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HOLY GHOST!

THE *WISE UP GHOST* STUDIO SESSIONS

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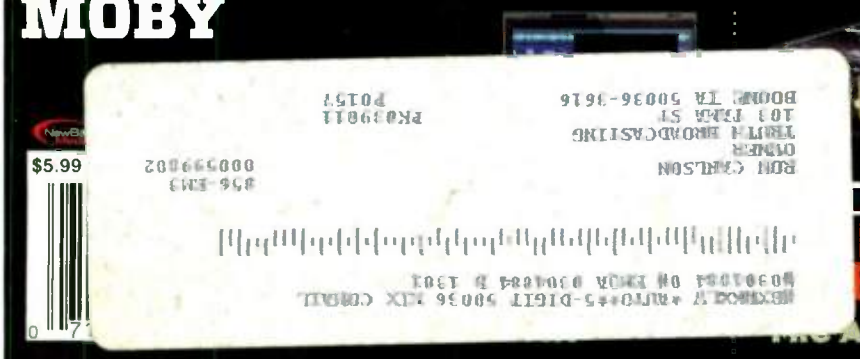

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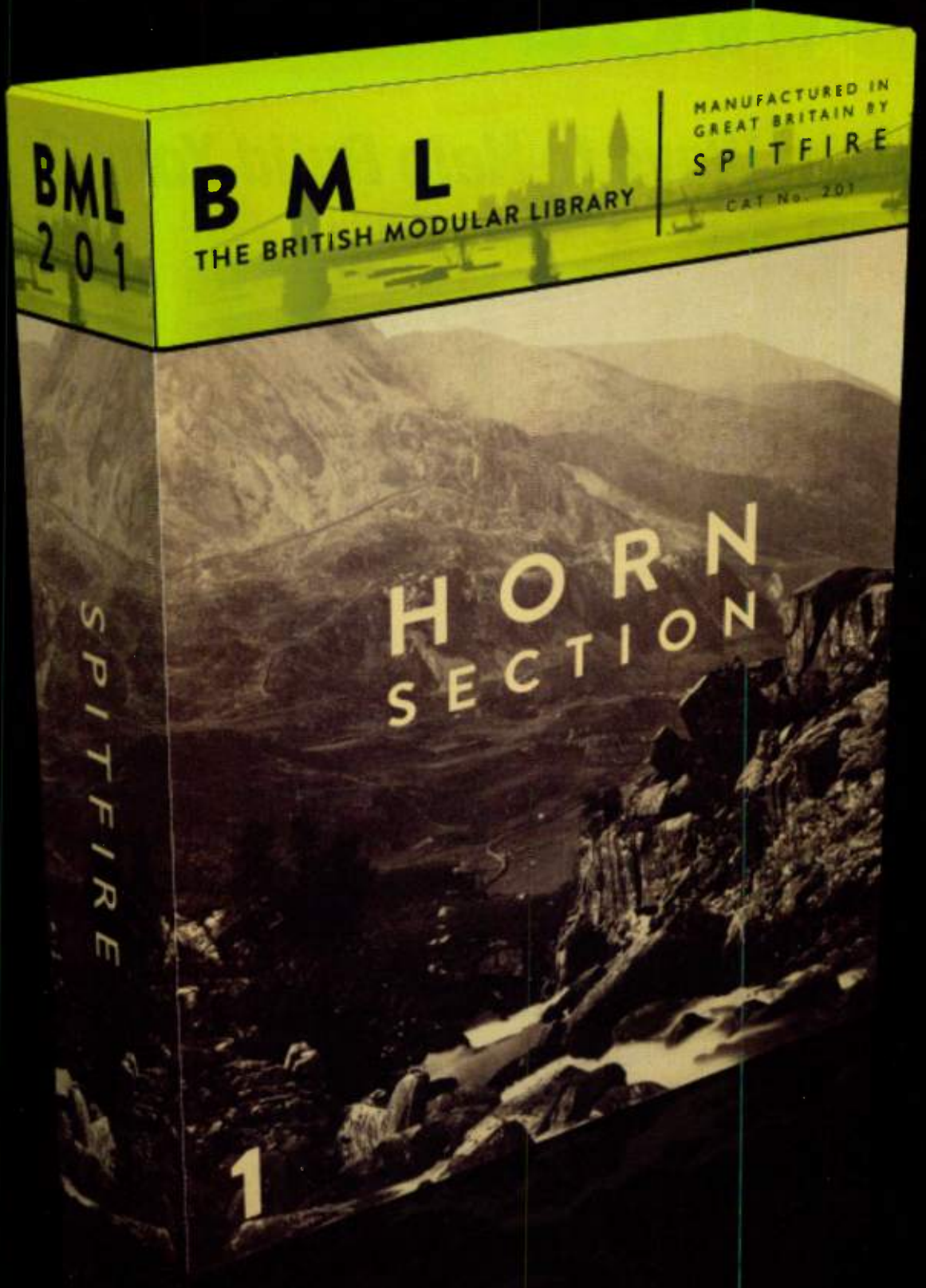

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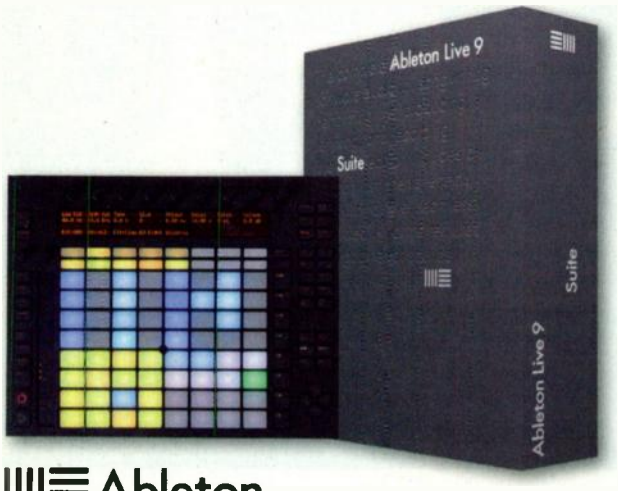

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COVER FEATURE

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LISTEN

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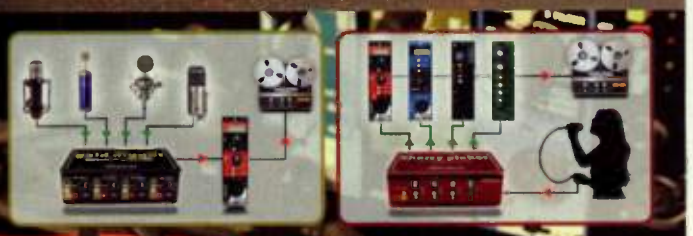

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KEYBOARDS/MUSICAL DIRECTOR, PAUL MCCARTNEY

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insight

Embracing "Wrong"

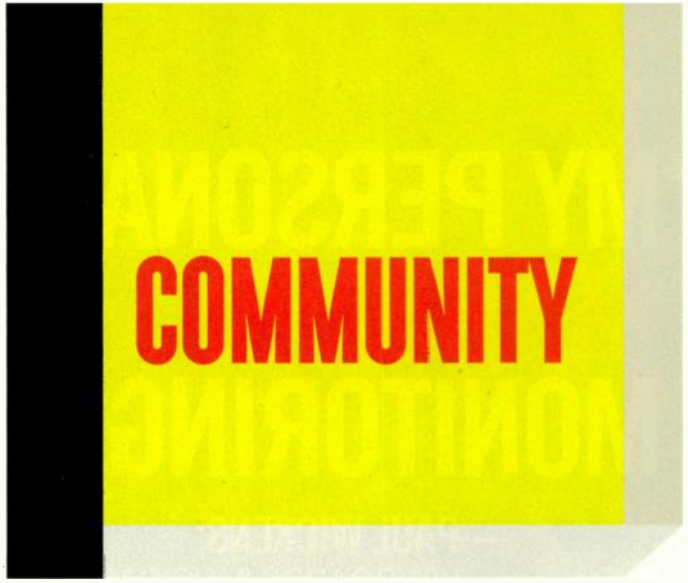
THIS MONTH, our music features offer lessons in recording the "wrong" way: Use the the wrong mic technique. (Dangle the snare mic from the ceiling.) Add the wrong effects (television compressors). Track drums in the wrong space (a closet). Apply the wrong finishing touches to the mix. (Play up noise, wow, and flutter.)

There's certainly a case to be made for tried-and-true recording methods, but sometimes tossing out the rule book can yield unexpectedly amazing results.

In our cover story (starting on page 16), we learn how Elvis Costello and The Roots recorded much of their *Wise Up Ghost* collaboration right on the *Late Night With Jimmy Fallon* set, and the result is a gorgeous, warm, groove-laden record.

Moby learned long ago that making intentional sonic compromises—creating elements that many people would consider mistakes—freed him to believe a record could be anything he wanted it to be, as he explains in our feature on the *Innocents* sessions (beginning on page 30): "Realizing that suddenly makes the studio a place where the goal is to make something interesting, rather than something perfect." In the recording world, there is no single "perfect" sound, one sonic ideal—lucky for us, because it would be a sad place if everything sounded the same.

SARAH JONES
EDITOR
sjones@musicplayer.com



"WE DIDN'T PLAY IN BARS TO BUILD OUR FAN BASE; WE PLAYED HIGH SCHOOLS, MIDDLE SCHOOLS, ELEMENTARY SCHOOLS."

Backstreet Boy Nick Carter, on building a boy-band audience in the days before YouTube, on CNN.com, August 2, 2013

The *Electronic Musician* Poll

WHICH IS MOST IMPORTANT FOR YOU IN A USB MIDI CONTROLLER?

KEYBOARD 69%
DRUM PADS 9%
KNOBS AND SLIDERS 22%

DIG MY RIG

My project is called Maturo; I am the only 100% electronic musician contracted to perform at Disneyland in Anaheim, CA, since 2009. I used to be 100% hardware but recently went the way of the DAW. I usually incorporate all of my gear into my recordings, and I am all original and do no covers. Since 1997, I have released five full-length albums and two EPs with nice success in indie terms. During my live shows, I usually incorporate all electronic elements such as percussion (sometimes with my wife, as seen in the inset photo), or additional keyboards. I have also been nominated for a few modest music awards and have been working on a few small indie music scores. I have always kept a low key on my music, but I think it is time to change that way of thinking!

Troy Maturo
www.maturomusic.com

ask!

I'VE TAKEN YOUR ADVICE TO HEART, AND BACK UP EVERYTHING FROM MY COMPUTER TO USB DRIVES. BUT I'M SCREWED, BECAUSE TWO OF THE DRIVES ARE NOW WRITE-PROTECTED, AS ARE ALL THE FILES, AND I CAN'T MAKE ANY CHANGES. I'VE TRIED ALTERING PERMISSIONS, TURNED THE DRIVES OFF AND ON AGAIN, AND EVEN TRIED TURNING OFF WRITE PROTECTION ON INDIVIDUAL FILES—NO GO. WELL, AT LEAST MY FILES ARE BACKED UP. I'M ON WINDOWS 7 64-BIT, IF THAT MAKES A DIFFERENCE.

PETER ESPINOSA
CHICAGO, IL
VIA EMAIL

This is a rare occurrence, but it is fixable. Don't waste your time with the Security tab; you need to get into the command-line interface. (Sorry.) You also need Administrator status to make this happen. Type the text shown in bold below exactly—if there's a space, include a space and if there isn't a space, don't add any.

Click on the start button, then type **CMD.EXE** in the search box. When the command line prompt appears, type **diskpart** and then press Enter. Next, type **list volume**, then press Enter. Your drives will be listed, each with an associated number, letter, and label. Suppose the problem was with drive 7. In that case, **type select volume 7** and press Enter. Finally, type **attributes disk clear readonly** and press Enter.

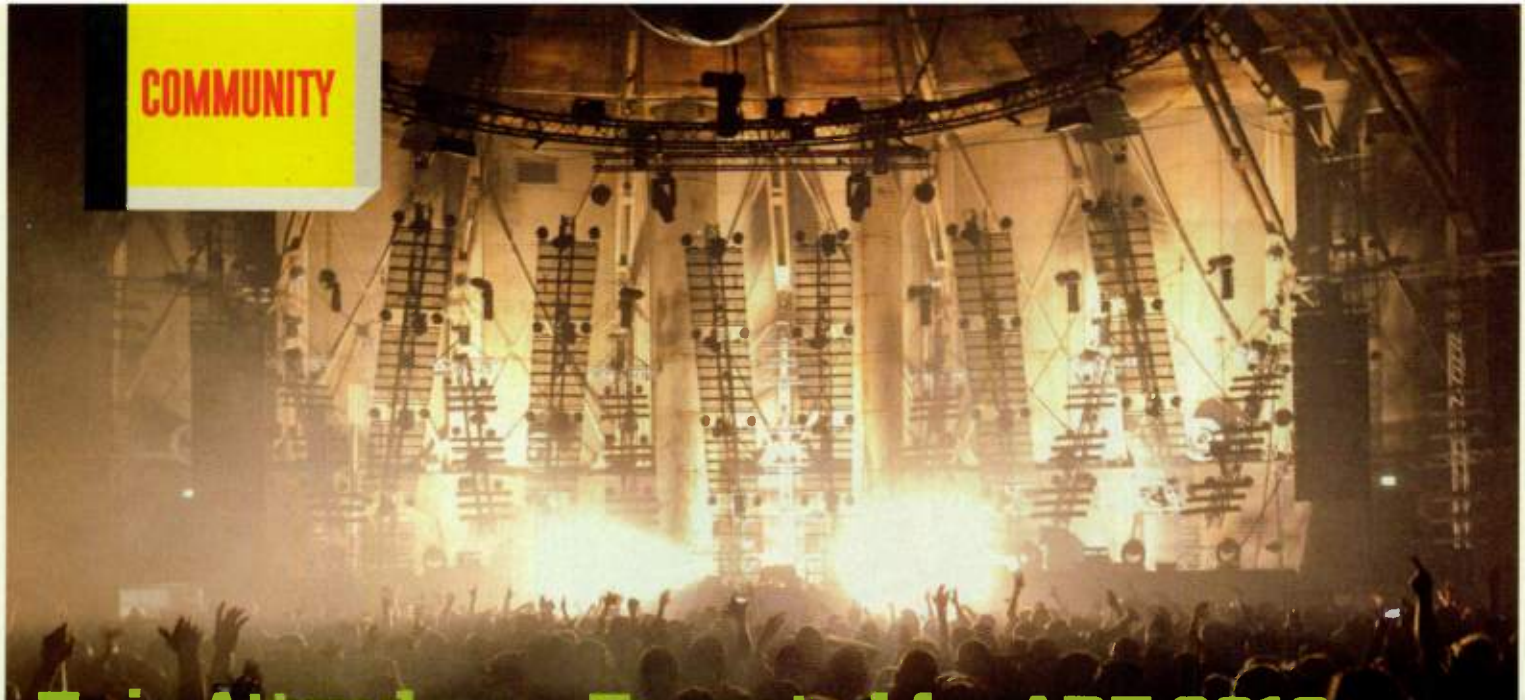
If all is well, you'll see a message that says "Disk attributes cleared succesfully," and you'll once more have control over your formerly locked drive. Now get back to recording!

THE EDITORS

```
C:\Users\PCAudioLabs User>diskpart

DISKPART> list volume

  Volume ###  Ltr  Label        Fs     Type
  ----------  ---  -----------  -----  ----------
  Volume 0     D                       DVD-ROM
  Volume 1     F   Video        NTFS   Partition
  Volume 2     G   Samples      NTFS   Partition
  Volume 3     C   Win7Pro64    NTFS   Partition
  Volume 4     E   Music        NTFS   Partition
  Volume 5     J   WAVES        FAT    Removable
  Volume 6     I   CODEMETER    FAT32  Removable
  Volume 7     H   Samples      NTFS   Partition

DISKPART> select volume 7

Volume 7 is the selected volume.

DISKPART> attributes disk clear readonly

Disk attributes cleared successfully.

DISKPART> _
```

If you're not scared of the Windows command-line interface, you can restore an entire drive to non-write-protected status. The information you need to type is shown in yellow.

>>> Got a question about recording, gigging, or technology? Ask us! Send it to ElectronicMusician@musicplayer.com.



Epic Attendance Expected for ADE 2013

Paul Oakenfold, Richie Hawtin, Tiësto Among Amsterdam Headliners

The 18th Amsterdam Dance Event (ADE), the world's biggest club festival and leading conference for electronic music, will feature a record 2,000 DJs and acts performing at more than 100 venues and 450 events throughout the city. The event, taking place from October 16–20, is expected to draw 300,000 visitors from around the world. Headline artists include Calvin Harris, John Digweed, Moderat, and Pete Tong, with additional acts announced as the event approaches. ADE's daytime program offers a wide selection of conferences, including interactive workshops, mentoring sessions, technical demonstrations and in-depth round-table discussions; confirmed speakers include Nile Rodgers, Shailendra Singh, Armin van Buuren, Martin Kierszenbaum, Hardwell, Bob Lefsetz, Don Diablo, and Dave Smith. For information, visit amsterdam-dance-event.nl.

Gadget Geek

Looking for an ambitious weekend DIY project? Look no futher than this simple sequencer, which you can build yourself in 16 (relatively) simple steps, found at instructables.com. If you're handy with a drill, soldering iron, and (for best results) a laser cutter, then you're a couple dozen components away from building your own sweet instrument. Then again, if you're thinking of actually shopping for a laser cutter, you might be better off just buying a miniMoog.

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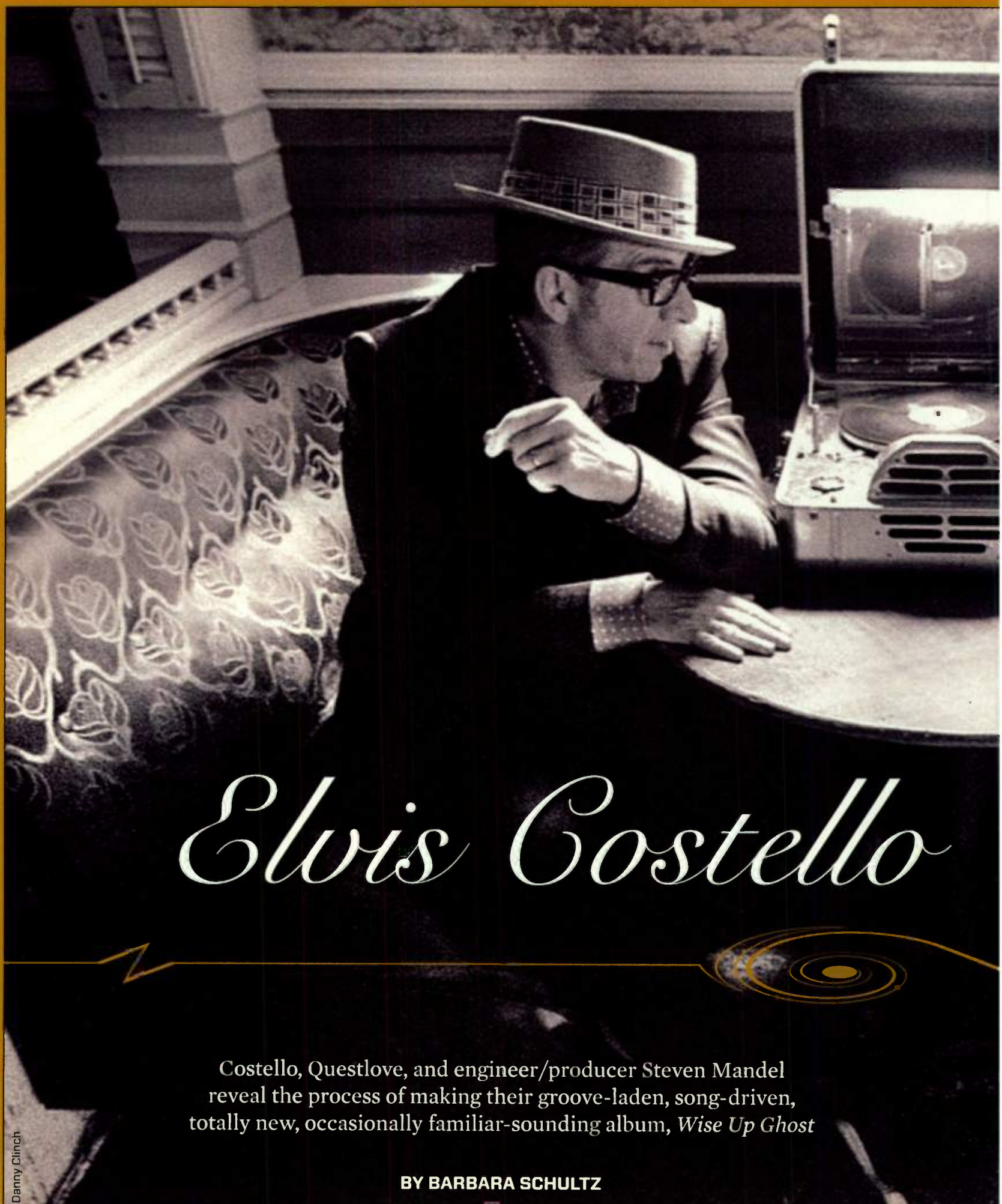
PAPER DIAMOND
BONNAROO BEAT-MAKER

MANCHESTER, TN
JUNE 13, 2013

Alex Botwin, the electronic artist better known as Paper Diamond, first attended Bonnaroo as a fan, more than a decade ago. Eventually, he signed with Pretty Lights, who released his debut album, *Levitate*, in 2011; he then built up his own record label, and in 2012, made appearances at Coachella, Lollapalooza, and the Electric Zoo Festival. Coming full circle at Bonnaroo this year, Botwin premiered "XIX," his first single off his recent EP *Paragon*, on the festival website, and then took to the "Other Tent" stage with his Ableton Live-loaded iPad for a late-night, headlining set that kept mesmerized crowds on their feet until the wee hours.

