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EQ's Big Score

I realize that magazine personnel changes are probably not the most exciting thing in the world to the average reader, but there's a reason I'm very, very happy to announce that Sarah Jones has taken the helm as EQ's new Editor. I've known Sarah for years, even before she became Editor of Mix magazine, and in a few short weeks, she's proven herself to be a tremendous asset. Sarah's a hands-on type of person, and she lives what we cover—she's on the board of governors of the San Francisco chapter of the Recording Academy (NARAS), works with the TEC Foundation, and is active with many music and recording nonprofits. She's the author of the essential career guide Assistant Engineer Handbook: Gigs In the Recording Studio and Beyond (Schirmer); she's edited dozens of music and audio books, and written hundreds of interviews and articles about music recording, tour production, sound for picture, and audio technology.

But what illuminates all her writing isn't just a journalist mindset—she's been a musician for 30 years, and while saying "I like all kinds of music" is a cliché, with her, it's reality. Granted, her track record would be enough to make her a perfect match for EQ, but what's really important doesn't show up in a bio: Attitude. Sarah is quick, smart, humorous, and has a can-do attitude where she makes things happen—and even makes it look easy.

Please join me in welcoming Sarah to the magazine, because she's going to help take EQ to another level—and that's good news for all of us.

Craig Anderton, EQ Executive Editor

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Do you mix "in the box," or do you use an outboard console with your DAW? What are the advantages of your setup?

DBXXL: I mix 100% in the box, but I do want to invest in getting more outboard gear, because emulate all you want, you will never get the same sound that hardware can provide. My main reasoning is budget: I make a living as a pro musician, but I am not rich, so just through necessity I have had to be in the box, though I do have some outboard gear.

Christopher Scott Cooper: Never in the box. Pushing all that content out just to converters, you lose fidelity; it sounds small and has lack of depth, even with the best converters. I may sub-mix some items in-box, but send it all through analog summing or a mixer. I use a DAW for automation, plus hardware, and it still sounds better than 80% of plug-ins available. Don't get me wrong, I love what I can now do in-box with plug-ins, but I mix big sounds and in-box can't cut it.

Doug Osborne: Almost every mix is a hybrid of some sort. At the very least, some tracks and buses go out to analog gear. A competent engineer can get great sound from an in-the-box mix. An incompetent engineer can make the best recording into a bad mix. This is the future, deal with it!

ASK EQ

The band is pretty happy with my mixes, except for bass. We do hard rock, and the bass sounds kind of buried—it just doesn't have the presence and fullness that basses have on commercial recordings. I take the bass both direct and miked but that doesn't seem to help. Any suggestions?

Pete Federici
Philadelphia, PA
via email

EQ: First, if your bassist is playing with fingers, try a pick (preferably a heavy one) for a more percussive attack that helps the bass stand out.

Next, you mentioned using amp and direct signals. The mic signal will be delayed about 1ms for every foot between the mic and speaker, so combining the two could cause cancellations. In your DAW, nudge the mic signal forward in time to line up with the direct sound. This can make a huge difference.

EQ is crucial. The E string goes down to 41Hz, where consumer-level speakers have iffy response. It may seem counter-intuitive, but try boosting the mids around 1.5–2kHz; emphasizing pick sounds and transients makes the bass notes more defined, so it's easier for your ears to lock in to the lower bass frequencies. A little low-end EQ boost can help too, but be conservative—only a dB or two. Simply boosting the low end is seldom the answer to fixing mix issues with bass.

Universal Audio's CS-1 channel strip plug-in is adding a midrange boost for definition, a lower boost for fullness, and about 6dB of gain reduction.

Finally, although we usually recommend against lots of compression, bass is an exception. Dead spots on the neck, amp frequency response anomalies, and room acoustics issues when miking amps can cause some notes to be softer than others. Try adding about 4–10dB of gain reduction with a 4:1 ratio to smooth out the overall response. Multiband compression is also excellent for bass, as you can compress the low end but leave the percussive pick transients unmodified.

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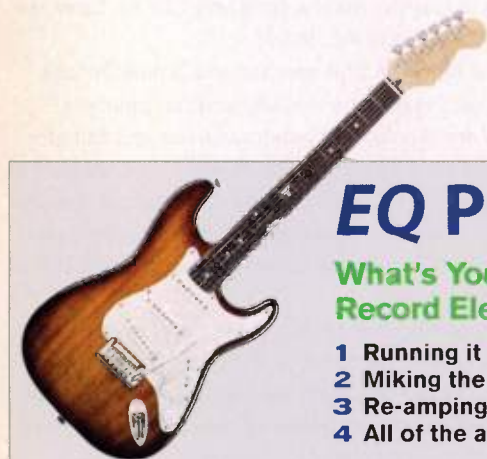
EQ POLL

What's Your Favorite Way to Record Electric Guitar?

1 Running it direct
2 Miking the amp
3 Re-amping
4 All of the above
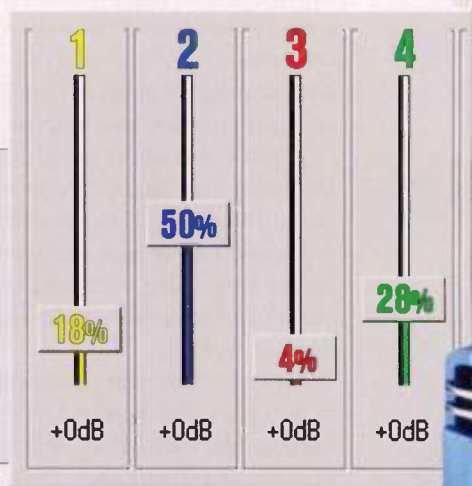
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Talk to us! Share your studio stories with *EQ*, and we'll print our favorites in an upcoming issue. And if we choose you as the "letter of the month," you'll win sweet gear! Next month, we're giving away a Zoom Q3 handheld video recorder with built-in X/Y mics, a 2GB SD card, and a long list of audio features, including resolution up to 24-bit/96kHz.

Question: What's your favorite way to mike a kick drum?
Send your answers to EQeditor@musicplayer.com.

BOSTICH + FUSSIBLE

Music Without Wires

When Bostich + Fussible (Ramón Amezcua and Pepe Mogt) were growing up in Tijuana, Mexico, their music listening was serious sound clash: Local mariachi bands, American pop, Germany's Neu! and Kraftwerk, even Hot Butter's 1972 smash, "Popcorn." Two albums and many stadiums tours later, Bostich and Fussible's *Bulevar 2000* (Nacional) continues the mash-up. Combining screwball two-beat polka with a variety of ancient and modern synth melodies and the playful brass and accordion of Mexican Norteña, *Bulevar 2000* seriously explodes expectations.

"Most of this album we recorded on the road," Mogt says from Tijuana. "When we got back to our studio, Modular 3, all the road recordings were processed with vintage gear using spring reverbs, pedals, delays, and old analog synthesizers. We mixed high-tech software with really low-tech gear from our studio."

B+F's unusual gear includes Melodyne DNA Editor, Monome 256, Yamaha Tenori-On, Percussa AudioCubes, EMS VCS3, ARP 2600, Orgon Systems Enigiser, Future Retro Mobius, Analogue Solutions Vostok, Roland TB-303, Electro Harmonix Bass Micro Synth, 4ms Pedals Triwave Picogenerator, LL

Electronics RozzBox V2, Analogue Systems Modular Synthesizer, EML 200, and Oberheim Four Voice.

"Using Melodyne DNA Editor, anything we recorded on the road sounded great," Mogt explains, "because you can move the sample around, move the notes, and it's polyphonic, too. Also, we use Percussa AudioCubes for Ableton Live, arranging loops; it lets us create a song very quickly. Later, we edit everything in Pro Tools."

The Monome 256 and Yamaha Tenori-On look like toys, yet perform like fully adult sequencers. "They are like random generators, but you can pre-arrange parts of the melody as well," says Mogt. "For example, in the Tenori-On, you can create a melody, and then you can take the melody you created and the Tenori-On will start creating random variations of the same notes."

Performing live, playing synths, and controlling a brash Tijuana folk band, B+F invented modern working solutions. "We used the [Apple] iPad's wireless capability to control all the synthesizers," Mogt says. "We designed an interface app that looks like a mixer in Ableton Live. It has volume control, sequencer control, and that connects to the computer on the back of the rack of synths. The app is made of two apps together called Oscillator; it lets you design your own interface. The iPad sends signals to the synthesizers and everything goes to the computer. It's like a MIDI controller for everything. It lets us move on the stage without wires. It's perfect for what we need to do." **Ken Micallef**

Extended interview with Pepe Mogt.

More Online! eqmag.com/january2011

LIA ROSE

Crowdsourcing Sessions Through Kickstarter

San Francisco indie songstress Lia Rose just stepped out of the studio and is in debt—not to the bank or a label contract, but to the support of 105 fans and friends. Rose's debut solo album, *When You Need Me Most*, was funded with the assistance of Kickstarter.com, a pledge-based platform that allows individuals to raise money for their latest creative projects. Rose's approach included a video explanation of her project and a timeline of three months to raise her $10,000 goal. To generate excitement for the project, crowdfunders of Rose's project received perks, from pre-release digital downloads for minimum donations, to "get into any show for free" cards, even living room concerts to those who contributed more. (She is halfway through knitting a scarf for a $700 "angel donor" from France.)

The Kickstarter concept does not come without its challenges. If Rose did not reach her goal within her three-month specified timeframe, the money would return to her donors. Rose was also cautious not to spam her network. She planned a carefully-timed campaign—one big push in the beginning to her email lists and Facebook page, another request halfway through the project, and a last appeal before the deadline. The strategy worked: The Kickstarter link spread organically through Rose's network, and she was able to record what she describes as "the album of her dreams."

Rose recorded at the Hangar in Sacramento, with engineering and mixing by Robert Cheek (Deftones) and mastering by TW Walsh (Sufjan Stevens, Ra Ra Riot). She describes the Hangar as "entering a musical playground filled with vintage gear." The studio also boasts custom equipment, including house engineer Bryce Gonzalez's BG #1 and BG #2 compressors, which were used generously throughout the recording process, along with new equipment such as the Retro 2A3 Dual Program EQ.

All instruments were recorded using natural reverb to invite a close, "in the room" effect. To keep the vocals dry, Cheek experimented with the Telefunken 251, but inevitably went with the Wunder C12 to bring out Rose's sparse, warm phrasing. Cheek and Gonzalez tracked to tape to get what Rose describes as that "analog goodness." "The word I would use to describe Robert Cheek is 'efficient,'" she says. "His process was extremely dialed-in; he knew exactly what he wanted to hear, and how he could get that sound."

Rose got what she wanted to hear as well, leaving the eight-day studio session confident with the project Kickstarter helped her create. "Once I knew I had the support of my Kickstarter community, once I realized people wanted to hear what I was creating, I just relaxed right into the process," she says. "I already knew there was a demand—that there was an audience that was willing to pay for it before it was created. I can't even describe what it feels like to have that kind of support." **Katie Cleland**

Lia Rose's
Kickstarter Project

More Online! eqmag.com/january2011

ATARI TEENAGE RIOT

Blurring the Line Between Instrument and Artist

With tracks titles like "Destroy 2000 Years Of Culture," "Start The Riot," and "Deutschland (Has Gotta Die)," Atari Teenage Riot (ATR) offered a harder-edged electro-punk alternative to the big-room trance and glowsticks that defined the mid-'90s electronica explosion. The mastermind of Atari Teenage Riot, Alec Empire, recently resurrected the band for a world tour (the US leg was completed in October) and the new track, "Activate."

The Hellish Vortex Studios in Berlin is ground zero for ATR's productions. While the band's early albums were created mainly with the Atari 1040ST computer, Roland TR-909 drum machine, and the Akai S1100 sampler—or what Empire refers to as a "very basic early rave setup"—the newest material marries the old with the new: "The latest version of Pro Tools is great to have, because it is very easy to use in tandem with all the old gear. For example," he says, "The Atari 1040ST is still our main sequencer for everything but we just slave it to Pro Tools. The Roland TR-909 is still the main drum machine and we still use the old Akai samplers like the S1100, S6000, or MPC 2000XL. We also use an API 1608 desk and compressors like the Universal Audio 1176s and the blue dbx 160 SL series, but I still prefer my old Lexicon 480L to the digital plug-ins. These machines are part of the band's identity; especially when you apply distortion."

While Empire's set up is still relatively simple, it's his love of experimentation that leads to all sorts of happy accidents that end up on record. Besides ATR, Empire has also released a bevy of solo material that ranges in style from ambient and film scores to digital hardcore. "Most sound engineers find my whole approach totally weird," he says, laughing. "To me, there is no line that separates the instruments, the mixing desk, the computer, and the artist. It all works together, and one element can suddenly change all the others. For example, we took the Metasonix S-1000 Wretchmachine, put it through Antares Autotune 7, then into a Mesa Boogie guitar amp, where it was triggered by our Doepfer sequencer. When it was in Pro Tools, we fed it back into the API EQs, drove the input gain super-high to give it even more crunch, then compressed it again before finally putting it through the filters of the TB-303. I had mine changed so the mix input routes through the internal filters. It sounded awesome; first, we wanted to have that sound determine the whole track, but then I changed my mind and it ended up being eight bars. I believe that when you send your brain onto these journeys, you change the way you think; every step matters—even if you don't use it at the end of the day." **Justin Kleinfeld**

Exclusive: Alec Empire extended interview.

