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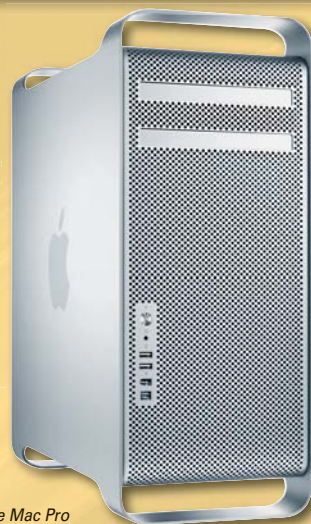
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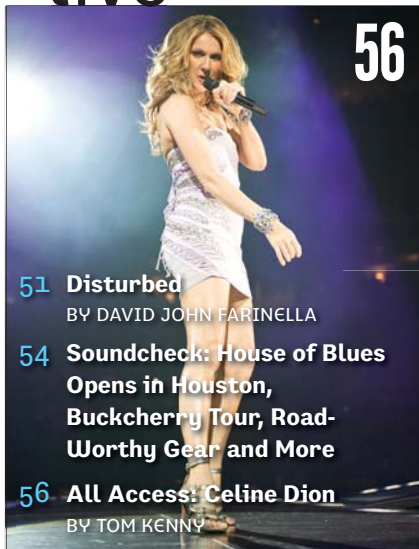
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Record Plant Remote's "The Lounge" is built into an RV from a design by Paul Special. Owned and operated by veteran engineer Kooster McAllister, the studio centers around two joined Yamaha DM2000 V2s, three LightViper systems and JBL 6300 5.1 monitoring. Photo: Ron Neilson. Inset: Steve Jennings.



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Sound and Picture

About 10 years ago, in an interview with *Mix*, Oscar-winning film editor/sound designer/re-recording mixer Walter Murch described the relationship of sound to picture as one where “the visual material knocks on the front door, and when somebody knocks on the front door, you sort of adjust your clothing, go to the door, take a deep breath, say, ‘Who’s there?’ and open the door. Whatever meeting occurs will have an element of formality to it because it’s somebody who came to the front door. Sound tends to come in the back door, or sometimes even sneak in through the windows or through the floorboards.”

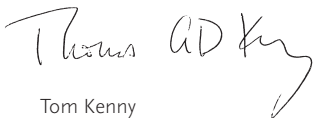
The interview appeared under the banner “Sound for Picture,” a section of our magazine that debuted in 1991, right around the time when 5.1 digital playback was emerging as a standard and digital audio workstations had begun taking over edit bays and dub stages. Video post houses were installing audio rooms, track counts were growing beyond the scale of even the largest-format consoles, and a fledgling market had just begun to emerge in audio for videogames. There was a mini-boom in applications and opportunities for audio professionals, especially composers and sound designers with an eye on the future.

And yet, despite all the technological advances and new audio playback formats, nothing much really changed in the process of putting sound to picture. Audio crews would come in at the end, often large crews handling re-conforming, and units were put up for playback against picture. Sound editorial remained largely a separate process from the picture edit, with effects, music and dialog debuting at the final mix and married to image. Sometimes it would be the first time music would be heard against effects.

Jump-cut to today and we are witness to another mini-explosion in sound for picture, fueled largely by a YouTube culture that buys Flip hi-def video recorders for less than \$200 and consumes content online. It’s not just reruns of *The Office*, either; there are Webisodes, short films, homegrown music videos, clever mashups and live streaming from music festivals. They all have sound.

In fact, there’s more sound in more outlets than we’ve ever seen before. And the demand for rich media has created a demand for new tools, from production through distribution. On the low end, you have Apple’s iLife suite, where a seventh-grader can put together a project, with original music, and put it on the Web without opening a manual. On the high end, we are seeing the delivery of DAWs with 280 tracks, full-blown effects per channel and built-in high-def video recorder/players. We’re not saying that all video producers should be re-recording mixers, but the rules of production are definitely changing. Those pursuing a career in audio should, at the very least, be conversant in video. It’s unavoidable.

So perhaps Mr. Murch had it right all along. Inside the house, there is no Sound for Picture. Today, it’s Sound and Picture.



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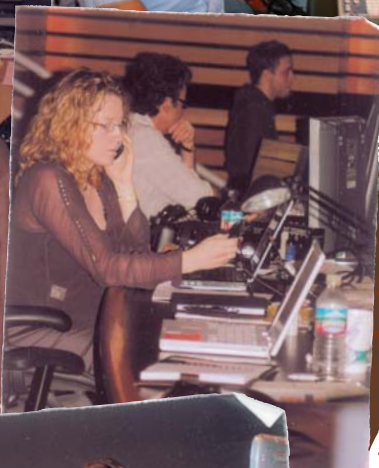
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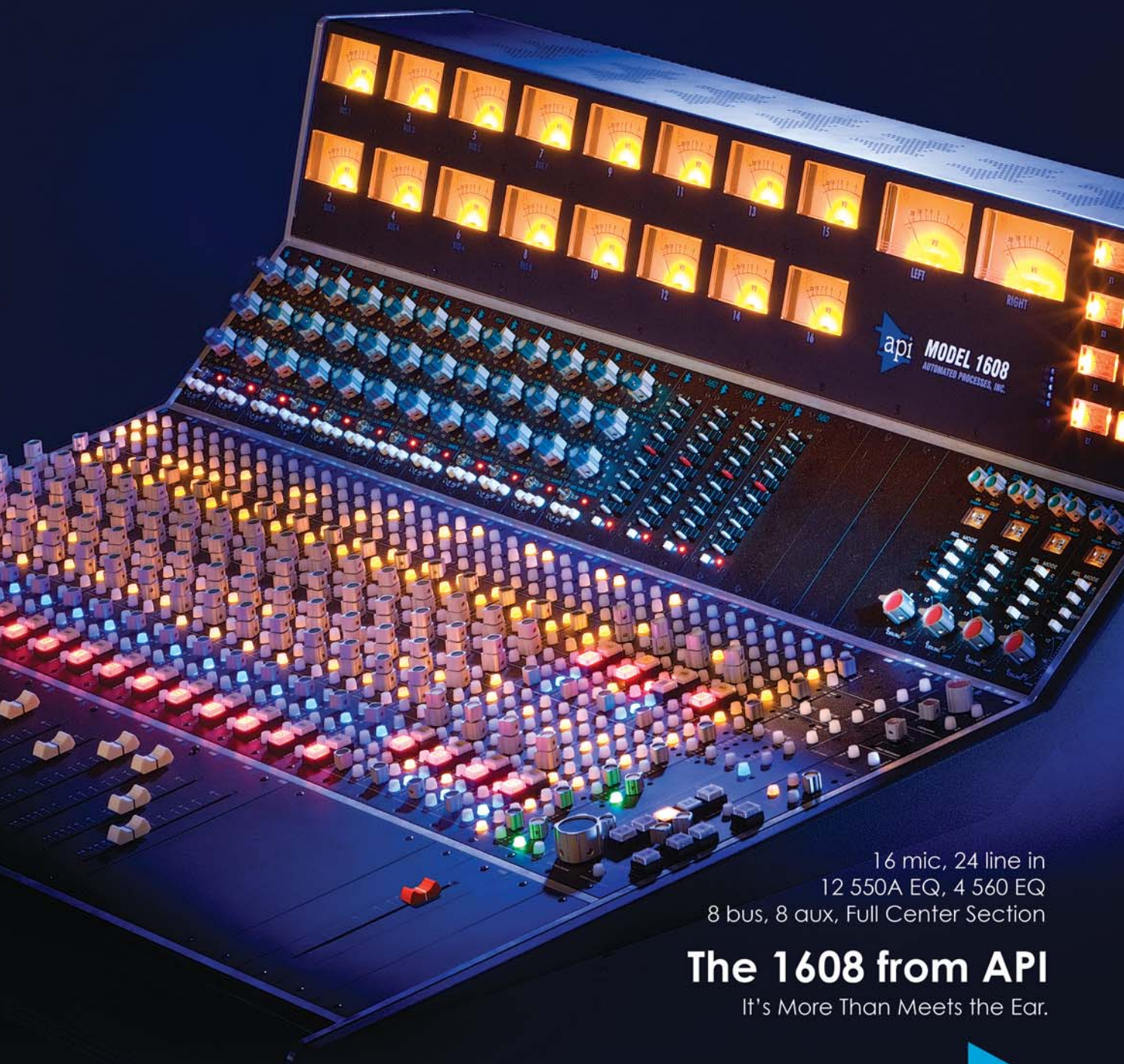


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Confused Consumers?



We asked readers to tell us whether the FCC's postponement of the wireless band changeover from February to June was a positive decision, or whether it simply added to consumers' confusion.

If the consumer is confused about the need to add a converter or upgrade to cable after the media blitz in our area, I believe they deserve a dark-screen future. Back to the radio for them: It's still free, it's mobile and can be stimulating enough to turn a couch-potato butt into those buns of steel once envied on the black box in the corner.

I'm a freelance audio-for-video engineer and a longtime *Mix* reader.
Michael Boyle

In the February 2009 "TalkBack" section, we asked engineers about the effects of the wireless change-over on their business.

I had several Sennheiser systems in the 700MHz range. Even though Sennheiser seems to have the most generous "rebate" plan, it's still going to cost me almost \$2,000 to change the systems over. I have some systems that are older and don't qualify for any substantial rebate. The thing that frightens me now is that the remaining bandwidth is more congested, making frequency conflicts more common.

Steve
New York City

It's in the Cans

Thanks once again to Eddie Ciletti for another article with good solid info on studio headphones ("What's on Your Ears," February 2009). As an audio technician for more than 30 years, my ears are kind of beat from using live sound stacks 'n' racks since the '70s, and from too many flights over the past 15 years doing broadcast audio. If we only knew that sticking your head in a JBL lens to see if it was working would do that much damage. Yikes! I wish we had all

those fancy electronic checkers then that we do now!

I depend on good-quality headphones to monitor RF gear on a daily basis. I'm pretty fond of the Sony MDR 7504s I've had for quite some time, but occasionally use the Sennheiser HD580 or HD600 models. As we all know, hearing is so subjective; it truly is a matter of personal taste.

That said, I'd love for Eddie to look at both noise-canceling headphones and in-ear monitors. I use both devices regularly, especially on long flights, and carry "over-the-counter" Sony NC-5s that I really like. My in-ear monitors are Westone ES1 Musicians' Monitors, which I truly love. When you have a crying baby on a plane, the instant 25 dB of rejection you get when the ES1s are inserted is a lifesaver, and I find their quality just grand. I should note that I have the custom-molded ES1s.

Mark Bernardo
Production Audio
Whitinsville, Mass.

I've been using a pair of AKG K 270 studio headphones for several years with great success. You can wear them for hours and they stay comfortable (over the ear with

soft leather cushions). I like them because they have closed backs as I do on-location recordings. They automatically turn off when not on the head; they have gold-plated connectors; two speakers in each cup; and a wonderful sound!

Wally Knapp
Custom Recordings
Ellicott City, Md.

Eddie Ciletti had a nice article on the different headphones on the market these days for studio usage. It had two headphones listed by the Stax company (www.stax.co.jp/index-E.html): the SR-202 and the 4070. These headphones use an electrostatic driver, which requires a biasing voltage of 580 volts DC to drive the electrostatic plates. Your price quote does not reflect the driver unit needed to provide the biasing voltage and the amplifier, as the Stax headphones have a special 6-pin connector to connect them only to their driver units.

The SR-202 is no longer in production. The SRM-717 driver unit for the 4070 retails around

\$2,200, so you really are looking at a headphone price of \$4,225. This is not their top of the line, which is the SR-007Mk2, costing more than \$4,000 just for the headphones. I use the SR-007s as a check for headphone listeners as a part of my mastering process, and they are indeed the finest headphones in the world.

For utter transparency, clarity and transient detail, electrostatic headphones are the only way to go when you want the very finest fidelity money can buy.

Andy Rogulich
High Fidelity Mastering
Albuquerque, N.M.

Notorious Production Sound

I read with anticipatory excitement the "Sound for Picture" article in the February 2009 issue on the movie *Notorious*. I had the opportunity to attend the shooting of the concert portions of this movie in New York City.

I was quickly saddened to see only a mere mention of the production sound mixer, Mathew Price. Price contributed a lot of work to this movie, from researching the exact make and models of the microphones of the period—and the specific models that B.I.G. used—to the multiple audio scenarios in just the concert portion alone, including coordinating Pro Tools playback; the live stage recording of multiple handheld and wireless microphones; multiple IFB feeds in a fantastically noisy and bass-driven environment; and handling with aplomb the many guests on the set, all of whom needed a headset or an IFB.

Al Irizarry



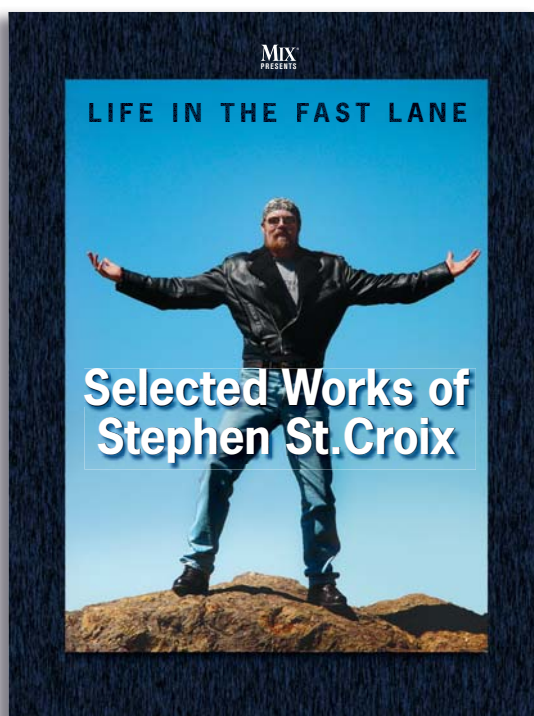
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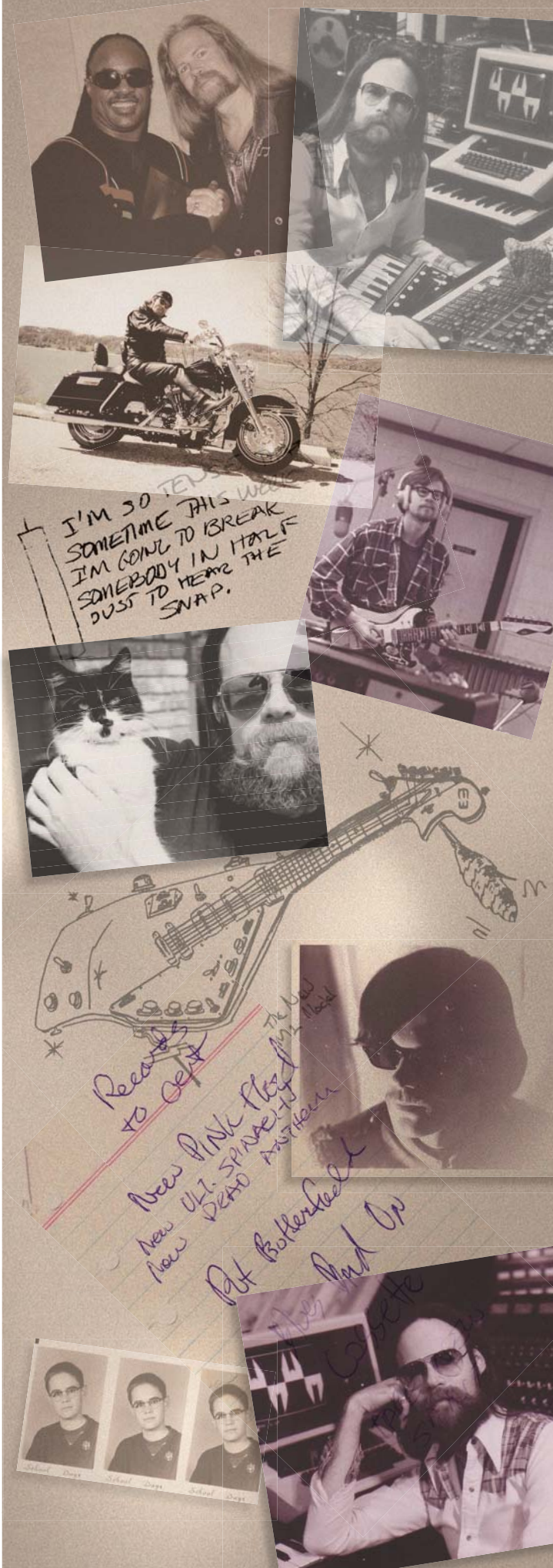
Stephen St.Croix inspired, provoked and educated *Mix* magazine's readers for 18 years in his one-of-a-kind column, "The Fast Lane." As an inventor, musician and engineer, St.Croix offered his audience a wealth of



knowledge and vision, as well as a Harley-riding rock-star attitude. Now, two years after his death, the editors of *Mix* have selected the best of St.Croix's columns, presented with never-before-seen photos, notes and drawings from his personal files. This book takes "The Fast Lane" beyond the pages of *Mix* and lends new insight into the life and mind of Stephen St.Croix.

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Record Plant Remote's "The Lounge"

It's been more than three decades since Record Plant Remote owner Kooster McAllister came to New York City's Record Plant Studios, working his way up to chief engineer of the mobile units and ultimately purchasing the remote recording division in 1991. Record Plant Remote has since been a leader in remote recording, with a client list ranging from classical superstars to rock giants such as the Rolling Stones, Bruce Springsteen, Guns 'N Roses, The Who and Billy Joel, and festivals including Woodstock '94 and '99, Live Aid and Eric Clapton's *Crossroads*. McAllister has won a Grammy, 10 TEC Awards and three Emmy nominations. After 20 years capturing legendary shows in his API-equipped Volvo big rig (originally designed by Wally Heider), McAllister has expanded the fleet with a full-service, all-digital studio built into the back of a luxury RV—aptly named "The Lounge."



PHOTOS: RON NEILSON

Kooster McAllister, left, at the linked Yamaha DM2000 consoles in the rear of the RV. Below: the multi-purpose "Lounge" and exterior view.

New Times, New Truck

Seeing big changes coming to the remote recording business five years ago, McAllister started taking on more broadcast work and saw the necessity of building a smaller, all-digital truck. "I had to be dragged kicking and screaming into the digital age," says McAllister. "It wasn't something I wanted to do, but I realized that with the complexities of today's shows, I needed more than I could do on my classic API console. I still have clients that insist on the API for the sound, but I needed 100-percent recall of snapshots, including mic pre settings for quick transitions of multiple bands in live television shows."

A couple of years later, building of the new truck began, taking a year-and-a-half to complete. The initial design was by Paul Special of Special Audio Services, with all of the actual woodworking and wiring done by McAllister, his brother Willy (a master carpenter), Brian Flanzbaum and his main tech, Paul Prestopino—a plan that proved both economical and fulfilling. "I had to do it myself," says McAllister. "Economically, it was the only way I could do it, and I'm really proud of it because I was so intimately involved with every aspect of the build."

One of McAllister's primary goals for the new truck was to be able to handle 96 inputs. At 96

kHz, the truck is 100-percent AES; the front end centers around two linked Yamaha DM2000 consoles, with Yamaha AD8 HR mic preamp/converters; LightViper fiber brings it all into the truck, where it is reconverted into AES. "The Yamahas were the perfect choice," explains McAllister, "enabling me to control everything from the console, including mic pre levels onstage."

Ease of interface is another important consideration, particularly in relationship to video, where some trucks need AES coming on XLR; others want AES on co-ax. "You have to be able to facilitate your interface for whatever truck pulls up, including working with older trucks that aren't all-digital and require you to send analog." In today's productions, the high number of sources swapped between video and audio can be daunting. This was all taken into consideration in the design of The Lounge.

The control room has JBL 6300 Series 5.1 monitors, a full complement of outboard and 192 tracks of recording gear. Beyond the studio front end, the truck is set apart from the pack by its RV trappings: posh living room, kitchen and TV-viewing lounge. "It made perfect sense to do this in an RV. If needed, I can take out the couch and tables and put a full video flight-pack up there; it's basically a utility room for whatever you want it to be. I've been on shows where they've asked to use it as a production office. For my last show with Van Morrison, the video director sat in there, making notes of all the camera shots. And it's a



great hang for the client, offering a place where they can watch on large-screen monitors and good speakers, and still be out of the engineer's hair," McAllister says, laughing.

"At this point, 95 percent of my business is broadcast—television shows or award shows," he notes. "The last album DVD project I did [*Tesla Live*] was in my API truck, over a year ago." McAllister adds that his API truck is still used on major events, such as a 10-year gig with ABC's *Good Morning America* summer concert series.

McAllister finds that having two trucks offers the best of both audio worlds. "My analog truck is my first love; it sounds godlike. But the more I work in this new truck, the happier I am with the decisions I made. I put a lot of time and thought into this truck, what I wanted it to be and wanted it to do, and I think I've hit the benchmarks I was going for." ■

Sarah Jones is the editor of Mix.

"My studio is mostly
outfitted with Shure
microphones..."

- Serj Tankian



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compiled by Sarah Benzuly

Richard H. (Dick) Peterson, 1925-2009



Peterson Electro-Musical Products Inc. founder Richard H. (Dick) Peterson passed away on January 29, 2009, after a 14-year-long bout with a debilitating illness.

Peterson served in the U.S. Army as a radio engineer from 1943 to 1946 and studied electronics at the City College of New York. While in New York City, he visited Radio City Music Hall; when he heard the room-filling sound of the theater's pipe organ, he became determined to dedicate his career to "perfecting" the pipe organ.

In 1948, Petersen co-founded the Haygren Church Organ Company in Chicago and soon thereafter founded Peterson Electro-Musical Products (Alsip, Ill.). For nearly 20 years, much of his time was devoted to developing and improving the Gulbransen line of electronic church and theater organs, including creating the first solid-state control systems for real pipe organs. In 1998, Peterson rebuilt the same organ consoles for Radio City. Other Peterson creations include a family of musical instrument strobe tuners.

Peterson Electro-Musical Products Inc. remains a family owned and -operated business, with Scott R. Peterson, Richard's son, serving as company president. Memorial donations in Peterson's name may be made to the American Guild of Organists' "New Organist Fund," 475 Riverside Dr., Suite 1260, New York, NY 10115; www.agohq.org. To post your memorial, visit www.petersonstuners.com/rhp.

FOX OAKLAND RESTORED

L.A. punk icons Social Distortion took a break from recording their latest release to help the San Francisco Bay Area celebrate re-opening night at the magnificently restored, 80-year-old Fox Oakland (Oakland,



PHOTO: STEVE JENNINGS

Hear Ye, Hear Ye

The National Institute for Occupational Safety and Health (NIOSH) and the National Hearing Conservation Association (NHCA) presented its first Safe-in-Sound Excellence in Hearing Loss Prevention Awards™, honoring companies that have shown dedication to the prevention of noise-induced hearing loss through hearing loss-prevention practices in the work environment. In the Innovation in Hearing

Loss Prevention category, Sensaphonics Hearing Conservation Inc. was recognized as a pioneer in combining products, audiology services and education to reach its hearing loss-prevention goals. Nominations for the next awards will be accepted until August 1, 2009. A full list of award winners can be found at www.safeinsound.us.



PHOTO: JACK FORBMAN

Sensaphonics' Michael Santucci (left) and NIOSH's Dr. Jim Newhall

Calif.; www.the-foxoakland.com). The former movie theater, which was shuttered for more than 40 years, is once again a Moorish art-deco palace thanks to an approximately \$80 million renovation. The venue is situated in Oakland's burgeoning Uptown district and now serves as the flagship venue for promoters Another Planet Entertainment. At press time, the 2,800-capacity club was operating with a rented P.A. while plans are finalized for a state-of-the-art install expected to take place this month. Meanwhile, artists scheduled to perform at the Fox include Cake, Modest Mouse, Franz Ferdinand and B.B. King.

CAS Sound Mixing Awards

At the Cinema Audio Society Awards ceremony, held February 14 in Los Angeles, production mixer Dennis L. Maitland took home the Career Achievement Award while Paul Mazursky was presented with the Filmmaker Award. Technical Achievement Award recipients included Sound Devices 788T digital recorder (Production Technologies) and CEDAR DNS 3000 automated noise suppression (Post-Production Technologies).



In the Outstanding Achievement in Sound Mixing category, winners included:

Slumdog Millionaire (film)
Resul Pookutty, production mixer
Ian Tapp, re-recording mixer
Richard Pryke, re-recording mixer

John Adams, Episode 1: "Join or Die"
(television movies or mini-series)
Jay Meagher, production mixer
Mike Minkler, re-recording mixer
Bob Beemer, re-recording mixer

24: "*Redemption*" (television series)
William F. Gocke, production mixer
Michael Olman, re-recording mixer
Kenneth Kobett, re-recording mixer

Deadliest Catch: "No Mercy"
(television non-fiction, variety or musical—series or specials)
Bob Bronow, re-recording mixer

Smashing Pumpkins: If All Goes Wrong
(DVD original programming)
Jon Lemon, live audio mixer
Kerry Brown, re-recording mixer
Kevin Dippold, re-recording mixer
Brian Slack, re-recording mixer

Above: *Slumdog Millionaire*; left: Dennis Maitland.