PHOTO BY DAVE VANN

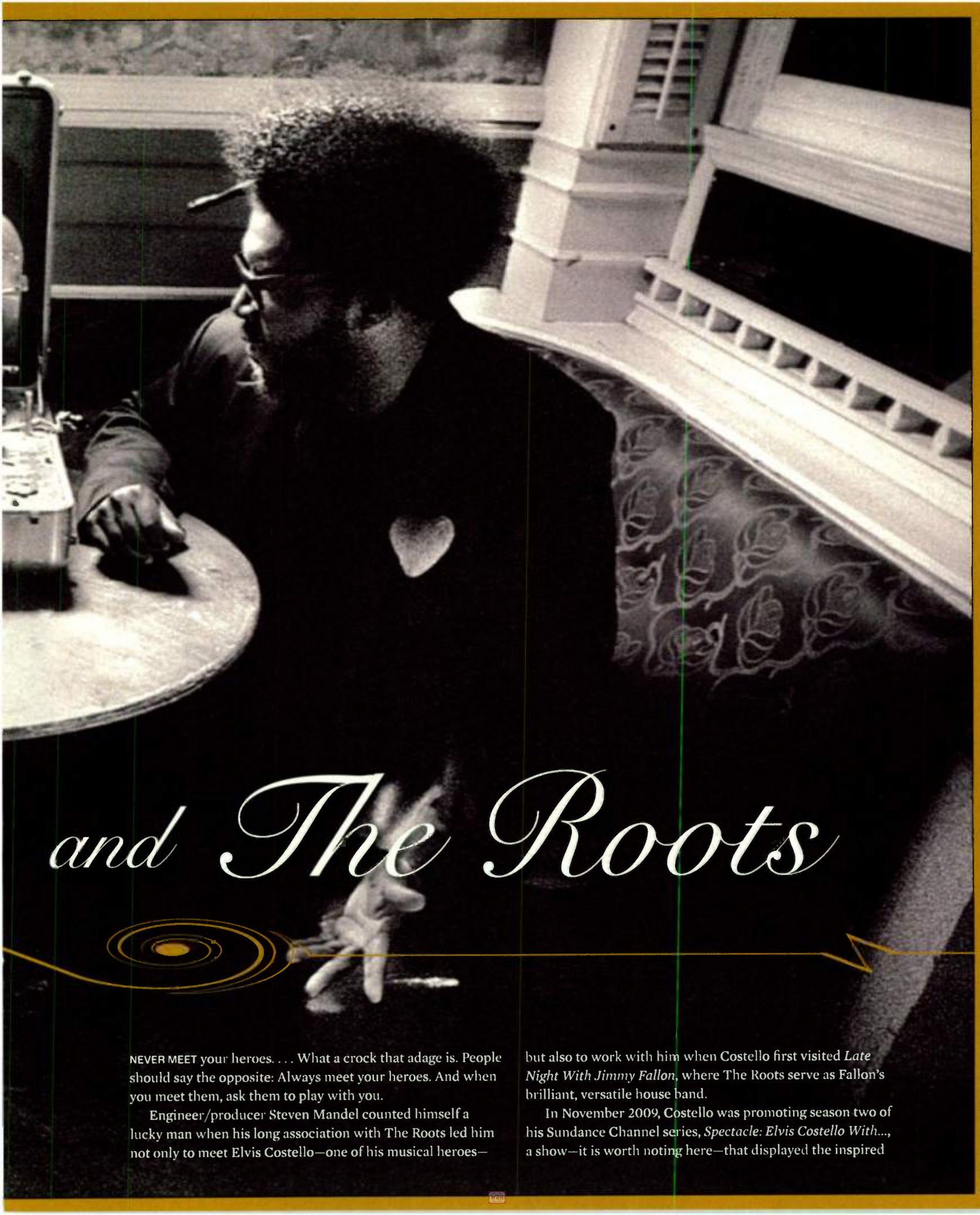


Elvis Costello

Costello, Questlove, and engineer/producer Steven Mandel reveal the process of making their groove-laden, song-driven, totally new, occasionally familiar-sounding album, *Wise Up Ghost*

BY BARBARA SCHULTZ

Danny Clinch



and The Roots

NEVER MEET your heroes. . . . What a crock that adage is. People should say the opposite: Always meet your heroes. And when you meet them, ask them to play with you.

Engineer/producer Steven Mandel counted himself a lucky man when his long association with The Roots led him not only to meet Elvis Costello—one of his musical heroes—but also to work with him when Costello first visited *Late Night With Jimmy Fallon*, where The Roots serve as Fallon's brilliant, versatile house band.

In November 2009, Costello was promoting season two of his Sundance Channel series, *Spectacle: Elvis Costello With...*, a show—it is worth noting here—that displayed the inspired

magic of musicians meeting. Costello didn't have a new record to push, so he performed a couple of rearranged hits with The Roots, including a version of "High Fidelity" that only serious fans would have recognized.

"I was able to participate in choosing which songs to play, and I chose this obscure live arrangement of 'High Fidelity,' which was released as a bonus track on one of his CDs," Mandel says. "I could just hear that Questlove would sound great playing it, and Kirk [Douglas, Roots guitarist] sang backing vocals. That was the first time that Elvis played with The Roots and felt the power of the band behind him. I think that was the spark."

Almost exactly one year later, Costello returned to the Fallon show to do a couple of songs from his then-current release *National Ransom*, and a version of "Stations of the Cross"—with Costello on keys, guest John McLaughlin on guitar, and The Roots playing a fresh, groove-y arrangement punctuated with jazz horns—offered a clue that this musical relationship between Costello and The Roots was coalescing into something damn exciting.

Meanwhile, there was a lot going behind the scenes, as there apparently always is at the Fallon show.

"Most talk shows start shooting at 5:30 or 6 in the evening, but on our show we take a lot of meticulous measures to make sure everything is perfect, so everyone is required to get here at 11," says Questlove. "There's a lot of downtime. And our dressing room here is also our recording studio. We've made albums here; we made *Undun* [2011] here. But we also have a lot of time to work on 'meaningless' musical projects, meaning stuff that may never see the light of day, or maybe only our friends will hear. When we first came here, Steve Mandel was like, 'Why don't we make a Squeeze tribute record?' And we were like, 'Okay.'"

"We asked Elvis to do a song on the Squeeze tribute and he did 'Someone Else's Heart,' and it came out incredible—really sick," Mandel says. "That was the first time I got The Roots and Elvis to record together."

"He liked the results of that, and he was like, 'Why don't we work on some stuff?' he didn't have a label, and we didn't know where it was going; it was just like, let's see what happens," Questlove continues. "So we said, 'Come back tomorrow at 7 P.M.' This went on for a year-and-a-half."

Elvis Costello and The Roots

"Then I came back in to do some Bruce Springsteen songs [during Fallon's 'Springsteen Week,' February 2012]. We'd covered a fair amount of musical ground. There was no agenda other than to make music, which is unusually difficult to achieve. You do this all the time on your own, but the decision for two recording entities to start working together can sometimes be tripped up by too many committees, so we didn't let anybody know we were doing it," Costello says.

During those early stages of the collaboration, Costello would make personal demos, and begin a back-and-forth musical conversation where temporary parts would be invented and reinvented, until permanent parts were laid down. The first tracks they made incorporated some existing Costello lyrics, reset in new music. The song "Wake Me Up," for example, borrows from the title track to the Costello/Allen Toussaint album *The River in Reverse* (2006) and from "Bedlam" off of *The Delivery Man* (2004).

"'Wake Me Up' captures the true essence of what happens when you do something like this. If somebody said, 'What came out of that collaboration?' 'Wake Me Up' would be one of the first things I'd play," Mandel says.

"Elvis sent over some crazy demo of him singing over a loop. I think he made it in Garageband: Elvis Costello, sitting at home using Garageband, looping . . . I don't remember if there were four or eight bars, but it was part of the song 'Chewing Gum' from *Spike* [1989], and he sang the lyrics of 'Bedlam' and 'River in Reverse' over that and sent that to me. You know, like: 'Here.' And I was like, 'Okaaaay, I'm trusting Elvis. He must know what he's doing. He's Elvis Costello."

Costello admits he went out on a limb sometimes, actually, but that was part of a process of zeroing in on the idea that would catch fire. "You might try something that sounds, in isolation, berserk," he says. "Steven is good at keeping his nerve while you're going through that process of taking that berserk idea and bringing it into focus until it is actually the thing which lights up the track. I appreciate that kind of tenacity."

"So, I passed this along to Ahmir ['Questlove' Thompson] and said, 'What do you want to do with this?'" Mandel continues. "And he's like, 'Let's record drums for it and then re-record it.' He didn't play drums over the demo; he re-imagined the demo and then played drums at a much slower tempo in a totally different way, which made me like, 'Okay, that sounds nothing like the demo Elvis just sent us,' but Ahmir's like, 'Trust me; I know what I'm doing.'

"So I took those drums—just drums—to Vancouver [where Costello lives part-time] and said, 'Okay, Elvis, these are the drums for that demo you sent over,' 'Bedlam in Hell,' or whatever he called it. And he was totally accepting of Ahmir's response. So, we proceeded to do bass and guitar and

QUESTLOVE ON . . . THE UNIMPORTANCE OF A HIGH-END STUDIO

"I laugh when certain rappers and MCs have all these gargantuan, Van Halen, brown-M&Ms-only demands on their rider. I once saw someone cancel a session because they didn't have the proper gouda cheese and Merlot. I'm dead serious. There's no gouda cheese and Merlot? I'm outta here. Personally, I'm more comfortable creating albums in uncomfortable circumstances. Our dressing room is only made for six people, and on average there's always eight to ten people here. It's like the size of a closet. I fit my drums inside a changing closet, and Elvis just sang his vocals in the break room. It's a very unromantic, unglamorous atmosphere, but I work harder when I don't have any distractions. I'm one of those people who can't really record in a lavish environment, or I'll just get too comfortable."

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SAMSON

Wurlitzer, all by Elvis on that song, and then vocals."

Costello cut a lot of his parts in Crew Studios, a new-ish mid-sized facility in North Vancouver, where Mandel auditioned several vocal mics for Costello and settled on a prototype CM12SE from Advanced Audio Concepts.

"My favorite Elvis albums are the two from 1986, *Blood and Chocolate* and *King of America*, where if you listen to a song like 'Little Palaces' [*King of America*] or 'Battered Old Bird' [*Blood and Chocolate*], the vocal is right up in your face, really direct, really clean, like Elvis is standing right in front of you, and this mic was just doing it, especially that prototype we used in Vancouver."

Some of the instruments Costello played at Crew were later replaced by The Roots, either in the Fallon studio or in Questlove's studio, House Called Quest, in Philadelphia. "We had a lot of the vocals done early, and then we just knew how to build around that," Mandel says. "Kirk Douglas overdubbed a guitar part in New York. We did horns in Philadelphia with Matt Cappy and Korey Riker—just two guys, trumpet, and sax—and that was it. It's a spacious sort of song where you want to put the right elements into it but not fill it all up necessarily. A lot of this album was about maintaining space and air—not every thing is filled up by an instrument. There's room to breathe."

Astute listeners will recognize lyrics and musical moments from Costello's catalog in other songs as well. Lyrics from "Pills and Soap" (*Punch the Clock*, 1983) and the title track on *National Ransom* appear in the spare, mostly keys-and-beats track "Stick out Your Tongue." The lyrics to "Invasion Hit Parade" (*Mighty Like a Rose*, 1991) comes into play in the funky new song "Refuse to Be Saved," and there's a nugget of the guitar part of *Rose*'s "Hurry Down Doomsday" in "Grenade." However, Questlove was clear from the beginning that he did not want to make a collection of Costello remixes.

"By the third time [Costello visited the Fallon show], we had a rhythm going, which was to remix songs. But then I kind of put my foot down because it was starting to be like Elvis songs remixed by The Roots, and critics and fans are very jealously guarded about Elvis's work. I didn't want to look like some crazy experiment; I wanted to make an Elvis

Elvis Costello and The Roots

record that Elvis die-hards would put in their Top 10."

"I didn't want to do literal remakes," agrees Costello. "but there was a rhythm that developed, and that was one of the starting points of the collaboration. In the case of 'Stick out Your Tongue,' the juxtaposition of 'Pills and Soap' and 'National Ransom,' these songs are separated in time but they're linked in content."

QUESTLOVE ON . . . DRUM-MIKING TRICKS

"I remember the trick [engineer] Gabe Roth taught me from the Dap-Kings when he was engineering the Booker T album [*The Road from Memphis*, which Questlove produced]; I'd never seen someone mike the snare bottom mic all the way to the floor. I was used to putting it as close to the skin as possible, but I realized, man, you're really killing the compression; especially with ribbon mics. They should be as far away as possible. So I'm now discovering that the farther the mics are away from the drums, the more sweet sound I can get."

Costello says that as he understood more and more about the possibilities presented by the musical dialogue, he found it increasingly "provocative." And for a songwriter like Costello, it doesn't take much provocation for wonderful things to happen.

"It amazed me," Questlove says. "He can write to a heart beat. He can write to a pin tapping on a table. A lot of songs started with a bare-bones drum beat, and he would imagine the rest."

Whether they were fashioned from old *and* new ideas, or were newly born for this album, most of the tracks on *Wise Up Ghost* came together in a similar manner to "Wake Me Up," with lots of give and take as parts were cut, cut away, and replaced. But a couple of songs were recorded live, testing the limits of The Roots' backstage studio.

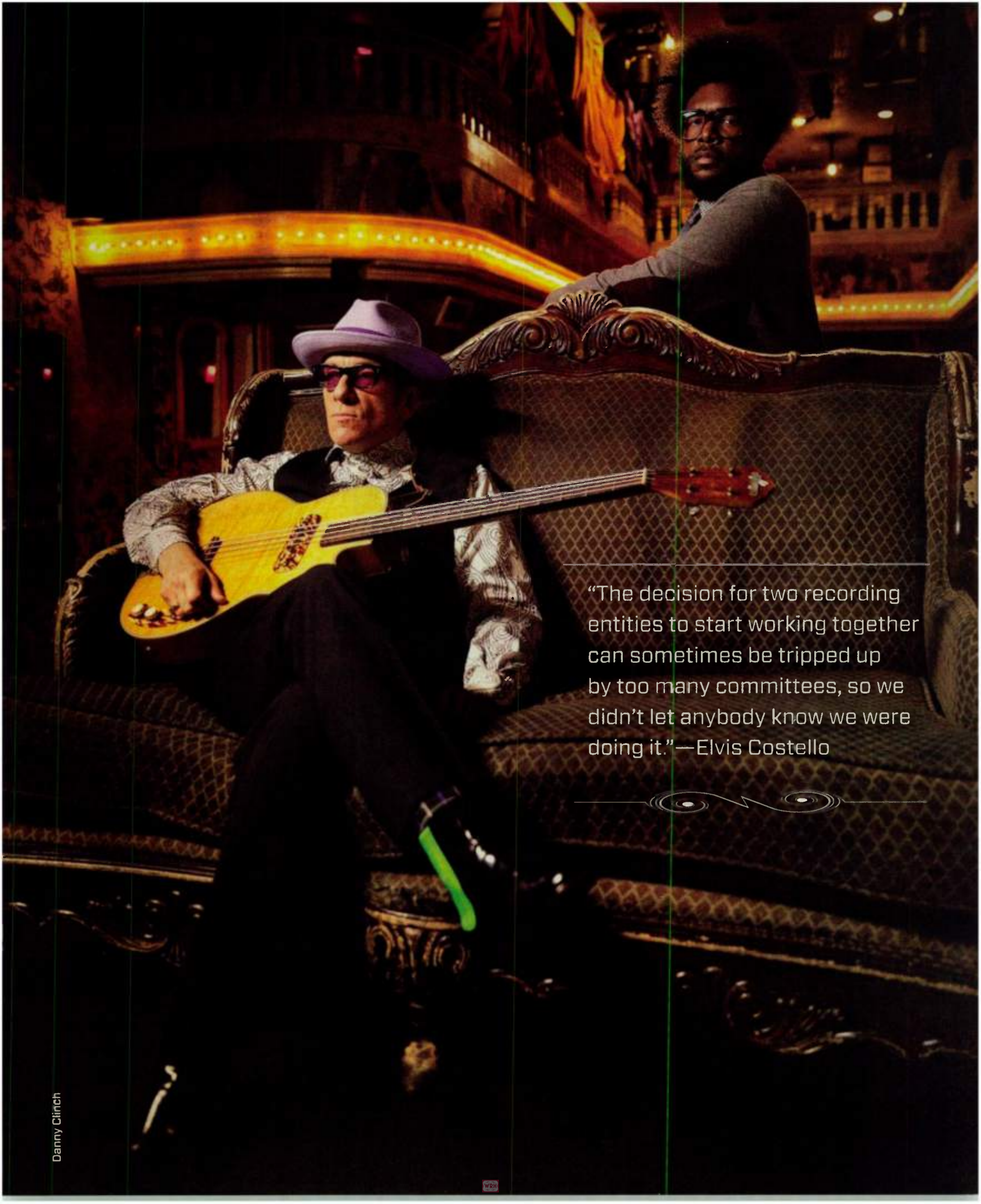
"Since day one, Ahmir and I have done what we call guerilla recording," Mandel says. "We use what we've got. We've got to get it down now and move on to the next thing, and whatever mic we've got, whatever compressor, link them all up and hope for signal flow and let's get it recorded."

Mandel's reluctant even to talk about things like studios and equipment, feeling that whatever gear he was able to grab to nail down these tracks is besides the point. He says the studio is pretty much an undedesigned, nontreated "janitor's closet" that barely fits the bandmembers, with another closet-sized space attached for Questlove's kit.

"The main thing I want to get across is, I'm lucky to be working with such great musicians," Mandel says. "Quest is probably the best drummer on the planet. I'm not going to say it doesn't matter which mics or what platform we use, but it hardly matters in the end. I'm not saying we don't like nice things, but nice things are not always around. I just have faith that I'm working with really talented people. I just have to record it, be invisible, and know that people are going to love it because it's great.

"Besides," Mandel continues, "what inevitably happens with Quest is, I'll record 15 or 20 different microphones on drums, and we'll go to mix and pull all the faders down, bring up the microphone I have set up in the corner of the room by accident, and that's the one he loves. He's like, 'Oh, what mic is this?!' And I'm like, 'Um, a 57?' and he's like, 'Man, I never heard a 57 sound like that!' And I'm like, 'Well, it's all the way up by the ceiling. I was cleaning up and I just put it up there. . . .' And he's like, 'That's the sound I've been looking for!'"

Mandel is only partly joking. Questlove sheds some light on what he likes about fewer mics, farther away: "I spend a lot of time listening to Pro Tools reels of old albums and trying to guess how they got the sound," he says. "I got the [Michael Jackson] *Off the Wall* record for my birthday, and that week I was playing 'What would Bruce Swedien do?' in my head. Or I'll get Talking



"The decision for two recording entities to start working together can sometimes be tripped up by too many committees, so we didn't let anybody know we were doing it."—Elvis Costello

Danny Clinch

Heads stuff or Stevie Wonder. And what I noticed is that with records I particularly love, they don't use that many mics.

"So, on a song like 'Sugar Won't Work' [on *Wise Up Ghost*] we only placed a Royer ribbon mic behind me, slightly above my shoulders, and I put a Shure football mic in front of the kick drum—not in front of the kit where the other mics go, but behind, where the beater is. It gives you a snap like nothing you ever heard."

"Sugar Won't Work" was one of the two tracks that were recorded live at the Fallon studio. It started out as a very spare song with subtle keys taking a backseat to the rhythm and that ultra-present vocal Mandel was talking about. "Sugar" is also one of the few songs that includes a Costello guitar part.

"I think this may be the only record I've made that I don't play any tremolo guitar," Costello points out. "I didn't consciously keep away from that sound, but there's absolutely no tremolo guitar, even though it's been very much a signature of mine. The first record I ever made where I kind of felt like I knew what I was doing—where I felt like we got the sound that I had in my head—was 'Watching the Detectives,' and that's really founded on a tremolo guitar figure.

"Kirk obviously plays the bulk of guitar on this record, but I play an ES300, which is a kind of jazz guitar, on 'Refuse to Be Saved,' and a Kay baritone guitar on 'Stick Out Your Tongue' and 'Sugar,' but that sort of registers as bass. The trio that cut live was Quest, Pino Palladino [bass] and me—more like two basses but no guitar—and Kirk added his guitar afterwards."

Also added later (much later) were orchestral parts, arranged by Brent Fischer; like all of the elements, these orchestrations—integrated into several tracks—were used judiciously, preserving the air and coolness of the tracks. They're most pronounced in the intros and outros of songs, yet they exponentially increase the drama and beauty of the album overall.

"We had an eleventh-hour epiphany," Questlove explains. "Some of my all-time favorite string arrangements are by Clare Fischer. I wrote about him in my book [the recent best-selling musical memoir *Mo' Meta Blues*]. He worked on Prince's albums, he worked with The Jacksons, he worked with Rufus. In black music, when

Elvis Costello and The Roots

you wanted lush string arrangements, Clare Fischer was the guy you called. Unfortunately, Clare passed this year. He was 84. But his son, Brent, had been working at his side for 30 years. Brent was at the Grammys last year to receive a posthumous Grammy for the last album Clare did [Judie Tzuke's *Ritmo*, 2012], and I was like, 'The reason Prince is one of my favorite artists is the work you guys did on his records,' and asked him to work on this. So this is Brent Fischer's first project without his father, and man, he absolutely positively made this into a whole new record. It's so lush and beautiful. It's still dark, but it's a whole new record now."

QUESTLOVE ON . . . RECORDING ON THE FALLON SHOW FLOOR

"When the show was over, we actually just went back to our bandstand and recorded [instrumental tracks for the song 'Cinco Minutos Con Vos' ('Five Minutes With You')] through TV filters. [The show] has all these compressors that are specifically for TV that give you an awesome warm sound. It's all digital, but it just felt warm. I definitely want to do more experimenting with playing out on the floor. You just have to wait till the janitors and everybody's gone."