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RME Fireface UFX Audio Interface

What High-end audio interface works with FireWire or USB

Why Provides 60 audio channels for heavy-duty interfacing applications.

How Offers digitally-controlled mic preamps, active jitter suppression, front-panel control of key features, and 118dBA dynamic range. The included TotalMix FX application is a DSP-driven digital mixer and signal router, with built-in monitoring control and integrated effects (3-band parametric EQ, compressor, expander, MS processing, reverb, echo, and more).

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Kaces KPMB-6 Microphone Messenger Bag

What Messenger-style mic bag

Why Store and transport multiple mics with ease.

How This bag (made of padded 600D polyester) accommodates six mics, surrounding each one with heavy foam. A padded panel zips over the top, while a second cover flap folds over the entire face of the bag; the front sports a large, zippered accessory pouch.

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Web www.kaces.com

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What Instrument preamplifier and tone-shaping DI box

Why Record direct with clarity, but also shape tone.

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by David Albin

All prices are MSRP unless stated otherwise

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What Mic cable combines silver-core conductors with Neutrik XX-14 Series XLR connectors

Why Improve mic signal quality through better cabling.

How This cable features dual solid-silver center conductors and enamel-coated, stranded-copper ancillary conductors in a hybrid configuration to provide the benefits of both materials. For shielding, conductive PVC combines with a traditional copper braid to minimize EMI, RFI, and electrostatic interference. Cables are available in 3-, 5-, 10-, 15-, 20-, 30-, and 50-foot lengths.

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Why The popularity of the pop filters designed for JZ's Black Hole Series mics led to creating a variation that's compatible with other microphones.

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Web www.avid.com

Swanky Soul Sophistication

Motown meets modern on Cee Lo Green's *The Lady Killer*

by Tony Ware

KAI REGAN
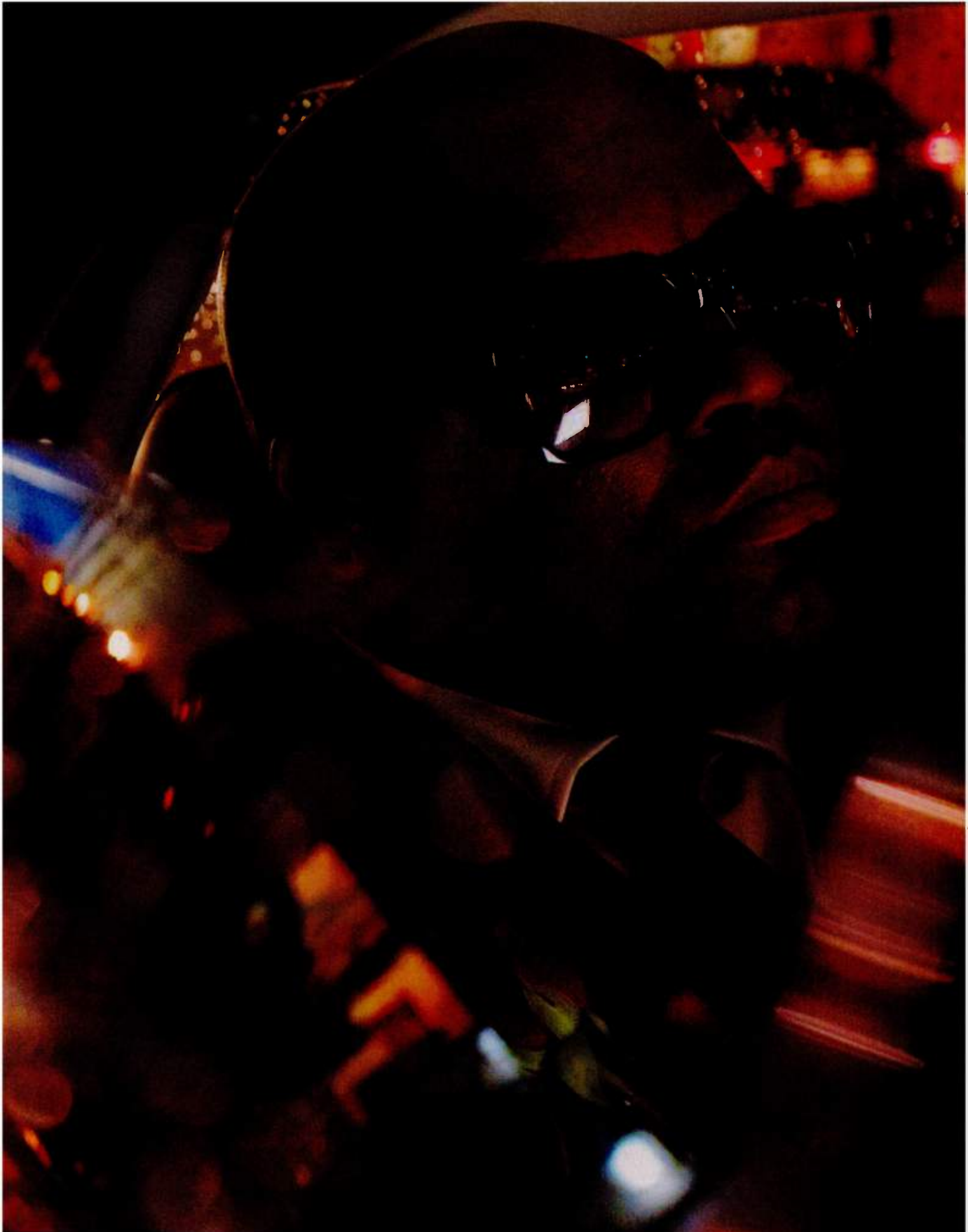
The eccentric soul known as Cee Lo Green was born Thomas Callaway to ministers of the Baptist church, but he came into his own within a far more flamboyant congregation. As part of the Dungeon Family musical collective (including OutKast, the Goodie Mob, Sleepy Brown, and Organized Noize), Green helped put the closet freaks of Atlanta, Ga.'s mid-'90s hip-hop/R&B scene into the national consciousness.

After several albums of Dirty South slang and social commentary, Green broke off to explore his *Perfect Imperfections*, a throaty hybrid of crooning and MCing as captured on the 2002 solo album bearing that phrase. In 2004 he further consolidated his avant-garde approach to urban formats with *The Soul Machine*, working with stellar New South producers such as Timbaland, the Neptunes, and Jazze Pha before getting caught in label shutterings and personal frustrations. It was the next year, however, when Green would see his most high-profile, and in a way, indirect, recognition.

Green would produce the song "Don't Cha," a massive hit for the Pussycat Dolls, and would record an independent album under the playful guise of Gnarls Barkley. Providing vocals for the ruddy funk shui of producer Danger Mouse, finding lyrics came quickly, "like some kind of hieroglyphics . . . like writing on the wall . . . something already there just waiting 'til the right music helped reveal it." Green co-scored the international Internet sensation and hit single "Crazy."

Finding it hard to maintain a shroud of mystique, Gnarls Barkley would release one more "sobering" album, 2008's *The Odd Couple*. But it was definitely the transatlantic success of that neo-soul, '60s soundtrack-influenced project that set the stage for the 2010 return of Cee Lo Green as *The Lady Killer*. Releasing in a market primed by Motown-through-a-British-filter artists such as Amy Winehouse and Mark Ronson, *The Lady Killer* flips the formula, embodying a theoretical world where Barry White's Love Unlimited Orchestra collaborates with Burt Bacharach and John Barry in a concept that Green himself sums up in four words: Big, Black James Bond.

Soliciting contributors to compose with that persona in mind, Green assembled tracks from a list of producers including Fraser T. Smith, Jack Splash, Paul Epworth, and the Smeezingtons. When asked if he has an overriding aesthetic song approach, Green holds true to motifs he says he has long preferred, both physically and emotionally. "Flow and curve . . . sure, those are still the physics, those are the laws that don't change."

The first indication of how all of the influences of the past coalesced into a direction for the future was "Fuck You!," a viral single released to YouTube in August 2010. Produced by production trio the Smeezingtons, featuring Green's fellow Atlantic/Elektra recording artist Bruno Mars, "Fuck You!" is a retro-modern groove that maintains subtle grit, a

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song about the complex pursuit of pleasure that thrives on the interplay of authoritative percussion and creative spatial manipulation. The widespread embrace of "Fuck You!" resulted in *The Lady Killer*'s release date being bumped up from 2011 to November 2010. But this adversity-has-its-smooth-silver-lining pop tune is actually one of the last pieces of seated a work that was more than two years in the making.

Green's dozens of tracks, ultimately about the frustration/salvation in chasing the ladies, were conceived throughout studio sessions in Atlanta, Los Angeles, Miami, New York, London, Paris, a tour bus, and a Georgia country ranch, according to Green's longtime engineer, Graham Marsh. Many initial, improvisational home sessions began on a Pro Tools HD3 rig, playing with everything from a Yamaha Motif workstation and an Akai MPC to Native Instruments' Komplete software suite. Scrolling through sounds, Green and Marsh might veer a track from an urban to a more country feel. Halfway through the creative process, Green set out to reboot under a more proactive, nigh-neurotic work ethic, and sat down with Rick Nowels for a few weeks and generated several tracks, including "Satisfied" and "Cry Baby."

Contributions came from many directions, but with its sensitive-with-a-sense-of-humor, International Man of Mystery vibe, the 14 final tracks selected for *The Lady Killer* certainly drew plenty from an obvious U.K. sensibility. It's another city, however, that provides a key to understanding Green's aspirations here. "It can sound like vintage Las Vegas for me. What I mean is, what I wanted from this album is not to offer a tour [of styles]; instead, it's like a residency, piecing together a performance with a consistency throughout," says Green.

At the heart of this coherence is Green's voice, of course, and to reproduce it with consistency,

Marsh set up a customized chain that accompanied them throughout the album's tracking. "Cee Lo can be very nasal when singing—which is his signature—and is extremely dynamic," says the engineer, who performed vocal production, mixing, and additional programming duties on *The Lady Killer*. "The Telefunken ELAM 251 re-issue [cardioid] smoothed out a lot of that 2k, midrange harshness and stood up to the loudest scream he could muster, while still sounding present, warm, crisp."

"I find the John Hardy M-1 pre to be very present and transparent," Marsh continues. "I get more 'vibe' out of [running it into] the Universal Audio 1176. As a rule, I don't compress Cee Lo's vocals hard to tape, doing −5dB of compression at the most, but I have in certain instances when I wanted a particular sound [by setting four fingers in 'nuke' mode on the 1176]. And I use the Manley Pultec EQ at the end [of the chain] just to bump a very small amount of 10k 'air' to tape. I find this EQ gives me the sparkle I'm looking for."

A relaxed but involved delivery is indeed one of the vocal strengths on *The Lady Killer*, which Green says was conceptualized to showcase his sensitive, sexy, and sociable sides, and this balance of out-and-about and intimate energy was captured by whatever means necessary. One standout, "Satisfied," was tracked within the control room on headphones and with monitors muted, as the vocal booth felt too isolating. When describing the immediacy he intended to achieve, Green visually leans forward, gesturing as if singing to a Shure 55S cupped in his hand (what he describes as a "curl on the forehead . . . Dewey Cox mic"). The mic actually used was a Heil PR 40 (to avoid the nightmares of manhandling a 251, among other reasons), but the anticipated effect, to deliver a dynamic country-soul croon, is fully achieved.

Another successful era-bridging, soul-bolstering technique applied throughout *The Lady Killer* is the use of delay/reverb trails at the end of vocal phrases, applied on top of a good deal of spring reverb already on the lead vocal. "I would automate a send in Pro Tools to a delay on the last word of a particular phrase," says Marsh. "Nine-tenths of the time, I would be using [SoundToys] EchoBoy for an analog delay emulator—usually a fast, 16th note delay, with a pretty high frequency, so that the delay is long. I would then automate a send on the delay track back to a reverb, so that with every delay hit, the reverb of the delay grows larger, as if it is descending down a large hall. Sometimes, I will automate the room size parameter on [Digidesign's] ReVibe to make the room grow larger as the delay gets longer."

While most instruments were treated either at the source while tracking or later in the box, Marsh

says reamping experiments were applied to vocals cut throughout the process. "I would run sessions later through a vintage Victoria amp, or this little Orange toy amp," he says. "You can hear this on the girl vocals on 'Bodies,' 'Red Hot Lover,' and 'It's OK.'" Additional studio routing for these tracks included Apogee Rosetta 200/800 and AD-16 DA-16 converters, UA 610s, Distressors, Tube Tech CL-1B, Neve 1079/1073/33114 pres/EQs, and Manley Pultec-style EQ.

The final thread that secures the seams, and a "Live at the Sands" vibe, on *The Lady Killer* is the presence of strings (as well as horns) on the lion's share of tracks—produced with the help of Salaam Remi, known for his work on the Fugees' *The Score*, Amy Winehouse's *Back to Black*, and releases by Nas, among many other productions. "I'm an album specialist . . . the whole idea was for me to score [*The Lady Killer*], and really make it feel like the movie that it is," Remi says.

