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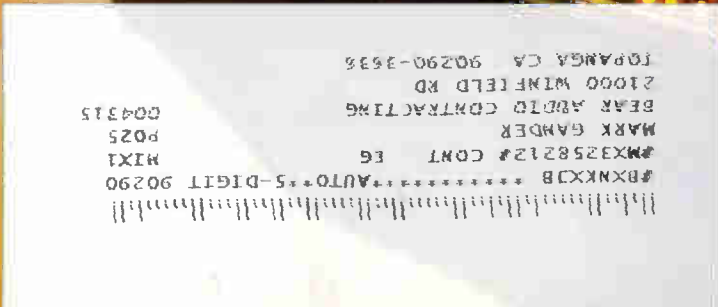
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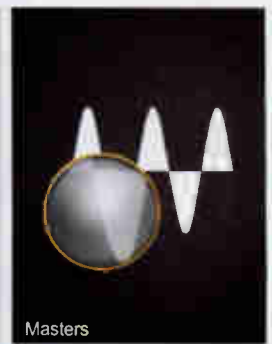
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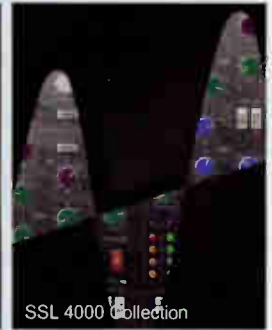
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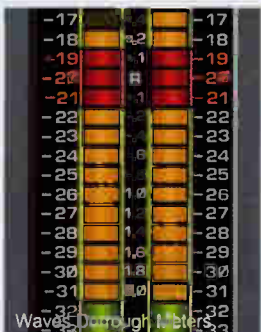
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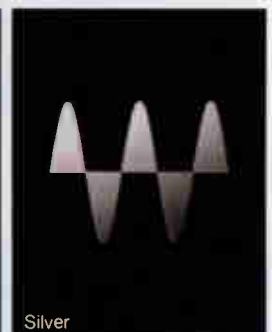
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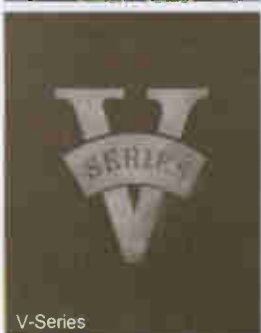
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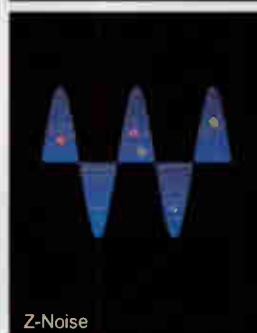
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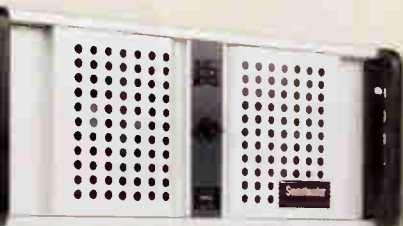


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On the Cover: Charleston Sound, situated in Mount Pleasant, S.C., is Jeff Hodges' new high-end, musician-focused recording studio, centered around a 32-channel API 1608 console and Dynaudio surround monitoring. Photo: Ed Freeman. Inset: Marina Chavez.



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World Radio History

► Sound and Music, Live and Recorded

I just got back from Bonnaroo, and though I had told myself going in that I wasn't going to write about the festival portion, there was a moment backstage on Sunday, in the middle of the fourth long day of music, when I figured out what makes this event so special. I was standing there with my daughter, talking to Sean O'Connell, CEO of Music Allies, when he learned she had gone to Coachella but this was her first Bonnaroo. "What's the biggest difference between the two?" he asked her. And without any prompting from her dad, she fired back, "The sound! The sound here is amazing!"

Her statement certainly wasn't meant to denigrate the folks who put on Coachella; it's just that Bonnaroo, the granddaddy of all festivals, has kicked the whole live experience up a notch. People talked about it in the crowd, promoters talked about it backstage, even Jon Pareles, writing in Monday's *New York Times*, mentioned the amazing live sound. We who live and work inside the industry can sometimes become jaded, assuming that the advances we read about, and hear each day, are known to everybody. They're not. But when a good system, pumping out stellar music from real artists, is deployed correctly, people take notice.

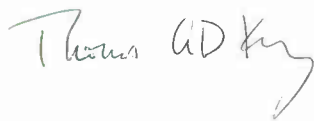
Hadden Hipsley of Lambda Productions is production manager for Phish and pulls double-duty as production manager on Bonnaroo, hiring the sound companies for the five principal stages. The main stage, where Phish played two nights and Bruce Springsteen headlined Saturday, was essentially the same d&b audiotechnik system that Phish (system setup by Jordan Zur and mix by Garry Brown; read about the tour in *Mix's* September issue) is carrying on their massive summer tour, provided by Eighth Day Sound out of Ohio. Hipsley says that when they tested the system on Wednesday, they were reaching 850 feet to the back wall and maintaining clarity without even firing up the delays. The subs, some of which were flown, were put on a curve across the front of the stage and evenly dispersed, providing a tight and punchy low end for Wilco's groove, Erykah Badu's funk and, of course, Mike Gordon of Phish's locked-in rhythm.

Crossroads Audio outfitted the Which Stage with a tight and punchy Meyer Sound system, perhaps best dialed in for the screaming Mars Volta set and one of my surprise hits of the show, Band of Horses.

Thunder Audio handled two of the remaining three stages under the tents with a Meyer Sound MILO system: the This Tent, where everybody was raving about The Decemberists, and The Other Tent, which featured everything from Amadou & Mariam to Del McCoury Band to Ben Harper and the Relentless 7.

Brown Note handled audio for That Tent with a smaller d&b system, where fans were raving about Phoenix's performance and Girl Talk's mania, and the over-30 crowd was treated to Elvis Costello and Allen Toussaint, among many others.

Beyond the sound on site, Bonnaroo is truly special, a microcosm of the new wave in community and content that defines the modern music industry. But it's about the *music* community, not individual artist communities. It's about content: live, on the Web through AT&T, over the radio through Music Allies, in hi-def through Fuse. There's merch and Twitter and Facebook scheduling. But most of all, there's great music. And great sound.



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cakewalk
by Roland

High-End Recording at Charleston Sound

When longtime engineer/studio owner Jeff Hodges decided to move his family and business from Atlanta, Ga., to the Charleston, S.C., area, he did so with the idea of creating a high-end, professional studio environment within the reach of local acts. That commitment has kept the space busy with established artists and emerging talent eager to take the next step.

"We wanted to create a world-class studio that was accessible to all types of musicians, bands, artists, producers and engineers," Hodges says. "A lot of studio owners have had to change their business model, and I knew I had to do this right. So I did my research and hired Wes [Lachot of Wes Lachot Design], and we found a brand-new business park with a suite that included a small office up-front and a warehouse in back with 20-foot ceilings, so we had a huge, empty box to build in."

The size of the building gave Lachot the latitude to place duct work and other infrastructure up high and still create large, airy recording spaces with good ceiling height. Hodges' Charleston Sound Studios (www.charleston-sound.com) went online in February and includes a large live room (24x22 with 14-foot ceilings) and three separate isolation rooms of varying sizes. Lachot knew that Hodges was looking for a scalable design, so, he says, "We pulled out all the stops in terms of the control room being a well-tuned room, but one where we did not waste any money. On the sound isolation, we took it right to where it needed to be. For every wall, we would decide: This one gets four layers of drywall, this one gets three, this one gets two. I'm very proud of where we ended up acoustically and budget-wise."

Lachot's design firm works closely with RPG to spec and customize acoustical treatments for their studio projects. "The control room is a reflection-free room, and it uses RPG diffusion in the rear," Lachot explains. "For the side-wall treatment, we used a pattern that RPG calls Difforsorption—a combination of diffusion and absorption. The pattern on the walls that you see in the cover photo may look random, but it's a mathematical pattern that creates nice, even diffusion, as well as absorption."

Lachot says this treatment was crucial in creating the large sweet spot in the control room



Jeff Hodges at the API 1608 console in the Charleston Sound control room

that extends from the engineer's position back to the client-listening position on the couch at the rear of the room. "That center area on the couch is nearly as flat as the engineer's position, which is really hard to achieve," Lachot says. "That's a frontier we've been trying to push toward in our last few room designs, because when the client has suggestions, you want to know that what they're hearing is accurate."

Lachot was also an active participant in specifying the centerpiece of the control room, Hodges' new 32-channel API 1608 analog console. "I also personally own one in my own studio," Lachot says. "The sound of API preamps and equalizers are second to none. In my previous life, as an engineer, I never used EQ very much because I was concerned that if I used too much, it would have a degrading effect on the sound. I was conservative with it and tried to use just the right mic and mic placement rather than EQ, and that's still a good policy. But when I used an API EQ for the first time, I was able to turn it up 14 dB plus, at some midrange frequency, and never heard any degrading of the sound."

Hodges says he also appreciates the workflow with the 1608. "On my timelines, it's one-to-one to Pro Tools," he says, "because we have 32 ins and outs in our Pro Tools HD Accel system. Of course, we can configure it any way we want, but it's great that this is the way it comes right

up when we're recording. It's also got a great mic pre, great EQ—the 500 Series EQ is right there in-line—and it's got all the echo sends you could want. I have a lot of outboard gear, so I just dial those things in on the console; no plug-ins. I don't miss tweaking plug-ins at all."

Since settling into his new digs, Hodges—who also owns a record label, 10T Records—has reached out to the local music community by sponsoring a CD comprising local rock, pop and blues artists, which presently has the working title *Charleston Sound Presents: Homegrown*. "We're recording 12 local artists," Hodges says. "They all come in for a day in the studio, on us, to be part of the compilation. The CD will be distributed through about 100 stores locally."

Hodges and his assistant engineer, Joey Cox, have also recorded a number of religious groups, as well as progressive rock music, which is the focus of Hodges' own longtime band, Man on Fire. And, of course, the studio is also a commercial concern, open to freelance engineers and producers who enjoy working in beautiful Charleston. "We moved here because it's a nice lifestyle and a great place to raise a family," Hodges says, "but it's also a major tourist destination with the beaches and historic architecture. It's a great place to visit, and now a good place to record." ■

Barbara Schultz is Mix's copy chief.

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World Radio History

MIX NASHVILLE 2009

If there remains any doubt about the power and influence that analog holds in the recording industry, it was dispelled rather quickly at the second-annual Mix Nashville. From the opening-night party at House of Blues Studios to the closing panel on production for The Raconteurs and Kings of Leon, it was clear that Nashville—a community that embraced digital early and has pioneered hybrid production techniques—remains an analog town at heart.

Mix Nashville, a two-day panel and exhibition event held at the Soundcheck rehearsal facility, kicked off May 18 with a party at the newly rechristened House of Blues Studios Nashville (formerly East Iris Studios) in Berry Hill, hosted by owner Gary Belz, studio manager Mike Paragone, engineer Heather Sturm, chief tech Ted Wheeler and de facto resident engineer Trina Shoemaker. Guests were treated to some fine Memphis grub from Neely's BBQ in the main building, whose centerpiece Studio A, a decidedly analog room, recently hosted sessions with Yusuf Islam and was featured on the cover of *Mix's* May 2009 issue. Guests were also allowed a sneak peek at the brand-spanking-new Pro Tools production house across the street, the first step in an expansion that will soon be followed by the addition of a transplanted Studio D from House of Blues Memphis and a second studio building recently purchased next door.

The event kicked off with a panel dubbed "Little Money, Big Sound," which quickly turned into a discussion of personalizing the mix, which, in turn, translated into analog! Capital A producer/engineer Bil VornDick extolled the virtues of laying down tracks quickly, with musicians playing together in a room, while producers Steve Walsh and Chris Grainger emphasized the importance of production in today's budget-conscious projects.

Next up was the perhaps less-glamorous but every bit as crucial panel on data management, archiving and documentation, featuring resident expert John Spencer of BMS/Chace, along with Russ Johnson, Jim Kaiser and Fred Paragano.

The format changed slightly after that for a songwriter/production panel hosted by RedGorilla and featuring producer Greg Droman with acclaimed songwriter/artist Jen Foster. In one of the more interesting segments, Foster performed a song from her current album on guitar, as she wrote it, then played back the finished product and discussed the production of translating the melody to piano and bringing in the



Producer/engineer Vance Powell lowers the needle for vinyl playback (!) of the Grammy-winning Raconteurs' project, *Consolers of the Lonely*. To his right, producer Jacquire King awaits his turn for playback of Kings of Leon's *Only by the Night*. *Mix* editor Tom Kenny, far-left, and *Mix* technical editor Kevin Becka, far-right, look on.

vocal and session players.

Renowned front-of-house mixer and Meyer Sound rep Buford Jones next hosted a rather provocative panel on mixing live with prerecorded tracks in concert situations, bringing in colleagues Blake Suib (Britney Spears), Jason Spence, Tom Davis and Stan "Quack" Dacus, who told an amusing anecdote about meeting his doppelganger, Robert Plant.

The Day One panel series concluded with the hottest producer in town, Dann Huff, and the owner of the hottest studio in town, John McBride, discussing the making of Martina McBride's Number One—debuting *Shine*. It was a project they described as a blend of Martina McBride's roots in traditional country with a nod to Nashville's recent embrace of pop-style production. The project was steeped in an analog recording chain, starting with the vintage 1930s Bottle mic that the singer favors.

Day Two kicked off with a panel on hybrid mixing techniques, with engineers F. Reid Shippen, Shane Wilson, Chuck Ainlay and Terry Christian offering insights into combo analog/digital productions. That was followed by a hot topic in the live sound world: "Wireless Issues In the Digital Changeover." Representatives from Shure, Sennheiser, Audio-Technica and Professional Wireless were on hand to explain the current state of frequency allocation and offer workarounds to avoid drop-outs in the immediate future.

Prism Sound and SADiE next hosted an hour-long session on mastering, with Nashville lumi-

naries Tommy Dorsey, Glenn Meadows, Andrew Mendelson and Hank Williams. The audience was offered advice on what a mastering engineer looks for and what a mix engineer might do to properly prepare for a session.

And because it's Nashville, the penultimate panel was all about tracking live, hosted by Russ Long and including VornDick, Steve Bashir, Richard McLaurin and Csaba Petocz. It can't be said enough: The magic of musicians playing in a room just can't be beat.

The event closed with "Anatomy of a Hit" really being the "Anatomy of Two Hits—Analog Hits." Producer/engineers Vance Powell (Raconteurs) and Jacquire King (Kings of Leon) pulled out the vinyl to play back their critically acclaimed projects. As Powell explained, these were analog projects front to back, so why not bring out the vinyl? The event concluded with a performance by the very talented Pico Vs. Island Trees.

Throughout the two days, attendees were also treated to Master Classes in Pro Tools taught by Kurt Howell of Marshall Graphics Systems and Fairlight Xynergi taught by Cliff Jones. Exhibition sponsors included Cakewalk by Roland, GC Pro, Korg, Fairlight, Meyer Sound, Roland, Astound-Sound, SAE Institute, Ultimate Ears, Prism Sound/SADiE, AFTRA, NSAI, Mozes, *American Songwriter*, Marshall Graphics Systems, RedGorilla Music Fest, Nashville Muse, Sound Construction & Supply and *Next Big Nashville*.

Videos for the panel series can be found online at www.mixonline.com/ms/nashville. ■

seen & heard

"Recent advances in areas like technology have opened many new doors for music creators. But we also face a host of daunting challenges relative to how the act of creating music is both fairly valued and compensated."

—ASCAP president/chairman Paul Williams on what he will tackle in his new role



onthemove

Mike Adams

Sensaphonics director of touring sales

Main responsibilities: provide service and support to the touring industry.

Previous Lives:

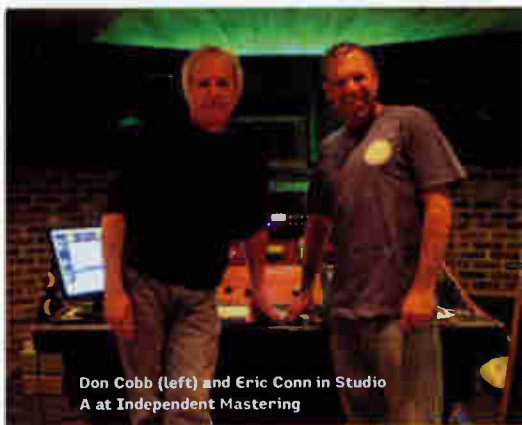
- 1995-present: Clair Showco/Clair Global
- 1980s: Shubert Systems Group

The one thing I'll miss from my touring days is...working with and sharing close quarters with some of the finest people I'll ever know—the brotherhood/sisterhood.

The most interesting thing about in-ear monitors is...not one person hears exactly the same as the next. It's endless and mind-blowing, and I love it!

Currently in my iPod...David Bowie Jeff Buckley, Ray LaMontagne, Donald Fagen, Tom Petty and Pablo Cruise.

When I'm not in the office, you can find me...hanging with my family, wakeboarding or playing golf.



Don Cobb (left) and Eric Conn in Studio A at Independent Mastering

GIVING BACK

To celebrate Independent Mastering's (Nashville, independentmastering.com) eight-year run, partners Eric Conn and Don Cobb are giving back to the community with a mastering package giveaway to randomly selected indie artists, one per month. The giveaway begins with the first drawing on July 31, with one every month after that through December 31—a total of six mastering packages. Info and rules can be found at independentmastering.com and finding the Giveaway link.

Industry News

Michel Marrano joins Blazing Music+Sound (Raleigh, NC) as a sound engineer, working primarily on mixing and sound design for broadcast TV work...Studer's (Potters Bar, UK) executive VP of sales, Bruno Hochstrasser, will retire at the end of this year; he will be replaced by Adrian Curtis...U.S. national sales manager for Focusrite and Novation (Bucks, UK) prod-

ucts is Ralph Goldheim...Keith Klawitter has been appointed to Western regional sales for Radian Audio (Orange, CA)...Gepco (Des Plaines, IL) news: Glen Powers, director of sales; and Ken Bernd and Rick Fernandez, branch managers of the Central/International and Western regions, respectively...Patrick Steading (North and South Carolinas, Georgia) and

Scott Haas (Alabama, Mississippi and Tennessee) join Sennheiser's (Old Lyme, CN) sales team...Distribution deals: Mercenary Audio (Foxboro, MA) is carrying Symetrix's (Mountlake Terrace, WA) Lucid brand; Mojave Audio (Burbank, CA) selected Audio Agent for metropolitan New

York/Tri-State region, Tennessee, Georgia, Florida, Texas, California, Oregon and Washington; and Lauten Audio (Santa Clara, CA) named Media Integration as sole distributor in Japan.



Michel Marrano



Patrick Steading



Ralph Goldheim

SESSIONS

Playback Recording—Same Name, New Studio

Playback (www.playbackrecording.com) has been the name of engineer Tucker Bodine's studio since he started flying solo in Manhattan four years ago. Building on his years of experience at top New York City facilities such as Sony Music and Tonic Post, Bodine opened Playback to support his freelance business that he enjoyed with national acts such as rappers Run-DMC, and Smiff & Wessun, and reggae artists Half Pint and Bushman.

"Things were going well," Bodine recalls. "But it was a smaller studio and I got to the point where I needed a bigger facility. That's when I decided—looking at the state of the industry—to move to the West Coast."

Bodine sold most of his gear to help subsidize the new Playback Recording Studio, now in Santa Barbara, Calif. Bodine worked with Chris Pelonis

of Pelonis Design and Acoustics to create a singular studio design where five isolated spaces are arranged around the control room in a horseshoe configuration. This arrangement allows for sightlines between the control room and every musician, and between all of the players.

"All [of the five iso rooms] have different tonal characteristics," Bodine says. "We did a vocal booth that was super-dead with custom fabrics. We built a 1,000-square-foot live room with retractable curtains, so it has variable acoustics. Also in the live room, for the back bass trap, we didn't just put perforated wood up; we put up perforated copper that is patina'd so it has a vibe to it."

"Another room we call the drum room has new TopAkustik treatments from RPG, which makes the room nice and bright. This room also has a Flutter Free wave on the back wall, and behind that lights react to the sound. Then there's the echo chamber where it's

all broken-mosaic mirrors. It has a great natural delay for tracking brass or vocals.

Bodine's wife, Stephanie Bodine, is an interior designer, and she helped define the aesthetic of the space. "We wanted an acoustically perfect studio with a creative vibe to work in," Tucker Bodine says.

Equipment-wise, Bodine chose an SSL AWS 900+ console because he appreciates its sound and analog/digital flexibility. There is also an installed Pelonis Signature Series surround monitoring system (PSS215A far-fields and PSS110 5.1 surrounds), and Bodine's collection of new and vintage outboard mic pre's and processing gear.

Since the facility went online last August, Bodine has completed post work for feature film *Creature of Darkness*; voice-over work with actor Michael Keaton, Stacy Peralta of Powell Peralta Skateboards and others; and he's recorded the Mad Caddies and numerous other West Coast bands.

—Barbara Schultz



PHOTOS: ED CORNER

The dramatic glass-mosaic echo chamber has sight lines to the control room and other isolated spaces. Inset: West Coast transplant Tucker Bodine in his new control room.

project studio Terry Silverlight



PHOTOS: DAN BERANEK

Terry Silverlight records drums in his home studio.

From an early age, New York-based drummer/composer/producer Terry Silverlight (www.terrysilverlight.com) has maintained a self-taught, D.I.Y. ethic for creating complete musical works. "I started writing songs when I was about 5 years old," he recalls, "but at age 11, I began recording them onto a mono reel-to-reel tape recorder."

Silverlight began his recording career at age 14 as a session drummer for his brother, jazz-fusion keyboardist Barry Miles, and went on to play drums for top pop and jazz stars, as well as compose for major movies, jingles, TV shows and recording artists. Silverlight's latest solo CD is *Diamond in the Riff*, featuring his jazz-based compositions and guest musicians including Barry Miles, Will Lee, David Mann, Aaron Heick, Tabitha Fair and Lew Soloff.

"My composing process has always included the elements of recording techniques and production as equal partners," Silverlight explains. "I naturally see all of them as one integral element. One thing inspires the next." Owing to his roots in 4-track recording and holistic approach, Silverlight is known among his peers and clients for realizing high-quality, full-fledged productions using only a minimal amount of gear.

Since 1997, Silverlight has worked in a studio in the 2,000-square-foot basement of his townhouse in Tarrytown, N.Y. "All

⚡ Tarquin's 'Fretworx' Benefits Firefighters



Composer/engineer Brian Tarquin just received his sixth Day-time Emmy Award nomination for his guitar-based scoring of ABC soap opera *All My Children*, and he's

proud of that. But he's even more proud of *Fretworx*, a collection of original tracks that Tarquin composed, produced and engineered in his home-based Jungle Room Studios (New York City).

"This project was conceived and done to benefit Friends of the Firefighters. In the news now, you see firefighters, NYPD, the first responders coming down with cancer and dying from the asbestos from what happened more than eight years ago [on 9/11]. I tried to make every track reminiscent of

something in Manhattan."

In a sense, this is Tarquin's score for the city where he was born and raised, and where he now works after moving back from L.A. five years ago. He wrote each track with a specific guitarist in mind, and laid down drums, bass and keyboards live in his studio before adding his own guitar melody to each finished track. After that, he brought in the big guitars.

"Some of the guitarists, like Frank Gambale, couldn't come to my studio. He's on the West Coast, so he sent me his part and I transferred everything into Pro Tools. With Steve Morse, the same thing. But mostly they came here and we laid everything down to [Ampex 1200 2-inch] analog tape."

Tarquin miked guitar cabs using a combination of sources that he could later blend or select for the final track: "I miked everything with a [Beyer] M160 fairly close, off-axis, and then I'd take a Neumann 149 and put that five to six feet back to get the room. I might also put a [Shure] SM57 and a [Sennheiser] 421 together up close."

Find more about Jungle Room Studios at mixonline.com.

—Barbara Schultz



Brian Tarquin in Jungle Room Studios

Track Sheet ⚡

Instrument tracks on Iggy Pop's jazz-influenced album *Preliminaires* were produced and recorded by producer/bassist Hal Cragin in his Pro Tools HD-based

studio, Massasoit Sound (NYC). Cragin collaborated long-distance with Pop, who added his vocals at Hit Factory Criteria (Miami). "King of the Dogs" features a raunchy, New Orleans-style horn section: "The king of dogs track, which started the collaboration, was a rough guitar piece, but we both talked about the Louis Armstrong idea beforehand." Cragin says: "I tracked the horns in my living room; it came out very authentic—kind of the old 'rent party' idea of the 30s... ZZ Top's appearance on the VH1 series *Storytellers* was recorded and mixed in Music Mix Mobile's (Frenchtown, NJ) M3 truck by M3 partner Jay Vicari and band engineer Toby Francis...At Clinton Recording (NYC), Chris Parker recorded



Iggy Pop producer Hal Cragin in Massasoit Sound

and mixed drums with chief engineer Ed Rak and assistant Bryan Smith... Martin Gore and Andrew Fletcher of Depeche Mode recorded an interview at Dubway (NYC) with NPR's David Dye for World Café. Keith Riglin and Chris Abell engineered...R.E.M. is recording demos at Jackpot Recording (Portland) with engineer Tucker Martine, who says the sessions are for an album to be produced later by Jackknife Lee.