Industry News

Heading digital console strategy for **Soundcraft Studer** (Potters Bar, UK) is **Andy Brown**...**Kevin Campbell** returns to **APT Ltd.** (Belfast) as senior VP of global hardware sales...**Headroom Digital Audio** (NYC) is joined by **Theresa Notartomaso**, music supervisor...New VP of marketing and admissions at **Ex'pression College for Digital Arts** (Emeryville, CA) is **Steve DiNardo**...**Jay Easley** has been promoted to manager, **Midas & Klark Teknik** (Burnsville, MN) for the Americas...Systems integration firm **Advanced Broadcast Solutions** (Seattle) added **Mark Miller** to its design/sales team...**Michael Hurwitz** joins **Earthworks** (Milford, NH) as national sales manager...New field applications engineers at **Linear Acoustic** (Lancaster, PA):



Lon Neumann (West Coast), **Hal Buttermore** (Midwest) and **Roger Cucci** (East Coast)...New distribution deals: **Shure** (Niles, IL) selected **Highway Marketing** (Dallas) for Mid- and South Central U.S.; **Next Generation Marketing** (Lake Zurich, IL) was tapped by **Radio Audio Engineering** (Orange, CA) for Northern Illinois and Greater Wisconsin areas, and **Mitron Marketing** (Forest Lake, MN) to cover North and South Dakotas, Minnesota, parts of Western Wisconsin, Iowa and Nebraska; **Middle Atlantic Products** (Fairfield, NJ) named **Pro Tech Marketing** (Saratoga Springs, UT) in Arizona and the Rocky Mountain territory; and **L-Acoustics** (Oxnard, CA) named **Casa Instrumental S.A.** (Guatemala City, Guatemala) for Central America.

on the move

Andre Fisher
Institute of Production & Recording
executive director
of music industries



Main Responsibilities: develop marketing and PR opportunities, as well as be instructor, lecturer, seminar host.

Previous Lives:

- 2008, McNally Smith Foundation executive director; USC Thornton School of Music head instructor of music production
- 2006-2008, McNally Smith College of Music dean of music industries

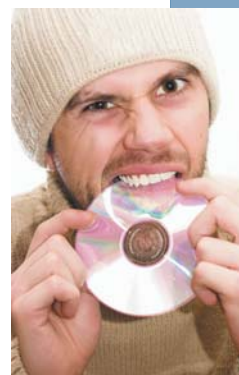
To me, the most important thing about music education is: providing the highest standard of timely education in music and multimedia production, entertainment business and audio recording technologies.

Currently in my iPod: Miles Davis, Rage Against the Machine, Kings of Leon, Minnie Riperton, Coldplay, Moke, T.I., Annie Lennox and Blue Nile.

When I'm not in the office, you can find me: on an airplane going to L.A. from Minneapolis, or Minneapolis to N.Y., Nashville, Atlanta or Paris.

Spring Cleaning

With Earth Day right around the corner (April 22), it's time to step up your recycling efforts. Do you have a mountain of CD/DVD discs eating up valuable storage space? Recycle them! Information on local recycling programs can be found at www.cdrecyclingcenter.org.



SESSIONS

Bob Mould's Hand-Made 'Life and Times'

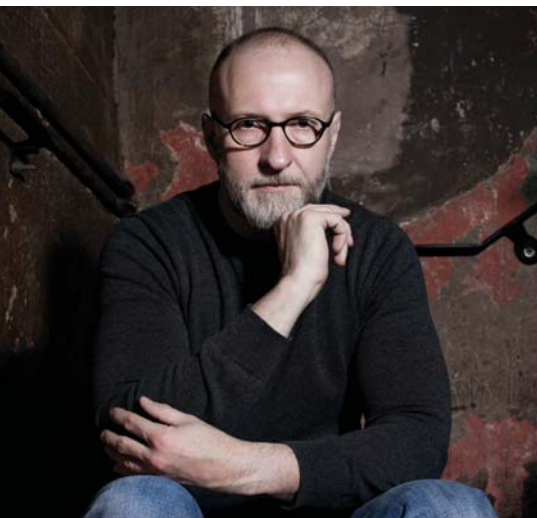


PHOTO: NOAH KALINA

Bob Mould tracks everything but drums single-handedly in his Granary Music studio.

Bob Mould, the former frontman of proto-grunge bands Hüsker Dü and Sugar, acknowledges a similarity between his current release, *Life and Times*, and the first solo album he made 20 years ago.

"When I started writing for this

record, I recognized quickly that I was writing quieter, sparser material, and part of it felt like revisiting a record I'd written years ago called *Workbook*. This album is a narrative, free verse, introspective kind of record."

"Quieter" is a relative term, of course. Mould's tracks often begin with voice and acoustic guitar, but they quickly

build into powerful multiple-guitar, multitracked vocal assaults. Mould writes; records his own vocals, guitars, bass, keyboards; and programs in his own home studio, Granary Music (Washington, D.C.), which he laughingly describes as "just a plain old room with standing waves and horrible reflections. It's a 20x25

space, and I just sit in the middle and work.

"I've settled into a groove where I have everything up and ready to go in front of me—not a lot of distance between the idea and the playback," he continues. "My mode lately is just grab it as soon as it gets into my head and if I have to go in and fix it a little bit to make it sound record-worthy, it's worth it to me because so many times the first time it comes out of your head is the way it was supposed to be."

At the heart of Mould's self-contained setup is Digital Performer 6. He says he also uses Reason 4 quite a bit for drum beats and effects, and Ableton Live "if I need to do any time correcting or if I'm trying to move things around a little bit to see what a different feel would be like."

Mould mixes with a lot of Performer's plug-ins as well as Bobby Nathan's URS plug-ins. Also on hand is a collection of analog outboard gear: JoeMeek preamp/

compressor, three Pultec blue-face EQP1s, an original Drawmer 1960, Tony Larkin compressor, and Geoff Daking EQ.

Also key to *Life and Times* is Mould's AKG 414 TL2 vocal mic. "I've used them for years, going back to the old Norelco versions," he says. "It works well with the nasal voice that I have."

To record drums, Mould travels outside his personal space; John Wurster's tracks were recorded by Frank Marchand at Waterford Digital (Millersville, Md.).

"Frank is also my live engineer when I tour with bands," Mould says. "His studio is great for drum sounds, and he's great at editing drums, as well, if we get to that. John came in and I hadn't played him any of the songs, so the first day, we would sit and listen song by song, and he would make notes and then go and play until he was happy with what he had. John is an amazing player. It's really his record featuring my songs."

—Barbara Schultz

project studio VAZ Music



Vinnie Zummo plays a 1960s vintage Ludwig drum kit in a scene from his "Ringo" video.

Vinnie Zummo (www.myspace.com/vzummo) might be best known as a guitarist in the Joe Jackson Band in the mid- to late '80s—a stint that included seven albums and three world tours. But Zummo has long flourished in New York City as a versatile and eclectic performer, songwriter, arranger, musician, producer and sound designer. Plus, Zummo is a multi-instrumentalist. "I've never done anything else but music my whole life," he says.

Besides working with artists/producers such as Shawn Colvin, Art Garfunkel, Mike Mainieri and Marti Jones, Zummo writes for commercial jingles, TV (*Oprah*, *Guiding Light*, MTV) and films (*Must Love Dogs*, *The Weather Man*). He's produced hip-hop sample libraries for Zero G/EastWest. His most recent solo album is *Swinging Guitar Sounds of Young America*, a smorgasbord of musical styles featuring Joe Jackson, Graham Maby, Joy Askeew, Marshall Crenshaw, Will Lee, Shawn Pelton, Terry Silverlight and more guests.

●● Bootsy Collins Boards 'The Ark'



A pair of funk legends: Bootsy Collins (left) and George Clinton in The Ark

The Ark studio (Cleveland, Ohio) is the new production home of funk (and fashion) icon Bootsy Collins and Bootzilla Productions. "I outgrew my [previous] personal studio," Collins says. "When I wanted to do a big horn session or string session at the 'Re-Hab' studio, we were on top of each other like we used to travel with Funkadelic in a car with all of us and the equipment strapped on top of the hood, the trunk or anywhere else you and your mouth could fit."

Collins' new 40x30-foot studio fills his space requirements, but he says that the space was originally "so live, when

we talked to one another it sounded like we had built-in reverb systems coming out of our mouths." Collins treated the room with a combination of absorptive Auralex treatments: the Russ Berger-designed AudioTiles (echo, reflection), SonoFlat Panels (mid to high frequencies) and 4-inch Studio-Foam Pyramids (low frequencies).

The Ark is equipped with a Pro Tools system and loads of Mackie gear: Digital X-Bus-200, Onyx 8-Bus, MR8 reference monitors, four SA1532z mains and two 218 subs. Most essential, Collins' bass rig includes two Crown Micro 5000 power amps, two Micro 3600s, four Micro 2500s, six Alembic bass preamps, two Quad 18 cabs, two Quad 15 bass cabs, and four 8x18 Ampeg "Bootsy" custom cabinets.

For details about the studio's outboard gear and keyboard setup, visit mixonline.com.

—Barbara Schultz

Track Sheet ●●

Van Morrison performed his entire *Astral Weeks* album front to back at the Hollywood Bowl in November of last year, and the show was captured for its recent CD/DVD

release by engineers Mick Glossop and Alastair McMillan in Guy Charbonneau's *Le Mobile* remote production facility. Shows were recorded to both *Le Mobile*'s Apogee-equipped Pro Tools HD system and a RADAR system. For a review of the finished project, visit mixonline.com...Elsewhere in the Midwest, Chicago's *A Modern Love Story* tracked songs for their new release at **Renwood Messenger Recording Studios** (Kenosha, Wisc.) with **Nick Radovonovic** engineering and producing. Drum tracking started on the Neve console in Studio A; overdubs and mixing were done in the C room...Acoustic musician **Victor Johan-**

Mick Glossop recording Van Morrison via Le Mobile.

sen opened a project studio, **CFYE Productions**, in his home town of Phoenix, Ariz. Johansen, who has been collecting gear for a decade, equipped his studio with two Mac Power PCs with G4 processors, a Mackie 24-8-2 mixing board, and an assortment of mics and outboard. He runs Reason 4, UA's UAD-1 card/plug-ins and M-Audio iControl.

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



Victor Johansen of CFYE Productions records acoustic music in his new studio in Phoenix, Ariz.

by Matt Gallagher

Zummo describes his space, VAZ Music, as "a small room that I rent. But you don't really need the space unless you're going to bring in a live band. Half the drums on my record were done in that space. I find that, once I start something, there's always a way to get it done. I like to get a take down quickly. I take about five minutes to get a guitar sound. I figure if you have a good preamp and compressor going in, that's all you basically need."

To that end, Zummo works with a small but carefully chosen collection of gear. He works in Pro Tools, supplemented by outboard gear, including a vintage Neve mic pre, vintage UREI 1176, Empirical Labs Distressor, Demeter RV-1 Real Spring Reverb, Demeter Tube Optical Compressor, vintage Roland Dimension D, and hardware from Korg, Vox, Tech 21, Source Audio, Acoustic Image and Zoom. Also on hand are an older Casio keyboard

and a Sequential Circuits Prophet. For mics, he says an AKG 414 is "pretty much my staple." He also uses ADK and Shure models.

Zummo prides himself on his instinctive, creative approach. "People will send me their Pro Tools sessions," he says. "Say they recorded this song and it's not popping right. I'll add little things—put little lo-fi drum loops in the back, a little lo-fi guitar—just painting around the edges. And you'd be amazed at what that does to a song.

"I don't ever want to settle into a rut," Zummo says. "Every album I've recorded under my own name has been a completely different style



of music. It's harder to sell, but I can never lock into a direction. If music isn't fun, what's the point?" III

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cakewalk
by Roland

Style: versatile. Producer/engineer/mixer/performer/educator/programmer/composer Steve Pageot (www.myspace.com/stevepageot) takes that approach to making it happen in New York City—not an easy task for today's owner/operators. For



Musician/engineer Steve Pageot in his home studio

audio pros who choose to work as sole proprietors in 2009, it's all about nonstop diversity, discipline and dreams.

Since coming to NYC from Montreal in 1997, Pageot has assembled a wide range of credits: Bone Thugs N Harmony, Talib Kweli, ABC, ESPN, Burger King, Playstation2's "NBALive07," engineering on Aretha Franklin's Grammy-winning single "Wonderful" and a lot more. Singularly focused on music, Pageot has built a career by moving seamlessly between as many roles as possible, as the local market dictates.

An award-winning flutist in his homeland of Canada, Pageot studied digital systems technology as a side career, then combined those skills in the trenches until he hit the wall in Montreal. "I could never make a living doing music there," he says, "so I went to New York City, and that's where my career really started."

Adept at making his own breaks, Pageot started to apply his production, engineering and performance talents to building a true one-man business. "You can't just do music these days: You have to look at yourself like you're the brand," explains Pageot. "For people to buy your product, your product has to be real. For example, [NYC-based composer] Wendell Hanes taught me how to express myself in 30 seconds and 60 seconds for jingles. But the reason I was able to do this was because I already had the fundamentals. A lot of people know how to do tracks, but they don't know how to compose—they're two different things."

In addition to having the chops to take on a wide range of assignments, Pageot uses his natural business sense to keep everything running at optimum efficiency. To start with, he eschews an expensive Manhattan address for a much more spacious studio/apartment setup in West New York, N.J., just across the water. Inside, the gear list is tight but right.

"My idea of reducing overhead is that I have a nice spot, but not in the city because it's too costly," notes Pageot. "Every piece of gear that I have helps me create. I'm using the Digi 002 running

Pro Tools 8, a Mac G5, and a maxed out UAD-1 card. I also use the Yamaha Motif ES8, the Akai MPC2000 I've been using for 10 years, and the Neumann TLM127 going through a Universal Audio 6176 for vocals and flute. To reference my mixes, I'm using Event Studio Precision 8 monitors."

On any given day, Pageot might be producing a track for a label, mixing a TV jingle that Hanes wrote, composing for the likes of MTV or ESPN, working on ringtones for Thumbplay.com and Hudson Entertainment, creating soundtracks for Web shows on channels like Bud.tv or practicing for a gig at the Blue Note. In the classic yin-yang, Pageot understands that maintaining this level of flexibility requires rigid discipline.

"Every second is important, and one lost second could throw off my whole day," he says. "I keep a strict schedule. Business people operate in the daytime, so I get up at 8:00 a.m. and I'm making calls at 9:00 a.m. At 12 noon people are already playing golf, and by 4:00 p.m. people are wrapping up. So you've got to do business, and then make music."

Living and working successfully in New York City means being a people person, and Pageot knows that meeting the right people is the perfect follow-through to having mad skillz. "The way to get into these different types of markets is by building good relationships," says Pageot. "You have to know how to approach people without being cocky or arrogant, but if your product is good you can get into any market with it. My question was, 'How am I going to find these people?' So I'd go to different functions with my business card, meet the right person, and once you do that you'll meet the next one. You have to impress the person you play your music for, and they'll play it for the next one."

Much of the above may sound elementary, but the remarkable thing about Steve Pageot is the consistency with which he pulls off this multitasking. That, and keeping firm on the value of his time,



Pageot mixes in the SSL room at SAE in New York City.

are critical components for a solo act keeping up a long-term NYC career. "The trick is not to get stuck doing just one thing," he confirms. "The minute you're stuck, you're no good, because money has to keep coming in, and in order for people to respect you, you have to set a price. We have to pay our dues, but after a while our dues have to start paying us back."

Send New York news to david@dwords.com.

NASHVILLE Skyline

by Peter Cooper

Someone sent Ben Folds a YouTube link. It was cool: An a cappella group from Columbia University, doing Folds' song, "Still Fighting It." And Folds thought, "Wow, these kids go to the same school and sing that well together... that must be really unusual."

Then there was the YouTube link for "related videos," and Folds clicked on it. And "unusual" became less so. There were at least 100 versions of Folds' songs out in a cappella world. He set up a con-

of condenser mics and a Coles ribbon mic for the bass singers. The entire album was mixed on a Neotek Elite console at Javelina.

"When we bought this console, we were going to use it as a monitor console," Folds says. "But we wound up really loving it. Michael Brauer has been mixing my records for five years, and this is his favorite board. He says it's got a great midrange and it's really open, and he about breaks the desk when he's jumping up and down on it."

Aside from attempting to keep equipment from airport harm, the biggest challenge came when it came time for Folds to emu-

late the a cappella sounds on his own. "For one of the two songs I did, it took about 30 hours to arrange and another 30 hours of multitracking," he says. "I totally underestimated the amount of time I had to put into it. I do vocals in the studio all the time, and some-

times you get to the eighth take and it's still sucking. These kids are getting it on the first try."

Folds brought in bass player (and deft harmony vocalist) Jared Reynolds to help with the overdubs, and they called in others, including Webb Wilder, for the bass parts. In the recording process, they learned something about recording vocal choruses without instrumental backing.

"I found out that everyone can't be in perfect tune," Folds said. "It doesn't sound right. Country music sounds wack enough when it's all tuned, but you're used to hearing that. When you hear a bunch of voices and all of a sudden they're *Tromned* out, it's really weird. On one of the songs, we tuned the bass at first, and by itself it sounded great. With everyone else, it sounded sharp. We brought a guy in from Belmont University to sing bass, and I noticed he was singing flat. I didn't think it would work, but it worked perfectly. We finally realized that people have a natural way of wanting to harmonize, and it's not even locked in tune."

Folds has leased Javelina for more than five years now. Historically, the studio was a complementary room to RCA Studio B, and its immense tracking space was often used for string sections. Elvis Presley, Carl Perkins, Charley Pride and others worked at Javelina. Of late, it's been a private sonic playground, with Folds' many pianos crowding the floor. But Folds is planning to open it back up for strings and other appropriate uses. "This is an amazing room, but it's been an amazing storage room for too long," Folds says. "We're going to clean it up and do the occasional session here, so that it retains some dignity and doesn't just get used as a big rehearsal space."

Folds looks around that space and smiles on a recent afternoon, considering the music that had just been mixed on the Neotek. "There are hundreds of colleges and universities that have two or three of these a cappella groups," he says. "Some suck, but a lot don't. In a world where everything's tuned, and everything goes to MP3s, that this social musical event is rising out of the ashes says something for the human spirit. I'm even more determined that music is something everyone can do, and that it's a normal part of being human. I think this is a power-to-the-people kind of record. And I think it's important."

Reach Nashville Skyline by emailing peter@petercoopermusic.com.



Engineer Joe Costa (left) and Ben Folds mix a cappella recordings on the Neotek Elite console at the studio formerly known as Javelina.

test, asking for submissions of groups doing his songs, with plans to make an album. And he and engineer Joe Costa began lugging equipment to schools that had a cappella groups that seemed to have a shot at making the final cut.

"We did a lot with ribbon mics, 'cause it's neat-sounding and it's noisy," says Costa, Folds' engineer at what used to be called Javelina Studios on Music Row. "Ben was saying it was like field recording. At first, we tried to put them in sections, with the baritone people together and the tenors together. They were cool with that, but it didn't sound good. The only thing we did in the end was put the bass people together, in the middle, and have everybody else stand in a horseshoe formation. The recordings are noisy, but that's part of the charm."

The recordings in question, augmented by a couple of tracks featuring Folds and friends doing their best, overdubbed imitation of an a cappella choir, can be found on an album called *Ben Folds Presents: University A Cappella!*, out April 7. What Folds and Costa initially thought of as a fun and easy-ish side project wound up being both trickier and more rewarding than expected.

Folds and Costa schlepped to various colleges, hauling four API preamps that kept getting damaged in the airline baggage process. Oh, at first they used a pair of solid-state Universal Audio 2108 pre's, which got smashed. They recorded onto a laptop, using a DigiDesign Digi 003 system. One group came to Javelina to record ("Because we were sick of traveling," Folds says), assembling in the huge tracking room and singing, while Costa captured the sounds through an AEA R88 stereo ribbon microphone, an AEA TRP Ribbon Pre, a couple

L.A. Grapevine

by Bud Scoppa

Elias Arts, the nearly 30-year-old company that creates original music for commercials, feature films and trailers, is a creative sandbox just a few blocks from the beach in Santa Monica. I'd heard they do things differently there, so I stopped by to check out the place.

Creative Director Dave Gold and composer/engineer Kenny Segal greet me in the lobby. As they lead me through the two-story maze of music and writing studios, offices, conference rooms and spaces for clients to use, I see cardboard boxes and cylinders scat-



L-R: Dave Gold, Nate Morgan and Kenny Segal create original music at Elias Arts.

tered everywhere, as if they'd just moved in.

Gold chuckles when I ask what's going on. "We're currently working on a spot where everything takes place inside a cardboard box," he explains. "But we're trying to figure out what things sound like inside a box—what would music sound like if everything took place in a world inside a box? So we've been miking things in boxes, hitting boxes..."

"I spent half of yesterday trying to make a flute out of a cardboard tube," says Segal.

Working in bursts of creativity that generally time out at 30 seconds or less, the company's staff of eight composer/engineers (including three in their New York City facility—there's quite a bit of creative interaction between the two coasts) created four spots for this year's Super Bowl and worked with producer T Bone Burnett on a remix of The Who's "My Generation" for Pepsi Pass that aired repeatedly during the Obama inauguration. Among recent longer-form projects: a series of artist profiles as part of Amnesty International's "Music for Human Rights" campaign, with Coldplay's Chris Martin as the first subject; and soundtracks for two upcoming films, *Fighting* and a remake of *Children of the Corn*.

"In our world," says Gold, "we're asked to do everything from techno to tango to hip-hop to rock, and to dabble in world music, so our guys have to constantly be flexing their creative muscles. Even though everybody's working on their own tracks, the majority of our pieces end up being collaborative, so our studios are designed for speed, efficiency, compatibility, transferability—these things have become as important as the kind of gear that's used."

The studios are linked together and have identical setups: a

Mackie Digital X Bus acts as a work surface and summing mixer for Digital Performer; an array of plug-ins and core sample libraries from EastWest, Native Instruments, Spectrasonics, Waves and Stillwell; a synth rack with a Roland 5080 and an E-mu Proteus; and at least one high-quality preamp from Vintech, Universal Audio, Studio Projects and/or Avalon. "The idea is to get a good, high-quality signal chain for a couple instruments at a time, and then do the rest of the work in the computer," says Segal.

Gold explains the process: "Initially, we work up things in a demo state—quick, down and dirty ideas—but once the client starts leaning in a particular direction, we'll often take a track that one of the guys has done, put it on the server, send it off to every single room, and everybody pulls it up and does their thing to it, because each of the guys has a different strength—they're almost like a mini-band. We have one guy who's a good guitarist; another guy, Nate Morgan, who's a drummer but also has orchestral chops; and Kenny is really great at working from the computer out."

"We have five or six people in the building, all working on a piece of music together," says Segal. "That's one of our strengths, and what sets us apart. The first round might be a competition, but once the client chooses a track, I might throw some hip-hop beats on there, then give it to someone else to do a couple of orchestral ideas, and by the time it gets finished, everybody's touched it in some way. So we can not only deliver a huge orchestral score for you, but you can also call us at 7 on a Friday night and have six demos ready by Saturday afternoon, have it finalized by Sunday and ready to go to mix on Monday."

Adds Gold, "These guys know if I'm walking around to all the studios at 3 o'clock on Friday afternoon, they know they're probably gonna be spending a good part of the weekend here."

Segal, who comes from the DJ/hip-hop/electronic world (he has his own indie imprint, Ken Can Cook), spent the morning composing a 45-second, Bernard Hermann-style orchestral piece for the Audi Q5 to 13 seconds—a task he likens to solving a puzzle.

If all this sounds like a blast, that's because it actually is, he says. "One of my favorite days ever was when we were working on a spot for Cisco Systems that called for an old-school techno track. Korg recently put out a piece of software for the Nintendo DS called the DS10—it's basically an emulation of a Korg synthesizer that has two mono oscillator synths, an analog drum machine and a little pattern sequencer. Dave had just bought a Nintendo for his kids, and I ended up doing the whole thing on it, then hooked the output into the Vintechs and recorded it into the computer. Unfortunately, they went with someone else's 5080 dance track instead, but it was still a lot of fun.

"Working here," Segal continues, "is almost like being a contestant on a show like *Top Chef* or *Project Runway*: Every day you have a new creative challenge given to you, generally a short time limit and several competitors."

At Elias Arts, the fun often comes in tasty bite-sized pieces—30 seconds or less—but you've gotta fight for your piece of the action and play nice with the other kids. ■

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Stevie Wonder visits *Ellen*.

The *Ellen DeGeneres* Show

Audio for Afternoon TV Chat/Music Hour Requires Fast Thinking

By Blair Jackson

Talk about working “in the trenches.” Consider the challenges of putting together a daily one-hour television talk/variety show, five programs a week, 170 a year. *The Ellen DeGeneres Show* has been one of the most popular daily programs in syndication since it debuted in 2003—and its sound crew one of the most honored: For five years running (2003-2008), it has won the Daytime Emmy for mixing, or, as the category is technically known, “Outstanding Achievement in Live and Direct to Tape Sound Mixing.” (The show has also earned more than 20 non-sound Emmys for DeGeneres herself, direction, etc.) And the program looks and sounds better *now* than ever before: This season, the show moved to new digs at Warner Bros. Studios in Burbank, Calif., and it’s now shot in HD, delivered in both stereo and 5.1, and completely tapeless. Helming the audio for *Ellen* is production sound mixer Terry Fountain (who has been with the show since its inception) and playback mixer Dirk Sciarrotta (on the show for the past three seasons).

A show like this probably looks like a relatively easy sound job—people sitting in chairs and talking, right? *Wrong!* Watch the show closely and you’ll see that the whole studio is in sonic play, from the always active and participatory audience of more than 300 who attend every taping, to

different parts of the soundstage where all manner of funny (and often strange) games and activities take place on a given show (sometimes preplanned, sometimes not), to the area where, on nearly every program, a top musical artist performs. Even a backstage bathroom is not off-limits: It’s where DeGeneres’ “Bathroom Concert Series” takes place—the host and a guest(s) sing together in the loo for a couple of minutes; it’s odd, but also charming and cool—just like DeGeneres herself.