To achieve this vision, Remi, who also co-wrote the album track "Bodies," called on his relationship with the Czech Film Orchestra, a partnership originally developed during scoring duties alongside composer Lalo Schifrin for *Rush Hour 3*. Putting together scratch tracks in Logic Pro, Remi collaborated with arrangers Stephen Coleman, Tim Davies, and Nicholas Dodd for "getting whatever was necessary . . . and steering it back in the pocket." Working over Skype and Source-Connect, Remi monitored the Prague sessions, which were recorded at 96K

and returned via Digidelivery to the States. Once back in Remi's hands, compression and plug-ins, as well as hits of tonally competitive panning, were applied in order to balance high fidelity with intentional edge. Once the ratio of rub-to-ride was achieved, the orchestration was comped to the tracks, where sometimes synths would have to be dropped an octave, or even removed, to cede some necessary sonic real estate.

"Strings, that sophistication, it insinuates the 'scenic route,'" says Green on the quest for consistency without complacency. "So much of today's music can sound so local, dedicated to where it's made at. It hasn't been anywhere, and often doesn't want to go new places. At the heart of the best music will always be pots and pans, making something out of nothing. But it should be a success story, not stories about success. Those just all start sounding the same. That's why for *The Lady Killer*, we had to tear down walls . . . make tangible a savvy, grand production that was as much '60s personality as '80s English pop as an independent spirit where modern music can go again, and bringing it all together so it's very palatable. These songs are *traveled*!"

The Lady Killer embodies a quest to recapture Holland-Dozier-Holland Motown and Gamble & Huff Philadelphia International, to craft something that could have sat compelling among the Four Seasons, Stevie Wonder, Prince, and Solomon Burke on episodes of *Soul Train* or Burt Sugarman's *The*

JULIAN BROAD

Midnight Special variety show. But it also adds the club-friendly, 808 low-end of roughened hip-hop to soul, bringing in the nicely choppy, negative space-rich influence of drum programming like that of Gorillaz, and it makes recognition of and concessions to modern reproduction.

For instance, Marsh discusses the use of light "distortion" on certain bass parts, such as those on the song "Cry Baby," to give tracks more presence on computer speakers. "I run the bass through two concurrent Neve 1079s [mic pres/EQs], turning the gain all of the way up on the first channel, achieving some tasty analog distortion, then using the second channel to control my level to Pro Tools. I will do this with my amp channel and blend it with my DI signal."

Ben H. Allen is a longtime Green associate who engineered Gnarls Barkley sessions, helped assemble Green's Solitaire Studios, and produced "Bright Lights, Bigger City," the most synth-heavy track on *The Lady Killer*. He also mentions using Neve mic pres on live drums for a distinct crunchiness, as well as Eventide's H3000 Factory plug-ins on bassist Tony Reyes' "Billie Jean"-like strut to give a "percussion sizzle."

"What I try to generate, which worked great for this album, is a lift and a pull, some resistance, rather than the energy being linear," Allen says. "It isn't Logic fairy dust that makes the tracks great, it's the arrangements. Cee Lo had ['Bright Lights, Bigger City'] for over a year, and added vocals, horns, and strings, when the label called to ask if I could take it and finish it. I printed stereo stems of all the parts and on my way to California, on a plane, did a new version of the song on my laptop, half mixing and half adding some [soft-synth] production, but mostly taking things out. I did it all on $150 Altec-Lansing

earbuds, because you don't have to worry about the tools as much when you can establish flow."

Ultimately, all this activity—not just vocals and strings, but snares, claps, shakers, casabas, even vinyl crackles on the album's emotional summation, a melancholy, yet bracing cover of indie rockers Band of Horses' ethereal "No One's Gonna Love You"—resulted in an album of punchy, clustered midrange. This was an area that many involved agree was constantly being carved and compartmentalized to maintain both timeless groove and contemporary pressure. For Marsh, it was the melodic phase shifts of Dave Fridmann on MGMT's *Oracular Spectacular* and restless edges of Tchad Blake on Los Lobos' *Colossal Head* that stood as an inspiration for how to wrangle textural shifts. Marsh would maintain 4dB to 5dB of headroom on 48kHz/24-bit files, in order to give the mastering engineers room to augment the dynamics.

For Grammy-winning Manny Marroquin, who helmed a vast majority of the post-production mix engineering duties at his Los Angeles board, it was a conversation with Green about the spacing, depth, and crinkled reverbs of Portishead that gave the green light to playfully fray the fringes. Also on deck for the Bruno Mars album, so familiar with the style of pronounced that glide Green went after, Marroquin used "a lot of [Universal Audio] 1176 compression going to RCA BA-6A, while EQwise, it was mainly [K-series 9000XL 'Super Analogue' SSL console] and some Pultec EQs to warm it up, with a lot of Fairchild parallel compression on the drums." Spreading out the stems, using those EQs with spring, tape, and Bricasti Design reverbs to apply the last wash of continuity, Marroquin maintained Green's cool in a world of albums printing hot.

Even with so many hands pushing faders, *The Lady Killer* comes across as an album that resonates with dapper confidence, through tracks aimed at both the back row and the bedroom. "I never had to share creative space until Gnarls," reflects Green. "And with this album everyone had an opinion on how it could or should go, so this was an opportunity for me to have a theme but not be overly insistent on anything. If my approach didn't nail it, I could give a second thought and ask people their take, see if I could feel it, if the logic would come to life for me. And we all came together on the way it should play out, without resorting to one formula. I have a very analog approach to my own music. I like it live, I like it lush, and I like it to have a mystique, even if it has to bend a rule or two. People can not live off standard pop alone. I'm an album artist, and with *Lady Killer* I have an entire album at a time that I feel it's possible to turn people's ears and make this sincere sound commercially viable again." **eq**

Gang

Signs

Post-punk legends Gang of Four revisit old principles and crank up the transistor amps on *Content* by Patrick Sisson

Last October, Gang of Four guitarist and producer Andy Gill delivered a lecture on recording to students at the Liverpool Institute for Performing Arts. The influential post-punk guitarist wasn't afraid to be self-effacing: He played one of his band's lesser-known songs, an early '90s cover of Bob Marley's "Soul Rebel," and asked students to tell him what was wrong. He waited until one said it sounded like "catwalk music" before he agreed.

Gang of Four (left to right)–Thomas McNeice, Jon King, Mark Heaney, and Andy Gill

"[Complex production] can sound amazing, and the programming can be fantastic," says Gill," but to me, it's falling in love with the samples and MIDI programming and forgetting what you're about. It's not Gang of Four music. It could be great for something else."

Content, which Gill recorded over the past two years at his own Beauchamp Studio in Central London, is a return to form–aggressive, prickly, and muscular. Gill worked over song ideas with founding member and vocalist Jon King, perfecting tight, rhythmic arrangements before bringing on newer members Thomas McNeice (bass) and Mark Heaney (drums) for recording.

"One of the beauties of guitar/bass/drums is you have a lot of space," says Gill. "More traditional pop music has this hierarchical, pyramid structure, with lead vocals on top, guitar below it, and then keyboards and backing vocals, all meant to support the lead vocals. One of the things Gang of Four did was put everything side by side. It all worked together and created a rhythmic network, which fed into our aesthetic ideas."

A signature aspect of Gang of Four's style is Gill's "shards of sound" guitar technique. Influenced by Hendrix, the jerky playing of Dr. Feelgood's Wilko Johnson, Steve Cropper of Stax Records fame, and blues icons like Howlin' Wolf, Gill played through transistor amps, as he did on 1979's *Entertainment* and 1981's *Solid Gold* (in this case, either a Peavey Classic 50 Combo or Blackstar Artisan 30).

"Everybody looked down their nose at me, because proper musicians are supposed to use valves," says Gill. "That's always been the case. I liked the coldness, if you like, of transistor amps. With the Fender Strat and the PV combo, you can get a thinness of sound. You don't end up with the big, fat Marshall distorted sound. It's thin, bright, and sharp."

Gill routes his Fender Strat with Lace Sensor pickups (which result in less buzz when gain is added) through a DI, sending one signal straight to Logic and the other through the amp, blending the amp mic tracks with a track modified with plug-ins, including the Logic amp simulator or Pedalboard. On the

The Radial Workhorse™ revolutionizes high performance analog recording by combining a 'plug & play' platform for Lunchbox® modules with a built-in mixer for incredible flexibility.

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Peavey, for example, he normally places Latvian-made JZ mics such as the uniquely-shaped Black Hole or the BT201 as a pair in front of the amp, and then maybe a Neumann U67 in the back for room sound. "I find that quite exciting, switching between them," he says. "If you record those mics in the mix, you can cut one out and bring another in and automate the levels. It's a bit like the dub techniques; it helps drive the narrative of the song."

Gill's dry, rhythmic, and cutting sound—he describes a certain frantic section of his playing on "Do As I Say"

as him "setting fire" to singer King— doesn't rely on compression or many pedals, though he will use the Boss SL-20 Slicer. His only "vice," as he describes it, is tremolo, especially the effect on the Boss pedal. He can lock to the track via MIDI and program different rhythms within the tremolo, which you can hear on the vibrating, flinty intro of "She Said."

Dub reggae has influenced Gill and King, especially the use of mid-tempo grooves and "space" in the mix; you'll often hear parts drop in and drop out (for example, the guitars and drums on "You Don't

Have to Be Mad") in rhythmic patterns. McNeice, who uses a Fender Precision Bass, normally played through a DI and was relatively unprocessed, though Gill made sure to focus on the upper mid-range. Drums, however, were closely miked and heavily compressed, exemplified by the plodding, dense beats and metallic tinge to the cymbals on "I Party All the Time."

"When I'm recording drums, I use compressors, because I know what I want and I want to get as close to that sound as I can when I'm going in," says Gill. "I don't want a natural sound. I'm not a jazz guy who sets a few mics around the room. I want my drums to sound big. I always listen to the drums as much as anything else. I get off on great-sounding drums."

On *Content*, Gill surrounded Heaney's PDP kit with various mics, including a pair of Curtis valve mics hung three feet above the kit for overhead coverage; he found them crucial for the right tom sound. The kick drums and snare were close-miked from various angles and sent through a variety of compressors (UREI 1176, dbx 160, and a PYE model from the '60s), and Gill would ride up the room sound for extra emphasis. The kick had a D112 inside and either a Neumann 47 or 67 outside, usually placed about one-and-a-half or two feet away. "For the snare, I use an SM57 or Beyerdynamic M88, an SM85, and a KSM44," says Gill. "The 44 I usually put close and send through a Transient Designer for more whack and crack; it gives it character. Any mic under the snare will do, just to add to the rattle."

The album was rounded out with King's vocals, captured on a Shure 57 or Neumann 67 and given a touch of delay and reverb with the PCM 70 or 80 and Logic reverb, "to help the vocals sit in the track." Sometimes Gill would set up a bus within Logic to send vocal tracks through a load of distortion or send it through a high-pass filter to take out everything over 300Hz. With trademark politically-charged lyrics, the relatively unadorned vocals don't muddle the message.

It's clear that the work of these Leeds University classmates still resonates. And while Gill's work as a producer of the last few decades has included sessions with bands ranging from the Red Hot Chili Peppers to the late INXS singer Michael Hutchence, it's exciting to hear him back with his original band. **eq**

My Chemical Romance

Make Anti-Matter

The dark-hearted Jersey boys of _The Black Parade_ return with a "poisonous" punk-disco-power pop hangover on _Danger Days: The True Lives of the Fabulous Killjoys_