Send "Sessions" news to bschultz@mixonline.com.



Music Mix Mobile engineer Jay Vicari (left) and ZZ Top engineer Toby Francis

by Matt Gallagher

aspects of the recording process are done right here, including vocals, instrument overdubs and post work," he says. "I do a fair amount of drum tracking for other people's projects. The music that I've been writing for film and TV comes from a few music publishers.

"My setup allows me to switch hats quickly," he notes. Silverlight uses a MacBook Pro, MOTU 2408 MkII and Express XT, Tascam DM-24 digital mixer, Digital Performer, MOTU's MachFive virtual sampler and a Roland JV-1080 synth module. "Mostly I rely on Digital Performer's plugs and the MachFive stock samples, along with my own samples and sample CDs. I have a template for the drums in Performer with various plug-ins. The same goes with my DM-24: I have a snapshot of my drum settings, so within 15 minutes I can start recording." For drum miking, Silverlight uses SM57s for toms and snare, Oktava MK319s for overheads and an AKG D-112 for bass drum. For vocals, he relies on an Audio-Technica AT4050. "I like to mix [using] Harman Kardon speakers with a subwoofer that Apple sells, Sony studio headphones and my car stereo," he adds.

Silverlight often collaborates remotely. "A client will send me a stereo MP3 mix via e-mail, which I sync into my sequence, record drums on separate tracks, and then send AIFF or WAV files back via an FTP site or the



like. On some songs for film and TV, I'll send a singer a stereo track, they'll record vocals in their home studio and send me back their tracks; I sync it to my track, then edit, mix and master."

Is noise an issue with his neighbors? "Not at all," Silverlight answers. "For the most part, I mix and write at low volume. I occasionally crank the volume to see if there are EQ issues that I couldn't identify at lower levels. When I need to record a drum track, I just go and see what cars are parked outside." III

NEW YORK Metro

by David Weiss

From sequencer to sync license. It's a tricky route, but smart producers and artists in New York City who ride the subway every day understand that there just might be a music supervisor sitting next to you on the A Train. If you can get some of your tracks in his or her hands, you might have the makings of a solid business plan.

By keeping his eyes and ears open, producer/engineer Elie Maman (www.eliemaman.com) was able to pull off just such a feat recently. Although he's only 20, Maman has already been making his mark producing rock, pop, hip-hop and more, including a featured



song for MTV's *The Lowdown on Rob and Big*, and a slew of cable commercials and promos.

Three months before a driving hip-hop track that he produced was featured on the MTV show *Rob Dyrdek's Fantasy Factory*, Maman's song "You Already Know" was barely an idea. "I had a Kanye West song referenced in mind—that vibe," explains Maman. "A lot of hip-hop kicks and snares, 32nd-note hi-hats, mid-tempo in the 90s. I put it together with the typical pop arrangement: intro, verse, chorus, verse, chorus, bridge, chorus, outro."

Maman assembled the initial arrangement—a darkly driving song packing a big beat and athletic hooks—at his Brooklyn home studio using Logic, Logic and nothing *but* Logic. "You can do everything in Logic—recording, mixing, arranging," he explains. "I also master in Logic using the IK Multimedia T-Racks plug-ins, which makes things come out loud and clear."

"For the drums, I used Logic's EXS24 sampler," Maman continues, "performing the beat on a MIDI piano keyboard. A lot of people click the mouse to program drum sounds, but I can't do that. I'm a musician, and as a bassist/guitarist/drummer, I have to *play* something. After I play out the beat, I'll edit it on the piano roll, locking every single note to the grid by hand. Obviously, it's faster to just quantize it, but the way I do it is tighter. It sounds a lot better. For the arpeggios, which are an important part of this song's sound, I used the PoiZone VST synth."

Enter David Rush, a fast-rising rapper signed to Universal Republic Records and introduced to Maman via a mutual friend. Impressed with Maman's past success getting a synchronization placement on

Rob and Big, the New Jersey-based Rush asked if the producer had anything new cooking. He did. Rush listened, pronounced the track to be dope and quickly wrote lyrics and a melody.

"He said, 'I'm wrapping it up,' and we met at Reflex Studios in Piscataway, New Jersey," Maman says. "He and his engineer, Critiq, have been working together for a while, and they're a tight team. We recorded the vocal using an AKG C414 doing a lot of double and triple trackings, plus ad libs. For the choruses, we used Auto-Tune, with a lot of different harmonies—one each of low, medium and high registers—then blended all together. There's a lot going on in the chorus: 32nd notes on the hi-hat, a bunch of arpeggiators, and it just sounds very in-your-face. We recorded the vocal and mixed the song in four hours, as crazy as that sounds. I've never done it so fast."

Riding the momentum, Maman burned the track to disc and shipped it off to his broadcast contacts and got some quick feedback. "I listened to your track. Catchy hook," came the e-mail reply from Ben Hochstein, a freelance music supervisor for MTV's *Fantasy Factory*. And then—nothing. But four months later, in the beginning of April, Maman suddenly got a phone call.

"It was Ben Hochstein," says Maman. "They said, 'We want to use your track. How fast can you have it cleared?' I said, 'The next day.'" As it turned out, "You Already Know" was the perfect background for a scene in *Fantasy Factory* where two of the show's personalities play the song out of a boombox while they dance around on the skate park-like set (view the scene at <http://www.mtv.com/videos/misc/372782/zorro-vs-cole.html#id=1608300>).

As he worked out the deal, Maman also made sure that MTV credited him so that people would know exactly who to call when they heard the tune—a shrewd move that ensured the song would continue to pay dividends long after the first airing. As a result, "Artist: Elie Maman and David Rush. Song: You Already Know" popped up onscreen as the song was broadcast, and the results were off the hook—literally.

"Everyone started Googling me, e-mailing me and MySpacing



Elie Maman at Peter's Planet, New York City

me," Maman says. "Credit and credibility is so important, and I think everyone—artists and producers—should always fight for credit. The bottom line is that connecting with music supervisors is more important than ever. They're the ones who are going to get your songs on TV and commercials, and that's where the money is right now from upfront fees and royalties. They say you're as good as your last record. In this case, you're as good as your last placement." But you already know that. III

Send "Metro" news to david@dwords.com.

Brent Maher sits in the control room of The Blue Room, his recording studio in Nashville's Berry Hill neighborhood. Lots of folks were sitting in lots of Berry Hill control rooms that day, but only one of them could talk about his experience engineering Ike and Tina Turner's version of "Proud Mary."

"I did about two-and-a-half records with them," Maher says. "I loved working with Ike and Tina. For all that must have been going on behind the scenes, none of that was ever brought into the studio. It was extreme high energy and a lot of fun. When Tina was

Aids on it to keep it up and going sometimes, but sonically it rocks. Between that and the updated converters in RADAR, there's a lot of warmth and depth to what we record."

Lately, Maher has produced Wynonna Judd's *Sing: Volume 1* at The Blue Room, and he and Yingling have recorded projects from Johnny Reid (a Platinum-selling country star in Canada who should soon make a mark in the U.S. market) and the inventive Americana artist Kieran Kane.

"On this last record, we captured almost half of Wynonna's vocals live with the band," Maher says. "She really torched them, and it inspired the band at a high level. Those guys would be trying to catch their breath. We just put a Neumann CMV563 on Wy the whole time and let it roll."

Brent Maher (left) with Charles Yingling in The Blue Room

Maher has known Judd since she was a teenager. He discovered The Judds in the 1980s, and his production work helped Naomi and Wynonna Judd become the most popular mother-daughter duo in music history. In doing that, he also helped elevate the acoustic guitar to a lead instrument in country music, a form that had been dominated by electric guitar solos since the 1950s.

"Fashioning The Judds' sound came from working with the girls in their kitchen, with Wy playing acoustic guitar and me playing acoustic guitar and eventually [assistant producer] Don Potter on acoustic guitar," Maher says. "That was so much a part of the magic. I thought, 'How can I make a record that has no electric guitars but that will rock on the radio and catch people's attention?' But then I thought, 'Well, Simon & Garfunkel's "Mrs. Robinson" was one of the most aggressive records on radio and that was acoustic. And then there was the Everly Brothers. And Ricky Skaggs was

doing some of that on country radio. It's more about the arranging and keeping things out of the way, allowing room for a percussive acoustic guitar part to drive a record."

Don Potter played the driving acoustics on Judds hits including "Why Not Me" and "Turn It Loose." Maher used a variety of microphones on Potter's acoustic, including a Neumann U67 and U87, and an AKG 414.

"They all sounded good, and it was probably better not to have the exact same sounds on every song," Maher says.

Among the projects Maher is most excited about at the moment is Shel, an all-sister pop group from Colorado Springs that has already drawn attention from heavies including Eric Clapton. "They're incredibly talented," Maher says. "They have a little Pro Tools outfit at their house where they do basic tracks: mandolin, keyboard, electric bass, violin and vocals. They lay those down and ship them to me, and we do the other stuff here. It's an interesting way to produce. We do things with [Internet video-phone service] Skype, and I've never done anything like that. If they record something that needs work, I can say, through Skype, 'I think we can re-address this.' Ten minutes later, they've re-recorded it and shot it back to us, and we fly it in and go to work. It's a new way of making a record for me, and that's what I live for." III

Send Nashville news to peter@petercoopermusic.com.

recording, she just exploded into the microphone. It was as if she was performing for 10,000 people. I was big into Creedence Clearwater Revival back then, and I remember Ike told the band, 'Let's do "Proud Mary" next.' I said, 'You mean the Creedence "Proud Mary"?' He said, 'Yeah, but we do it a little bit different.' Tina sang and that band broke loose and it was like a religious experience. I tell you, I felt the energy of it."

At The Blue Room, which he purchased in October of 2008 after leasing for several years, Maher and chief engineer/mixer Charles Yingling are quite concerned with energy. The studio is designed for musicians to play together, in real time, in close enough proximity to allow for eye contact and body language, yet far enough away from each other to control undue sonic bleed.

"We have two isolation areas, and we have no problem with putting amps in halls and bathrooms," Maher says. "We also have a Pro Tools room with its own vocal and recording area, and it's tied in with everything else, so we can put singers there or horns there. When tied together, you can work as many as 10 people here, but 70 percent of what we do is between four to six players, and that's comfortable. The outboard gear we have is very basic, but the console is very, very solid."

The console in question is a Trident TSM, built in 1974. "Anything percussive that comes through the board is very punchy, and it's got a cool little top end," Maher says. "Charles has to keep Band-



PHOTO: PETER COOPER

L.A. Grapevine

by Bud Scoppa

During the past two decades, the words “studio bau:ton” have become synonymous with a readily identifiable style of recording studio design: airy, functional, welcoming and subtly luxuriant. In making the rounds of SoCal studios, I’ve come across a number of striking spaces that epitomize the studio bau:ton aesthetic, including Hollywood’s Record Plant and Levels Post, Santa Monica’s Art Institute L.A. and Culver City’s NPR Studios. When I dropped by a Neve bash at Fox’s Newman Scoring Stage in 2007, I had my first encounter with the design firm’s founding partner and principal

strong dialog,” says Grueneisen, who has certainly demonstrated a flair for naming things. “That’s the easy part.” [Laughs]

“We’re from the architectural point of view,” he says of nonzero, “so we know how to put buildings together, and I think that’s a big difference from rooms that are built by people who come from having worked in studios. Acoustics are the most important part of the project, of course, but I’m not so sure that the studios that have been built by acoustical engineers are necessarily the best studios out there. Even now, I look at every studio basically as an architectural problem, not necessarily as a studio. I’m pretty happy with this combination of trades, so to speak.”

Among nonzero’s ongoing projects is a studio building for Hans Zimmer’s Remote Control Productions in Santa Monica, the latest stage of an ongoing, multi-year project that will soon proceed

with the construction of a scoring stage. “Hans has a whole complex of buildings, and in 2005 we started reworking them one at a time,” says Grueneisen. “The first go-round involved designing three composers’ suites and then two more, as well

as a lounge and several general areas. Then, last year, we began a complete remodel of a building that has five suites, plus four sound-design/composing rooms for a total of nine. Hans’ main studio has a turn-of-the-last-century aesthetic almost—so his own taste is a little warmer and more traditional. And that makes for a really good mix, because what comes out is a little bit of both.”

There were two mandates for the project: one aesthetic in nature, the other more technical. “The buildings were all over the place,” says Grueneisen, “and Hans wanted it to have more of a common thread so that it became more like a campus rather than a bunch of unrelated buildings. So, architecturally, a big part of the project was pulling it all together. And then, a lot of the rooms had been designed as studios, but not to a high level of sophistication. So he wanted to upgrade that as well, in terms of soundproofing, more accurate acoustics—just more state-of-the-art. The suites are for individual composers who work with him; they’re sort of sub-clients who chose their own finishes, so we worked with each of them. But even though it’s a mix, the way it’s coming out is very consistent.”

The company also recently finished another multi-year project in Santa Monica, this one for James Newton Howard. Along with Zimmer’s scoring stage, upcoming projects include a studio for Santa Monica City TV, 740 Sound Design in Playa del Rey, Red Amp Studio at the 9WG facility in Richmond, Va., and several home studios.

“In terms of the studio design itself and the acoustics, we’ve always looked at it as a mix of the scientific and the artistic, which is very similar to architecture as a whole,” he points out. “But what we absolutely *don’t* want to do is the voodoo approach, where nobody knows how it works but it’s fantastic. We don’t go for that at all. At the same time, there’s definitely value to places like The Village, where it has grown over time and it’s not sterile or so high-design that you can’t touch it. I’m not so much for that either.”

The intangible in this pursuit is the vibe: If you’re going to spend weeks or months in a particular space while involved in a creative project, it helps if the space is both comfortable and inspiring. That’s what Peter Grueneisen aims for and what he delivers. III

Send “Grapevine” news to Bud Scoppa: bs7777@aol.com.

One of Grueneisen’s recent projects is this studio for the Art Institute of L.A.

Peter Grueneisen of studio bau:ton and nonzero\architecture

might’ve guessed from its understated elegance.

When studio bau:ton co-founder Peter Maurer branched out to form his own company, PCM:T in 2004, Grueneisen renamed bau:ton to nonzero\architecture “as an architecture firm for any kind of building or project, and studio bau:ton became a part of that as a specialized studio-design entity,” he explains. “But bau:ton isn’t a company anymore; it’s now more of a brand, because it had been around for so long and we thought it was valuable to keep it.”

Grueneisen explains that “bau” is German for both “building” and “the act of building,” while “ton” is the word for “tone” or “sound.” The name also relates to the Bauhaus school of modernism, one of studio bau:ton’s primary reference points, along with the mid-century style pioneered by architects like Richard Neutra (Grueneisen restored a pair of Neutra houses) and elements of contemporary design. “But we always adapt so that the design fits what the client wants,” he notes.

The current firm, which comprises a staff of eight, got its name from the game-theory concept of non-zero sum, in which the interests of the participants overlap, as opposed to zero sum, in which they’re pitted against each other. “I liked that idea because what we try to do is find a balance between people’s interests so that everyone comes out ahead; the best projects are the ones that result from a

architect, Swiss-born Peter Grueneisen—and it turned out he was responsible for the very space we were standing in, as I



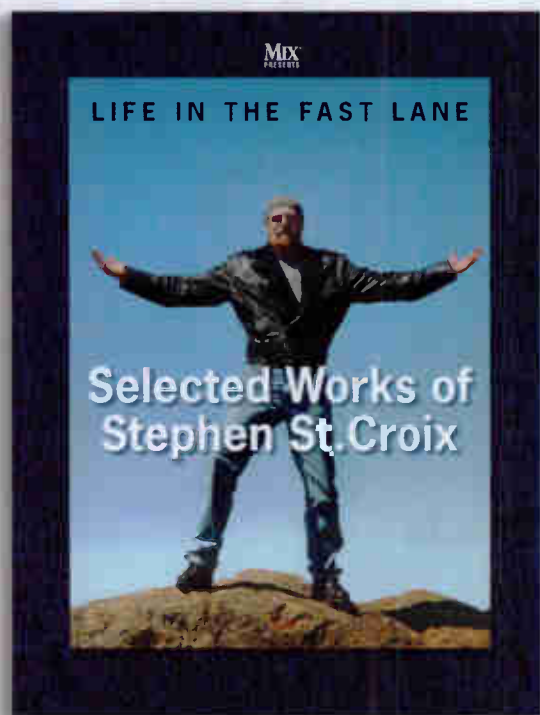
PHOTO: PETER GRUENEISEN

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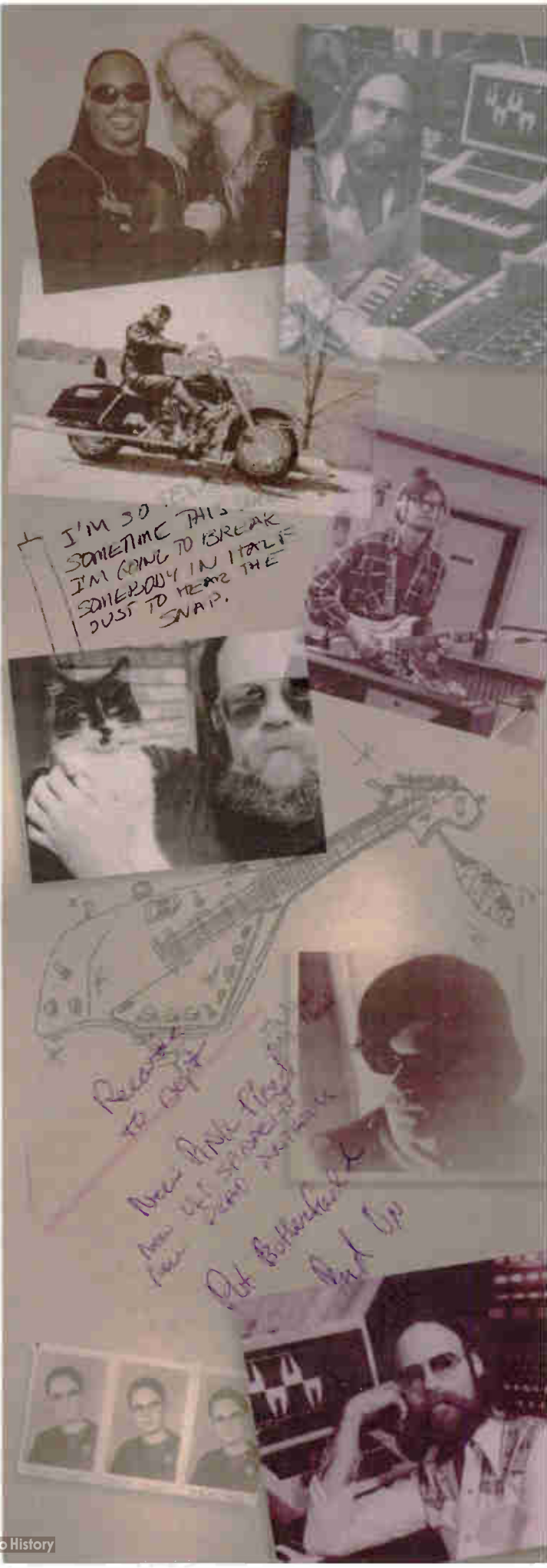
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Straight-Up Rock With Minimal Effects

By Sarah Benzuly

Photography by Steve Jennings



Eighth Day Sound provided the d&b J Series P.A., whose size can change depending on the venue.

Tennessee-bred Kings of Leon enjoyed immediate popularity in the UK with their 2003 debut, *Youth & Young Manhood*. Since then, the band has released three more albums and is currently touring under their latest, *Only by the Night*. With each outing, the foursome continues to garner additional fans. Starting out with mid-sized venues and adding more dates in larger arenas, the tour also finds the rock quartet headlining European festivals and performance slots at this year's Lollapalooza event.

Mix caught up with the band's longtime front-of-house engineer, Brent Rawlings, and monitor engineer Wayne "Rabbit" Sargeant at San Francisco's Bill Graham Civic Auditorium. Both engineers are quick to say that their mixes are straight-ahead rock 'n' roll—no fancy effects, just some basic EQ and compression when needed, and mixing is done on the fly.

Rawlings works on a Midas XL4, which he

calls the "mother ship." "Back before I could carry a desk, I had to use desk du jour," Rawlings says of choosing the XL4. "I quickly learned that the Midas had a warmer tone than [other boards]—the XL4 even more so and I look forward to trying the XL8 digital desk.

"I use and know digital out of necessity," he continues. "I don't think I could survive in this industry without knowing digital. When given the choice, I prefer analog: I'm faster on it and it sounds better." That said, Rawlings is using very little outboard in his mix: dbx 160s for compression, Summit tube comps, Waves Maxx Bass comp and a BSS 901 on Caleb Followill's lead vocals. "I use most all compression on the subgroup and stereo master," Rawlings adds. "This lets me push up into the compression with just the punch of a fader instead of making threshold adjustments. I've worked with [the band] since they started, so I've been able to learn and change along the way. I



Clockwise from top left: vocalist/guitarist Caleb Followill, monitor engineer Wayne Sargeant, front-of-house engineer Brent Rawlings, guitarist Matthew Followill, bassist Jared Followill and drummer Nathan Followill



MIC SELECTIONS

Nathan Followill's drum kit is miked with a Shure 91 and 52 (kick), 57 (snare bottom), KSM 32 (snare top) and Sennheiser 904 (toms). "My favorite and abnormal is a stereo RØDE NT4 for drum overhead," Rawlings says "Due to perfect phase from its fixed X/Y pattern, it's allowed me to turn up the overhead, which, in this case, is more of a full kit sound." Both kick mics, bottom snare, second snare and toms are gated with Drawmer 201s.

Guitars are miked with both a Sennheiser 604 and an Audio-Technica AT4050. Bass goes direct into an Avalon U5, while vocals are Sennheiser 935—"nothing crazy," Rawlings says.

didn't use compression before, but now I embrace it. I'm compressing my compressors!

"I'm trying to do a straightforward rock 'n' roll mix," he continues. "I'd like you to feel the kick, be able to distinguish the vocal and be able to rock out to all three guitars—all this without being painful: I try to carve out as much middle as I can get away with."

Monitor World

Monitor engineer Sargeant also carries little in the way of outboard processing. In addition to

his "old-faithful" Midas H3000 board, he relies on a Crane Song SCT-8 for vocals, "mainly for a little protection and pure second-order harmonics," Sargeant explains. "I also have two Empirical Labs Distressors over Nathan [Followill, drummer], which does a similar job to the Crane Song. I also use a Lexicon PCM80 for Caleb's vocal reverb, a TC Electronic M2000 for Nathan's snare and vocal reverb, and a Yamaha SPX-900 for Matthew [Followill's, lead guitarist] vocal reverb."

The band, which also includes bassist Jared Followill, uses a combination of wireless in-ears (Sennheiser G2 systems with an AC3000 combiner and a helical antenna), hard-wired in-ears powered by two Stewart P100 amps, four pairs of d&b M2 wedges and four d&b Q subs for drums. "Caleb uses in-ears, but lately tends to only use one ear in as he likes to vibrate off the audience," Sargeant says. "So now I mix a balance of kick drum in his guitar and vocals into his wedge."

"Each bandmember has quite different mixes because of the combination of ears and wedges and all are very demanding," Sargeant continues. "Because of this, I incorporate a Tech Talk system to accommodate the drum tech [Darin Ledford] and two guitar techs [Christopher "Nacho" Followill and Jay Schleuser] into my ear mix. This helps to ensure that all bandmembers are covered and results in a smooth-running show. Each tech has an ear pack and a talk mic, so we can talk during the show without disturbing the band. We can confer on all sound and monitor issues onstage, which is a great help at times."

A d&b Hang

Eighth Day Sound provided a d&b J Series P.A., which includes subs on the floor and in the air running in cardioid mode (rear-bass rejection). "This is to clean up the stage," Rawlings explains. The high-mid cabs are up to 12 a side, depending on venue size. The number of side hangs also fluctuates based on where the band is playing, with Rawlings citing between eight to 10 per side. The side hangs have reverse stereo image so Rawlings can pan instruments hard and clear up the center for vocals. The rear hangs are usually a few mono small boxes.

"Lots of stuff in the air means lots of time alignment," Rawlings says. "I'm still in the learning phase of time alignment and tuning. I rely on the system tech heavily. I've learned a lot in the past few years. I help EQ a lot in voicing the P.A. to be able to turn up the center vocal mic—the hottest mic onstage in most rock scenarios." System tuning is via Smaart and Lake EQ.

Record-Enable

The band is also multitracking each gig with a MOTU rig comprising a 24i and a 2408mk3 with a Mac front end. The FOH board's XL direct outs have their own attenuation knobs. "A 40-channel multipin disconnect lives in the console," Rawlings explains of his signal chain for recording. "It goes straight from the console mic preamps to the MOTU—just plug and go daily." III

Sarah Benzuly is Mix and EM's managing editor.