Before this season, *Ellen* was shot on Stage 11 at NBC Studios in L.A. Fountain designed and assembled the control room, and front-of-house and monitor systems there from scratch. That control room had a Yamaha M3000a 56-input console (36 inputs for bands, 20 for production) and a 24-channel M3000 aux console, while the FOH board was a Mackie 32 8-bus, with two expander consoles. Then and now he monitored primarily on Mackie HR824s. The show was recorded on DigiBeta and edited on Avid.

In the new, larger Warner studio, Fountain sits behind a gleaming Studer Vista 8 digital live production console, while Sciarrotta has a position directly behind him, dominated by a CueLogic SpotOn real-time audio playback system. Fountain says, “When we first started, I had a PC with Cool

Lily Allen and DeGeneres perform as part of the "Bathroom Concert Series."

Playback mixer Dirk Sciarrotta

Production sound mixer Terry Fountain

PHOTOS BY MICHAEL ROZMAN/WARNER BROS.

Edit Pro and a 360 Systems Instant Replay. When Dirk started in season 4, though, I upgraded to the SpotOn system."

"Back at NBC, I was positioned in a far corner of the audio room actually behind Terry's right near-field speaker," Sciarrotta notes. "It was a tight fit with all the gear, and I had no visual of Terry or the control room. There was no network file sharing, and I only had a 4-channel PL [private line/intercom] station. My desk was an analog Mackie Onyx, and SpotOn was analog to Terry. Now I have a proper position behind Terry, room for gear and expansion, all the network file-sharing capabilities, HDMI split-screen with all the cameras, a PL station with anything I need, prompter, routers, full digital routing from SpotOn to Terry's Studer via a Yamaha 01V, a great view of the control room—and it looks good, too!"

CueLogic is an L.A.-based company started three years ago by Sciarrotta—who in addition to serving as playback mixer for Ellen has worked on *The Price Is Right*, *Family Feud*, various awards shows and more—and Tom Evans, who has designed and built various computer-based technical systems (and works as playback mixer for *The Late, Late Show With Craig Ferguson*). It was Evans who found SpotOn, a software application written by David Markie, and working with Sciarrotta figured out a way to integrate it as the centerpiece of a broadcast playback environment.

"The system allows me to play multiple cues out of multiple

outputs in multiple colors," Sciarrotta explains. "They are triggered by a touchscreen and the cues look like buttons. These buttons can be moved around, outputs can be changed per button, levels can be adjusted, text can be changed, the size of the buttons can be adjusted, multiple file types can be played and there are many more features. I can trigger one cue and have that cue trigger others. I can set fade-ins and -outs, group cues together, edit head and tail points, and so on.

"The best part is that it is all located in *one* box. That box is a computer, and since you are already in a computer, you can choose whatever editing software you like. I use Adobe Audition as my main 2-channel and multitrack editor. The music and SFX are all in there, so dragging and dropping is a simple task."

The Ellen DeGeneres Show usually shoots four days a week—single shows Monday through Wednesday and two shows on Thursday—and there's typically just a one-day lag between when a program is shot and when it airs (except for the second Thursday show). Even so, it's shot in real time—which is to say, in an hour—beginning at 4 p.m.

Of course the day begins much earlier for the audio team. "A typical day starts with a production meeting at 9:30 a.m.," Fountain says. "Using the show rundown, the producers and staff go through the show segment by segment."

"We come to work daily with a blank canvas of a show in front of us," Sciarrotta adds. "I get the preliminary rundown for the show that day and I pre-build whatever music, SFX or voice-over cues I need within SpotOn. After I am pre-built, I contact various writers and producers and continually update, change and create cues throughout the day. The most common event for me is acquiring a popular music cut, editing it for playback and loading it into SpotOn.

"As the day goes on, updating of the show elements continues as the writers and producers decide what works and what doesn't: Change this music, or make that SFX shorter, or pick a new edit point—those are all common things that we deal with each day. Timing might change and kinks are worked out. Sometimes it's fine just the way we rehearsed. Sometimes it's not."

The bulk of the show is unrehearsed except, of course, for the soundchecks for the musical performers. The *Ellen* show has become a "must" stop for acts plugging their new albums, and over the years has presented an incredible array of bands and singers, including such "names" as Stevie Wonder, Paul McCartney, Prince, Elton John, Madonna, Christina Aguilera, Usher, Kanye West, Earth Wind & Fire, Garth Brooks and

Mariah Carey, as well as scores of mid-level and up-and-coming acts. Over the course of the month or so when we were preparing this story, musical guests included Wonder, Lily Allen, the Jonas Brothers, The Bird and The Bee, Fall Out Boy, Matt Nathanson, The Fray and Raphael Saadiq; lots of variety, and it always sounds good.

Fountain says he feels right at home mixing the bands for broadcast: "I worked for Showco back in the '70s and I mixed countless concerts. I was on the road for six years and I did front of house for George Benson for the last two years on the road. I started doing TV sound at ABC in the mid-'80s—everything from *Lawrence Welk* to *American Bandstand*. When I started mixing music on TV, I felt like it should sound like a concert instead of a TV show, and this is my approach.

"When I get to the music part of the show, I want to feel like I am mixing on a large P.A. system, so I turn it up a few dB. I find that when I listen a little loud—some would say really loud—it makes my program mix record just under the point where the affiliates' compressor/limiter

might affect the mix. So when you watch at home and listen on your TV speakers or your surround system, you can turn it up and that concert feel is there for you quite nicely. My wife, Kim, always says, 'Nice drum mix!'

"The show is busy, so the soundcheck part of the day is quite limited. I mix both the production and the bands, so I have to have a handle on all of the sounds of all the instruments before the band even walks onstage. It's rare that I get 30



P.A. mixer Neil Taylor (standing, left) and audio assistants Ron Thompson and Liza Tan

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minutes with the band before we camera block. Sometimes we only get one pass on camera before we have to move on to rehearse something else, so that six years of working quickly [on the road] has paid off."

About half the time, Fountain says, the band will have someone in the booth with him during the soundcheck and live mix, which "usually helps keep me from missing something particular to the mix that I might not be aware of," he says. "Other times I think it's better to just go solo because it brings another sound to the music mix that they may not have experienced."

How many inputs would a typical performance require? "I have 40 inputs set aside for band inputs, which is usually overkill," Fountain says. "We had Stevie Wonder on a couple of weeks ago and we had to pare it down to 40 inputs from 100 inputs. Stevie has been on a couple of times and he doesn't bring anyone with him to sit with me, but we all know how Stevie should sound."

"All of our mics are from my collection. I'm a big fan of Shure mics and use them a lot, but I have a lot of Sennheiser mics, and a variety of direct boxes for keyboards, as well."

Neil Taylor (who has been with the show since the beginning) handles the music mix for the studio audience on a pair of Yamaha MC7L digital mixers; music monitoring is done by Eric Slaughter and John Perez on a Yamaha PM5D.

As for miking the main part of the show and the other conceptual segments, Fountain eschews traditional studio booms, and notes, "The size of the stage makes it hard to wire anything with cable except the bands. So we use Soundtronics wireless systems to gather audio from the various sources around the stage. We use Sennheiser 5212 wireless packs with Sennheiser Platinum lav mics for Ellen and the people she interviews."

However, he adds, "Surprises happen all the time, and we don't always put a mic on everyone. So my floor A2s [assistants]—Liza Tan and Ron Thompson, who've been with me from the start—have wireless fishpoles with shotgun mics on them for these moments. For instance, before the show, the audience dances to music that we play for them, and Ellen watches this in her dressing room as she gets ready. Later, during the show Ellen may want to replay a clip of a dancer she likes and talk to them in the audience. When this happens, our floor A2s need to be ready to pick up this audio with a fishpole and shotgun mic."

As for the Bathroom Concert Series, it's "a single mic in the bathroom," Sciarrotta reveals. "The music is played from a boom box. They bring me a karaoke version of the song they want to do, then I edit it to an in-point of their liking.

After that, I simply burn the cut onto a CD, which is played from a boom box in the bathroom. I also have the cut standing by in SpotOn, ready to play back at any time through a Fostex speaker set up in there, just in case they need it." Both Lily Allen and two members of Fall Out Boy joined DeGeneres (on separate shows) to sing versions of Britney Spears' "Womanizer" (of all things), while Pink and DeGeneres struggled through a hilarious version of Pink's "So What," and Bret Michaels led 10 female fans (a tight squeeze) through Poison's "Every Rose Has Its Thorns." (The show also has encouraged viewers to send in their own Bathroom Concert songs and has

shown some.)

Over the course of the day, Fountain says, "Dirk and I communicate constantly and coordinate our respective responsibilities. I have three stereo feeds from Dirk—announce, SFX and music. There are many different cues, depending on whether we are doing a game, a remote, telephone call, you name it."

Sciarrotta adds, "We collaborate on the cues—their levels, the in and out points, and the outputs that each of the cues is played on. For example, there may be an underscore creating tension, and then on top of that there will be stings. I will play the music pair to Terry, he will know to keep it



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as an underscore, and I will fire stings down the SFX outputs so they can stay on top of the music. This makes it easy for Terry to separate the two streams, and makes it easier for me to hit the cues and keep the stings prominent."

During the show, "We constantly listen to our director, Liz Patrick, as things change moment to moment," Fountain says. "The assistant director, John Zook, is also very important because he counts every second of the show as it happens, and these timings are my lifeline for the many audio transitions that I do live."

"We need to be ready for basically everything," Sciarrotta offers. "Surprises happen every day. The show is never the same twice. You never know what is actually going to happen at any moment. While Ellen is conducting an interview, the person being interviewed might mention their favorite song. At that moment, I am fishing for that cut of music and loading it into SpotOn for playback by the end of the segment or whenever someone calls for it. Get it ready and get it fast, because you just don't know. I would say 90 percent of the show is unrehearsed."

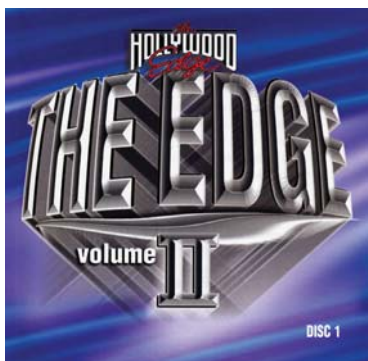
"At the end of the night, we have to make sure post-production does not need anything from us. If there was a music cue that was not timed right or was up-cut, I have access to shared folders that I can simply drop music into for the editors. Our post-production needs can also include SFX for a tape piece or VOs we record. The shared folder system works well; no need to burn CDs anymore. As we prepare for a taping during the day, I also have access to shared folders with producers in our production offices. They can drop music in my folder so I can use it for whenever I need it. This saves a lot of time and avoids having to burn a CD. I simply drag and drop."

In general, Fountain notes, "The show is not 'sweetened' per se. Ninety-nine percent of what you hear at home is what I mixed live, including the bands. I very rarely change a music mix; when I do need to remix a song, I use a Fairlight multitrack audio/video recorder. It's saved my life a few times!"

As for the surround broadcast, "The 5.1 is created via an upmix so that if anything is changed after the fact, it doesn't change the 5.1 mix," Fountain says. "It simply is edited in stereo and upmixed for broadcast."

Given the hectic pace, it's amazing more things don't go wrong on shows like these. But that danger is part of what makes working on what is essentially live television so exciting. "The biggest challenge has to be that the show is mostly impromptu," Fountain says. "You really have to have *game* to mix a show like this." ■

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Shotgun Microphones

Extend Your Reach—In Mono, Stereo or Surround

By George Petersen

Few audio pros are familiar with the name Harry Olson (1901-1982), but he left an indelible mark on the science of audio. A lifelong researcher at RCA, his many accomplishments include co-developing RCA's ribbon microphones (such as the famed 44 and 77 models), the RCA Music Synthesizer in 1958 and a 1941 patent for a directional microphone for long-distance pickup of sounds for film, video, broadcast and sound reinforcement. Olson's design was somewhat crude, comprising a circular bundle of pipes of varying length placed in front of several mic elements. However, the concept laid the foundation for line microphones, now commonly referred to as shotgun mics.

Various incarnations of ultradirectional mics followed, eventually becoming the shotgun mics we know today. Essentially, these involve a long tube—acoustical transmission line—placed in front of an omnidirectional mic element. Put very simply, on-axis sounds enter this column relatively unscathed, while side/rear-emanating, off-axis sounds entering through slots along the side of the tube are out of phase with the front signal and are canceled out.

A Touch of Reality, Please

At least that's how shotgun mics would work in a perfect world. The reality is that like all directional microphones, these units are more directional at higher frequencies and far less so at lower frequencies. And generally, mics with longer interference tubes provide greater directionality at low frequencies. But longer

isn't necessarily better. A longer unit may provide more "reach," but an excessively long mic may prove unwieldy for overhead miking from a boom in cramped quarters, such as low-ceiling locations. Likewise, weight may also be an issue—a few extra ounces may quickly seem like pounds for an operator hand-holding a boom or fishpole for extended periods.

These days, all professional shotgun microphones are condenser models, as dynamic designs began falling out of popularity some years

ago. But with the near-universal availability of 48VDC phantom powering, condenser models are the norm. Some pro shotguns also offer the option of being phantom- or battery-operated, which adds versatility, but the onboard battery compartment increases the mic's size and weight.

Options and Add-Ons

Features found on some shotgun mics include -10dB pads (great for those *loud* dialog sessions) and various offerings in highpass (low-cut) filters. The latter provide a means of tailoring the mic's response for the situation, especially in boomy environments or for voice-only or dialog applications. Speaking of LF problems, nearly all pro shotguns ship with a foam windscreens, which is essential in any outdoor setting, and numerous companies (OEM and third-party) offer fur-style and basket-type windscreens that provide even greater protection against wind-borne noise.

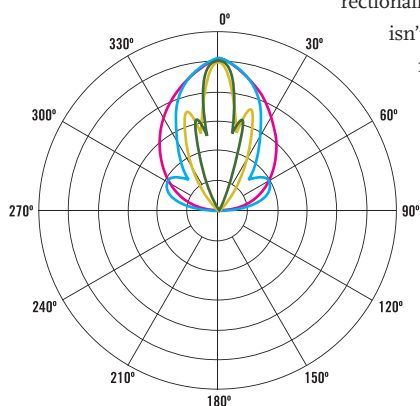
Whether the shotgun mic is handheld, or boom/camera/stand-mounted, another essential accessory is some kind of shock-mount to absorb mechanical vibrations and handling noise. Again, these are available from both OEM and third-party suppliers, and as most shotgun bodies are about 20 mm in diameter, most mounting products are nearly universal. One useful bit I keep in my camera kit is Audio-Technica's AT8459 swivel-mount mic clamp, which lets me easily aim a shotgun mic in any direction, even when it is camera-mounted. This is ideal in situations where, for example, it's necessary to keep a camera pointed toward a podium while the mic is kept on-axis to a P.A. speaker that's off to the side. Another inexpensive item is a mic cable with a 90-degree XLR-F connector at the mic end, which reduces the overall mic length when it's boom- or camera-mounted.

And particularly useful for location work, a plug-on wireless transmitter can convert your shotgun into an RF mic, thus eliminating the cable limitations.

Choice, Choices, Choices

In researching the pro shotgun microphone market, we encountered more than 50 entries (listed on the following page), with models to suit nearly any application or budget. Among these were seven stereo shotguns and one model with five discrete outputs for surround work. And if you're in the market for a new shotgun mic (or several), this month's NAB may provide a good opportunity to do a little shopping. After all, you can never have too many mics. ■

George Petersen is the executive editor of Mix.



This polar pattern from an Audio-Technica BP4071L shotgun mic demonstrates how directionality increases at higher frequencies.

200 Hz — pink
1 kHz — blue
5 kHz — yellow
8 kHz — green

COMPANY; WEBSITE	MODEL	MONO/ STEREO/ SURROUND	LENGTH	WEIGHT	PAD	LF ROLL-OFF	FREQUENCY RESPONSE	PHANTOM POWER	BATTERY POWER	LIST PRICE	NOTES
AKG; www.akg.com	C568B	mono	10"	5.6 oz	no	120 Hz	20-20k	yes	no	\$749	includes windscreen
AKG	CK98/SE300B	mono	14"	5.6 oz	10 dB	75 Hz	20-20k	yes	no	\$865	modular Blue Line body with shotgun head
Audio-Technica; www.audio-technica.com	AT8015a	mono	18"	6.9 oz	no	80 Hz	40-20k	yes	AA	\$410	includes windscreen
Audio-Technica	AT8035	mono	14.5"	6 oz	no	80 Hz	40-20k	yes	AA	\$339	includes windscreen; long-body version of AT8015a
Audio-Technica	AT875R	mono	6.9"	2.8 oz	no	no	90-20k	yes	no	\$259	includes windscreen
Audio-Technica	AT897	mono	11"	5.1 oz	no	80 Hz	20-20k	yes	AA	\$369	includes windscreen
Audio-Technica	AT4027	stereo	15"	5 oz	no	80 Hz	30-20k	yes	no	\$1,100	onboard M/S matrixing with narrow and wide settings or non-matrix output
Audio-Technica	BP4029	stereo	9.3"	3.6 oz	no	80 Hz	40-20k	yes	no	\$995	onboard M/S matrixing with narrow and wide settings or non-matrix output
Audio-Technica	BP4071	mono	15.6"	4.8 oz	10 dB	80 Hz	20-20k	yes	no	\$1,169	includes windscreen
Audio-Technica	BP4071L	mono	21.2"	6.2 oz	10 dB	80 Hz	20-18k	yes	no	\$1,299	includes windscreen
Audio-Technica	BP4073	mono	9.2"	3.5 oz	10 dB	80 Hz	20-20k	yes	no	\$999	includes windscreen
Audix; www.audixusa.com	UEM81S	mono	17.1"	14 oz	no	150 Hz	20-20k	no	AA	\$299	includes windscreen
Avlex; www.avlex.com	PRA-116B	mono	14.7"	7.8 oz	no	80 Hz	50-14k	no	AA	\$210	includes windscreen and shock-mount
Avlex	PRA-118S	mono	12.6"	7 oz	no	no	30-16k	yes	no	\$326	includes windscreen and shock-mount
Avlex	PRA-118L	mono	20.2"	8.8 oz	no	no	30-16k	yes	no	\$364	includes windscreen and shock-mount
Azden; www.azdencorp.com	SGM-1000	mono	12.2"	4.9 oz	no	200 Hz	80-20k	yes	AAA	\$400	includes windscreen and shock-mount
Azden	SGM-1X	mono	11.8"	4.8 oz	no	no	80-18k	no	AAA	\$250	includes windscreen and shock-mount
Azden	SGM-2X	mono	15.8"	6.5 oz	no	200 Hz	40-20k	no	AAA	\$320	interchangeable barrel converts mic to omni
beyerdynamic; www.beyerdynamic.com	MC 836	mono	9.8"	4.2 oz	no	90 Hz	40-20k	yes	no	\$1,299	includes shock-mount
beyerdynamic	MC 837	mono	20.3"	7.8 oz	no	90 Hz	40-20k	yes	no	\$1,479	includes windscreen
beyerdynamic	MCE 86 II	mono	10"	3.2 oz	no	no	50-18k	yes	no	\$439	includes windscreen
beyerdynamic	MCI 86 SII	mono	12.2"	4.9 oz	no	no	50-18k	yes	AA	\$549	similar to MCE 86II but with battery or phantom power
DPA; www.dpamicrophones.com	4017	mono	8.3"	2.5 oz	no	no	70-20k	yes	no	\$2,079	includes windscreen
Edirol; www.edirol.com	CS-50	stereo	7.6"	3 oz	no	80 Hz	50-20k	yes	no	\$475	has wide/narrow stereo switching
Electro-Voice; www.electrovoice.com	ENG618	mono	18"	32 oz	no	200 Hz	50-8k	yes	9 VDC	\$1,652	integrated boom pole extends to 6'; onboard headphone amp
Fostex; www.fostex.com	MC35	mono	13.4"	7.9 oz	no	no	30-16k	yes	no	\$299	includes windscreen
MXL; www.mxlmics.com	FR-304	mono	14.5"	7.2 oz	no	no	20-20k	yes	AA	\$169	includes windscreen
MXL	FR-300	mono	10"	8.3 oz	no	no	20-20k	yes	AA	\$189	includes windscreen
Neumann; www.neumannusa.com	KMR 81i	mono	8.9"	5.2 oz	10 dB	200 Hz	20-20k	yes	no	\$2,298	windscreen optional
Neumann	KMR 82i	mono	15.6"	8.9 oz	no	120 Hz	20-20k	yes	no	\$2,598	includes windscreen; has HF contour switching
Neumann	RSM 191	stereo	8.3"	6 oz	10 dB	40/80/200	20-20k	yes	9 VDC	\$7,598	matrix amp with M/S or X/Y output
Nevaton; www.nevaton-microphones.com	MC-401	mono	9.8"	4.2 oz	no	no	40-20k	yes	no	\$1,195	includes wooden box
PSC; www.professionalsound.com	DV SGM1	mono	7.9"	2.7 oz	no	no	50-18k	yes	no	\$319	includes windscreen, fur cover and shock-mount
Que Audio; www.queaudio.com	Location Pack	mono	14/17/22"	5.9-8 oz	no	no	30-20k	yes	no	\$1,200	includes 3 interchangeable heads (14/17/22")
RØDE; www.rodemic.com	NTG-1	mono	8.5"	3.6 oz	no	80 Hz	20-20k	yes	no	\$349	includes windscreen
RØDE	NTG-2	mono	11"	5 oz	no	80 Hz	20-20k	yes	AA	\$369	includes windscreen; battery-powerable version of NTG-1
RØDE	NTG-3	mono	10"	5.7 oz	no	no	40-20k	yes	no	\$899	includes windscreen, aluminum storage cylinder
Sanken; www.sanken-mic.com	CMS-10	stereo	8.3"	6 oz	no	no	150-20k	yes	no	\$2,290	includes fur screen, shock-mount, matrix with M/S or X/Y output
Sanken	CS-1	mono	7.2"	3.6 oz	no	no	50-20k	yes	no	\$825	includes windscreen
Sanken	CS-3E	mono	10.6"	4.3 oz	no	no	50-20k	yes	no	\$1,415	windscreen optional
Sanken	WMS-5	surround	9.25"	8.3 oz	no	no	50-20k	yes	no	\$4,195	surround shotgun; five discrete XLR outputs
Sanken	SSS-5	stereo	11.8"	8.9 oz	no	no	100-15k	yes	no	\$2,075	stereo, mono or wide-stereo output
Schoeps; www.schoeps.de	CMIT 5U	mono	9.9"	3.1 oz	no	80/300 Hz	40-20k	yes	no	\$1,999	includes windscreen, wood case
Sennheiser; www.sennheiserusa.com	MKH 416	mono	9.8"	5.8 oz	no	no	40-20k	yes	no	\$1,957	includes windscreen
Sennheiser	MHK 70	mono	16.2"	6.8 oz	10 dB	100 Hz	60-20k	yes	no	\$3,105	includes windscreen; has HF boost switch
Sennheiser	MKH 60	mono	11"	5.7 oz	10 dB	100 Hz	60-20k	yes	no	\$2,700	includes windscreen; has HF boost switch
Sennheiser	ME66/K6 Combo	mono	12.5"	3.9 oz	no	100 Hz	40-20k	yes	AA	\$785	also avail. with K6P phantom-only module
Sennheiser	ME67/K6 Combo	mono	17.2"	5.2 oz	no	100 Hz	40-20k	yes	AA	\$909	also avail. with K6P phantom-only module
Shure; www.shure.com	SM89	mono	20.6"	6.9 oz	no	60/160 Hz	60-20k	yes	no	\$1,242	includes windscreen
Sony; www.pro.sony.com	ECM 673	mono	7.9"	4.8 oz	no	120 Hz	20-20k	yes	no	\$347	includes windscreen
Sony	ECM 674	mono	10.6"	6.5 oz	no	120 Hz	20-20k	yes	no	\$416	includes windscreen
Sony	ECM 678	mono	9.9"	7 oz	no	120 Hz	20-20k	yes	AA	\$789	includes windscreen
Sony	ECM 680S	stereo	9.9"	4.9 oz	no	120 Hz	20-20k	yes	no	\$1,010	internal M/S decoding and mono mode switch

Note: All mics have balanced XLR outputs and most ship with a stand clip. Prices are MSRP in U.S. dollars.

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PHOTOS: ROGER KISBY



From left: Kevin Allen, Aaron Ford, Conrad Keely, Clay Morris, Jason Reece and Jay Phillips

By Ken Micallef

Trail of Dead

AUSTIN ROCKERS BRING ON THE NOISE

As if their name—...And You Will Know Us by the Trail of Dead—isn't enough, this Austin, Texas-based sextet's seventh album was built on a trail of oddities and absurdities bizarre enough to fill a painting by 16th-century horror master Hieronymus Bosch. *The Century of Self* (Richter Scale/Justice) was (a) wrestled away from the group's original producer, (b) tracked at four different studios, (c) recorded to tape/

Nuendo/Logic/Pro Tools/tape, (d) partially inspired by a misery-inducing tour with a Cartoon Network band and (e) spooked by a ghost that inhabited the final studio's underground passageway.

But wait, there's more.

"The themes of the record involve prophecy, higher spirituality, childhood and how the world has been changed by consumerism," multi-instrumentalist/vocalist Conrad Keely says. "The future

fascinates me."

