespective of studio or stage—is feeling. I've had the extreme pleasure of working with

some of my favorite vocalists of all-time, and there is a commonality to the way we work in the studio: We go for the feeling first, and know that the rest will follow. Without the feeling, there is no reason to book the session.

The singer is a storyteller, and the vocal approach has to breathe life into the lyrics and the music. The song also has to be believable, and to cut a believable vocal, the singer has to be the first believer. He or she must know the meaning of the song—and even the subtext of the lyrics—to really get inside it and deliver an ultimate performance. So we will run the song down, talk about what we are going for, get to know the arrangement, and when it all feels right, we go for it. As a result, the “keeper” vocal tends to be the first, second, or third take, or a combination of them all. If the singer isn't feeling it after some coaching and trial-and-error, we will likely come back to it another time, and make it fresh again. I am not a fan of beating up vocals in the studio, as they always tend to sound beaten up when you hear them back.

Case Studies

While some artists may still wish to wrangle a vocal performance to death, I can say without hesitation that the projects I've done that have achieved gold or platinum success and/or a Grammy win, were practically all done live with minimal takes. For example, Bonnie Raitt and John Lee Hooker's “I'm in the Mood for Love” was cut live with just the three of us, and we only did it once! We wanted the feeling that multiple takes sometimes just won't provide—spontaneity.

I also did two projects with Todd Rundgren this way. The object was to create the pressure and adrenalin rush of getting it right live, so we heard the song for the first time the day we recorded it. The band was cut live, as well, and many of the songs had complex vocal arrangements. It was an intense experience to perform this way, but the music had an urgency that normal studio recordings often lack.

Van Morrison will *only* use first takes. When he feels the spirit of the song has been captured, he can't be bothered if something falls slightly out-of-tune or out-of-time. Frank

Sinatra worked the same way. Nobody told The Chairman he had to do another take.

Elvis Costello is another big believer in the "one and done" approach. For *Painted By Memory*, his album with Burt Bacharach, I sat at the board at Oceanway with Elvis on my right, and Burt on my left, and reviewed the "guide" vocals for the songs they had cut live. Everything I was hearing was brilliant. Elvis' vocals were sometimes raw and almost out-of-control, and, other times, they were sweet and soft, but they were always exactly what the song wanted. Occasionally, as EC was not holding back at all, his voice would just give out. When that would happen, he would stop, catch his breath, and dive right in again. So when I was asked which vocals to fix and which to leave, I recommended only fixing the bits where his voice gave up the ghost. That is how it worked—the only overdubs were the vocals that were missing when his voice crapped out. So this acclaimed and masterful album is composed almost entirely of live guide vocals.

The final study here is about someone you would probably never regard as a "live feel" singer: Barbra Streisand. People consider Streisand a perfectionist—and she is—but when I worked with her, she cut her vocals quickly and (seemingly) effortlessly. She couldn't have been more cool. In fact, she asked me to go into the vocal booth with her to show her the way I sang the demo. That was pretty weird! I'm supposed to show this legendary vocalist how to sing a song? Yup. It turned out she liked the feeling on the imperfect demo I did for her, and she wanted some phrasing and note tips. After showing her a couple of things with my squeaky voice, she was on her own. We did two takes, and we ended up using most of the first one. You see, even Streisand goes on feel. (Of course, you don't exactly have to worry about things being out of tune with her—I have a feeling she probably yawns in tune.)

Fix the Note, Keep the Excitement

I have no problem tuning, timing, or

manipulating vocals any which way after they are sung. Truth be told, I love that stuff! Often, I'll get the feeling that's needed for a vocal track, but, inevitably, there will be a few notes here and there that have to be dealt with. But while I am no stranger to judicious use of anything under the sun to make a vocal work better for a song, I also know that not every "bad" note

needs fixing. You have to be cautious, and keep those slight imperfections that are, well, perfect. After all, you can fix pitchy vocals with any number of tools, but as of this writing, I'm not aware of any plug-in that can create *passion*. ☞

Producer Scott Mathews can be reached at www.scottmathews.com.

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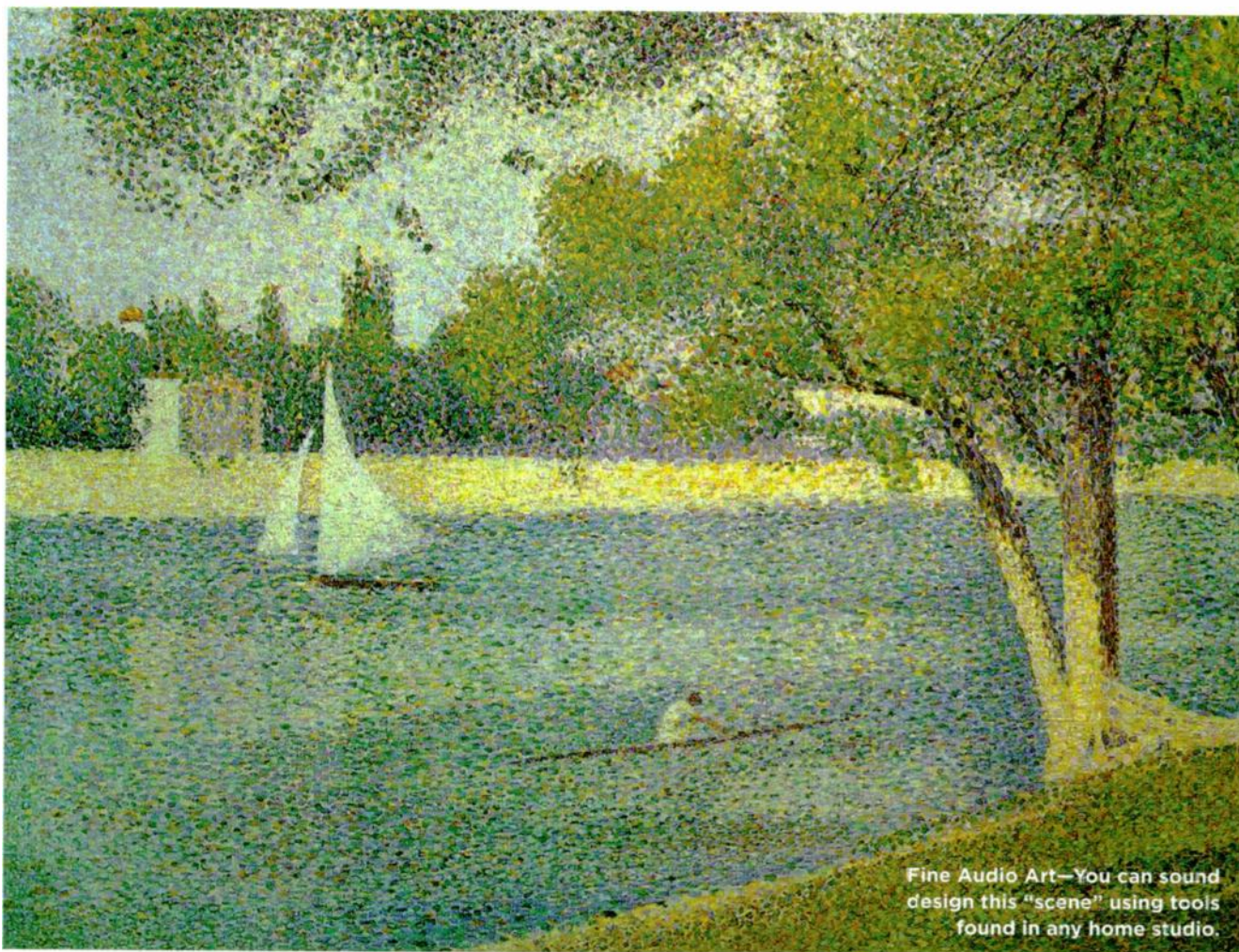
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HOME BREW SOUND DESIGN



MUSEES ROYAUX DES BEAUX-ARTS DE BELGIQUE, BRUSSELS

Fine Audio Art—You can sound design this “scene” using tools found in any home studio.

by **Buddy Saleman**

Some audio professionals will tell you that creating a soundscape for a movie should be left to large commercial studios with massive Foley pits, “tuned” recording rooms with live and dead areas, and a sound-design staff. But armed with a few easy concepts—and the will to experiment—anyone can craft sound design worthy of a Sundance winner with only the acoustic environments

available in a home, and with a very modest studio setup.

What *Is* Sound Design?

If you hear it in a movie, and it’s not music or dialog, it’s sound design. It’s the sounds of a street with honking cars, people yammering, and raging ambulances—the sounds of life moviegoers expect to hear in a scene. For this article, we will design a lakeside scene, using the famous painting by Georges-Pierre Seurat, “Seine

Grande Jatte.” I am using this still image because it’s readily available to view online, making it an easy reference for the sound cues to follow. In the real world, this would be a film snippet of a few seconds or more.