by **Ken Micallef**
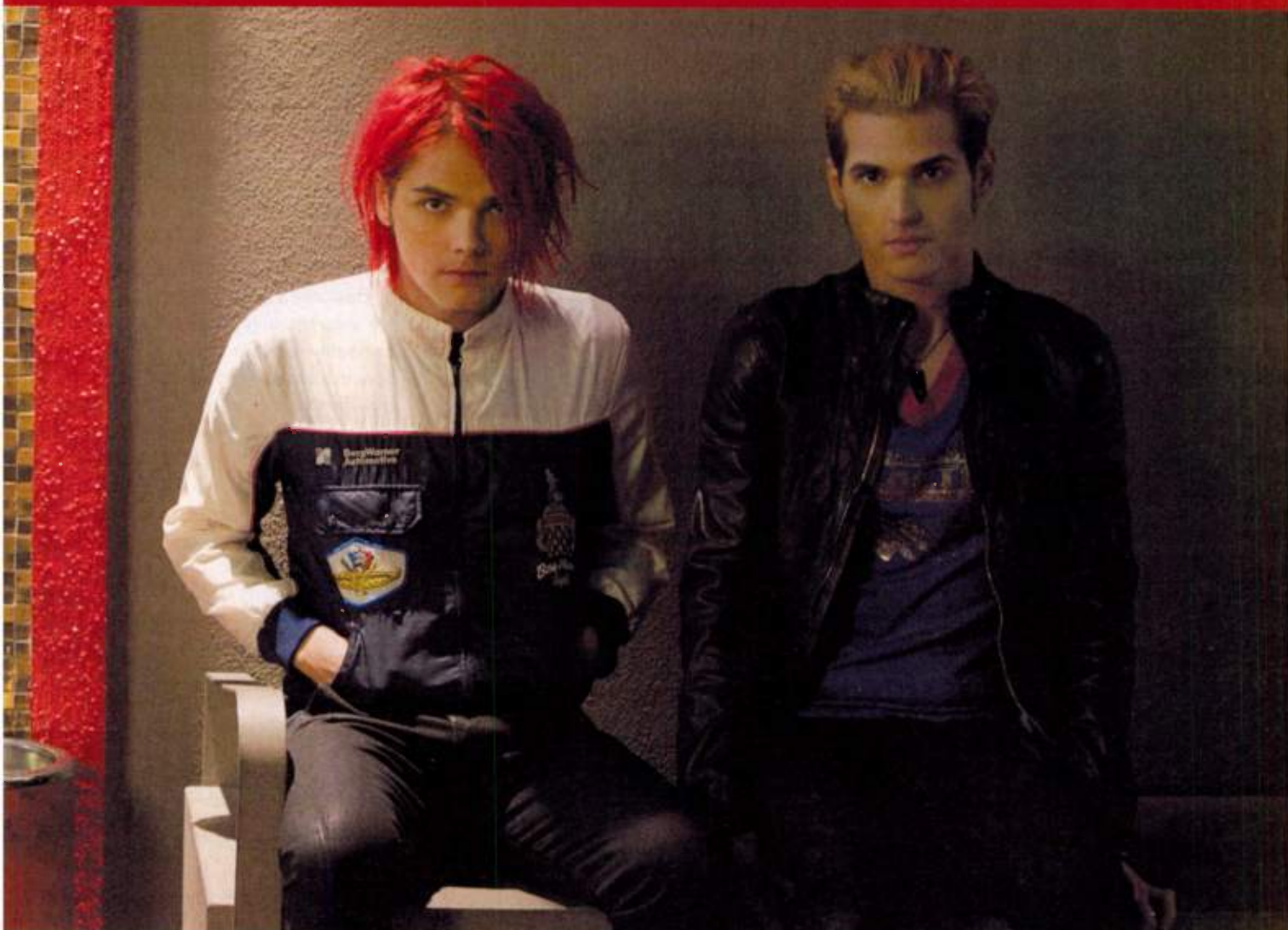
"We wanted modern rock to move forward," producer Rob Cavallo says, regarding his latest My Chemical Romance production. "We wanted the record to *not* sound like anything else that was on the landscape of modern rock radio. It's the next leap. The next invention of My Chemical Romance." "I wanted it to be a poisonous album," My Chemical Romance mastermind Gerard Way adds. "I wanted it to contaminate things. I want the album to have this 'neurotoxin' quality."

A supercharged progression from *The Black Parade*, My Chemical Romance's *Danger Days: The True Lives of the Fabulous Killjoys* is what happens when a band directs their fate. Initially recording with Brendan O'Brien, the album was considered completed and then played for the press. In late '09, however, MCR suddenly dumped the record and started

"I wanted it to be a poisonous album . . . I wanted it to contaminate things. I want the album to have this 'neurotoxin' quality."

—Gerard Way

from scratch. Enlisting *The Black Parade* producer and Warner Bros. chairman Rob Cavallo, MCR tumbled into his Lightning Sound studios with nothing, and emerged with an entirely new *Danger Days*, a graphic audio novel of multiple styles wrapped in Cavallo's glistening studio sheen. Gerard Way details the journey:

"Working with Brendan was like, 'Let's be in preproduction a lot, let's write a bunch of songs, let's record live!' But the spark wasn't there. The record felt naked and empty, and there was no fixing it. Once we got to Rob Cavallo's place [in January, 2010], we built the music in the control room together. We'd start with a drum loop, then add a guitar, and if I had a lyric, I'd sing it in the other room; we'd build and build. Most of the tracks were completely constructed in a control room, as opposed to a band playing instruments together. It was like improv rock."

Continued

My Chemical Romance (left to right)–Frank Iero, Mikey Way, Gerard Way, and Ray Toro.

NEIL KRUG

Working in Cavallo's renovated six-car garage-turned-recording studio with engineer Doug McKean at a Pro Tools Icon controller, MCR stacked tracks. Way, lead guitarist Roy Toro, rhythm guitarist Frank Iero, and bassist Mikey Way built up each track, layering instruments, with Way cutting vocals in the live room, often only minutes after he'd penned the song's lyric.

Basically a home studio outfitted with pro gear, Lightning Sound has recorded Shinedown and Paramour, among others. Speed, adaptability, and recallability are important factors in the studio's working process. "We use Telefunken V76s for vocals and acoustic guitars," McKean explains. "But I also use Altiverb and ReVibe plug-ins because Rob and I jump around from project to project. It's really a matter of recallability. There are a lot of presets in Altiverb, dialed-in IR rooms that are copies of the reverb settings for specific rooms; some of them sound better than a lot of outboard reverbs. We have an EMT plate, a Gold Foil plate, but I can't use them much except in the mixing phase, because the recallability is tough when you are juggling projects all day.

McKean runs drums through a Neve Melbourne sidecar with 33114 modules. Guitars, vocals, and acoustic guitars go through an Aurora Audio MK GTQ-2 mic pre, which McKean describes as a "Neve copy. They are better or as good as having real 1073s, because they are little more open, but they have exactly the characteristic."

With proficiency in mind, most of the equipment settings at Lightning Sound are dialed in, each session adapting to different artists. Though MCR used drum machines before overdubbing drums, McKean often begins with drums.

"I figure out placement while the band isn't here," he relates. "I blend bass drum mics: a Shure Beta 52 inside the kick drum, blended with a Shure SM7 halfway in the hole, then on a separate track, I'll record a Yamaha [SKRM100] Subkick. I like the old Unidyne III for snare—very similar characteristics to an SM57, but with a peak around 4k, which is good for snare drum. I mike under the snare drum with an SM57 or a Sennheiser 451. For toms, I always use [Sennheiser MD] 421s, angled directly at the head. I try to

get it 90 degrees to the head to get more tone. On overheads, I love using the [Telefunken] ELAM 251s, although at the studio, I also use AKG C24s. I put the overheads right above the drummer's head; I don't like the mics to be too on-axis with the cymbals. I go a little behind the drummer and point the diaphragms right at the toms. For room mics, I use AKG C12As in a Blumlein pair array [a mathematically precise stereo miking configuration] in the middle of the room. And then another 251 or an SM7 pointed at the wall; I use a lot of compression on that mic."

McKean favors the Sony C800 for guitar cabs, through the Aurora GTQ2. "The Sony sounds great and different from what everybody else uses," he says. "I get all the lows and nice midrange coverage. It doesn't sound too peaky in any different spot in the midrange. It goes right on the grill, between [the points] where the dome glue is on the cone."

Unlike many engineers, McKean prefers miking bass cabs to going direct. Lightning Sound has a re-issue Ampeg and an SVT cabinet, which McKean mikes with an SM7 or C800.

"I prefer much more amp sound, 'cause it sounds bigger," he explains. "It has more character, more air around the note. Direct is easy to mix into a track. An amp requires work to make sure the low-end curve is fitting into the drums and guitars."

Tracking Gerard Way's vocals was like the rest of *Danger Days*—a lesson in improvisation. Never more than four takes were needed, with little or no punching-in required. "Gerard liked to hang on the mic and really rock out." McKean says. "I used an SM7 through a Telefunken V76 pre. It's a great mic pre that I use a lot on vocals; it handles a lot of different types of levels and different frequencies really well. Then [the signal went] through an old blue-stripe UREI 1176, recorded flat because the way they were working was so sporadic and different. Sometimes Gerard would sing an idea for a verse, then keep part of it, then go back in. In that case, I would EQ it in the computer so I could get the same sound back easily on any track. We'd only punch in for overlapping lines but Gerard likes to perform the song as much as he can top to bottom."

"I start with a ton of reverb on my vocals, but slowly go completely dry," Way adds. "When I am singing, I have a ton of room and reverb in my ears, because traditionally, when doing shows, I am just hearing the room. I am so accustomed to that. I want to feel like I am in a theater in the studio."

"There is a concept to *Danger Days*," Rob Cavallo concludes. "It's inspired by Gerard's unpublished graphic novel, set in 2019: World War III has already happened. It's about the idea that chaos creates true beauty. The line between good and evil is not drawn in black, it's drawn in invisible ink. We wanted to create anti-matter, because matter is boring." ɘɑ

BASS

BY MICHAEL COOPER

Beef Up Your Mixes with Big Bass Tracks

A huge-sounding bass track can take an otherwise thin, weak mix and transform it into a big, fat bully. Here are some bad-ass tips to bolster your bottom line.

Super-Size My Room

If you plan to mike up a bass amp and cabinet, stick your rig in the biggest room you've got (as long as it's not too reverberant). Bass frequencies have very long wavelengths that need lots of room to develop. In contrast, small rooms inherently have very uneven bass response that can make a bass track alternately swell and dip on different notes; that makes it very difficult to set the track consistently at the right level during mixdown.

Stick the cabinet in a carpeted room or one filled with lots of absorbent acoustical products, such as studio foam or compressed-fiberglass wall panels. This will reduce any reverb that would otherwise make your bass sound like it's playing inside a culvert.

Move the Amp and Mic

Don't have a big room to record in? Move the cabinet around your smaller room until you find the spot with the strongest and most even bass response. Sit the cabinet on the floor to coax super-low bass frequencies. Then move the mic progressively farther away from the cabinet until you find the perfect balance between bass response and minimal room ambience; a distance of two feet is usually about right. And don't bother miking the speaker cone that is positioned the highest in a stack. Place the mic closer to the floor for deeper bass.

Let's Split

Plug your bass into a direct-injection (DI) box that has both high- and low-impedance outputs. Route the high-impedance output to your bass amp and record that signal with your mic to one track. Patch the low-impedance output of the DI box to a mic input on your mixer or DAW's I/O box, and record that signal to a second track. At mixdown, you'll have two bass tracks to choose from (playing exactly the same part).

If you use both tracks at once, slap a very short delay (set to 100% wet output) on the DI'd bass track to shift its phase to match that for the mic signal. For every foot your mic is placed away from the cabinet, delay the DI'd track 0.9 milliseconds. You'll be amazed at how much more bottom end the combined tracks produce after making this phase adjustment.

Reamp

If at mixdown you decide you don't like the sound of either track (miked or DI'd), send the recorded DI signal back out to your amp and record it again with different amp settings or mic placement to taste. You'll want to run the track through a reamp box such as the Millennia Twin Direct TD-1 enroute to your amp. A reamp box conditions the signal so that it loads your bass amp like it would if it were coming directly from your bass guitar.

Don't have a reamp box handy? Send the DI'd track through one of the guitar-amp-simulation plug-ins that offer bass-guitar patches. AmpliTube Fender and Waves GTR3 excel here.

Kill the Clack

Bass guitars produce very little musically useful sound in the highest audible frequencies. Unless you're particularly fond of pick and fret noise, lash a low-pass filter (LPF) to your bass track and set it to around 7kHz to filter out all the *clackety-clack*. Your mix will have a tighter groove.

Take It to the Limit

Cudgel your bass track with a brick-wall limiter to even out the dynamics and add some size-enhancing grit. The Waves L1 Maximizer plug-in is my fave for this tack. Lower the threshold until the bass sounds even on most every note. Then, with the track soloed, squash it a little further 'til you hear a tiny bit of distortion. You'll never hear the dirt as such once the track is placed in the mix, but the bass will growl like a barnyard dog. If you don't own a brick-wall limiter, crank the bass track's fader so that the signal clips. The digital distortion will sound harsh unless it's filtered. But roll off all the highs post-fader with an LPF, set to around 3kHz, and you'll be grinning from ear to ear. ca

Replace Your Kit Parts with Found Sounds

It's common for engineers to use a drum replacement plug-in to swap out a weak snare or kick for something with more punch. But what if you asked a live drummer to substitute a real drum with something else? What would you choose?

Certainly there's precedence for using found sounds as percussion. Most famously, Crickets drummer Jerry Allison played a cardboard box with Buddy Holly on hits such as "Baby, I Don't Care" and "Not Fade Away." But isn't that just stuff of legend? Drummers don't really do that anymore, do they?

You bet they do!

Sometimes the sound of everyday objects—resonant things made from plastic, metal, paper, wood, and even Styrofoam—can give a drum track the kind of attitude that's missing when conventional instruments are used. Often, it just takes the right combination of microphone and dynamics processing to get a killer sound.

Think Outside the Box

Whatever you can record that has a percussive sound is fair game. The psychology is that an instrument's placement in a groove helps define its role as much as the *kind* of instrument it is. If you're looking for something with a unique timbre, you'll want to ask yourself: Will this new sound function rhythmically as the bass drum, snare drum, or hi-hat?

Of course, getting drummers to play a cardboard box or plastic tub instead of their prized Radio King snare drum is another issue. But once they hear how the combined mic/preamp/compressor signal chain transforms a mundane object into something powerful, they usually accept it.

And although you may be looking for an item to replace the snare, it doesn't necessarily have to have a metallic buzz. For example, I was once asked to lay down a backbeat to tighten up a pre-existing rhythm track. After trying out a number of different snare drums, none of which satisfied the producer, we finally settled on a floor tom for the two-and-four, which was nicely offset by the pizzicato of an acoustic bass on one and three.