Wise Up Ghost ends with "If I Could Believe," a gospel-style piano ballad about faith and doubt. Costello's vocal on this is everything his fans wish for—sweet and mighty, with that occasional little catch. It features Questlove on drums, Pino Palladino on bass, and Ray Angry playing a Yamaha Motif keyboard. All tracked live in that little "janitor's closet."

"Ahmir was in his booth, and the other three guys were pretty much right on top of each other," Mandel says. "When you listen to the a cappella, you can hear the bass and a little drums creeping through, and when you listen to the instrumental, you can hear a little Elvis creeping through, but it worked. That's my whole point. You can isolate everybody and it might sound worse than if you have them all in the same room. 'Believe' might be the best-sounding song on the record, and it was recorded in—not the worst possible conditions, but certainly nothing close to ideal for an Elvis Costello and The Roots song. That song is just drums, piano, bass, and vocal. I guess that would be another reason why it maybe sounds as good as it is because it's sort of uncluttered and quiet. 'Sugar' was the same setup; it's a little bit of a louder song, so there was more bleed coming through all the microphones, but coincidentally, that happened to work sonically for what we were after, for that particular song, a 'Luck Be a Lady Tonight' kind of thing. . . ."

Mandel counts himself lucky, but he obviously brings a lot more than luck to the party. He has just shepherded two pretty different, very busy "recording entities," as Costello put it, into making one of the coolest, most surprising, and beautiful records of the year. Most of us dream of meeting our idols. Mandel got his to make a full-length album with The Roots, and they were all happy to do it.

"I want Steven to get the full credit that he deserves for this record because he has worked tirelessly to narrow the distance between our different perspectives of music," Costello says. "He brought the talents of The Roots members to bear on the skeleton of ideas I may have suggested. And he kept us out of the danger that you can get into when you keep adding; you can lose intensity as you add, because the raw thing that you liked initially becomes buried. He's very good at cutting stuff away. I think he's done remarkable work." ■

Electronic Musician and Mix contributing editor Barbara Schultz thanks her musical heroes for never disappointing.

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LIMITED AVAILABILITY
(DUET IOS MAC)

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(MIC)

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(JAM)

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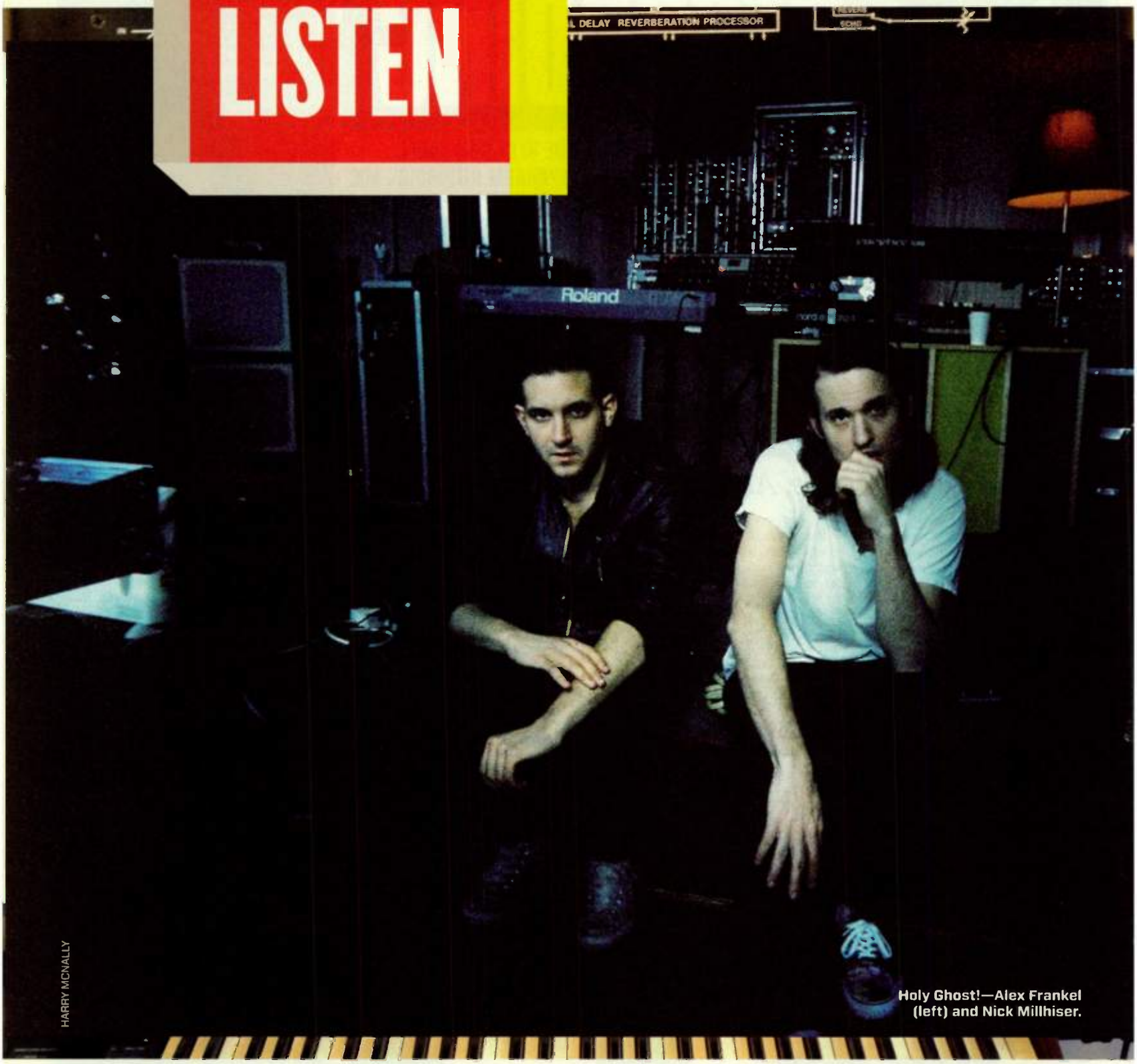

HARRY MCNALLY

Holy Ghost!—Alex Frankel (left) and Nick Millhiser.

Holy Ghost!

BY LILY MOAYERI

The synthpop duo talk about crafting their second album, *Dynamics*, in which songs were tied intrinsically to sounds at each step of the production process

NICK MILLHISER AND ALEX FRANKEL are looking in the rear-view mirror at the recording of their second album, *Dynamics*, the follow-up to their well-received self-titled debut. The recording of *Dynamics* was a very different experience for the duo, who toured extensively in support of *Holy Ghost!* and became a lot better versed in the studio since their first dabbles under the tutelage of their DFA label heads LCD Soundsytem's James Murphy and Tim Goldsworthy.

It was the Murphy/Goldsworthy combo who plucked Millhiser and Frankel out of high school and produced their previous incarnation, a live hip-hop group called Automato. After disbanding Automato and playing as session musicians for various members of their DFA family, Millhiser and Frankel made a name for themselves as remixers (Moby, MGMT, Cut Copy, N.E.R.D., Unkle) under the name Holy Ghost!. Murphy and Goldsworthy's impact on the two continued in the form of helping them understand gear, steering them towards good equipment deals, exposing them to eclectic music via DJ sets, and answering questions.

Having spent many months working out how to get the sounds they wanted on *Holy Ghost!*, once they knew what they were doing, Millhiser and Frankel became self-reliant on *Dynamics*, recording the majority of the album in their home studios. But the start was still at DFA's studio, with the recording of drums. Millhiser plays drums at different tempos, creating a selection for the two to draw from when songwriting. On occasion, there will be some chords or hooks that Millhiser will track drums to as well.

"We want drums to sound mechanical, stiff, and drum machine-like," says Millhiser. "The drums we use are smaller, jazz-sized kits recorded in a small, dead room, close-miked traditionally. We always use the same microphone we use to record vocals: Neuman TLM 193. Using a condenser on the snare drum gives a cracking sound, which is what we're after, as opposed to a Shure SM57, which people use on rock records and get more lulls and thud-y sounds. It's a really good, honest, nondescript, all-purpose microphone."

Millhiser and Frankel both have synthesizer-riddled home studios, with Millhiser's functioning as the studio where most of the songs are finished and Frankel's serving more as a demo and vocal

THE HOLY GHOST! GO-TO GEAR LIST

BY NICK MILLHISER AND ALEX FRANKEL

Alex Frankel's home studio includes a Yamaha CS-60, Sequential Circuits Prophet-5, and a host of other synths.

We used a lot of gear on this record, so narrowing it down to a few pieces is tough, but here are the things we used most often. . . .

MICS

Neumann TLM193: All of Alex's vocals, as well as all backup vocals, were recorded with them. Likewise, they work great for shakers, tambourines, cowbells, and as a pair for timbales, toms, roto toms, etc., and when miking a kit, we always use these for the kick and top of the snare. Also great as a stereo pair on a Rhodes Suitcase cabinet. Honorable mentions include Sennheiser 441, our go-to mic for hi-hats, and RCA BK5s. All of the piano on the record was recorded with a pair of these.

OUTBOARD

dbx 160, 165, and 162 VU compressors: We record all of Alex's vocals through a 165 and we generally mix bass guitar through it as well. We always bus drums through a 162 and often have another 162 on the mix bus as well, and/or wired to an aux send on the desk for parallel compression. Obviously great on a variety of single instruments (kick, snare, guitar) but also great for gluing multiple elements together and toughening them up at the same time.

Stacks of synths.

MODULAR SYNTHESIZER

Used in various ways on every song—too much to explain in painful nerdy detail—but we couldn't imagine making music without it. It has lots of custom stuff and modules by Moon, STG, and COTK.

SYNTHS

Yamaha CS80: The greatest polyphonic synthesizer ever made; it was literally used for every song on the album, and on most songs, there are actually multiple tracks of it. Some examples would be the eighth-note chords and brass melody on "Okay," octave bass in the outro of "Dumb Disco Ideas," and all of the pads in "I Wanna Be Your Hand."

The Modular Synthesizer was used mainly for bass.

Ursa Major Stargate and Space.

Roland Jupiter 8: We borrowed it "for a few days" from Alan [Palomo] from Neon Indian, and kept it for closer to four months and subsequently used it all over the record. A great, all-purpose, easy-to-use and stable poly synth that's good at just about everything. We used it mainly for bass and its super-fun arpeggiator.

Yamaha DX7: Used for the melody on "Okay," the bells on "Dance a Little Closer," the weird industrial-sounding strikes at the end of "Don't Look Down," and the bridge melody on "It Must Be the Weather."

E-mu Emulator II: Used throughout for random stuff like weird vocal pads, drum samples, percussion, noise bits, and the like. Likewise used to sample some of Alex's vocals to make them sound "like a sample."

RANDOM ESSENTIALS

Ludwig Vistalite snare drum: We changed the drum kit subtly for different songs, but if it's not an 808 ("Okay," "In The Red") or a Linn LM-1 ("Don't Look Down"), we used this snare drum on everything else. A pretty weird-sounding drum on its own, but it records very well.

Gibson Les Paul Standard: We've always been a Stratocaster band, but we purchased this while struggling to get some Robert Fripp-style fuzz out of a Strat and failing miserably. Lo and behold, everything they say about the Les Paul's sustain is totally true and pretty crucial. This, plugged into a Big Muff with all of the knobs at 12 o'clock is the sh*tty guitar player's answer to Frippertronics. Used on "Changing of the Guard," "Don't Look Down," and "Always in The Red."

Ibanez CS9 Chorus Pedal: It's the best chorus pedal money can buy. Every "clean" guitar on the record was played through one of these.

HONORABLE MENTIONS

Universal Audio 610 preamps: We use API 512cs and 1073 clones here and there, but the UA is probably used for 75 percent of all tracking. When run cold, it is a great, transparent pre for virtually any application—not super interesting or sexy sounding at all, but another great, all-purpose piece of gear. It was used on all of Alex's vocals, and because James [Murphy] has eight (!!!) of them at DFA, we generally record an entire drum kit through them as well.

AKG BX10 Reverb: The best spring reverb ever made. Capable of very nice, subtle, natural space and totally bananas-huge stuff, dub throws on claps, bass, etc. Couldn't mix without it.

URSA MAJOR SPACE STATION AND STARGATE

Like the BX10, used on almost every mix, but generally for weirder tapped delays or artificial gated-reverb-sounding stuff as an alternative to BX10.

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studio. "Although it is DFA's studio, it still costs money, so we only go in there when we really have something that we have to do like mix a song or record drums," says Millhiser. "It's kind of scary to go into a studio you're paying for, and saying, 'Hey, you got any ideas?' We'll do that stuff at home."

For Frankel, the main pieces at home are Yamaha CS-60, Sequential Circuits Prophet-5, and the Neuman TLM 193 microphone going into a Universal Audio LA-610 and compressed through a vintage DBX 162. "There's really no need for this vintage stuff, especially since I'm not keeping the sounds. Except, the way we write songs and get inspired is from ideas coming directly from sounds we are using," says Frankel. "If I'm using soft synths and playing chords, I don't hear anything, I don't feel anything, I don't have any ideas for lyrics. But if I'm working on a really cool vintage synthesizer [the CS-60 more often than not], I can go from there.

He continues, "I love playing the piano. When I was a little kid and we were on vacation, after four or five days I would get mopey because I didn't have a piano. I'm not that good. I just love the physical aspect, that's where the kernel of songs comes from, just playing and finding a cool chord progression. My voice is okay, but I'm not an opera singer so being able to play helps me vocally too. Often, I write the vocal line on the piano. I like how quickly I can work because I know my way around a piano. But I don't think it's necessary. Some of my favorite artists don't know how to play."

Millhiser's three-bedroom apartment houses two rooms of all synthesizers—including a much-coveted Yamaha CS-80 that the two have been searching for since they were 20 and that is featured prominently on *Dynamics*. "We don't skimp on buying gear," Frankel states. "We've been collecting gear since we were 17 years old. I don't feel bad about spending money on gear. I feel bad about spending money on dinner. A great meal once in a while, but these things last forever. They are as much a part of the album as we are. The synthesizers and specific custom stuff [Millhiser] builds really dictate the sound and are like another person in the operation, almost obscuring us."

In contrast to Frankel, Millhiser's song ideas will start from a single sound, one that could come from any number of sources. He attributes this characteristic to his drumming background. "In terms of my personality, I think of myself, first and foremost, as a drummer," he says. "I was never the drummer who wanted to be the singer or the guitar player. Either what I do comes specifically from being a drummer, or I'm a drummer so I am predisposed to thinking about music that way. I'm not sure which comes first."

"We've been collecting gear since we were 17 years old. I don't feel bad about spending money on gear. I feel bad about spending money on dinner."
—Alex Frankel

The duo often sends files to each another, and when an idea is interesting to both sides, they move to the next stage, trying to shape it into a song. The first single, "Dumb Disco Ideas" came from the title of an email Millhiser sent to Frankel with those words in the subject line. Frankel took the ideas, added a clavinet sound he made on the CS-60, and the two moved it to the next level. Roughly 90 percent of the instrumentation is recorded live and edited and quantized in Pro Tools. At Millhiser's studio, Focusrite analog/digital converters are used in tandem with the Universal Audio preamps and API 512CS and 1073 to increase the sound quality.

There are instances where you can't tell the drum machine apart from the live drumming, such as on "Don't Look Down." Here, Millhiser muted the drum machine hi-hats, instead setting up physical hi-hats in his apartment and playing them along the drum machine as he would a full kit. Elsewhere, on "It Must Be The Weather," the digital and analog drums are purposefully separated. This song is a Holy Ghost! exception in other ways as well, with the drums recorded last, in a big live room, for a deeper sound. An E-mu Emulator sampler and Moog Taurus bass synth round out its instrumentation. The track was one that took months to complete in various stages, a situation that doesn't sit easily with Holy Ghost!

"A lot of people will track something and if it doesn't sound right, they fix it when mixing," says Millhiser. "For us, the sounds are so intrinsically tied to the songs themselves, so if it doesn't sound right, we have a hard time moving on."

Unlike that track, "Bridge And Tunnel" came together quickly, starting with the idea to make it specifically disco, with lighter-hearted lyrics, and fun, alleviating the pressure from the song as one of the last ones recorded for *Dynamics*. Additionally, the two reached out to Kelley Polar (Metro Area) for input on string arrangements for the song.

All Holy Ghost! material ended up back at the DFA studio for mixing—where challenges included removing bodega noises from the establishment under Millhiser's apartment. Chris Zane was at the helm of the mixing process; a friend as well as a colleague, Zane has been alongside the duo since 2009 as they've grown as producers and songwriters, and was the recipient of middle-of-the-night idea emails throughout the recording process. Zane's "super-fine ear," according to Frankel, is central to balancing and voice removing, and his creative input was integral to producing *Dynamics*. "He'd say, 'Do the chords really need to double here? It would have more impact if it only goes once.' We'll edit out a section and it does work better. Or he'll say, 'I feel like we can do the vocal again right now and better; let's try it.'" says Frankel. "There are certain things we'd be at a loss for, like a vocal tracking rubbing against the guitar in a weird way, driving us nuts, but we wouldn't know how we can fix it other than re-recording the vocal. [Zane] will put on a chorus or try one of his tricks, and that's it. It sounds amazing.

He continues, "[Zane] understands the differences between us, our strengths, our weaknesses. He knows how to enhance those and take the best parts of what we both do. We are cooking, baking this meal for a year and a half, and he is putting on the garnish." ■

Lily Moayeri is a freelance writer and teacher librarian living in Los Angeles; track her work at www.pictures-of-lily.com.

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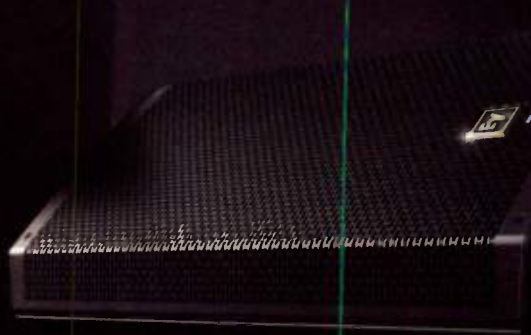

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DAVID GOGGIN

BY TONY WARE

MOBY

Preserving the best elements of sonic chaos on *Innocents*

RICHARD MELVILLE Hall, known far more universally as Moby, has been producing EDM anthems, contrarian pop, and quasi-concept albums since 1990. In his music, which he declares increasingly adheres to "weird old electronic-music-guy standards," he imbues joy, insecurity, fragility, and warmth. As songwriter, producer, and vintage-gear enthusiast, Moby strives for tones that have presence and the kind of flaws that provide personality more than disruptions.

With his 11th full-length album, *Innocents*, Moby and producer Mark "Spike" Stent channeled diverse vocal contributors, dusty circuitry, and signal chain idiosyncrasies into 12 tracks that are not always conventionally "good" recordings, but that are both emotionally and sonically resonant. "When we first started talking about working together, [Stent] was saying that if the record is going to good, it will have a warmth to it, an emotional quality ... and that we had to allow each other to be really weird in the production," explains Moby. If there's one thing over the years that Moby has learned he does right, it's doing things wrong.

"When I was growing up and first making music and trying to get a contract, I bought into this sort of sad belief ... that there was a sonic ideal and every engineer's goal should be to reach that perfection, finding the perfect kick drum, the perfect snare drum," recalls Moby, speaking by phone from his apartment in New York. "But the more I found people that were striving for technical perfection, the more I found a lot of records sounding the same. Technically perfect records have been being made for modern rock and pop from 1996 until 10 minutes ago. They're recorded the same, mixed the same, and the only differences are the songs and performers. But listen to Silver Apples, Suicide, early Heaven 17, Kraftwerk, Joy Division, all the way back to The Beatles . . . it was all very sonically different.

"Realizing that suddenly makes the studio a place where the goal is to make something interesting rather than something perfect," continues Moby. "It emancipated me to believe a record can be anything you want. I am perfectly happy with noise and hum and wow and flutter and the things most people consider mistakes; to me, they are just part of the record."

This isn't a new approach for Moby, just one that he's honed from blissful ignorance to strategic degradation. "I made a record [1996's *Animal Rights*] years ago with Alan Moulder, and as I was recording I was putting the vocals into a reverb unit and then putting it into the dbx 160XT compressor/limiter," says Moby. "And I thought it was a normal thing to do, because it sounded cool, but he was astounded because it's the opposite of the normal way. I remember Alan explaining this to Flood and I remember his quote being, 'Wow, that's just so punk rock,' because we were recording stuff really wet. Now I've become a little more cautious and I try and record vocals dry and do the weird stuff later, but I still love making sure that even my songs that have a very conventional quality to their arrangement have a lot of random sonic weirdness."

Listening to *Innocents*, an album greatly enriched by what Moby calls the "pre-mix" phase of creative outboard processing, it becomes readily apparent that he is a purist only when it comes to appreciating and even appropriating imperfections. Since recording

2011's *Destroyed*, which heavily featured the native sequences from his extensive collection of pre-MIDI analog drum machines, Moby relocated to Los Angeles, setting up an eBay-dust-scented bedroom studio similar to his long-term base in New York. However, he broke analog fetishist cardinal rules by installing his percussion tools in spirit only.

"Over the course of a few hours, I went through my drum machine 'museum' and recorded whatever individual sounds or patterns they offered into either a Chandler [Limited LTD-1 mic preamp] or an API [512c preamp module in a six-slot Lunchbox chassis] for sampler playback or to insert in Pro Tools," reveals Moby. "It was a way to have all my drum machines in one place without having to take them cross-country, but also a way to build weird hybrid kits where you have the hi-hat from a [Roland CompuRhythm] CR-78 and the kick from an old [Maestro] Rhythm King [MRK-2], etc., all in one Frankenstein-style pattern." Select other beat boxes that had their parts comped include the Korg "Mini Pops" 120/ Univox SR-120, Sequential Circuits DrumTraks and TOM, Electro-Harmonix DRM 16, Olson Solid State Rhythm Instrument, Kay R-12 Rhythmer, Mattel Synsonic, PAiA Drummer Boy and MXR 185 Digital Drum Computer.