Keely and fellow multi-instrumentalist Jason Reece migrated from Washington state to Austin in 1994, surrounded themselves with similarly minded art rockers and took on their impossibly long moniker. Albums such as *Source Tags & Codes* (2002) and prog-rock opera *Worlds Apart* (2005) cemented their cred with their fan base while alienating record labels. (Interscope

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music | ...trail of dead



Producer Chris Coady at the SSL E 6000 Series board in his DNA Studio (New York City)

dropped them in '06.) The Trail of Dead sound is built on pure kitchen-sink tactics—Keely and Reece piling on melodies and instruments in seemingly scattershot fashion. But when you least expect it, a gorgeous melody will claw its way to the top, and it all makes sudden sense.

Initial tracking for *The Century of Self* began with producer Mike McCarthy in Austin, but after a disagreement, the band transferred files to a Venus VS3 hard drive and relocated across town to Bubble Recording and engineer Chris "Frenchie" Smith (Jet, Meat Puppets). Overdubbing on the original drum, scratch guitar and vocal tracks at Bubble, the band soon changed gears again and enlisted New York producer/engineer Chris Coady (TV on the Radio, Yeah Yeah Yeahs, Grizzly Bear) to work with them on fresh tracks at Mission Sound Recording (Brooklyn, N.Y.) on their Neve 8026/ Pro Tools HD3 Accel/Mac Intel dual-quad 2.8GHz system. Finally, TOD pursued further recording and mixdown at Coady's DNA Studio in New York's East Village.

"Tracking to another engineer's rough mix is one of the most cruel and savage ways to do any kind of labor on a record," Smith explains. "But it didn't piss the band off; it was punk rock! It varied song by song, but there would always be a drum track and at least a pretty raging bass track. The previous engineer—God bless him—didn't feature the rougher elements that much so we were able to fill in the blanks, and that shaped the future of how we worked."

Recording to Bubble's MCI JH-16 24-track 2-inch machine via a Neotek Elan II 32-channel console into Steinberg Nuendo, Smith functioned as both engineer and cheerleader.

"The two are quite different," Conrad explains, regarding the record's two engineer/producers. "Frenchie is hyperactive and he's a great coach. Chris likes to think things through; he is

more methodical and intellectual. And he is also really into noisy experimentation. If you give him a basic track, he wants to do something very abstract with it."

After tracking at Mission Recording with Coady, Smith transferred the files—still on the now problematic Venus hard drive—to his DNA Studio (32-channel SSL E 6000 Series console with G modules/Apple Mac G5/Pro Tools HD/Logic 8), which features some truly brilliant pieces such as a vintage WWII-era Federal Television Corporation AM-864-U tube compressor, Audio Design Recording Compex Limiter F760X-RS (the drum sound of Led Zepelin's "When the Levee Breaks") and an E.A.R. 660 limiting amplifier. These are Coady's go-to compressors for drums and vocals. Coady also loves the Phil Spector wall of reverb approach, which he vigorously applied to *The Century of Self*'s epic tracks.

"There are a lot of elements in TOD's music that are particularly chaotic," Coady says, "and points in the songs where for it to be confusing is the goal. Washing everything out in Audioease Altiverb and making things blend together made it more difficult to hear what is what. That was used as a means of making it more disorganized when the arrangement called for it. In 'Isis Unveiled,' for example, we were referencing the '90s shoe-gazing bands by making it all one big wall of sound."

Coady's desired approach sounds challenging enough, what with the various generations of recording that preceded his involvement, but he also had to tackle some unfriendly EQ.

"Technically it was a headache," he explains, "and having to understand another producer's vision and dealing with heavy EQ on some tracks. As the tracks changed direction, the previous EQ and compression no longer applied. I

used a Thermionic Culture Vulture to change things as needed. If you are missing some low mids in a sound, you can use EQ to boost it, but if it's not there, then you are boosting nothing. With the Culture Vulture, you can create those frequencies. The Empirical Labs Distressor also does a fantastic job of giving you extra harmonics and additional body to the sound."

Coady also dealt with TOD's penchant for clashing sounds, something he generally favors, depending on the situation.

"The band's drummer hits very hard, so the drums were loud and clear," Coady comments. "I used a little compression and Culture Vulture on the drums. But part of TOD's sound is that there's a lot of crash cymbals and shredding guitars, often at the same time. Sometimes it was hard to get it to be listenable. Their earlier work is just like that; it's a tradition. It's very aggressive in the mids, and when you add it all up it becomes very midrange-y. Eventually, I stopped fighting it."

While Coady worked out the kinks in DNA's control room, Keely was having a ball out in the smallish live room playing with soft synths via his Apple Logic Studio/MacBook Pro system.

"On this album, I sequenced the demos of each song in Logic as far as I could go," Keely recalls. "Once we rehearsed the songs and tracked them, from the live track I built a tempo map



Jason Reece, up-close and personal with his guitar

in Logic, which flowed with the natural tempo changes in the song and the performance. Then to that tempo track I synched up samplers or oscillators or arpeggiators.

"I really love the Sculpture soft synth in Logic," he continues. "I would like to see it as an actual instrument. It offers wood, glass, nylon and steel for base sounds. And its Randomizer is great; you can get the sound of a marble bouncing along on a glass table. I also used the East West Symphonic Orchestra; it's a total of 80 gigs of orchestra samples divided between the sections of the orchestra. The horns are velocity mapped so when you hit them you get this incredible blare. All the horns on the

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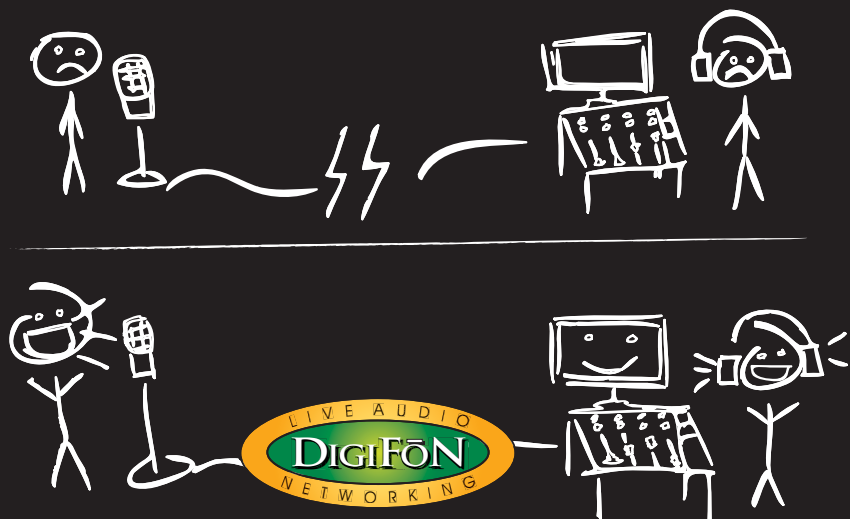
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album are from that."

Coady tracked guitar, keyboards, piano (an old Rudolph Wurlitzer upright) and drums at DNA. Signal chains included Neumann U67 and Shure SM7 mics into Neve 1066 or 1073s for vocals; Shure SM57, Coles 4038 or Royer R-121s into the Neves for guitars; and Coles 4038, Sennheiser 421 and AKG 414s, again with the Neves, for drums. Finally, Coady was assigned the task of mixing what sounds like one unholy mess of a record.

"When there is an abundance of elements," he explains, "you can go through and surgically EQ things and make them sit together so you can hear everything clearly. But for me, having frequencies that overlap within the instruments is acceptable. Having things cancel each other out sounds more like real life. Just making sure that you have the bottom, middle and top frequencies ensures a big sound. And everyone wants the vocals to be clear; that is when I used the Federal compressor."

Ultimately, the band's chaotic recording process was a blessing in disguise. Like some



From left, Conrad Keely, Jason Reece and Chris Coady in session at DNA

kind of primal-scream therapy, *The Century of Self's* wall of noise and dense songcraft reflects the band's working methods better than any of their previous recordings.

"We may have spliced different takes together," Keely says, "but for the most part tracking was painless. We've had some excruciating times recording tracks in the past, not to mention our last tour. In the U.S., we opened for crowds that weren't happy to see us—they came for a band from Cartoon Network called Death Clock Metalocalypse. The crowds were so hostile we would respond by making noise for 20 minutes. Just confronting them with a wall

of noise turned into some of our best shows ever. I took those ideas to write songs for the record."

Keely was also inspired by the 1877 book *Isis Unveiled: A Master-Key to the Mysteries of Ancient and Modern Science and Theology*, written by Russian mystic Madame Blavatsky.

"We are living in times of great change," Keely muses. "My song, 'Isis Unveiled,' is written from the point of view of God and Lucifer, then Jesus ascending into Heaven. Madame

Blavatsky's *Isis Unveiled* was an indictment of science and religion, how they missed the point of spirituality. She influenced people like Edgar Cayce, the Sleeping Prophet."

Coady's DNA Studio has its own mystic being, a floating, foggy presence with no apparent means of escape. Talk about ghosts in the machine.

"She's a ghost that lives in the studio hallway," Coady says. "I've seen her, Conrad felt her presence and my studio partner has seen her. She has long hair and doesn't appear to be miserable. But she's trapped in the hallway forever, it seems." ■

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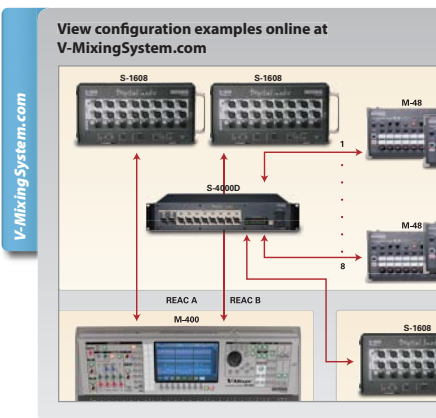
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Buddy and Julie Miller

"WRITTEN IN CHALK": HOME-COOKED AMERICANA

By Barbara Schultz

It was tough for Buddy Miller to carve out time for an interview to promote *Written in Chalk*, the new release he produced, recorded and performed on with his wife, Julie Miller. Just as New West Records was putting the word out about *Chalk*, Miller was deep into sessions at Sound Emporium (Nashville), playing lead guitar on the next Robert Plant/Alison Krauss release being produced by T Bone Burnett. This was a rare outing to a conventional studio for Miller, who has spent the past decade or so crafting not only beautiful roots music, but also the process of making recordings in the comfort of his own home.

"A lot of players I know have that gift where they can come into any place, plug in their rig, get an expected sound and play the perfect thing for the track quickly or come up with a brilliant part," Miller explains. "But I get uncomfortable in a studio environment. I guess that's why I like working in my own house because it's so comfortable. When people come over here, I always feel like my friends are coming over to visit and we'll play some music."

A lot of musical magic has come out of gatherings in the Millers' living room, which is one of three ground-floor rooms that they've turned into a working studio. Of course, it helps that

Buddy Miller's friends include Emmylou Harris, Shawn Colvin, Patty Griffin, Gillian Welch, Jim Lauderdale and Solomon Burke, as well as a host of Nashville's best session players.

Recording at home also means that the Millers can take their time recording, fitting sessions in between work on Buddy Miller's many other projects: touring with Harris or Plant and Krauss; or the Harris/Colvin/Griffin project "Three Girls and Their Buddy"; producing visiting artists like Burke; producing Griffin's latest in a local church; or producing or playing for other "friends."

Written in Chalk was recorded over a couple of years, with the lines blurring a couple of times as to whether this collection of mostly Julie Miller-penned songs would end up being a "Buddy album or a Julie album, but when we had some of the songs together, it just started telling a story and it looked like it was supposed to be a record together," Buddy Miller says.

Though this album will surely get filed

under "Americana," arrangements range from the honky-tonk sound of Julie Miller's "Ellis County" or Buddy Miller's duet with Robert Plant on Mel Tillis' "What You Gonna Do Leroy," to quieter, acoustic songs like her tribute to June Carter Cash, "June," or her jazz-influenced "A Long, Long Time."

Most of the songs were tracked live, or mostly live, to Pro Tools, with Buddy Miller wearing multiple hats—vocalist, guitarist, engineer and producer. Although he chooses his mics and pre's carefully, he has also mounted mics to the ceiling in the studio rooms to make sure he captures all the music, planned and unplanned. He calls those mics "the great whatever. They're usually small or mid-sized diaphragm mics with omni capsules. Several CD tracks used those ceiling mic recordings from the actual [song] writing, [as well as] recording sessions."

During dedicated recording sessions, he sings into an M-Audio Sputnik or, occasionally, a Neumann U47 or Sony C37A mic through a Telefunken V76m or Altec 1567A mic pre. He says, "The Altec was modded by Arthur Sloatman to be four discrete tube mic pre's pushing API 2520 op amps—this is my all-time favorite preamp—into a UREI 1176LN.

"Julie's vocal mic varied," he continues. "She likes to hold her mic and sing with monitor speakers on, so she recorded with either an Audix VX10 or a Neumann CMV563 with a pop filter duct-taped into it. This was run into the Pendulum [Audio] Quartet II Mercenary Edition."

The first single off *Written in Chalk*—what-



Buddy Miller strums in his Dogtown home studio.

ever "single" means on an indie Americana release these days—is the only song on the album that husband and wife wrote together this time out: "Gasoline and Matches." It's an awesome, rocking blues song with super-rhythmic electric guitars and clever percussion that at times

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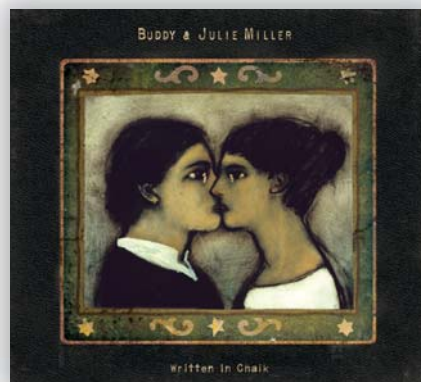
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sounds like conventional drums and sometimes mimics fists pounding on a door ("I'm gonna keep on knockin' till the door unlatches/You and me are gasoline and matches").

"That's Brian Owings [on drums]," Buddy Miller says. "He's been playing with me for 10 years at least. That song took a few different takes, but I really liked it and I didn't want to give up on it. We recorded it with a drum set and we had a few different versions of that, but they never felt right. Late one night, I invited Brian and Chris [Donohue], the bass player, over, and I warned Brian—because you have to warn a drummer about these changes—that

I just didn't think I wanted a drum set on it. I said, 'Let's take the drum set apart and lay them on the floor on their backs kind of, so you'd sit down on the floor and play them, and bring some stuff that makes noise but doesn't sound like a drum necessarily.'

"And we have stuff around the house that we bang on when we play. Most of our trashcans are pretty banged-up looking. So he threw a lot of stuff on the floor and played it, and as soon as I heard it, I knew that's how I wanted it to sound. That's how it went down, live with my vocal, but Julie's vocal went on later because the words weren't done, which is how we work, I'm



ashamed to say!"

No apologies necessary, as spontaneity is clearly such an essential ingredient in the Millers' music. Buddy Miller's duet with Plant is another example: "We were still on the road [on the Plant and Krauss tour] last year when I met with [label] New West about putting out this record. Robert asked me, 'How'd it go with the record,' and I said, 'Oh, they're great folks, but it won't come out this year, and he said, 'Hey, if you need me for anything, just let me know.' I think he was just being polite; he's a super-nice guy. I thought, 'I shouldn't bother him,' but I just thought that for about half a second because I'd be nuts not to!

"So the next leg of the tour, I brought an M-Audio rig, and waited till we had a dressing room that was big enough to set up eight mics, and I begged the guys to come play after soundcheck and before dinner. That's a tough time for musicians; you can't keep a room full of guys from their food. I brought my rig out and set it up before soundcheck so they wouldn't have to wait for me, and my friend Gurf [Morlix] just happened to be at this gig in Toronto, so I gave him a lap steel and we set up and recorded the track live in the dressing room. We played it twice and that was it. The vocals and everything went down live.

"At home when I'm working on something, even when I'm just doing a guitar overdub, I'll agonize over which pre should I use for this—go back and forth—and which mic placed where, and I didn't have time for that with this track," Buddy Miller continues. "I had 30 minutes to set up mics and cables, and I had one M-Audio interface with eight preamps in it, and I just put stuff up and got some levels, and it sounded great. It's one of my favorite tracks that I've ever recorded. I just loved it. I mean, that probably has a lot to do with Robert Plant singing on it, but it sounds really cool. It just captures the performance. I want to do my whole next record backstage." ■

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CLASSIC TRACKS



Joe Walsh

"LIFE'S BEEN GOOD"

By Dan Daley

When Joe Walsh walked into Bayshore Recording in Miami's Coconut Grove neighborhood in 1978, he was on a break in between tracking *Hotel California* and *The Long Run* with his adopted band, The Eagles. Bill Szymczyk—who produced and engineered Walsh's work with his earlier group, the James Gang, all of Walsh's solo albums dating back to *Barnstorm* and produced The Eagles—also regarded what would become Walsh's *But Seriously, Folks...* LP as a respite from the relentless pursuit of perfection by, and near-constant friction between, Eagle bosses Don Henley and Glenn Frey. It was time to have a little fun on the other side of the continent.

Walsh and Szymczyk rented the 72-foot boat "Endless Seas," fitted it with an MCI 4-track deck from Szymczyk's studio and—along with drummer Joe Vitale, bassist Willie Weeks, keyboardist Jay Ferguson and rhythm guitarist Joey Murcia—set sail to the Florida Keys on the kind of indulgent journey that Walsh would comically

chronicle in "Life's Been Good," his lyrical satire of the rock star life: "My Maserati does 185/I lost my license, now I don't drive/I have a limo, ride in the back/I lock the doors in case I'm attacked." Walsh was already a well-known wild man and prankster, so this slice of sarcastic parody was in keeping with his reputation.

The cruise was a low-pressure way to rehearse the songs Walsh had written for *But Seriously, Folks...*, though ironically, the one song that didn't have a complete set of lyrics was "Life's Been Good." What he did have was music and an arrangement that was approaching the symphonic, with individual movements and a recapitulation of the main theme that would bring the song back to its original light reggae vamp after an extended middle section. Szymczyk looked at it as a project in parts. "We recorded the parts of the song that would have lyrics—the verses and the choruses—as two separate recordings," he explains, each on its own reel of 2-inch

Ampex 456, knowing that there would be some kind of breakdown and solo section to be recorded and inserted later. A somewhat schizophrenic way of making a record, but as Szymczyk likes to point out, "Consider the source."

The opening kick and snare of "Life's Been Good" are joined after four bars by Walsh's Les Paul played through a Fender Twin Reverb; each time the pattern repeats itself, another electric guitar is layered in, using an assortment of Fender Twins, Tweeds and a Champ amp, miked with various condenser microphones including AKG 414s. The track would have four or five electric guitar layers before a dramatic acoustic guitar part is interjected, miked with a KM-84 through a UREI 1176. "Everything about the track was in creating contrasts between parts," says Szymczyk; this motif would extend to the vocals.

Weeks' bass is a combination of a DI tap and an Ampeg B-15 amplifier. Ferguson's Hammond B3 is played through a Leslie; Szymczyk placed a pair of U87s on the upper speakers and an E-V RE-20 on the bottom. The drums have the usual suspects—a Shure SM57 on the snare, an AKG D-12 on the kick and a pair of Neumann U87s for overheads—but Szymczyk added one trick he still relies on: a Sony lavalier mic on the hi-hat. "It has no low-end capability, but all I'm looking for on the hat is 3 kHz, and that's perfect for it," he explains.

Cut to two months later, when Szymczyk, Walsh and Vitale returned to Bayshore Recording to create the middle section. Walsh's friendship with The Who's Pete Townshend had sparked an interest in sequencing synthesizers, and he and Vitale programmed the simple eighth-note sequence on an ARP Odyssey, though many accounts in print and on the Internet refer to the sound as a Jew's harp. "Let's put that one to rest right now," says Szymczyk. "There was no Jew's harp on that record. It was all done with a synthesizer."

Vitale then played a bass part on the ARP and added another unique sound: a grand piano played through the Leslie with the same microphone complement as was used on the B3. The piano first plays the left-hand whole notes and then the block chords in the section. This plus bass and drums created the backdrop for Walsh's lengthy and languorous guitar solo.

Knowing that the final song would be cobbled together from three separate recordings, back during the original sessions Szymczyk had all the guitars hold the downbeat of the final measure

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of section one. It was underneath that that the synthesizer would be introduced in section two. The same was done at the end of the middle ARP/guitar solo section, where Vitale played the bass root note and built it in volume and intensity, then cut it short. That then set the stage for the recapitulation of the opening guitar riffs once again, signaling the return of the vocal sections.

Walsh had been working on the lyrics all along, and when he was finished writing, they began recording the vocals. Walsh sang into a U87 with a light touch on an 1176 compressor. But in the mix, seeking the contrast that characterized parts of the music bed, Szymczyk left the verse vocals nearly dry, the better to articulate each couplet's punch line. On the B-section of each verse, he had Walsh double the lead vocal. Then he, Walsh, Vitale and Walsh's wife at the time, Jody Boyer, sang the call-and-response background parts: "He's cool." "Oh, yeah." They purposely



LET'S PUT THAT ONE TO REST RIGHT NOW. THERE WAS NO JEW'S HARP ON THAT RECORD. IT WAS ALL DONE WITH A SYNTHESIZER.—BILL SZYMCHYK

pitched them low in contrast to Walsh's reedy lead vocal. Szymczyk added some additional contrasts with processing in the mix: He applied a stereo Eventide digital delay on the lead vocal, with a 40ms delay panned left and an 80ms delay panned right, producing an interesting "canyon-y" effect, as he describes it, which further enhances the verses' high, lonesome sound. On the choruses, which Walsh also double-tracked, he dropped the delay in favor of a Cooper Time Cube to further thicken the vocal sound. "Every part of the vocal has its own sound," says Szymczyk. "It was fun. It was ear candy. Remember, this was still like a vacation from The Eagles."

The mix was understandably a bit more complex than usual. Aside from the contrasting processing of various tracks, the song also needed a sound effect for the line "I go to parties sometimes until four/It's hard to leave when you can't find the door," which is followed by a perfectly timed door closing, done in real time by Vitale by shutting the door to Bayshore's bathroom, with a U87 placed about three feet away and in a nicely resonant hallway.

The many guitars on "Life's Been Good" were kept distinct by lots of hard panning. In the verses, Walsh's guitars are panned right and Murcia's reggae-like licks are in the left channel. Ferguson's island-sounding B-3 is opposite Murcia. Other than what's already been noted, the processing was fairly light. A pair of Lexicon 224s—one set for a hall, the other for a room sound—provides some basic ambience for background and chorus vocals.

Szymczyk mixed each of the three sections separately at the 36-input MCI 500 Series console, monitoring through JBL 4310 speakers. (There were Hidley custom monitors soffited above the console, but Szymczyk says they were turned on only late at night, "When we wanted to get nuts.") This produced three reels of quarter-inch 2-track mixes. Using three MCI 2-track decks and a lot of trial and error, Szymczyk did crossfades between the two edit points, creating

the final eight-minute-plus-long song.

After all that work, "Life's Been Good" almost didn't make the album. Szymczyk says that Walsh began second-guessing himself, wondering if the lyrics would be perceived as condescending or snarky.

"I tried to do the song funny without coming across as a jerk," Walsh explained in a 1978 *BAM* magazine interview. "I think I try to be humble, but I also feel I've got some seniority after the years I've put in as a musician. I've got to admit that even being at the top doesn't mean anything."