NEW MID-SIZED VENUES TAKE CENTERSTAGE

High-End Installs Feature Big Sound in Small Rooms

By Sarah Benzuly

With the ongoing decline in physical music sales, the past couple of years have seen the spotlight shine on concert touring. Box-office numbers seem to rise year after year, driven in large part by megatours and high ticket prices. And artists are finding that, just like the old days, money is to be made on the road. While a lot of attention is given to the A-list acts and their monster stages, mid-level tours in mid-capacity venues are doing quite well, providing an outlet for a wealth of artists across all genres.

These 500- to 6,000-seaters aren't quite clubs and they're not quite arenas or sheds. They are performance spaces that have added sound and technology systems, making them attractive to promoters, artists and fans. *Mix* checked in with a number of these venues to look into their individual approaches to improving the concert experience.

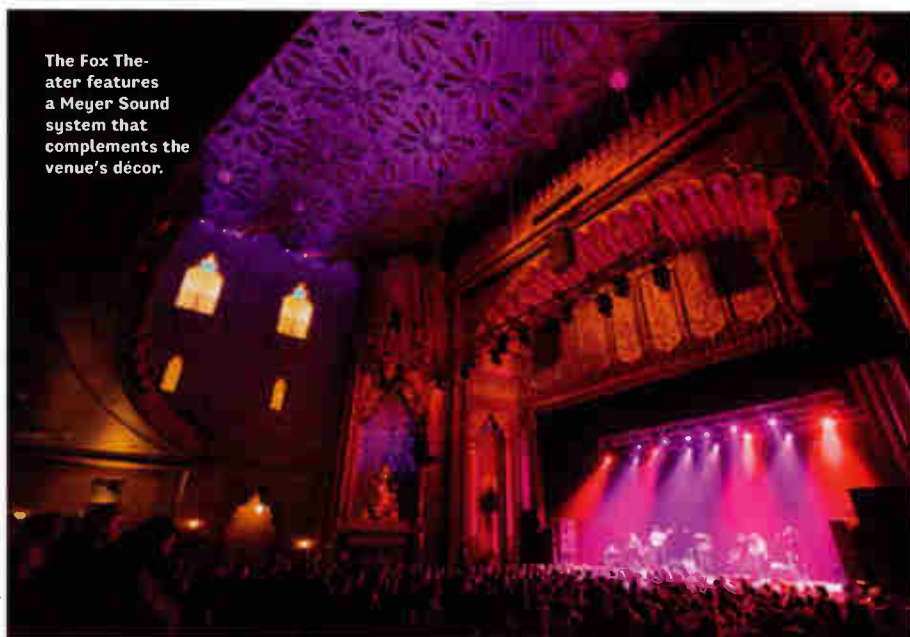
The Fox Theater, Oakland, Calif.

Forty-three years after closing its doors as a movie palace, the Fox Theater—now the flagship live music venue for Another Planet Entertainment—reopened in February 2009 after an extensive \$75 million renovation that includes a state-of-the-art performance space with a capacity of 1,500 to 2,800. Since its grand-opening concert with Social Distortion, this downtown Oakland venue has hosted such notable acts as Animal Collective, Sonic Youth, The Decemberists, The Shins and many others.

For the Fox Theater, the audio team (including stage manager Tony Leong) was cognizant of creating a system that would complement the renovation and décor, as well as be rider-friendly. "Our vision was to match the production aspect of the theater to the aesthetic quality," says Leong. "The venue is so gorgeous that we had to make sure we did it right. The pristine nature of the res-

The Fox Theater features a Meyer Sound system that complements the venue's décor.

PHOTO: JOSH SANSERI



toration made us paranoid about anything we put up in the theater to the point where a typical black line array wasn't going to cut it. The line array had to be painted. Luckily, Meyer Sound happened to be in our backyard. We spent an entire day looking at swatches of different colors up against our proscenium until we finally found a color that blends in seamlessly.

"If it seems a little vain that we spent an entire day on aesthetics, it probably is, but Another Planet Entertainment has had such a longstanding relationship with Meyer that we know what their gear is capable of, and, more importantly how accommodating their staff is," he continues. "That's been the beauty of our relationship. We've never felt that once they did the initial install, that was that. Our massive P.A. is the result of a few shows of trial and error. We initially had 11 flown MILOs per side, but our balcony is so deep that we realized we weren't getting enough coverage up there, so we simply added another box. For our reserved-seated shows, sightlines weren't as ideal as we'd hoped, so we swapped out the MICA stack for a smaller footprint of MSL-4s that were just as loud. Then we addressed our downstage coverage by adding three M'elodies. It's been an evolving process for us, but we are very happy with the results of our system. We are fully capable of, and are comfortable, handling arena-sized production [such as the 'secret' Green Day concert the Fox hosted in April], as well as smaller events like the graduation for the Oakland School of Arts, which is located next door."

Because the types and scope of performances at the Fox vary, Leong says the best decision was to supply house racks and stacks and bring in control on a per-show basis. "Half of the shows we've had so far bring full production anyway, and everyone is so picky with consoles that it wasn't worth it to us to buy," he explains. Local sound company UltraSound/Pro Media provides the "house" console package, which includes a Midas H3000 (FOH) and Yamaha PM5D (monitors), which can be brought in easily when bands don't bring their own boards. The P.A. is all Meyer, including 12 flown MILOs per side (custom-painted), a center cluster of three custom-painted 700-HP subs flown, and four MSL-4s and six 700-HPs ground-stacked on each side of the stage. "Originally, we had the MICA line arrays stacked on each side of the stage next to the subs, but they ate up too much real estate and created sightline issues, yet the MSL-4s fit in just perfectly."



Carlos Santana performs at The Joint, which features a d&b array.

PHOTO: ERIN KABIR/RETNA

The Joint at the Hard Rock Hotel, Las Vegas

A fixture on the Strip's music scene, The Joint at the Hard Rock Hotel and Casino has been rebuilt, doubling its former size to a 4,000-seat capacity. The venue is a must-play for touring artists, as well as "stay for a while" residency acts such as Carlos Santana, who has booked out the venue for his performances in August/September 2009. Other uses of the multipurpose facility include sporting events (such as boxing) and banquets.

When the Hard Rock Hotel decided to reopen The Joint a few years back, they called on Sceno Plus of Montreal to handle the audio/visual install. Sceno Plus, in turn, hired Solotech to do the package, which brought in Francois Desjardins to oversee the installation of the audio portion. Audio equipment selections were made by the Hard Rock staff, who looked at touring riders and oft-used gear. At that point, Desjardins says of his role, "I was grabbing the specs that other people designed and made sure that everything worked correctly: commissioning all the speakers and the consoles, making sure that the speakers and the consoles and the processors talked.

"More than 20 years ago, we used S4s, and they were not really as efficient as today's loudspeakers," continues Desjardins, who was Celine Dion's front-of-house engineer for her last tour. "Today, you have smaller speakers and they are really efficient. It's amazing how much power you can put out of that little box. And everyone is trying to build smaller and lighter speakers, and you end up having a lot of power in a small space. There's a fine line between 'arena' product and 'theater-sized' product."

The venue also has a full-time audio engineer, Nick Simon, who can be called upon for

mixing duties or, as with a recent Bon Jovi show to assist the band's engineer and make sure all goes smoothly.

As most of the monitor and FOH package was put together at Solotech in Las Vegas, and the racks installed by Conti Electric under the supervision of Bill Famini, Desjardins says that this was a seamless install, a statement not to be taken lightly, considering he's been involved in many different projects in Las Vegas for the past seven years.

"You're usually at soundcheck and somebody's grinding something behind you," he says with a laugh. "We had no issues except for human errors. We also had great support from the two major suppliers—d&b and Digidesign—which helped make for an easy installation." Taking the spec'd audio gear list from Hard Rock Hotel, Desjardins oversaw the rigging of a d&b array, which comprises J-8, J-12 and J-SUB for the mains; E-3 for under-balcony delays and front-fills; and Q-10 for house delay and near-fields. Digidesign Profile boards were selected for both FOH and monitors. Control is via BSS' London BLU Series. Sceno Plus specified the acoustical treatment, which Desjardins says is pretty basic but efficient. "There are some diffuser/absorbers around the mezzanine and balcony edge," he describes. "They also treated the ceiling with some dense acoustical absorbers. The result is quite interesting.

"The choice of the components and the quantity make this room perfect for almost any application," he continues. "If you are running out of power, well, the problem might be somewhere else. Also, the system is fully digital. You convert onstage at the mic preamp on the console and the signal is converted back to analog at the output of the d&b amplifiers."



The JBL VerTec system at Popejoy Hall can be "detached" for use outside of the venue.

Popejoy Hall Center for the Arts, Albuquerque, N.M.

The Popejoy Hall Center for the Arts is located on the University of New Mexico campus and brings in touring Broadway shows, national/international artists, the New Mexico Symphony Orchestra, and performances by the UNM Department of Music and the Albuquerque Youth Symphony.

When spec'ing the system, technical director Billy Tubb had to make sure that it was not only flexible and could provide 5.1 for opera simulcast or films, but it also had to be "detachable" so that

it could be rented to local production companies. "We added extra cables to the package, and I also designed both of the onstage equipment racks that provide power, signal and data distribution to be identical so that the system can be split into two or even four separate systems," Tubb says.


Tubb also needed to consider the space's functionality when selecting gear. "I really wanted to use stage monitors as the surround speakers for the 5.1 setup so that we could kill two birds with one stone," he explains. "The JBL VP7212MDP was not designed for wall mounting, yet the JBL custom shop added multiple rigging points, allowing us to basically add 16 new wedges to our inventory. When we need them for the 5.1 setup, we add the custom adjustable angle brackets my installer built and hang them. They actually fit snugly right against the wall and look like they were meant to be there. They also sound better than most of the traditional low-profile speakers we would have considered for the location and coverage needed." Taking versatility a step further, the custom shop installed a pole-mount socket on one end of the VP7212MDPs.

The rest of the system is all JBL VerTec: "Honestly, VerTec was not a system I originally considered after having heard an early version of the product. And the full-sized box was just too big for us in regards to sightlines at our venue," Tubb explains. "Then the following events happened: JBL introduced the mid-sized VT4888 and developed their new Version 4 DSP presets, which has greatly improved the sound of the boxes. Now, VerTec has become more accepted on technical riders. The DrivePack technology makes it a self-powered system, while the networking, control and user features provided by Harman's System Architect software interface are very power." Rounding out the gear is a Midas Heritage 2000 console. On the acoustic front, the rear of the orchestra has 4-foot alternating sections of cherry-stained wood diffusers and fabric-covered 2-inch absorption panels. Scheduled for installation this month are more wood diffusers on the balcony rail.

PC Richards Theater, New York City

Inside the AT&T building in Manhattan (where Clear Channel Radio houses a number of its

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New York radio stations) sits the new PC Richards Theater, a 200-invite-only room that was designed as an intimate performance space. There is also a separate mixing room to allow tracking or live mixing of the show for broadcast or digital media content generation.

Though its scope generally includes acoustical design, for this project, SIA Acoustics was employed to handle the technical system only, says Steve Sockey, who headed the SIA project team. After meeting with Josh Hadden, Clear Channel radio director of engineering and IT, and his team, SIA created a technical design that would fulfill the theater's variety of goals. "This is an exclusive type of venue with A-level artists coming in," Sockey says. "You have substantial technical demands that typically come with major talent monitor console, house console, enough stage monitors, a large enough stage, significant mic inventory, in-ear monitors and wireless mics. We wanted to provide systems that made sense, were highly functional and robust, and had great rider acceptance on all fronts. We felt it was critical for the infrastructure—while being comprehensive to facilitate any type of performance—to be logical to allow an operator to walk in and quickly become acclimated. As a designer, you have to decide what's important, and for us it's the functionality."

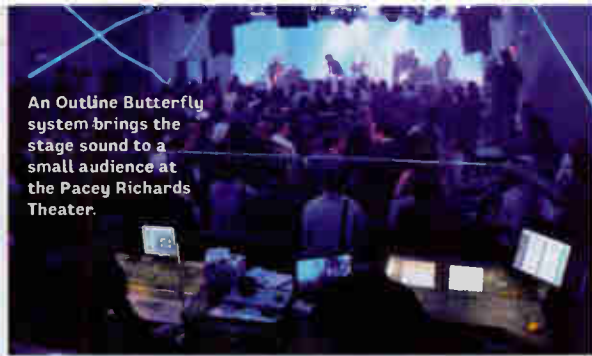
While a small room, the theater packs in a large amount of gear, including two Digidesign Profiles and a Digidesign ICON Pro Tools systems in the mixing space. To preserve complete independence between the various live and recording systems, all field connections terminate in control room patchbays, and Jensen transformer-isolated splitters provide FOH, monitor and recording systems with duplicate signals. "From the control room," Sockey says, "they can reconfigure the room as needed. A large number of tie panels are located throughout the facility, and any routing is possible via the patchbays. Having said that, the patchbays are normalled to allow someone to remove each patch cable and be show-ready for what the client has defined as their 'default' configuration."

For the live sound system, Outline C.D.H. 483 "Butterfly" main arrays were selected due to their consistent directivity, compact physical packaging and high-power output. Outline Mini-Compass systems are used as delay speakers and surround speakers. A number of high-capacity suspension points are located throughout. Each of the loudspeaker arrays is suspended via CM-ET Prostar chain motors to allow easy reconfiguration and achieve the maximum possible trim height. "This is a sound system that will readily accommodate rock 'n' roll performances, but where


a completely clean look is needed [i.e., a video shoot], they can quickly take it down and put it away," Sockey explains. The amplifiers are mounted to the Butterfly arrays via custom frames (designed by McLaren Engineering) to eliminate the need for amp racks.

"This system provides very sophisticated capabilities in an extremely compact footprint. Because of significant advances in technology, the difference between arenas and small theaters, or between dedicated studios and multipurpose spaces, has really become one of scale

and not quality," Sockey says. "This space has the same preamps, converters, consoles, loudspeakers, amplifiers, et cetera, as a larger venue—and though it may have fewer of them, the level of production is the same." ■



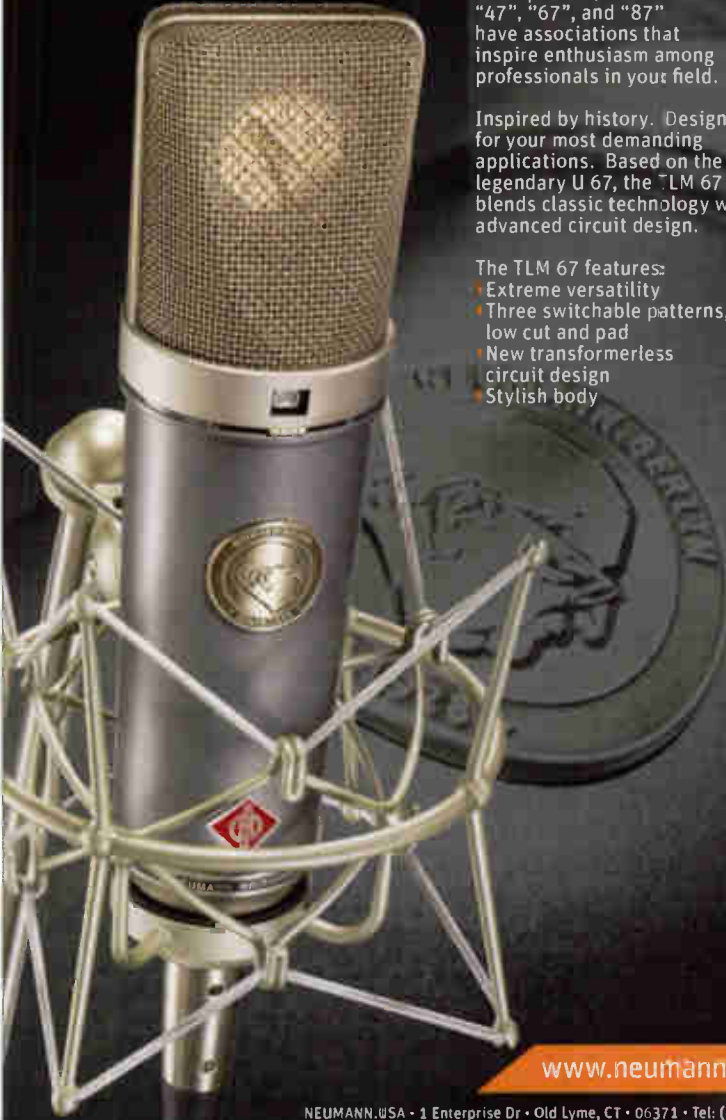
An Outline Butterfly system brings the stage sound to a small audience at the Pacey Richards Theater.



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HANDHELD WIRELESS SYSTEMS

New Models for Changing Times

By George Petersen

To say that 2009 has been an challenging year in the wireless audio industry is truly an understatement. Yet, it's barely a month after June 12, the second FCC deadline for the changeover to DTV (and the elimination of the legal availability of the 698 to 806MHz bandwidth to audio users) and the sky didn't fall. For most pro wireless owners, that day came and went without incident. In fact, for a while, the 700MHz wireless band is probably pretty clear, although transmitting using those frequencies is certainly a bad idea, as it's now illegal, and at some point that particular spectrum is going to get very crowded, very quickly.

For those holdout owners of 700MHz gear who haven't made the conversion to legal operation, many pro wireless manufacturers—including AKG, Audio-Technica, Lectrosonics, Sennheiser, Shure and Sony—all offer rebate programs for existing equipment, while most companies will work with customers to update units that can be modified/updated to operate on different frequencies. In researching what's new in handheld wireless systems, we found that many companies—among them Audio-Technica, Electro-Voice, Lectrosonics, Shure and Sony—have kept their flagship offerings unchanged, although perhaps with different channel blocks.

That said, this is a great time to invest in wireless systems for many reasons. For the most part, the FCC reallocation dust has finally settled. Although the skies are somewhat more crowded than before, a wide range of frequencies are available, from the usual UHF bands to 2.4GHz (Sabine Smart Spectrum) and even 6.350 GHz, as used in Audio-Technica's SpectraPulse UWB systems. Digital wireless units

are beginning to emerge, although analog systems carry a lion's share of the market. With a variety of online tools and programs for frequency coordination and system control, multisystem operation is less complicated and straightforward, with fewer onsite "surprises."

Listed alphabetically, here's an overview of what's new in handheld wireless systems, although all systems mentioned here are also available with bodypack transmitters. And if you needed another reason to check out a new wireless system, today's units are simply better, more reliable and rugged than ever before.

AKG

AKG's (www.akg.com) latest DMS 700 digital wireless microphone system provides features such as digital audio encryption, infrared transmitter/receiver link for quick setups, onboard DSP (low-cut filter, 3-band EQ, dbx compression/limiting) and HiQnet networking with other Harman products. The single-rackspace receiver has two frequency bands, each offering a tuning range of up to 155 MHz (within the 548.1 to 697.9MHz band) for up to 100 simultaneous channels.

Two versions of the 50mW RF output DHT 700 handheld transmitter are offered: one with AKG D5 supercardioid dynamic capsule and one with a C5 cardioid condenser capsule. Integral to the system is a fast DC Pulse Technology charger that quickly charges the rechargeable batteries inside the transmitter for up to eight hours of operation.



The AKG WMS 4500 is available in two new frequency selections: Band 7 (500 to 530 MHz) and Band 8 (570 to 600 MHz).

AKG's top-end WMS 4500 analog wireless is now available in two new frequency selections: Band 7 (500 to 530 MHz) and Band 8 (570 to 600 MHz), allowing more options for multichannel systems in crowded RF environments. HiQnet™ operation is possible via the optional HUB 4000 Q, and with the System Architect™ software the WMS 4500 can be configured and monitored remotely from a PC.

The WMS 4500 system's SR 4500 receiver has onboard AutoSetup settings for intermodulation-free channel selection; EnvironmentScan settings for RF range scanning; and a Rehearsal mode for saving system data during rehearsal setups. The PT 4500 handheld emitter was redesigned to include a new battery casing for easier access. The mic accommodates interchangeable AKG capsule modules, including D5, D7, D3700, D3800, C5900, C5 and C535 EB.

beyerdynamic

Slated to begin shipping last month, the new Opus 600 wireless from beyerdynamic (www.beyerdynamic-usa.com) offers up to 12 channels per frequency range, interchangeable capsules for its handheld units (including the TG-X 60 capsule in the DM 960 mic head) and more than 20 hours of operation from two AA alkaline batteries. The receiver displays AF and RF levels,

AFTRA INDEPENDENT ARTIST LABEL AGREEMENT A NEW OPPORTUNITY FOR INDEPENDENT RECORDING ARTISTS

The new AFTRA Independent Artist Label Agreement provides an opportunity for independent recording artists to have their total earnings as an independent recording artist credited as AFTRA covered earnings. Prior to the creation of this new agreement, a recording artist could only receive AFTRA credit for one's royalty earnings if one was signed as a roster artist on a third-party AFTRA record label.

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Highlights of the new Agreement:

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mann, for example, makes the KK 104/1055 capsule modules for Sennheiser's SKM 5200/SKM 5000N Series based on its KMS 105/140/150 family of wired vocal mics.

In terms of selection, Shure takes the prize with eight optional capsule offerings (SM58, SM86, SM87A, Beta 58, Beta 87A, Beta 87C, KSM9/SL and KSM9/BK) for its UHF-R Series UR2 handheld transmitters. Five are available for Shure's SLX2 (SM58, SM86, Beta 58, Beta 87A and Beta 87C), with those same five (plus an SM87A capsule) for the ULX2 handhelds. Need more choices? Heil Sound (www.heilsound.com) has begun shipping two cardioid dynamic capsule modules that fit Shure screw-on transmitter bodies. Finished in basic black, the Heil RC-35 (\$235) uses the same 1.5-inch cardioid element as its PR-35 wired mic; the \$198 RC-22 takes the capsule from Heil's PR-22 mic, and as a bonus includes silver, gold and black grilles.



Heil Sound capsule modules

and the transmitters have a low-battery warning display. For quick setups, an AutoScan function enables automatic search for interference-free frequencies, with fast, easy infrared transmission of the frequencies to the transmitter.

Line 6

Line 6 (www.line6.com) is now shipping its X2™ XDR955 handheld mic system (\$859.99 retail) with a single-rackspace receiver. The diversity system uses Line 6 digital audio transmission (24-bit delta sigma, 128x oversampled conversion) with a 10 to 20k Hz bandwidth and up to five units operating in the 902 to 928MHz band at 15 mW for a range of up to 300 feet. Dual-RF anti-jam technology lets the XDR955 broadcast dual signals to four receivers that work simultaneously to avoid dropouts. Plus, the system's proprietary digital data stream only recognizes signals embedded with a unique digital signature. The cardioid X2 XDH4 handheld can run up to eight hours on two AA batteries.

Mipro

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nel ACT-52 have the same high reliability and diversity UHF (620 MHz to 950 MHz—depending on country), but add two additional functions: a full-color VFD receiver panel, and the ability to set up and view all functions on that same VFD screen. The ACT-51/52 also incorporate AutoScan to locate clear frequencies and Automatic Channel Targeting that automatically syncs the receiver and transmitter with a button-push. The ACT-7H handheld transmitter works for up to 18 hours on two AA batteries, and can be fitted with condenser cardioid or dynamic hypercardioid capsules.

Nady Systems

The W-1KU from Nady (www.nady.com) offers 1,000 user-switchable UHF frequencies per band and a backlit front panel LCD that indicates selected audio output volume level, RF signal strength, group, channel and A/B Diversity antenna status. Sophisticated IF filtering allows simultaneous operation of multiple W-1KU systems in the same location. The all-metal HT-1KU handheld unit offers full-menu backlit LCDs, and channels can be switched manually with up/down buttons on the transmitter or via ASC™ (Auto-Select Channels) IR download of selected channel for synchronization with receiver.

Sabine

Now shipping, Sabine's (www.sabine.com) new Smart Spectrum SWM6000 wireless operates in the 902 to 928MHz ISM band, continuing the tradition of the company's SWM7000 systems, which operate in the 2.4GHz ISM band. Like the SWM7000, the SWM6000 systems offer built-in RF scanning and recording, and remote control via third-party controllers such as Crestron or AMX.



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HANDHELD WIRELESS SYSTEMS

SWM6000 Series receivers are available in single- and 2-channel models, and feature onboard digital channel-strip processing, FBX Feedback Exterminator, compressor/limiter, adaptive de-esser, parametric filters and Mic SuperModeling™ for a virtual cabinet of mic sounds.

The SW60 handheld transmitters for the SWM6000 Series are available with Audix OM3 or OM5 dynamic capsules, or a Voice Technologies condenser element. Operation is via Sabine NiMH rechargeable packs (for up to eight hours) or two alkaline AA cells for 14 hours of run time.



Sabine's SWM6000 Series receivers are available in single- and 2-channel models.