To augment this custom library, Moby pulls from drums sampled from old records and fills from Battery, such as gunshots for snares and Einstürzende *Neubauten*-style banging on metal (selections with "a lot of attack, and weird decay" to open up other timbres). In addition, Moby and Stent recorded live parts in the guesthouse basement, using an AEA R84 ribbon mic set far from the Yamaha kit and put through the dbx limiter to squash the tone into a grainy thwack

Expermenting in the Studio

Producer Spike Stent talks about shaping *Innocents* and shares advice for mixing at home

According to Moby, Spike Stent was there "to preserve the good elements of chaos, but still make it something someone can listen to." Stent first entered a recording studio in 1981 at the age of 16, apprenticing with Ken Thomas (who coincidentally mixed Moby's last two albums) for several years before striking out on his own. Working with artists such as Throbbing Gristle, The KLF, and Massive Attack, to name just three of hundreds, Spike became intimately familiar with mixing as a creative not just technical arrangement tool. Collaborating with Moby was an unadulterated opportunity to mix with feeling in a way resembling those early career sessions.

"I went back to my roots on this record," explains Stent. "I got the guitar pedals out and sent beats through all kinds of outboard compression [including a Thermionic Phoenix, a Thermionic Culture Vulture, Distressors, Empirical Labs Fatso, Retro Instruments Sta-Level, Shadow Hills Dual Vandergraph, and Chandler Limited Little Devil]. A lot of times, when mixing records as I do, you don't have a lot of time, you just need the result ... but this one was a production, a journey where we could experiment."

Pushing Moby to work with different people and indulge his less-polished instincts, Stent also helped sift through the compounding options and pare them down to a manageable dozen. "He's an amazingly open, generous person and was up for all ideas ... it was a matter of just picking the best of them. Moby is so hands-on, I could come in and out of the project. Once every two weeks we'd get together, then during key recording stages until the mixing stages. And that helped me keep perspective on how to keep all the ideas in check."

Mixing in his custom Santa Monica facility, Mixsuite L.A., on his SSL G Series desk with KRK 9000 and Yamaha NS10 monitors, Stent was challenged to "get the rawness sorted out" as well as compensate for Moby's fear of flabby low end. Resolving this challenge were plug-ins from Waves, SoundToys, and Universal Audio, among others, as well as hardware modules such as a Teletronix LA-2A, the UA1176 Anniversary Edition black-panel bluestripe, a dbx 902 De-Esser and GML 8200 EQ. In order to achieve a balance of definition and depth, live and synth bass parts were split between attack and warmth and sent through both the plug-ins and the outboard boxes to richen up the parts while retaining the bedroom feel.

Of course, not everyone has access to a board they can push hard as they navigate the sweet spots, so Stent offers this advice: "If you're trying to do something in the box, be sure you have a bus compressor on because that will help you, but be careful not to overload all your buses. It's easy to get into distortion quickly. I would have something on the master bus from the beginning: an EQ and any type of SSL quad compressor [an emulation of the SSL 4000G console master bus compressor, such as Waves G-Master]. If you're going to have the SSL compressor on your master bus, just put it on 2:1, slow attack, fast release, and then just play around with it. But be careful: As you build up the mix, it will hit it harder and harder and you'll need to back it off as you start pushing into it."

Ultimately, whether mixing intimate dynamics or for radio-ready clarity, aspiring engineers need to be prepared to make some hard decisions. "Know when to be bold, when to abandon things, pull it all down, and start again," concludes Stent.

Mixsuite L.A., Spike Stent's studio.

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approaching "the apocalypse," says Moby.

Stacking these drums achieved an intentionally tightly compressed effect without a lot of live quality to it. For the most part, however, processing was reserved for the aforementioned "pre-mix" period, when clean signals get sent to old tape machines, delays, and reverbs and fed back to Pro Tools without permanently corrupting the integrity of the original impulse (a contrast to those early "punk rock" days tracking wet signals). This collection of polish removers includes the Eventide DSP4000 Ultra-Harmonizer, Univox EC-80A Echo Chamber, Univox U3R Pro-Verb, Gibson Reverb 3, Univox Echo Tech EM-200, Lafayette Echo-Verb II, Electro-Harmonix Micro Synth, Z.VEX Lo-Fi Loop Junkie, Electrix Pro Filter Factory, Moogerfooger Bass MuRF, Sky Soundlab Voice Spectra Vocoder, Multivox Full Rotor, Ibanez AD9 Analog Delay and SPL Transient Designer.

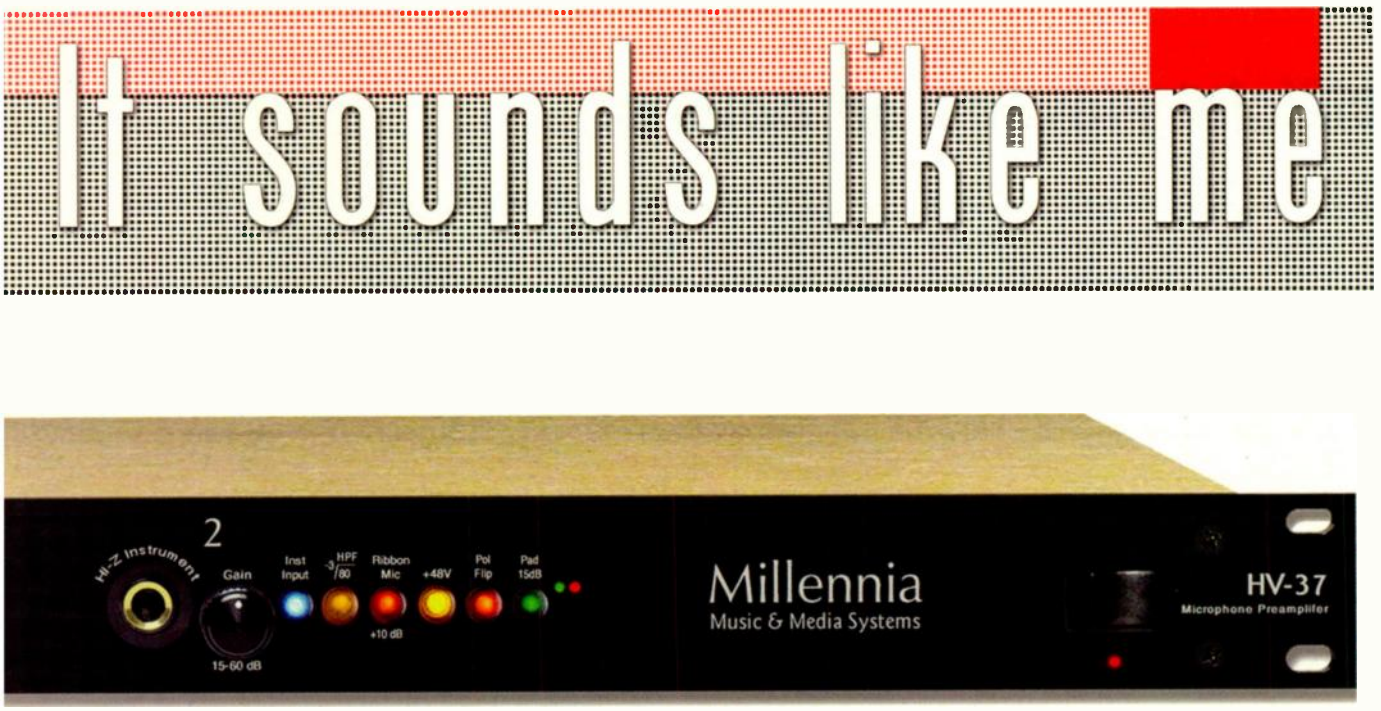
"I have a Neve 500 Series preamp module I love for strings and this Drawmer [S2 Dual Channel] stereo tube compressor that has a little more delicate high end to it, plus several Chandlers, APIs, and some Focusrites ... all these tiny mixing desks essentially in a compact enclosure," muses Moby. "So I might get a really nice clean recording but I can never get enough of sending things, especially vocals, out to something like an Echoplex with all the direct sound turned off, then fly them back to Pro Tools to achieve instant vintage. When I need to hear a strange space, I have a tape delay where the pitch is never steady, but I accept it for the performance it's giving me.

"And my favorite thing is to take a snare, put it through reverb, and put it through the SPL," continues Moby. "It's super-super simple: an attack knob and a sustain knob. But the interplay between the two ... it's not subtle like the LA-2A [leveling amplifier] ... it really mangles the sound. You have so much control over the attack and decay; you can even get rid of one or the other and get really great effects. I love it so much I have three, just in case. Apparently they now make a plug-in version, and I'm sure it's good, but nothing can be as good as the circuitry because of all the chaotic artifacts that contribute to the result.

"In general, I don't usually know how an engineer would use something correctly," summarizes Moby. "So when I use something like the Eventide DSP4000 on the song 'The Dogs,' I apply one particular program that is chorus, reverb, and pitch shifting, and when you add back in the feedback to the pitch shifting, you get this unsteady warble that chews up the tone. Or on the song 'Tell Me,' I tried to get the [Moogerfooger] MuRF step sequencer to sync with Pro Tools, but I couldn't figure it out, so I let it do these random patterns and it contributes this textural messiness I really like."

All of this processing would threaten to become an atonal tangle were it not for the enveloping, sustaining melodies Moby pulls from his hardware synths, including the Roland Juno-106, Serge Modular, Roland JX-3P, Roland Jupiter-8, Oberheim Matrix 1000, Casio CZ-101, Dave Smith Instruments Prophet 08 and Yamaha SY22. While he does use the Arturia family of vintage emulations for reinforcement purposes, Moby again prefers circuitry to predictability. It's an appropriately physical, gradually detuning approach for an album of songs inspired by the complicated open-closed relationship people have with vulnerability and the human condition.

Thinking about the way people both mask



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and share their anxiety and compassion led Moby, with Stent as A&R man, to assemble a collaboration-rich album that features Cold Specks, Damien Jurado, Wayne Coyne, Skylar Grey, Inyang Bassey, and Mark Lanegan. Unlike *Destroyed*, which explored personal disassociation and structural limitations, *Innocents* balances thoughtful laments with moments that feel spiritually uplifting and almost triumphant, though this celebration may well be an acceptance that we should savor what little time is left before the end of days. It's an album built outwards to look inwards at an existence rife with little dissonances.

"The first quasi-single is the song 'A Case for Shame,' which started with one of my hybridized drum kits, a digital bell part off the SY22 and an Oberheim pad," says Moby. "I sent this austere thing to Cold Specks, who wrote her part around it, sent me back her vocals, and then I orchestrated around that, adding a piano part, lots more drums, strings, guitar, bass, and lots of Echoplex. Most of the songs start simply, then I build parts on top, usually playing them and not quantizing."

Some of those parts are inundated with more intentional compromises than others. "I've found myself holding an iPhone next to something like a Shure KSM44 or a Telefunken tube mic and recording simultaneously into both the quality mic and the voice memo app," says Moby. "I'll export the MP4 and put it into Pro Tools, almost treating it like an effect to mix behind the main vocal. I know we did that with some of the background vocals for 'Almost Home.' It has a compressed, bandpass quality to it that can be very interesting to have at hand."

Another way Moby added automatic atmosphere was by reamping parts through a Mesa Boogie Electra Dyne Simul-Class 45/90 combo. "The song with Mark Lanegan, 'The Lonely Night,' was at one point relatively conventional sounding, but we wanted it to sound like it have been recorded at the end of the world. So we summed all the instruments and fed them through a Z.Vex Distortron pedal into this amp and what you hear is really four tracks: all the instruments on the left side going through a pedal and an amp; all the ones on the right side doing the same; Mark Lanegan's vocals; and his vocals going through a pedal and a guitar amp. The end result is wonderful and broken down."

Listening to "The Lonely Night," or any of *Innocents* for that matter, reveals an album of hauntingly amassed variables and oddly saturated parameters.

"I think one of the reasons I've dedicated my life to making music is because my nature I'm fairly analytical, but with music the more analytical I am, the more the music suffers, so it's an opportunity to be more emotional and intuitive," says Moby. "It's all an opportunity to find a different character, to question and respond to something both familiar and foreign." ■

Tony Ware is a writer and editor based in the Washington, D.C., region. He likes his music messy but his copy clean. A decade ago he used to collect vintage effects pedals off eBay and still gets a thrill listening to a baritone guitar through a big metal Maestro Fuzztain wedge.

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Glasvegas
Later . . . When The TV Turns To Static
GO WOW/BMG

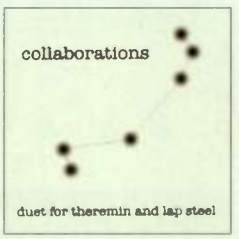
Glasvegas eschew superstar producers and high-profile LA/NYC studios for the authenticity of their hometown, Glasgow, and the producing talents of frontman James Allan on the melancholy *Later. . .* Turns out Glasvegas sounds the same no matter where they record or who twiddles the knobs. The crackling fuzz and static-y feedback the Scottish group has appropriated hits strongest on the defiant heartbreak recovery track "I'd Rather Be Dead (Than Be With You)" and "If," where Talking Heads lyrics are shamelessly borrowed.
LILY MOAYERI

Delorean
Apar
TRUE PANTHER SOUNDS

Basque Country-bred, Barcelona-based four-piece Delorean return with a self-proclaimed "big-production record" (read: no samples, more analog saturation). In retrospect, *Subiza* was more two-dimensional; however, if perfecting dimensions, blissed-out melodies and balmy rhythms are excellent choices. Expanding that radiant base, *Apar* shifts through efficiently programmed, reverb- and delay-enriched arrangements with iridescent clarity, recalling the Madchester scene, *So*-era Peter Gabriel, and frothy indie-pop jams.
TONY WARE

Johnathan Rice
Good Graces
SQE MUSIC

Rice leaves the city for the country on his third album, *Good Graces*. Images of dusty cowboy boots and bars pretending to be saloons march through the mind's eye, spurred by the country.alt.rock strains of Rice's twangy stringed instruments and scratchy drawl. Out of the step with this theme is the dark moodiness of the Lou Reed pastiche "Lou Rider" and surf ballad "That Summer Feeling." No matter what the style, Rice's slick and humorous lyricism remains constant.
LILY MOAYERI



Collaborations
Duet for Theremin and Lap Steel
DUETONLINE.NET

Culled from a 2011 tour, this CD documents improvisational meetings between Scott Burland (theremin) and Frank Schultz (lap steel) and a host of outstanding musicians—the Shaking Ray Levis, Richard Lainhart, Helena Espvall, Bill Brovold, and Andrew Weathers. Sometimes challenging, often beautiful, the 19 tracks here offer nonstop surprises. Of special note are cuts with Lainhart and the SRL's Dennis Palmer, two innovative players who left the planet before this was released.
GINO ROBAIR

Brian Wright
Rattle Their Chains
SUGAR HILL

On the follow-up to *House on Fire*, Wright's smart, powerhouse story-songs again star. But unlike his debut, where Wright played it all himself, *Rattle Their Chains* is a full-band effort. It kicks off with a "What'd I Say"-type organ part, in "Over Yet Blues,"—a perfect place for anything to start. With a voice a bit like Zevon, and a similar sort of dark humor in his lyrics, Wright is equally fascinating in a guitar-and-vocals setting or leading a hot rock 'n' roll band.
BARBARA SCHULTZ

Oneohtrix Point Never
R Plus Seven
WARP

In this latest fork in Daniel Lopatin's auditory choose-your-own-adventure, 10 tracks plant signposts pointing to past works of garbled synths and treated samples, while feeding into a progressively more approachable conduit. Never fully inhabiting either the abrasive or glazed ends of the spectrum, Lopatin tempers the hard corners between rooms of granular washes, formant choirs, and mutating sightlines. He builds a rhythmic matrix sequencing flickering loops, pulses, and arpeggiated momentum rather than percussion.
TONY WARE

Robbie Fulks
Gone Away Backward
BLOODSHOT

Robbie Fulks—the great underappreciated wonder of the Americana genre. He's got such a powerful, sweet voice; such an abundance of intelligence, sensitivity, and humor as a lyricist and player. Seeing him onstage is pure joy, and this is perhaps the rare studio album that's clean and detailed as can be, but captures the full-bore beauty and dynamics of Fulks and his band live. Cheers to engineer/mixer Steve Albini for whatever he did in Electrical Audio to document these glorious performances so beautifully.
BARBARA SCHULTZ

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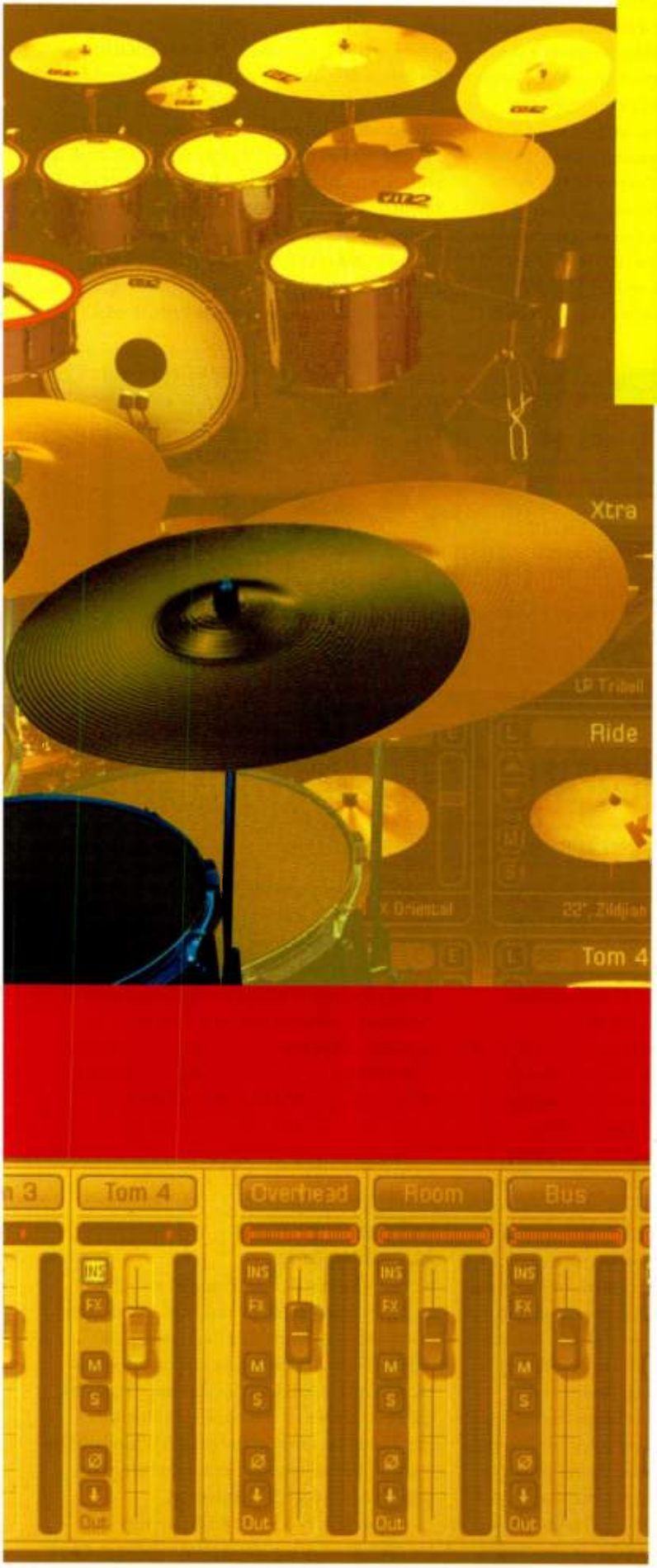

LUST

Get bang for your bucks with these kits and collections

BY MARTY CUTLER

BECAUSE TASTES in drum sounds and musical applications can turn on a dime, we like to periodically dip into the pool of drum and percussion instruments and sound libraries. This roundup covers sample-based products, and a couple of very cool instruments whose synthesis engines carry them well beyond the 808 and 909 paradigm to incredibly fresh new sounds and rhythms. Not to be outdone, many of the sample libraries rely on some pretty slick DSP—either in the sampling or the playback stages—to endow the end-user with plenty of sound-shaping power.

It's become commonplace for instruments to include preset, editable rhythm patterns that you can arrange in your host software or simply lock to your host's tempo. Some offer built-in modulation tracks to animate sounds alongside the typical grid-based, drum-machine style sequencing. Whatever your approach, we're confident that there is something for everyone here—and probably more than you expected.

Audio Damage

AXON

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AUDIODAMAGE.COM

Frequency-Modulation synthesis (FM) excels at producing snares, kicks, and cymbals, as well as oddball, clangorous metallic tones. Audio Damage's *Axon* relies heavily on FM synthesis, albeit without the nest of often baffling parameters. Instead, you get an X-axis to control timbre, and a Y-axis for the amount of FM: in essence, its brightness. It's easy to get a feel for the grid's tone-altering capabilities simply by mousing around the axis; no FM theory required. Each of six Neurons (a tone-and-rhythm-generating unit) carries its own two-oscillator tone generator. A seventh, central Neuron creates no sound, but serves as a master clock for the other six and can sync to the host clock.

To generate rhythms, *Axon* divides the Neurons into transmitters and listeners. *Axon* provides a Wire mode—really an edit mode—under which you can link neurons to create intricate rhythms. By setting a threshold for a Neuron, it will respond to incoming pulses based on the number of pulses allowed to a transmitter: The lower the threshold, the busier the pulse, based on the rate settings of the central Neuron. It takes a while to grasp, but the instant-gratification quotient is high, and the results are rewarding, with slick synth-percussion polyrhythms and intricate old-school tonal sequences. Sonically, *Axon*'s FM engine provides worlds to explore, but if its built-in tone-generating capabilities aren't enough for you, you can route *Axon*'s MIDI data to external MIDI instruments, or another MIDI track and software device. In Studio One Pro 2, this was a breeze, simply requiring that the new track see *Axon* as an input device. *Axon* offers plenty to explore and is full of surprises for the adventurous programmer.