"I think the best producing job I ever did was convincing Joe that people would understand he was being facetious," Szymczyk says. "Me and Vitale double-teamed him." They won Walsh over, and a good thing, too: "Life's Been Good" would become his biggest hit, topping at Number 12 in *Billboard* and remaining a staple of classic rock, as well as the theme song for an era of music that, like Wall Street more recently, went someplace amazing for a while and ain't never coming back. III

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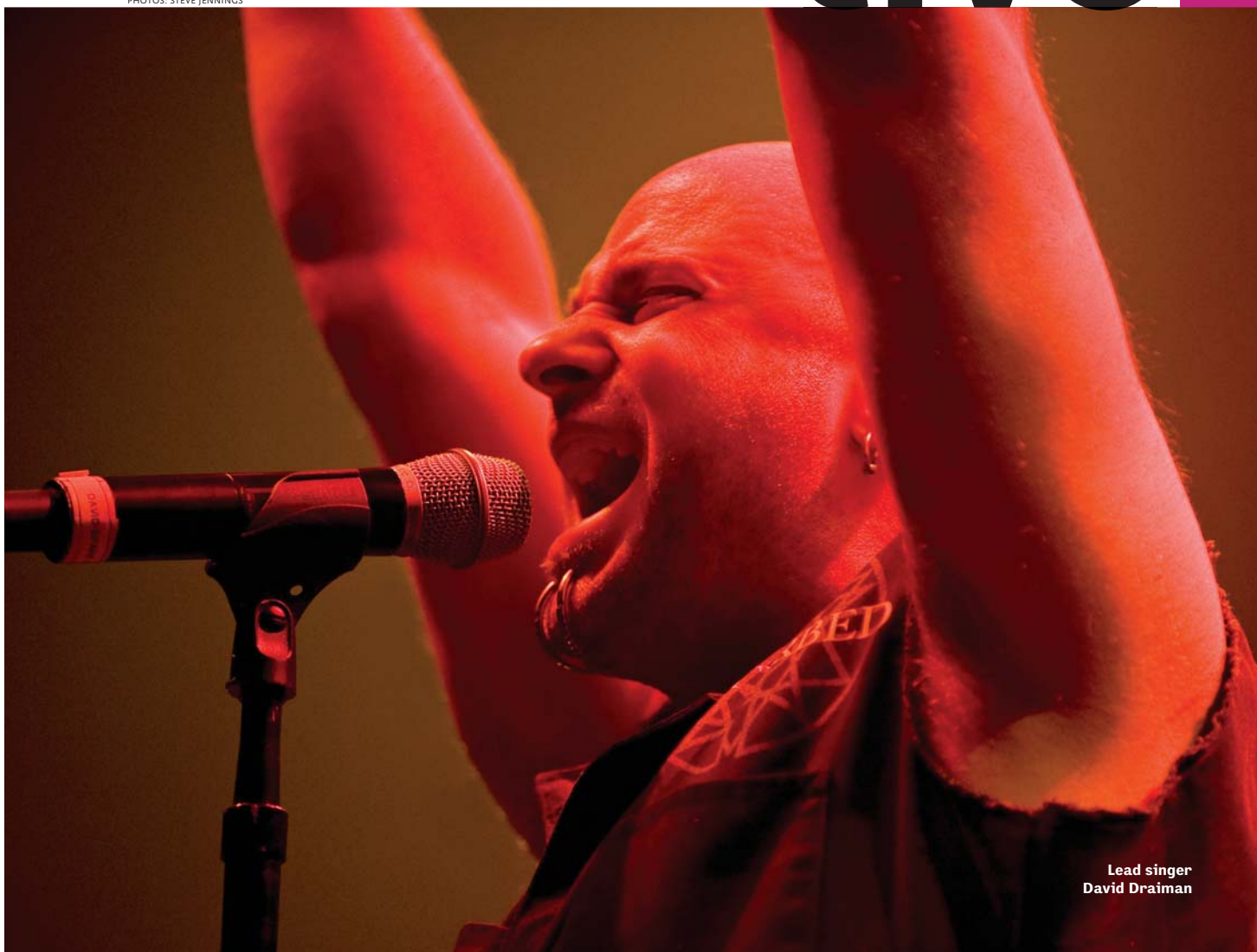
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PHOTOS: STEVE JENNINGS



Lead singer
David Draiman

By David John Farinella

Disturbed

LONGTIME ENGINEERS KEEP ROCK MIX CLEAN

There's no "Take 2" on tour, which means performing artists need a crew that knows them well and can anticipate the band's needs/wishes. So it only makes sense for artists to forge good, long-standing relationships with their live sound engineers. Such is the case with heavy-metal rockers Disturbed:

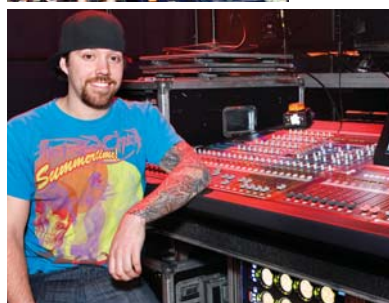
Scott "Skitch" Canady has been working the boards for the band for the past eight years. He first acted as their monitor engineer shortly after their debut release and then moved to the front-of-house position 18 months later. Similarly, Rob Lightner started with them as a sound tech during the band's 2005 run on the

Jagermeister tour and then moved over to monitor world during that summer's Music as a Weapon run.

While Disturbed has made its share of trucks-and-buses tours across the U.S., when the band pulled into the San Jose Event Center (San Jose, Calif.) at the end of January 2009, it was with



Clockwise from far-left: The band (and "fire" man from their latest release's cover art) performing before an energetic crowd; front-of-house engineer Scott "Skitch" Canady; and monitor engineer Rob Lightner.



a scaled-down production. The band is carrying control—a pair of Yamaha PM5D consoles—and a Maryland Sound package of proprietary double-12 wedge monitors and JVL VerTec 4889 sidefills (along with Crown I-Tech amps to power the 4889s and Powersoft amps for the wedges); they are renting racks and stacks.

"We brought the PM5Ds because they are small and easy," Canady says. "There's no reason to spend money now when we're going to spend money later on the Music as a Weapon tour, where we're going to be carrying production."

Throughout this tour, Canady has seen JBL VerTec and L-Acoustics V-DOSC boxes. "It's got to the point where every company has the same gear," he says. "So it's common for us to see a bunch of 4889s, or if it's a smaller place a boatload of 4888s. On a tour like this, we'll ask for what we think is minimal."

For the San Jose show, Canady worked with a collection of VerTec 4889s hung in a left/right array, along with a series of frontfill boxes. "I try to keep it very simple," he says. "I prefer everything up the middle, straight-ahead and forward. I've seen a lot of guys and know a lot of guys who are pan fans. I applaud that; I get it. But I've found that straight-down the middle is best."

Canady takes a fundamentally rock 'n' roll approach to his mix, both for the hangs and the frontfills. "I used to add vocals and guitars [to the frontfills], but we've been on a 40x60-foot stage regularly and the frontfills can take an overall mix," he says. "So I send a left/right mix to those boxes with just a bit of EQ and processing." He prefers to fly as much of the rig as possible and likes to avoid sidefills whenever possible, but it turns out that guitarist Dan Donegan relies on a flown rig on both sides of the stage and a personal monitor to hear his live performance.

Those sidefill boxes give monitor mixer Lightner a unique challenge, especially as the rest of the band is using Sennheiser personal monitors for their mixes. "He doesn't even need the sidefills with how loud he runs his amps, but he just likes it loud," Lightner reports of Donegan's mix. "There have been times when David [Draiman, lead vocalist] has come over, and said, 'You gotta turn his guitar amp down,' but I'm just the monitor guy. Luckily, we're playing large enough venues to where the stage volume doesn't affect the front of house."

The rest of the band made the transition to personal monitors back when Canady was running that side of things. Most of the mixes Lightner provides, working from a PM5D, are standard. Each gets a bit of everyone, including a click track. "There are a couple of songs where David will start with a vocal piece on 3 and the band will come in on 4," Lightner explains.

One of Lightner's big changes during this tour was swapping out a Mackie board that drummer Mike Wengren had in his rack with a MOTU mixer. "It had been there for years, and it was distorting," he says with a smile. "So we got rid of that, but he won't let me send him the kick drum trigger, the samples or the click." In addition to personal monitors, Wengren has a pair of JBL VP powered subs that are suspended under the drum riser and pointing up at him.

That is a challenge for Lightner as he does not have a good reference for Wengren's kick/snare ratio. "So when I'm cueing up, especially during his drum solo, all I'm hearing are the subs under him for the kick. It's kind of weird for me listening to his mix without a kick drum in there."

The subs under the riser setup caused a bit of consternation with Draiman, Lightner says, because he has a problem with low end in his moni-

tor mix. "It has to do with his reference between the guitar and his vocals," Lightner says. "So I EQ his monitors a bit and roll off some of the low end."

Although Lightner hasn't measured stage volume, there's no

doubt it's loud enough to impact the crowd mix. Canady, though, is nonplussed. "I've been in that role as the monitor engineer," he says. "And everybody is nice and professional, so that if I need something turned down we work with whatever we can to get by."

One of the ways that Canady and Lightner have worked together is on mic choices, especially for the guitar amp. "We have two Sennheiser 609s, and a [Shure] 57 and 81," he says. "And because we're using a digital board, we can use the right track to get the guitar to cut through on his ear mix."

Other than Draiman's 57 or wireless 87c vocal mic, Canady has moved the band into using the Audio-Technica Artist Elite Series. "It's been a benefit for me and I can hear the difference," he explains.

It also allows him to better represent the band without the use of effects, other than what's called for based on the current release, *Indestructible*. The band and Canady's philosophies blend in this way: "They don't overdo something in the studio so they don't have to rely on it as a crutch," he says. "There are no vocals or guitars [played in the background during the live set]. The things we play are electronic noises and hand claps."

"It comes down to this," Canady continues. "If I went to see a show and felt I was cheated with all sorts of enhancements, then I would be highly upset. Even as an engineer, if I feel that something is too drastic or over-exaggerated, then I get upset. If it's obvious to me, then it's probably obvious to others and I would hate to cheat somebody who came to see this band because they love them. I have to say, though, this is a strong band with talent, and that's a benefit to any engineer." III

David John Farinella is based in San Francisco.

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SOUNDHECK

House of Blues Houston Opens

The 43,000-square-foot House of Blues venue is now pumping out great music in the recently opened \$200 million Houston Pavilions complex. The entire facility comprises a 1,500-person capacity, two-story music venue; a dedicated restaurant; retail store; and Foundation Room.

According to Brady Campbell, production manager for the venue, at front-of-house sits a Soundcraft Vi6 board; effects include Eventide Eclipse, TC Electronic D-Two and Yamaha SPX-2000. The speaker system is a JBL VT488DP (20 boxes; 10 per side) powered three-way mid-sized line array; subs are five JBL dual 18-inch subs with Crown MA 5002 amps.

Incoming monitor engineers can mix on another Soundcraft Vi6 board. Wedges include 14 12-inch JBL SRX712Ms and four 15-inch JBL VRX915M Amps include Crown CT2000, MA2400s and MA3600s. The mic selection includes Sennheiser and Neumann models. Two pair of HD 280 Pro headphones are available for monitoring, as well as four EM 550 G2 true-diversity twin receivers and Evolution wireless ew 300 IEM G2 personal monitor setups with an A 5000 CP circularly polarized antenna.

Jim Belushi (left) and Dan Aykroyd party at the House of Blues Houston grand opening

PHOTO: © 2009 GETTY IMAGES

tour log

Buckcherry

Rockers Buckcherry are co-headlining a U.S. tour with Avenged Sevenfold, promoting their latest effort, *Black Butterfly*. Mix caught up with their front-of-house engineer, Stephen Shaw.



Above: Buckcherry. Here: Stephen Shaw.

How much gear are you carrying?

We are carrying 32 [Meyer Sound] MILO main hang, 16 Mica out-fill, 20-700HP subs and four M'elodie front-fill, all by Thunder Audio. At FOH is a Midas Pro 6 and a Digidesign VENUE.

What is the most important part of your mix?

Getting vocal clarity with a very high stage volume. Buckcherry onstage is around 110 dB, so it takes some creative wrangling at the console. The Midas Pro 6 also gives me back a great analog sound even though it is a digital console. I need this to achieve a straight-ahead, organic rock mix. I only use the onboard vocal harmonizer and tap delay for vocals. I don't use any reverb for my live mix.

Do you have a specific mixing style for this band?

I just try to make it warm, punchy and as clean as possible to not lose any translation in the arenas.

Is there anything new for you on this tour?

Nothing unusual; this is very much straight-ahead arena rock. We do have a cool LED video wall and little remote cameras around the stage to mix content and live performance. Other than that, it's a rock show!

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

I live in Greensboro, N.C., with my lovely wife, Sara. I have a quiet existence there and miss it a lot!

fix it

Sam Roberts Band FOH engineer Phil Hornung

Ninety-nine percent of the time we were mixing on digital consoles and using line arrays, which usually resulted in a very accurate-sounding mix. But with a band as dynamic as this, it can be tricky to keep things under control. I usually set the [XTA DP324 SiDD digital dynamics] compressor at around 1.7:1 and set the threshold so that there is nearly always 1 to 2 dB of gain

reduction throughout the louder parts of the show. This helps to absorb big impulses from the vocal and snare drum, neither of which is heavily compressed at the input stage. Then I'll set the limiter threshold 2 to 3 dB above that to fully stop anything from really getting too loud. And I also use the second- and third-harmonics generators to warm things up a bit.



Alice Tully Hall Receives Acoustic Tune-Up

New York City's Alice Tully Hall at Lincoln Center officially re-opened on February 22, 2009, after a 22-month, \$159 million renovation, featuring an acoustical design by JaffeHolden's chairman/director of design, Mark Holden. The 1,100-seat hall's new walls have been rebuilt from solid wood and resin and reshaped into

and projection of sound to the audience.

As the room is often used by the Film Society of Lincoln Center, the theater will have a new automated film system, and JaffeHolden has engineered acoustic banners that will drop from the ceilings and cover the walls to transform the concert hall into a room that has the acoustics



PHOTO: IWAN BAHN

sinuous curves to distribute sound reflections optimally and sustain a bright, clear sound for classical concerts, recitals and chamber music. The sound absorption of the original audience seats was tested in acoustic labs and replicated in the new chairs.

To create a more intimate musical environment, two automated stage extensions allow for adjustable staging options and audience capacities. New stage ceilings over the musicians can be tuned to enhance onstage hearing

of a film theater; mods include speaker systems behind the portable screen and surrounding the walls. Additional speaker systems descend from the attic for jazz concerts, television and music festivals.

In addition, as a subway line is located below the venue, Metropolitan Transportation Authority subway tracks within 2,000 feet of the hall have been mounted on special rubber pads designed to limit the noise of the rumbling trains.

load in



The Killers' FOH engineer James Gebhard is manning a DiGiCo SD7 provided by Eighth Day Sound.

Rock band **Extreme** recently completed a European tour, selecting two **Allen & Heath** iLive digital mixing systems to manage front-of-house (**Joe Brown**) and monitors (**Jay Phebus**)...Frankfurt, Germany-based **Sirius Showequipment** has joined the **L-Acoustics** K1/KUDO Pilot Program; sound company CEO **Wolfgang "Schabbach" Neumann** says the system will go out on the **Die Toten Hosen**'s 2009 tour...London-based **Canegreen** provided **Kanye West**'s European tour with multifaceted **Meyer Sound** MILO and MICA line array systems...Head of audio **Ralph Atkinson** spec'd a **Midas PRO6** for **The Empire Theatre** in the Queensland city of Toowoomba, becoming the first performing arts center in Australia to install the new digital system...Southern California-based **Sound Image Inc.** has purchased more than 800 **Crown** I-Tech HD amplifiers for its tour sound business...**Neutrik** XX Series connectors and ¼-inch plugs were seen on **Shiny Toy Guns**' U.S. tour due to the band's large amount of racked instruments and looms numbering 48 channels.

road-worthy gear

Radial Engineering PhazerBank

This 4-channel rackmount version of Radial's popular Phazer allows real-time phase alignment of multiple sources (such as two mics or mic/DI combos) to create richer, more realistic tones. Suggested uses include guitars, basses, kick drum, and snare top/bottom mics. Features include a Class-A signal path, balanced and un-



balanced I/Os, variable (1 to 180 degree) phase control, polarity shift for the 181- to 360-degree range and a lowpass filter for focusing the effect on low frequencies. Retail: \$999.

www.radialeng.com



Alto D4 Amplifier

The d4 puts four 750-watt (@ 4-ohm) power amps into a lightweight (17.4-pound), two-rack-space chassis. Features include variable-speed forced (back-to-front) air cooling; four independent channels (each with separate AC transformer secondaries, power supplies and protection circuits); four recessed front-panel gain pots with power, signal, clip and protection LEDs for each; and switchable rear-panel lowpass filters for sub feeds. A bridge mode can link two channels for a 1,500W sub feed, with two 750W channels for stereo mains.

www.altoproaudio.com

Oram S200 Live Mixer

Developed by John Oram and Germany's Günter Erdmann, the S200 is designed to bring high-performance audio to the live setting, whether as a main mixer or a sidecar to an analog or digital desk. This rackmount, 10-input (eight mic/line plus a stereo channel) console features high-end specs (20 to 60k Hz response, -127.5dB noise floor, +24dBu headroom), three aux sends, three stereo returns, 80Hz high-pass filters and three-band EQ with sweepable midrange. Retail: \$2,250. A deluxe "signature" version is \$4,500.

www.oram.co.uk



ALL ACCESS

Text by Tom Kenny. Photos by Steve Jennings



Celine Dion

On February 20, Celine Dion packed the HP Pavilion in San Jose, Calif., near the end of her 130-city Taking Chances world tour. As in her last worldwide outing 10 years ago, Dion was in the round, a setup she insists on to bring her closer to her audience. Rolling with 18 trucks and a Meyer Sound P.A. provided by Solotech, Dion's power-packed vocals filled the arena and brought her legion of fans to their feet several times during the performance. Her front-of-house engineer Francois Desjardins provided an active mix, with both energy and clarity.



Celine Dion sings through a Sennheiser SKM 5200 with a Sennheiser ME 5005e.



As the concert is an "in-the-round" affair, front-of-house engineer Francois Desjardins (left) notes that there are some challenges to mixing for this format: "The most obvious is the dramatic change in the sound quality of the venue between soundcheck and the show. The fact that we energize every section of the arena does not help. During the afternoon, the reverb time is longer, you don't feel the short echoes as much. At night, the reverb time decreases dramatically and then you hear those disturbing echoes. It decreases the intelligibility considerably."

However, his mixing style does not change, working under the guideline of following the artist's emotion during the show. "When she receives a good 'vibe' from the crowd," he explains, "she will be a bit more dynamic and dramatic. I try to respect and transmit this emotion as much as possible. I think I learned that

from watching Denis Savage [who was Celine's FOH mixer for more the 20 years and is now tour director] for more than 15 years [when I was] Celine's systems engineer."

He is mixing on a Studer Vista 5 (72 outputs, 36 stereo ins, 12 mono outs, 20 stereo outs and 8 stereo matrix). For dynamic processing, he employs two XTA SIDDs and a Junger b42. The FX rack sees a TC Electronic 6000 and Fireworks, and two Eventide Eclipses.

"For the past 12 months, we did more than 130 shows with the equipment," he continues. "Everything works as expected from the first night to the last night. I think this is pretty outstanding."



With any tour that is carrying a full P.A., the geometry and sound quality of the room becomes an important factor. According to Desjardins, when they began designing the system two years ago, they realized that they needed a P.A. that could be easily hung and quickly reconfigured. With the help of Mario St-Onge of Solotech Inc. (the tour's main system provider), they decided on a Meyer Sound system: four arrays of MILO 18s for the long side of the venue. "We use the MICA in four-array of 18 for the short side of the venue," he adds. "We preferred the MICA because of its extra coverage and less weight. Also, Mario and I felt the MICA had a nicer tone and control at short distance. In between the arrays of MILO and MICA in each corner, we used six 700-HPs for a total of 24 in the air. If you look carefully, you will notice a total of eight 700-HPs in each corner: This is Mario's ingenious power, motor and audio signal distribution that resides inside the two first dummy 700-HPs!" Rounding out the system are a DF-4 under each subs array, 18 M'elodies, six UPJ-1Ps as frontfills and 16 more 700-HPs under the stage.

There is a master digital Galileo that receives the two stereo mixes from the FOH Vista 5 and one stereo mix from a backup FOH console. The 16 outputs drive four other Galileos in digital: One manages the MILOs; one the MICAs; the third one handles the sub; and the last one, the frontfills.

Drummer Dominique Messier's kit is miked with Sennheiser e 902 (kick, toms), Yamaha Sub-Kick, Shure SM57 (snare), Neumann KM150 (hi-hat) and KM184 (overheads), and a Radial passive DI (drum machine).



Nanette Fortier's percussion setup is miked with Sennheiser e 609 (congas), Shure Beta 98 (bongos, timpani, timbales), Neumann KM184 (tambourines, tables), AKG 460+CK5 (overheads) and a Radical Passif (percussion machine).



Jean-Sebastien Carre (guitars on right) and Andre Coutu's (left) setup includes a Shure SM57 on electric guitar, and Sennheiser SK-5212 transmitter with EM 3732 receiver for violin and acoustic guitar; Carre's violin also takes the Sennheiser transmitter and receiver. Keyboardist Yves Frulla has four direct premix outputs from the keyboard rig.

Keyboardist Claude "Mego" Lemay has premix outputs coming from his rig. His electric and acoustic guitars take a Sennheiser SK-5212 transmitter and EM 3732 receiver; electric guitar is miked with a Shure SM57.



Monitor engineer Jean Charles Ethier (left) is also manning a Studer Vista 5 (24 stereo mixes, 16 FX auxes), using such features as snapshots and the Contributes function to access the mix directly. His rack gear comprises SSL X Logic Series, four TC Electronic 6000s, Millennia preamps and a host of analog gear—no plug-ins to be found. Ethier has 16 reverb channels coming out of the 6000s, using them for the band effects, "as we are using in-ears," he says, "one on the drum, one on percussions, two for guitar, two for keyboard, one on violin, one on acoustic guitar, one on piano, four for vocal, two guests and one for Celine."

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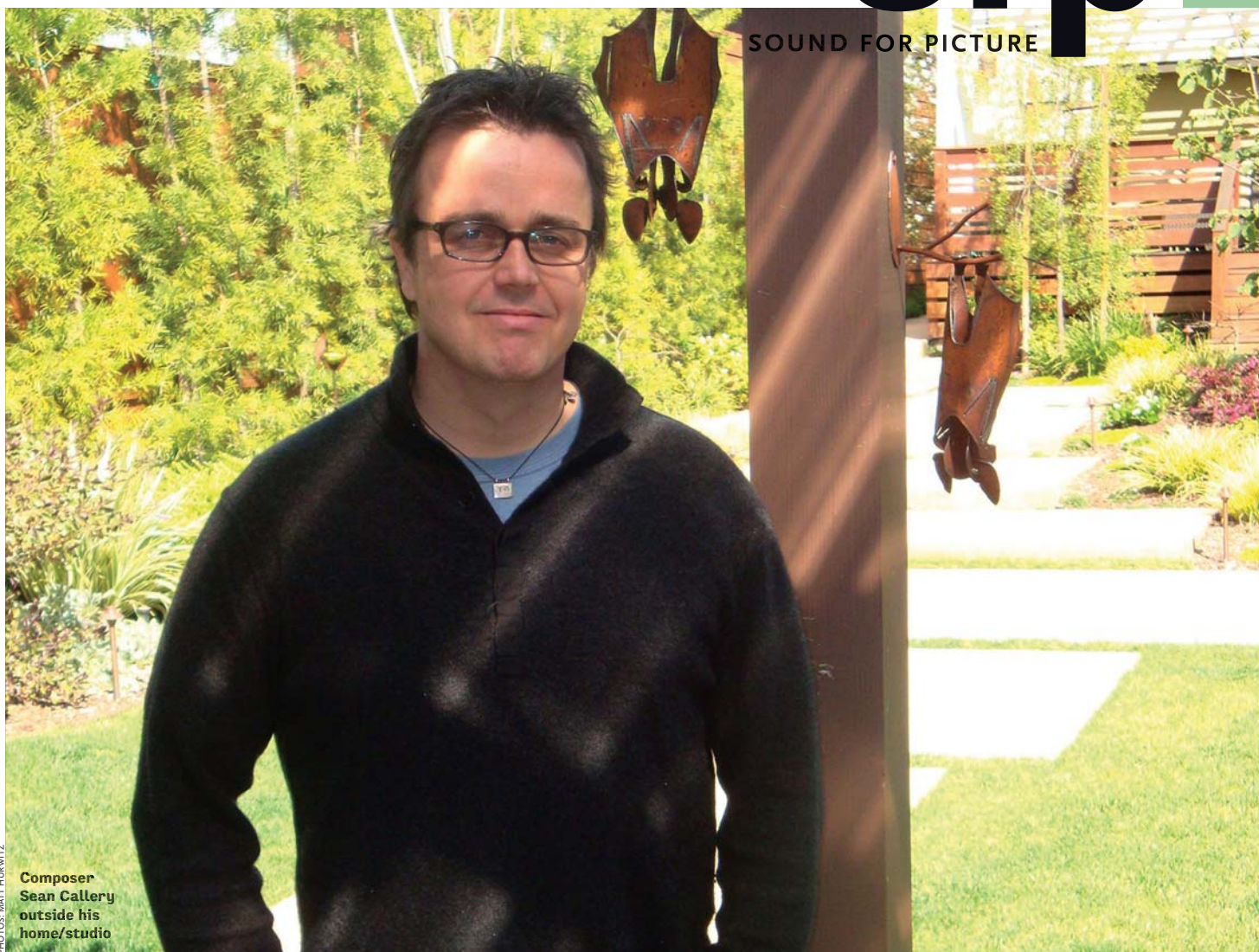
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Composer
 Sean Callery
 outside his
 home/studio

PHOTOS: MATT HURWITZ

By Matt Hurwitz

Sean Callery

COMPOSER KEEPS THE CLOCK TICKING ON '24'

If Sean Callery waits two more weeks, he won't have to reset the clock in his studio, having never adjusted it last fall at the end of Daylight Savings. "It always makes me think I've got more time," he says.

A clock ticking, time running out. Clearly, we must be in the home studio

of the composer who gives Fox's hit series 24 its incredible sense of urgency, something the Emmy-winning composer has done successfully for seven seasons on the show. With its almost nonstop pulsing rhythms and pounding action cues, Callery's music keeps viewers on the edge of their seats

as they follow Counter-Terrorist Unit Agent Jack Bauer through hour after hour of a day's worth of suspense.

Callery moved to L.A. in the late 1980s, not long after earning a degree in music from the New England Conservatory. He spent his first five years in town working as a product support

specialist for Synclavier. This afforded him interaction with such notable musicians as Chick Corea and Herbie Hancock, as well as scoring composers Alan Silvestri and Mark Snow. Snow (*The X-Files*, *Ghost Whisperer*) began making use of Callery's musical skills, as well, leading to a professional friendship that continues to this day. "He needed someone to arrange some percussion tracks," Callery says. "He's really one of the true mentors and friends in my life."

Callery briefly toured with Olivia Newton-John as her musical director, and created SFX for *Star Trek: Deep Space Nine*, enabling him to develop hybrid sound design for his repertoire, which would come in handy on 24. Callery scored Newton-John's 1990 Christmas movie (*A Mom for Christmas*) with composer John Farrar, and in 1996 Callery got his first true scoring opportunity for TV's *La Femme Nikita*. After a five-year stint there, producer Joel Surnow brought him along to score his new Fox series, 24.

To work on the show, Callery converted the back house at his home in suburban West L.A. into a studio. The two-story structure was gutted and soundproofed, the latter at some expense. "I wanted to make sure noise was never going to be an issue," he says of his residential studio.