Analyzing the Scene

When you view the painting, you’ll notice a number of elements that require the sounds of motion: the water, the sailboat, and the oarsman. We also have a number of things in

the scene that don't require primary motion-oriented sounds, but do need to provide background sounds and ambience, such as the wind through the trees, the flag in the distance, and overall environmental sounds.

Obtaining Audio Assets

Let's start with the ambience, as our scene is going to need some "environmental tone" and some "water tone." I could go out on location with a mic and a field recorder to capture these elements, but it would take too long, and all the trouble wouldn't buy me that much. So I go online to one of the many free sound effects libraries (such as www.pacdv.com/sounds/ambience_sounds.html) and pick some options to use as sonic foundations.

Water, Water . . .

First up are the water sounds. I chose an outdoor audio clip with a quiet ambience because the lake in the painting is still. To build on the source sound—and to create the appropriate sense of oars in the water and a sailboat cutting across the surface—I fill up my bathtub with water, and set up a Shure SM57 on an articulated boom stand. I use a SM57 because of its narrow harmonic range and tight pattern. An articulated mic stand is also an important tool, because it allows me to put the mic in different positions around the tub and room to capture all the water sounds I need.

I decide to design the sound for the sailboat first. This is a very leisurely boat, so I drop the mic as close as possible to the surface of the water, and I move my fingers slowly through the water. First one finger, then two, and so on until I get a variety of "bow through the water" sounds. I track this with a light compression setting of a 2:1 ratio at a -10dB threshold—just enough to make my "hand waves" sound even and lazy.

Next up is the oarsman. Oars slapping the water are more aggressive sounds with herky-jerky natures, so I move the mic up about six inches, and place it off-axis from the tub's waterline. Then, I make a fist and pull it through the water to make some

more violent waves. For this sound, I use a heavy compression setting of 15:1 and -30dB, and I also crank up the mic preamp to capture all of the nuances of the water motion.

Lastly, I move the mic about four inches from the edge of the tub and about eight inches above the waterline. This position is to capture the sound of water splashing against the sides of both boats. Now, I splash the side of the water in different ways to represent the different sizes of the boats in the water.

Air & Oars

Now I need the sound of wind for the sails and flag, as well as the sound of the oars, the man rowing, and the breeze through the trees. To simulate the air sounds, I place the mic about five-feet high at the opposite end of the bathroom, and I wave a towel in front of it. I experiment with different compression settings in order to have a "wind library" to choose from when I compile my sounds for the scene. I also "flap" the towel at different levels of intensity to collect some flag-blowing-in-the-wind effects. To emulate the breeze through the trees, I gather some small branches from outside, and I wave them gently at the mic from about two arm-lengths away.

For the oar sounds, I take one of the rings of my shower curtains off, and grab my toilet plunger. I place the plunger through the ring of the curtain holder, and I set it on the side of the tub. Then, I hold the ring while I "row the plunger" through the water in rhythmic sequences—just as an actual rower would do. As I do this, my last effect is to breathe hard, because that oarsman is exerting himself.


The Mix

I need two different reverbs running: a long and wide one (a large hall with a very fast attack and a long tail), and a medium one (a medium room with a fast attack and a smaller tail). These two reverbs will simulate physical distances for the scene. The trick to this is making sure the end result doesn't sound like two reverbs of different sizes and decay times, but as a

seamless outdoor environment that matches the idyllic scene in the painting.

All of my bus sends from the original sound-source track will be set to *pre* fader so that I can have independent control over how much wet signal is used. I send the shorter reverb through a bus to the larger reverb. This allows me to have an element that has its own small reverb envelope (as most things do), while also moving through a larger reverb space (or environment). The water/ambience sample I downloaded from the Web will run the length of my "scene" (about 30 seconds). I send the file through a bus to the larger reverb only, putting the reverb sound at about 50 percent and the dry source sample at about 25 percent. This simulates a body of water that is close and far at the same time—perfect for "distance" cues for the sailboat (far) and the rowboat (close). The flag exists mostly in the big reverb. I use one of the busier towel recordings, and I fade it in and out of the reverb over the course of the scene. This will emulate the sound of wind gusts hitting the flag.

My sailboat sound—which is comprised of a combination of the different "fingers moving through the water" and "water splashing against tub" recordings—will be sent to both reverbs simultaneously. The plan here is to slowly pan the source sounds and the reverbs from left to right to match the "movement" of the sailboat. My rowboat sound is composed of the rhythmic oar recordings (which are the loudest component), the water-movement recordings (my fist), and the grunts (which are mixed lower than the oar-in-water sounds, but louder than the water recordings, and appear every three or four strokes). Obviously, the water sounds, while the lowest signals in the package, will always follow the stroke of an oar.

Finally, I will take those breeze-in-the-trees recordings, send them slightly to both reverbs, and leave much of the source signal in the mix. And there you have it—a "scene" that has been completely sound designed in the home! 

QUIT OBSESSING OVER DETAILS!

by Michael Molenda

I've seen the fear. Musicians focused intensely on their mixer or DAW, struggling and sweating for hours upon hours to craft an absolutely "certified perfect" mix. Wow. Chill. Let's see if *EQ* can save you a few grand in therapist's fees and high blood-pressure meds.

First off, there is no such thing as a "perfect" mix. If you listen critically and objectively to all the music floating around this orb we call Planet Earth, you'll notice that myriad sonic spectrums exist. There are thin and spiky mixes, fat and warm mixes, mixes with tons of bass, mixes that sound as if they were recorded inside a yak's colon, mixes that are dense, mixes that are minimalist and airy, and on and on and on. And what does this diverse assemblage of mix soundscapes have in common? Practically every single one of them has charted a smash hit.

So, you see—the pressure is off. You can basically deliver almost any mix to an audience and score kudos, acclaim, and, if you're really lucky, massive royalty checks. The real trick here has nothing to do with fretting over whether the bass is too loud or if the vocal sounds too thin. The most positive goal is ensuring that whatever mix direction you chose, it energizes your music and blasts it right out of the listener's playback system.

Of course, you can worry yourself into hamster sweats over that

objective, as well, but let's not go there right now. Instead, let's focus on three tactics that can help your mixes seduce an audience without your having to spend days freaking out over whether to boost the midrange on a snare track by 3dB or not. You know who you are. Read on.

You Can't Mix Genius Into a Crap Song

This is an awful and merciless truth that few musicians have the guts to face. You can craft the greatest sonic mix ever rendered in recording history, and if your song is a dog, that puppy is going nowhere—that is, unless an angel kisses your forehead or Lady Luck takes pity on your sorry ass. Personally, I've never been that lucky, so I put a lot of energy in trying to ensure the song—and the song arrangement—is worth recording before I set up a single microphone. Knowing whether you actually have something to record is key, and, deep down, I believe even the most egotistical schmuck knows when he or she hasn't done their best work. You just have to admit it to yourself—which is painful. But it's worse putting tons of effort into recording sessions and mixes, only to discover at the end-of-the-line that you've slapped a nice paint job on a derelict wreck of a song that should have been tossed into the "bad ideas" bin months back. So work that song viciously hard until it gives you goosebumps from intro to outro. If you can do this, I think you'll

find the mix will come together as easy as vanilla-bean ice cream and chocolate cake.

Nothing Exists in a Vacuum

One of the most interesting—and time consuming—mix tactics I've witnessed is soloing an individual track, working judiciously on the tone and signal processing for that one track, and then moving on to the next soloed track. The classic example is focusing on the sound of the kick drum, then soloing the snare and working on that sound, then soloing each tom, and so on. Um, did it ever occur to you that the individual mix elements you are so carefully dialing in must ultimately coexist with every *other* element in your mix? You could craft a bitchin' kick drum sound all by itself, but when you finish messing with the soloed snare, the combination of the two tracks together is going to affect the tone of both elements—and, sometimes, the result might make the snare, or the kick, or both sound like dung. Wow, all that effort for nothing!

A trick I learned from the very smart and easy-going engineer/producer Joe Chiccarelli is to *never* solo instruments when you start a mix. There are a couple of ways to take Chiccarelli's counsel to heart, but my favorite method is to just throw the entire mix up all at once. This way, I get a basic idea of how the final mix should sound, with all the track levels

in pretty much the same relationships they will be in when the song is done, dusted, and (hopefully) being listened to by someone other than my mother.