Audio Damage *Axon*

EastWest *Stormdrum 3*

EastWest

STORMDRUM 3

$395 (DVD FORMAT), $479 (MAC OR WINDOWS USB 3HD)

SOUNDSONLINE.COM

EastWest/Quantum Leap's *Stormdrum* gathered mixes of conventional percussion, ethnic instruments, and processed sounds of unidentifiable origins, to drive eerie, larger-than-life, sinuous grooves filled with attitude and mystery. A boatload of terrific-sounding drum kits and percussion ensembles let you roll your own grooves or add your touch to existing loops. Sometime later, *Stormdrum 2* continued the theme with new sounds and MIDI files of live performances to trigger dynamic, new grooves—and folded in the original *Stormdrum* package.

The *Stormdrum 3* (*SD3*) sample library draws on the talents and vast, exotic percussion collection of Planet Drum and Grateful Dead percussionist Mickey Hart, and the formidable sampling and production skills of Nick Phoenix. The exhaustive 89GB sample library pays off in long, evolving, and very live loops; percussion ensembles with generous velocity layers; plenty of special performance techniques and articulations; and in many cases, up to five additional mic-position recordings you can mix to taste.

As with *Stormdrum 2*, *SD3* uses The EastWest Play instrument. Play's built-in mixer draws on its own tasty convolution reverb in addition to a resonant, lowpass filter, topped off by a channel strip, EQ, transient shaper, and stereo bus compressor licensed from Solid State Logic. The effects signal path is easy to reconfigure, with sidechains available with a click of the mouse.

All of the above is in the service of a vibrant and rich gathering of percussion instruments and loops. Easily one of *SD3*'s strongest attractions is its huge library of loops performed by Mickey Hart, Nick Phoenix, Chalo Eduardo, and Greg Ellis. *SD3* has 23 separate loop patches, each gathering as many as 42 constituent loops, each averaging out at four bars. Each measure breathes with its own internal dynamics. Loops progress from sparser sections, through more intense and busy parts, into simpler breakdowns, back into more intense playing, crescendos, decrescendos, and often into final bars. Play one loop, and segue it perfectly into another, or grab a handful of keys for a huge, thunderous, and grooving ensemble.

Some of the loops with strong tonal motifs would normally paint the part into a harmonic corner—not so here: *SD3* sports a pitch knob to shift the loop up to two octaves above or below the original pitch, without any change to the tempo; this knob can sync to the host.

An exhaustive list of beautifully sampled percussion would probably eat up most of my word count: toms, cajon, gongs, bells, bowls, plates, door stops, cymbals, ceramic hand drums, dholak, bongos, udu, and plenty more. All are intimately recorded, with generous velocity layers; many with round-robin hits, avoiding any tinge of mechanical-sounding playback. Phoenix's clockworks samples, gathered from field recordings of antique clocks, are a piece of work. I can't think of a more varied and inspirational library of percussion than *Stormdrum 3*.

XLN Audio

ADDICTIVE DRUMS

$179.95

XLNAUDIO.COM

XLN Audio has done a tremendous job of crafting an informative and easy-to-navigate visual interface for *Addictive Drums*. The default Kit window grants instant access to each kit piece; clicking on the piece's graphic triggers the sound with higher Velocities increasing on the vertical axis. Clicking on the name of the assigned instrument brings up available kit pieces to exchange.

Just below, and available from every page—the mixer section sports typical volume and pan

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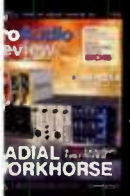

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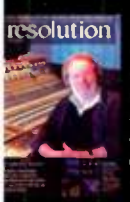

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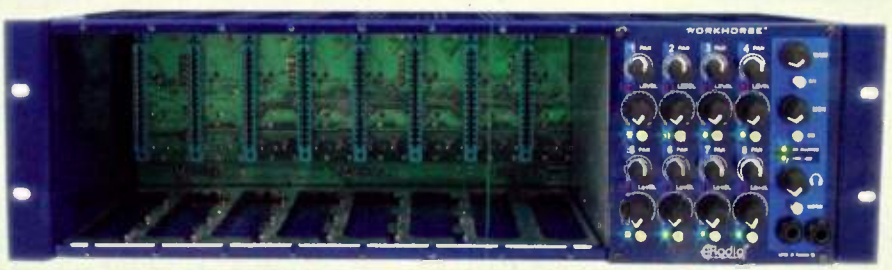

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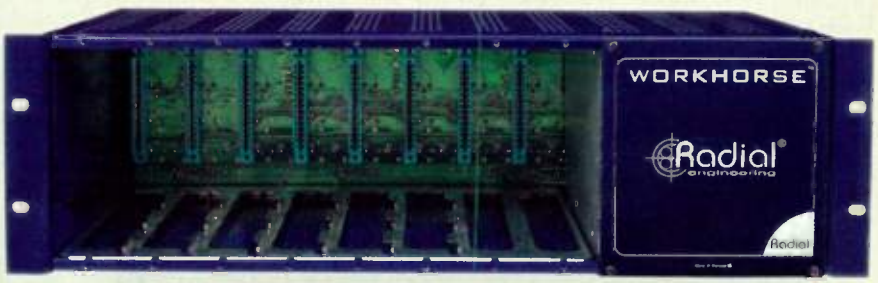

More Power!

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PAR EXCELLENCE nominee

More Convenience!

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More Easy!

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The NEW Six-Pack™ - Desk-top power rack for 500 series modules lets you mix and match up to six modules and safely power them to create stereo channel strips or unique signal chains. The powerful 1200 milliamp supply will not sag when loaded. Set the SixPack down on your work surface or carry it around the studio with the integrated handle.

ELECTRONIC MUSICIAN editors' choice 2013

* Modules shown are not included!

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controls, along with buttons to enable effects sends and inserts, mute or solo a kit piece, reverse the kit pieces phase, or send the piece to its own output. Unlike many drum plug-ins, there are no separate instances for multiple outputs; instead, the selected piece will bypass the Master output to a hard-wired individual out.

A button identifying each kit-piece channel (Kick, Snare, Hi-Hat, and so on) opens that instrument's edit page, which gracefully melds a channel strip with a sample editor. Here, you can load in a different sample set for any kit piece: a boon in the same context as the channel strip, as it enables auditioning of EQ, compression, and other tone-altering settings for any kit piece in one place, including settings to alter the level and pan position of any additional mics used. There's plenty to encourage sonic mayhem here with pitch and filter envelopes, as well as distortion and saturation controls.

The FX page send effects comprise a pair of independent reverbs and a pair of dual-band EQs that you can route independently pre- or post-master output. The reverbs sound great, and the additional EQ adds plenty of sonic variety.

A marvel of UI design, the Beats page hosts a huge number of MIDI files arranged by category—often in nested song-form folders. You can easily audition these and build a percussive song form, section by section. You can set the length of any of the files to wring odd time signatures from the files, but that didn't always yield useful results.

You can instantly remap kits. A pull-down menu yields alternate maps for Alesis, Yamaha, and Roland drums, among others. It's a tremendous boon to instantly change the map for proper playback when you are working on a client's project.

The kit pieces are beautifully sampled, with plenty of alternate hits, and Velocity layers to pull off a convincing performance. The basic kits that come with *Addictive Drums* cover a pretty wide range, but if you need more, you can purchase and download additional sound sets from XLN Audio's growing library, including percussion and custom kits.

Groove Bias offers patches to suit different needs. You get four folders: Components, Full Kit, Multis, and Processed. For quick starts, Full Kit holds complete, single-channel drum sets with a stereo-only output and basic level controls for each kit piece. To create your own mix-and-match kits, use the Components folder, and create a multi; you can draw hardware from each of the three kit folders. Multis offer preset kits with individual hardware patches, letting you route pieces to Kontakt's individual outputs. If you want something a little different, dive into the Processed folder and grab an '80s-style snare, or a 14-bit kick. You'll also find a couple of pre-processed kits; all of the processing derives from Kontakt's remarkable collection of effects, so if you have the full version of Kontakt, you can always create your own treated kits. Despite their expressiveness, the drums impose a pretty light memory load. In part, this is due to the modest number of kit elements; some kits have a splash or crash cymbal, while others offer no more than kick, snare, hi-hats, and toms. At $49.95 for a download, for drums that reek of old-school funk, it's hard to pass up this one up.

XLN Audio *Addictive Drums*

Impact Soundworks *Groove Bias*

Impact Soundworks

GROOVE BIAS

$49

IMPACTSOUNDWORKS.COM

In an effort to avoid the conundrum of pristine digital recordings of vintage instruments, Impact Soundworks kept the chain of recording as analog as possible before sampling. *Groove Bias* comprises three drum kits, recorded through vintage microphones, analog outboard gear, and then to tape before being captured in Pro Tools as 24-bit, 96kHz sound files. The resulting drums are fat and warm, with five to 16 velocity layers and up to 10 round-robin samples on each kit piece to keep things interesting.

Each of the three kits was recorded at a different studio, and mics ranged from Neumann and Royer to a General Electric cassette-recorder mic. Outboard processors included gear from Empirical Labs, Tube Tech, and Manley.

Groove Bias loads into Native Instruments Kontakt 2 and later, but the samples are in WAV, rather than Kontakt's NKI format, so you

Native Instruments

CUBA

$99

NATIVE-INSTRUMENTS.COM

Native Instruments offers a boatload of drummer and percussionist tools; between *Abbey Road Drums* and *Session Drummer*

alone, you get representative kits from every decade, reaching back to the '60s, and a few kits of older vintage to boot. The company's deeply programmable Battery 4 boasts a ton of kits for every occasion, and drag-and-drop editing of your own samples to build unique sounds.

Cuba, as part of the Native Instruments *Discovery* series for Kontakt 5, follows in the footsteps of *Discovery West Africa*, going well beyond drum and percussion programming, instead providing the entire rhythm section, authentic rhythms and all, if you want them.

Native Instruments *Cuba*

At the top level, *Cuba* presents four folders: Percussion Ensemble, Single Percussion, Melodic Ensemble, and Melodic Instruments.

Every patch offers a dozen loops triggered by note number, with ensuing higher key groups offering single hits and articulations. If it is an ensemble, the keys include all instruments and their articulations, which include rolls, flams, and rim hits. Melodic Instruments, such as trumpet, bass, or tres, often include loops at the lower range of the keys, followed by the instrument, and key switches to change the articulation: for instance, trumpets that can switch from staccato to legato.

You can set up a performance in a few different ways: Each pattern has an associated MIDI file that you can drag to tracks in any order you prefer; *Cuba* can simply sync to the host program, and you can trigger patterns from the octave of key triggers supplied for every patch; or you can just play the instruments in as you see fit, from a keyboard or percussion controller.

There's plenty of authentic style here, with Pachanga, Guajira, Charanga, Salsa, and other rhythms represented with themes and variations. Even so, loops have tons of leeway in customization: Add swing in small increments, change the clave from 3-2 to 2-3, alter the dynamics, change the overall EQ and ambience from traditional to contemporary. You can even create and store your own grooves. You aren't locked into a key with tonal instruments, either. Transposing a loop neatly changes pitch of the melodic instruments while keeping the percussion tuned just right. It's undeniably a treat to play the melodic ensemble grooves, with trumpet. *Cuba* is a great resource for authentic Latin percussion styles and presents them in the very important context of the other instruments that drive Latin music. And it grooves like crazy.

FXpansion *Tremor*

FXpansion

TREMOR

$149

FXPANSION.COM

Tremor is FXpansion's successor to the DR-008, but if you're expecting a dance-oriented clone of yesterday's analog drum machines, let me stop you right there. Although 808-ish sounds and dance fodder abound, powerful sound-shaping tools and a remarkably flexible synthesizer engine take this instrument practically anywhere non-representational drum and percussion sounds are needed.

FXpansion's Discrete-Component-Analog-Modeling (DCAM) technology, optimized for drums and percussion, drives *Tremor*'s prodigious sound-shaping force. You'll find controls that you might not see on your typical analog-modeling synth or your average drum machine. The oscillators are a particularly good example, with a choice between a Membrane or Harmonic tone generator. The former emulates the frequency makeup of drum heads (such as snares, toms, and kicks), while the latter handles cymbals and other sounds, including tonal synths. A space control sets the distance between harmonics, which alters the frequency content to build harmonic or inharmonic tones. That alone can provide a diverse array of sounds; add on FM, a resonant, multimode filter; a white-noise generator with a bandpass filter; a sub-oscillator; a ridiculously flexible Drive engine with a variety of circuits to choose from; and plenty more—and you have a vastly expansive toolbox for building unique drums. Each of *Tremor*'s eight voices draws on its own synth, and any voice can be either monophonic, an appropriate choice for hi hats; or polyphonic, good for drum rolls in which successive notes continue to ring.

Anyone familiar with the overall sequencing capabilities of Geist—or, for that matter, a step sequencer—should have little trouble getting comfy with *Tremor*'s Grid-and Graph sequencing layout. Each voice (called an Engine) has a horizontal grid in which you can play or paint in notes, edit velocity, randomize the possibility that a note will play, trigger repeats, and much more. Graph pages use the same Grid format to let you shape or randomize *Tremor*'s powerful modulation system. You can set the number of steps to a pattern and nest loops for any engine, so for example, an eight-note hi-hat loop can sit within a 32-note pattern. There are 24 patterns per song, and you can trigger them with notes assigned beyond the range of the kit pieces.

Presets lean heavily toward four-on-the-floor and contemporary dance styles but plenty of fresh sonics are available, and they convey only an inkling of *Tremor*'s sonic range; that's the beauty of a completely programmable, unabashedly synthetic drum machine. I wouldn't use this as a substitute for an acoustic kit, but for cinematic, industrial, or more surreal applications, *Tremor* rocks.

Vir2

STUDIO KIT BUILDER

$199.95

VIR2.COM

In the old days, I would split up my drum tracks and assign notes to different sound sources to build a composite kit. It was a flawed and often tedious task; levels needed to be matched, dynamics needed to be adjusted, and sometimes notes needed to be dragged to new pitches. Vir2 *Studio Kit Builder* (*SKB*) has a better way.

Native Instruments' Kontakt 5 or later hosts *SKB*, which offers more than 50 kits. Everything you need to design your drum set resides at the patch level, and it's surprisingly easy to build a kit of choice without Kontakt Multis.

SKB uses four main pages: Player, Mapping, Kit, and Mixer. Player holds a sizable library of MIDI files, which you can audition and drag tracks in your DAW. Mapping is where the kit-building action starts: A vertically arrayed keyboard layout accesses a pop-up menu for each key, revealing a huge number of articulations for a specific kit piece. Simply load the instrument articulation you want to the key you have selected. There are no round-robin samples, as such; instead, the map lays out multiple versions of snares in zones across the keyboard, which makes the programming a bit more work. If there was one item on my wish list, it would be a script that enabled instant remapping of kit pieces to various manufacturers' protocols; assigning the kits here to a Roland or Yamaha drum map would be an arduous process.

Loading a kit defaults to the Kit page; its UI presents a player's perspective of the kit. At the top of the page, select from a handful of impulse responses to feed *SKB*'s convolution reverb.

Clicking on any kit piece highlights it in red and brings up a window below the kit with quick and easy access to some of that piece's parameters, including Velocity curves and limiting; the number of voices; tuning with 1,200 cents in either direction; pitch humanizing, pitch response to Velocity, or volume; or adjust the envelope's attack, hold, and release values. Conveniently, the same kit page offers quick replacement of kit pieces, too, and selecting a new piece from the menu replaces all related articulations, which greatly reduces the tedium factor.

Finally, the Mixer holds controls to set pan positions, levels, effects sends, routing, and more. The array of effects is impressive, and they include a few of Native Instruments' recent compressors and transient shapers. The breadth of *SKB* drum kits is remarkable, and the sounds are burnished and punchy. Vir2 has come up with a huge, versatile drum library whose kit pieces can easily change on short notice.

Vir2 *Studio Kit Builder*

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– Matt Dougherty – Engineer, Groovemaster Studio, Chicago, IL

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Sonivox

BIG BANG DRUMS 2.0

$99

SONIVOXMI.COM

A simple interface with buckets of terrific-sounding drum kits gather in Sonivox *Big Bang Drums 2.0*. Despite the relatively sparse user interface, the essential performance and sound-shaping tools are a click away.

There is no swapping out of kit pieces, however; Sonivox has done some of the heavy lifting for you with presets that mix and match available kit-piece samples. The Browser menu presents a non-editable short list of attributes to home in on sounds by genre, kick drum, or snare. For instance, you can load a Punk kit set up with a mahogany Rock kick, and a Jarrah custom snare.

The kits sparkle, offer plenty of punch, and are easy to play, with a logical keyboard layout. Editing kit sounds is deceptively simple. For instance, to change a kit piece's filter settings, select the kit piece by clicking on its graphic, adjust the filter (you can choose from nine filter types) cutoff, resonance, Velocity response, ADSR, and more. Ensuring consistency across kit piece families gets a bit fiddly because the parameters only apply to one of the articulations, so for the snare, you'll need to right-click on the piece to select another articulation, then click a second time to refresh your selection. If you click the Edit All Pads button, settings apply to all kit pieces; hopefully, a future release will include a button that will let you edit kit-piece groups, or, at least the option to select an articulation by MIDI note.

There is no reverb, but you can load the multi-output plug-in and assign individual kit pieces to one of 16 individual outputs, and you can choose to include any built-in effects you have assigned for that piece. The included delay is relatively simple, but effective and sweet sounding. You get a button to enable sync with the host program, which makes it relatively easy to set up some interesting rhythmic activity from simple parts. ■

Sonivox *Big Bang Drums 2.0*

Former Electronic Musician *editor Marty Cutler simultaneously enjoys a reputation as a banjoist, electronic musician, and writer. He has performed with everyone from Hazel Dickens to Twyla Tharp and all points in between.*

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Read reviews of more great collections we couldn't fit here.
Emusician.com/October2013

Apple Logic Pro X

Yes, it was worth the wait

BY GINO ROBAIR

In addition to updating its look, Apple made Logic Pro X easier to learn and use, while adding powerful features such as the Drummer track, MIDI plug-ins, Track Stacks, and Flex Pitch.

SUMMARY

STRENGTHS: Easy to set up and use. Updated menus, piano roll editor, and notation. Backward compatible. Extensive content. Drummer track. Drum Kit Designer. MIDI plug-ins. Flex Pitch. Track Stacks. Logic Remote for iPad.

LIMITATIONS: Doesn't support 32-bit plug-ins from earlier sessions.

$199.99 MSRP
apple.com/logic-pro

I'LL GET right to the point: The most earth-shattering aspect of Logic Pro X, the long-awaited update to Apple's premiere DAW, is that it changed as little as it did. While there are plenty of new features and welcome GUI improvements, the program didn't lose much more than support for 32-bit plug-ins.

This outstanding update is fully 64-bit, yet it can open projects created as far back as Version 5, as well as GarageBand sessions. Long-time Logic users can breathe a sigh of relief. But if you're looking for a new DAW or have tried earlier versions of Logic and thought they were too cumbersome, you will be pleasantly surprised at how intuitive Logic Pro X is to use.

Instant Gratification Logic Pro X is available directly from the Mac App Store and requires OS X 10.8.4 (Mountain Lion) or later. The program is a 651MB download, which takes only a few minutes. When you launch it for the first time, an additional 2GB of "essential instruments and settings" will download.

Overall, your Logic Pro X purchase includes nearly 38GB of content, and I highly recommend you download all of it to get the most from the program. If you don't want to commit to everything in the beginning, it's easy to retrieve later. However, the extra content will download automatically when the program needs it, as we will see in a moment.

Veteran Logic users will notice a big difference in the overall look of the program, but the change is not merely cosmetic. Menus are better organized, transport controls sit along the top of the screen, the Score Editor and Piano Roll have been updated considerably, mixer functionality is improved and reflects signal flow, and the Library has been moved to the left. If you're using Logic for the first time, you'll see only the basic features when you open your first session, though it's easy to locate the deeper stuff when you need it by using the Advanced Tools preference settings. If you had an earlier version of the program on your system when you installed Logic Pro X, all of the features will be available.

When I first launched Logic Pro X, I expected to spend considerable time configuring it before I could make a sound. Not so! I was able to get a new song going almost immediately—not bad for a DAW of this magnitude and complexity.

One feature that helps is the new Drummer track, which provides a user-friendly way to generate realistic drum parts. Select one of the 15 virtual drummers categorized by style (Alternative, Rock, R&B, Songwriter) then choose a pattern. Realtime controls let you determine the dynamics, complexity, swing, fills, ghost notes, and much more (see Figure 1). The results are Region-based, so you can create a different part for each section of a song without having to program MIDI. The sampled kits sound great, and you can customize them using the new Drum Kit Designer plug-in by swapping out instruments, as well as tuning and dampening. It's the most musically satisfying drum program I've used. (Visit emusician.com to see a video showing these features in detail.)

MIDI and Control I especially like the new features that affect virtual instruments. Apple has created 9 MIDI plug-ins that you can apply to your virtual instrument tracks and transform your performances in interesting ways. The plug-ins include an arpeggiator, a modulator, a transposer, a chord trigger, and a randomizer. You can even design your own

Fig. 1. A view of the Drum Kit Designer plug-in with the Drummer editor below it. The yellow ball in the editor's X/Y matrix adjusts the dynamics and complexity of the virtual drummer's performance.

Fig. 2. Using the Logic Remote app on an iPad, you can control Logic Pro X from anywhere in the studio as long as there is a wi-fi connection to your computer. Shown here is a fretboard interface to play an instrument, along with its Smart Controls.

plug-in using Javascript. Up to eight MIDI plug-ins can be used on each instrument channel strip.