Samson

Samson (www.samsonotech.com) expands its AirLine Series with the AirLine Synth, a true-

diversity system retailing at \$689.99 that can operate up to 11 simultaneous systems on more than 300 frequencies. The AirLine Synth AR300 receiver can be rackmounted with up to four receivers in a rackspace, and its LED front panel shows AF/RF levels, frequency, audio output level and channel mix setting. Other features include automatic scanning and infrared programming, balanced and unbalanced outputs, and front- or rear-mountable antennae. Samson is also now shipping the AR4300 AirLine Synth Quad module, which holds up to four AR300M receivers in a single rackspace and adds touches such as built-in antenna distribution, headphone cue system for monitoring each channel (or a mix of all four), and individual channel XLR and TRS outputs, as well as mixed XLR and TRS outs.

The handheld AirLine Synth system comes with a Samson Q7 dynamic mic and the AX300 plug-on transmitter unit, which can connect to any pro dynamic microphone. The AX300 has an onboard digital channel display, low-battery indicator and Mute switch, and it operates for up to 10 hours on two AA batteries.

Sennheiser

Now available in the U.S. is the third generation of Sennheiser's (www.sennheiserusa.com) evolution G3 wireless, with three new 100, 300 and 500 Series true-diversity receivers, all with 1,680 tunable UHF frequencies and a one-touch sync feature enabling G3 transmitters and receivers to link via an infrared interface. The top-end 500 and 300 Series receivers offer built-in Ethernet support for connecting to a PC running Sennheiser's Wireless System Manager software, and the 300/500 units can reduce power from 30 mW to 10 mW to accommodate more channels in a given frequency range.

Three handhelds are available for each of the new G3 Series. For the 500 Series, users can choose from models with Sennheiser's e965 cardioid/supercardioid (switchable) condenser or the dynamic e945 supercardioid or e935 cardioid capsules. Series 100 and 300 owners can choose from transmitters with the e865 supercardioid



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condenser or dynamic e835 cardioid or e845 supercardioid elements. And all handheld transmitters can now be powered by rechargeable battery packs instead of standard batteries, and have external charging contacts for recharging the battery pack while still in the transmitter.

Unveiled at NAB 2009 was Sennheiser's 2000 Series professional, entry-level wireless system. The system is offered with a choice of receivers including the rackmount EM 2000 single-channel and EM 2050 2-channel—both dual-diversity units with onboard equalization, up to 3,000 operating frequencies, integrated antenna splitting for daisy-chaining up to eight receivers, Ethernet port for PC control using Wireless Systems Manager software and data interfacing to the transmitters using an infrared link.

The SKM 2000 handheld transmitter features switchable transmission power, intuitive menu navigation and external contacts for charging the batteries directly. The handheld is also compatible with all EW Series capsules, including the new MMK 965-1 (e965) condenser, which launches this month.

TOA/Trantec

The latest pro wireless from TOA (www.toa-electronics.com), the Trantec S5.5 Series is designed by BBM Electronics Group Ltd., a wholly owned subsidiary of TOA Corp. The multichannel UHF S5.5 system can accommodate up to 35 simultaneous channels and features simple transmitter/receiver programming over an infrared link and remote PC performance monitoring, setup and control through a USB 2 port. The hypercardioid dynamic transmitter operates for more than 10 hours on a single AA battery, and has an LCD screen showing frequency, mic sensitivity adjustment and battery status.

Zaxcom

Zaxcom (www.zaxcom.com) has upgraded all of its wireless transmitters—including the TRX 800 handheld—to ship with adjustable output power settings of 10/25/50 mW. The TRX 800 operates in the 518 to 870MHz UHF range and offers 5-hour run time on a CR123 battery. It has an interchangeable screw-on capsule that's compatible with Shure wireless elements. However, its most notable feature is an internal recording option that simultaneously stores up to 12 hours of audio on removeable miniSD Flash media for protection when dropouts cannot be tolerated. III

George Petersen is the executive editor of Mix.



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From left: Mike Dirnt, Tré Cool and Billie Joe Armstrong

By Blair Jackson

Green Day

PUNKS GO FASTER, DEEPER ON *21ST CENTURY BREAKDOWN*

Following up a smash hit album is never easy. Expectations run high—from fans, the record company, even the artists themselves. Green Day's epic 2004 album, *American Idiot*, was an especially tough act to follow because it became a worldwide phenomenon that not only sold 14 million copies and spawned the biggest tour of the group's career, but was also an across-the-board critical success that brought

hard-earned respect (and even Grammys) to the veteran punk/pop band. So what do they do for an encore? They turn to a *new* producer and engineer—Butch Vig and Chris Dugan—and turn out an equally ambitious and satisfying work: *21st Century Breakdown* is an 18-song concept album, divided into three "acts," about a desperate and rebellious punk couple (Christian and Gloria) making their way through a

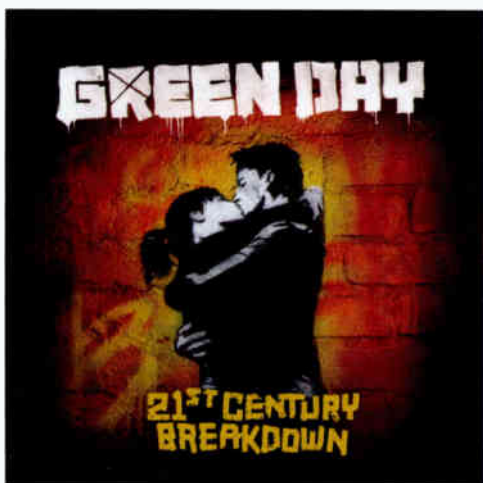
bleak, broken and cynical America.

Home base for Green Day has long been Studio 880, owner John Lucasey's unlikely recording oasis in a converted warehouse in a sketchy neighborhood south of downtown Oakland, Calif. Open since the late '90s, the multistudio complex's client list includes dozens of big and small acts, but Green Day is the studio's most loyal and successful client, and

no one seems too upset about the constant references in the press to Studio 880 being “Green Day’s studio,” when it is actually so much more than that.

On the day in late May when I interviewed engineer Dugan about *21st Century Breakdown* at 880, there’s no question that Studio B is Green Day’s room: The tracking space is brimming with countless axes and amps owned by the group’s visionary leader and guitarist, Billie Joe Armstrong, and bassist Mike Dirnt. “B” is a mid-sized room, perfect for a three-piece like Green Day (power-drummer Tré Cool rounds out the lineup), though the band also likes to blast it in the much bigger Studio A next door, a good live room. In between is a large equipment and storage room that at the moment also houses a fleet of mostly vintage-looking motorcycles owned by the band and Dugan. The good-sized control room of B is outfitted with an SSL 9000J that Green Day put in early in 2006 and racks of top-of-the-line outboard gear, old and new.

Dugan has worked with the band in a few different capacities for several years now, and at the same time he and fellow engineer Willie Samuels have run their own studio, Nu-Tone Recordings, in Pittsburg, over the hills east of Berkeley. Dugan did a considerable amount of preproduction work on *American Idiot* (and later helped with the video documentation of the world tour), but the bulk of the engineering on that album was done by Doug McKean, who was brought onboard by producer Rob Cavallo, Green Day’s audio shepherd since their 1994 breakthrough, *Dookie*. *21st Century Breakdown* marks the first Green Day album since then that Cavallo hasn’t been a part of, but his imprint on the band runs deep—down to the group’s decision to again do preproduction for their latest album at Studio 880 and primary tracking at Ocean Way Recording in Los Angeles.



It’s hard to pinpoint when work on *21st Century Breakdown* formally began because the band is always using the studio to jam and try out ideas, and that process is ongoing. Near the beginning of preproduction, too, the group and Dugan took a detour in the fall of 2007 and made a decidedly lo-fi, ’60s-inspired album called *Stop, Drop and Roll!* under the moniker Foxboro Hot Tubs, cutting on a quarter-inch Tascam 8-track. But it was also around that time that the band approached producer Butch Vig—famous for work on great albums by Nirvana, Smashing Pumpkins, Sonic Youth, L7 and his own band, Garbage—about producing the follow-up to *American Idiot*.

“I had known them for years but on a very casual basis,” Vig says from his L.A.-area studio. “I bumped into them on tour with Garbage; we’d be playing an Italian festival or something and we’d hang out backstage and have a beer. But in November or December of 2007, when I was working with The Subways, I got a call about working with Green Day, so I met with Billie Joe in Hollywood. We talked for about three hours about politics and art and baseball and food and restaurants and books we’d been reading—everything except making a record. [Laughs] It was great, and I got a good sense of what makes him tick, and I think we started to develop a rapport.

“Then I flew up to the Bay Area, probably March of 2008, and met with the band and we started taking baby steps together. I think they were a little nervous about working with someone new because they’d done so many records with Rob [Cavallo]. After that, I started going up to Studio 880 and sorting through songs,” some of which were “rough and scrappy” 4-track demos recorded by Armstrong at home; others that had been fleshed out and polished a bit with Dugan at Studio 880.

“There were probably 70 pieces of music I started sorting through,” Vig continues, “and of those, there were three or four songs that were very focused, like ‘See the Light’ [the album closer] was already in a pretty finished form, and ‘Know Your Enemy’ [the first single] was close. But then there were these others, which we called ‘the beasts,’ which were like nine- and 10-minute jams.” What’s a Green Day jam like? “It might start out with riff or a power chord thing, and then go into a tangent where there might be a drum groove, and the bass and the guitar just go for a



Producer Butch Vig

while, and then it goes into a completely different tempo. I started making note of things that I thought were the strengths of the jams and the songs—picking the best things. For instance, in ‘21st Century Breakdown,’ the front end of that song starts with very Who-like power chords, and then right after the second chorus there’s a scene change, and that was actually from another song called ‘Class of 13,’ which was like a 10-minute song that had this Celtic riff in the middle. When I heard that, I told Billie, ‘We’ve got to put that somewhere!’ The riff found its way into ‘21st Century Breakdown,’ but only after the band had changed the key and then practiced it extensively to make sure it made musical sense in its new setting. Vig notes, “There were a lot of moments on the record like that, and the band was very insistent that they could play it—that it wasn’t going to be cut together in Pro Tools. It had to sound like they could perform it naturally.”

More often than not, the band was up to the challenge. “They’re one of the tightest bands I’ve ever worked with in terms of how good they are at playing their instruments,” Vig marvels. “And they know each other so well, when they lock in they are a machine.”

Vig says that the “concept” nature of the new album did not reveal itself immediately. “I’d probably been going up there for about three months,” he says, “and I remember one day Billie seemed a little depressed. I think he felt he’d hit a wall; he wasn’t sure what the focus was. We came in and rather than jamming or putting the songs up and listening, Billie put these big pieces of paper up on the wall in the lounge of the studio and started writing all the titles down, and then next to the title he’d write something about what the song means—he might have a catch phrase or a lyric or something. And then he’d point an arrow from that—like ‘Know Your Enemy’ going down to ‘Restless Heart Syndrome.’ And ‘Christian’ and ‘Gloria’ kept popping up. We cut the [paper] up

so we could move them around and try to figure what songs seemed to be 'speaking' to each other. We did that for a couple of days, and I think it really helped Billie understand lyrically what was making sense. And for me and for the rest of the band, we could kind of tell musically what was starting to fit in together, and that was the start of a process that helped define where we were going. Maybe at the end of the second day, Billie said, 'Maybe this is the title,' and he wrote '21st Century Breakdown' at the top."

In August 2008—mostly to get a change of scenery after months working in Oakland—the action moved to pair of small studios in coastal Orange County, JEL Studios in Newport Beach and Costa Mesa Studio in neighboring Costa Mesa. Many mornings there were spent surfing, and afternoons were devoted to intensive recording. "They just needed a place where they really could shut out the world and *play*," Vig says. "So they would play and play and play and I would record it. They would play a song live and then Billie would throw down a couple of passes of vocals to see what the feel was like. We cut stuff *really* fast. We kept working and working, and at the end of August we had 17 or 18 songs that the band could play and they sounded tight and they all sort of made sense. And it was at that point we split it into three 'acts'—*these* songs are speaking together, *these* songs are speaking together."

The band brought very little gear down with them: a minimal drum kit, small amps, a couple of guitars. The goal was to work quickly and document the songs, not make a polished recording. Sessions generally ran from about noon until 6 or 7 p.m., at which point Vig would usually go home, and the band shifted gears and became secret DJs for a low-watt pirate radio station they operated during their time down there.

Next stop was Ocean Way's Studio B, where the band has worked often in the past, for the actual tracking sessions. Dugan describes the space as "a no-frills, very old-school kind of big, tall room. It's a great drum room that has this dome or lid that raises and lowers where they typically set up the drums. We occasionally lowered it to get a more dead sound, but mostly we wanted to get the sound of the drums in that room. That room has a huge ambient sound."

To that end, Dugan raided Ocean Way owner Allen Sides' legendary mic collection and set up several sets of room mics "to cover all the bases. We had two [Neumann] M50s, which were our main stereo room mics. At one point I had two U67s, but we changed out for a stereo

Royer—the SF24. We ended up using that quite a bit; it's a great-sounding mic. Then we also got these old RCA 77s and I had those *way* up in the air. Then there was also the [Shure] 58 that's there for Billie to sing; that's in there, too. My whole thing is to get as much as you can and then subtract."

As for Dugan's regular drum-miking scheme for Cool's kit, "My secret weapon is the Telefunken M80 vocal mic on the snare drum. Tré hits his hi-hats so hard, it sounds like he's trying to kill them, and I would end up with too much hi-hat in the snare mic. We used to use a 57, but it turns out the M80 rejects [the hi-hat] really well." Dugan used Telefunken 251s for the overheads; for the toms, AKG C12As on top summed with AKG 414s on the bottom; and for the kick a Shure B52 and a 47 FET. Dugan says that Cool switched out snares for almost every track, trying to match his kit as best he could to the feeling of each song.

Mike Dirnt's bass chain included an Avalon U5 DI through a Vintech X73i preamp and an Empirical Labs Distressor, as well as two mics on his bass cabinet: a Sennheiser 421 through the Vintech and a Distressor, and a U47 FET through a Neve 1073 and a Distressor. Both bass and drums were recorded to 2-inch tape *and* to Pro Tools (using Apogee converters).

Armstrong employed myriad different guitars and amps, with a couple of Les Paul Juniors and a Telecaster once purportedly owned by Keith Richards getting the lion's share of the work for the layers upon layers of guitar tracks. Dugan typically miked two of Armstrong's 4x12 cabinets with two mics each: The first might have a chain that included a 57 and a Royer 121 ribbon, through Chandler Germanium preamps and EQs summed to one track though an Altec 1567A tube mixer; the other would have a 57 and a 414 through 1073 preamps treated the same way.

For lead vocals, Armstrong used a Telefunken USA U47 that Cool and Dirnt bought for his birthday, "because he needed to have The Beatles' mic!" Dugan explains. That went through a Chandler LTD-1 preamp and a Retro Instruments 176 compressor. Dirnt's all-important backup vocals were sung into Telefunken ELAM 251, which was chained into a Chandler TG Channel Mk II preamp and a Retro 176.

When it came time to lay down the tracks for the album, all the months of preproduction really paid off. Vig says,

"I'd get in around noon or one, the band would get in around two, and once we got the sound we wanted, we'd spend time listening to different snares and Billie would pull out different guitars and switch amps around. It was maybe a couple or three takes and we'd have the song. Right after we got a keeper take, Billie and Mike would come back in and we'd overdub the master bass and guitar takes—rhythm takes—in the control room because I could sit right next to them and they could hear really clearly.

"Then we'd go back and start overdubbing if we were going to double guitars. We did a process where we'd do cleaner guitars—like a Tele—as a left-right pass all the way through the song; then he'd do Floyd, which is one of his Les Paul Juniors, into a Park amp, which is sort of like a Marshall, only more dialed up, left and right. And when we really wanted to hit overdrive, he would go back and do a pair of guitars with a Marshall—they used that for a lot of the big guitars on *American Idiot*. So on some parts of some songs, there are six guitars just playing the main rhythm part, and normally that's really hard to do, but Billie plays so tight—he would do a left-right pass and I wouldn't hear anything out of sync anywhere. And we would track six guitars in about 30 minutes. On some records I would spend *days* doing six guitars trying to get them to sound tight and in tune.

"Billie's vocals went down really easily, too," Vig continues. "When he was ready to sing he'd do one run-through and we'd record it to get the levels, and then he'd do three, maybe four passes and that was it. Sometimes we'd do a speed-



Engineer Chris Dugan

comp—take *this* section and *this* section—and play it for Billie, and he might say, ‘You know what, I think I can beat that third verse,’ and he’d go in and do another take on that. I’ve never worked with a band where you actually got the performances so fast. I was overjoyed!”

Vig says they cut the album in order, “because it made it easier to make decisions [about effects, treatments and such] when you knew what you had just done and what was coming next.” A few textural elements from the pre-production sessions at 880 and Orange County ended up being used, and late in the game a subtle string section was added to a few songs, most effectively on the Middle Eastern–flavored “Peacemaker.” Strings were recorded in the larger Ocean Way Studio A; though Dugan close-miked the strings, he ended up preferring the sound of a trio of distant M50 room mics.

Vig and Dugan made fairly detailed mixes on Ocean Way A’s Focusrite board before turning the Pro Tools sessions over to master-mixer Chris Lord-Alge, another longtime associate of Green Day’s (and one of the busiest mixers in the business). Before that happened, however, after the group had finished its work in L.A. and returned to the Bay Area, Armstrong revealed

that he had written a new song that might work with the rest of the album. Indeed, the driving, punk-y “Murder City” was sensational, so the group quickly cut it in its entirety back at Studio 880, and it found a perfect spot for it in Act II of the trilogy.

L.A.-based Lord-Alge had mixed both *Nimrod* and *American Idiot* at Image Recording in Hollywood, did some post-*Idiot* one-offs and mixing of live material at Resonate Music in Burbank, but now works out of his own room in the former Can-Am Studios in Tarzana, home of classic recordings by Soundgarden, Pearl Jam and many others. Working on that studio’s 72-input SSL G Series board and employing “a frickin’ wall of the best outboard gear imaginable,” as well as some plug-ins, Lord-Alge says, “When we were doing the first couple songs and getting the template together, we would put up *American Idiot* so we could compare that we were in the same ballpark or killing it. So we might use that as a start point tone-wise—because we were in a different studio—and we took it as a stepping-off point. So once we reached the point where we were killing it, we put it away and didn’t refer to it again.

“They were meticulous about making sure

the roughs maintained the balance they wanted,” Lord-Alge continues. “Then I would take it to the next level. For instance, I took a lot more liberties on ‘East Jesus Nowhere’ than their rough, but they loved it! I literally did ‘East Jesus,’ ‘Peacemaker’ and ‘Murder City’ all in one day and got them out by six that afternoon. Once we were dialed in, it went very smoothly.”

The result of the team’s hard work is an album that combines uncompromising punk rock with sonorous ballads, soaring passages with in-your-face rock assaults. It feels at once adventurous and familiar—definitely Green Day all the way.

“When I first started talking to them,” Vig says, “I got the sense that they felt liberated that *American Idiot* had really raised the bar and they could do whatever they wanted. I was relieved that they wanted to make a fairly ambitious record because I’ve seen a lot of bands that take a step back when you have that kind of success. It freaks them out. So they go back and make *Kerplunk, Part II*—a really fast punk-rock record, and put it out. In a way, to me, that’s sort of not facing the responsibility of where you are in your career. I was relieved and really happy they wanted to try and go even higher.” III



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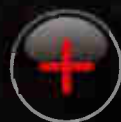


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PHOTO: JAMES O'HARA

Elvis Costello

AMERICANA IN THE ROUND

By Barbara Schultz

Elvis Costello's latest album, *Secret, Profane and Sugarcane*, was produced by T Bone Burnett, and it bears some resemblance to the 1985 *King of America*, the last album Costello put into the capable hands of his longtime friend and collaborator. Like *King of America*, this new release showcases Costello's Americana leanings (a genre without a name in '85), and surrounds him with a band of top-grade acoustic players who help realize an inspired collection that's made cohesive with a consistent, uncommonly authentic sound.

Costello, Burnett and the "Sugarcanes" (Jerry Douglas, dobro; Jim Lauderdale, harmony vocals; Dennis Crouch, double bass; Mike Compton, mandolin; Stuart Duncan, fiddle; Jeff Taylor, accordion) assembled in Sound Emporium Studios (Nashville) in March of last year to record a group of Costello originals—including a couple of songs co-written with Burnett and one collaboration with Loretta Lynn—and one cover, Lawrence Coleman and Joseph Darion's "Changing Partners." Sessions comprised three days of live tracking, managed by Burnett and his longtime engineer, Mike Piersante.

"The musicians all sat toward the back of the room. There's a space we usually gravitate to so we set everyone up in a circle there, all facing each other, including Elvis and background singer Jim Lauderdale," Piersante says. "It seemed like the best approach, but I wasn't sure at first if

Elvis wanted to be part of a circle—actually singing out there—because that brings up so many limitations as far as things you can replace or fix. But there's also an immediacy between the musicians. Everything you hear on the album is done positively live. No overdubs, no one in a booth." Also worth noting about these sessions: no drums.

Piersante captured the live tracks with a collection of vintage mics that he and Burnett bring to all of their projects. "You probably understand that the circle poses a bit of a technical challenge," Piersante says with a laugh. "But I've learned over the years that if you use ribbon mics with their figure-8 polar pattern and face the artists a certain way, the rejection points on the mics will face the person next to the one you're miking. If you set them up where those null points face the next guy, and go all the way around the circle that way, you actually get pretty darn good rejection. I'm still surprised sometimes, if I solo an instrument, to hear how little of everyone else I have in that mic."

These mics were mostly RCA 77s and 6203s, as well as one or two of Wes Dooley's AEA mics. A Blue Cactus mic was used for Costello's vocal, also in a figure-8 pattern. He also places a pair of Neumann KM84s overhead. "That provides a lot of space and a little bit of ambience for the larger picture we're taking," Piersante says.

The production team also travels with a col-

lection of Burnett's instruments, and they rent a selection of classic Neve modules: 1073s and 1081s. "It's classic mics through the Neve pre's and pretty much straight to tape," Piersante says. They record to the studio's Studer A827 tape machine, backing up to Pro Tools.

"We try to keep a really good, pure, short signal path," he continues. "We might use a compressor on some things, but just touching them—a tickle here and there."

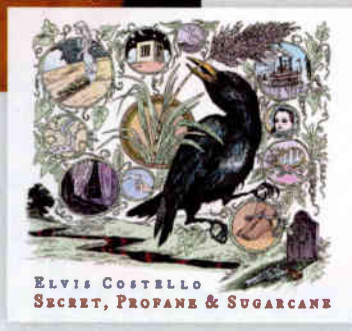
Though Piersante and Burnett typically bring in a lot of their own gear, the engineer stresses that Sound Emporium Studio A, one of Burnett's go-to facilities, and the studio staff, are also essential ingredients in their relaxed recordings. "It starts with the people who work there," Piersante says. "Owner Garth Fundis, [studio manager] Juanita Copeland and all the assistant engineers—everyone

is fantastic there. We worked with an assistant engineer named Kyle Ford, and he has been my right-hand man there the past several projects we've done there. Matt Andrews has also helped us over the years. He started working with us on *O Brother*, way back then. We also like that the studio is not right on Music Row, and that it's an older studio designed in an old-school fashion. Cowboy Jack Clement was one of the original owners and builders. They made a classic room that sounds great."

Burnett and Piersante took the tracks back to Burnett's Electromagnetic Studio in L.A. to mix on a custom analog console built by Sunset Sound Reorders in the late 1960s, though the engineer says that the mixing process involved little in the way of sonic manipulation. "Everything's bleeding to some degree, so basically it had to be a very simple, honest mix—not a lot of outboard gear or treatment, just balancing and a little tone shaping here and there," he says.

The team's "honest" approach comes through, especially on the Costello/Burnett-penned tracks "Sulphur to Sugarcane" and "The Crooked Line," both of which have a very front-porch vibe. The latter also features Emmylou Harris singing harmony.

"Great songs, great players and, first and foremost, great singer," Piersante sums up. "You have these great guys in the room, and I'm just there to take a picture of it." ■■■



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Grossman, was to try to capture their live energy at the Grande Ballroom in Detroit. Simon, live recording specialist Elliot Mazer and Columbia staff engineer Fred Catero “flew out there along with the portable recording equipment—a recorder [a Scully 4-track] and this large rotary pot board they used when they’d do the Mormon Tabernacle Choir or whatever,” Catero says.

Mazer remembers, “We probably had guitars on one track, drums on the second track, voices on another, maybe bass on the last one. That wasn’t viewed as an impossible thing to do back then. Remotes in those days were ‘get it and get out of there.’ We had some setup and no soundcheck, if I recall. The MC5 [from Detroit] opened the show and [MC5 leader] John Sinclair introduced Janis. I think we did two nights. Originally, when Albert figured that a live album was the way to go with that band, it was set that John [Simon] and I would co-produce everything. But the Grande stuff was only pretty good—and not as good as one needed to make a really good record. Like, the ‘Piece of My Heart’ was okay, but it wasn’t like a produced record, which it needed to be to make a real hit.”