The genius of this approach is that it forces you to listen to the mix as an organic piece of music that must be tweaked as a whole, rather than *pieces* of music (or tracks) that cry out for individual attention. This is also a far more musical way to mix, as you're hearing a "finished" song while you add a bit of treble here, or lower a fader there, or pop in a touch of reverb.

Better yet, you aren't focusing angst and neural energy on the minute elements of, say, a drumstick or guitar-pick attack that most probably won't be heard in the roar of the finished stereo master. You're more relaxed, and less detail obsessed—which can be a good omen for the quality of the final mixdown. After all, didn't your


teachers ever tell you that it's difficult to do your best work when you're stressed out?

Obvious Mistakes Are Obvious

When I berate friends on obsessing over mix details, their common excuse is, "Well, I just don't want to make a stupid mistake that causes my mix to sound unprofessional." I can relate—no one wants to be considered lame and unprofessional. But do you really think a stupid mix move is going to get past your own personal crap filter? You should have more faith in your ability to evaluate good music. But, okay, let's consider some less-than-genius mix tactics.

- Way too much reverb sends vocals, guitar solos, and perhaps most of the mix into a Niagara Falls of idiotic ambience.

- The bass is muddy and out of control.
- The vocal is mixed so loud that the instrumental track is an aural representation of the size of ants viewed by an alien giant.
- Everything is so distorted that it's hard to differentiate the guitars from the kick drum.

Wouldn't you be able to hear that stuff? Duh. Yeah! You'd certainly hear it if it was all over one of *my* mixes. So my advice is to relax on the "mistake" apprehension, because you won't let them happen. And, anyway, it will be far more damaging to your music to slaughter your ears and mental state with constant worries about what *might* happen if a boo-boo sneaks through. Breathe. Relax. And just naturally do what the Doobie Brothers always advise: "Listen to the music." Your mix will rock. Believe it. 

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BY CRAIG ANDERTON

POWER APP ALLEY

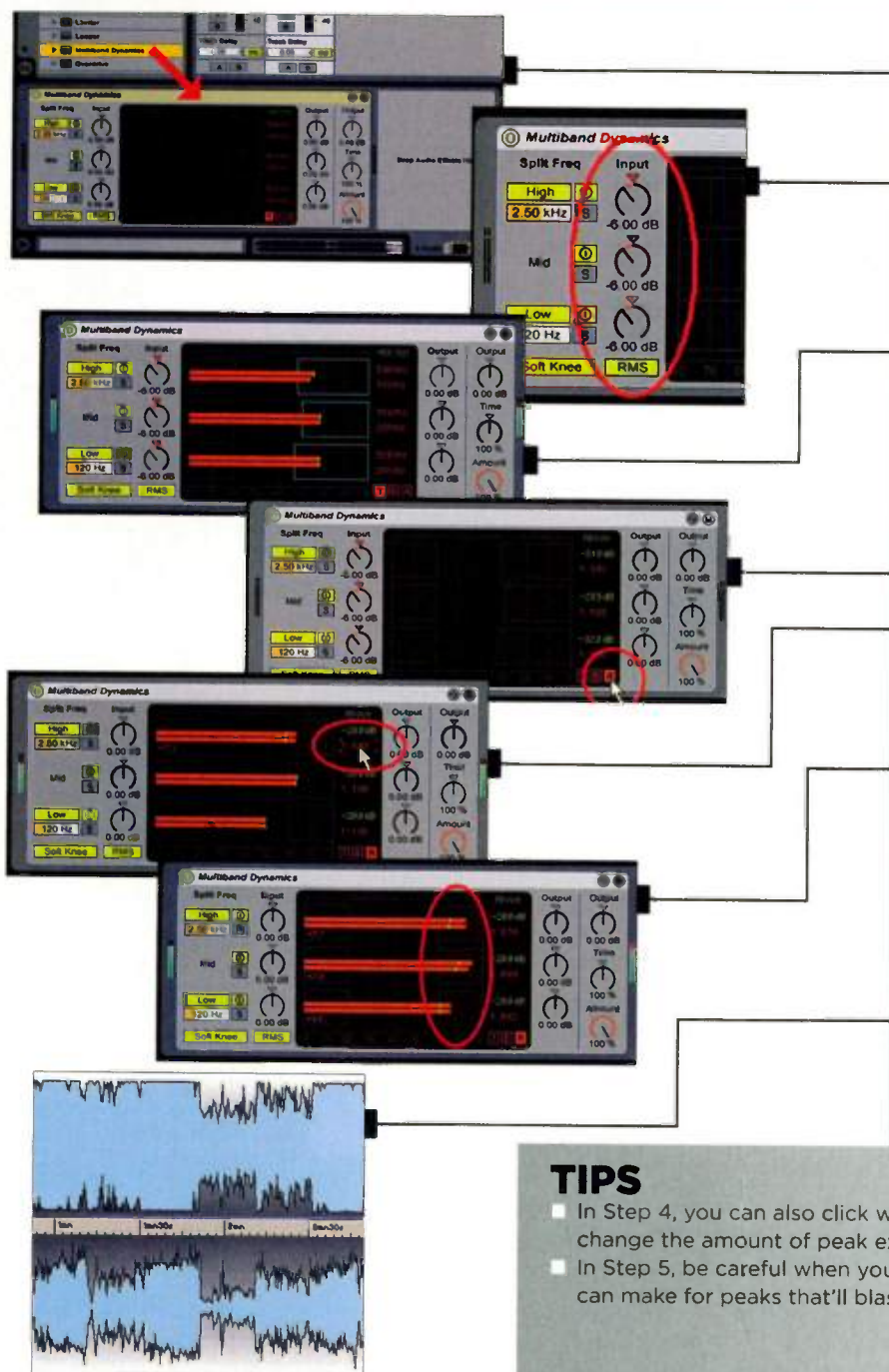
BY CRAIG ANDERTON

ABLETON LIVE 8

“Unsquash” overly-squashed audio files

OBJECTIVE: Restore some of the dynamic range to an audio file with excessive limiting or compression by making the peaks “peakier.”

BACKGROUND: Ableton Live 8 includes a sophisticated multiband dynamics module that can not only compress below a threshold, but expand signals above a separate threshold. If you have a file that’s been “maximized” so much the dynamic range has been trashed, use the expansion function to restore the peaks and give a more dynamic sound. We’ll assume you’ve already dragged the file to be fixed into Live.



STEPS

1. Drag the Multiband Dynamics processor into the Track View Selector for the track containing the audio you want to fix.
2. Turn down the Multiband Dynamics input levels for each band to around -6.0dB (click on each control and drag down). This will open up 6dB of headroom for the enhanced peaks.
3. Play the file and observe the levels, as shown by the meters. Click on the left edge of each “Above” block, and drag it to just below where each band’s peaks occur. Do this for all three bands. (The Above blocks are outlined in blue in the screen shot to make them more visible in print.)
4. Click on the “A” (Above block) button.
5. Click in each orange above field and drag upward to increase the amount of expansion. Higher ratios (e.g., 1:0.6 as opposed to 1:1 or 1:3) indicate expansion.
6. Observe the meters. The meter’s small yellow bars indicate the input signal level, the large orange bars indicate the output level. Because of the expansion, the orange bars will peak higher than the yellow bars. Tweak the expansion ratio for the desired amount of peak enhancement, and you’re done.
7. Compare the difference: The original file is on top, the processed one on the bottom. Chalk up a “loudness wars” victory for the good guys!

TIPS

- In Step 4, you can also click within the Above block and drag up or down to change the amount of peak expansion.
- In Step 5, be careful when you change the amount of expansion—too much can make for peaks that’ll blast your ears.