At the core of Callery's composing setup is Logic 7 (which he expects to upgrade to Logic 8 soon), along with a collection of favorite—mostly analog—samplers. While he uses Gigastudio and Logic plug-ins, such as LinPlug Albino and ProjectSAM Symphobia, it is in his rack full of analog gear that Callery finds many ingredients for the unusual sounds of 24.

"I like having a mixed bag of different gear from different times because it keeps the sound fresh," he says. Included in the set are a Korg Trinity, Roland XV-5080, Yamaha CS6, Korg 01R/W (which provides a selection of bell sounds Callery uses often) and a Roland S-760, which, Callery notes, has a whopping 32 MB of RAM. "I load that up with old Roland samples because the analog modeling of the Roland machine is still really, really wonderful."

The centerpiece of Callery's sound-creating universe is a Synclavier DAW—an older-looking keyboard connected to a tower located in the studio's machine room. Callery composes using an old Kurzweil PC2 keyboard; then the sounds and music are recorded to Pro Tools HD 73.1.

The composer creates rough mixes in the main studio through a Digidesign ProControl interface, simply to store his compositions in case of system failure or other catastrophe. But the heavy lifting is done by TV score-mixing veteran Larold Rebhun in a separate mixing room

outfitted with a mirror-image Pro Tools setup. "The systems are networked, so if I finish scoring in the main room, I can save it and Larold can open it up in here and mix while I keep my compositional setup working," Callery explains.

Rebhun can be counted on to mix between 25 and 40 minutes of score in a single day—no easy task for even the most robust of mixers. "He's mixed for so many television shows, so I absolutely trust him," Callery says. "For example, I always have high percussion way, way hot out there. But he knows that when the volume's down in a track, that high percussion's going to cut through a lot more than anything else so he'll pull it down. He knows what he's doing." Rebhun and Callery provide anywhere from five to nine sets of stereo stems to Universal dubbing mixers Mike Olman and Ken Kobett, giving them the most flexibility for the effects-laden episode soundtracks.

After seven years of episodes, producers generally leave spotting to Callery and music editor Jeff Charbonneau, another *X-Files* veteran. "Jeff is one of the best editors I've ever worked with," Callery says. "He has a great take on how to tell the story with music and when to come in and when to come out." Charbonneau will most often take the first pass, and, while the two typically agree on spotting notes, Callery occasionally will suggest a different path.

While the pilot episode seven years ago required 23 minutes of music, Callery is called upon to write an astounding 41 minutes for typical episodes of 24 for a 44-minute episode. "Every year, the music has gone steadily higher in terms of the minute count," he notes. "The initial ideas of 'propulsion' kept evolving, and the producers really like that—the idea that the clock's always ticking."

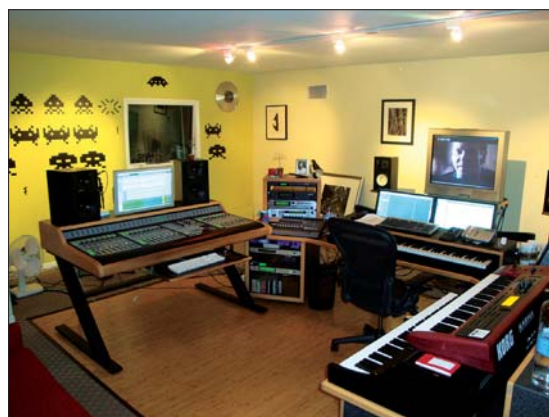
Between receiving the episode to delivery to the dubbing stage, Callery has only about five days to work. "I'll get the show on a Thursday late afternoon, spotting will happen Thursday night and I'll probably start the show on Friday. I'll have about four-and-a-half days then to write it and another half-day day to mix."

Callery will typically start with the most difficult scenes, leaving less-complicated cues for later. "When I have four-and-a-half days to compose and if I have an eight-minute action cue, it's good to get that done because they're more complex in terms of the sheer logistics of writing

it and performing it," he explains.

He says the more "routine" CTU/FBI scenes, in which Bauer and other agents might be discussing a plan of action to a tense background of pulsing rhythms, are not as simple to execute as it might seem. "We've done dozens of those scenes, which I love. But if you have a three-minute scene, you cannot just continue the same idea for the whole three minutes; you have to contrast it, introduce new sounds. It's a matter of finding the right textures and using them sparingly, and not fatiguing the ear."

While those types of cues are the mainstay of Callery's work on the show, his action cues



Agent Jack Bauer (Kiefer Sutherland) looks down from a screen into composer Sean Callery's home studio.

ratchet up the suspense for viewers. "People have told me that the music I create for the show resembles that of an action film, which is really a great compliment. Those films have big brass sections, big strings, trumpets, the whole big percussion and driving drums. And those scenes take a lot of time to build. But when they're done right, they play out really well."

A major part of Callery's action palette is drums, sourced from favorite sounds, such as tom-toms in his Synclavier, combined with newer sounds from programs such as True Strike. And, like everything in his 24 scores, Callery performs them himself, using a MIDI trigger device or, more typically, his keyboard.

He also enjoys working on what he calls "subtextual" cues, which produce a sense of discomfort for the viewer. "I'll be putting things in there that won't necessarily have a melody, but they'll have a sort of a sound that tweaks you and you don't know why," he says.

The effect of Callery's music on the storytelling is obvious, not only to fans, but to show producers, as well. "Sean's music really gives scenes their pulse," executive producer Howard Gordon says. "He's saved more shows than I care to count." ■



TREVOR RABIN

ROCK GUITARIST FINDS NEW LIFE SCORING FILMS

By Bryan Reesman

Trevor Rabin may not be a household name, but his music has been heard the world over. The first album he co-wrote and recorded with Yes, *90125*, became a big comeback album for the legendary prog-rock group in 1983 and remains their best seller. He has scored and/or orchestrated a dozen Jerry Bruckheimer movies in as many years, including *Con Air*, *Armageddon* and both *National Treasure* films.

Raised by a family of classical musicians in South Africa, the guitarist started his professional career as a session player at age 17, and was in the rock band Rabbit before moving to England in 1978. There, Rabin produced bands, toured, did session work and forged a solo recording career. Between '82 and '95, he recorded and toured with Yes, and then an encounter with Steven Seagal soon after—specifically, a guitar lesson for the action-movie icon—led to Rabin's first scoring assignment, *The Glimmer Man*, in '96. Since then, Rabin has scored numerous movies, predominately in the action category.

His latest project is *Race to Witch Mountain*, a sequel to the Disney movie from the '70s, *Escape From Witch Mountain*. "I enjoyed it because melodically it was a different kind of style, and action-wise it was a different style," Rabin explains from his Hollywood Hills home studio. "It was a slightly different angle to doing an action movie."

One of the clichés of modern action movies is continual and overly bombastic orchestrations, which Rabin tries to avoid. "I think one of the biggest problems is there [is] always too much

music in film and [it's often] telegraphing things rather than letting them happen," says Rabin. "Why comment on it beforehand and anticipate it? You're taking some of the scare away. [It's] a real problem generally in scoring horror movies and even dramas."

Rabin says he sometimes tries to dissuade clients from using too much music—he notes that *Psycho*'s soundtrack contained only 30 minutes of music. "They might think you're trying to cut down on the amount," he points out. "I'll say, 'I can do it, but please just consider it with silence.'"

But silence is not the business that Rabin is in, and his diverse scores are defined by contrasts. He can pump up the volume, but also provide grace and playfulness to a blockbuster like *National Treasure*. He counteracted *Rock Star*'s '80s pop-metal soundtrack with contemplative, atmospheric interludes. And he gave the WWI-period piece *Flyboys* a nostalgic, French flavor while also occasionally using a pennywhistle for a distinctly Irish undertone. The score to the film *Get Smart* was composed as if it were a straight action picture to enhance the comedy and featured Middle Eastern sounds.

Before he records one of his scores with a major orchestra, Rabin works out his rough ideas in his home studio. He says he has a "pretty comprehensive" Pro Tools system using 14 Digidesign boxes and three systems tied together through three G5s.

"Basically two of the computers, one on the left and one on the right, are my console, and

Composer and former prog-rocker Trevor Rabin

then the one in the center runs my software to do the writing, and feeds into the consoles on the left and right," Rabin explains. For mixing, he uses four Mackie boards tied together, "basically just a big remote-control extension from the Pro Tools system. The mix goes through the Mackie and back into Pro Tools." Each Mackie board has 16 channels with eight banks, allowing for hundreds of inputs.

Rabin says that while he is technically proficient, he chooses not to get too bogged down in the gear side of things, leaving that to his capable and talented assistant, Paul Linford, who, he says, "does a lot of cues for the movies and is completely ready to do his own movie. I don't want to know about the technical side; just get me up so I can do what I'm doing. I try not to get too involved in how he's got it all set up. I don't want to get bored with what I'm doing, so the minute I've finished something and done a rough mix, he'll put it in the appropriate place. He gets the stuff off to the copiers to get it done, and I'm out of it by then."

The composer uses a variety of instrumentation in his soundtracks, and at home he plays guitar, bass, keyboards and mainly piano. He owns a Disklavier electronic piano, which includes a recording device that allows for automatic and accurate playback of a performance and the ability to connect to a MIDI sequencer.

Since he began scoring films, Rabin has stayed busy, and looking back on his composing career thus far, he sees how fortunate he was, especially given his naïve attitude toward diving into cinema. "From the point of view of working with an orchestra, I was very at home with that, and I thought it should be easy," Rabin recalls. "I got in thinking I was just going to do it, not realizing that most people go through a heavy apprenticeship. It takes a long time to get your stripes." III



Rabin scored Disney's *Race to Witch Mountain*.

Tech

NEW PRODUCTS

Control Freaks

Dangerous Music DAC-SR, Uniswitch

Dangerous Music (www.dangerousmusic.com) is shipping the DAC-SR 6-channel digital-to-analog converter/input-switching module (\$TBA) for its Monitor ST and companion Monitor SR 5.1 controller. The Monitor ST (\$2,199) is a scalable/customizable solution for DAW-based recording and mixing in studio environments where a traditional console is not employed. The single-rackspace system features a remote control for input source and speaker switching, as well as integrated cue and talkback systems, including an onboard



headphone amplifier. The remote connects to the rack unit via Cat-5, making it easy to configure and control any system from the listening position. The \$1,499 Monitor SR is a companion single-rackspace expansion module providing full 5.1 surround monitoring capability. Also new is Uniswitch (\$219),

a universal RS-232 switcher with customizable options. Paired with the appropriate Gefen component, Uniswitch can control and switch between a single display, mouse and keyboard for up to four Macs and/or Win PCs. Uniswitch can also route four HDMI (or DVI) sources to one display.

Tame Power Peaks

Tripp Lite Platinum Surge Suppressors

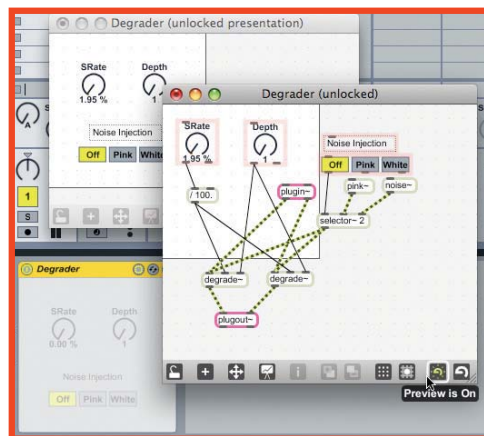


Tripp Lite (www.tripplite.com) debuts three new premium surge suppressors designed for audio/video applications. The Platinum Series surge suppressors include the AVBAR10 (\$189.99; 10 outlets, four are transformer-isolated), AVBAR8 (\$149.99; eight outlets, two are transformer) and the AVBAR6 (\$119.99; six outlets). All incorporate Isobar® technology to provide up to 3,384 joules of surge-stopping power and isolated filter banks to eliminate interference between connected components. All models have diagnostic LEDs, all-metal housings, safety covers to protect unused outlets, and space-saving, right-angle plugs. Connected components are covered by up to \$500,000 Ultimate Lifetime Insurance.

Creative Collaboration

Cycling '74 & Ableton Max for Live

After two years of development, Cycling '74 (www.cycling74.com) and Ableton (www.ableton.com) announce Max for Live (\$TBA), the integration of Cycling '74's Max/MSP environment into Ableton Live. Available as an add-on for Ableton's new Live 8, Max for Live lets users extend and customize Live by creating instruments, controllers, audio effects and MIDI processors. Devices developed with Max for Live use the same features as those created by Ableton, including UI controls, MIDI mapping, multiple undo, tempo-based effects, sample-accurate automation and comprehensive file/preset management. Such devices can also be shared using Ableton's new Web collaboration features. A Preview mode allows editing in Max while devices continue processing audio and/or MIDI as if they were inside Live. Once saved, an edited device updates in place inside Live's Device view. Max for Live includes devices such as step sequencer, a MIDI effect that features four 16-note sequences with adjustable step sizes, sequence shift buttons, Random mode and real-time MIDI control. Also offered is Loop Shifter, a new loop playback device that uses MIDI to change the way loops are played back.

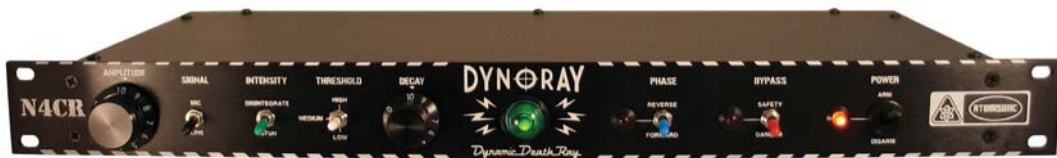


Sonic Mangler

Atomisonic Dynoray N4CR Preamp/Compressor

Also known as the Dynamic Death Ray, the Atomisonic (www.atomisonic.com) Dynoray N4CR (\$799) is based on the Shure

Level-Loc, a compressor long prized among engineers and artists for its unique compression and distortion effects. The Dynoray features mic/instrument/line-level inputs, variable decay control and a “disintegrate” setting for radical distortion effects. The unit features balanced and unbalanced I/Os, and polarity reverse and bypass switches with LED indicators. A large green LED “Dynoray” indicator lights when the Dynoray is engaged, brightens with increased compression and distortion, and shuts off in Bypass mode.



Passively Yours

KRK Systems R6 Monitors

Taking its cues from KRK's (www.krksys.com) Rokit line of speakers, the new R6 (\$149 each) passive studio monitor features five-way speaker binding posts and a precision crossover, and can handle 100 watts (RMS) of power. The R6 voicing is designed to mimic the voicing of KRK's Rokit 6 monitor, and leverages KRK's research and development into baffle design and fabrication. The curved front baffle minimizes HF diffraction, promising a sweet spot that is significantly larger than what is possible with products with square or lightly rounded baffles. The baffle's molded front-facing bass port is designed to reduce LF phase distortion and unwanted frequency emphasis typical of rear-facing bass ports.

Scalable Duping

Disc Makers Reflex Daisy Chain

The Reflex Daisy Chain duplicator series from Disc Makers (www.discmakers.com, priced per configuration) offers the capabilities and quality of the standard Reflex Series with the added ability to connect up to hundreds of towers together—all operated by a single source. Each tower includes a beefy 320GB hard drive that stores up to 63 full-size DVD images. The 7-drive units have a throughput of 56 DVDs or 105 CDs per hour, while the 10-drive units can turn out 80 DVDs or 150 CDs per hour. The Daisy Chain Series lets users mix 7- and 10-drive models, and more units can be added when the need arises. Units can be quickly configured to work together or run independent jobs simultaneously.



Vertical Gain Crusher

Brad Avenson BAC-500 Compressor

The BAC-500 (\$1,000) from designer Brad Avenson (www.petesplaceaudio.com) is a feedback-style FET compressor built around two discrete op amps and a custom output transformer. Features include controls for input gain, attack, release, ratio and output, along with sidechain contour switching, a gain-reduction meter, and distortion and bypass switches. The attack control varies from fast to quite fast, while the release has a fairly wide range, enabling the compressor to go from “pumping, breathing fast” up to approximately 1.5 seconds. The ratio goes from 2:1 to 20:1, with an Infinity! setting offering overcompression and a variety of other tonal characteristics. The three-position sidechain settings are flat, highpass filter and an option that somewhat exaggerates the high end while cutting the low end. The distortion switch lets users overload the FET for color. With all input and output controls cranked full, the BAC-500 delivers nearly 50 dB of gain. |||



Meyer Sound Acheron Speakers

Cinema Series for Theaters and Post-Production

Walk through this month's ShoWest convention in Las Vegas (March 30 to April 2) and you'll find everything you need to outfit your neighborhood bijou—seats, screens, projectors, curtains, popcorn machines, candy, tickets, etc. The exhibitor roster lists familiar names such as Dolby, THX, Solo Cups, Christie Digital, Pepsi and—Meyer Sound.

So what's Meyer Sound doing at a theater expo? Actually, company founder John Meyer is hardly a newcomer to film products. One of the 30-year-old firm's first projects was creating custom subwoofers for the touring multichannel sound system that went out with Francis Ford Coppola's 1979 roadshow of *Apocalypse Now*. John Meyer has always been passionate about film sound, and ShoWest marks the debut of Meyer Sound's Cinema Series—high-performance products designed for no-compromise film playback for both theatrical exposition and post-production markets.

Enter the Acheron

The line is based around the company's new Acheron speakers. Named for the fictional French frigate in *Master and Commander* (Meyer was inspired by Richard King's brilliant Oscar-winning sound effects work in the film), these compact (35x31x21-inch, HxWxD), self-powered, two-way designs are available with 100- or 80-degree horns to suit wide or narrower rooms. Both the Acheron 80 and Acheron 100 have a 21-inch depth that's ideal for tight behind-screen installs, and the system can be voiced for perforated or non-perf screens. Acheron's 15-inch woofer crosses over to the 4-inch compression driver at 580 Hz—a range proven to maximize dialog intelligibility in theater systems. The front-ported enclosures have a narrow slot at the bottom of the cabinet, providing air circulation to the on-board Class AB/H bi-amplification.

For LF headroom extension and extra punch in larger rooms, complementary powered Acheron LF double-15 cabinets have the same footprint as Acheron, creating a single column with all three woofers in phase alignment. For the dedicated LFE channel, a Meyer X-800C

powered double-18 sub provides a truly moving (136dB max/23Hz) experience with a smooth linear phase transition from the screen channels to the subwoofer(s). Adding an Acheron LF to an Acheron 100 or 80 requires little more than running a single XLR cable from the top to the woofer cabinet.

The new HMS-10 Cinema Surround speaker is a lightweight (40-pound) enclosure with a 10-inch woofer mated to a compression driver/80x80-degree horn combo in a 15-degree slant-front cabinet. Surround speakers are traditionally the weak link in most cinema installs, but the HMS-10's 66-to-18k Hz bandwidth, 128dB SPL performance and exceptional phase coherence (essential for spatial cue reproduction) found favor with top sound designers who beta-tested the system.

Installation Made Simple

Taking the HMS-10 one step further, the bi-amped unit is self-powered, which normally would be problematic in theater installs where an AC power source would be required at each speaker. Meyer solved the problem using 48-volt remote powering, which as a low-power install, typically does not require conduit, and with suitable cabling (such as Belden 1502p) can even run in existing plenums, depending on local codes. As an alternative to the HMS-10s, Meyer's UPJ-IP cabinets can be spec'd into an Acheron installation.

Now in beta testing, another item in the Acheron toolkit is MAPP Cinema, a new version of Meyer's MAPP Online Pro, a cross-platform, Java-based application for the prediction of system performance. MAPP Cinema combines



Acheron packs high performance into a compact, dual-ported enclosure.

data from the entire Acheron line with perforated screen data for reliable, accurate acoustical prediction of expected frequency response, impulse response and max SPL output.

So is the world ready for Acheron? "Absolutely," says Steve Shurtz, cinema manager at Meyer Sound. "The pipelines are improving for both movies and in-theater simulcasting of programming, events and concerts. Even 384Kbps Dolby Digital for six channels isn't state-of-the-art anymore. The game is different now, with full-bandwidth 24/96 PCM available in 5.1 and beyond—up to 16 channels on DCI and 3-D systems. This is a good time to talk about a more compelling sound experience."

Acheron systems are available now and are already in use at facilities such as Skywalker Sound, American Zoetrope, ImageMovers Digital, USC and the University of California San Diego. For more information, visit Meyer Sound at www.meyersound.com. ■

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Cakewalk SONAR 8 Producer

Solid Upgrade Has New Processor and Instrument Plugs, Improved Workflow

At the October 2008 AES show, Cakewalk kept to its habit of annual upgrades by releasing SONAR 8 Producer. Past releases have introduced advanced features such as ACT (Active Controller Technology), 64-bit DAW processing, a bevy of high-quality plug-

ins, full surround support, excellent virtual instruments, internal dynamic sidechaining and external gear delay compensation. Version 8 includes all of those features, plus new plug-ins and virtual instruments—such as TruePianos and a Transient Shaper—along with workflow enhancements, optimization of the SONAR audio engine, and more efficient use of drivers focused on performance and stability.

Move Over, I'll Drive

I installed SONAR 8 on an up-to-date 32-bit Windows Vista system that includes Service Pack 1. This PC is powered by a 3GHz Intel Core Extreme Q6850 CPU and has 4 GB of RAM. With SONAR Version 7, Mac users finally could plunge into SONAR via Boot Camp (an application for running the Windows OS on an Intel-based Mac). Version 7 ran smoothly on my Mac, so I installed SONAR 8 on that machine, as well. I set up a Windows XP partition on an Intel 2.66GHz dual-core Mac



SONAR 8 Producer features many exclusive upgrades, including the TruePianos instrument and Transient Shaper processor.

running OS X 10.4.9. After the installations, I visited Cakewalk's Website and updated both systems to the latest 8.0.2 patches.

To get audio in and out of the Mac, I used a Lynx AES16e card connected to a Mytek 8x192 AD/DA via AES/EBU connections, with an M-Audio Keystation 49e MIDI controller/keyboard. I connected the Windows Vista machine to an ASIO-driven MOTU 828mkII FireWire interface for audio I/O duties. New to SONAR 8 is the support for WASAPI (Windows Audio Session API) drivers. This new standard for Windows Vista provides better compatibility with consumer audio devices that have no ASIO drivers. Also, SONAR no longer requires the annoying multiple application restarts when changing various driver settings—a welcome fix. When I first launched Version 8, I was pleased to see the same GUI as Version 7—yet beneath the application's familiar surface are ample new features.

Creative Tools

Previously, using SONAR's soft synths and virtual instruments required incorporating a MIDI track and an audio track for each instrument. In SONAR 8, an Instrument Track provides both MIDI and audio in a convenient track strip. Although I couldn't create an instrument track from the "Insert New Track" button, it did happen from the Insert pull-down menu.

The first instrument I launched was TruePianos' Amber Module, a slimmed-down version of 4Front Technologies' TruePianos VSTi. At my session's 96kHz sample rate, TruePianos' modeling sounded and felt excellent. Characteristics like sympathetic resonance, inter-string harmonics and even re-pedaling are all present.

SONAR 8 now offers the full (*non-LE*) version of the Dimension Pro sample-playback/synthesis engine and 8 GB of basses, strings, guitars, electronic sounds, and the Hollywood Edge FX library. Dimension Pro is also expandable via expansion packs or user PCM WAV samples. Lastly, for loop/beat enthusiasts, another new instrument on the roster is Beatscape. Resembling an Akai MPC, Beatscape includes 16 pads, 4 GB of content and REX file support. You can trigger Beatscape via the GUI or a MIDI controller.

Plug Away

Channel Tools is a plug-in designed to control the spatial relationship of a stereo track, offering channel processing for gain, mid/side decoding, and delay and polarity inversion. Channel Tools also includes independent L/R panning controls, width control and delay control between left and right channels, a good fit for time aligning a mic and DI source.

The new TS-64 Transient Shaper plug differs from a conventional compressor by working on the attack of an envelope independent of the decay/sustain. The presets on the TS-64

PRODUCT SUMMARY

COMPANY: CAKEWALK

WEB: www.cakewalk.com

PRODUCT: SONAR 8 Producer

PRICE: \$619

SYSTEM REQUIREMENTS: Windows XP/Vista (32- and 64-bit); can also run on Intel Mac OS X with Boot Camp. Processor speed: Intel Pentium 4 2.8 GHz (EM64T), AMD Athlon™ XP 2800+ or higher. 1 GB of RAM or higher.

PROS: Solidly stable. Great new workflow features, instrument and processor plug-ins.

CONS: Mac compatible only via Boot Camp. Poor implementation of input/output assignments.

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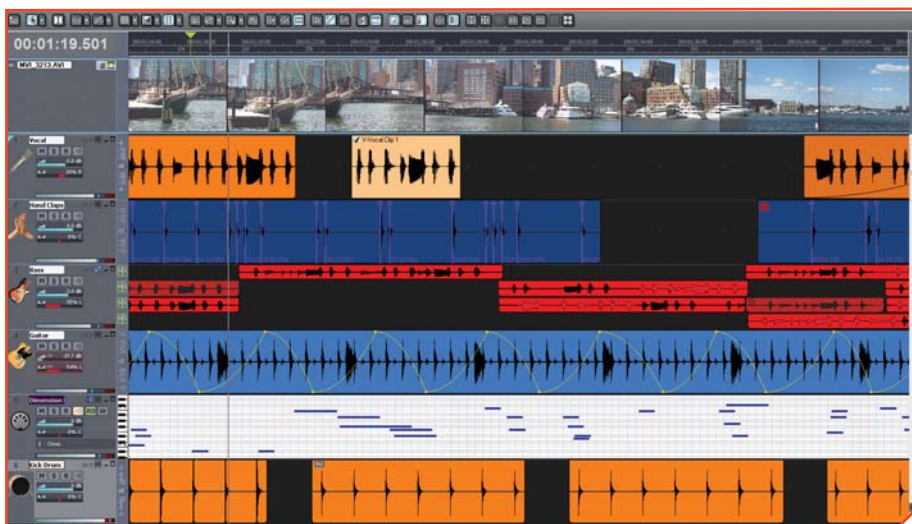
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are great place to start, but don't stop there. On a kick track, I experimented with the Weight Timbre and Decay functions and easily turned a big round kick drum into a punchy, click-y sounding metal kick.