Catero is much less diplomatic: “Janis sounded great but the band was terrible.” (Nevertheless, a number of tracks from the Grande were released later, on *Joplin in Concert* and the expanded version of *Cheap Thrills*.)

After that, Mazer says, “They went back to New York and decided to go back into the studio, and I didn’t get involved in those sessions.”

Both CBS in New York and their branch in L.A. (which later hosted *Cheap Thrills* sessions) had been old broadcast studios originally, with “all-tube hand-built consoles designed by Eric Porterfield, who was the official head of Columbia engineering,” Mazer says. “They had their own machine shops; they did everything. All the studios had very similar boards, some with more inputs, some with fewer; rotary pots and passive equalizers, which are basically like tone controls. Engineers today would die if they saw how few options we had.” The recorders were custom Ampex 8-tracks. Both New York and L.A. had live chambers, and, Mazer says, “because they were former radio studios, the post-production rooms were small—10x15 or so—with a small console, and a rack on your right as you sat there, and probably some kind of Altec A7 speaker and maybe an Auratone. In those days you probably had an LA-2A, an RCA compressor and maybe a Pultec. And the

EQ in the board was a minimal 4-band equalizer.”

Fred Catero is not sure about what mics he might have used on Big Brother. “On an 8-track session, I probably would have had three mics on the drums—kick, snare and overhead—going to one track. For drums, I didn’t use condenser mics; I’d use high-quality dynamics. For guitars I used dynamics. U47s were out then, and I might use that on a lead vocal, but if it was a raunchy thing, I might use an SM57.”

In Catero’s memory, the studio sessions for *Cheap Thrills* were “like pulling teeth. Janis always sounded good, take after take, but it was hard to get the band to play in tune and in time; they just weren’t very good musicians.” Still, they tried to capture the group live in the studio—even setting them up as they played live. But the perfect take remained elusive. Producer Simon was continually frustrated by the group’s sloppiness, and was not shy about showing his displeasure. But as Mazer notes of Simon, who remains a close friend, “John’s a Princeton music graduate, he’s got perfect pitch, a great sense of time, and it was hard for him dealing with that band, who were very, very loose.”

“Piece of My Heart” was penned by New York songwriters Bert Berns and Jerry Ragovoy. It had been a Top 10 R&B hit for Erma Franklin (Aretha’s older sister) in 1967, and had been suggested to Joplin by Jefferson Airplane bassist Jack Casady. From the outset, it was viewed as the most likely candidate for a single: It captured Joplin’s tough-yet-vulnerable persona; it had a scorching lead solo by Sam Andrew; and a winning hook. They just couldn’t quite *nail it*.

With admittedly rough versions of the songs completed, the tapes (and the band) went to CBS Studios on Sunset Boulevard in L.A., where Mazer came back onboard for a couple of weeks’ work, along with L.A. engineer Jerry Hochman. “We did some vocal tweaks here and there, overdubbed some parts on it and then mixed it,” Mazer says. “What happened in L.A. is the band and Janis got confidence that it was going to sound really good. And we finished a few things that had irritated them or which John remembered as not being as good as they should be.

“And I’ve gotta say, Janis was there *all the time*,” he adds. “She was the first one in the stu-



dio in the morning and the last one to leave at night. She wanted to know everything that was going on: ‘Why did you do that? Why did you plug that in?’ She was fascinated with the process and really cared.”

Because of some problems with one of the tape machines in L.A., a couple of the mixes for the album had to be re-done back in New York, with Roy Siegel supervising. It was in New York, too, that the “live” component of the album was added: Bill Graham’s famous introduction—“Four gentlemen and one great, great broad... Big Brother and the Holding Company!”—was grafted onto the album opener, “Combination of the Two”; as well as applause at the end of several cuts, which Catero says was mostly manufactured recording “secretaries and whoever was around, cheering and banging tambourines in the hallways of the studio.” Despite the proclamation on artist R. Crumb’s iconic cover for *Cheap Thrills* (original title mixed by Clive Davis: *Sex, Dope and Cheap Thrills*) that the album was recorded live at the Fillmore Auditorium, there is only one truly live track, “Ball and Chain,” recorded at Winterland.

“Piece of My Heart” does not have any audience fakery on it, and it was an instant hit on both FM and AM radio when the album was released in the fall of 1968. The truth was, it didn’t *need* the polish of true radio hit: It had Janis Joplin! The single version—a mono mix with a fade-out ending—made it all the way to Number 12, and the album sold more than 1 million copies on its way to becoming one of the best-loved works to come out of the psychedelic era. The following year, Joplin broke with Big Brother and, with Mazer’s help, formed the horn-heavy Kozmic Blues Band. She died of a drug overdose in the fall of 1970. ■

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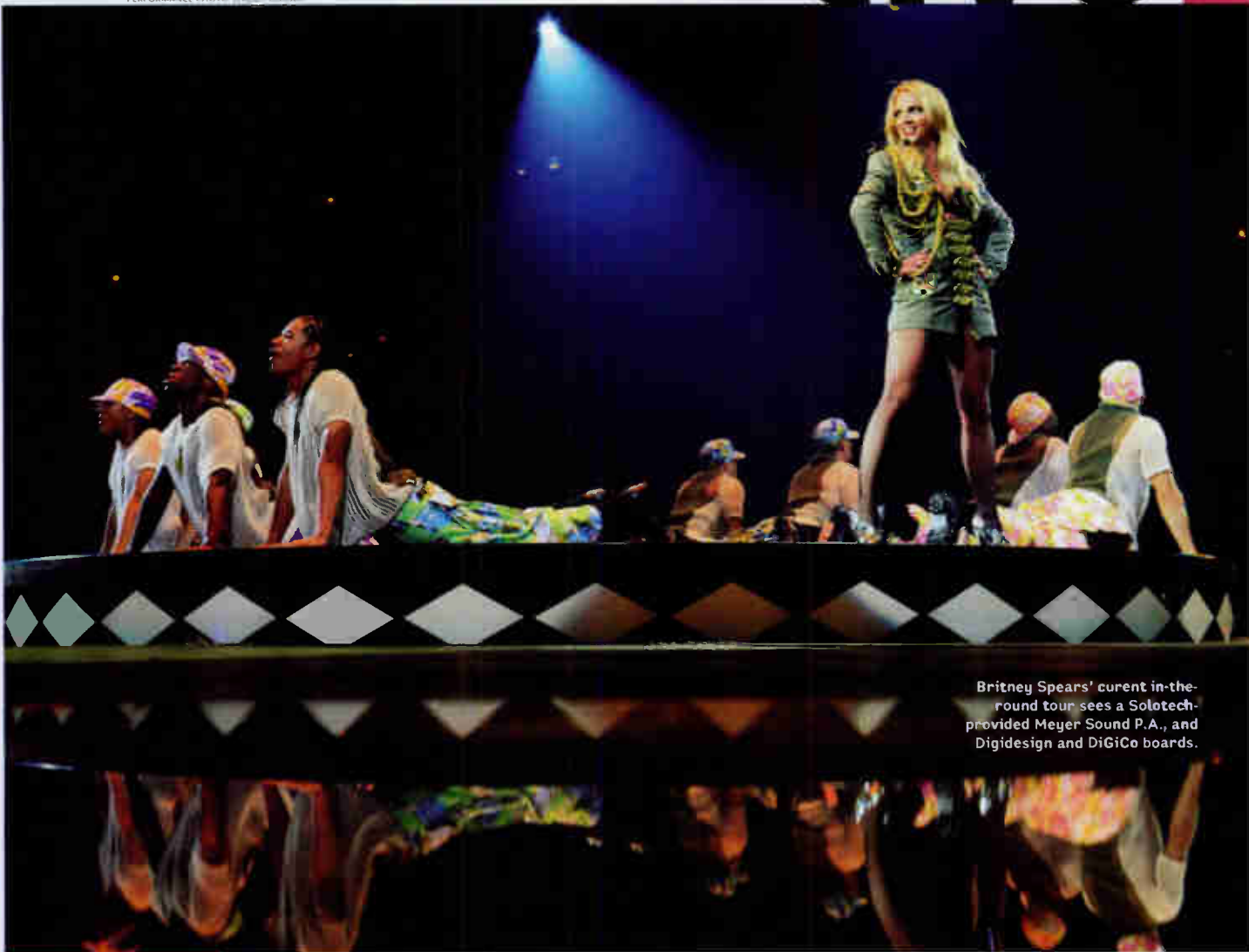
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PERFORMANCE PHOTO: © RICHARD CORRIAN



Britney Spears' current in-the-round tour sees a Solotech-provided Meyer Sound P.A., and Digidesign and DiGiCo boards.

By Sarah Benzuly

Britney Spears

CLARITY IS KING FOR IN-THE-ROUND PERFORMANCES

Welcome to Club Britney—where the music and mix re-create a dance environment with the vibe of her latest release, *Circus*. The in-the-round world tour showcases the pop singer performing alongside a highly energetic dance troupe, a superlative band (drums, bass, guitar, two key-

board players and two background singers arranged in four small pods on the side of the stage) and a gaggle of circus acts—all to the screaming pleasure of sold-out crowds.

Tending to all of this activity is front-of-house engineer Blake Suib, who is taking the FOH reins, having

spent countless hours behind a monitor board for Spears, as well as for such artists as Seal, Destiny's Child, Janet Jackson, Annie Lennox and many more. One would think that making the transition from the side of the stage to FOH would be a bit difficult, but Suib has seamlessly made

the change, pointing out that the tour's Meyer Sound P.A. has been instrumental in switching positions. As the tour is in the round, Suib and company employ 64 MILOs, split up into four hangs (16 per hang) and 32 MICAs split up into two hangs (16 per hang). In addition, there are 12 M'elodies in the center rig (four hangs) and HP-700 subs with some M'elodies on top "to kind of fill in the floor," Suib says. Rounding out the substantial and clear-sounding system are hanging MSL4s and C1s for Spears' stage monitors.

"There are a lot of zones," Suib says. "We're in a 360 scenario, so we have to cover every area of the arena. So instead of a traditional left/

tion to Galileo—helps us properly time-align all the different zones so the pattern of one zone into a different zone is seamless. The end result is even frequency response coverage everywhere in the building."

This is especially crucial in the sold-out arenas, where the goal is that customers in the "nose-bleed" seats hear the same tonality as the VIPs.

"That's one thing the P.A. helps deliver, so people in the upper tiers are dancing, too," Suib says. "I can produce the same quality I get at the mix position to the floor and those in the upper sections. John Meyer has been designing and building P.A. systems for a long time. He



Front-of-house engineer Blake Suib: "The way I mix is more of a feel; I want you to feel the music."

right P.A., we're more of a multizone P.A." In this situation, having system control and tuning components from the same P.A. manufacturer is key, Suib points out. "I think the one thing that separates Meyer Sound from a lot of other companies is they not only build the speakers, they also build the amplifiers and the design software. MAPP Online, helps you work with the architectural design of the building and accurately point the speakers where they need to be, and Meyer's SIM [Source Independent Measurement] system helps us tune the P.A. properly. Instead of just one microphone feeding an analyzer from one position in the arena, we have multiple mics placed in the seats where the speakers are actually pointing, providing accurate readings from the speakers, telling us exactly what the frequency response is at the place where the speakers are pointing. SIM—in addi-

understands this is an entertainment industry. We're there to entertain people, and part of that is being able to bring the same quality to every person in the audience. This has a lot to do with the fact that all the elements—speaker system, amplifiers, tuning software and mapping software—are all designed by the same company to work together in a seamless fashion, as opposed to choosing a speaker system and then going out and figuring out amplifiers, third-party software and so on.

"Every room has its own characteristics, but we start with a flat-response P.A.," he continues. "A lot of engineers play a particular piece of music they know as their reference point. And on any given day, would say, 'Okay, I know what this is supposed to sound like and I can make adjustments.' Well, in the end, you're one person with one set of ears standing in one place,



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making those adjustments based on one place.

"The Meyer software can help accurately tune the P.A. Then, in the end, I still listen, but when I listen at the end of the tuning process, I find I don't really have to make any adjustments to the EQ. I might decide to make it a little bit brighter. But those changes are minimal compared to 10 or 12 years ago when I had one analyzing microphone, a CD player and I was playing music and EQ'ing the system by ear."

In addition to the SIM and MAPP Online,

Britney's vocals, I just try to reproduce—from listening to the sound on the record—and don't stray too far from that. It's Britney Spears; it's not like a band with five musicians of equal status. These audiences have been listening to her music for a long time and they want to hear all the words and hear what she says in between songs, and having the vocal sit on top is a big priority."

Spears continues to use the same mic she favored when she first started performing—a Crown 311 headset. "It sounds good, it works;

Monitor World, At a Glance

Monitor engineer Lawrence "Filet" Mignogna (right) mixes on a DiGiCo D5 for both ear monitors (band) and wedges (Spears). "Britney doesn't like ear monitors because she wants to feel the music as opposed to just hear it," Suib says. "She is all over the stage and she wants to get an accurate representation of what the audience is hearing. She's traditionally used loudspeaker monitors—it just gives her more of a live feel. We have 12 Meyer CQs positioned all around and we send mainly a full mix of everything with her live voice on top. [Mignogna] has his hands full, as the band is spread out over a vast area; everyone can't see each other. We depend on talkback systems and video monitoring to see each other. Everyone's been really happy on this tour. He does a great job."



two system engineers from sound company Solotech use wireless tablets to control every aspect of the P.A. remotely during the performance so that Suib can focus on the mix.

In the Mix

Working on a Digidesign Venue, using all on-board plug-ins (Bomb Factory compressors on vocals, gates on toms, a bit of reverb for the ballads), Suib strives for a "dance club" mix as most of Spears' songs are dance-oriented. "With the Venue console, I have presets for every song because a lot of them are drastically different in styles and arrangements," says Suib. "I use a copy of the CD as a reference, indicating where specific sounds need to be at certain places in the mix—whether it's a handclap or a vocal part or something that is important to the blend of the song. We're doing a live show, so we don't want it to be the record, but the songs need to have the same elements of the record and the same balance.

"There's a lot of dancing going on during the show, and that's what we want the audience to experience," Suib elaborates. "For

it's actually the same one. Anyone who is a fan of Britney can see it's actually the same mic—we have a few of them," Suib says. When a song calls for a handheld, Suib pulls out a Sennheiser wireless. The two background singers use Shure SM58s.

While the majority of her fans might not be pre-teens and teens anymore—many of them having stayed fans during Spears' 10-year career thus far—Suib strives to keep stage volume fairly low. "Some nights, the audience is really loud. I adjust my volume depending on the situation. If the room is really ambient and the audience is really loud, I might turn it down, but I don't fluctuate more than two or three dB. Our show sits at around 100 dB—maybe peaks at 102—but I make it a point to stay in that realm. It's entertainment; we're not here to damage anyone's ears. But the way I mix is more of a feel; I want you to feel the music, as well as hear it. It's dance music, it's made to make you feel it." III

Sarah Benzuly is the managing editor of Mix and EM magazines.



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India.Arie

SMOOTH VOCALS CARRY THROUGH HOUSE SYSTEM

PHOTOS: PAUL NATION

By Carolyn Maniaci

Promoting her latest chart-topping album, *Testimony Vol. 2, Love and Politics*, India.Arie keeps it real with powerful performances that are infused with inspired narrative, woven gracefully through her “neo-soul” R&B/jazz music. Setting the stage for the songstress’ Soulbird tour with a smooth house mix, front-of-house engineer Ollie Cotton Jr. is right in sync with the artist, having toured with her since her double-Platinum 2001 release, *Acoustic Soul*. “I’ve had years of experience and I’ve seen a lot,” says Cotton, referring to decades of work with top producers, engineers and artists, including Quincy Jones, Bruce Swedien, Larry Rosen and Dave Grusin, GRP Records, Dougie E. Fresh, Najee and Take 6. When he’s not on the road, he’s at home behind the console at the Apollo Theater in New York and dedicates some of his time to jazz record label OCDK Records, which he co-owns.

India.Arie’s crew travels light, renting backline at all venues. “The setups will be totally different,” says Cotton, “and we don’t carry production, so one day it will be a Midas, PM5D or VENUE, and one day it will be a Soundcraft, but in India’s mind it’s all the same because we *make* it the same.” At the House of Blues in Chicago, he’s working almost 40 inputs on the venue’s Midas 48-channel Heritage 2000. He’ll leave the remaining channels for opening act Laura Izibor.

India.Arie’s fans hang on every word, and it’s paramount that her vocals come through clearly in the mix, which means holding back on effects and using a gentle touch with whatever effects

package is in the rack for her vocals. India.Arie and her engineer are like-minded, preferring very natural sounds from all instruments, so Cotton doesn’t go heavy on the EQ, either. He’ll lightly adjust EQ on vocals and guitarist “Blue” Mueller’s acoustic so they pop out in the mix, but he mostly leaves everything else alone.

“India has a really nice low end to her voice, and lately I’ve been working on making more room for that,” he says. India.Arie prefers a sound that’s not too bottom-heavy anyway, and keeping the low end in check starts onstage. Cotton mikes keyboardist/music director Shannon Sanders’ Leslie speakers with a pair of Sennheiser 421s, directing them only at the top rotary speakers to capture the tremolo vibe on the B3 without blowing out the bottom end of the mix. Back on the drum riser, James Barrett wears headphones to hear his mix through a Mackie 1202 mixer; to avoid using a subwoofer to deliver him his kick sound, he mounts a ButtKicker to the drum throne.

Using Shure wireless Beta 58s allows for easily passing mics and for India.Arie’s flowing movements when she sings sans guitar. Most of the mics Cotton requests on his input list are Shures: SM98s for toms, SM81s for hi-hat and toms and SM57s for guitar amps. He pairs an SM91 with an Audix D6 for kick, and likes to use AKG 414s as overheads on the kit.

Stage tech Vik Goel takes care of monitor setup, as well as guiding the monitor mix. None of the bandmembers has taken a liking to in-ear monitoring, except Barrett, so the stage is strewn



FOH engineer Ollie Cotton Jr. (left) and stage tech Vik Goel at the House of Blues’ Midas board.

with a dozen Electro-Voice X-Array XW12 wedges flanked by Xi-1183A sidefills, requiring as many mixes, including two pairs of wedges for India.Arie. Her center pair carries mostly her vocals, with some guitar and kick, and an outer pair brings in the rest of the band. India.Arie’s schedule often has her arriving at the venue after soundcheck, so Goel is her eyes and ears. As a very dynamic singer, she needs a lot of monitor level to get the vibe of the quieter moments.

Cotton works with Goel and the house monitor crew to keep stage volume under control, often muting the P.A. at soundcheck to listen to the stage from the FOH desk, picking up on what instruments or frequencies are too far up and guiding Goel and the band to tighten up the sonic footprint of the stage. Sanders, Barrett, Mueller and bassist André Bowman enjoy a stage that is uncluttered by overpowering amp levels, and that is key to Cotton’s approach to a crystal-clear house mix. This group of seasoned musicians works with an almost familial connection to India.Arie and her musical vision, and according to Cotton, he can rely on them to be as tight sonically as they are rhythmically. III

Carolyn Maniaci is a Chicago-based freelance writer.

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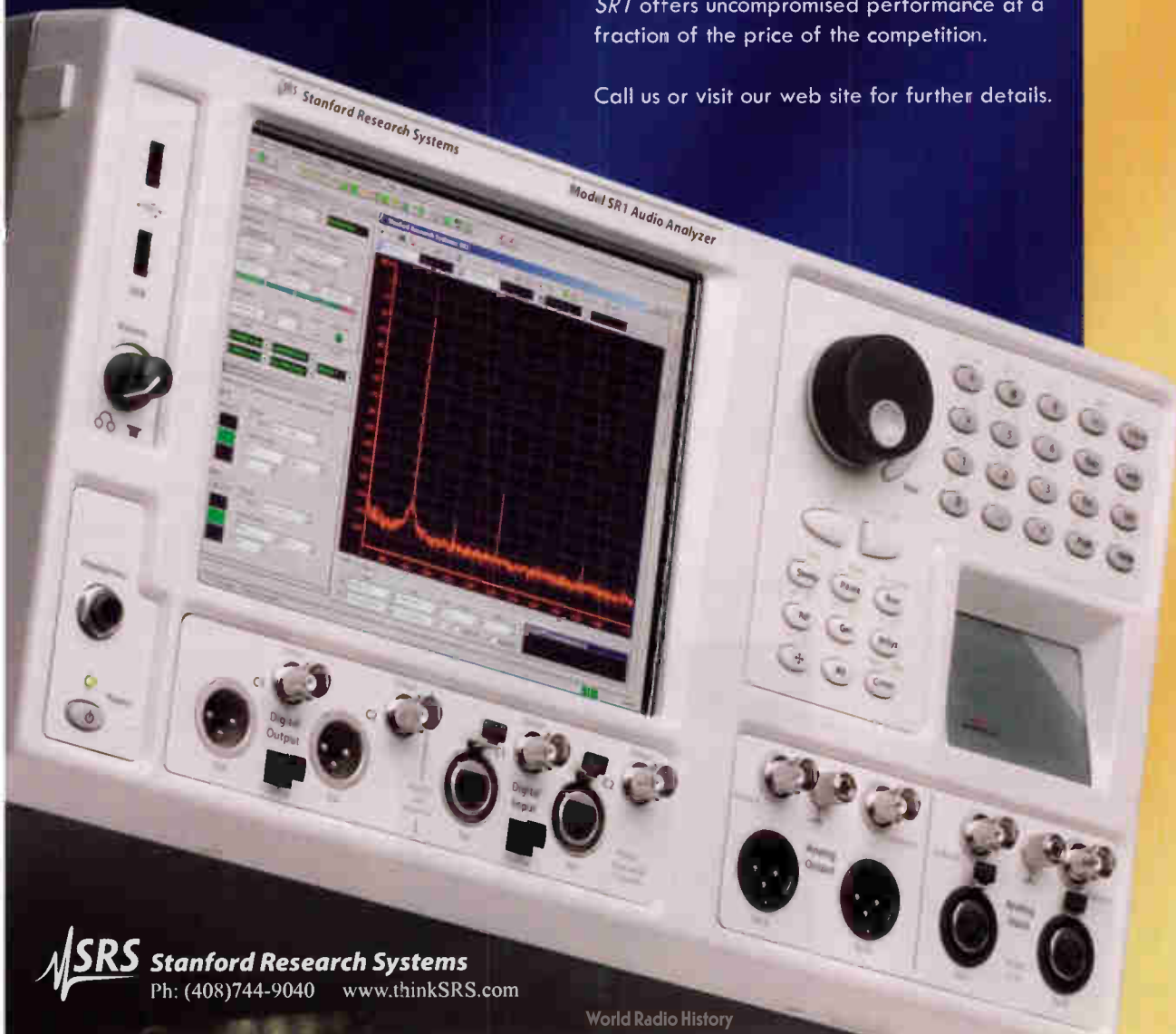
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SOUNDCHECK

Jack's Mannequin



Jack's Mannequin is playing an assortment of venues, from large theaters to small clubs, so the tour is not carrying a system; the crew is relying on house P.A. at each stop. *Mix* caught up with the tour—out in support of their latest, *The Glass Passenger*—at San Francisco's Warfield Theatre, which offers a Meyer Sound MILO rig. The system was installed by Pro Media/UltraSound (Hercules, Calif.), with which front-of-house engineer T "Quake" Mark has been affiliated since 1992.

Engineer Quake (Phil Lesh, Jane's Addiction, Goo Goo Dolls, Primus, Tracy Chapman) is manning a Digidesign Profile as the band wants to multitrack each night, requiring the use of Pro Tools. "[The Profile] is very intuitive and sounds good, and

the interface to Pro Tools is quite easy," Quake says. "I'm using the onboard plug-ins, including Smack [kick, snare], gates, Bomb Factory TL 100 [bass] and Focusrite compressors (vocals). The only outboard I still carry is a Yamaha SPX-900 or 1000 for a pitch change. I like the grit it has."

Quake had to come up with an effective miking technique for the Baldwin baby grand. "We have our two pianos—always carry a spare!—fitted with a MIDI kit, and it feeds a Kurzweil PC2R. I mike the inside with two Audix SCX 255 on a tape bridge just over the center of the piano. We also use the new Helpinstill pickups. It was interesting figuring out the phase and time problems involved with multiple sources like that. But

the result has been very stable and full-sounding." Drums take Beyer M88 (kick), Sennheiser 421 (snare), Shure Beta 57 (snare), Neumann KM 184 (hi-hat), Audix D2 (toms) and CX 111 (overheads), and AKG 460 (ride). Vocal mics (two of which are for lead vocalist Andrew McMahon, depending on the direction he's looking) are Sennheiser 945S.

Monitor engineer Greg Mahler works on a Yamaha M7CL, using all onboard effects. Half of the band is on IEMs; the rest are on wedges. "Andrew is on Sennsaphonics 3D Active Ambients. The drummer, Jay McMillian, just switched from wedges to Sennsaphonics 2MAX in-ears, which he loves," Mahler says. "He also has a Meyer sub behind him for thump. We plan to change to butt thumpers soon. Both of them are using Sennheiser wireless IEM packs. The bass and guitar players are on Meyer MJF-212 wedges.