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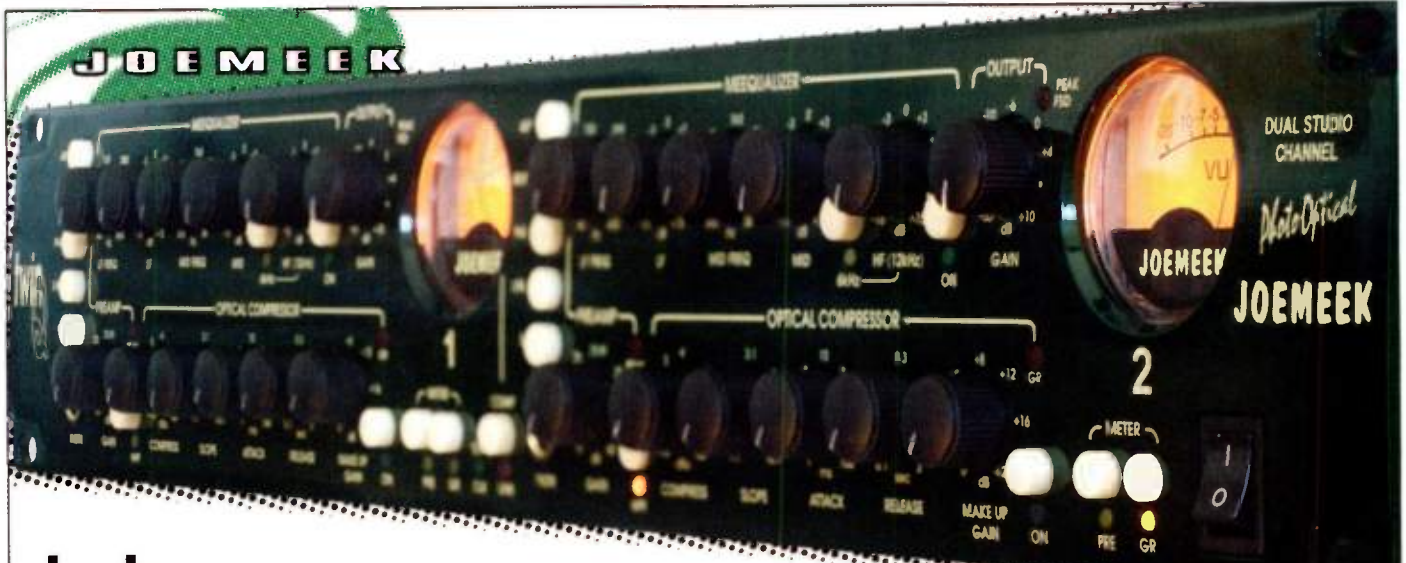
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NEW RECORDING OPTIONS:

BETTER THAN DAWS?

There's more than one way to record with today's technology—and some of these methods might be just right for you.

by Craig Anderton

A little over a decade ago, I was visiting a studio in Paris that was tricked out with that era's state of the art: big Yamaha mixer, 24 tracks of ADAT, computer for editing—and a Yamaha MD4 multitrack, one of those “funny format” machines that recorded four tracks to Minidisc. Say what?

I asked co-owner Francis Fima if he was testing it out for some reason. “No, I do my songwriting with it. I turn it on, it's ready to go, I don't have to wait. It's easy, fast, cheap.”

Point taken. And while the Digital Audio Workstation is the current alpha dog for recording, it's not always the best solution for all possible projects. Just as some people have a sedan and a pickup truck, why limit yourself to one way of recording?

This is particularly true because DAWs continue to get more sophisticated and resource-hungry—they've gone from emulating a multitrack recorder to emulating a *studio*. But when recording a rehearsal, do I really need all that power? No, and as a result, I didn't used to record rehearsals . . . until I wrote a roundup on portable recorders in the 09/08 issue. Since then, I'm seldom without a recorder. Song ideas don't get lost any more, I can listen back to rehearsals, I have samples I never would have gotten otherwise, and it's changed the way I work.

Then there's portable recording with laptops. Can you really run full-fledged DAW on a laptop? Yes, but there are alternatives that may do all you need in a slicker, faster way.

At some point, you'll go from doing recording to being a *recordist*—

recording becomes a way of life, you're fluent with a variety of ways to capture what you need, and you always choose the right tool for the right job. So, this isn't necessarily about ditching your DAW, but about other options in the wide, wide world of recording.

This roundup is a little unusual because we won't be reviewing products, but methods of recording—each has pros and cons that are shared by most products within that genre. So no matter how much you love your DAW, read on . . . there are things out there that aren't dependent on Microsoft or Apple (or Linux) operating systems.

As usual with our roundups, all prices are list prices (translation: shop around, they're fiction), and the order depends on what our esteemed layout artist felt looked best on the page.

ANALOG TAPE RECORDING

Analog tape refuses to die gracefully. In fact, like tubes and vinyl, it's making a bit of a comeback.

But why? Tape recorders are maintenance-intensive. Tape deteriorates, and while it's not impossible to find blank tape, it's not getting any easier. However, analog enthusiasts point out—quite rightly—that computer-based DAWs require main-

tenance too, like updating, defragmenting, troubleshooting (only in marketing-land do computers work flawlessly), and the like. And while hard drives don't deteriorate like tape, at some point they *will* go to Hard Drive Heaven. Tape, when properly cared for, has a long shelf life. But the main argument from analog tape fans is the sound: Tape is a processor, and for some music, it's processing some people really like.

No new studio tape recorders are being made, so you'll need to research companies that specialize in analog recorders, like JRF Magnetic Sciences, Sprague Magnetics, ATR Services, B.A.S.E., and the like. These provide a variety of services and parts, and sometimes reconditioned recorders. But also check with the manufacturers (TASCAM, Fostex, Otari, Studer) who used to make recorders, as they sometimes still have parts in stock (Figure 1).

As to buying an analog recorder, *do your research*. Most recorders are at least a couple decades old, and loaded with mechanical parts that can wear out. Either spend the bucks for a recorder in good condition, or dedicate yourself to restoration; it's not unlike buying a classic car and having it become an obsession, as you search for something like a steering box in good condition. There's some solid information on what you're getting into with analog tape recording at www.sonicraft.com/a2dx/Analog_Warriors.html.

Also note that some pros combine analog and digital by tracking to an analog tape recorder, then immediately transferring the audio to a DAW for editing and mixing. This keeps "that" tape sound, but also, takes advantage of digital's many talents.

Strengths: Sound quality that's different from digital. Distorts in a way that no plug-in has totally captured. By definition, requires a mixer—so you have a physical control surface. When cared for, tape can have a long life. Many rock aficionados say that tape is the sound of rock and roll. Non-restored recorders typically cost a fraction of their original price.

Limitations: You need to align machines, replace heads, demagnetize the tape path, and so on. Editing is very limited compared to DAWs. Tape can stretch, and sometimes quality control is an issue. Limited ability to interchange projects with other studios. Noise reduction is needed to match digital's dynamic range.

Quote from the target audience: "It's worth the hassle because it sounds better than digital."

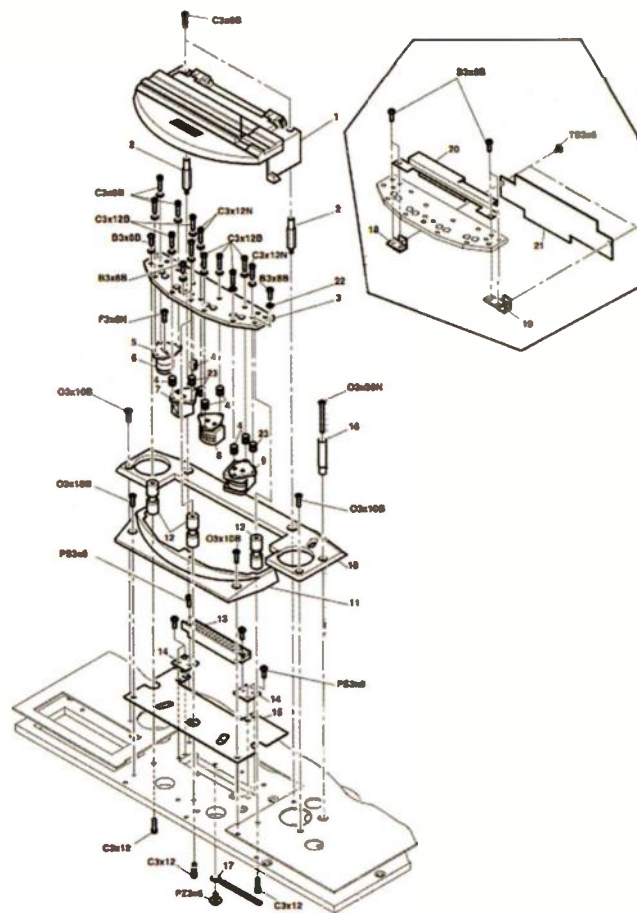


Fig. 1. Otari has PDFs on their site with exploded views of the assemblies in their various recorders; some parts are still available. So—are you ready to restore that head stack?

“NON-DAW” SOFTWARE

You don't always need to record digital audio to create music; just ask the successful dance and audio-for-video composers who do everything with Propellerhead Software's Reason. But often, the dividing line between DAW and non-DAW software is blurry; for example, what about Image-Line's FL Studio, where some versions can record audio and some can't? Or GarageBand, which has much in common with DAWs, but most would classify as an entry-level program? Or Acoustica's MixCraft, which thinks like a DAW but isn't priced like one? Then there's EnergyXT, which is designed to get ideas down fast, but isn't sold specifically as a "DAW."