The TS-64 was versatile on snare, easily going from smooth with sustain to an in-your-face 1176 "all buttons in" mode. I enjoyed combining the Transient Shaper with the TL-64 Tube Leveler. The latter plug-in models analog vacuum tube circuits; its parameters include Drive (tube saturation), Dynamic Response (which frequency range the tube affects) and (tube) Clipping. Pushing the Drive and Clipping controls hard on snare and toms gave them a great presence in the mix. It also provided some needed character on a sterile bass DI, so it blended better within the mix. SONAR 8's Producer adds an LE version of Native Instruments' Guitar Rig 3. This highly respected amp modeler includes three amps and cabinets, 11 effects, tuner, metronome and more than 50 presets.



Exclusive Soloing lets you audition individual tracks without un-soloing others.

Attention to Detail

Workflow improvements in SONAR 8 include a new Loop Explorer 2.0 view, which offers easy browsing of SONAR's content-rich audio and MIDI groove clips and patterns. Another

new feature I fell for is Transport Audition, which allows playback of only selected clips or time regions via a simple click on the Audition button (or Shift + spacebar)—a priceless time-saver. Also nice is Exclusive Solo, for soloing

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only one track, track folder or bus at a time. The ability to audition individual tracks without having to un-solo the others is a quick and handy feature.

Transport updates include a Pause button, Rewind and Fast Forward buttons and the ability to arm/disarm tracks during playback and recording. The new Aim Assist Line assists editing within the Clips pane and provides a vertical line (with a custom color) displaying the mouse's horizontal position, while the actual time is shown in the time ruler.

SONAR 8 can now assign audio tracks and buses to individual mono hardware outputs in addition to stereo outs. However, this function didn't perform to my expectations. As with previous versions of SONAR, the ASIO I/O assignments of my MOTU interface showed up in pairs (e.g., *Left* MOTU Audio ASIO Analog 1-2, *Right* MOTU Audio ASIO Analog 1-2, *Stereo* MOTU Audio ASIO Analog 1-2). This is a poor and frustrating way of changing outputs; after a few tracks you lose track of your assignments. To find out whether this was proprietary to the Windows/MOTU machine, I checked my Mac running the Lynx/Mytek setup and experienced the same confusion. Under the Audio/Options/Drivers tab, you can use "friendly names," but you still can't name individual mono tracks, which should be an easy fix. According to Cakewalk, they will address this in the near future.

In the End

SONAR's focus on both the artist and the engineer is evident with new features like Instrument Tracks, allowing quick implementation of instruments like the fantastic-sounding TruePianos Amber Module, Beatscape and Dimension Pro's 8 GB of content. The Loop Explorer 2.0 helps keep content organized and allows easy auditioning of loops and patterns. The TS-64 Transient Shaper and TL-64 Tube Leveler plug-ins were very expressive plug-ins—especially on kick and snare—and a great complement to loops in Beatscape, adding punch or experimental manipulation. Guitar and bass players using DI units will enjoy the LE version of Guitar Rig 3.

Some of the new workflow features may spoil you. The Transport Audition and Exclusive Solo features expedite auditioning and editing a selection without the usual solo/un-solo dance, leaving you wondering how you ever went without it. The modest Aim Assist Line

and the updated transport along with the ability to arm/disarm tracks during playback are also keepers. The nonintuitive I/O assignment was a downside, but I hope that Cakewalk will address this in the future. That aside, Cakewalk's advertised performance optimization with low latencies and improved ASIO performance was evident, and SONAR 8 ran solidly on both Vista and Intel Mac.

SONAR 8 feels different from and decidedly more refined than earlier versions. The con-

trols in Track and Console view were snappy and more confident while zooming/scrolling was quicker and smoother. This was my first SONAR review during which the system didn't crash once under rigorous testing. Cakewalk's focus on performance, stability and workflow enhancements pays off, making SONAR 8 my favorite release yet. **III**

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



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Sound Devices 788T Multitrack Recorder

Portable Field Unit With Eight Preamps, Timecode, Flexible I/O

Since its founding in 1998, Sound Devices has specialized in manufacturing field-production audio recorders, mixers and accessories for film/video production, broadcasting, acoustical test/measurement, sound effects gathering and live music recording. The company's latest product is the 788T,

a portable, 8-channel, hard disk/Flash-based location recorder with eight whisper-quiet preamps, 12 tracks, recording at sample rates up to 96 kHz, 160GB internal hard drive and an optional 8-channel mixing/control surface.

Off to the Races

I traveled to Crandon, Wis., to record location sound for a documentary about the year's biggest short-course, off-road truck race. I knew I'd need to be highly mobile while working from dawn till dusk with no access to AC—a perfect opportunity to use the 788T. The project unfolded very quickly, so I literally had to learn the 788T on-the-fly while on the three-hour plane trip to Green Bay, Wis. I was able to tuck the 1.8x10.1x6.4-inch recorder into the seat pocket in front of me. Although it's relatively light at less than four pounds, it feels extremely solid and durable.

On power up, the 788T reveals extremely bright LEDs and an easy-to-read LCD. The LCD is monochrome, but the backlight turns green during playback and radioactive-red when you press Record.

PRODUCT SUMMARY

COMPANY: SOUND DEVICES

WEB: www.sounddevices.com

PRODUCT: 788T

PRICE: \$5,995

PROS: Rugged, compact size, superb sound.

CONS: Could have more configuration flexibility.



The 788T's front panel features 112-segment (8x14-inch) sunlight-viewable meters, gain control and a backlit LCD screen offering a variety of system information.

To navigate the 788T, there are a variety of multifunction buttons, toggle switches and rotary encoders. I found that getting around the recorder was surprisingly intuitive and fast. Pressing the Menu button reveals a long list of features that are accessible by turning the scroll knob, which reveals the 788T's extensive options and capabilities. Plus, the well-written manual cleared up anything that wasn't obvious on the interface. By the time I landed, I was very comfortable operating the unit. I walked off the plane confident that I would have a trouble-free weekend, and I'm pleased to say that I was right.

Upon arriving in Crandon, I met with the film's director, who had a Holophone H3D surround mic ready to meet its new mate. The 788T has eight balanced inputs configured as four XLRs and four smaller TA-3 connectors that are common with wireless receivers, so I used two adapters to wire in the Holophone's six XLR outputs. Each analog input has a wonderful-sounding mic preamp, complete with phantom power, polarity inversion, variable highpass filter and limiter. You can adjust these options by selecting the desired channel with one of four toggle switches that sit between the odd/even pair of input gain knobs, and then pressing the multipurpose buttons that surround the screen.

The unit's eight preamp knobs pop out for adjustment and press back in to minimize the risk of changing them inadver-

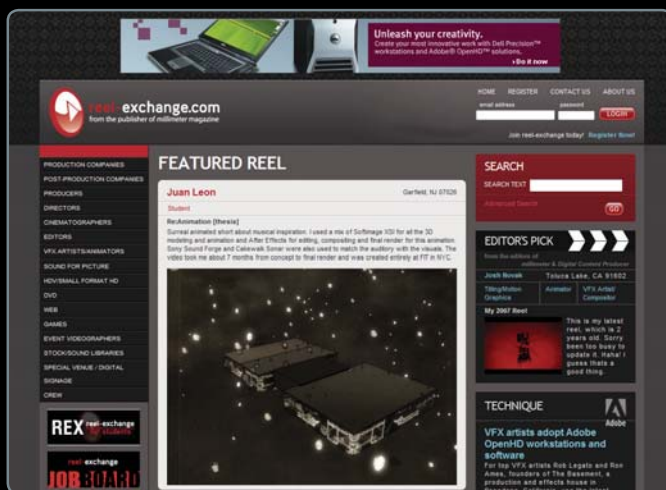
tently. Input gain is displayed numerically in the LCD, but trying to match the exact level for the five main mics of the H3D was difficult, as the knobs are just a bit larger than an eraser tip. A menu option lets users link odd/even inputs or any sequential series of inputs up to eight.

I loved the LED rings that encircle each of the preamp knobs. The rings glow green with the intensity of the signal, turn yellow when the limiter kicks on and show red for a clip. This made it easy to identify and fix level problems in an extremely dynamic environment.

Juicing It Up

Activating the preamps significantly impacts the 788T's battery life. With six preamps using phantom power, I could record three continuous hours using the included 4,600mAh battery. Having spare power is essential, so Sound Devices designed the 788T to use the commonly available Sony "L"-type video camera batteries. The battery compartment's open-back design accommodates a variety of different physical sizes with different capacities. Turning a preamp all the way down clicks it off to preserve power. Preamps draw a lot of power, so I'd like to have the ability to turn them all off without losing my gain settings. Alternatively, I could have simply turned off the 788T, but its 15-second power-up time proved to be too long for capturing the sound of those unexpected moments—like a multitrack pileup.

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Making Tracks

Users can route each of eight inputs to any one of eight tracks labeled L, R, A, B, C, D, E and F. Inputs can be routed to multiple tracks and sum multiple inputs onto a single track to create reference audio files for dailies. Although there is limited ability to sum multiple inputs to tracks, it's important to understand that the knobs are preamp controls, not faders. A stock 788T lacks any true mixing capability; however, at press time, Sound Devices announced the new CL-8,

an 8-fader knob expander that plugs into the 788T's USB jack for full mixing capability. The CL-8 also provides two additional aux tracks, effectively making the 788T a 12-track recorder.

The 788T's tracks can be recorded to its internal hard drive, Compact Flash or to an optional external bus-powered DVD-RAM. Flash is a great option for recording high-vibration situations like riding in an 850HP truck that spends equal time in the air and on the ground. For the paranoid, you can record to all three

destinations at the same time. Each track has dedicated LED metering that's super-bright and easily readable under direct sunlight.

The 788T records tracks as Broadcast WAV files, either as multiple mono files or as polyphonic interleaved files. Sound Devices provides various ways of indexing and naming files to suit almost anyone. Each file has a user-definable prefix appended by a three-digit number that automatically increments each time the user presses Record. Additional notes can be embedded into the file as metadata by connecting a USB keyboard.

Monitoring Options

A rotary encoder selects various monitor modes for headphone listening, allowing you to audition various combinations of channels, along with M/S decoding and even Ambisonic decoding for working with B-format mics. Unfortunately, there was no way to listen to a complete mixdown of my 5.1 source. I could configure the order in which I scrolled through the monitor modes and was also able to create a favorite monitor mode that was accessible by pressing the encoder like a button. This let me quickly switch between monitoring the front pair, rear pair or individual capsules on the Holophone, and proved to be a workable compromise.

At the end of each day, I put the 788T into a Transfer mode and connected my Mac via FireWire (USB 2 also works) to back up the day's recordings. Sound Devices also offers a free program called Wave Agent that lets you view and add metadata to the files. It even supports splitting and combining tracks to new files.

Because I couldn't hear my 5.1 recording all put together in the headphones, I couldn't wait to go into a studio and listen to it on a 5.1 system. The 6-channel polyphonic WAV files imported perfectly into Apple's Soundtrack Pro and lit up the M&K 5.1 playback system. I absolutely loved the way things sounded. In fact, the first person who walked in the room said he got a "tingly feeling" when he heard one of the 850HP trucks drive through the studio. Depth, image and transient detail were superb. The limiters worked well and saved what would otherwise have been clipped takes, without sounding overly compressed.

Timecode

It's also important to remember that the "T" in 788T stands for timecode. The 788T can transmit or receive timecode via the 5-pin Lemo connector, which allows you to lock it with multiple-camera



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The 788T weighs only 4 pounds and measures 1.8x10.1x 6.4 inches (HxWxD), but it is packed with I/O options.

it into the audio/video editor and align it with the camera footage.

Finish Line

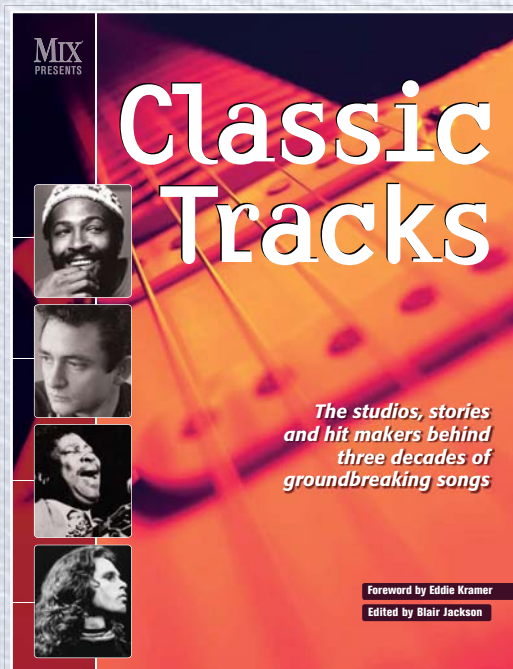
The 788T performed admirably in the field. After four days in the dust and sun, the only signs of wear and tear were some scratches on the replaceable plastic that covers the main display. The 788T's display and meters were readable in any light conditions, its preamps were clean and reliable, and its I/O was flexible and solid. I felt the unit would never let me down, no matter where I set up. My only complaint is lack of configuration flexibility in some menu items—for instance, the inability to directly choose channels to monitor, instead of picking from a cumbersome list of preset options. Even

shoots for film and TV. While video cameras are notorious for losing accurate timecode when they are powered off, the 788T can maintain accurate timecode for up to six hours after the unit is powered down. This makes the 788T a great option as a timecode master when jam-synching mul-

tiplex cameras on location. In this scenario, I set the 788T to free-run mode with timecode set to time of day. This keeps the counter on the 788T running even when it's not recording; just press Record, and the time of day is stamped into the WAV file's metadata so that you can easily import

so, the 788T did a great job during my off-road torture test and is one of the most satisfying pieces of gear I've worked with in a long time. ■

Robert Brock is an engineer, consultant, writer and educator.



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Millennia HV-3R Multichannel Mic Preamp

Quality Front End With Flexible Remote Control

A manufacturer of no-compromise audio gear for nearly two decades, Millennia Media has previewed its HV-3R multichannel mic preamp at trade shows for the past 18 months; finally it's here. The unit offers eight of the company's acclaimed HV-3 preamps in a two-rackspace unit with remote control and companion *Ælogic* software, allowing for operation of up to 99 units from a computer (792 channels). Options are many, including high-voltage mic inputs (130V/190V, \$200/channel), DC inputs for use with dynamic and ribbon microphones (\$100/channel), HROE output expansion offering three active isolated outs per channel (\$1,500) and the AD-R96 A/D converter card (\$1,500). I tested a stock unit with no extras.

Front and Back

The unit is built on a sturdy 16-gauge aluminum chassis with internal power supply and glossy black front plate. There is a handy jog wheel and controls for local operation of the eight channels, with switches for link, mute, phantom power, pad and polarity. The wheel controls gain on any selected channel or linked channel group. The linking reflects any offset on the channels within, making it easy to first adjust these individually and then tweak overall level globally to maintain any gain difference between the channels. Up/down/left/right cursors, an Enter button and small display allow local or remote operation via Ethernet, TC/IP or MIDI. Other preferences (such as naming set-

ups) can also be set here, but I preferred using the included software for this. Unfortunately, the jog wheel is not integrated into the data-entry side of the unit, making it a chore to single-click through upper- and lower-case alphabets and symbols. Millennia says this is intentional because the user may want to control gain while using the data-entry functions. I found it a bad trade-off. The rear panel has XLR I/O, ports for the options mentioned above, power switch and standard IEC power cable.

Remote Possibilities

One of the HV-3R's slickest features is its remote-control ability. This is accomplished using the *Ælogic* control software (PC-only) interfaced one of three ways: Ethernet from your computer, MIDI from Pro Tools, or wirelessly via a wireless router (not included). I also took the remote-control scenario up a notch by operating the computer's trackpad and *Ælogic* in turn from my iPhone using Snatch, a simple and free app from www.hoofien.com. In Ethernet and Pro Tools control modes, this worked especially well for controlling the HV-3R from anywhere within view of a screen showing *Ælogic*.

The HV-3R offers the best of all "clean signal" scenarios: placing preamps near the talent and then making long cable runs at line-level. The HV-3R's FET-based output stage has 32 dB of headroom, effortlessly driving 1,000-foot runs. I used the unit remotely with great results. The difference in quality between local and

remote operation was not quantifiable for me because the cable runs I was making were under 50 feet, but I could see this being especially useful in a live or remote recording scenario. The *Ælogic* software offers control of the unit(s) from any PC or Intel Mac running Parallels or Windows. I used the PC side of a dual-boot Intel Macbook for all my remote applications and it worked without a hitch. From the software you can store as many setups as you'd like, name channels, link, mute, pad, flip polarity and set gain on up to 99 units.

The MIDI option on a Pro Tools TDM system provided equally good results. This was achieved by routing the HV-3R's MIDI I/Os into the DAW's MIDI interface I/O, then setting the HV-3R to MIDI remote operation and matching the MIDI channel numbers. I then went to IO/Peripherals in Pro Tools and chose PRE on my first slot, then to Setup/IO, then the Mic Preamp tab and assigned the preamps to an interface. It was that simple. No matter the Pro Tools channel size—1, 2, 5 or more—the HV-3R assigned the correct number of preamps to the channel. I was able to mute, apply phantom power, swap polarity and adjust gain easily from Pro Tools' mic preamp section at the top of any IO.

Millennia in Action

My first outing with the HV-3R was on two large tracking sessions with the unit set up in Local mode, where levels and parameters were adjusted using the jog wheel and buttons on the front of the unit. The first session employed the preamps on toms, overheads, a pair of Shure 57s recording a guitar amp (on- and off-axis)



The Millennia HV-3R offers eight clean mic preamps that can be controlled remotely through MIDI, Ethernet or a wireless router.

PRODUCT SUMMARY

COMPANY: MILLENIA MEDIA

WEB: www.mil-media.com

PRODUCT: HV-3R

PRICE: \$5,549

SYSTEM REQUIREMENTS: PC or Intel Mac running Windows or Parallels

PROS: Clear, precise and transparent preamps. Remote control is flexible and easy to use. Optional extras.

CONS: Jog wheel not integrated into data-entry input. Unit gets very hot during operation.

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and a DI bass input. In all cases, the recordings were clear and punchy with quick transients and little to no "color" provided by the preamps. The bass and guitars were stellar, representing the bottom end admirably and popping the guitars out in the midrange of the mix. During the second session, the preamps were used to amplify two kick drum mics and two snare mics, which were gassed by rare transformer-based SSL 4000 Series console preamps in the earlier session. What was glaringly lacking when I compared tracks from the two sessions was the transformer overdrive and added color of the console's preamps, which was flattering to the overall sound of the kick and snare, giving the kit plenty of beef. The HV-3Rs were too clean on these drums, sounding better in the first session on the overheads and attack of the toms with the more colorful preamps. This is not a bad thing, but it reveals that this box is a specialty tool to be used where clarity, excellent stereo image and low sonic impact are of utmost importance.

I next used the HV-3R's Remote mode to record a percussionist in surround, setting the

preamps near the mics after a short mic-level cable run. My setup comprised five SE Electronic SE-3 small-diaphragm condenser mics arranged in a tight circle at 30 degrees left and right, 0 degrees center, and 110 degrees for the Ls and Rs. I also used a Neumann U87 as a roving LFE mic. I had an old D-Link wireless router at home that I brought in to put the HV-3R on its own network. I plugged the router into the HV-3R's Ethernet port and put the unit in remote LAN mode from the front panel. Next, I made sure that my Intel Mac, booted into Windows XP, recognized my network and I was ready to go.

Once I opened the *Ælogic* software, I could adjust levels and parameters using the computer. I grouped my five L, C, R, Ls and Rs channels, named them appropriately and saved a session setup. It was easy to adjust levels for different instrument overdubs by moving just one of the grouped faders until the hottest channel was where I wanted it. The tracks were stellar with hand percussion, including triangle, shakers, cajon and other toys, sounding like the player was in the room. The unit rendered the transients ac-

curately with plenty of headroom and beautifully rendered top end without any smear, and it created a great 5.1 representation of the room with clear and accurate off-axis information.

Clear Choice

I absolutely loved working with the HV-3R. I was repeatedly spoiled by the quality of my tracks and the different ways I could set up and control the unit. Yes, the data entry on the unit was clunky, but this issue went away when I used the unit remotely. One warning would be to have plenty of room around the HV-3R and a fan if you're going to mount it in a rack: This baby gets hot! If you're balking at the price, think of it as a \$700-per-channel box with plentiful (and included) remote-setup possibilities, plus a lot of great optional extras for future expansion. For anyone working remotely, live and/or using Pro Tools, or just wanting a rock-solid front end that will record exactly what your mics are capturing, this is the box for you. **III**

Kevin Becka is Mix's technical editor.



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The Joys and Perils of Used Gear

Choosing the Bargain That's Right for You

I saw a bumper sticker bearing the word "Lottery," followed by the phrase: "A tax on people who are bad at math." Certainly, most of us know we have little chance of winning the lottery, but hope springs eternal, and along the same lines many of us ignore the "math" and look for the *potential* good in other areas—people, projects, gear. So I'd like to address the considerations (psychological, emotional and technical) of shopping for equipment and offer a few simple guidelines. Your goal? To minimize buyer's remorse and a technician's scorn, as in, "You paid how much?"

The motivation to buy any sonic tool is fueled by passion, the same muse that inspires the art we make. Whenever possible, such emotions should be tempered in lieu of clarity of mind so that technical and business considerations can enter the equation.

Unfortunately, technicians are notoriously unreliable at giving investment advice. Classic guitars, mics and signal processors—often valued at irrational exuberance levels—present a challenge to a tech's rational logic. Yet a good tech can see both hidden beauty and ugliness and can turn broken, undervalued "junk" into something useful while knowing the pitfalls—i.e., where the bodies are buried.

The Coin Toss

When shopping for used gear, "condition" is a keyword, the subset of which can be "functional," "questionable" or "broken." If long-term functionality and reliability are important, then look for seller confidence in the form of a trial period, a money-back guarantee within that time *and* a warranty. When you've got all three, pay the asking price and be happy. Even when you've done everything right, owning vintage gear means being prepared for something to go wrong. You'll need both cash and a short list of emergency-care techs close at hand.

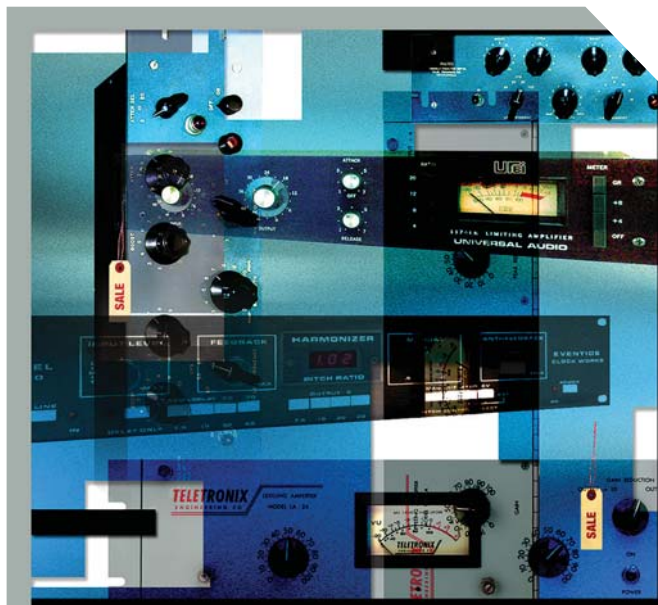
When a seller says, "Lights up, but I have no way of testing it," that generally means the item is a fixer-upper, especially when the price is very low. Similarly, a 30-something microphone might power up just fine, but can it do that multiple times—like in a moment of need?

We should not be overly impressed by a classic until it's evaluated; nor should we undervalue an impressive piece of technology, even if the seller can't give it away. For the latter, I'm thinking of a low-mileage \$3,000 digital tape machine that can be had for \$150. It's worth much more than the selling price, but needs at least \$300 of TLC. Yet the unit is still a steal at \$500 with shipping.

Testing, 1-2-3

If you're considering a spendy classic, try to have a specialist confirm both its condition and authenticity. This is especially true if the seller believes the item to be "original," which, in many cases, such as a U47 mic, is unlikely. That's not to say that the variations are sonically flawed—many are great-sounding mics—but there are quite a few U47s out there with a Neumann badge and serial number, with little else inside the mic that was made by Neumann.

Whenever time and money allow, compare two versions of the item in



question. For something 30-plus years old, the window of "normal" can be very wide. Take advantage of rental companies and any dealers with a generous return policy so that you can simultaneously rent an original and audition the new/retro/reissue/restored version that you are considering purchasing. Often, the new item sounds better than the classic. And be aware that "identical" products (such as several 1176 limiters) can sound quite different due to production variations, internal adjustments (distortion) and component aging. If possible, compare items within a similar serial number range.

Side-by-side comparisons are educational even when you're not considering a purchase. If the item in question is a piece of outboard—EQ or dynamics, for example—send the same signal to as many devices (via "Y" cable, console routing or patchbay mults) and monitor via mixer or workstation. Tweak the magic box until you're satisfied, then mix in an equal amount of the competitor but reverse the polarity and tweak until the signals cancel as best as possible. The residual artifacts will be both musical (harmonically related distortion) and nonmusical (hum, hiss and nastier distortion).