"Andrew requires constant attention to detail in his mix," the monitor engineer continues. "It's like mixing FOH just for him. It takes a lot of concentration watching for his little subtleties that tell you if he likes what's going on in his mix."

tour log

Taking Back Sunday

Four-piece rockers Taking Back Sunday (don't we all wish we could?!) are out on a nationwide headlining tour in support of *New Again*, which was released last month. *Mix* talked with the band's front-of-house engineer, Marc Jacob Hudson.



Left: Taking Back Sunday. Right: Engineer Hudson.

How much gear are you carrying?

I was carrying just a mic package comprising mostly Sennheiser Evolution Series.

What is your go-to piece?

For this band, when we're on an analog console, I try to line up a BSS 901 for the center vocal channel. It's a lifesaver with Adam [Lazzara's] "creative" mic technique. When we're on digital, I try to use whichever plug-in is available for multiband dynamics: McDSP MC2000 on a Digidesign VENUE or the built-in multiband comp on the Yamaha PM5D. Another favorite piece is the Line 6 Echo Pro delay.

Do you have a specific mixing style?

I'm pretty much always striving for overall clarity and intelligibility. This band's songs are pretty dense, with lots of motion in all the parts—drums, bass, guitars and vocals—so keeping everything in its own space can be quite a challenge.

What board did you mix on?

We had different consoles every night. We generally request a PM5D for those kind of shows, although I prefer the sound of the VENUE. We ended up with an iLive, Soundcraft Vi6 and a couple Midas analogs on the European dates.

When you're not on the road, where can we find you?

I travel as tour manager/FOH with Saves the Day and Thursday. I also operate a recording studio in Michigan.

fix it

Lars Brogaard, Lionel Richie FOH engineer

I use snapshots [on the DiGiCo SD7 console] to provide a basis for each night. With this band, there is no real need to be overly sophisticated, and I like to let the show build organically as it goes along each night rather than stepping through presets. When you're touring, the performances naturally change and evolve as the dates go by. I don't believe in just trying to re-create the production rehearsals every night. It's great that I can have that basis, but also the flexibility to actively mix every show. The band can really play and Lionel can really sing, so they are hugely enjoyable gigs to mix.



Upgrade at Webster Hall



Basement Gets Top-Floor Treatment

New York City live sound landmark Webster Hall, which has been a showcase music venue for more than 120 years, has upgraded its 300-capacity basement venue, The Studio @ Webster Hall. Kevin Mignone of KM Productions was brought in to design and install a new system, which includes three L-Acoustics ARCs per side flown in a horizontal array and powered by two LA4 amplified controllers. Four SB28 subwoofers, driven by one LA8, are positioned end-to-end behind a sturdy steel grille under the front lip of the stage. For monitoring, the venue offers five mixes, which are delivered via four coaxial 12XT wedges and a single 115XT HiQ for the drummer, all collectively powered by three additional LA4s.

Before permanently installing the new system in December, Mignone had operated an identical rig from his L-Acoustics inventory in the room for a month-and-a-half, starting with

the CMJ Music Marathon in late October. "We had 50 bands play the room in those first five days, so the system definitely got a workout and proved itself to the club," Mignone says. "Not only did it handle the rigorous schedule of a wide variety of acts, but consider this: The room is four walls of sheetrock with metal behind it. There is not even the slightest bit of acoustical treatment, and yet everything sounded crisp, clean and beautiful from the start—even before I tuned the room.

"Everyone's absolutely in love with the sound system," Mignone continues. "Most people don't expect to walk into a small venue like this and find a setup of this caliber. As a result, The Studio has very quickly developed a reputation as a fantastic place for shows, and bands from all over the world—even fairly well-known acts—are now requesting to play the venue."

The space also features a digital multitrack recording studio capable of capturing acts on the basement stage, as well as acts two floors up in the Grand Ballroom.



KM Productions' Kevin Mignone with one of The Studio's new coaxial 12XT stage monitors

load in

Lectrosonics wireless systems are in use for two *Ex Machina* (Quebec City) presentations—The Blue Dragon (pictured) and *Éonnagata*—as spec'd by sound designer/musician Jean-Sébastien Côté.

PHOTO: GUY LEBLANC

The Briere Production Group (Vancouver) provided A/V for the hard-metal No Fear Energy Music Tour's first Canadian date; system techs Rico Domirti and Brandon Hestdalen spec'd a Martin Audio system...Celebrating 20 years in business, entertainment venue Mickey Gilley Theatre (Branson, MO) added a Yamaha M7CL digital board for use by FOH engineer Matthew Miles...A Meyer Sound system (provided by UK-based Capital Sound) is currently on tour with Il Divo, according to FOH engineer Chris Pyne...System of a Down frontman Serj Tankian recently took the stage with the Auckland Philharmonic Orchestra (APO) to reinterpret his first solo album, *Elect the Dead*, opting for a slew of Shure wireless gear for everything from guitar and vocals to in-ear personal monitors.

road-worthy gear

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first continuously variable-pattern condenser hanging microphone system featuring remote polar control over standard mic cable (2,000 feet max.). Features include an antirotational cable mount, a 40-20k Hz response, and VPC-1 control box with fingertip access to pickup patterns and selectable 80Hz low-cut filter. Up to six VPC-1s can be mounted in a single-rack unit.

www.astaticinstalled.com

Technomad High-Q Berlin Versions

Technomad expands its line of waterproof, full-range, two-way speakers with new narrow-dispersion models: the Berlin 60|40 and Berlin 90|40. Designed to provide high-Q (long-throw), 60x40- or 90x40-degree constant-directivity coverage, these 33x20.6x10.5-inch unpowered enclosures have a 2-inch compression driver and 15-inch woofer for 50-18k Hz (± 2 dB) response, 500-watt power handling and high efficiency (102dB, 1w/1m). Options include 14 color choices, 70-volt internal transformer, PolarFocus™ rigging/arraying, subwoofers and wide-beam versions.

www.technomad.com



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Now, 70 years after the original Unidyne, Shure beefs up the classic 55SH vocal mic. The new Super 55 Deluxe features a high-output, Neodymium supercardioid capsule for higher gain-before-feedback; a robust internal shock-mount (to reduce stage/handling noise); and a vibrant blue windscreen—within that familiar triple-chromed body. The Super 55 Deluxe is now shipping at an MSRP of \$300 and carries a two-year limited warranty. The current 55SH Series II model will continue to be available.

www.shure.com



ALL ACCESS

Photos & Text by Steve Jennings

THE Faint



Front-of-house engineer/
production manager Dutch
Worthington



The bandmembers of electro-synth quartet The Faint are doing it on their own. Their latest CD, *Fascinatiion*, was recorded in their private studio, Enamel, and released on their own label, Blank.Wav. Their current headlining tour finds them entertaining packed mid-sized venues, including The Fillmore in San Francisco, where *Mix* caught up with the act.

For this run of shows, front-of-house engineer/production manager Dutch Worthington relies on house consoles. At the Fillmore show, Worthington was "happy to be using their Heritage 2000; at many other venues, we were not so fortunate," he says. "Because I was sharing compressors and I have a lot of inputs that need compression, I kept things simple and compressed eight

sub group. I gated the kick, rack and floor with BSS 504s." Vocal effects take a long hall reverb, slapback, short reverb and tap delay; however, most vocal FX are done onstage with a MIDI-controlled TC Electronic Helicon.

"The Road Kill piece of equipment [inset] is

sub groups. [For this show,] I used six dbx 160s on drums, keys and vocal sub groups; and two BSS 404s on Joel [Peterson's] guitar/bass sub group and Dapose's guitar/bass

a \$30 distortion pedal that I was told you can buy at Walmart. I bought it off of a house guy because I had left my boutique pedal at the previous gig. Surprisingly, I get less noise and tastier distortion to give the vocals a little edge on certain songs."

The tour is also relying on house-provided P.A.s; Worthington likes to see a well-placed line array hang, such as a Meyer Sound, d&b or L-Acoustic system. For front-fills, he turns wedges to face the audience as there is little vocal or keyboard volume coming off the stage. "For these guys, it just sounds more natural than hearing guitars and drums from the stage, and then keys and vocals from the far corners of the stage or from hung front-fills," he explains.



Vocalist/keyboardist Todd Fink sings through a Shure Beta 57A; Beta 57As are also used for background vocals.



Synthesist Jacob Thiele's setup comprises a Nord Lead 3 and Yamaha AN1x, and shares a controller with vocalist/keyboardist Todd Fink that is controlling a rackmounted Novation.



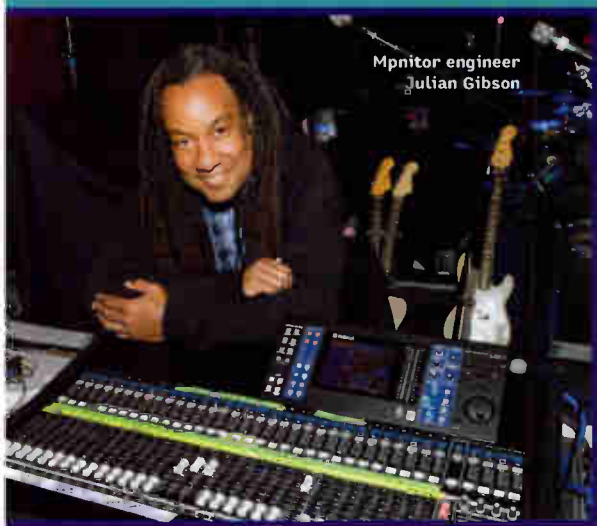
Guitar/bassist Joel Peterson (right) plays both instruments through a Fender Deluxe reverb and an Ampeg SVT 400 with 4x10 Ampeg cabinet. Both instruments' signals run through both amps. Mics include a Beyer M500 ribbon on the Fender, which Worthington says he loves. "All the high end is there, but it smooths out the harshness I get with, say, a 57 or other dynamic mic." Bass cab takes a Shure SM7.



Guitar/bassist Dapose's setup includes a Vox AC30 for guitar and an Ampeg 400UB classic tube head with 4x10 Ampeg cabinet for bass. Worthington mikes the guitar with a Beyer M68 cardioid dynamic, while bass takes a Sennheiser 604 hung with a homemade spatula/z-bar. "I also take the direct out from his bass amp," he says. "Dapose keeps his signals separate—guitar through the guitar amp and bass through the bass amp—resulting in fewer blown guitar speakers!"



Drummer Clark Baechle (right) sings through an AKG D5 supercardioid mic. His kit is miked with a Beta 52 (kick), Audio-Technica 3040 (snare top), Sennheiser 604s (snare bottom, toms) and AKG C 430s (hi-hat, ride). There is also a kick trigger and a "52 helps round out the bottom as the trigger has a lot of attack," Worthington says. Above: backline tech/stage manager Avel Sosa.



Monitor engineer Julian Gibson

Monitor engineer Julian Gibson mixes on a compact Yamaha LS9, running monitors for the three bands on this tour: The Faint (30 inputs, eight outputs), Ladytron (26 inputs, seven outputs) and The Crocodiles (five inputs, two outs). "That is one of the reasons we decided to carry the LS9 with us," Gibson explains. "A bit of clever re-patching and saving scenes, and ev-

eryone's happy.

"Todd [Fink, vocals] and Jacob [Thiele, synths] from The Faint, and two members of Ladytron all use Sennheiser ew300 IEM G2 in-ear monitor systems, with both drummers hard-wired from the desk," Gibson continues. "That made my life much easier, and I wish we were carrying our own monitor wedges." III



By Blair Jackson

'Public Enemies'

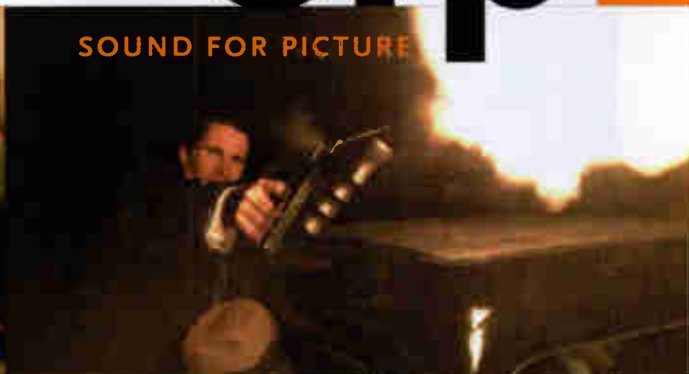
CRIME DRAMA IS A DIFFERENT KIND OF SUMMER FILM

Although director/writer/producer Michael Mann is perhaps best known for his gripping and stylish contemporary action films—*Heat*, *Miami Vice* and, best of all, *Collateral*—he also made *The Last of the Mohicans*; Best Picture and Best Director nominee *The Insider*; and the underrated biopic, *Ali*,

each brilliant and different as night and day. His latest is the Universal Pictures period crime drama *Public Enemies*, with Johnny Depp as '30s bank robber John Dillinger (and Christian Bale as his FBI nemesis), and like all of Mann's films, it is a carefully drawn character study in an exciting, well-told tale.

Mann: is a famously meticulous filmmaker, and his obsessive attention to detail even carries over to sound—he is *not* one of those directors who lets the sound crew go on its merry way until the final mix and then gives the team a few notes and happily signs off.

"He's all over this movie because he



FILM STILL: PETER SODERSTRAND/UNITED ARTISTS

screens it every day or every other day in his screening room, and he's got a mixer in front of him and he'll audition things and try things himself, so you'll get very specific notes about where he wants to go," says Jeremy Peirson, co-supervising sound editor (with Laurent Kossayan).

When I spoke to members of the post team in early June, the film was being print mastered, but there was still serious tweaking of both sound and picture going on. "For Michael, it's all about doing these little moves that in the scene might have a small result, but across the whole have a much bigger

impact," Peirson says. "This is the first time I've worked with a director where we've really been able to work on a scene as it pertains to the whole movie, not just in the playback of a reel."

"He gets into changing levels half a dB, a tenth of a dB, and he gets into syllables," says effects re-recording mixer Beau Borders. "If the line is, 'Let's go!' he might say, 'Raise the attack of the "g" on "go," but leave the "o" exactly where it is, and on "Let's," I want you to do a rise on the "s."' It's not so much for intelligibility reasons; it's because Johnny Depp is supposed to be very forceful in the scene so he wants the attack on the 'g': 'Let's go!' He alters performances in minute but important ways. If he's telling you to raise the crickets or

lower the air in a scene, it's not because he wants to hear more crickets and less air, it's because he has some story-driven intent there."

"He has an ultra-finely tuned set of ears," adds dialog and ADR supervisor Hugh Waddell. "He relates everything he does to the drama on the screen. He can be working on dialog in one scene and trying to get one word sounding correct to his ear because it relates to something 20 minutes away in the show. That's how his process works. It's a balancing act."

Mann used as many of the real locations from Dillinger's saga as he could—from the Little Bohemia Lodge in rural Wisconsin (the setting for a big shootout), to prisons in Statesville and Joliet, Ill., to Chicago's famous Biograph Theater, where the gangster met his violent end. "One of the very first things Michael said was that he wanted the audience to feel that they were *in* the period—in 1933—so that was one of the most important elements we thought of when we did our work," comments Laurent Kossayan. "That's also one of the reasons he shot the movie in high definition rather than on film. He made some tests and put what he shot side by side—in film and in HD—and he said that with the HD, he felt it was like it was happening at *that moment*."

Production mixer Ed Novick certainly had his work cut out for him working in so many different locations, not to mention *the way* Mann likes to film a scene, which Waddell says involves "shooting every angle at the same time—close-ups, wide shots...So [Novick] had radio mics on everyone, booms, all kinds of mics where he could, just so he could cover everything."

Kevin O'Connell, dialog and music re-record-

ing mixer, comments, "Having had the opportunity to personally visit the locations in Chicago, I saw first-hand the challenges that Ed Novick had to deal with, and I'm amazed how well the original production tracks turned out. That was important because this is the first movie I've ever mixed without premixing the dialog first. Michael likes to work from the raw dialog tracks and use as little—if any—processing for the mix."

"Another thing Michael does," Waddell adds, "is multiple passes on the same take, so they'll run through the setup and do a couple of passes without stopping. So from my perspective, there's a sheer mass of material to start with, which is fantastic if you have the time to deal with it, and we did. To be able to go through and find 28 alts for the same word in the same circumstance—same setup, same background noise—that's priceless gold to us. And the process for Michael is a distillation process as he balances words and sentences against scenes, and then he looks at his film again and again and again so he knows exactly how it's working and how it's not working."

Unlike some directors, who like to use the same sound personnel film after film, Mann has employed mostly different teams through the years, and in this case, the supervisors and re-recording mixers are all people he'd never worked with before. Kossayan, a new member of the Warner Bros. Studios' stable, has only been living in the U.S. for a year-and-a-half, but previously had done great work in his native France, such as three films by Jean-Pierre Jeunet (including *Amélie*). This is Peirson's first gig as a sound supervisor, but he has extensive experience as a sound editor/designer and/or re-recording mixer for film and TV projects, including *Watchmen*, *I Am Legend*



Some of the *Public Enemies* sound team (L to R): re-recording mixers Kevin O'Connell and Beau Borders, supervising sound editors Laurent Kossayan and Jeremy Peirson

and animated series *King of the Hill*. O'Connell has long been one of Hollywood's top re-recording mixers—his 20 Oscar nominations speak for themselves. And Borders credits O'Connell with getting him into mixing: He learned much as an FX editor on a number of films O'Connell worked on, including *Armageddon* and *Pearl Harbor*. After some initial ADR and dialog work at Fox and Todd AO, the main mix was done at Warner Bros.' Stage 5, with a dozen or so Pro Tools rigs feeding the stage's Neve DFC.

Tasked with assembling the material that would sell the movie's 1930s setting sonically, Kossayan and Peirson used new FX recordings and existing library material. "We didn't have the opportunity to record cars and trains, but we pushed to be able to record the guns," says Kossayan. "There are several scenes of shootouts, with machine guns and pistols and shotguns, and it was very important for us to record those guns—not only to get the guns themselves, but also to get the spread [ambience]. We went to record near Big Bear [in the mountains east of L.A.] with our recordists J.P. Fasal and Eric Potter, and with Bryan Watkins, who was the editor in charge of all the guns. We went to this orchard there and we recorded these guns, and they had these long tails and then a very, very pure silence. That was good for the Little Bohemia shootout." For more urban scenes with guns, "We went to the Warner Bros. [N.Y. street] backlot on a Saturday morning, and we put up something like 20 mics—distant


mics, closeup mics, overhead mics—and we spent half a day shooting the guns. We wanted to get that city slap and that feeling. We also recorded dirt impacts, wood impacts, things like that." Recorders for the location FX recording included Sound Devices 702s, 722s and 744s.

How the gunshot recordings were used, however, depended on the scenes in which they appeared. As FX mixer Borders explains, "There's one scene where Michael is trying to show how the bad guys have the better technology, the faster cars, they're more organized and they're much more aggressive than the cops. In this particular scene, we relied on the original recordings that Laurent and Jeremy provided, and that's where you hear the machine guns being aggressive and scary and startling. They're in the subwoofers, they're coming out of the surround speakers. You cut to a cop and he's got a little .38 gun that sounds like a peashooter compared to these Tommy guns.


"Now, fast-forward to later in the film—there's a scene where there's a bank heist that goes wrong. It's another quick scene, but this time it's all about disorganization, about the plan falling through—chaos and disorder. And

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when you hear the sound in this particular scene, you're not going to hear giant, lush recordings; you're going to hear an amalgamation of production recordings and sound effects, you're going to hear things chopping off on cuts, you're going to hear breathing and the re-loading of a gun louder than a gunshot. You're going to hear things out of balance from the way you would normally perceive a machine gun battle, and it makes it feel disorganized."

Peirson notes, "Whatever sells the story is the most important factor; whatever helps you link the pieces together is key to [Michael—things that either put you in that location or help you understand the feeling of anxiety or tension that you're supposed to get. And it's never obvious what will do that. For instance, in the gun battle shootout in Little Bohemia, we had recorded all these guns and auditioned spaces for them to be in so we could get how that gun would sound in that place, and in the end our first pass was too much—it was too brutal and assaultive, and very much what you'd expect in an action movie. So we actually unwound it to a certain degree and now we're using a mixture of the production guns, which really do sound like they're there, and some of our guns. And there's a sort of asymmetry to it that's very effective. The guns aren't always at the same level—some will pop up and are designed to surprise you."

When it came to other period touches—cars, planes, trains, phones, flashbulbs, etc.—the team availed themselves of copious amounts of library material, and then customized and sweetened as need be, and the big '30s cars were pieced together from new and old car sounds. "In 1933, V8 engines were brand new," Kossayan notes, "and there hasn't been that much progress with the V8 since. So a 1933 car sounds almost exactly the same as a Suburban now. What you imagine from the cars of that period is the engines going 'putt-putt-putt' and it's absolutely not true. These were powerful V8s."

Even so, often what Mann was looking for was *not* the sound of that V8: "There's a moment where a car pulls in, right up to camera," Borders recalls. "I love cars—cars are my life—so of course I got the old flathead V8 recording. You hear it rumbling in, it comes to a nice stop. But Michael wasn't liking that. [Laughs] He wanted to hear the *grit* of the tires and the creaking of the suspension, because if you put your ear right next to that car, *that's* what you'd hear. The sound effects guy in me wants to hear the motor; but the filmmaker in Michael wants you to lean into the screen and be a part of it."

There were innumerable other details to

work out, from the primitive sound of the police's telephone recordings of the Dillinger gang's conversations (captured on actual vintage Storno disc machines) to the sounds inside a '30s prison to the street walla outside the Biograph Theater (assembled in part from actual random street recordings made by Peirson) and so on. The show required both tremendous creativity and an unblinking attention to detail. Add in Elliot Golden-thal's score—which has elements of '30s music in places—and original jazz pieces by Bruce Fowler, as well as source material from the era, and you've

got a recipe for one *very* complicated mix.

In the end, what the sound team delivered was an often subtle and sophisticated soundtrack, "not what you usually find in the traditional July 4th summer action, popcorn movie," Borders says. "But everything in there helps tell the story; that's what Michael is all about."

O'Connell is equally effusive: "I have never learned more about mixing on a movie than I have on *Public Enemies*, and that's because of Michael Mann. I consider him one of the finest filmmakers I have ever worked with." III



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Woodstock (Re-)Generation

NEW SONGS AND SURROUND MIXES FOR 40TH-ANNIVERSARY BOX

By Bryan Reesman

In June, the acclaimed film *Woodstock* was re-released in a 40th-anniversary *Ultimate Collector's Edition* featuring the Director's Cut, a 5.1 surround sound mix, new bonus features and 13 previously unreleased performances. The possibilities of such a project first emerged when audio mixer Eddie Kramer, who recorded the original festival, and John McDermott went into the Warners vaults four years ago to find material for the *Jimi Hendrix: Live at Woodstock* 5.1 surround DVD reissue. Working with vault-master Bill Rush, they ultimately discovered 10 hours of unreleased Woodstock live footage.

From there, Kramer and Rush spent two years researching and assembling everything. At this point, Robert J. Corti—supervisor, audio mastering and restoration for Warner Bros., and sound supervisor for *Woodstock*—came onboard to handle the technical issues. Once legal hurdles were out of the way, they knew they were going to have a special package featuring unreleased performances by The Who, Janis Joplin, Mountain, the Grateful Dead and others.

The original 8-track tapes recorded at the festival were still in great shape and were transferred directly into Pro Tools through a 24-bit, 96k A/D converter made by Burl, without noise reduction. Once digitized, Corti and sound editor Colin Mitchell cleaned up the tracks, removing any hums, buzzes and clicks, then synched it up so Kramer could sink his teeth into the new mix-

es at Capitol Records' Studio C, where most of the work was done (except for three tracks done at The Village). The DVD's final mix was done by Greg Watkins at Dub 12 on the Warners' lot.

"As you can imagine, Woodstock was recorded under very primitive circumstances," says Kramer, who recorded the three-day event through a custom 12-channel console and two 4-track Shure mixers onto two Scully 8-tracks. "I had virtually no communication with the stage, so the first song for most of the bands was a little bit of an experiment because we were trying to identify where the mics were. The fact that we were able to record for three days and three nights straight through was pretty amazing, plus getting some of the stuff that we did. Some of the performances are a little raggedy, and some of the performances are absolutely stunning and gorgeous."

The issue of mixing live on the fly reared its ugly head during the restoration process. "Some tracks were married together," says Corti. "Sometimes drums were married together; sometimes you would have a separate snare drum and a separate kick drum. More times than not, things were comp'd on one track. There would be a vocal and a guitar, or a keyboard and a guitar. Sometimes you would have bass on one track, and then halfway through the song it would be on another track. They would bounce around. This was being repatched as they played."