On another session, the engineer wanted a snare drum that had a nice thwack but without the high end that would interfere with other rhythm instruments. Consequently, we swapped out my vintage '60s Ludwig snare drum for a cardboard box, which we placed on the snare stand. Because the groove was simple and didn't require fills, playing a backbeat on the container worked very well. Admittedly, as the player on the session, it was difficult to tell if I was getting a good tone: In the room itself, it sounded like I was hitting a box. But the engineer knew exactly which mic and EQ setting would make the cardboard sound solid and compelling in the mix.

Phonebooks, which may eventually become a thing of the past, also make excellent drum substitutes. A book's overall thickness determines the relative pitch you'll get when you hit it, so it's handy to have a couple of different sizes. If you only have one phonebook but you need two different sounds, simply open it up so that there are different numbers of pages on each side. Dictionaries and other thick tomes are equally percussive.

What you use to hit things with greatly influences the sound you get. A large superball—the kind you find in toy stores—makes an excellent mallet for playing items

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such as trash cans and plastic tubs. Just poke a plastic chopstick into it to create a handle, and you're good to go. Hard yarn mallets, which are usually used for playing a vibraphone, are indispensable when playing junkyard instruments. And I never throw away broken drum sticks. Instead, I saw off the sharp end and wrap them in something soft so I can use them with found sounds.

Even jazz brushes work well. The great Dutch drummer Han Bennink has been known to play brushes on a pizza box, or even the side of the stage itself. A good rule of thumb is that sticks often bring out higher-pitched sounds, whereas a mallet gives you lower tones, while brushes yield a softened thwack or swish.

Rhythm Loaf

Of course, in the early days of sound recording, the fidelity was such that you couldn't always tell exactly what the instruments were in a rhythm section, especially when a bunch of things were chugging away on quarter-notes. I refer to that aesthetic as the "rhythm loaf," where you have an undifferentiated mass of goodness grooving along in the background, yet staying well out of the way of the vocals and solos, in terms of frequency range. You hear it in early rock-and-roll records, in the music of soul singers like Al Green, and even in modern recordings by artists like Tom Waits, who are deeply influenced by early jazz, blues, and R&B.

In the mid-twentieth century, that sound was as much a result of the recording technology as it was the delivery format. When only one mic was being used, the physical position of the musicians in a room relative to the microphone determined the mix as well as the sound of the accompanying instruments. So if the drummer in a session played on cardboard boxes, it could actually sound like real drums based on where they were physically situated during the session, as well as the dynamics the drummer used.

Stomp

Putting your foot down can be as musically satisfying as anything else for some types of music. The "rhythm section" on early recordings by blues artists such as John Lee Hooker was often nothing more than the guitarist tapping his foot on a resonant surface while playing.

At the other extreme, the members of Queen stomp-stomp-clapped the rhythm track on boards in an old church for the song "We Will Rock You." The beat was built up over several overdub passes, with a bit of delay added to each track. Because the infectious rhythm was multi-tracked with the musicians in a variety of positions in the space relative to the mics, the results sound convincing, as if the song was created by a crowd of people in a stadium.

Foot stomping can also be used to enhance an existing drum pattern. For a track on Waits's album *Blood Money* (Anti; 2002), four musicians created a rhythm bed by getting on their knees and pounding short 2x4's on the floor of a bedroom-sized reverb chamber to replicate the sound of marching feet. For the players in the room, the ruckus was nearly deafening. Yet, the recorded results were warm, due to the mic and preamp choices, as well as the 2-inch tape recording format.

Location, Location, Location

Where an instrument is recorded is as important to the final sound and vibe as what you mike it with. Close-miking a box or telephone book in a dry space doesn't give the sound as much character as, perhaps, playing it in a highly reverberant place, such as a bathroom or hallway. Although you can add reverb later to a dry recording, there is nothing like tracking the instrument in a live room.

But the most important aspect is how well the part is played. A lame drummer can make the best kit in the world sound terrible, while a great drummer will make anything he or she hits sound musical. ♋

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Realizing Your Creative Vision

Have you ever recorded some really amazing tracks, and when you built your mix, everything ended up sounding like mush? If you're wondering what happened; you're not alone. Every recording artist, producer, or engineer has experienced challenges transforming their musical ideas into the perfect mix at some point in their career (hopefully in the beginning). If you feel overwhelmed at the prospect of realizing your musical vision, don't dismay. Below are some tips to approaching the mixing process with confidence and creativity.

Don't Look, Listen

"Mix with your ears, not with the screen," notes three-time Grammy winner Dave Isaac (Anita Baker, Prince, Marcus Miller). In the era of the ubiquitous waveform display, don't let *visual* cues determine what your mix should *sound* like. Isaac closes his eyes to "feel" the mix.

Mix at a Low Level

Many people mistakenly think they need to mix at a loud volume to get the "intensity" of the music. Working for an extended time at high SPLs causes ear fatigue–in the best-case scenario, you won't hear things accurately, which can lead to poor mix decisions, and in the worst case, you can irreparably damage your ears. If your mix sounds good at a low level (we're talking 85 dB and lower), the balance will still hold at "ear shattering."

Visualize Parts of a Whole

Mixing is a delicate balance of art and technology. For veterans like Isaac, the DAW (or the console) is a tool, but the vision for the music is in his mind. This is where the art comes in: He creates a focal point in the music to guide the listener through the song. It's one thing to merely arrange everything in a logical place; it's another to view the individual parts as a tapestry to best communicate the story of the song.

When Crafting a Soundstage, Imagine a Real Performance

In terms of mix dimension and virtual "placement" of sonic elements, think about where the drums might sit on a real stage, or where a guitar amp might be located. Which voices and parts would normally come forward onstage, and when? Re-creating the realistic physical scope of a stage performance gives the mix a natural feel.

Don't Over-Process

Since today's powerful signal-processing plug-ins re-create the sound and function of a spectrum of high-end hardware at a fraction of the cost, it's common for engineers to have dozens, even hundreds, of virtual effects at their disposal. This doesn't mean that you have to use them *all*. Each plug-in has a sonic impact, and it's easy to get mired in the details and overdo it; be sure to keep your big picture in mind while you're piling on the effects.

Let Your Music Breathe

It can be tempting to make your mix as loud as possible, but when it comes to volume levels, more is not necessarily better. Take a cue from mastering engineers: The more you compress your mix, the more you squash the dynamic range that gives it expression and life, and the more you introduce ugly distortion artifacts.

Get Perspective

Says Isaac, "the mix is done when something moves me." (For example, he gets goose bumps.) You may or may not get that feeling when you're finished, so after you mix, sit with it for a while. Sleep on it. Play it on different systems–in the car, on an iPod, etc. . . . I can't tell you how many sessions I left thinking a mix was great, got in the car or at home and thought, "Oh, noooo . . . it sounded great in the studio." (Famous last words!) And just sometimes I've left, and guess what, the mix is amazing! So when you're "finished," give it some time, gain some perspective. You'll know it's finished, when it finally feels right. ea

Dem Lowdown, Dirty Lo-Fi Sounds

You have the latest digital recording gear, capable of producing sound so clean that producers from decades past would kill for fidelity half as good as you have it, and now you want to go Lo-fi. Perhaps you feel that many modern production techniques like isolation, multitrack recording, and now, digital, have robbed that "essence rare" of musicians performing simultaneously in a room that is far from acoustically balanced, with limited mics, where feel and performance trump pristine recording.

Naturally, there are several philosophies wound up in the Lo-fi genre, but the basic trend appears to be an aversion to your recordings being accused of being "clean." While clean may mean different things to different people, anti-perfection notions like noise, leakage, and early room reflections are encouraged. Here are a few tricks to grunge up your tracks.

Misuse Microphones

Hitting a small-diaphragm condenser with a lot of vocal, guitar, or whatever will bathe the source in a hideously skritchy mike overload. Try putting a mics in metal trashcans and use that setup for basic tracks.

Handheld cassette and digital recorders usually have mics with built-in limiters that will squash the bejesus out of loud inputs. Record drums with the meters pinning, or scream a vocal take into the recorder, sample it into your DAW, and dig the crispy preamp distortion/tape saturation. Do it back and forth a few times to build a tsunami of noise.

Wall of Crud

Back in the early sixties, everybody was blown away by Phil Spector's "Wall of Sound" production. Unfor-

tunately, wannabe disciples were SOL, because Phil wasn't telling anybody how it was done. In a blatant attempt to reverse-engineer this money-making sound, producers tripled up on players and piled on the echo and reverb, creating a sludgy-lame monument to Spector's trademark tone.

To approach this level of sonic gunk, copy-and-paste multiple versions of each track 'til the summing mixer chokes, then start slathering the reverb on—don't even worry about types and early reflections and all that—till it sounds like an overloaded 12-bit midiVerb—just like they do to entire Bollywood soundtrack final mixes.

The Robert Johnson Blair Witch Explosion

When Henry C. Speir stood Robert Johnson facing the corner of a room in the Texas Brunswick Building and stuck a mic in front of him, he most likely thought he was getting some sides on the cheap, not creating the archetypal Lo-fi setup. Singing and playing guitar into a corner, with a single mic, into an ancient mono analog field recorder has to be the Lo-fi trifecta.

Miking a singer in a corner is an acoustical nightmare, fraught with early reflections coming at the mic from two sides, robbing "presence," which gives the tracks their hauntingly thin vocals and boxy guitar that sound so awesome-fi. Since the release of *The Complete Recordings*, the presently definitive collection, the blues-obsessed believe that the American Record Company somehow screwed up the original primitive mastering process, and the tracks that we have heard all these years are actually about 20% faster than they should be, which just makes it even

more deliciously Lo-fi. So try speeding your track up 20% or so and see if Beelzebub's lawyer calls with a cease-and-desist.

Teeny, Transistorized Battery Amps

Any hipster producer worth his mystique will show up to a session with a small, transistorized practice amp—the smaller, the better. Feeding drums, vocals, bass—just about anything—will reward you with the sound of tortured Chinese electronics. Mike up that tiny speaker and record the results. Add a delay stompbox with a mic, and by alternately moving the mic closer and farther from the amp's speaker and tweaking the delay time, you have an endless repertoire from the Jimmy Page Theremin Amateur Hour.

Tubes. Toilet Paper, That Is.

The cardboard tubes left over from toilet paper, paper towels, and birthday wrapping paper can be stuck on the end of a SM-58, creating frightening levels of weird resonance and phase cancellation. Experiment with different lengths of tube until you arrive at a sound you like, then compress the daylights out of the resulting track. If you are using plug-ins rather than hardware compression, try multiple instances of compressors for a really baked sound.

The big hoses from shop vacs are another gift from the Lo-fi gods. Stick a condenser mic in each end and point it at the drum kit. You will be blessed with a dark, stanky stereo drum mix that sounds like it was recorded at the Cryptkeeper's home studio. The bendy nature of the hose means you can position each side to emphasize particular drums in the kit. Of course, massive over-compression adds to the overall lowness of fi.

Bad Stereo Miking

The classic X/Y setup using two cardioid microphones, capsules placed as near as possible to each other at 90-135-degree spreads, create optimum avoidance of phase cancellation while picking up a nice stereo field. Messing with this setup seems to be an obvious method to create a truly wretched sound.

Instead of crossing the mic capsules, place them parallel and pointed at the source. The closer they are, the higher the frequencies that will be phase-mangled; move them apart and mids and lows will get tweakier. Mono the track and the phase problems will become apparent, so adjust to taste.

Also try taping your best condenser to the worst-sounding dynamic in your collection, with the elements facing each other. I have achieved wonderfully trashy room sounds with this method.

Dead Rooms Tell No Tales

Sure, the über-dead-sounding rooms in nice recording studios eliminate those short (less than 20ms) early reflections so engineers can digitally force ambience with artificial reverb, but that's not our Lo-fi bag, baby…we want all those nasty reflections to do their evil things, so tear down those blankets and egg crates from the wall and love your room, warts and all. To accent the room reflections, avoid close-miking—pull your mics back a couple of feet from the source, and soak in all that sick room coloration.

Let It Bleed

Conventional recording wisdom dictate that we try to isolate each instrument to prevent sounds from other instruments being picked up by the mic. Leakage, however, is a Lo-fi staple, and we want to encourage it. To get the most from leakage, avoid close-miking the instruments and record everything at once—preferably in mono—to accentuate phase cancellations.

If you want to add this effect to previously recorded tracks, a wonderfully Rube Goldberg method of "re leaking" is to dig up enough P.A. cabs, monitor wedges, and bass cabs for each track you have recorded. Set them up in the spot where the instruments would be if it was a session, and mic the speakers from at least 12" away, and throw up a couple of room mics to catch the ambience. Send the tracks to the speakers and record the whole mess on new tracks, complete with suitable bleed and garage ambiance.

Magnetic Tape Saturation

Cassette four-tracks are like instant Lo-fi boxes, because of the high degree of tape saturation they can achieve. Tape saturation occurs when the magnetic particles on the tape are so overloaded that they can no longer accurately reproduce sound cleanly. The best method for purposely creating tape saturation is to record as loud as possible, without clipping the sound—so don't just peg the meters and think you're doing the job. Set the recorder to the slowest tape speed possible and turn off DBX or Dolby. The slow tape speed and teeny heads on the cassette four-track will saturate with definite Lo-fi warmth. Bounce the tracks a couple of times on the cassette for more hiss and wow and flutter, then sample the whole mess back into your DAW. Repeat the process until you have your preferred degree of fi. **eq**

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CAKEWALK SONAR X1

BY CRAIG ANDERTON

Simplify track processing with FX chains

OBJECTIVE: Create "virtual racks" of effects plug-ins, called FX Chains, so you can save and load groups of effects.