Rather than try to define this genre, let's just figure that if Steinberg sells Cubase 5 for around \$600 and Sequel 2 for \$130, it's clear Sequel is not the company's "flagship DAW." Yet these types of programs are surprisingly versatile, nimble, have relaxed computer requirements, are inexpensive, and can often get you making music faster than more comprehensive programs.

The top "non-DAW" program would have to be Reason (Figure 2), a virtual MIDI studio. Although it doesn't record audio (yet—Propellerheads just announced a companion recording program, Record), it can ReWire into virtually anything that can record audio.

Non-DAW programs are sometimes self-contained, and don't support all protocols—for example, Acidized WAV and REX files, or the ability to import and export particular file types. Still, they'll have enough options that you'll at least be able to export audio that can be loaded into someone else's DAW.

And there's another factor: These programs can be like sample/loop/needledrop music libraries on steroids. For example, Sequel 2 offers content in a variety of styles, and you can put music together in various genres really fast for about the cost of a single sound library CD- or DVD-ROM. Another "non-DAW" program that's great for generating needledrop-type music: Sony's Cinescore, which does only one thing—generate music algorithmically—but does it extremely well. If all you need are quick beds for a video project, do you really need to fire up your DAW?

Strengths: Sometimes simpler is better when the clock is ticking, or inspiration strikes. Can often get by with a less powerful computer. Most of these programs are laptop-friendly for those “on the go.” Less to learn, less to think about. Often include a significant amount of content.

Limitations: Can be difficult to interchange projects with other studios. Features like surround, audio-for-video, and even particular types of file support (e.g., REX files) may not be included—shop carefully to make sure there’s no “deal-breaker.”

Quote from the target audience: “I really don’t need anything else, and besides, I need to make the 5 p.m. Fed Ex dropoff.”

Fig. 2. Reason caused jaws to drop when it was introduced, and it still represents one of the most capable and creative alternatives to the standard DAW.



NOTATION SOFTWARE

An entire class of “non-DAW” software consists of notation programs like Notion, Sibelius, Overture (by Geniesoft), and Finale. These let you compose using notation, yet play back the results through included sound engines and libraries. Notion integrates an orchestral library of sounds from the London Symphony Orchestra (recorded at Abbey Road Studios, no less). Sibelius’ Sound Essentials collection uses Native Instruments’ Kontakt Player 2 for playback, with sounds from Garritan, Sonivox, Tapspace, and others; Overture hosts up to 256 instruments and can save playback to a WAV file; and while Finale used to include (and still supports) a Kontakt Player 2 sound set, the latest version incorporates Garritan’s recently-introduced Aria Player Engine, which comes with a new set of samples. (Interestingly, Garritan pioneered playback with notation programs with GPO Studio, a host for notation programs.)

MOBILE RECORDERS

EQ did a roundup of these puppies in 09/08, and aside from Line 6 getting into the fray and most companies introducing incrementally new models, most of that article still applies. But based on my own experience, if I could have only one non-DAW recording device, one of these would be it.

I’ve used portable recorders since the days of cassettes to grab sound effects and samples. But I really learned their value when rehearsing with bassist/drummer Brian Hardgroove (Public Enemy), who insisted on having his Roland R-09 recorder running all the time. And with good reason: Many songs came out of taking phrases from jams, and we also had an instant “reality check” when trying out a new arrangement. When the rehearsal was over, I’d just plug the USB out into my computer, wait a few seconds, and bingo—plenty of material to check out and mine for inspiration.

I was so taken by this approach that now when I play guitar, Line 6’s BackTrack is always connected. As with the R-09, it’s managed to capture really useful musical ideas that otherwise would have been lost forever. And when I gig, I try to get a recording so I can debrief afterwards and decide what worked and what didn’t.

But the wide variety of units means you must be careful when shopping, and you may need more than one. For example, if you’re into collecting samples, you’ll want something you can carry around easily and conveniently—for small size and long battery life, Yamaha’s Pocketrak 2G (\$450) is ideal. If you’re recording in surround, then the Zoom H2 (\$334.99 as shown in



Fig. 3. The Zoom H2 has the unique ability to record in surround using four built-in microphones.

Figure 3, or the newer H4n) is the ticket. For extreme fidelity (with a price tag to match), check out Korg’s MR-1 (\$899). Need to overdub? TASCAM’s DR-1 (\$399.99) does the job. For field recording, Sony’s PCM-D50 (\$599.99) is like a mini-Nagra . . . and when you need something general-purpose, M-Audio’s MicroTrack II (\$499.95) is very versatile. You get the idea: Define your needs as precisely as possible, because that makes it easier to find the unit that handles those needs.

Even then, though, there are surprises. With the Zoom H2, I recorded ambiances in surround “just because I could,” but have since found that having a choice of tracks for stereo can also be valuable, too.

Strengths: Choose wisely, and you’ll never be without a recorder by your side. Capture moments of inspiration and once-in-a-lifetime samples. Relatively inexpensive. Use for non-musical

applications, like recording meetings. Quality of many units is good enough you won't have to re-record a "real" version.

Weaknesses: Very few editing options, and only a couple units allow overdubs. The most compact units tend to be designed more for journalists and podcasting, while the less

portable units offer more musician-oriented features. Some units don't have user-replaceable memory or batteries.

Quote from the target audience: "I was recording this melody line idea, but then I walked past this jackhammer that will be an awesome kick drum after I drop it down an octave or two—so I recorded that, too."

GROOVE BOXES

I always used to think of MPC-type groove boxes as instruments, not studios. But for hip-hop/rap/dance music productions, a good groove box might be all you need; I've seen plenty of musicians do entire recordings with these versatile devices.

Groove boxes have changed a lot since they were glorified drum machines. Thanks to cheap RAM, the sampling capabilities that were originally intended to load in new drum sounds can now record entire vocals. Akai's MPC5000 (\$3,499; Figure 4) even has detailed waveform editing, eight tracks of streaming multitrack recording, onboard analog synthesizer, and tactile controls—although most groove boxes are compatible with hardware controllers if you want to get more physical with your music. Even Korg's KP3 (\$460)—which traces its roots back to the KAOSS pad, not an instrument *per se*—has the sampling, resampling, control, and effects options that allow it to be a complete performance/recording box.

Roland's MV-8800 (\$2,899) is another "studio in a (groove)box," but you can accessorize it with a VGA monitor and mouse. Roland even promotes it as a device that you can take from initial inspiration to final master: There's a CD-R/RW drive and various "mastering effects."

Some groove instruments are software-based, and fall more into the "non-DAW" category. Programs like Native Instruments Maschine, MOTU BPM, Cakewalk Beatscape, SoniVox Playa, and others are designed to run on your computer rather than exist in a piece of hardware (although Maschine is an exception—it includes a slick hardware controller as part of the package).

One of the coolest aspects of recording with groove boxes is that they remove the line between performance



Fig. 4. The MPC5000 traces its ancestry back to the venerable Linn 9000, but talk about evolution—the MPC is more like a complete studio than just a "groovebox."

and recording. Because the recordings aren't about endless overdubs and comping, sometimes these machine-driven compositions actually sound more "human" than recordings done with traditional techniques.

Strengths: Compact, all-in-one solution doesn't really need anything else. Devices of this type encourage spontaneity and performance moves. Over the years, some units have acquired multitrack recording and waveform editing. Often include storage/memory expansion options.

Limitations: Best suited to specific styles of music; I can't imagine someone recording an acoustic guitar album with a groove box. Onboard sounds are usually heavily waited toward hip-hop/dance styles.

Quote from the target audience: "Hey, check out these beats. I'm definitely going to work a set around them."

GUITAR "WORKSTATION"

This product category is associated with DigiTech, because after the GNX3 kicked off the genre, their GNX4 (\$589.95) put all the pieces together into one package—8-track solid-state recorder, built-in drum machine with drum patterns, tons of effects, mic preamp, USB computer interfacing, footswitches/pedal controller, analog interfacing for mixers/amps/etc., and companion software (sequencing, editing, and librarian). The GNX4 may look like a floor effects box, but you can produce full-fledged demos on it. The only thing it really lacks is a mixer-type interface, but even then, you can mix on it—albeit not with the ease of some other non-DAW options.

Another "guitar processor with recording," the Boss Micro BR (\$319.50), is billed as a 4-track portable recorder—but you can record an additional 32 "virtual" tracks for alternate takes and comping. It also incorporates effects, rhythm patterns, USB interfacing for data transfer, and an SD card slot for storage. It even has a built-in mic if

you get lyric ideas while you're jamming. The Micro BR can load MP3 files, and do time-stretching for phrase training. While it's not as complete a recording box as the GNX4, given the small size (think iPod) and low price, it's somewhat like a portable solid-state recorder for guitar players.