Logic Pro X's plug-ins now have a set of Smart Controls, groups of essential parameter that come up when you're working with effects and instruments. Assign these to your favorite MIDI control surface, or if you have an iPad, use the free Logic Remote app (see Figure 2). The app can be used to control the mixer and transport buttons, use key commands, tweak Smart control parameter, and play your instruments using a matching interface (keyboard, guitar fretboard, bass strings, chord and drum pads). You'll need a stable wi-fi connection between your computer and iPad to run the app, but it's easy to set up and use. Best of all, it allows you to control Logic Pro X from anywhere in your studio.

Logic Pro X also introduces Track Stacks, which consolidate groups of tracks in a folder with the ability to submix them to an Aux channel. Track Stacks provide an intuitive and efficient way to build layered sounds, and they can be saved as part of a Patch along with Smart Control data and channel strip settings. If you have MainStage3 ($29.99), you can access your Logic Pro X plug-ins, Patches, and Smart Controls and use them onstage.

With Flex Pitch, Logic Pro X can manipulate pitch and other parameters of monophonic recordings using a piano roll-style interface or input from a MIDI controller. You can adjust vibrato, gain, formant, and the way pitches slide between notes, among other parameters. It can also be used to extract MIDI data from an audio track.

Other new features will make guitarists and bassists smile. The Bass Amp Designer lets you assemble a virtual rig based on classic amps and cabs, as well as blend miked and DI sounds. Guitarists will enjoy the pedalboard effects such as reverse delay, tube overdrive, octaver, and whammy-style pitch control.

Logic Pro X also supports MusicXML, AAF, and Final Cut Pro X XML, and you can send your mixes directly to your SoundCloud account, iTunes or the Media Browser.

In Session Starting from scratch with Logic Pro X 10.0.1 was a breeze on my MacBook Pro Core 2 Duo. I connected my MOTU Traveler mk3 interface, selected it within Logic's Preferences, and plugged in my Fender Strat. For my first session, I opened the Songwriter template, stretched out a Drummer track so that I had a few minutes of time to jam over, record-armed the track with the amp simulator, and hit Record. Everything worked the first time.

During the session, I tweaked the Drummer track's performance editor so that the dynamics and complexity of the part matched each section of the song, all without leaving the creative headspace. As I was adding a second guitar part, I changed from the default drummer "Kyle" to the Rock player named "Logan." Here's where the additional content comes in, which I hadn't downloaded yet. As I worked on my overdubs, Logic downloaded the 1.8GB of data it needed in the background for the new drummer. When it was finished, I could call up additional Rock kits, though the controls for the new drummers (instruments/feel) were grayed out until I relaunched the program.

Nonetheless, the best part was that I didn't have to stop what I was doing during the download. I could continue to record my second guitar part and add a virtual-instrument bass part without interruption.

Later, I replaced "Logan" with a drum machine from the Instrument list, and I used the performance matrix to change the density and dynamics of each section of the song on the fly—nice! And as I completed the piece, I had no problem adding bus effects while mixing and creating a finished stereo file.

Perfectly Logical Over the years, DAWs have grown inordinately complex as developers have added tons of features with each new rev. What a pleasure it is to see one such company concentrate on the interface of their flagship product for a change, and make it more inviting and musically inspiring to use, while retaining the pro-level features that the power users expect.

Equally welcome is the price: For what you would expect to spend on a decent virtual instrument, you get Logic Pro X *and* a huge assortment of content. Best of all, Apple's state-of-the-art DAW won't take you a week of head scratching before you can use it. ■

Gino Robair is Electronic Musician's *technical editor.*

Radial Engineering Cherry Picker and Gold Digger

Mic and preamp switchers help you pick the right tools for the job

BY PHIL O'KEEFE

SUMMARY

STRENGTHS: Well designed. Noise-free passive signal paths. Silent switching. Rugged and road-worthy housing. Three-year transferable limited warranties.

LIMITATIONS: None.

$400 MSRP each, $350 street each
www.radialeng.com

SAVVY ENGINEERS know that the signal chain is crucial. Matching the right mic to the right singer can make the difference between a track you have to fight with in the mix and one that really fits.

Matching the right mic with the right preamp can also make a big difference, but quick comparisons aren't always easy. You often have to unplug one, then plug in something else, and by then you've forgotten exactly what the first one sounded like. Radial Engineering designed the Gold Digger and Cherry Picker to help solve the auditioning problem.

Both units are housed in heavy-duty, 14-gauge steel with a baked enamel finish. Neoprene bottom pads prevent them from sliding around and provide electrical insulation and mechanical isolation. Power is supplied by an included 15VDC external adapter. The case's locking cable clamp helps ensure that the power plug stays connected. As with Radial's direct boxes, front controls are protected by a pair of metal lips that extend from the top and bottom of the enclosure, similar to the way a book cover extends beyond its pages.

Cherry Picker The Cherry Picker mic/line switcher lets a single XLR input jack (with 48V phantom power) feed one of four XLR outputs. This configuration allows you to connect a single mic to multiple mic preamps so you can audition them quickly.

The front panel has four output switches, each with a corresponding LED and ground-lift button. Select an output and the others are automatically disengaged. The Mute switch silences all four outputs so you can swap mics. The phantom-power switch and ground-lift buttons are recessed to prevent accidental activation.

The Cherry Picker can also be used as a line-level signal switcher or router, letting you send an input to one of four different processors or output destinations. Very handy!

Gold Digger The Gold Digger lets you connect four mics to one destination, so you can quickly determine which transducer works best with your sound source. Like the Cherry Picker, it uses relays for switching in order to avoid pops. When you select an input, the others are automatically disengaged. LED indicators show the selected input.

Phantom power is individually switchable, so you can connect condensers and ribbon microphones at the same time. Because mics have different output levels, the Gold Digger has four attenuators so you can match levels and avoid being swayed by the louder-is-better phenomenon. And like the Cherry Picker, the signal path is 100% passive, with no active electronics between the inputs and output. The sound is neutral and uncolored: What goes in is what comes out. The Gold Digger can also be used to compare different direct boxes.

The New Switcheroo I have nothing but praise for both units. They're quiet and do not color to the signal path. Most importantly, they make the difficult task of performing direct evaluations among multiple microphones and mic preamps much easier, allowing for instant side-by-side comparisons, which helps you make better choices and, ultimately, better-sounding recordings. I highly recommended both devices. ■

Phil O'Keefe is a multi-instrumentalist, engineer, and producer. His credits include Alien Ant Farm, Jules Day, and Voodoo Glow Skulls.

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Waldorf Nave

A deep, sophisticated synth for less than $20

BY GEARY YELTON

Although Nave's colorful wavetable display—which you can rotate in three dimensions—is its most visually striking element, it only hints at the sounds it can generate on your iPad.

SUMMARY

STRENGTHS: Powerful synthesis capabilities. Resynthesizes audio files. Comes with some spectacular sounds. Astonishingly low cost.

LIMITATIONS: With so many included sounds, it cries out for a searchable database.

$19.99
waldorf-music.info

IF YOU own an iPad, new and more powerful music apps constantly demand your attention. The most formidable iOS-based synth I've seen yet is Nave, from pioneering hardware and software synth maker Waldorf. The depth and versatility of its sound engine and the sophistication of its user interface make it well worth your attention.

In addition to blending internal wavetable and analog-style synthesis, Nave generates new sounds by resynthesizing audio files and performing a type of text-to-speech conversion I've never seen before. Because it's compatible with Core MIDI and Audiobus, you can control Nave from sequencer apps or external hardware, and you can route its output to effects processing and recording apps on your iPad.

Architectural Engineering All oscillator and wavetable parameters are on the Wave page. (Note: A wavetable is a series of individual waveforms arranged in a particular order.) Various modulation sources let you control the part of the wavetable you're hearing at any given moment. You can also open a full wavetable display, which has a ribbon controller to scroll through the wavetable or manually freeze playback at any point. To supplement the two independent wavetables, Nave has a pair of analog-type oscillators and an Überwave function that multiplies the oscillators to create as many as eight signals.

To create your own wavetables, type any word or phrase into the Talk tool, and Nave will generate a wavetable that duplicates what you've typed. Yes, it sounds robotic, but it's rich in formants. You can also export a WAV file from your computer to the Nave Documents folder in iTunes (or copy it from other apps), and Nave will resynthesize the audio into a new wavetable.

Nave's resonant low/high/bandpass filter offers selectable slopes and a Drive stage with five types of distortion. It also has three loopable ADSR generators, an assignable X/Y control pad, a modulation matrix with eight scalable slots, and a comprehensive arpeggiator. Alongside effects such as chorus and flanging, you get delay, reverb, compression, and 3-band EQ. An onboard 4-track recorder called Tape lets you record, import, and export audio files, as well as loop, edit, and mixdown your recordings.

As an alternative to the standard piano-style keyboard, you have the choice of using the blades, which resemble the capacitive keypads on a Buchla synthesizer. You can control filter cutoff or other modulation parameters based on the vertical position of your finger on the blade. You can also specify whether the blades play chromatically or in one of 23 other scales and modes.

Hands on in the Real World Nave's implementation of wavetable synthesis is an impressive accomplishment on any platform. I'm doubly impressed that it's written for the iPad. I can only hope that Waldorf will someday port it over to Mac and Windows.

Many of the included sounds are downright inspiring, and I often got lost (in a good way) programming new sounds myself. If you're new to wavetable synthesis, Nave does a laudable job of helping you grasp how it works. With my iPad connected to my audio interface and monitors, I heard the same subtle coarseness I hear from all iPad apps, but I wouldn't hesitate to include Nave on any recording. Whether you're a serious synthesist or you just like to dabble, you'll never be sorry you downloaded Nave. ■

Former senior editor Geary Yelton has been writing for Electronic Musician *since its first issue. He lives in Asheville, NC.*

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1

Positive Grid

JamUp Pro XT 2.4

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$19.99

HIGHLIGHTS Virtual amps and effects for electric guitar and bass • share and download artist and user presets • Live View mode • realtime pitch shifting • includes signature metal pack with setups by Ola Englund, Keith Merrow, and Jeff Loomis • stores 128 presets

TARGET MARKET Guitarists and bassists using an iPad, iPhone, or iPod touch

ANALYSIS With its built-in phrase sampler and 8-track recorder option, this app is great for practicing, recording, or performing.

positivegrid.com

2

Avid

Fast Track Duo

USB/iOS audio interface

$299 street

HIGHLIGHTS 2-in/2-out audio-only USB interface • Direct Monitor mode • balanced ¼" I/O • front-panel mic/instrument combo jacks • 48V phantom power • includes USB-to-30-pin cable for iOS • bundled with Pro Tools Express • includes iLok • ASIO and Core Audio compatible

TARGET MARKET Students, beginners, and intermediate recordists

ANALYSIS Although it eschews S/PDIF and MIDI ports, this interface can be used with an iPad and it is competitively priced considering it comes with Pro Tools Express and an iLok.

avid.com

3

Line 6

POD HD500X

Multi-effects processor

$699.99

HIGHLIGHTS More than 100 stompbox and studio effects • XLR outputs, mic input, MIDI I/O, S/PDIF out, and USB port • James Tyler Variax input • additional expression pedal input • effects send/return • L6 Link connects to StageSource-Series loudspeakers and DT-Series amps

TARGET MARKET Guitarists who want HD-quality effects in a roadworthy pedalboard

ANALYSIS Another example of Line 6's fully integrated system that allows you to interconnect and control its amps, P.A.s, guitars, and effects.

line6.com

4

The Harvestman

Hertz Donut Mk II

Dual digital VCO for Eurorack

$475

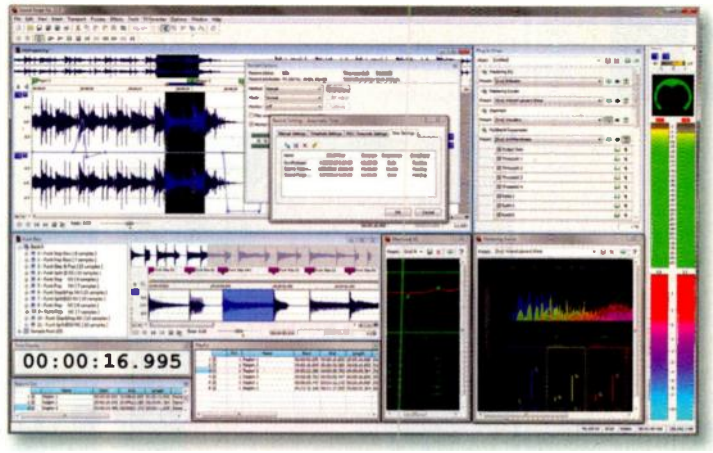
HIGHLIGHTS Two independent digital oscillators • 16-bit, 48kHz resolution • thru-zero frequency modulation • 3-mode wavefolder and pulse-width modulation on primary oscillator • bipolar modulation • internal modulation bus • selectable waveforms for each oscillator • third output is logical XOR of the square wave outputs

TARGET MARKET Modular synth owners looking for a rich sound palette

ANALYSIS In a world of me-too modules, the Harvestman designs products that extend beyond vintage fetishism to give musicians unusually creative tools.

theharvestman.org

All prices are MSRP except as noted



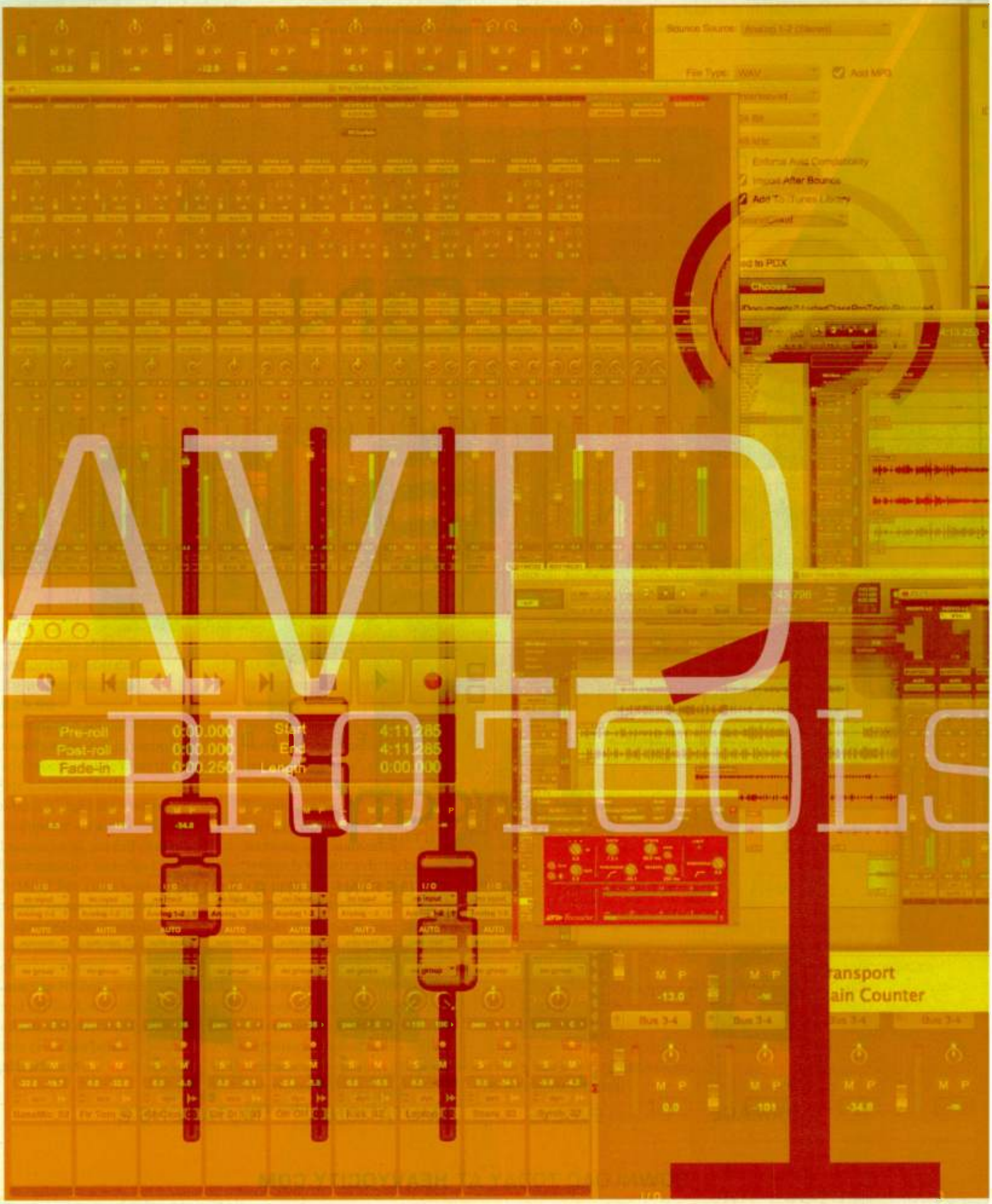
5
AIAIAI
TMA-1 Studio: Young Guru Edition
Stereo headphones
$270
HIGHLIGHTS Engineered by Young Guru • earpads are made from Japanese memory foam • comes with two removable cables, one with a mic and three buttons designed for iOS products • cable locking system
TARGET MARKET Musicians and recording engineers who do a lot of critical listening on headphones
ANALYSIS Lightweight, comfortable, and with drivers that don't overly hype the sound, the TMA-1 is designed for mixing and editing for long periods of time.
aiaiai.dk

6
JamHub
Tracker MT16
$500
HIGHLIGHTS Eight ¼" line-level inputs (6 mono, 2 stereo) • records multi-track audio as WAV files to SD card • wireless connectivity uploads files to JamHub's cloud-based BandLab editing and mixing environment • connects to JamHub SoleMix port or insert jacks of a mixer
TARGET MARKET Musicians who want an easy way to record gigs or rehearsals
ANALYSIS It makes perfect sense that JamHub would offer a multitrack recording solution to balance out the company's product line.
jamhub.com

7
Sony
Sound Forge Pro 11 (Win)
Digital audio workstation
$499.95
HIGHLIGHTS Improved recording interface and waveform display • input bus effects • includes iZotope Nectar, Restore, and Repair plug-ins • CALM-compliant metering • Available as Audio Master Suite, bundled with the Windows version of SpectraLayers Pro 2 for $849.95
TARGET MARKET Broadcast and recording professionals, musicians with a personal studio
ANALYSIS A mature Windows-only DAW that can be used for nearly every pro-audio task. However, the bundle with the newly updated SpectraLayers Pro 2 is a no-brainer.
sonycreativesoftware.com

8
GeerFab Acoustics
RoomZorbers
Acoustic treatment panels
$69.99 street
HIGHLIGHTS Price includes either two 2′ x 2′ or one 4′ x 2′ panel • lightweight • 2″ thick • 1.65 pcf fiberglass panel covered with acoustically transparent nylon • large corner grommets make these easy to hang vertically or horizontally from ceiling or walls • non-flammable Class A fire rating
TARGET MARKET Personal studios, lesson rooms, rehearsal spaces, traveling engineers
ANALYSIS An inexpensive and highly portable system of acoustic panels for controlling reflections in places where you don't want permanent installation.
geerfab.com

Continued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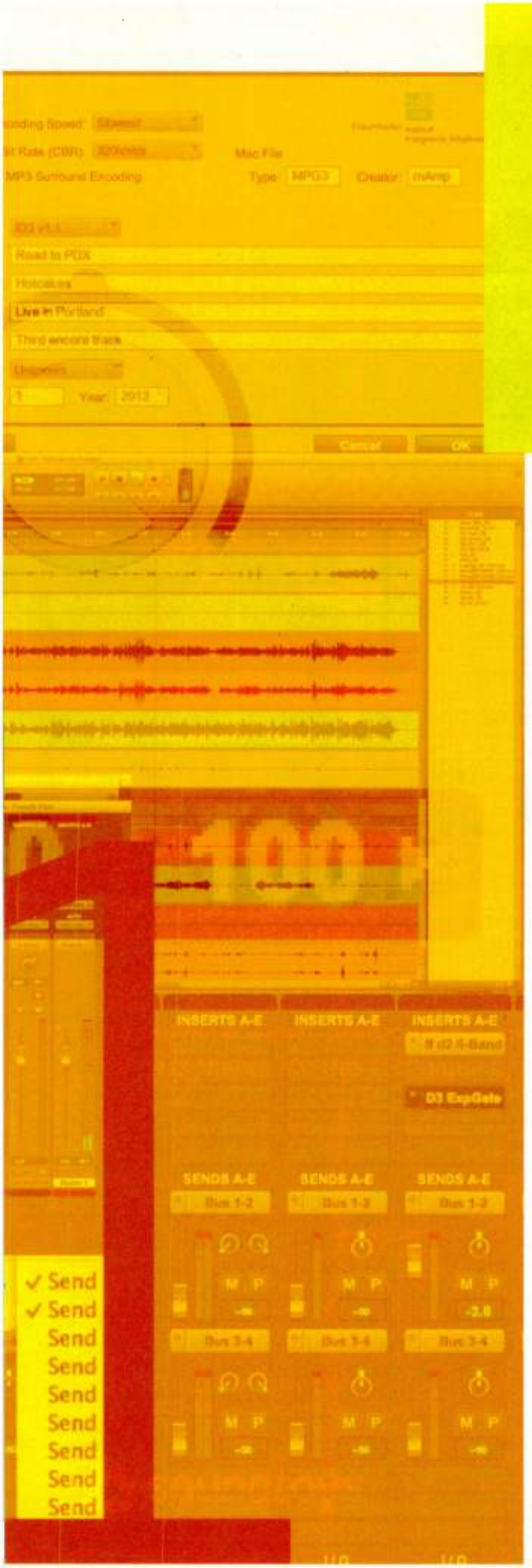

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Getting To Know Avid Pro Tools 11

You're on the road to power-user with these handy tips

BY GINO ROBAIR

AVID SPENT several years preparing Pro Tools 11 for release, and it shows in the depth and breadth of its new features. For example, its 64-bit architecture not only accesses more of your computer's RAM, but it re-allocates host-based multi-core resources dynamically and more efficiently.

Besides being 64-bit under the hood, Version 11 adds a number of useful workflow enhancements to an already mature DAW. Here, I will focus on the ones that are easy to overlook, especially by those of us who don't normally open a manual because we just want to get things done.