At the original festival, Kramer had to cram the multiple instrumentalists from groups onto just seven tracks, but his more recent challenge was to then break those tracks out for his 5.1 surround mix. He was, of course, limited by how instruments were ganged together on tracks, but he had many tools at his disposal to add depth

and dimensionality to the sound, and, of course, he wasn't about to start putting all sorts of instruments in the rears. During the remix process, Kramer used what he thought was the best of the analog world—Pultecs, LA-2As, 1176s, a rack of 1081 Neves and the Neve console at Capitol's Studio C—as well as the latest Waves plug-ins to get a wide palette of sounds from which to choose. He used an EMT plate for tape delay, and Lexicon 960 and TC Electronic reverbs.

In deciding which bonus tracks to focus on for the reissue, Kramer and Rush's initial task was to identify which bands and performances had not been used and why. In some cases, the issue was technical, as was the case with Santana's "Evil Ways." Throughout the first half of the song, the guitarist "was so out of tune that he was on another planet and the leakage was on everything," Kramer says with a laugh. His solution was to hire a session player in L.A. to replace the rhythm guitar bar by bar, and then send the demo to Santana. The legendary musician was so excited by it that he agreed to re-record the problematic rhythm track himself.

Actually, more work was put into the 10-minute Santana track than the 37-minute Grateful Dead song "Turn On Your Love Light," which had small parts missing here and there that were patched up through cutting and pasting in Pro Tools. "It's long, but it is basically a lot of the same thing over and over, so it's not like it was constantly changing," remarks Corti. "You could find a bass line that may have been repeated later or earlier, maybe you could steal a note or two here or there, so it worked out pretty well. You had a lot to choose from."

"I did a lot of work to it—a lot of massaging and a lot of fixing," adds Kramer. "There was a lot of retouching there to make it sound full again." ■

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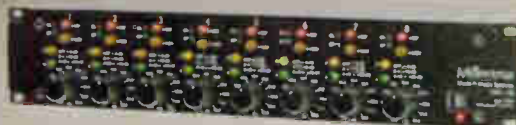
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 We go to 11!

THERMIONIC CULTURE

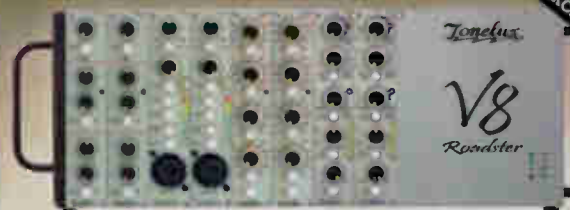


Weiss DS1-MK3

The Weiss DS1-MK3 compressor / limiter / de-esser is not only used by top mastering
 engineers, but top mixers, too! Try it on the mix bus and you won't turn back.

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weiss



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The V8 can be custom loaded with any one of 20 different Tonelux Custom Console
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 of such venerable classics as the C12 and U47.

TELEFUNKEN | USA



Summit Audio TLA-100A Tube Leveler

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- Al Schmitt



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Tech

NEW PRODUCTS



Transparent Gain Control

CharterOak SCL-1 Processor

CharterOak's (www.charteroakacoustics.com) first venture into the processor market, the SCL-1 (\$2,800) compressor promises to provide a constant output level, regardless of input level or frequency without pumping. Features include attack time adjustable from 100 microseconds to 5 ms, hold time of less than 2 ms, soft clip with less than 3% total harmonic distortion at 3 dB, and clip and release time adjustable from 20 ms to 2 seconds. The SCL-1 includes a lifetime parts/labor warranty.

Wonderful Mic With a Past

Wunder Audio CM7 Microphone

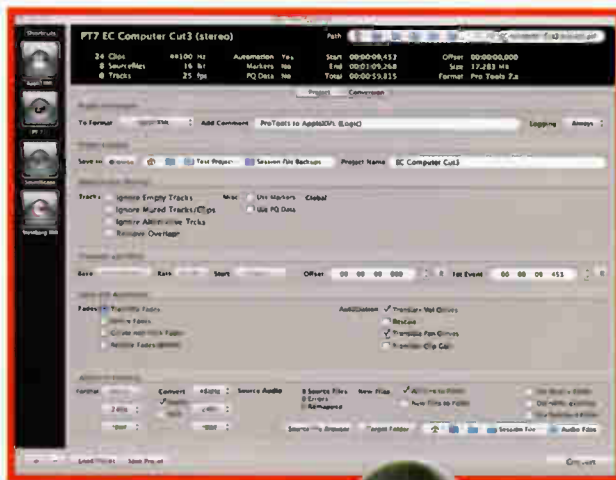


The CM7 (\$6,495) from Wunder Audio (www.wunderaudio.com) features the original large-style U47 transformer used in the earlier U47s, including the legendary "Large Badge" U47. The CM7 transformer's larger size and high nickel content achieves better low end rolling off at 20 Hz, identical to the original U47 design. This omni/cardioid mic ships in a plush oak box, and includes a shock-mount, power supply and a Tuchel-connected mic cable.

Quick-Change Artist

Solid State Logic Pro-Convert for Mac

Solid State Logic (www.solid-state-logic.com) announces Pro-Convert Version 5.5 (\$349) for Mac OS X, offering a new interface using a single control window from which all project settings can be manipulated. Pro-Convert lets DAW users convert session files from one format across the most popular formats, including Pro Tools 7.x, Cubase/Nuendo, Logic, Final Cut Pro and SSL's Soundscape.



A New Angle

Granelli Audio Labs G5790

From our "why didn't someone do this before" department comes the Granelli Audio Labs (www.granelliaudiolabs.com) right-angle take on an SM57. Granelli takes a new Shure SM57 and inserts a custom-made aluminum part with an acoustically engineered internal sound path. The result is the G5790 (\$149.99) mic that maintains the SM57's renowned durability and familiar tone with easier placement on drums, amps and other sources.



Flagship DAW Front End

Metric Halo ULN-8 FireWire IO

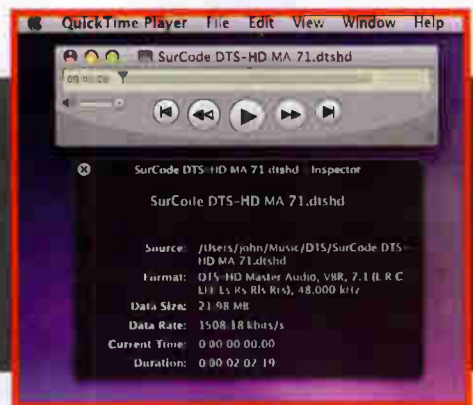


The ULN-8 (\$5,995) FireWire IO from Metric Halo (www.mhllabs.com) provides eight channels of 192k converters, eight channels of digitally remote-controlled ULN-R preamps, a 2-channel DI and a 192kHz AES interface. Other features include analog sends and returns, 7.1 monitor control with AES interfacing, and metering.

Blu-ray Audio Encoding for Mac

Minnetonka SurCode for DTS-HD

Minnetonka Audio's (www.minnetonkaaudio.com) DTS-HD™ brings Blu-ray encoding to Apple Final Cut Studio and Logic Studio via the Compressor 3 (\$249) and QuickTime (\$29) applications. The encoder plug-in can create a wide variety of .dtsHD encode types, from lossless DTS-HD Master Audio™ found on hundreds of Blu-ray disc titles to lower-bit-rate DTS Express™, a widely used Bonus View and BD live codec. It can also encode DTS-HD High-Resolution Audio™ and DTS Digital Surround™ bitstreams at sample rates of 48 kHz and up to 6.1 channels.



Desktop Dynamo

Zoom R16 Recorder/Interface/Controller

This full-featured digital recorder from Zoom (www.samsontech.com) offers 16-track playback and 8-track simultaneous recording using Secure Digital SDHC memory (up to 32 GB). Converters offer 24-bit/48kHz WAV format recording via built-in stereo condenser microphones or eight mic inputs/two outputs (8x2). Also standard is a hi-Z input; Mackie Control emulation; and 100 built-in studio effects, guitar amp simulations and effects models. The R16 (\$399) runs on battery or USB power, comes with Steinberg Cubase LE 4 and supports Windows XP/Vista and Mac operating systems.



Tube IO for Your DAW

TL Audio DO-F FireWire Interface

The DO-F (\$1,499) FireWire interface from TL Audio (www.tlaudio.com) is available for the company's M1-F 8- and 12-channel consoles and TL's Fat Track Tube Production Suite. The DO-F is



designed to offer easy, high-quality interfacing of TL Audio products with most DAWs. Plug-and-play operation is promised with Mac OS X and Windows XP/Vista platforms. Features include 24-bit operation at 44.1/48/88.2/96kHz sample rates, and it provides access to all I/Os of the analog hardware via a single FireWire cable. ■

Cakewalk by Roland V-Studio 700 System

Advanced Controller, I/O for SONAR or Any Native DAW

Roland and Cakewalk have collaborated since the mid-'90s, when Roland became the exclusive distributor of Cakewalk products sold in Japan. Later, in 2003, Roland took on all distribution outside of North America, and by 2008, the company had become the majority shareholder in Cakewalk. This new relationship gave rise to a new brand, Cakewalk by Roland, and its first product: the V-Studio 700 System, which comprises the V-700R rackmount I/O interface, V-700C control surface, SONAR 8 DAW software Rapture virtual instrument and Roland Fantom VS hardware synth. While the controller and I/O interface are optimized for use with SONAR 8, the control surface works with any I/O interface and native DAW, making it a versatile choice for multi-software platform use.

Command and Control

For this test, I interfaced the V-Studio with a machine running a 32-bit Windows Vista Ultimate operating system powered by a 3GHz Intel Core Extreme CPU Q6850 with 4 GB of RAM. Software updates included SONAR 8 to Version 8.3.1, V-Studio 700 software to V. 1.1.1 and a firmware update to V. 1.1. A USB cable connects the V-700R to the computer; a proprietary cable connects the control surface and rack. I used the V-Studio in my home studio and in a commercial studio tracking session. Because I recently reviewed SONAR 8 Producer Edition (see *Mix's* April 2009 issue), I will focus on integration between the V-700C, V-700R and SONAR.

The main tactile interface for the system is the V-700C controller. (For more on this, go to

[mix online.com](#) to see the online interactive graphic.) Cakewalk refers to the V-700C as a console, but it's actually a control surface with the only I/O being a ¼-inch aux input that's switchable between normal (mic) and hi-Z (instrument) input, and two headphone connections. The rear panel is straightforward with an LCD contrast knob, proprietary socket for

connecting to the V-700R, power switch, a USB port and two ¼-inch footswitch connections assignable to a variety of commands. The V-700C is available for purchase separately for use with SONAR 8 Producer and is compatible with other PC-driven DAWs through Mackie Control Universal protocol. (Mac drivers are unavailable.)

Each of the V-700C's eight channel strips has a blue LCD and comprises a rotary encoder, mute, solo, arm, select, five-segment LED level meter and 100mm motorized fader. A ninth fader is assigned to control the master levels. Banks of eight or single faders can be toggled, and a Flip function allows you to swap the rotary and fader functions. If you select a channel using Shift+Sel, the fader is locked down, which allows access to other fader banks while "freezing" the selected fader on the surface. This was useful for gaining access

to group faders, which lets you work with other instruments while maintaining master control. Cakewalk pushes faders to the next level with Channel Branch mode, in which fader 1 controls the volume of the track, while faders 2 through 8 control any assigned sends. The Fader View buttons provide control over other layers, including buses, mains or I/O Control (the V-700R's mic preamp gain). Currently selected faders can



The V-700C controller offers surround, plug-in, screen view, fader and transport control over your DAW.

access the Channel Strip Control, which comprises 12 rotary encoders and four buttons that are switchable for EQ, send and ACT (SONAR's Active Controller Technology) control.

The Access Panel, which has 16 assignable buttons that are configurable for different functions within SONAR, is another great feature. The View buttons—a quick way of switching through all of SONAR's windows—include computer modifiers and have assignable utility buttons for editing features like cut, copy, paste, etc.

Another standout feature is the T-bar controller, which is assignable to the front/rear balance in surround, any ACT parameter or X-Ray transparency—a SONAR feature that fades out a plug-in, providing access to controls that are below the plug-in window. A Surround section includes a panner joystick, LFE send and a View button that brings up SONAR's Surround Panner window. Expected controls like transport, monitors and headphone levels are all present. A combo jog/shuttle wheel lets you edit, scroll, zoom or scrub.

Ins and Outs

The V-700R integrates with the V-Studio via USB 2. Also sold separately for I/O expandability, the V-700R houses a Roland Fantom VS hardware synth stocked with more than 1,400 patches and a slot for a Roland ARX sound expansion card (the

PRODUCT SUMMARY

COMPANY: CAKEWALK

WEB: www.sonarvstudio.com

PRODUCT: V-Studio 700 Studio

PRICE: VS-Studio 700, \$4,195; VS-700R, \$1,995; VS-700C, \$2,495

MINIMUM SYSTEM REQUIREMENTS: Windows XP/Vista (32- and 64-bit); can run on Mac OS X with Boot Camp 2.8 GHz (EM64T); AMD Athlon XP 2800+ or higher; 1 GB RAM

PROS: Unique Channel Branch and Locking Fader features. Great-sounding I/O interface. Works with any I/O and DAW.

CONS: Audible noise when using DI while touching faders. No dedicated talkback or cue system. Reboot needed for sample-rate change.

same one that's used in the Fantom G keyboard). The Fantom VS works as a VSTi soft synth offering low-latency performance without CPU strain. The rack offers 19 inputs and 24 outputs at 44.1/48 kHz, 15 inputs and 20 outputs at 88.2/96 kHz, and five inputs and 10 outputs at 192 kHz. However, when changing the sample rate, you have to power down, which is a bit time-consuming when changing sessions.

The V-700R's front panel is sleek, with only a power switch, a rotary sample-rate selector and LED metering for all I/O and sync source. The rear panel is packed with connections ranging from eight balanced/unbalanced inputs on separate XLR and TRS jacks, 10 balanced/unbalanced TRS outputs, XLR stereo main outs and TRS sub outputs. Digital I/O includes Digital 1 (AES/EBU on XLR or S/PDIF), Digital 2 (ADAT optical) and BNC word clock I/O. MIDI I/O, a USB port and a proprietary port for the V-700C complete the rear panel connections.

and VC-64 plug-ins to the Channel Strip Control section. I also appreciated how quickly I could access all of the different SONAR views from the Access Panel, while the T-Bar combined with SONAR's X-Ray kept my plug-ins from cluttering up my screen's real estate. I could engage mic controls on the V-700C or SONAR's V-Studio 700 Property applet, with the expected 48-volt, pad, polarity and highpass filter.

In the Studio

For the studio session, I used 23 pre-recorded 24-bit/96kHz tracks with the intention of overdubbing live drums using all eight of the V700R's mic preamps. The V-700C doesn't have a talkback mic, so I used the talkback on the studio's SSL console. This system is targeted to the home studio user, yet it would benefit greatly from a simple talkback mic, button and output.

Setting mic pre levels with the faders in I/O Control (mic pre) mode was a breeze, but latency

ing the hottest signals. My spaced pair of stereo overheads for the drums (Neumann U87 Ai condensers) provided good imaging, sharp snare transient response and smooth high-frequency detail. Mixing the results sounded very good. Another engineer familiar with the pre-recorded tracks commented that this was the best they had ever sounded to him. After the initial recording, I decided to test the V-700R's digital connectivity with a MOTU 8Pre by feeding the optical inputs. At 48 kHz, this successfully expanded my mic input count to 16 without any problems.

All You Ever Need?

While there are some downsides in the fader/DI noise, lack of talkback or cue system and the need to reboot for sample-rate changes, you can work around these issues fairly easily. The V-700C is a full-blooded control surface that's tightly integrated with SONAR. Top features include EQ and plug-in manipulation with the



The V-700R provides I/O for the system, including phantom-powered mic preamps, digital I/O, word clock, MIDI and FireWire.

At Home With the V

I started by patching the V-700R's main outs into my home studio's active monitors and created a new 24-bit/88.2kHz session. I inserted SONAR's Session Drummer 2 over eight tracks, plugged my electric guitar into the V-700C's aux DI, called up Guitar Rig 3 and dialed in an amp simulation. While balancing my mix, an obtrusive noise came through the monitors whenever I touched any fader and my guitar. I tried different guitars and cables to rule out my equipment but the noise was consistent. A test recording verified that the noise was included in the file; all of the other V-700R inputs were fine. This was also verified by Cakewalk, which reproduced the noise when recording guitar through the DI and an M-Audio ProjectMix I/O.

After spending a couple of hours with the V-700C, I got around the unit and software intuitively. Plug-in manipulation was a breeze with ACT, which brilliantly mapped SONAR's TL-64

reared its ugly head. According to SONAR's Audio Options, the minimum buffer setting resulted in a total round-trip latency of 8.8 ms, which is intolerable for recording live instruments. The remedy was to feed the cues via direct hardware monitoring on the V-Studio's Property page (Direct Mix tab). The downside is that Direct Mix can feed only the main, sub or digital outs. The mains were feeding the control room monitors, leaving only the sub outputs available, which receive their level control from the same potentiometer that controls the speakers. The bottom line: There's no way to control monitor and cue volume separately. I had to feed the cues to the sub outs and was careful not to make any adjustments to the "Monitor" knob while tracking. The ability to send the direct mix out of other outputs would be a simple software routing feature I'd like to see in future releases.

The preamps were clean and detailed, offering plenty of gain and pads for accommodat-

Channel Strip Control and the Access Panel's quick View changes. The V-700C's faders are a step above the rest with unique features such as Channel Branch mode and locking faders.

The V-700R is a solid 24-bit/192kHz USB interface with a plethora of inputs and outputs that sound clean, detailed and unbiased. The expandable Roland Fantom VS Synth is attractive to keyboardists and also saves CPU load, although it would make more sense for the synth to be a priced option or allow other SONAR synths to take advantage of the Fantom's processing power. As for SONAR 8, it's a tried-and-true DAW capable of anything you throw at it, and with its 64-bit processing engine it sounds exceptional.

The bottom line is that the V-Studio 700 is a well-bundled system bringing versatile, pro-level DAW control to the musician. ■

Tony Nunes is a consultant and engineer, and builds a lot of his own gear.

Solid State Logic VocalStrip

Duende Plug-In Features Intelligent Processing and Innovative Display

VocalStrip is the latest plug-in processor that runs on SSL's Duende DSP unit. Like all Duende plug-ins, VocalStrip uses Duende's 40-bit floating-point processing and is compatible with any VST, Audio Units or RTAS host. VocalStrip is a mono-only plug-in with four processor sections that are purpose-built for vocals. The four processors are Equalizer, De-esser, De-Ploser and a Compander section.

Along the Chain

What seems to be, at first glance, a limited EQ turns out to be a very effective three-band SSL EQ that's perfect for all vocal recordings—except those in dire need of surgery due to extremely poor recording quality. There's a 30- to 300Hz low-frequency shelving filter that has a slight boost right at its cut-off frequency. The second section is a high-Q, asymmetrical peaking/notch EQ with up to 12 dB of boost and 36 dB of attenuation. The last section is a high-band peaking equalizer that boosts/cuts up to 12 dB anywhere from 1 to 20 kHz. The Equalizer section borrows its graphical display from the X-EQ Duende plug-in, letting users view the input or output signal before or after equalization.

The Compander section starts with a downward expander set to a fixed ratio of 1.5 to 1. It has a single Threshold control that ranges from 0 to -96 dB (bypass). The compressor half of the Compander section has all the usual compres-



The Solid State Logic VocalStrip features an EQ, Compander, De-Esser and De-Ploser.

sor suspects—with Attack, Release, Threshold, Make Up, Soft and Hard knee controls, plus a Drive button that adds harmonic character to the sound.

SSL calls the De-Esser section "intelligent" with two controls: Threshold and Amount. These controls interact and, as with any precision tool, proper de-essing calls for careful tweaking. Crank it all the way up, and you'll completely extract any "S" sound, leaving a hole in the vocal track. A blue indicator shows when removal is happening, and the Audition button lets you hear what is being removed.

Threshold, Amount and the indicator appear again on the De-Ploser processor. De-Ploser removes momentary low-frequency bursts of energy—like "P" pops, wind noises, mic-stand bumps, etc.

Using VocalStrip

One of the best features in VocalStrip is the ability to chain the four sections in any order. I established early on that if all four sections are to be used, the order should be: EQ, De-Ploser, Compander, De-Esser.

I opened an old Pro Tools session of a dance pop record I had already mixed and began rebuilding the lead vocal sound. VocalStrip loads instantly and has 2,075 samples of latency—

easily covered by my HD3 Accel Pro Tools ADC system. Duende plug-ins have an A/B feature where you can build a preset and then load a stored preset and compare the two.

Starting with the Equalizer, the FFT display showed many huge, random subsonic bumps and narrow resonant vocal peaks at 230 Hz. The bumps were produced by recent seismic activity, and the singer's poor mic technique and recording room anomalies produced the resonant peaks. In addition, the vocal sound was very dark and boomy with occasional light sibilants. I started by rolling off bass to about 180 Hz with the low-frequency section—this helped immediately to "fit" the vocal track within the busy, bass-heavy dance production.

With the low frequencies somewhat reined in, I moved the notching filter to reduce the huge peaks centered around 230 Hz—you can type in parameter values if you wish. I could have used variable Q on this filter, because—depending on the arc of the melody—these peaks moved around in frequency, and broadening the notch would cover most of them. But maybe not! Actually the vocal already sounded a lot better and the effect of a 10dB notch was barely noticeable.

Next, to brighten up the whole vocal, I used the third section of the Equalizer to add 5 dB at 7 kHz with the intention of dealing with the

PRODUCT SUMMARY

COMPANY: SOLID STATE LOGIC
WEB: www.solid-state-logic.com
PRODUCT: VocalStrip
PRICE: \$399

PROS: Clean, clear vocal track processing with four effective processors that you can chain sequentially in any order.

CONS: Mono only and running all four processors in VocalStrip requires considerable DSP resources from the Duende unit

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- Star Licks
- Turbo Music



The VocalStrip plug-in works exclusively on SSL's Duende platform, including the Duende PCIe pictured here.

increased sibilance later. This very broad peak EQ brightens smoothly—like an old program EQ, such as the classic Lang, Pultec or Langevin tube units.

With the De-Ploser next in the chain, I adjusted it by checking the output of VocalStrip on the FFT. Without this feature, I would be flying blind because some of these subsonic plives were down at 20 Hz and below the usable bandwidth of my monitors. De-Ploser worked very well to reduce low-frequency plives that were triggering the following Com-pander section with unwanted gain reductions. One minor complaint is that De-Ploser could use a faster release time to get out of the way quicker.

Compander works like any compressor plug-in. It was easy to get a solid and reliable setting. The singer was recorded well compressed, so I used a low 1.7-to-1 ratio and set the Threshold for about 3 to 6 dB of compression. The downward expander is optional—it operates fairly “rattle-free,” and I used it very subtly to keep down off-mic noises. Last, the Drive effect is wonderful and I wanted to use it on everything.

I put the De-Esser last in the chain because it took care of any sibilance exacerbated by treble boost from the Equalizer section and/or the average level boost acquired from the Com-pander section.

De-Esser works very well, killing most of the energy of sibilants in a natural way. For lightly de-essing this singer, I ran the Amount to 100 percent and dialed the Threshold somewhere around -25 dB. For another singer, I found heavier de-essing required the Amount to be down to 50 percent and Threshold at the most sensitive. In general, the de-esser attack time is a little slow and it would be good if it were “ganged” to the Amount control: As you increased Amount, the attack time would speed up.

Pro Quality Processing

As I've found with all the Duende plug-in processors, VocalStrip has a thoughtful and careful design that's capable of immediate, professional results for getting a clear and focused sound. Like DrumStrip, VocalStrip enlists the best tool set to take the heavy lifting out of what is often an onerous task. III

Barry Rudolph is an L.A.-based recording engineer/mixer. Visit www.barryrudolph.com.

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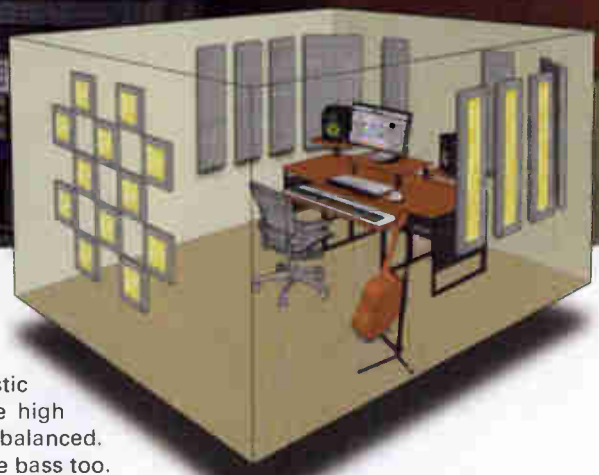
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Brauner Valvet X Studio Microphone

High-Quality, Versatile Single-Pattern Transducer

Brauner has earned an enviable reputation as one of the elite microphone manufacturers. The hand-crafted quality and dedication to excellence displayed in Dirk Brauner's limited productions have earned acclaim from engineers, artists and critics alike.