A final option isn't self-contained, but devices like the Korg Pandora PX5D, Line 6 POD X3, Line 6 TonePort, and DigiTech RP series include USB interfacing so you can use them as "guitar front ends/interfaces" for your computer. Are we in DAW-land yet? Not really, but using these external boxes removes latency issues, which lets you use inexpensive laptops to record your ideas. If the whole premise behind the "non-DAW" approach is to use something simple, fast, and efficient to get ideas down fast, these devices can facilitate the process—if you're a guitarist.

Strengths: Double-duty—suitable for stage and studio. Not much more expensive (if at all) than effects-only devices. Tons of guitar-oriented effects.

Limitations: With the exception of the GNX, the ability to accommodate other signals (like quality condenser mics) is limited or non-existent; and only the GNX4 can really record complete demos.

Quote from the target audience: "As I was already playing guitar and using effects, I figured since it had drums and vocals, I might as well use it to record demos instead of just using it on stage."

PORTABLE STUDIOS

TASCAM coined the word "Portastudio" back in the late '70s to describe their portable, analog cassette-based studio-in-a-box—not only could it record, but there was a built-in mixer, and aux sends for outboard gear. TASCAM is still at the top of the Portastudio game, from the higher-than-entry-level DP-004 (\$279) that records on SD cards, to the hard disk-based 2488neo (Figure 5; \$1,200 list).

Having used the original 2488, I can attest to the family's surprisingly high level of performance. The 2488neo records 24 tracks (as well as 250 virtual tracks), and you can record eight simultaneous inputs—a rarity in portable studios. There are plenty of effects, including mastering effects like multiband compression (particularly handy, as the 2488neo includes a CD burner), guitar multi-effects, and 3-band EQ on all 24 channels. It has USB 2.0 for file transfers, and is portable; sure, there are some compromises—faders are 45mm instead of 100mm, and you can't do sample rates above 44.1kHz. But in terms of finished product, you would never know a demo was recorded on a "budget" portable studio.

The DP-004 is more like a portable recorder that's set up for multitrack work; it can record two sources at once, and includes a built-in condenser mic. You can consolidate the four tracks to add more overdubs, as well as mix them to a dedicated stereo master track. Like the 2488neo, the DP-004 has USB 2.0 for file transfers. Note that TASCAM makes more Portastudios than just these two; go to their website for details.

However, TASCAM doesn't have a monopoly on the portable studio. Yamaha's hard disk-based AW1600 (\$1,499) is another full-feature portable studio (unfortunately, its big brother, the AW2400 with motorized faders, is discontinued) that allows burning your final results to a built-in CD burner. It can record eight simultaneous tracks from combo jacks (all with phantom power), with a total of 16 tracks in 16-bit mode and eight tracks in 24-bit mode—although there are also eight virtual tracks per physical track. Mix-wise, there's a 4-band EQ on every channel, and the mix engine is the same as Yamaha's O2R96 mixer; interestingly, the AW1600 has a "Pitch Fix" algorithm for fixing vocal pitch problems.

Fostex is another leader in this field, with its latest offering being the hard disk-based MR-16HD/CD (\$699). It's compact, and records four tracks simultaneously while providing 16-track playback at 16-bit resolution. There's also a built-in CD recorder so you can go from recording to final product in one box. It has several effects, including one optimized for guitar with amp



Fig. 5. People would have killed to have something like TASCAM's 2488neo back in the '80s—especially at this price.

simulation and distortion. However, this is only applied on incoming signals, so once you've recorded through these effects, there's no "undo" other than re-recording. And while (like most of these recorders) it doesn't do MIDI, it does have MIDI out for sending clock or MTC to an external sequencer; and there are both USB 1.1 and USB 2.0 ports.

Two other companies in the field are Korg and Boss. Korg's D3200 costs somewhat more than average (\$1,799), but the feature set is extremely capable: 12 simultaneous record tracks (including eight XLR mic ins with individually-switchable phantom power) and 32 tracks of playback (with eight virtual tracks for each physical track), 44.1/48kHz sample rates, 32-bit internal signal path resolution, 80GB hard drive (most hard disk-based portable studios use 40GB), built-in drum machine with shuffle and humanize functions, non-destructive editing including time compression/expansion and adaptive noise reduction, "scene" and dynamic automation that records fader and pan moves (but no motorized faders, of course), and MIDI control over mixer parameters for additional automation options.

I've logged a few hours on the D3200, and it's impressive: The sound quality is excellent, the workflow makes sense (helped considerably by the display and matrix of 16 realtime control knobs), and the effects are useful. A box like this even outperforms many of the "big studios" of yesterday whose gear cost hundreds of thousands of dollars . . . thank you, progress.

Korg also makes the D888 (\$800)—a no-frills 8-track (64 virtual tracks, plus a two-track stereo mix track) hard disk recorder with an 8-input/8-output mixer. It's designed to be dead simple to operate; it basically looks like a mixer that records, with channel strips (including 3-band EQ with

WHAT'S THE DEAL WITH VIRTUAL TRACKS?

Many portable recorders have a spec like "eight physical tracks and 64 virtual tracks." This means you can record multiple takes for each of the physical tracks (in this case, up to eight) but you can't *play back* more than eight tracks. One application for virtual tracks is recording, say, eight vocal or guitar solo takes into one track, then choosing which one you like best without having to use up other tracks. In some cases, you can use virtual tracks to bounce pieces of the virtual tracks to the same track or a different track; this varies from unit to unit, so check the specs.

knobs, XLR and TRS ins with +48V phantom power, pan, and fader) and an LCD. You can record eight tracks simultaneously, and in addition to monitor and master outs, there are individual outs for channels 5-8.

In a lot of ways, the D888 is more of an easy-to-use capture medium, although it does include onboard effects, location points, and basic non-destructive editing. However, editing can take a while it shuffles data around, and writes to disk.

Boss currently offers five small studios, including the Micro BR mentioned earlier. Boss calls the BR-600 (\$399) a "notebook studio," and it's the "Macbook Air" of the genre—thin and portable. It records to Compact-Flash cards, offers eight simultaneous playback tracks and 64 virtual tracks, and being made by Boss, it includes a drum machine (with velocity-sensitive pads—cool), guitar/bass effects, and vocal effects (including pitch correction). Conveniently, it can operate on batteries or AC.

Their top-of-the-line model, the BR-1600CD (\$1,399) is a 16-track (256 virtual tracks) hard disk recorder that can record from eight inputs simultaneously. It includes built-in effects (pitch correction, individual track EQs, 8 dedicated compressors, mastering effects, etc.), "instant" backing tracks with drums, bass, and loops, CD writer, and MIDI slave sync. If you can get by with 2-track simultaneous record and 12-track simultaneous playback (192 virtual tracks), you can save about \$350 by going for the very similar BR-1200CD.

One of the more interesting devices of this family, Zoom's HD16 (\$1,249.99), is a 16-track recorder that's laid out like a mixer and feels more like

a stand-alone hard disk recorder. It has built-in effects, mixing, mastering, and CD burning. But the really clever part is that if you want to bounce the files over to a DAW for further editing, the HD16 becomes a full-fledged control surface. Smart.

Another unusual entry into this category is Cakewalk's Sonar V-Studio 100, which incorporates an 8-channel digital mixer, onboard SD recorder, a control surface for DAWs, built-in channel strip effects, and an extensive software bundle. What makes it unusual is that it's useable with a computer, without a computer, for live performance, or in the studio. For example, you could prepare backing tracks in a computer, transfer them to the V-Studio 100's SD recorder, then take the unit out for live performance—plug instruments/mics into the mixer, then record the live performance (including the backing tracks) into the SD recorder.

Strengths: Portable studios incorporate most of the functions you'd expect from a recording setup, often including a drum machine. Physical interface is easy to use. Can usually transfer files via USB or card reader. Models with CD-R/RW drives let you create a finished product. Cost-effective, and generally a no-brainer to operate.

Limitations: MIDI, when present, is limited to sync functions, not recording or playing back MIDI data. Construction sometimes cuts corners to hit a price point. Generally use short-throw faders. Editing operations may be slow.

Quote from the target audience: "Life is too short to waste it reading manuals, going through a zillion menus, or dealing with computers for recording music."

STAND-ALONE HARD DISK RECORDERS

Remember the ADAT? It's what brought digital recording to the masses. But when it ran its course, it was replaced by stand-alone hard disk recorders that unlike portable studios, required an external mixer as well as outboard effects, mic preamps, and the like. These stand-alone recorders are the heirs to the stand-alone multi-track recorder legacy.