All of the topics in this article are available in both levels of the program, Pro Tools HD 11 *and* Pro Tools 11, the latter of which runs natively on your system and requires nothing more than your iLok. When I mention two modifiers in relation to key-command shortcuts, such as Command/Control + S, the first modifier is for Mac OS and the second for Windows users.

11 Will Get You 10! Bummed about losing your RTAS and TDM plug-ins? Don't worry! Your purchase of Pro Tools 11 includes an install of version 10.3.6, and both versions can live on your drive at the same time. This provides a way for you to continue using your favorite instruments and effects when you need them. For example, use your RTAS plug-ins to process an audio file within Version 10, then bounce the results to disk or record the processed audio to a new track. When you're done, quit Version 10, launch Version 11, and import the tracks you created. You won't need to restart your computer to do this.

Version 10.3.6 is also your last chance to use those SD2 (Sound Designer 2) files you have lying around; they're not supported in Version 11. As you import these

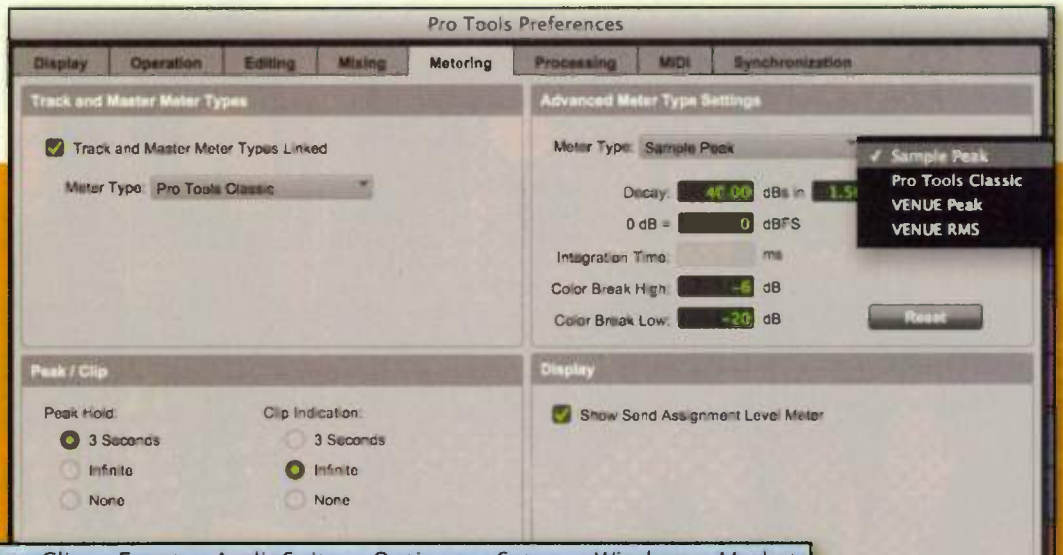

Fig. 4. Your metering choices in the non-HD version of Pro Tools 11.

Fig. 5. The Expanded Sends view puts a number of handy controls at your fingertips in the Mix window.

There are times when you want to create a rough mix while you're tracking, and with Pro Tools 11 you can. The program now allows you to write automation while you're recording.

of the Pro Tools Reference Guide. Despite being 1,300 pages in length, the guide is a great place to find answers for those of us who don't normally read manuals cover to cover. It's hyperlinked and searchable, and remarkably easy to use. And, no, you don't have to read all of it!

Add a Track By Double-Clicking One of the biggest time saving additions to Pro Tools 11 is the ability to add new tracks by double-clicking (often with a modifier) in the blank area of the Edit and Mix window or Track list. You can use this method when you first create a session, which gives you a stereo audio track by default. Or, if you already have a session going, double-clicking below other tracks yields a track similar to the last one you created, including the channel width.

To create specific types of tracks, add a modifier when double clicking:

Audio Track: Command/Control + double-click
Stereo Instrument Track: Option/Alt + double-click
Aux Input Track: Control/Start + double-click
Master Fader: Shift + double-click

Keep in mind that, if the previous track you created was mono, such as a mono audio track, and you create a Master Fader or Aux Input, these too will be mono. Only the Instrument track is always stereo. Consequently, I start a new session by creating audio tracks first when using the double-click method, in order to get stereo tracks, before creating Aux Inputs or a Master Fader. If I need to, I reorder them

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later by dragging the track name tiles to a more meaningful position (e.g., audio tracks on the left, Master Fader track on the far right).

Write Automation While Recording

There are times when you want to create a rough mix while you're tracking, and with Pro Tools 11 you can. The program now allows you to write automation while you're recording.

Under the Operations tab in Preferences, you will find the Enable Automation in Record check box. Select it, and then begin automating parameters as you would during playback using your control surface or mouse.

Transport Fade-In Have you ever been startled by an unexpectedly loud click, pop, or transient when you begin playback during a session? The new Transport Fade-In feature is there to help. You'll find it located in the Transport window below Post-Roll (see Figure 2 on page 60).

Type the fade time into the number field and the hit Return/Enter key. Click on the Fade-In button to turn the feature on or off. You can set a fade-in of up to four seconds. Avid recommends a 250ms fade for music production, but the length you choose will depend on the type of project you're working on. Although this feature is for playback only, determining the right length makes it less distracting.

Be sure to turn Transport Fade-In off before you record or else you will add fades to the beginning of the audio files you create.

Offline Bounce Pro Tools users have been asking for offline (non-realtime) bounce capabilities for a long time, and it took the total code rewrite of Version 11 to get it. When you use Bounce to Disk (Option/Alt + Command/Window + B), simply check the box marked Offline, and you'll get your bounced file a lot faster than realtime.

But wait, there's more!

You can tell Pro Tools HD 11 to create several types of tracks at the same time while bouncing files to disk, at a different resolution, as well as mixes of selected tracks and stems. Non-HD users don't get all of these features, but they do get the ability to simultaneously create an MP3 file while bouncing out a file in a WAV or AIFF format. Just check the box marked Add MP3.

The default destination is a folder named Bounced Files located in your Session folder. It is created automatically when you render files using the Bounce to Disk command. However, you can select a different destination by clicking on the Choose tab next to the word Directory.

When you've selected Add MP3 and hit the Bounce button, a new dialog box appears that lets you customize the MP3 file you're creating. Here, you can set the encoding speed and constant bit rate, choose the type of ID3 tag it'll have, add metadata information, and so on (see Figure 3 on page 60). Hit OK when you're done, and Pro Tools will begin rendering your files. It works like a charm.

You can also select other destinations for the file in the Bounce dialog box. These include importing the file back into the session after the bounce, adding it to your iTunes Library, and sending it to Gobbler or SoundCloud by using the Share With menu.

Meet the Meters Version 11 has added a number of useful options for metering, much of which is available only to HD users. However, non-HD users do get some very useful options.

Both versions of Pro Tools 11 have a dedicated Metering tab under Preferences, where you can set the behavior of the track and master fader meters differently or link them so they display the same scale and ballistics. The scale and ballistics settings for non-HD users are Sample Peak (the default, which displays the dynamics with greater acuity than with previous native versions of Pro Tools), Pro Tools Classic, as well as Venue Peak and Venue RMS, both of which scale to +20dB and are based on Avid's live-sound mixers (see Figure 4 on page 62). HD users get an added array of pro-level metering options including RMS, VU, Digital VU, Linear, Linear (Extended), five kinds of PPM, and three K-scale types. In addition, HD systems can display gain-reduction meters, which work with supported dynamics plug-ins and reflect the reference level and range of the type of meter you've chosen.

The Preferences' Metering tab is where you can also add meters to your Send tiles by clicking in the Show Send Assignment Level Meter box below the word Display. Now you will see a mini meter at the right side of each Send tile.

If you want a slightly larger meter with a fader and controls for each Send, but you don't want to open a bunch of full-size faders, select Expanded Sends View under the View menu (see Figure 5 on page 62). Here you can expand the Sends by individual row (A through J) or all at once. I like having the miniature pan controls, fader, meters, and Mute and Pre buttons visible while tweaking a mix, rather than cluttering up my computer screen with floating windows.

Fig. 6. Here is the Mix window with the faders and meters in view.

You can hide the meters and fader when you need more screen real estate in your Mix window, or if you're using a control surface and you don't want to see the meters and faders of each channel on your computer screen.

Fig. 7. A screenshot of the Mix window with faders and meters hidden.

Hiding and Sizing Here are a couple of tricks that pros use for faders and metering in the Mix window, which are easy to remember if you paraphrase the Kenny Rogers song "The Gambler:" "You've got to know when to hide 'em. Know when to widen 'em."

Hide 'Em That's right! You can hide the meters and fader when you need more screen real estate in your Mix window, or if you're using a control surface and you don't want to see the meters and faders of each channel on your computer screen (see Figures 6 and 7). Under the View menu, select Mix Window Views, then deselect Meters and Faders. This doesn't affect the Send assignment level meters, which will still be part of the Send tile if you checked the box marked Display (located within the Metering section of Preferences).

Widen 'Em If the meters are difficult to see, super-size them! The key combination to do this on the Mac is Control + Option + Command while clicking on any meter. Windows users can hit Control + Option + Start while clicking on a meter. This makes all of the meters in the Mix and Edit windows wider and easier to read.

What's really cool is that this widens the meters even if you're in Narrow Mix view, where seeing fatter meters can be quite helpful. Keep in mind that if you're an HD user and want to view Gain Reduction meters, you will need to refrain from widening the meters: There's not enough room for both. ■

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Fig. 1. The Brainworx bx_dynEQ V2 dynamic equalizer plug-in de-booms an acoustic guitar by cutting at 222Hz whenever an E note is played at the 2nd fret on the instrument's 4th string.

How to Use Dynamic Equalizers

Tame fluctuating tone without applying automation

BY MICHAEL COOPER

THE NEXT time you're faced with a track that seesaws wildly in timbre during mixdown, don't reach for EQ automation. You'll be twiddling knobs for all eternity, alternately boosting and cutting as the track's tone changes. Slap a dynamic equalizer on the track instead. After a quick setup, the dynamic equalizer will automatically perform all the filter boosts and cuts needed to give your wandering track a consistent tone.

Dynamic equalizers act like a splitband compressor or expander, compensating for too much or too little energy in one or more frequency bands on an as-needed basis. In this article, I'll show you how to use dynamic equalizers to corral erratic tone. For simplicity's sake, I'll use the Brainworx bx_dynEQ V2 mid-side plug-in in its single-band stereo mode to illustrate my points.

Subdue Boomy Guitar Acoustic guitar often sounds clear and sparkly on high notes, but boomy when the 4th string is played on lower frets. To keep the guitar's tone from swinging like a yo-yo, instantiate bx_dynEQ V2 (I'll call it dynEQ henceforth for brevity's sake) on the track's insert and set the plug-in to Regular (stereo) mode. Drag the boost/cut switch down to implement EQ cut.

In dynEQ's audio path, select the center frequency for the boomy guitar formants you wish to tame. In the plug-in's internal sidechain, set the fundamental frequency for the specific guitar note that excites the boomy formants. Don't be surprised if the frequencies for note and formants differ. For example, an E note played on the 4th string's second fret has a fundamental frequency of roughly 165Hz, but the boominess it engenders might be centered almost a half octave higher. In this case, set the internal sidechain to 165Hz (the E note) and the filter in the audio path to around 222Hz (see Figure 1). Select a narrow peak filter for the sidechain so that notes substantially higher or lower than E won't trigger equalization. (You'll probably need to broaden the filter enough to span several neighboring notes.) The filter for the audio path will typically

Fig. 2. bx_dynEQ V2 softens a female vocalist's shrill-sounding high range.

Fig. 3. bx_dynEQ V2 automatically boosts 222Hz when a solo violin plays very high notes, fattening the tone.

need to have a much wider bandwidth than that for the sidechain. With these settings, whenever dynEQ's sidechain senses an E note or neighbor tones are played on the guitar, it will initiate a broad cut centered at 222Hz.

To ensure dynEQ doesn't cut too heavily, set its maximum gain control to around 6dB and its Factor control—a gain multiplier—to roughly 0.5. Try dialing in a 9.7ms attack time and 50ms release for starters. Shorten the attack time if boomy notes sneak past the plug-in before it reacts. Fine-tune dynEQ's threshold so that equalization cut only occurs when the guitar would otherwise sound boomy, letting sparkly notes pass through the plug-in unprocessed.

Tame Shrill Vocals Some female singers sound warm in their lower range, only to blare like a siren when your song's chorus kicks in. You can soften her shrieking by using a technique similar to what you'd use to moderate an acoustic guitar's boomy tone. In this case, however, set filters for both the audio path and sidechain to the same center frequency and bandwidth: between 2.5 and 4.5kHz (depending on the offending frequencies), using a broad peak filter (see Figure 2). An 18ms attack time and roughly 280ms release usually work well on vocals for this application. Set maximum gain to cut no more than around 4dB on peaks, or vocal presence might be suppressed too greatly.

Fatten High Violin Notes A solo violin that thins out when playing in its high register can be fattened by boosting in dynEQ (boost/cut switch set to boost) with a broad peak filter centered around 222Hz (see Figure 3). To keep low, full-sounding notes from thickening further, select in dynEQ's internal sidechain either a high-pass filter with a 24dB/octave slope and roughly 2,000Hz corner frequency or a bandpass filter centered at about 3.8kHz. The sidechain's filter will help prevent low notes from exceeding the threshold and triggering EQ boost. High notes that the sidechain filter doesn't attenuate, on the other hand, will automatically trigger EQ boost at 222Hz, adding appealing girth. This is just one more example of how dynamic equalizers free you from the tedium of automating EQ—and deliver better mixes. ■

Michael Cooper is the owner of Michael Cooper Recording in Sisters, Oregon (myspace.com/michaelcooperrecording), and a contributing editor for Mix magazine.

Looking for a 2nd opinion on your 1st channel strip?

"Without a doubt, the m103 channel strip is a winner. Its as clean and pristine as you would expect from Grace Design with a sweet EQ and smooth compression. Its build quality is solid and the knobs are smooth and sure. Its flexible design, clarity and super-accurate sound have made it a permanent part of my mic pre arsenal. Yep, I bought it!"
- Rich Tozzoli, Pro Audio Review

"Subjectively, the sound quality proved to be exactly what I'd expect from a Grace Design product: dynamic, transparent, musical and very revealing of its sources. Form, function and build quality are all exemplary and these, coupled with its very high level of sonic performance, make the m103 a very capable and desirable unit indeed."
- Bob Thomas, Sound on Sound

"Instead of searching for that ever elusive box that's going to magically make your sh**ty mics sound like rainbows, consider investing in an m103, which will afford you the ability to capture the true color of the source and the dynamic detail of the performance."
- Scott McChane, TapeOp

"Polished, solid and hi-fi like are all adjectives that spring to mind. But more importantly, it has everything you need, nothing that you don't and is executed to near perfection."
- Jon Thornton, Resolution

"The m103 let the sonic characteristics of the mics shine through. Even when hammered by a strong level, the m103 didn't change during dynamic peaks. After several hours of testing, I could only conclude that if there's a weak link in my recording chain, it won't be the m103."
- Steven Stone, Vintage Guitar

"With the m103, Grace Design provides an elegant, simple, and beautiful sounding entry into the big leagues for the small studio owner, at a price that's very reasonable for what you're getting. There are other channel strips out there, some offering more features for way less money...but if you're buying with your ears, the m103 is something truly special."
- Mike Metlay, Recording

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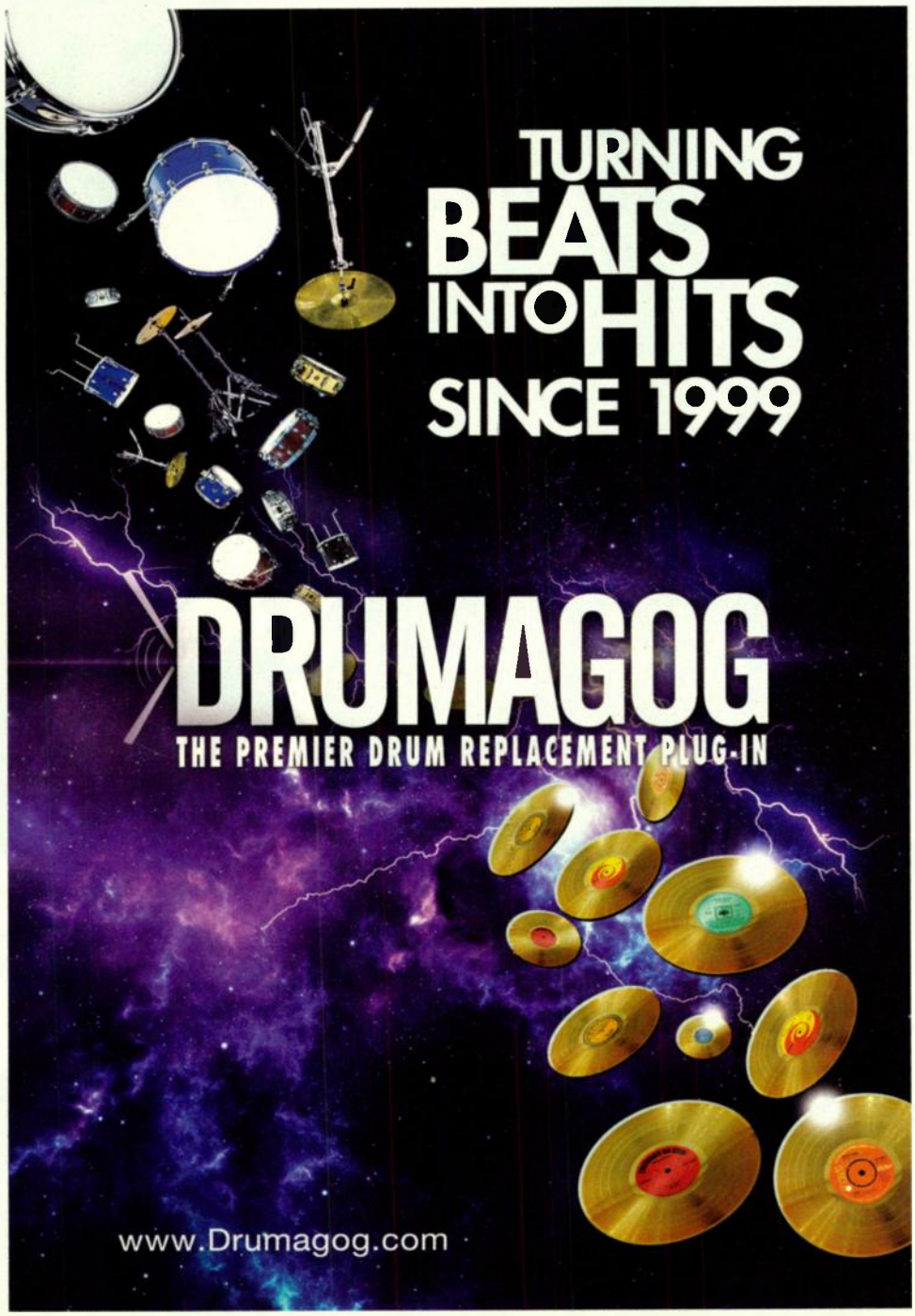
music sales. If the audio for your YouTube video is exactly the same as your song, people can rip the video to an MP3 file and skip buying it. Although some listeners are savvy enough to cut out the extra material, most people will just buy it if you provide the link and a reason why (supporting the artist!).

One easy way to do this is to add a voiceover within the video to encourage them to buy the track. You can also use YouTube's video annotation feature which allows you to make parts of your video linkable—you can add clickable messages to "buy the song now" right in the video. For an example of this feature, see The Gregory Brothers' incredibly popular "Bed Intruder Song" at http://bit.ly/1bgq8yH.

3. Sign up for ContentID. YouTube allows you, as a content creator, to make advertising revenue when other people use your copyrighted video or audio material in their videos. YouTube created this so the original owner can get compensated when your videos are mirrored on other channels or if your copyrighted material is used in other people's videos. To ensure you are compensated, participate in ContentID (youtube.com/t/contentid). Just upload all of your video and audio content (even for songs that don't have videos—remember other people might use your songs in their videos), and choose the advertising options.



4. Become a YouTube Partner. Sign up to be a YouTube Partner (youtube.com/yt/partners/). If you're accepted, you'll be eligible to personalize your channel pages, add links to music and merch stores on your channel page, post longer videos, and collect advertising revenue from your viewers. The advertising is very flexible, allowing you to add pop-up ads or video commercials that roll before your video. Be smart about which of these options you choose—no one wants to watch a thirty-second ad for a one-minute video—but if done right, it's a solid way to make income out of your video views.

5. Go direct to sponsors. If you have a popular channel, don't forget that you can go directly to sponsors looking for exposure. Product placements and co-branded ads are within your reach if you have a reasonably sized audience. For example, once one of his videos went viral, the dancer Marquese Scott (youtube.com/user/WHZGUD2) started to make ads with Pepsi, Peugeot, and others. Your subscriber count is a compelling reason to sponsor you to get exposure for products.