The next step is to capture and loop a section, and alternately solo each track, and then see if you can identify which device the artifacts belong to. Keep in mind that distortion is typically below 1 percent, so it won't be obvious. Assuming you get a decent subtractive null, the device that sounds "louder," richer and, yes, *warmer* most likely has the higher distortion. This matter of personal taste also extends itself to hardware-vs.-software comparisons. Lack of null cancellation typically implies latency. After capturing raw and processed analog tracks, zoom in to determine the latent channel and then insert a sample delay on the opposite channel to compensate.

Hiss and hum levels are typically higher for vintage gear due to the tolerances of that era—analogue tape was always noisier; turntable rumble

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overshadowed hum on the original recording. Selecting low-noise components (tubes, transistors, FETs and resistors) can lower hiss. Bringing the power supply into the modern era can reduce hum. This can be as simple as replacing/upgrading parts, or as complex as adding regulation and improving ground distribution. And here, "original" doesn't necessarily equal "better."

Kicking the tires on a car may not show much, but looking under the hood can be revealing. Excessive heat turns circuit boards brown, makes resistors hard to read and reduces capacitor life. Shorted capacitors can cause power transformers to overheat and fail. Speaking of visual inspections, Fletcher from Mercenary Audio offers this tip: Silkscreen wear-pattern around major controls (like control room level) is a sign of heavy use. Pop the hood and look for replaced parts (like capacitors) and other signs of good routine maintenance.

The Final Tweak

We all want a low-mileage piece of gear owned by the little old lady from Pasadena, but these items are rare. Vintage audio gear was typically pow-

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WHAT TECHNICIANS LOOK FOR

Capacitors are in every piece of audio gear, and of all of the passive electronic components, they have the shortest life expectancy. Bad caps in a power supply cause hum. In the audio path, open caps filter low frequencies, and shorted caps pass DC instead of blocking it. (Mis-biased tubes, transistors and op amps will distort and run hot, causing premature failure.)

In vintage gear, switch contacts were larger, had greater spring tension, a thicker precious-metal plating, and with daily use were inherently self-cleaning. The design was either "open" or easily disassembled for cleaning. From the '70s onward, switches and pots got smaller, and had less contact pressure, and thinner plating and conductive coating. Modern parts are typically sealed, making them nearly impossible to expose, and they are often custom-made so generic parts won't fit.

—Eddie Ciletti

ered 24/7, often in a smoky environment, which means it will require a healthy dose of TLC.

I'm always amazed by the amount of vintage recording equipment that has narrowly avoided the dumpster. Back in the mid-'80s, when ABC was upgrading its video facilities, I remember a station wagon pulling up to Ramco Electronic Surplus on Canal Street in New York City. It was filled with Pultec equalizers that were selling for

\$95 each!

Back then, I didn't have the money. But even today, there are still good deals to be had for recent and vintage gear—if you're willing to look around and apply some care and common sense. ■

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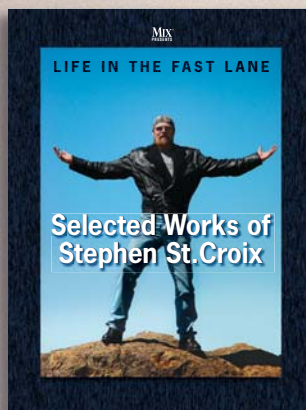
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Mix review, May 2008



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-Jeff M., Japan

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AUDIO ALCHEMY

Warwick, N.Y. | reel-exchange.com/members/89f5d862/profile

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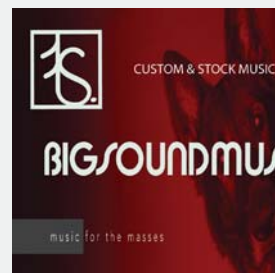
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2BruceStudio is the culmination of almost 20 years of New York experience in the media and entertainment industries, specializing in original music composition, sound design, and audio postproduction for film, television, and all media. Its facility features high-definition gear, a vast sound-effects library, and the latest in audiovisual software. Best of all, they say at 2BruceStudio, it's more fun because they're good. Additionally, 2BruceStudio is an interactive design studio specializing in web design/development and media-rich creative campaigns.

BIG SOUND MUSIC

Chicago | reel-exchange.com/members/4fda3a52/profile

Chicago-based Big Sound Music (BSM) provides custom and stock music for television, commercials, feature films, and broadcast clients internationally. Formed in 2000 by composer partners Vincent and Kathyjo Varco, BSM has consistently delivered innovative, on-target music using the latest audio technology and the best instrumental talent Chicago has to offer. With many broadcast credits including the Discovery Channel's *Future Car*, The History Channel's *Decoding The Past*, and NBC's *Men in Trees*; commercials for Nike, Budweiser, and the whole family of P&G products; and independent feature films, Big Sound Music has provided custom production for some of the best and biggest. The company's latest offering, *The Big Sound Music Library: Volume 1*, is a collection of compositions including quirky lullabies, truly funky street rhythms, and earnest and quite moving orchestral themes. It is an affordable buyout solution for media producers.



BMAP

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BMAP (Bernard Matthews Audio Production) specializes in custom music and sound design for all media, serving clients from Los Angeles to London with Internet delivery and digital broadcast. With more than 20 years of experience producing music for major commercial campaigns, feature films, television shows, and critically acclaimed albums, BMAP offers a unique approach to each project. The company specializes in full 5.1 surround sound to make the most of today's digital broadcast standards. Whether you know exactly what you want or you're searching for a new sound to help your project stand out, BMAP can deliver.

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New York | reel-exchange.com/members/db2e37bd/profile

The talent at New York-based audio-post house Big Yellow Duck (BYD) brings a fresh, creative approach to every project—providing mixing, sound design, original music, and recording for commercial, film, and long-format television. Recent work includes mixing spots for ESPN, Ikea, and Sweet’N Low, and creating the entire soundtrack for The History Channel’s new series about biblical battles—including an original epic score and the sound design and mix that brought the reenacted battles to life. BYD sound-designed and mixed the film *Drive and Deliver* by acclaimed director Brett Morgen, about International Truck’s new semi—tailor-making sounds to fit this powerful, bold truck. BYD mixes docudramas and reality television, including A&E’s *The First*

48 and the Discovery Channel’s *The Shift*. BYD also provides sound design for logo stings, such as that of Spike TV, as well as custom sound-effects creation for Blue Man Group.



THE BURST COLLECTIVE

Milwaukee | reel-exchange.com/members/712e1ef5/profile

The production music portion of The Burst Collective’s former *BurstLabs.com* venture is now known as the *Mixtape Music Library* (available through a joint venture with Sony/ATV and Extreme Music), and its *Indie Artist* collection (with emerging artists and bands joining the artist material from Burst Labs) will soon be available at *TheLicenseLab.com*, using the innovative search and discovery engine that made *BurstLabs.com* so popular with the online crowd. Burst also remains available for custom music production, supervision, and licensing.



GEORGE FREITAS, DIVINE NATURE MUSIC

Garden Grove, Calif. | reel-exchange.com/members/01bfdd69/profile

George Freitas composes original scoring and can provide sound effects as well as audio design. With experience in the pre- and postproduction processes, Freitas has done mixing, tracking, and mastering for videogames, television, the Web, and film. The contents of Freitas’ *Divine Nature* music library go from orchestral to electronic, jazz, and bossa nova.



THE DOG AND PONY SHOW

Las Vegas | reel-exchange.com/members/90a63da2/profile

The Dog and Pony Show, a leader in postproduction audio in Las Vegas, is a Grammy- and Emmy-Award-winning creative audio boutique specializing in sound design for games, television, radio, short films, feature films, and corporate clients. This state-of-the-art, 1200-square-foot facility features two control

rooms and two sound booths with ISDN connectivity. The Dog and Pony Show’s list of regional, national, and international clients includes Skechers, HBO, MTV, Bally Technologies, Aristocrat Technologies, and MGM Mirage. The Dog and Pony Show: sound design, mixing, voices, and composers.



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Los Angeles | reel-exchange.com/members/0964c107/profile

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JACK SCHELL, MERKABA PUBLISHING

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LEONARD WOLF MUSIC

Nashville, Tenn. | reel-exchange.com/members/42f9ee30/profile

Leonard Wolf has composed and sound-designed thousands of projects, working in just about every form of media you can imagine. He has won four Emmys and many advertising awards over the last 22 years. He has just (in 2009) won an Addy for music composition for a film for the United Methodist Church that features a fusion of world music, black gospel, and orchestral styles. At the other end of the musical and theatrical spectrum, his score for *Side Sho*, a horror movie distributed by Lionsgate Films, took top honors at the Philadelphia Horror Fest (2008). He has also been a pioneer in digital music-production techniques. For his latest personal project, *The Skallywaggle Tails*, he is also dabbling in scriptwriting and animation with partner Holly Heise. He loves to compose with the client in the room, and with the giant world-class talent pool in Nashville, he is ready for anything. Wolf Music also has a large private library of songs and music cues.



MAURICIO DOMENE, ESTUDIO NEXT

São Paulo, Brazil | reel-exchange.com/members/e4060253/profile

Mauricio Domene is a Brazilian composer looking for creative and collaborative work opportunities throughout the world. His main style is a creative mixture of



modern techno with great melody and intriguing textures, but he is also capable of composing music in a lot of styles—such as orchestral, Brazilian music, rock, etc. Mauricio has a fully equipped studio capable of delivering high-quality audio in 5.1, and he has been working with major ad agencies in Brazil, winning several awards (five-time Profissionais do Ano da Rede Globo).

THE MUSIC FACTORY

Atlanta | reel-exchange.com/members/40470c68/profile



The Music Factory provides creative soundtrack design for film, video, and mixed-media projects. Music Factory is currently celebrating its 15th year of making noise.

OBT FILM MUSIC LIBRARY

Westborough, Mass. | reel-exchange.com/members/651a3d0c/profile

OBT Music is a film music library consisting of works written for major network documentary films, feature films, planetariums, advertisements, and museums. It is music that was scored to real films by veteran award-winning composers Tom Phillips and Tom Martin, projecting a depth in composition and a sensibility to visuals that is unlike



other production libraries. Recent OBT credits include several PBS *Nova* episodes, including "The Four Winged Dinosaur" and "The Big Energy Gamble." Anyone can browse the library with the filmmaker-friendly, easy-to-use search engine and download full-length MP3s to try in the company's work in progress. Licensing is simple and extremely affordable. Customization of the music, as well as original composition, is available.

PEARL MUSIC

Hollywood | reel-exchange.com/members/7924fd7c/profile

Pearl Music is a one-man company operated by composer/producer/sound designer and audio electronics guru Richard Zeier that specializes in helping independent artists and directors realize their vision by enhancing audio with the creative use of modern tools. Located close to Warner Bros. and Universal Studios, Pearl Music's studio is spacious and allows seven or eight people to occupy the control room comfortably during sessions. Zeier believes in a project, he will often kick in extra time of his own as a bonus. "I just love elevating the level of a film or commercial project with original music and sound elements," Zeier says.



PROMIDI MUSIC

Miami | reel-exchange.com/members/dbc02d54/profile

Promidi Music is a full-service music production company completing music and sound projects that include original music scoring for both television and radio commercials, as well as web projects, videogames, and film. Promidi is an award-winning music company with more than 20 years of experience.



PROPELLER MUSIC & SOUND DESIGN

New York | reel-exchange.com/members/00059ef8/profile

Propeller Music & Sound Design is a full-service music production resource in New York creating innovative original music, rearrangements, sound design, and mixing for commercials, films, television, radio, and the Web. Dedicated to the highest level of creativity, artistry, and communication, Propeller provides direct collaborative access to award-winning creative director/composer Doug Hall along with other outstanding recording artists, composers, and sound designers. As a value-added service, Propeller also offers a premium music library of ready-to-license music tracks. The music in this library is not stock music, but top-quality original music created for high-end advertising and broadcast production. Many of these outstanding commercial-length tracks can be customized to your specifications.



SCOOTMAN MUSIC PRODUCTIONS

Nashville, Tenn. | reel-exchange.com/members/39353fc2/profile

Scootman Music Productions provides award-winning original and library music, sound design, sonic branding, audio recording, and 5.1 mixdown (studio or location), as well as voice talent for any project. The company has provided cutting-edge music and audio solutions to the Documentary Channel, Groundswell Productions (*Smart People*, *Milk*), Scholastic Video, CMT, Oxygen Network, Ridiculous Software, Vanderbilt Cancer Center, and many others.



TWISTEDTRACKS.COM

Chicago | reel-exchange.com/members/d003a9e2/profile

Twistedtracks.com is a royalty-free production-music and sound-effects library. Sounds this good usually come with a high price tag and complicated licensing, but not with this company. You get great music, high-quality sound effects, affordable pricing, and no hassle. *Twistedtracks.com* specializes in modern genres including ambient, downtempo, electronic, rock, soundtrack, and world music—providing the styles you need and the variety from which to choose. All sound-effects and music tracks and volumes are offered in uncompressed AIF and WAV or MP3 format for immediate download or delivery, with intelligent search capabilities to find the right one fast.

VICTOR ORTEGA, SENSORBURN PRODUCTIONS

Woodside, N.Y. | reel-exchange.com/members/e9977ead/profile

This New York-based production company concentrates on unique and alternative solutions for your project. It provides interesting visual content and commits itself to artistic integrity. Mainly focusing on audio and video editing, Sensorburn Productions also includes graphic design elements that complement your idea. Recent work has included website construction for fashion designer Michelle Korn, audio production of a *DreamRiders* documentary trailer, and science-fiction cyber noir series *The Con-Sci Chronicles*. If you need to transfer content, a commercial designer touch, or assistance in your latest creation, Sensorburn Productions can meet your demands.



Equip your MOTU desktop studio for incredible sound and performance

Start with DP6 running on Apple's latest Mac Pro towers, now with 8-core processing standard, then add BPM and the very latest in high-performance desktop studio technology.



MOTU BPM

Advanced rhythm production instrument

BPM unites drum machine-style operation with advanced virtual instrument technology to give you the ultimate urban rhythm programming experience. Combine drum kits, sequenced patterns, sliced loops, and instrument sounds to realize your rhythmic vision. Dig into BPM's massive library of never-before-released sounds. Run BPM stand alone or as a tempo-synced plug-in for DP6 to turn your computer into a rhythm production powerhouse.

Euphonix Artist Series

High-end console for your MOTU studio

MC Control and **MC Mix** bring Euphonix' high-end console technology to your MOTU desktop studio in a compact design that fits perfectly in front of your Apple Cinema display. MOTU DP6 now natively supports Euphonix' EuCon protocol for seamless, tactile control over almost all major functions.



Event Opal 2-way 750-watt active monitor

The EVENT Opal sets a new benchmark in studio monitor accuracy. Featuring revolutionary technology that enables incredibly defined midrange frequency reproduction as well as deep, clear low end, the Opal has a response far beyond any existing 2-way system. Up to 750 watts of burst power allows the Opal to reproduce the transient dynamics of music while exhibiting the lowest distortion of any speaker in its class. Made in Australia, the Opal is unparalleled in accuracy and performance.



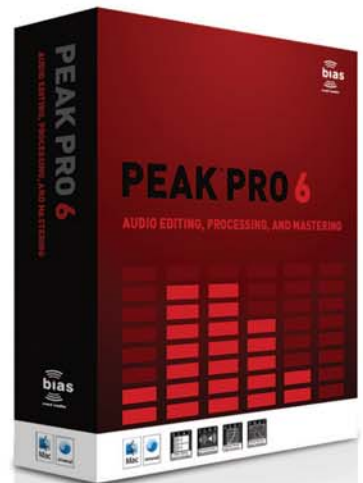
RØDE NT2-A Large-capsule microphone

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



BIAS Peak Pro 6 Evolution of an award-winning standard

Whether you're a musician, sound designer, audio editor, multimedia producer, or mastering engineer, Peak Pro 6 offers more creative potential than ever before. Used side-by-side or launched directly from within DP6, Peak Pro 6 streamlines your workflow with industry-renowned sonic quality and precision. For additional mastering, restoration, and DDP 2.0 delivery power, step up to Peak Pro XT 6.



Antelope Isochrone OCX Premier reference master clock based on aerospace technology

A master clock is the heart of any MOTU digital studio, essential to maintaining stability and preserving sonic integrity. The Isochrone OCX is an ultra stable, great sounding master clock highly regarded by many top professionals. Mixes come alive with much more depth and detail when the OCX is plugged into gear that has a digital input. Hear it and believe it!



Equip your MOTU desktop studio for incredible sound and performance



Ocean Way Drums from Sonic Reality The premiere virtual drum instrument

Put the power of the world's most awarded studio complex in your MOTU desktop studio. Ocean Way Drums delivers 19 drum kits immaculately recorded in legendary Ocean Way Studio B where artists like Radiohead, Green Day and Eric Clapton create hit records. The new affordable Silver Edition is now only \$499 MSRP.

Waves Platinum Bundle Get platinum. Go multi-platinum.

Platinum is an extraordinary collection of signal processing tools. From dynamics, equalization, and reverb to pitch correction, spatial imaging, and beyond, Platinum is ideal for tracking, mixing, mastering, and sound design. Now including MaxxVolume, Waves Tune LT, L3 Ultramaximizer™, L3-LL Ultramaximizer, and IR-L Convolution Reverb, as well as all the plug-ins found in our Gold, Masters, and Renaissance Maxx bundles, Platinum is a powerful production arsenal for any studio. Waves processing is absolutely essential for any DP-based MOTU studio.



Studio ProFiles: Drum Masters from Sonic Reality Access to the masters

A new drum plug-in that can take your drum tracks to the next level by providing both the multitrack drum kits and multitrack Rex™ audio grooves of legendary drummers such as Jerry Marotta (Peter Gabriel), John Blackwell (Prince, Diddy), Danny Gottlieb (Pat Metheny Group), Nick D'Virgilio (Genesis, TFF) and more. Grooves and Kits work seamlessly together with the included "Infinite Player" powered by Kontakt. Drum Masters Gold & Platinum Editions available now!



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Fred Aldous

The senior mixer at Fox Sports adapts state-of-the-art gear and techniques to speedways and stadiums.

How are you mixing for your various shows?

Everything we do from the field is 5.1. With Fox Sports, all our production material is 2-channel legacy audio. I use Neural Audio's UpMix and put my announcers in the center channel, which is Fox delivery spec—standard, and then build my mix around that. Everything else from the field or track is discrete L, R, Ls and Rs. We encode that mix out of the desk to Dolby E, which is our transport stream from the remote to the broadcast center. Locally, I create a downmix using Neural DownMix and Dolby PLII. That stuff is recorded locally inside of the truck, plus sent down channels 7 and 8 of the e-stream. Our 8-channel assignments are L, R, C, LFE, Ls, Rs, and Lt and Rt. Once the Dolby E stream hits the broadcast center in L.A., they do all their commercial and studio show integration for game breaks.

How do you transport audio from the site?

During NFL and baseball, the audio from the site to the broadcast center gets muxed with video into a 270-Mbit ASI stream over a fiber system called VVX, which is standard for all baseball and football stadiums. For NASCAR, we're using digital satellite and sending it up digitally through a primary and backup C band, and a primary and backup KU band. All that gets muxed with the video like VVX into an ASI stream, and then we send the ASI stream over the satellite to the broadcast center. At Fox, they create their own downmix there to send out to the affiliates that are in SD 4:3 stereo.

How do your mixing styles vary?

NASCAR allows me to do a POV perspective with my audio. As the car goes around and the director takes a camera shot from the wall next to the track, I actually put you in that perspective and let the car come and leave the frame as if you're at the camera. In the 5.1 mix, since



Fred Aldous in the Fox Sports truck, which features Tannoy monitors and a Calrec Alpha console with Bluefin.

the car in the screen comes in usually upper-left and leaves lower-right, I bring the car in the front-left speaker and exit out of the right-rear speaker.

It sounds like the car comes through the room.

Is that an automated process, or are you physically panning it?

Everything is stationary; there is no joystick or stereo panning throughout the race. It's all preset because there's no time to pan on a live show that moves that fast. To create my surround out of a stereo miking situation around the track, I use delays and phase shifting.

How about for the NFL and baseball?

For the NFL, I mix from a viewer's perspective as if you were a fan in the stands. The field of play stays in front of you even though the plays move from left to right. I leave you in the seat and fill the 360-degree surround field with the crowd around you. There will be times when somebody is yelling behind you or there is crowd reaction back there, but in front I keep the field effects, quarterback cadences and hits. For baseball, I can make it interactive and keep you involved by taking you down to the field once in a while because I have the bases and bullpens miked.

How do you mike all of this?

For Daytona, effects sub mixer Kevin McCloskey had close to 120 mics around the track. Each camera has at least a stereo mic, but may also have an approach mic, a center mic and an escape mic. So as the car comes through and the camera pans with it, you hear it enter left, pan through center and exit right. We also



PHOTOS: JAY BECKMAN

have mics in the cars and placed around the track "roar" mics so when the director takes a wide shot or an angle shooting across the track, we can fill the soundfield with the roar of the track itself.

For NFL, it's easier. I've got six wireless parabolic mics, stereo mics on the refs and four handheld cameras with microphones. For crowd mics, I use a pair in the announce booth and two stereo shotgun pairs for my near and far surround field.

What equipment is in the truck?

The trucks we use for NFL and NASCAR are from Gamecreek Video. They built the trucks specifically for Fox two years ago, and I was fortunate enough to have the owner, Pat Sullivan, allow my input to build the room alongside his engineers. The console is a Calrec Alpha with Bluefin, and for monitors I'm using Tannoy 8Ds for left and right, and a Tannoy 6D that was custom-built because of the size constraints we had. For surrounds and sub, I'm using Tannoy Arenas powered by ART SLA 1 amps and a Tannoy TS10.

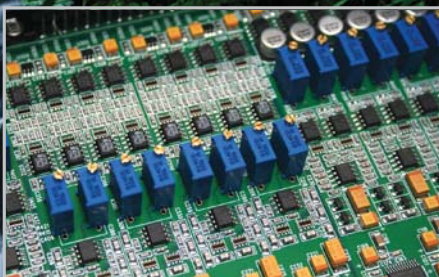
What is coming next for broadcast audio?

I'm starting to work on some 7.1 mixes from the field, which will give another depth of perspective. We've already done some tests with 7.1, and it's very hip. It will be L/C/R in the front, left and right-side surround, and a left- and right-rear surround, and of course the LFE. ■

THE NEW AURORA 16-VT Variable Trim AD/DA Converter

Variation on a Theme

The Aurora 16-VT offers all of the features of the industry-standard Aurora 16 AD/DA converter, with the addition of Variable Trim for all 16 analog inputs and 16 analog outputs. This allows users to manually set the analog input and output levels within a range of +8.5 dBu to +24 dBu.



Versatile Thirty-Two Channels

The Aurora 16 and Aurora 16-VT are actually 32-channel devices. All 16 analog I/O channels and all 16 digital I/O channels are operational at all times at all sample rates, with analog-to-digital conversion functioning simultaneously with digital-to-analog conversion. All in one rack space.

Very Transparent

Audio as Nature Intended. The sound you put into Aurora converters, as well as Lynx AES16, LynxTWO and L22 sound cards, is the sound you get out of them – pure conversion. The depth, detail and imaging with Aurora are, well, truly natural.



Audio... as nature intended.

The Aurora family of converters, including the new Aurora 16-VT, provides the audio quality, features, interface options and reliability that you need from a converter.

Very True.

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INTRODUCING...

BPM

BEAT PRODUCTION MACHINE

Advanced urban rhythm instrument

BPM unites drum machine-style operation with advanced virtual instrument technology to give you the ultimate urban rhythm programming experience. Combine drum kits, sequenced patterns, sliced loops and instrument sounds to realize your rhythmic vision. Dig into BPM's massive library of never-before-released sounds. Run BPM stand-alone or as a tempo-synced plug-in for your favorite host software to turn your computer into a rhythm production powerhouse.

Waveform Editor for quick editing, tweaking and cleanup of sample material.

Live recording

Capture live beats from your MIDI controller.

Step sequencing

Build patterns in seconds with just a few clicks.

Sampling

Record hits or any audio directly into any pad.

Editing

Tweak any hit, pattern, loop or instrument.

Unlimited layers

Unlimited sample layers per pad with programmable layer switching.

Drum Synth

Lets you program your own sounds and even layer them with samples.

Song mode

Drag & drop sequences to build songs in seconds.

Killer urban sounds

15+ GB of brand new material mastered at Sterling Sound, NYC.

Interactive browsing

Hear hits, loops and patterns instantly as you click them.

Deep synth engine

Add filter resonance. Tweak an envelope. Perfect your sound.

4 pad banks + 2 racks

Layer full kits with multi-sample instruments, loops and audio phrases.

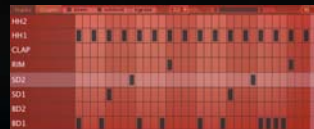
Complete mixer with FX

Apply dozens of quality effects throughout, from individual samples to the master stereo output.

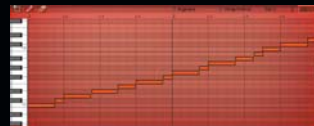
SP Mode

Emulates the classic SP1200 drum machine.

Step Sequencer lets you build patterns in seconds with just a few clicks.



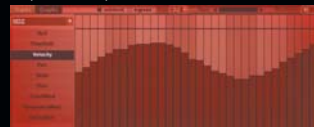
Piano Roll Editor for sequencing multi-sample instruments and sliced loops.



Loop Editor lets you set loop behavior and drag & drop loops as MIDI or audio.



Graph Editor lets you achieve ultra-expressive performance for each note.



Plus many more screens for scene building, song mode, and much more...



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