The Valvet X is a fixed-cardioid version of the Valvet, itself a descendant of the mighty VM1 tube mic. All Brauner models share the same diaphragm, but have different wiring, transformers and pattern options. Upon inspection, Brauner's craftsmanship is immediately apparent: The construction is solid, with uncommon precision. Every part of the mic is beautiful and exact—a work of art unto itself. Even the shock-mount is a marvel, easy to use yet elegant and effective. Although the microphone quickly impressed with aesthetics and construction, I was able to temper my reverence to find out what it actually sounded like.

Hearing Is Believing

I first used the Valvet X to track male lead vocals on a pop-rock record. This singer had a wide dynamic range and a very nuanced voice, a fine test for this handcrafted beauty. The plan was to conduct a shoot-out between the Brauner and a well-known, diamond-adorned microphone. I began with the Brauner, and after three hours had forgotten about comparing the Valvet X to the other microphone.

The Brauner was a perfect match for this particular artist. Its detail and ability to capture every subtlety put it in its own league. The tone was warm and round, yet crisp and clean on the top end. Tracks were filled with a "vintage" vibe but didn't feel old. The sound was incredibly balanced. Lows were big and powerful

without being demonstrative. The top end was very present yet incredibly smooth. Proximity effect didn't seem to affect the Brauner in any significant way. During some of the more spirited takes, the singer was able to vary his distance from the mic without degrading the tone.

The mic's sensitivity was very noticeable; it is among the most sensitive microphones I've used. It picked up every footstep, door creak and mechanical noise. This sensitivity resulted in an unreal ability to capture every detail of a complicated vocal. However, it would also make the Valvet X very difficult to use in any environment that isn't fairly well-isolated.

I also used the Valvet X to track acoustic guitars for a Texas country act. The big Gibson Dreadnaught sounded simply amazing. The presence and detail of the instrument were unbelievable. Placed over the 12th fret, it grabbed every element of the instrument with impressive accuracy. As with the vocal, the Valvet X's sensitivity was key to capturing the essence of the guitar, but would also amplify any imperfection in the instrument or the player.

Simply X'cellent

The Valvet X is a beautiful microphone that ranks among the elite vocal and instrument mics available today. It has enough guts to deal with powerful male vocals while the endless, but always smooth, top end would do wonders for female artists. In addition to vocals, the astonishing sensitivity of the Brauner makes it ideally suited for acoustic guitars, strings or other instruments that require uncompromising detail. It's a demanding transducer that excels when the quality of the performance approaches that of the mic itself. Although I didn't try it, I wouldn't see this microphone get-



The Valvet X is a fixed-cardioid condenser that exhibits great depth on vocals and instruments.

ting a lot of time in front of guitar amplifiers or kick drums.

It could be said that, at a retail price of more than \$3k, the Valvet X is an expensive microphone that lacks the bells and whistles available on less-expensive products. I would describe it as a world-class microphone that provides unparalleled results in its intended applications. The design compromises allow a lower price point and make top-tier tools available to a broader range of users. If you're looking for a premier-quality microphone and don't need multiple polar patterns, the Valvet X is a top contender. III

Matt Bishop is a staff engineer at Alford Media Services in Dallas.

PRODUCT SUMMARY

COMPANY: BRAUNER
WEB: www.braunerusa.com
PRODUCT: Valvet X
PRICE: \$3,150 (MSRP)

PROS: Top-quality construction; striking detail/depth on vocals and acoustic instruments.

CONS: Fixed polar pattern; extreme sensitivity demands an isolated environment.

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Many plug-in manufacturers claim that their product will reproduce the sound of high-quality tube circuitry, but few succeed. The SPL TwinTube delivers the goods so convincingly, you'll swear you're hearing the real thing.

Harmonic Convergence

Available in native and TDM versions, TwinTube is sold both as a single plug-in and as part of the company's Analog Code plug-in bundle. For this review, I tested Version 1.03 in Digital Performer 6.02 on an 8-core 2.8GHz Mac Pro running Mac OS 10.5.4.

TwinTube's simple and intuitive user interface provides independent control over two attributes of tube circuitry: harmonics generation and saturation. The combined settings of two Harmonics switches select which of four frequency bands (centered around roughly 2, 3, 6 and 10 kHz, respectively) you wish to process with a separate rotary Harmonics control. The Harmonics control boosts the level of harmonics generated from the chosen frequency band up to 15 dB. A separate Saturation control increases the degree of tube-like saturation.

TwinTube offers separate bypass switches for the Harmonics and Saturation processing blocks, and a global bypass. Signal-present and internal-overload indicators keep you apprised of levels. You can switch among four saved control setups by clicking on A, B, C and D buttons. All parameter values are automatically saved when you leave one setup to recall another. Assuming your DAW supports automating plug-ins, every one of TwinTube's con-

trols can be automated, including switching stored setups. This worked great in Digital Performer 6.02.

Warming Trend

In listening tests, almost everything TwinTube touched turned to gold. Various Harmonics settings brought out different registers of instruments and vocals, emphasizing certain attributes that were previously understated. The Saturation control produced quality tones that progressed from subtly compressed and lustrous at low settings to boldly distorted when cranked. Even at extreme settings, this wasn't bumble-bee-trapped-in-a-tin-can stuff. We're talking the sound of high-quality circuitry.

For pristine sources, bypassing Saturation and using only Harmonics was often the ticket. Choosing different Harmonics Frequency bands in turn, I could easily bring forward the midrange register of, or accentuate hammer strikes on, a grand piano track in a very sweet way. The 10kHz setting brought out the pick strike on an acoustic guitar and lent a gorgeous, shimmering quality to the track. Lower-frequency settings made the guitar sound more present and midrange-y—again, sweetly so.

Boosting harmonics for the 2kHz band made DI'd electric bass sound wonderfully burpy. Boosting the Saturation control increased the track's subjective girth and made it sound much richer. Engaging both controls at once with Saturation set to nearly full-bore pushed the track slightly over the top, producing cool distortion.

Harmonics processing also effectively enhanced the beater slap on kick drum and made snare drums pop. Moderate amounts of saturation added girth and loudness to both drums. Too much saturation, however, created flams. But it was nice that SPL gave me enough rope to hang myself rather than setting arbitrary limits to my madness.

The TwinTube plug-in offers a convincing emulation of tube circuitry.



Saturated vocals also sounded bigger and warmer. Boosting harmonics for the 6kHz band made female vocals sound richer and more present, but also increased sibilance—nothing a downstream Waves De-Esser plug-in couldn't easily tame, though. TwinTube's 3kHz Harmonics setting warmed up and filled out a cold, thin male vocal track better than any other plug-in in my vast arsenal.

All Aglow

I was pleased that all settings were retained when moving TwinTube from a mono to a stereo track, and vice versa. I only wish there was an output level control—designed to be inactive when the plug is bypassed—to make wet/dry comparisons easier.

Bottom line: TwinTube is the best "track warmer" I've heard to date. For the sound of high-quality tube gear being either tenderly used or intentionally abused, this is the real deal. III

Mix contributing editor Michael Cooper is the owner of Michael Cooper Recording in Sisters, Ore. Visit him at www.myspace.com/michaelcooperrecording.

PRODUCT SUMMARY

COMPANY: SOUND PERFORMANCE LAB (SPL)

WEB: www.spl-usa.com

PRODUCT: Twin Tube (requires iLok)

PRICE: "Native" version (Audio Units, VST, RTAS), \$299

TDM version (TDM, Audio Units, VST, RTAS), \$499

Analog Code Native bundle, \$699

Analog Code TDM bundle, \$1,189

PROS: Convincing emulation of high-quality tube circuitry. Produces a wide palette of timbres. Easy to use. Can automate all controls.

CONS: No output level control. (Manufacturer promises this feature in a future release.)

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~ Rob 'Cubby' Colby
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~ Bruce Swedien
(Quincy Jones, Michael Jackson, Jennifer Lopez, Paul McCartney)



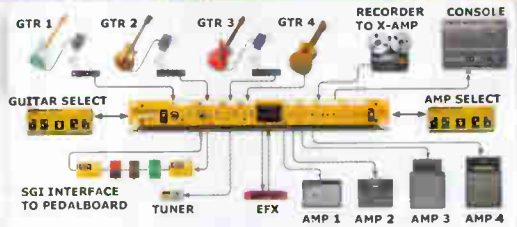
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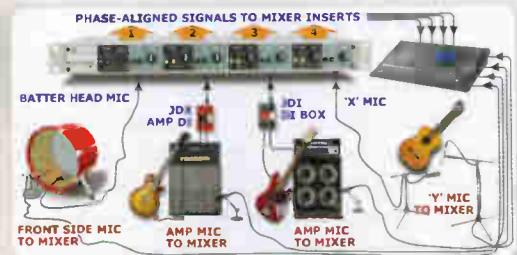
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Mysteries of Old Tube Mics

Peeling the Layers Off the Glass Onion

Wines have been known to improve with age, but what happens to a microphone after 50 years or so? A vintage mic with that special "something" is unlikely to sound the same as it did a half-century earlier. The sound will be similar, yes, but whether the user feels it sounds better or worse with age may be highly subjective and may depend on the application.

You might be too love-blind about a mic that rocks your world to notice its decline until it needs specialized care. Then the question will be, "What are my options and to what degree can the options be manipulated so that the mic comes back to life the way I'd like?" Notice that there are *options*; some are under our control, some are more spendy than we'd like.

In vintage tube mics, the signal path is very direct. Between the vibrations in the air and the output connector are six components: grille, capsule, vacuum tube, capacitor, output transformer and cable. There's also a power supply, a handful of resistors and other capacitors, but two of these sonically critical components—tubes and capsules—are subject to aging factors and availability. Each imparts a sonic signature so recognizable that the technician's challenge gives new meaning to the phrase "First do no harm."

If you suspect the problem is with the tube (generally a user-serviceable part) or have already made a swap with no improvement, then before proceeding consider the plight of the capsule. Its life begins subject to the manufacturing tweaks and tolerances of the production line. Then add the sonic equivalent of Hurricane Katrina and Mt. St. Helens—rock star breath and explosive spit, two aging accelerators that gradually migrate the capsule's character outside of the "factory tolerance window." From any perspective, vocal mics and kick drum mics have a tough existence.

All condenser mics will inevitably need a tune-up; the most typical problems are breath sensitivity (humidity) and random noises. When both of these issues are related to capsule condition, the three options for repair/restoration require a specialist's expertise. In order from least to most dramatic possible change and/or improvement, the options are cleaning, reskinning (new diaphragms) or replacement.

Cleaning usually reveals the "hidden damage." Scarring of the gold coating may not be pretty, but it's not cause for alarm like missing gold or a puncture wound might be. In such cases, reskinning is your best shot at preserving character. The predetermined magic stems from how the brass backplate was drilled, combined with the spacer thickness between the diaphragm and the backplate. Variables include diaphragm thickness and tension, and when the initial work is done, your warm, dark-ish, tastefully airy vintage mic may brighten up and tighten up. Tubes can have a similar effect. Then the tweaking begins.

Every page of *Mix* could be filled with mind-numbing details on the subject, but the short story is that a mic capsule is a Helmholtz resonator at the microscopic level. Imagine the challenges the original designers faced when the three primary ingredients were knowledge, a slide rule and time to experiment. No modeling software—just trial, error and word-of-mouth.



A Neumann U67 with EF86, a pentode wired as a triode

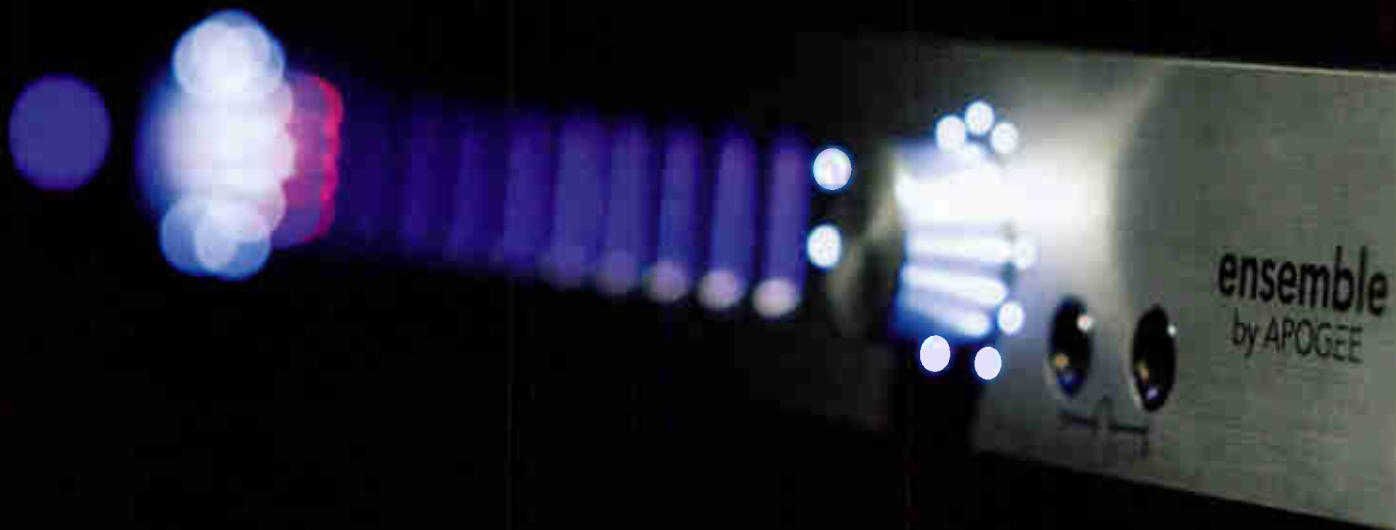
Vacuum-Style Variables

When microphone noise is not capsule-related, the next wear-item in the chain is the vacuum tube. If you didn't know, New Old Stock (NOS) is the phrase that refers to tubes that are made rare and spendy by collectors and manufacturers who have scarfed up the best (or large quantities). The remaining NOS has either been picked through or deemed less likely to yield a winner, so truly exceptional tubes are increasingly rare. If you have the resources and a reliable NOS source, that's great. However, I wouldn't pay top dollar for an untested tube, no matter how many stars are on it.

When you don't have the NOS resources, the alternate philosophy is to take advantage of current production tubes—not simply because some can do the job, but also because the expertise of vacuum tube manufacturing will not live and prosper if we don't support it.

Not all vintage gear is necessarily classic, nor do all NOS tubes have low noise, low *microphonics* (mechanical sensitivity) or great tone. Production and material variations yield a bell curve, and nowhere is this more obvious than with vacuum tubes. Finding an exceptional tube (NOS or modern) requires buying sizeable quantities, sorting for low-noise/microphonics and then burning-in the candidates for at least 24 hours—if not several days. From this subgroup, the winners are then regraded for noise and evaluated for sonics, and then burned in again.

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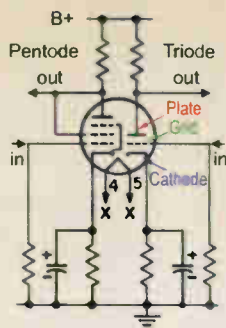
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Tube Terms, Types and Technology

One feature common to vintage tube mic designs is circuit simplicity. In the schematic shown, the principle tube components are the heater/filament, cathode, grid and plate, while the latter three (or more) components add up to define a tube's type, whether it is triode (three), tetraode (four) or pentode (five). The plate resistor is a critical passive component and is one of the most commonly replaced pieces in vintage tube gear repair.

The two most common tubes used in microphones are the 6072 (12AY7) dual-triode and the EF86 (6267), a pentode wired as a triode. Others in the 12A?7 Series are also used. Tubes often have two or more "names" as shown, either to denote country of manufacture (USA or Euro) or class/quality (consumer or military/commercial); both of these are 9-pin "miniature" tubes. The EF86 is used in the "export" version of a Neumann U67, while the Euro/broadcast version of that mic, the M269, uses the AC701, a subminiature triode (with wires instead of pins). Other vacuum tubes found in microphones include 6AK5/5654, 6AU6/6136, 6CW4/13CW4, 7586, EF-12, EF-14, VF-14, 6C315-P and the 9002/6s1p (6c1n).



Quite often, just finding a low-noise tube is acceptable, especially for AKG C-24 owners who need *both* sections of a 6072 dual-triode to be quiet. (The AKG C-12 and ELA M-251 only use half of the 6072.) Untested NOS tubes are at least four times the price of current production versions, which means you can buy 10 new tubes for the price of two NOS tubes. Any tube that isn't microphone-grade can be used in less critical applications, such as in mic preamps, EQs or guitar amps.

End Game

While we needn't be fearful of changing components, we should be prepared when the need arises because the resurrection results can range from better, same, different or worse than "the way it sounded before it stopped working." Your go-to mic may have evolved to its current state through some combination of aging and previous repairs.

If your classic mics are essential to your sound, consider embarking on a sample library expedition that highlights what makes each mic special *before* they bite the dust or become unrecognizable. When it gives up the ghost, your ability to communicate—and provide samples (recording history)—can make the job easier for those entrusted with "maintaining the magic." For that very special microphone, the phrase "good as new" takes on an entirely new meaning. ■

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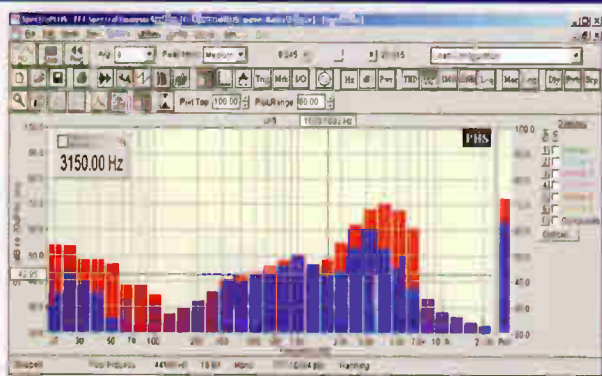
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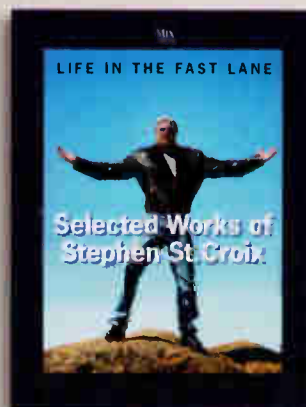
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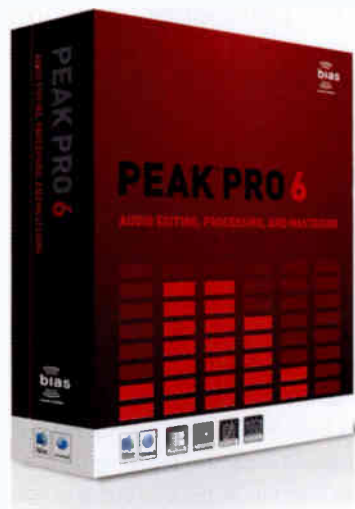
It's 24 inches of gorgeous display — and a convenient dock for your MacBook or MacBook Pro and other essential desktop devices, such as your iPod, iPhone, USB printer, and camera. The handy 3-in-1 cable connects to your MacBook's DisplayPort, USB 2.0 port, and MagSafe power connector. Just plug it in and you've instantly got more screen real estate. Includes iSight camera, microphone and speakers.



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Dave Rat

Sound company owner,
mixer and monitor designer
does it his way.

What was the industry like when you started Rat Sound?

Because Rat started off literally with two speakers, an amp and a cassette deck with a “Y” cable as the two mic preamps and mixer, I did not really have a clear view of “the industry” back in 1979. As we grew, though, I began to see the various levels. Most of the companies that I considered large and ominous back then are now defunct, merged or shrunken. I remember providing sound for a small laser tent at the US Festival in 1983. I remember it was kind of a big deal for fierce competitors like Clair and Showco to work together, with Clair on mains and Showco doing delays.

I remember it being a cut-throat business where it was more about people hiring their good-old-boy pals rather than quality gear, service and crew. I remember the frustration of losing gig after gig because Rat refused to pay kickbacks. I remember no one wanting to hire us until we did some big shows that we could not get because we had no big shows under our belt. And I remember that I could go out and cut some plywood and build some boxes and build a speaker cab that was as good or better than just about anything you could buy.

What changes have you seen—for good or bad—since then?

By the late '90s, Rat was fielding a fully designed “in-house” arena-sized P.A. on U.S. and European tours. I cannot imagine anyone designing a full-blown P.A. system that can compete with the current top manufacturers in today’s market. The days of building a world-class, competitive main P.A. speaker system without a full engineering group, lots of expensive test gear and a hefty budget are over.

That said, you can now buy excellent off-the-shelf products from many manufacturers. Along with the availability of quality turnkey systems, now someone with a bunch of cash can pretty much buy the same gear that is out on top tours. A side effect of the worldwide availability of quality gear is that the old-school “my system is better than your system” mentality is fading. Cross-rentals between vendors like Clair/Showco was practically rare back then, whereas now it is very common for companies to cross-rent equipment. I really like this maturing of the industry.

In addition to running a sound company and keeping involved at FOH, you’ve designed the MicroWedge, which is manufactured by EAW. How did you get from FOH engineer to product designer?

The MicroWedge was designed to solve what I saw as a major deficiency in what manufacturers offer in floor monitors. A small, loud, excellent-sounding wedge that’s attractive and very resistant to feedback was the goal. Historically, floor wedges tend to be an afterthought for manufacturers. I wanted to design a family of products where the primary focus is building the ultimate stage monitor system. The MicroWedge 12 and 15 are just the first two of a full family of over a dozen stage and small-venue products that all work together.

In-ears are very useful and are gaining popularity, but stage monitor systems have some interesting characteristics that in-ears do not. The ability for a musician to alter the sound they hear by where they stand is pretty significant. With a high-quality stage monitor system and well-balanced stage volumes, an artist can immerse in the sound of the bass player or guitar player and freely wander the sonic landscape that’s created onstage. The MicroWedge series of products are designed to provide the tools to create that landscape. Each of the products is designed to be “plug-and-play,” yet is non- or minimally processor-dependent.



PHOTO: JIMI GIANETTI

The next product coming out is called the MicroWedge Sub 15, which can provide regional low end, act a wedge sub, sidefill sub, drum sub and small-venue sub. The enclosure is really cool and unique, and I am pretty sure it is one of the most versatile subs made.

Where do you see Rat Sound headed?

Rat Sound’s primary focus continues to be concert touring. We do an occasional sound installation if we are asked and the people running the venue are enjoyable to work with. We install the same gear we put on tour, so we keep things well within our world of familiarity. We have a retail sales department, and you’ll never guess—we sell mainly the same gear we tour with! As with the MicroWedge and the Rat Sniffer, and other testers we are designing and offer, it’s all gear that supports the touring side. So I guess we are headed down the same road we’ve been on for almost three decades now.

I well-remember the early days of trying to get ahead only to be pushed aside, so I try and dedicate some of my time to offering the advice I wish I had access to when we were starting up: Never listen to anyone that says it can’t be done. III

Subject: m201 A/D shop demo

From: 'eben grace'

Date: 09/20/2008 11:25 AM

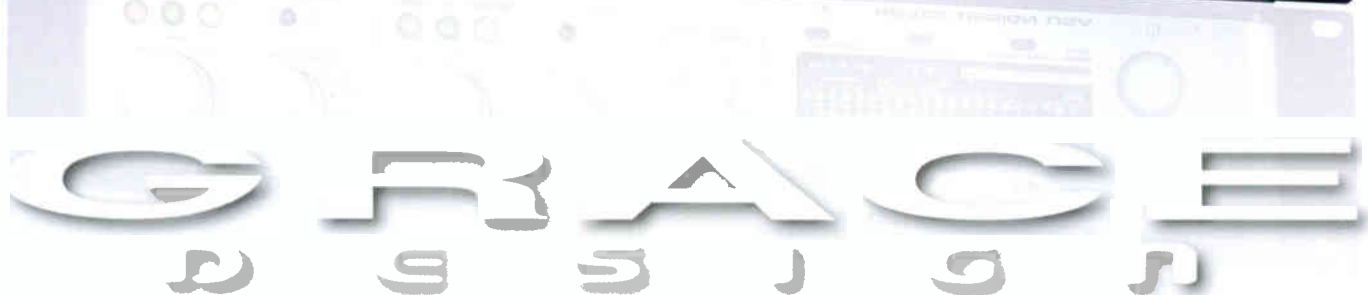
To: 'mike grace'

Mike,

Sorry to be so late getting to the office these past couple of days. The project I'm working on is almost done. Anyway, I finally took our shop demo m201 A/D home and got to try it for myself in my own room on a regular joe session.

Ok, as your brother, I'm telling you: this is your finest yet. I depend on the versatility and consistency of our preamps, but plugging the m201 A/D was the biggest sonic improvement I have heard in my studio for as long as I can remember. No joke. Everything I trust to just work - 121's on the AC30, or a KSM184 on the J-45, or the 5600 on whatever - just works that much better. All my tried and true standby signal paths are now like secret weapons. Super duper extra-secret weapons. So thanks and nice work. We're gonna need a new shop demo, and I'm gonna be late tomorrow.

-Eben



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