Because YouTube is global, you never know when a video that you upload could go viral and reach the entire world. And, don't forget that with ContentID you can still collect revenue even if you're not the one that made the video. One of the biggest YouTube hits, Nyan Cat (youtube.com/watch?v=QH2-TGUlwu4), had video from one source and audio from another. It's now at more than 100 million views (see Figure 1). The next one to hit this mark might have one of your songs. ■

Randy Chertkow and Jason Feehan are authors of The Indie Band Survival Guide *(St. Martin's Griffin), now in its second edition.*

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MIDI Essentials

Getting back to the basics

BY LEN SASSO

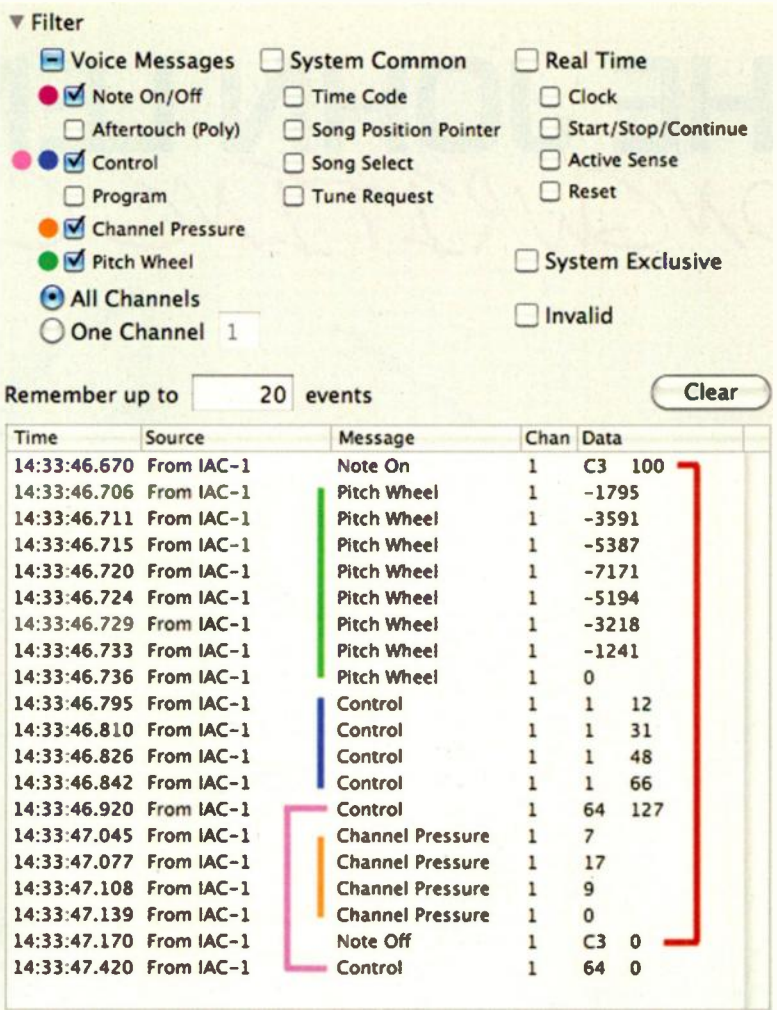


Fig. 1. MIDI Monitor lets you select which messages to view and then displays them in real time. Here, the first and next-to-last messages (red) play and release MIDI note C3. The negative-value Pitch Wheel messages (green) bend the pitch down. The blue Control messages show Mod Wheel activity (CC1), and the pink ones show sustain pedal down and up (CC64).

FOR NEARLY 30 years, MIDI has been the communication standard between music hardware and software. To celebrate MIDI's anniversary, here's a refresher on everything you need to know to make the most of MIDI communication between your hardware controllers (keyboards, knob-and-button boxes, and so on) and your DAWs and software instruments.

A quick look through the MIDI specification reveals a bewildering array of messages, including two systems for syncing devices (MIDI Time Code and MIDI Clock) and an open-ended protocol called System Exclusive for programming and controlling the inner workings of hardware and software devices. But for control-surface-to-computer communication, you really only need to be familiar with six types of MIDI Voice messages: Note, Mono, and Poly Pressure (a.k.a. Aftertouch), Pitch Bend, Control Change, and Program Change.

Although most DAWs provide some form of MIDI monitoring, nothing beats a standalone monitoring application for tracking down MIDI problems. MIDI Monitor on the Mac (snoize.com) and MIDI-Ox for the PC (midiox.com) are excellent free ones (see Figure 1).

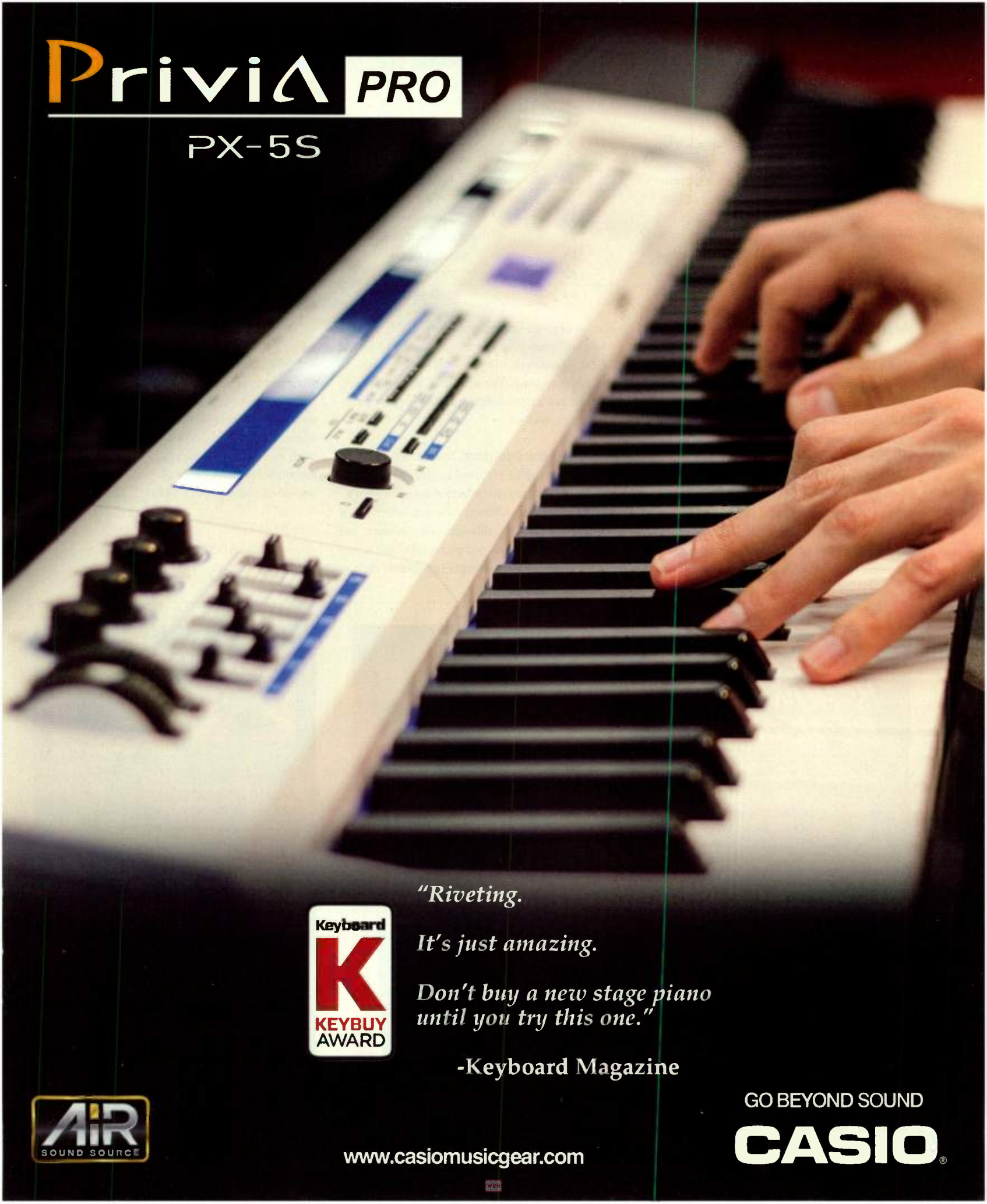
Common Ground Four of these six messages contain three elements: an identifier and two data values. The two exceptions, Mono Pressure and Program Change, have only one data value. The identifier indicates the type of message being sent and which of the 16 possible MIDI channels it is targeting. You can configure most software to receive on all channels (called Omni mode) or on only a specific channel. Each of the two data byte values range from 0 to 127 (128 increments). In some cases they have different meanings such as note number and note velocity, whereas in other cases they combine to offer a greater range (16,384 increments) of a single parameter such as Pitch Bend.

Depending on your purpose, the MIDI channel may or may not be important. If you have several MIDI keyboards and control surfaces connected to your computer, and you want to use them to play different software instruments, assigning them to different MIDI channels is a good way to go. You can still have a particular software instrument respond to all devices by setting it to receive on all channels.

Take Note Note messages are the bread and butter of MIDI; without notes, what's the point? The first data value in a Note message specifies the note number—the 128 note numbers cover 10 octaves plus a perfect fifth. Most keyboards offer both octave and semitone shift buttons, but with no shift, playing Middle *C* sends note number 60. Most monitors display note number 60 as C3 by default, but offer the preference of showing it as C4.

The second data value specifies note Velocity—a measure of how fast the key is descending. That's a good proxy for the hammer force, and therefore volume, on an acoustic keyboard instrument, but in software, you can assign Velocity to control just about anything—envelope attack time or filter cutoff, for example. Releasing a note usually results in a Note message with Velocity 0, but MIDI provides for separate Note On and Note Off messages, both offering the full Velocity range. At the receiving end, devices that don't implement that system simply treat all Note Off messages as Note On messages with Velocity 0.

Bend Under Pressure Mono and Poly Pressure messages are generated by pressing a key after it has bottomed out. The difference is that pressure on any key generates the same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Mono Pressure messages, whereas each key generates its own Poly Pressure messages. Obviously Poly Pressure involves a lot more data, and few keyboards implement it, but even Mono Pressure can get data intensive. Fortunately, most keyboards let you turn it off.

Pitch Bend is also data-intensive, owing to its large range and need for small steps to make smooth bends. Its 16,384-step range is interpreted as half negative (bend down) and half positive (bend up).

Take Control Control Change (CC) messages have the most wide-ranging applications. Although there was an effort in the original MIDI specification and thereafter to standardize their meanings, you can use any CC message for any purpose when using hardware to control a DAW or software instrument. A few conventions, shown in the accompanying table, are almost always followed, however (see Figure 2).

The paramater that each CC message actually controls is either preconfigured in the receiving software or is user-assigned by means of some implementation of MIDI Learn. Most software now has robust and easy-to-use MIDI Learn capability as well as extensive default mappings. For example, Propellerhead Reason has a preconfigured mapping for each of its rack devices.

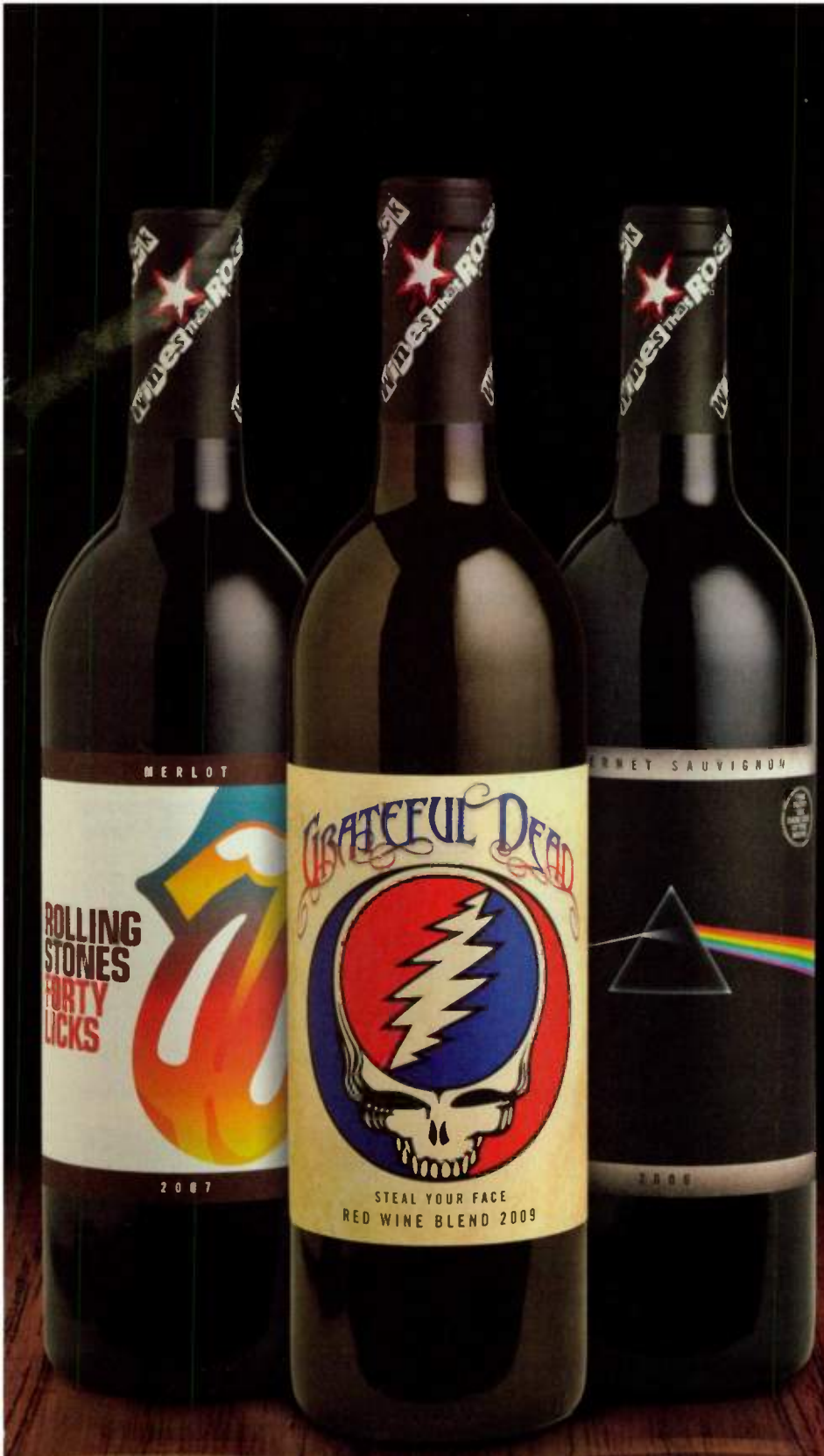
CC#	Intended Use
0	Program Bank (MSB)
1	Modulation Wheel
2	Breath Controller
4	Foot Pedal
7	Main Volume
8	Balance
10	Pan
11	Expression
32	Program Bank (LSB)
64	Sustain Pedal
67	Soft Pedal
69	Footswitch

Fig. 2. It's best to stick with the described meaning for the CC numbers shown here. For controlling a DAW or software instrument from a hardware controller, you can usually use the remainder of the CC numbers as you see fit.

Get With the Program Notice that CC numbers 0 and 32 are used to select program banks. Actual program selection is made with a different Program Change message, which has a single data value. So, although you can select only 128 different programs, you potentially have access to 16,384 banks containing 128 programs each.

One last thing to keep in mind is that many software instruments don't support Program Change messages, instead offering their own program browsers. Among those that do support Program Change messages, some also adhere to the General MIDI specification, which dictates what sound goes with each program number. Typically these are no-frills synths intended for sketching and standardized playback of MIDI files. ■

Len Sasso writes about electronic music technology. You can hear some of his music at swiftkick.com.



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Steinberg Cubase 7

Set up multichannel VST instruments

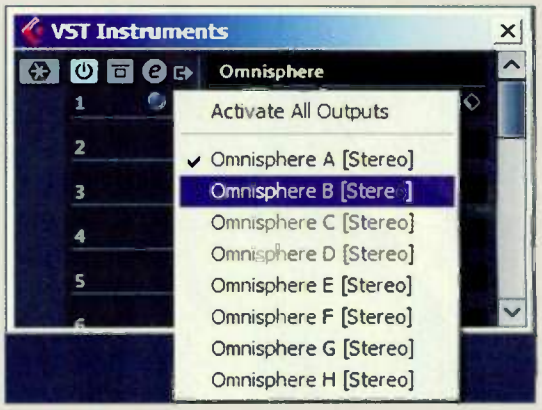
BY JIM AIKIN

OBJECTIVE

Use a multitimbral, multichannel VST instrument in Cubase.

BACKGROUND

Cubase gives you two ways to instantiate VST instruments. If the instrument has only one stereo audio output, or if it has multiple outputs but you don't plan to use the extra outputs, you can create the instrument using the Project menu's convenient Add Track > Instrument selection. But if you need to use the extra audio outputs for separate sounds, or if the instrument can respond on several MIDI channels at once and you need to use this feature, an Instrument Track won't do the job. Follow these steps to set up your instrument.



Step 1 Open the VST Instruments panel using the F11 key. Click in a right-side black box and choose the VST instrument you want to use from the pop-up menu.

Step 2 Click on the tiny gray rectangle to the right of the circular 'e' button to activate the audio outputs that you need from the pop-up menu. This will automatically create mixer channels and VST automation tracks for the new outputs.

Step 3 From the Project Menu, use Add Track to add a new MIDI track for each of the multitimbral slots in the instrument that you plan to use.

Step 4 Use the 'e' button in the VST Instruments window to open the instrument's panel. Choose presets, and assign each preset to an audio output using whatever methods your instrument provides. The mixer strips in Spectrasonics Omnisphere (shown here) have an output selector near the left end.

Step 5 Use F3 to open the Cubase Mixer. Rename the outputs by double-clicking on the names, and add insert FX or other adjustments as needed.

TIPS

■ Step 1: With some VST instruments, such as a percussion sample player, you may need multiple MIDI tracks, but not multiple audio outputs. In this case, you don't need to use the method discussed here. Within an Instrument Track, whose VST instrument is self-contained, you can add multiple track lanes and record simultaneous parts into the lanes.

■ Step 3: Cubase will most likely give each new MIDI track its own MIDI channel. If the main track for the VST instrument is selected when you perform this step, the MIDI track outputs should automatically be assigned to the VST instrument. Even so, after creating the MIDI tracks you should check to make sure they're assigned to the channels you want to use, and that the track's MIDI output is set to the VST instrument.

■ Step 5: Renaming the Mixer channels will also rename the VST automation tracks in the Project window, but it won't rename the MIDI tracks. Setting up matching track names will help you avoid confusion as your project becomes complex.

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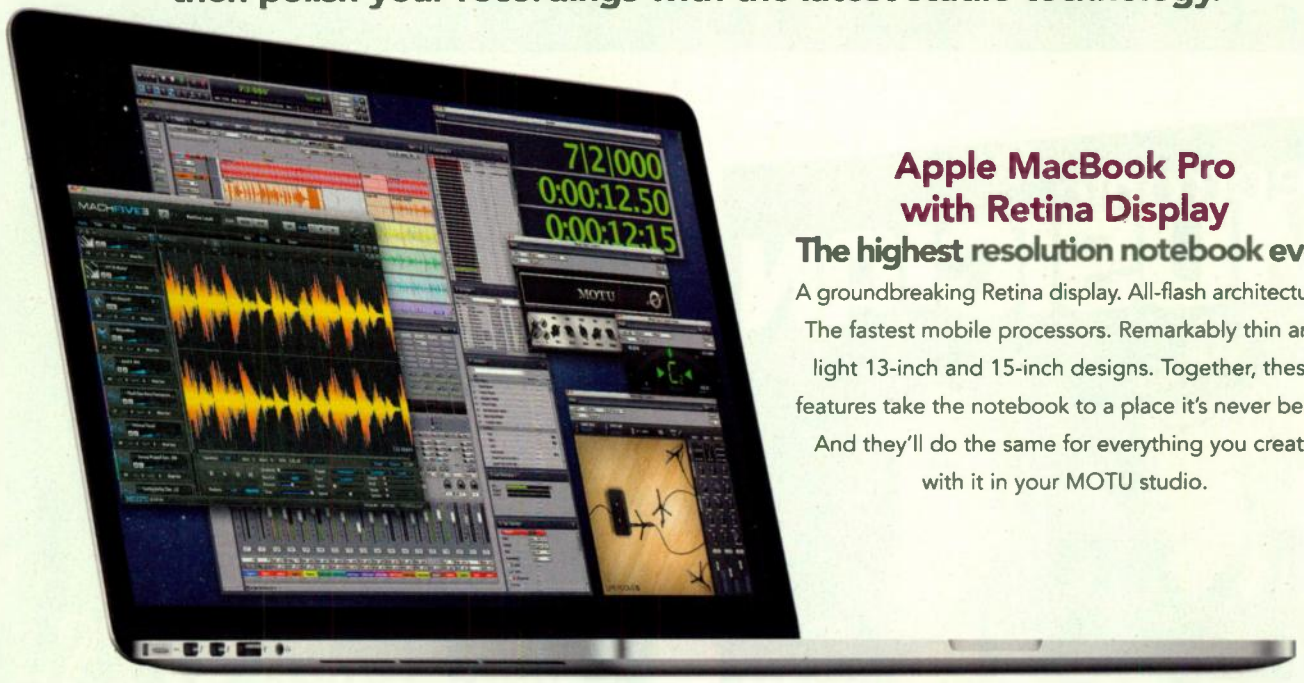

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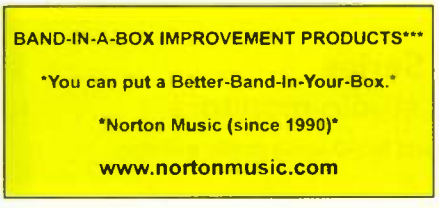

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BY CRAIG ANDERTON

Microwaving: Perform at your own risk.

1

Microwave awesomeness.
Ever put a CD in a microwave oven on high for five seconds? Well, *don't!* It could damage the oven and cause serious safety issues. So just take my word for it: It's awesome.

2

Roofing tiles.
I know someone who successfully re-tiled a roof using the CDs that AOL sent out every 2.756 minutes back in the '90s, and it's still around today. The roof, I mean.

3

Personal defense.
The bad guy is coming toward you! Quick—whip out your CD, and reflect light off it into your attacker's eyes. While he's temporarily blinded, make your escape! Well, unless it's night. Or the sun isn't behind him. But in that case, he still might die from laughter from someone trying to stop him with a CD.

4

Superlative cat toy.
A CD makes a simply *marvelous* cat toy. Then again, I can't think of anything that doesn't make a marvelous cat toy. Except maybe for raccoons and swimming pools, but that's about it.

5

Listen to music.
I've been told you can download CDs from the Internet! But when I do, all that happens is files get written to my hard drive. Maybe I need a 3D printer for this to work properly.

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noun

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