There's no significant editing; that's best done with a computer. As

a result, all these units can transfer their data over to a computer for editing. Not surprisingly, Alesis was one of the first to obsolete the ADAT with the HD24 (Figure 6; \$2,499), which despite being introduced earlier this century remains popular and in production. It's a 24-track recorder with 24 ins and outs, making it very useful for remote and location recording; because Alesis figured out a different way to write data to the drive, it can use inexpensive IDE drives—which are actually less expensive

Mojave Audio

by David Royer



David Bianco

"Mojave Audio is really making me look good"

Producer/Engineer: Tom Petty, Bob Dylan, Ozzy Osbourne, Blues Traveler, T.S.O.L. and Mick Jagger.

on recording Tift Merritt's "Another Country"

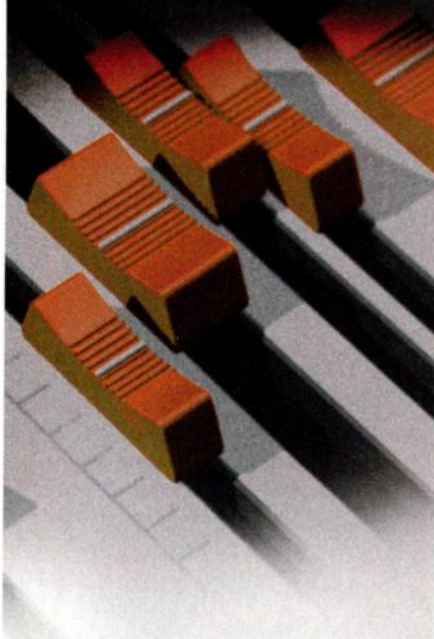
"The Mojave MA200 came up head and shoulders above the rest to be the vocal microphone of choice."

on recording Susan Tedeschi's "Back To The River"

"The MA100 beat all the competition for the guitar sounds. I was shoving those mics right at the speaker cones in the vintage Fender Twins and Vibroluxes and they sounded fantastic."

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GEAR HEAD



Fig. 6. The hard disk-based Alesis HD24 was conceived as a replacement for the ADAT, but has taken on a life of its own.

than an equivalent amount of ADAT S-VHS tapes. While the HD24 is limited to 44.1/48kHz, the HD24XR replaces the A/D and D/A converters for improved performance and the ability to do 88.2 and 96kHz sample rates (upgrade standard HD24 machines for about \$1,000).

The HD24 includes two hot-swappable media bays for replacing or backing up media, and also has a built-in FTP server to transfer data to computers (the hard disk file format is proprietary). However, a better solution is the Alesis Fireport (\$249), which allows for FireWire transfers.

Then there's TASCAM's X-48 (\$4,999), a 96kHz/24-bit, 48-track "Hybrid" Hard Disk Workstation that also includes a 60-channel digital mixer with automation and processing. A VGA output provides the GUI and editing features typically associated with a computer-based DAW, aided by the ability to plug in a mouse and keyboard. As to data transfer, it supports external FireWire hard drives (but also includes an 80GB internal drive), Gigabit Ethernet, and AAF export of its Broadcast WAV audio files. Another cool transfer-oriented feature, "tape mode," simplifies file management by creating one audio file per track. And varispeed fans, take heart: It has one.

In a way, the X-48 crosses over

between stand-alone hard disk recorders and "studio-in-a-box" solutions, because you can capture with it live, then in the studio, use the VGA-based DAW-type interface where each channel provides 4-band parametric EQ, dynamics processing, and four VST plug-in insert slots.

Another option, the JoeCo BlackBox, is a 24-track stand-alone recorder that records to an external USB2 disk drive. This makes it easy to take the Broadcast WAV files recorded on the drive, and load them into a workstation for editing. BlackBox is intended as a capture device for live performance, specifically, for patching into the insert points on a mixer's channels—but you can stack units for more than 24 channels. It's also possible to buy optional ADAT, AES/EBU, and balanced analog interfaces.

Strengths: Sidesteps computer OS issues for increased stability. More rugged than typical laptop-based setups. Easy to operate, and well-suited to live recording.

Limitations: Not as flexible as computer-based units. Aside from the X48, files need to be transferred to something else for significant editing and mixing.

Quote from the target audience: "Take my studio apart to go do a live recording? What are you, crazy?"

KEYBOARD MEETS STUDIO

Today's workstation keyboards, like the Roland Fantom G, Yamaha Motif, and Korg M3, are like studios that just happen to be designed around a keyboard. Unlike the many recording options that lack MIDI, keyboard options excel at MIDI—with the M3's touch screen, you can even change note lengths and positions with the tip of your finger on the piano roll screen.

But they can also record and play back audio by treating audio as long samples, and playing them back by

triggering them at the right time. There may be limitations as to how many tracks you can record, but it will be enough to let you add vocals and other acoustic instruments—and of course, the workstation can supply a whole lot of orchestration on its own.

Another option flips the concept of adding a studio to a keyboard by adding a keyboard to a studio. Open Labs makes a line of products that are a bit larger than the average keyboard workstation, but typically include a QWERTY keyboard, 15" touch screen, and control surface(s)—



Fig. 7. Open Labs' NeKo EX5 has an Intel Core 2 Duo 2.8GHz processor, 2GB of RAM, 500GB hard drive, dual-layer CD/DVD burner, and comes with a Windows OS that's custom configured for music production.

all of which hook into a fast, capable Windows-based computer. As a result, you can run a variety of programs (e.g., Live, Sonar, Pro Tools, Samplitude, etc.) as well as virtual instruments. Open Labs products include Riff software, a custom program optimized for hosting virtual instruments; you'll also find standard computer ports like FireWire, USB, Ethernet, and a PCI Express slot.

And this is a good way to end our journey, because with the Open Labs line, we're sort of back again at the DAW—although in a very different format!

Strengths: Ideal for those doing a lot of MIDI orchestration. One of the few non-DAW options that's serious

about MIDI. Typically includes hardware for realtime control. Some can appear as plug-ins within a DAW, and have extensive editing software. Many are expandable with hard drives, USB sticks, networking, etc.

Limitations: With the exception of Open Labs, not oriented toward recording lots of hard disk tracks. Editing may be limited compared to computer software. Physically large, but then again, you *do* need a keyboard to play the sounds.

Quote from the target audience: "I do a lot of work with MIDI keyboards, so it can be a lot easier to sketch things out—or even complete them—in the keyboard. Besides, if I really need deep editing, there's computer compatibility."

CONCLUSIONS

There is indeed a world beyond DAWs. They're still the most powerful way to capture, edit, process, and mix music, but of course, power always comes at a price. Sometimes all we want to do is make music, and sometimes we want to capture it before it goes away.

Check out some of these alternative ways to record, and you might find yourself being more productive, writing more songs than ever, or even getting involved with different ways of making music. And if you really want to get heavy with the editing, never fear: Just about anything can be transferred to your DAW of choice. 🎧

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GADGETS & GOODIES by Craig Anderton IT'S TIME FOR... FUN WITH GUITARS!

Step right up, guitar players—and plug into your laptop, plug into a synthesizer, or for that matter, play a synthesizer on your laptop from your guitar. (All prices are MSRP.)



Centrance AxePort Pro (\$149.95, www.centrance.com)

The MicPort Pro (which converts XLR mic signals to USB) has served me well, and the guitar version, AxePort Pro, is just as good: It's a cigar-shaped interface with a 1/4", 1M impedance connector. Plug in your guitar at one end; the other end has jacks for USB and headphones.

The sound quality is *excellent*—you can get serious level in the 'phones (both the headphones and guitar input gain have their own knobs), and AxePort also does 96kHz recording. Two cool software features are an applet that lets you mix the processed sound with zero-latency dry sound, and the ability to aggregate AxePorts and MicPorts in ASIO mode—add a MicPort if you're a singer, or another AxePort if you play a stereo instrument like Chapman Stick. For eye candy, you'll love the white ring around the jack that lights up when you plug in to USB (you can turn it off, though).

AxePort Pro needs no drivers for Windows XP, Vista (32/64), or Mac OS X 10.4. Also included: ASIO drivers and software extras on a 1GB USB stick (check the website for Vista-64 drivers), a 6' USB cable, and carrying pouch.

There's stiff competition from compact devices like NI's Mobile I/O and IK Multimedia's Stealthplug, both of which include excellent amp/effects sim software. But for the sweet spot of small size and big sound, AxePort delivers—and the multi-driver aspect is a plus.