BACKGROUND: Sonar allows for creating track presets, which can contain multiple pre-loaded effects. However, until Sonar X1 introduced FX chains, you couldn't save or load the combination of effects themselves separately from the track.
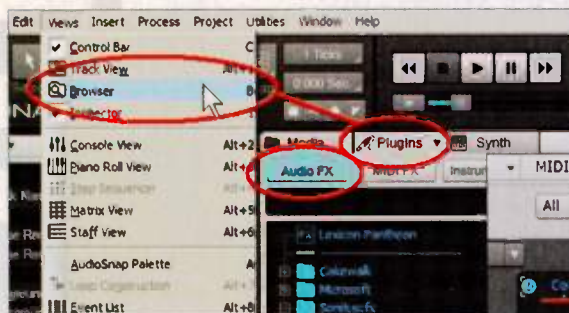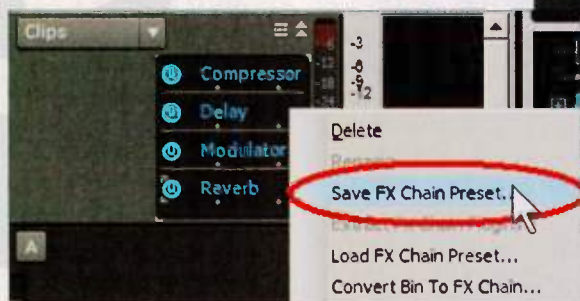
1 Go *View > Browser*, click on the Plug-Ins tab, then click on the Audio FX button.

2 Decide on the effects you want in the FX chain, then drag them from the Browser into a track effects bin.

3 Right-click anywhere in the effects bin (including on an effect), then select "Save FX Chain Preset."
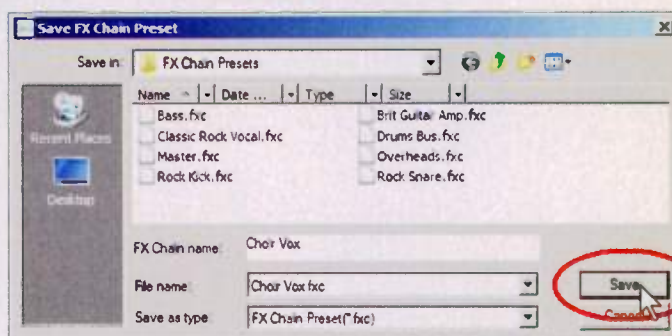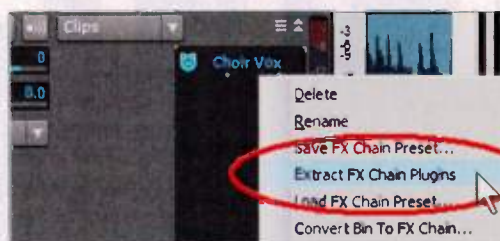
4 After naming the effects chain, save it into the FX Chain Presets folder.
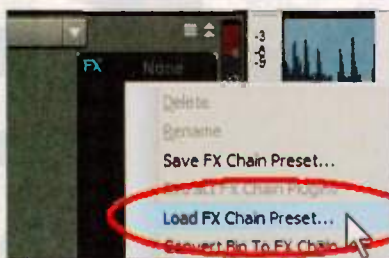
5 To load the FX Chain Preset into a different track, right-click in the track's FX bin and select "Load FX Chain Preset."

6 The FX Chain Preset loads as a single entity, but to extract the individual effects, right-click on the effects bin and select "Extract FX Chain Plugins."

Tips

- Step 3: It's not necessary to save to create a chain; you can create a chain temporarily by selecting "Convert Bin to FX Chain" instead of "Save FX Chain Preset."
- Step 6: When you recall an FX Chain, the effects parameter values are the same as when you saved the chain.

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APPLE LOGIC PRO

BY CRAIG ANDERTON

Rearrange, and arbitrarily play back, loop elements

OBJECTIVE: Break a loop down into individual slices, and then map them to the EXS24 sampler.

BACKGROUND: In conjunction with the EXS24, Logic can convert any region(s) into a sampled instrument. You can also convert slices within a region, with each slice assigned to a MIDI note—then rearrange these to rearrange the loop, or play discrete slices to create entirely different grooves.
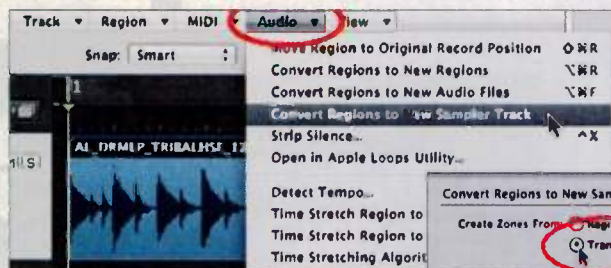
1 Select the region containing the sonic elements that you want to convert into an EXS24 instrument, then go *Audio > Convert Regions to New Sampler Track*.
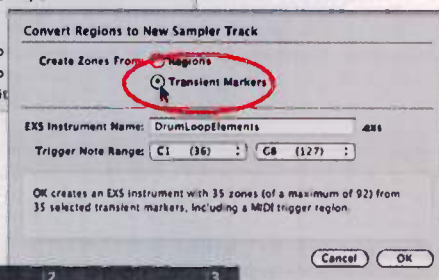
2 In the dialog box that appears, click on "Transient Markers" to convert sections between transients into EXS24 zones. Here, you can also name the EXS24 instrument, and specify a note range for the slices to cover. After making your selections, click on "OK."

3 Logic creates an EXS24 software instrument track below the original track, automatically selects the new track, and deselects the original track above it. The new track includes MIDI regions with ascending trigger notes.
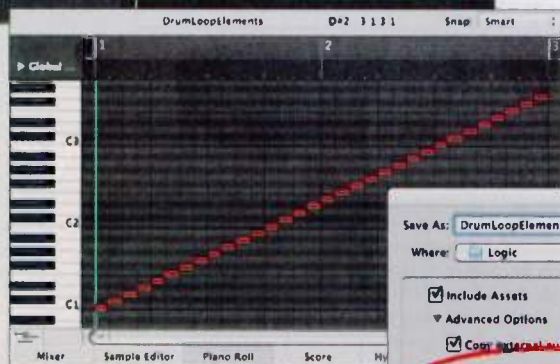
4 Click on the MIDI track, then the Piano Roll tab, to see where the MIDI notes fall on the EXS24 keyboard, or to edit them.
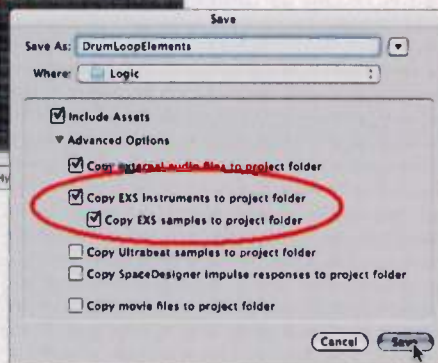
5 To make the project self-contained, when you go to Save, check "Copy EXS instruments to project folder" and "Copy EXS samples to project folder."
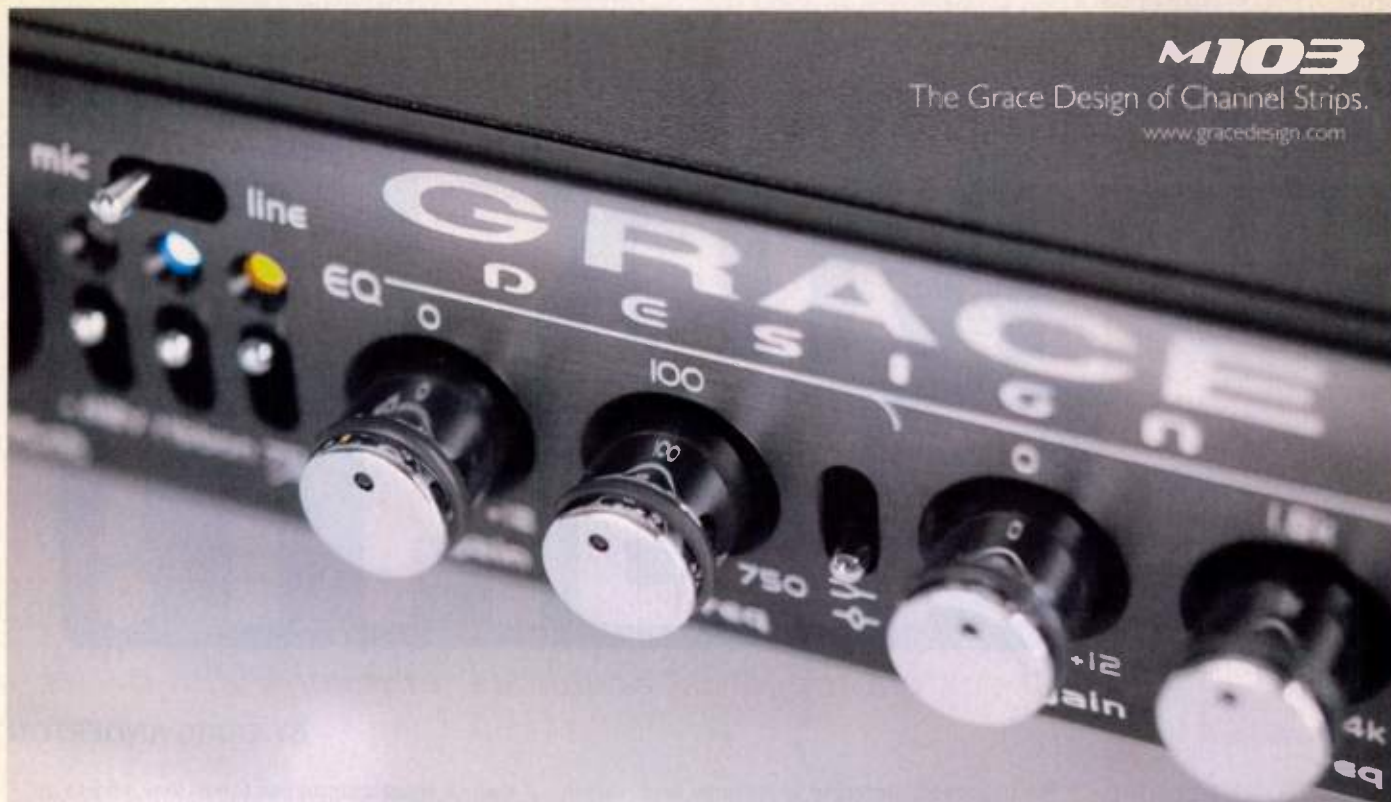
Tips

- Step 1: If Logic is set up for right-clicking, you can alternately right-click on the region, then go *Convert > Convert to New Sampler Track*.
- Step 2: If you select "Regions" instead of "Transient Markers," the selected region(s) will be converted into an EXS24 zone.
- Step 2: You cannot derive more than 128 zones from the selected region.

MIX IT RIGHT!

Check out the latest advances for mixing with DAWs

BY CRAIG ANDERTON

The best mics, recording techniques, and players don't guarantee great final results unless they're accompanied by a great mix—yet the face of mixing has changed dramatically with the introduction of the DAW, both for better and worse. Better, because you don't need to spend $250,000 for a huge mixer with console automation, but worse because we've sacrificed hands-on control and transparent workflow for in-the-box cost-effectiveness and convenience.

Or have we? Today's DAWs have multiple options—from track icons to color-coding to configurable mixers—that help overcome the limitations of displaying tons of tracks on a computer monitor. While this can't replace the one-function/one-control design of analog gear, some tasks (such as grouping and automation) are now actually easier to do than they were back in the day.

As to hands-on control, controller-related products keep expanding and offering more possibilities, from standard control surfaces with motorized faders, to FireWire or USB mixers, to keyboard workstations (such as Yamaha's Motif XS/XF series or Korg's M3) pressed into service as controllers. These all help re-create "the analog experience."

Unlike most of our roundups, this time we're not reviewing gear but instead looking at techniques and features—then correlating how those are implemented in various DAWs.

And speaking of DAWs, if you've held off on upgrading your DAW of choice, now might be the time to reconsider. As DAW feature sets mature, more companies focus their efforts on workflow and efficiency. While these kinds of updates may not seem compelling when looking over specs on a website, in practice, they can make the recording and mixing process more enjoyable and streamlined. And isn't that what we all want in the studio?

So pull up those faders, dim the lights, and let's get started.

GAIN-STAGING

The typical mixer has several places where you can set levels; proper *gain-staging* makes sure that levels are set properly to avoid either distortion (levels too high) or excessive noise (levels too low).

There's some confusion about gain-staging, because it works differently in hardware and software. With hardware, you're always dealing with a fixed, physical amount of headroom and dynamic range, which must be respected. Modern virtual mixers (with 32-bit floating-point resolution and above) have almost unlimited dynamic range in the mixer channels themselves—you can go "into the red" yet never hear distortion. However, at some point, the virtual world meets the physical world, and is subject to hardware limitations.