Sonuus G2M Guitar-to-MIDI Converter (\$129, www.sonuus.com)

The G2M fills a unique slot in the market: It does monophonic (single-note) guitar-to-MIDI conversion for under \$100 street, and doesn't require a special pickup—just plug and play. It's also cute and small, with a hi-Z guitar in and boost switch on one end, a 5-pin DIN MIDI out connector (not USB) and guitar "thru" jack on the other, and LEDs on the top that show power on as well as tuning, low battery, clip, and MIDI activity. The G2M requires a 9-volt battery; the company claims about 70 hours of battery life.

As with other converters, you'll need to adjust your technique for the best results—strings and frets weren't designed to be switches, yet MIDI wants clean, unambiguous notes. Don't play more than one note at a time, and use the palm of your hand to deaden the harmonics for better triggering. The G2M prefers flat picks with a fairly light touch; if you're a basher or use a thumbpick, dial back a bit on the dynamics.

Your first attempts will probably be glitchy, but once you adapt you'll get good results (also try adding EQ and/or compression before the G2M). I found the G2M ideal for bass lines, strings, brass, and interestingly enough, drum/percussion overdubs.

Don't expect miracles, but given the low price and daunting task of guitar-to-MIDI conversion, the G2M opens up MIDI guitar—and MIDI's editability—to a far wider audience.



Applied Acoustics Systems Strum Electric GS-1 (\$229, www.applied-acoustics.com)

This plug-in/stand-alone virtual instrument (VST, AU, RTAS, Mac/Windows) is a tough product to review, because I really like it—but maybe not for the reasons AAS would expect. No, it doesn't replace a guitarist, although you can come surprisingly close. Where the GS-1 excels is in creating "idealized" guitars (the engine is based on physical modeling), as it can provide "guitaristic" sounds you can't get any other way.

If you want to emulate "real" guitar, read the manual—your success will depend on how well you take advantage of the mappings AAS has done to relate notes and gestures to a keyboard (e.g., hit a single note, and that's what you hear; hit a chord, and it's voiced like a guitar—but you can also do upstrokes and downstrokes, program strums, link parameters to MIDI, and the like). There are plenty of useful presets to get you started, but still, you need to learn to *play* them.

Things get really interesting when you edit parameters for individual strings—everything from pick/finger characteristics to hammer-on, pickups, and amps. (However, note that while GS-1 includes amp simulation, it's not on the same level as full-blown amp sims.)

If you want to bring something new to your music, Strum GS-1 is intriguing, versatile, clever, and fun. Is it for you? Fortunately you can download a demo version, and decide for yourself. **EQ**



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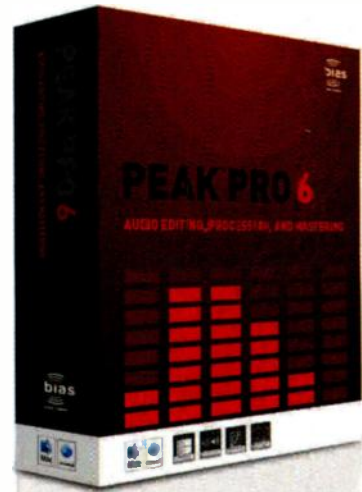


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The legendary RØDE NT2-A features a large-diaphragm (1") condenser capsule with switchable polar patterns (cardioid, figure 8, omni), highpass filter (flat, 40Hz, 80Hz) and pad (0dB, -5dB, -10dB). The all Australian-made NT2-A features incredibly low self noise and a wide dynamic range, and was the recipient of the MIPA "World's Best Studio Microphone" award in 2006. The NT2-A is the go-to mic for any musician and engineer that demands reliability, quality, and performance.

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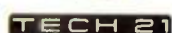
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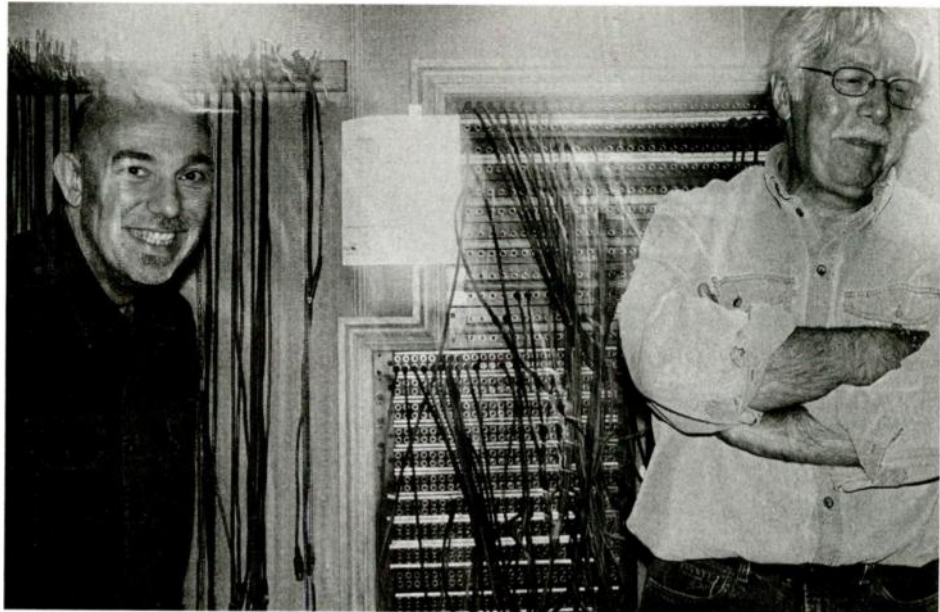
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Joe Chiccarelli Interviews Ken Scott December 2005



Chiccarelli: You've worked with some of the greatest guitar players ever, so I was hoping we could talk about a few of them. What was the Beatles guitar thing?

Scott: It was mostly Vox amps, but there was some experimentation by the White Album, and we even used Fenders. The miking was Neumann U67s, positioned maybe a foot to two feet away.

Chiccarelli: Not smashed up against the grille cloth?

Scott: No. One of the things you learned back then, because you didn't have much control over the sound, was that the sound had to come from the guitar. And, today, one of the other things that has changed the way guitars sound is these high output pickups. Plug in an old Strat or Tele with the original pickups, and you'll get this amazing sound. But high-output pickups have this weird high end that you can never completely get rid of, and it just gets so annoying. Every engineer and guitarist should really understand the effects these pickups have on the sound of their rig.

Chiccarelli: What about George Harrison on *All Things Must Pass*?

Scott: George was a perfectionist. Amp-wise, it was usually Vox and Fender, never Marshall, and we often used Leslie cabinets. The mics on that would have been a Neumann KM54 or

KM56 on the top, and a Neumann U87 or U67 on the bottom.

Chiccarelli: Jeff Beck kind of defines for me what a great guitar player is supposed to be. His tone, the nuances, and his dynamics are just tremendous.

Scott: I did *Truth and There and Back*, and I saw so many different sides of him. I saw Jeff in the "very confident phase," and then in the times when you had to coax him along.

Chiccarelli: When you'd work with Jeff Beck or George Harrison, did you go out to the amp and make sure the tone was dialed in?

Scott: No. They knew what was needed. It was just there—you weren't trying to fix something. I would have miked them the way I tend to mic everybody—either a U67 or U87 in front of the amp, and, sometimes, maybe a distant mic. You don't have to do all of that multiple miking kind of thing when the musician is giving it to you. If it comes from the instrument, you don't have to work too hard to get the sound. It's just there.

Chiccarelli: Mick Ronson?

Scott: Unbelievable. His whole guitar sound was always perfect, from a technical point. Miking it was, again, a Neumann U67 or U87 in front of his Marshall cabinet. He always went through a wah pedal, and he would get his tone by setting the pedal at a point he liked. So he would kind of crazy EQ everything—that's how he always got his sound. All

the Bowie stuff was done with the wah.

Chiccarelli: John McLaughlin?

Scott: An amazing technician who always liked to show off his technique. He always used 100-watt Marshalls turned up full blast. John liked to crank. There were times when his sound may have been just a little too distorted for me, but that's the way he liked it. Once, we were finishing *Birds of Fire* at Criteria Studios in Florida, and this was during the Bee Gees time when the sound of every American record would be acoustically as dead as possible. So we went in there, and he turns up his amp, and it sounded so ridiculously small that he kept turning everything up until the amp blew up. The room was so dead, it just ate up everything. Criteria wasn't the right studio for Mahavishnu Orchestra.

Chiccarelli: Warren Cuccurullo?

Scott: Warren, yeah, there's no one quite like him actually. One remembrance is a track on the first Missing Persons' album called "Noticeable Ones". We were trying to get the guitar solo. We tried and tried. Nothing. Finally, Warren says, "When we get to the solo section, kill the track." I said, "What?" He says, "When we get to the solo, turn off the volume of the track, and let me try it without any music going on." We got the solo the first take. —Excerpted from the December 2005 issue of EQ

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