When you gain-stage, work backward from the output; make sure that the output level doesn't overload the physical audio interface. I also treat −6 to −10dB output peaks as "0." Leave some headroom to allow for *inter-sample distortion* (Figure 1; see the Roundup in the June 2010 issue for more information); also, it seems converters
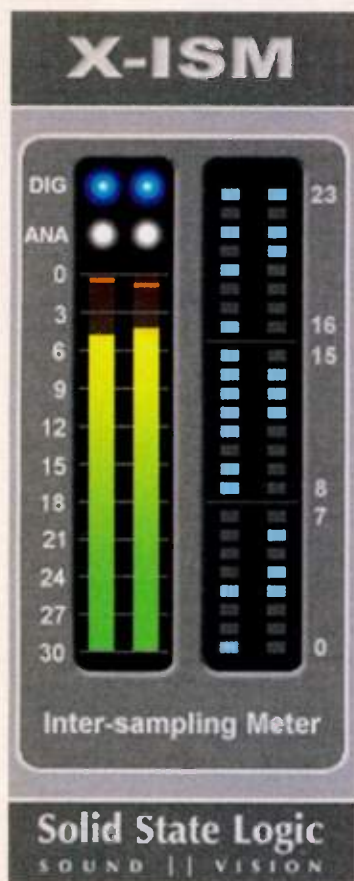
X-ISM

Inter-sampling Meter

Solid State Logic
SOUND || VISION

Figure 1. SSL's X-ISM metering measures inter-sample distortion, and is available as a free download from www.solidstatelogic.com.
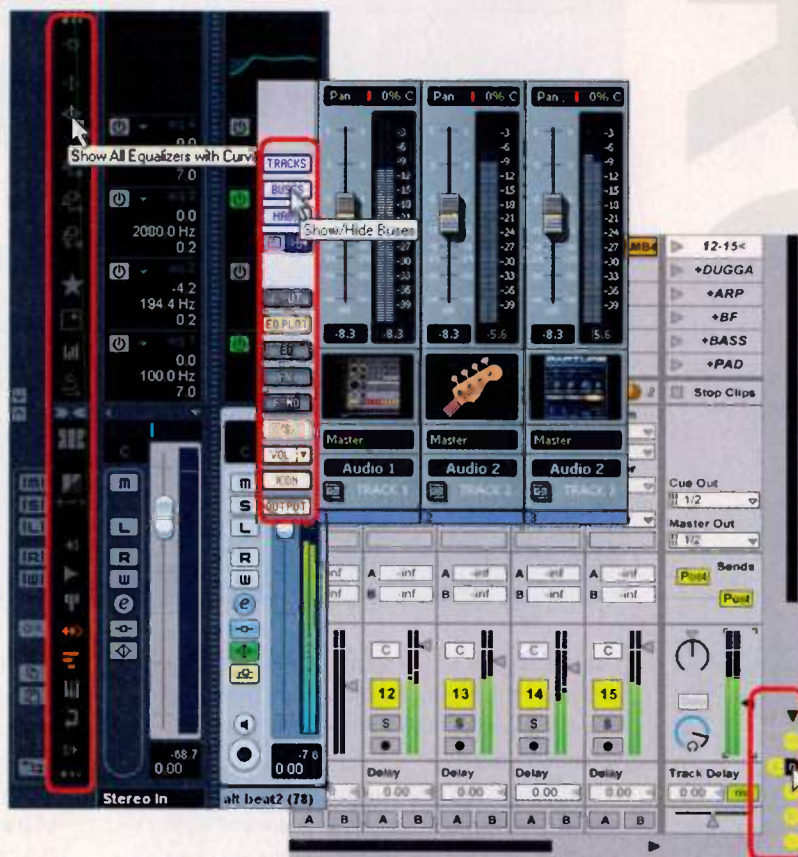

Figure 2. This collage outlines in red the toolbars that show/hide various mixer elements within various DAW interfaces (left: Steinberg Cubase 5, middle: Cakewalk Sonar 8.5, right: Ableton Live 8).

like to have a little "breathing room." Remember, these levels can—and usually will—be brought up during the mastering process anyway. Then, set individual channel levels so that the mixed output's peaks don't exceed that −6 to −10dB range.

CONFIGURABLE MIXERS

One of the most useful features of virtual mixers is that you can configure them to show only what's needed for the task at hand, thus reducing screen clutter (Figure 2).

Mixing often happens in stages: First, you adjust levels; then EQ, then stereo placement, aux busing, etc. Granted, you'll go back and forth as you tweak things—for example, changing EQ might affect levels—but if you save particular mixer configurations, you can recall them as needed. Here are some examples of ways to use this feature when mixing.

• **The meter bridge.** This is more applicable to tracking than mixing, but is definitely worth a mention. If you hide everything except meters

(and narrow the mixer channel strips, if possible), then you essentially have a meter bridge. Because software mixers often do not adjust incoming levels from an interface when recording (typically,

WHY YOU NEED A DUAL-MONITOR SETUP

If you're not using two (or even three) monitors, you'll kick yourself when you finally get an additional monitor and realize just how much easier DAW-based mixing can be. Dedicate the second monitor to the mixer window, and the main monitor to showing tracks, virtual instrument GUIs, etc.—or stretch the mixer over both monitors to emulate old-school hardware-style mixing.

Your graphics card will need to handle multiple monitors (although some computers have that capability "out of the box"). I use Matrox cards; they've never let me down. However, combining different monitor technologies can be problematic—for example, you might want to use an old 19" CRT monitor along with a new LCD monitor, only to find that the refresh rates have to be set to the lowest common frequency. If the LCD wants 60Hz, then you're stuck with 60Hz (*i.e.*, flicker city!) on the CRT. If possible, use matched monitors, or at least matching technology.

Figure 3. Acoustica's Mixcraft 5 is one of several programs that offer track icons to make quick, visual identification of DAW tracks.

the interface provides an applet for that task), you can leave the "meter bridge" up on the screen to monitor incoming levels along with previously-recorded tracks.

- **Hiding non-essentials.** Visual distractions work against mixing; some people even turn off their monitors, using only a control surface, so they can concentrate on listening. While you might not want to go to that extreme, when mixing you probably don't need to see I/O setups, and once the EQ settings are nailed, you probably won't need those either. You may want to adjust aux bus sends during the course of a mix, but that task can be relegated to automation, letting you hide buses as well.

- **Channel arrangement.** With giant hardware mixers, it was common to re-patch tape channel outs to logical groupings on the mixer, so that all the drum faders would be adjacent to each other; ditto vocals, guitars, etc. With virtual mixers, you can usually do this just by dragging the channels around: Take that final percussion overdub you added on track 26, and move it next to the drums. Move the harmony vocals so they're sitting next to the lead vocal, and re-arrange the rhythm tracks so they flow logically. And while you're at it, think about having a more or less standardized arrangement in the future—for example, starting off with drums on the lowest-numbered tracks, then bass, then rhythm guitars and keyboards, and finally moving on to lead parts and "ear candy" overdubs. The less you need to think about where to find what you want, the better.

- **Color-coding.** Color-coding tracks can be tremendously helpful if done consistently. I go by

the spectrum mnemonic: Roy G. Biv (red, orange, yellow, green, blue, indigo, violet). Drums are red, bass is orange, melodic rhythm parts are yellow, vocals are green, leads are blue, percussion is indigo, and effects are violet. When you have a lot of tracks, color-coding makes it easy to scroll to the correct section of the mixer (if scrolling is necessary, which I try to avoid if possible).

- **Track icons.** When I first saw these on Garage Band, I thought the concept was silly—who needs cute little pictures of guitars, drums, etc.? But I loaded track icons once when I wanted to make an article screenshot look more interesting, and have been using them ever since. The minute or two it takes to locate and load the icons pays off in terms of parsing tracks rapidly (Figure 3). Coupled with color-coding, you can jump to a track visually without having to read the channel name.

CHANNEL STRIPS

Several DAWs include channel strips with EQ and dynamics control (Figure 4, page 54), or even more esoteric strips (e.g., a channel strip dedicated to drums or vocals), but third-party channel strips are also available—see Figure 5 on page 56. If there are certain settings you return to frequently (I've found particular settings that work well with my voice for narration, so I have a narration channel strip preset), these can save time compared to inserting individual plug-ins. Although I often make minor tweaks, it's easier than starting from scratch.

Even if you don't have specific channel strips, many DAWs let you create *track presets* that include particular plug-in configurations. For example, I

Figure 4. Cakewalk Sonar X1 (left) and Propellerhead Record (right) have sophisticated channel strips with EQ, dynamics control, and with X1, saturation.

made a "virtual guitar rack" track preset designed specifically for processing guitar with an amp sim, compression, EQ, and spring reverb.

BUSING

There are three places to insert effects in a typical mixer:

- Channel inserts, where the effect processes only that channel
- Master inserts, where the processor affects the entire mix (e.g., overall limiting or EQ)
- Buses, where the processor affects anything feeding that bus

Proper busing can simplify the mixing process (Figure 6, page 56), and make for a happier CPU. In the days of hardware, busing was needed because unlike plug-ins, which you can instantiate until your CPU screams "no more," a hardware processor could process only one signal path at a time. Therefore, to process multiple signals, you had to create a signal path that could mix together multiple signals—

in other words, a bus that fed the processor.

The most common effects bus application is reverb, for two reasons. First, high-quality reverbs (particularly convolution types) generally use a lot of CPU power, so you don't want to open up multiple instances. Second, there's an aesthetic issue: If you're using reverb to give a feeling of music being in an acoustic space, it makes sense to create a single, common acoustic space. Increasing a channel's reverb send places the sound more in the "back," and less send places it more in the "front."

A variation on this theme is to have two reverb buses and two reverbs—one for sustained instruments, and one for percussive instruments. Use two instances of the same reverb, with very similar settings except for diffusion. This is because you generally want lots of diffusion with percussive sounds to avoid hearing discrete echoes, and less diffusion with sustained instruments (like vocals or lead guitar) so that the reverb isn't too "thick," thus muddying the sustained sound. You'll still have the feeling of a unified acoustic space, but with the advantage of being able to decide how you want to process individual tracks.

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Figure 5. Channel strips, clockwise from top: iZotope Alloy, Waves Renaissance Channel, Universal Audio Neve 88RS.

Of course, effects buses aren't only good for reverb. I sometimes put an effect with very light distortion in a bus, and feed in signals that need some "crunch"—for example, adding a little grit to kick and bass can help them stand out more when playing the mix through speakers that lack bass response. Tempo-synced delay for dance music cuts also lends itself to busing, as you may want a similar rhythmic delay feel for multiple tracks.

GROUPING

Grouping (Figure 7) is a way to let one fader control many faders, and there are two main ways of doing this. The classic example of old-school grouping is a drum set with multiple mics; once you nail the relative balance of the individual channels, you can send them to a bus, which allows raising and lowering the level of all mics with a single control. With this method, the individual fader levels don't change.

The other option is not to use a bus, but assign all the faders to a *group*. In this case, moving one fader causes all of the other faders to follow. Furthermore, with virtual mixers, it's often possible to choose whether group fader levels move *linearly* or *ratiometrically*. With a linear change, moving one fader a certain number of dB raises or lowers all faders by the same number of dB. When using ratiometric changes, raising or

lowering a fader's level by a certain percentage raises or lowers all grouped fader levels by the same percentage, not by a specific number of dB. In almost all cases, you'll want to choose a ratiometric response.

Another use for grouping is to fight "level creep," where you raise the level of one track, then another, and then another, until you find the master is creeping up to zero or even exceeding it—see the section on Gain-Staging. Temporarily group all of the faders ratiometrically, then bring them down (or up, if your level creep went in the opposite direction) until the output level is in the right range.

CONTROL SURFACES

Yes, I know people mix with a mouse. But I highly recommend using a control surface, not because I was raised with hardware mixers, but because a control surface is a "parallel interface"—you can control multiple aspects of your mix simultaneously—whereas a mouse is more like a serial interface, where you can control only one aspect of a mix at a time.

Furthermore, I prefer a mix to be a performance. You can add a lot more life to a mix by using faders not just to set static levels, but to add dynamic and rhythmic variations (*i.e.*, moving faders subtly in time with the music) that impart life and motion to the mix.
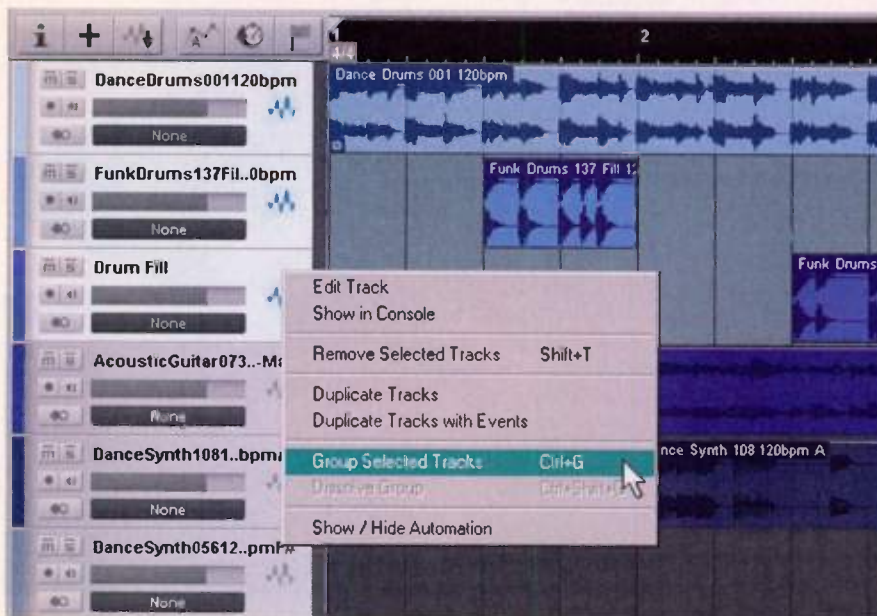
Figure 7. In Presonus Studio One Pro, the top three tracks have been selected and are about to be grouped, so edits applied to one track apply to the other grouped tracks.

There are many control surface options (Figure 8, page 58). One is to use a control surface, dedicated to mixing functions, that produces control signals that your DAW can interpret and understand. Typical models include the Avid Artist Series (formerly from Euphonix), Mackie Control, Cakewalk VS-700C, Behringer BCF2000, Alesis Master Control, etc. The more advanced models use motorized faders, which simplify the mixing process because you can overdub automation moves just by grabbing faders and punching in. If that option is too expensive, there are less-costly alternatives, such as the Frontier Design AlphaTrack, PreSonus Faderport, Cakewalk VS-20 for guitarists, and the like. These generally have fewer faders and options, but are still more tactile than using a mouse.

There's yet another option that might work even better for you: an analog or digital mixer. I first got turned on to this back in the early days of DAWs, when I had a Panasonic DA7 digital mixer. It had great EQ and dynamics that often sounded better than what was built into DAWs, and had motorized faders and decent hardware busing options. It also had two ADAT cards so I could run 16 digital audio channels into the mixer, and I used the Creamware SCOPE interface with two ADAT outs. I could assign tracks to the SCOPE ADAT outs, feed these into the DA7, and mix using the DA7. Syncing the motorized fader "moves" to the DAW allowed for automated mixes.

This had several advantages, starting with hands-on control. Also, by using the DA7's internal effects, I not only had better sound quality but also lightened the computer's CPU load. And it was easier to interface hardware processors with the DA7 compared to interfacing them with a DAW (although most current DAWs make it easy to treat outboard hardware gear like plug-ins if your audio interface can dedicate I/O to the processors). Finally, the DA7 had a MIDI control layer, so it was even possible to control MIDI parameters in virtual instruments and effects plug-ins from the same control surface that was doing the mixing. While the DA7 is long gone, Yamaha offers the 02R96VCM and 02R96VCM digital mixers, which offer the same general advantages.

However, that's just one way to deal with deploying a control surface. You can use a high-quality analog mixer, or something like the Dangerous Music 2-BUS and D-BOX. Analog mixing has a somewhat different sonic character compared to digital mixing, although I wouldn't go so far as to say one is inherently better than the other. (It's more like a Strat vs. Les Paul situation—different strokes for different folks.) The main issue will be I/O limitation, because you have to get the audio out of the DAW and into the mixer. If you have 43 tracks and your interface has only eight discrete outs—trouble. The

Figure 8. A variety of hands-on controllers. Clockwise from upper-left: Behringer BCF2000, Novation Nocturn, Avid MC Mix, and Frontier Design AlphaTrack.

workaround is to create *stems* by assigning related tracks (*e.g.*, drums, background vocals, rhythm guitars, etc.) to buses, then sending the bus outputs to the interface. In some ways this is a fun way to mix, as you have a more limited set of controls and it's harder to get "lost in the tracks."

Today's FireWire and USB 2.0 mixers (M-Audio, Alesis, Phonic, Mackie, etc.) can provide a best-of-both-worlds option. These are basically traditional mixers that can also act as DAW interfaces—and while recording, they have enough inputs to record a multi-miked drum set and several other instruments simultaneously. Similarly, when it's time to mix, you might have enough channels to mix each channel individually, or at least mix a combination of individual channels and stems. Mackie's Onyx "i" series is even Pro Tools M-Powered compatible.

SCREEN SETS

Different programs call this concept by different names, but basically, screen sets are about being able to call up a particular configuration of windows with a simple keyboard short-cut or menu item (Figure 9, page 60) so you can switch instantly among various views.

Like many of today's DAW features (track icons, color-coding, configuring mixers, and the like), it requires some time and thought to create a useful collection of screen sets, so some people don't bother. But this initial time investment is well worth it, because you'll save far more time in the future. Think about how often you've needed to leave a mixer view to do a quick edit in the track or arrange view: You resize, move windows, change window sizes, make your changes, then resize and move all over again to get back to where you were. It's so much simpler to have a keyboard shortcut that says, "hide the mixer, pull up the arranger view, and have the piano-roll editing window ready to go," and after doing your edits, having another shortcut that says, "hide all that other stuff and just give me the mixer."

DIGITAL METERING LIMITATIONS

You can't always trust digital metering: For example, to indicate clipping, digital meters sometimes require that several consecutive samples clip. Therefore, if only a few samples clip at a time, your meters may not indicate that clipping has occurred. Also, not all digital gear is totally consistent—especially hardware. In theory, a full-strength digital signal in which all the bits are "1" should always read 0dB; however, some designers provide a little headroom before clipping actually occurs—a signal that causes a digital mixer to hit −1dB might show as 0dB on your DAW.

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Figure 9. Logic's Screensets get their own menu for quick recall and switching among views.

It's a good idea to use a test tone to check out metering characteristics of all your digital gear. Here are the steps:

1 Set a sine wave test tone oscillator to about 1kHz, or play a synthesizer sine wave two octaves above middle C (a little bit above 1kHz).
2 Send this signal into an analog-to-digital converter.
3 Patch the A/D converter's digital out to the digital in of the device you want to measure.
4 Adjust the oscillator signal level until the indicator for the device being tested just hits –6dB. Be careful not to change the oscillator signal level!
5 Repeat step 3 for any other digital audio devices that you want to test.

In theory, all your other gear should indicate –6dB, but if not, note variations in your studio notebook for future reference. ᴄ૨

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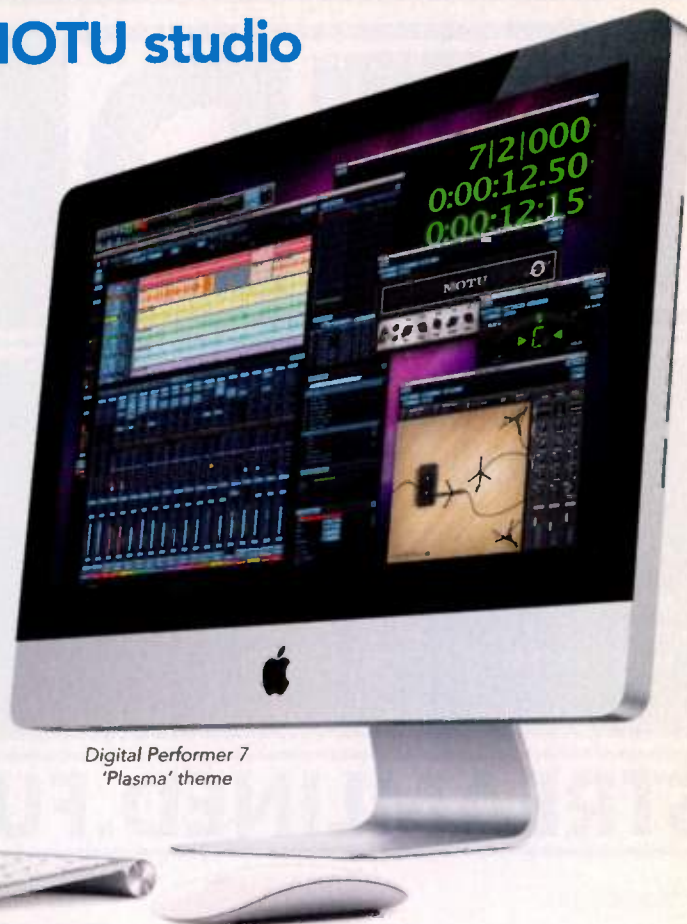
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The following is excerpted from "Signal to Noise," a feature on the Smashing Pumpkins that originally appeared in the October 2008 issue of *EQ*.

On staying outside the comfort zone . . .

I'm a person who tends not to repeat technique, which I guess is kind of suicidal, in a way. Most people look at a recording career as a series of conclusions. I've always treated my recording career more like a journey. I think when any artist gets into a comfortable set of choices, that's where the death of creativity lies.

On his unique voice . . .

My voice is really hard to record. It's hard to record, it's hard to monitor, and it's hard to mix. I'm Irish; I'm meant to sing sad ballads! My voice isn't really meant for rock, and I'm pretty sure many people out there would agree with me.

On tracking *Mellon Collie and the Infinite Sadness* . . .

Flood felt like the band he would see live wasn't really captured on record, so a lot of *Mellon Collie* was tracked by the band at deafening volumes. I mean, deafening. There was so much SPL in the room that it was physically

uncomfortable. Your ears, your emotional resistance, would wear down.

On *stylistic shifts* . . .

"I did go around and proclaim rock to be dead," Corgan laughs, "which was probably the stupidest thing I ever did. I was in my *Adore* personality, saying *Adore* personality things like 'F**k the electric guitar!' And of course 12 months later I'm playing 'The Everlasting Gaze.'"
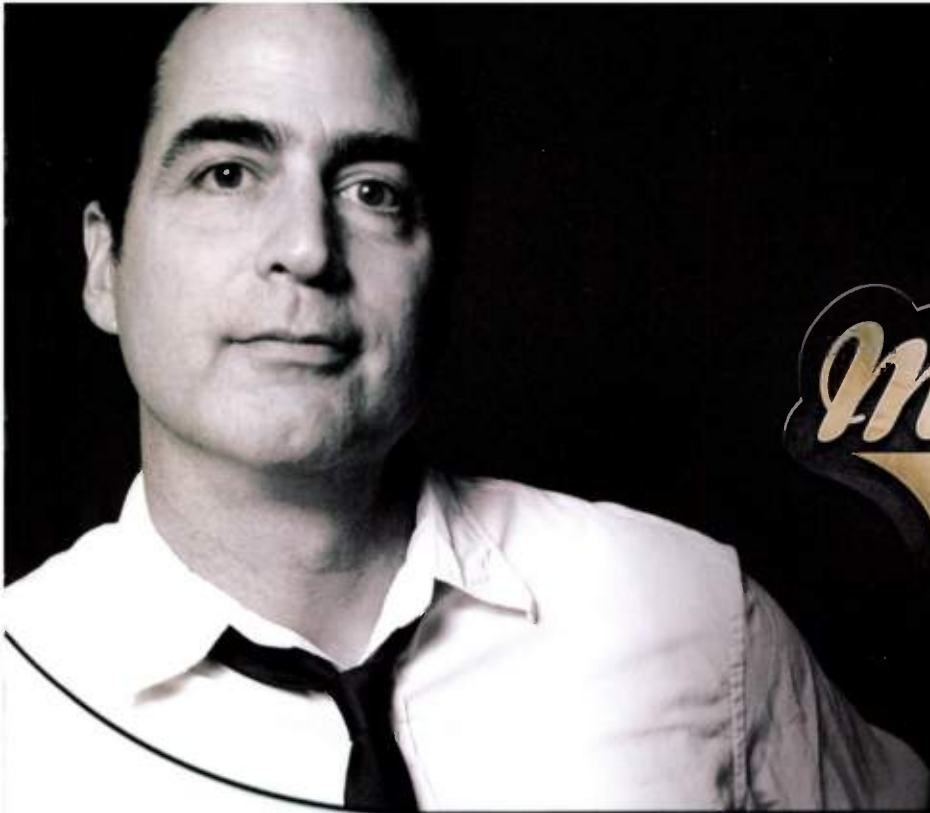
On the evolution of the Pumpkins' success:

Go back and read the press on us from 1989 to 1992; people had no clue who we were and where we were going. We were onto something and we followed it through, and it built up into something that sold and was popular. It had its moment, but I think once we crested that wave, it was back to a level of experimentation. What we didn't understand were the ramifications it was going to have on the band, commercially. You can't build yourself into this superpower and then say, "I'm going to go back to being arty guy." They don't want to hear that, and I wasn't sophisticated enough to understand that. Now I am.

The mainstream world only wants to hear you when you have your shit together. It may take us three years to get our shit together to a point where we can make that kind of level of work, and then we'll show up and we'll set the phasers to stun. I'm 41, Jimmy's 44—we still have a good seven-plus years where we can play that kind of music that way.

If I can truly do phenomenal work, it will be heard, whether it's acquired for free or bought, it doesn't make any difference. There's nothing standing between me and an audience. Look, we hit massive homeruns. We never followed them up. We never took the safe, obvious next step, and I think that gets lost. We're not a milk-it band. We never were a milk-it band. There's that old saying, "If it's on the cover of *Time*, it's too late." By the time people got around to understanding what we were doing, we were gone. Now is the time to prove our mettle. **eQ**