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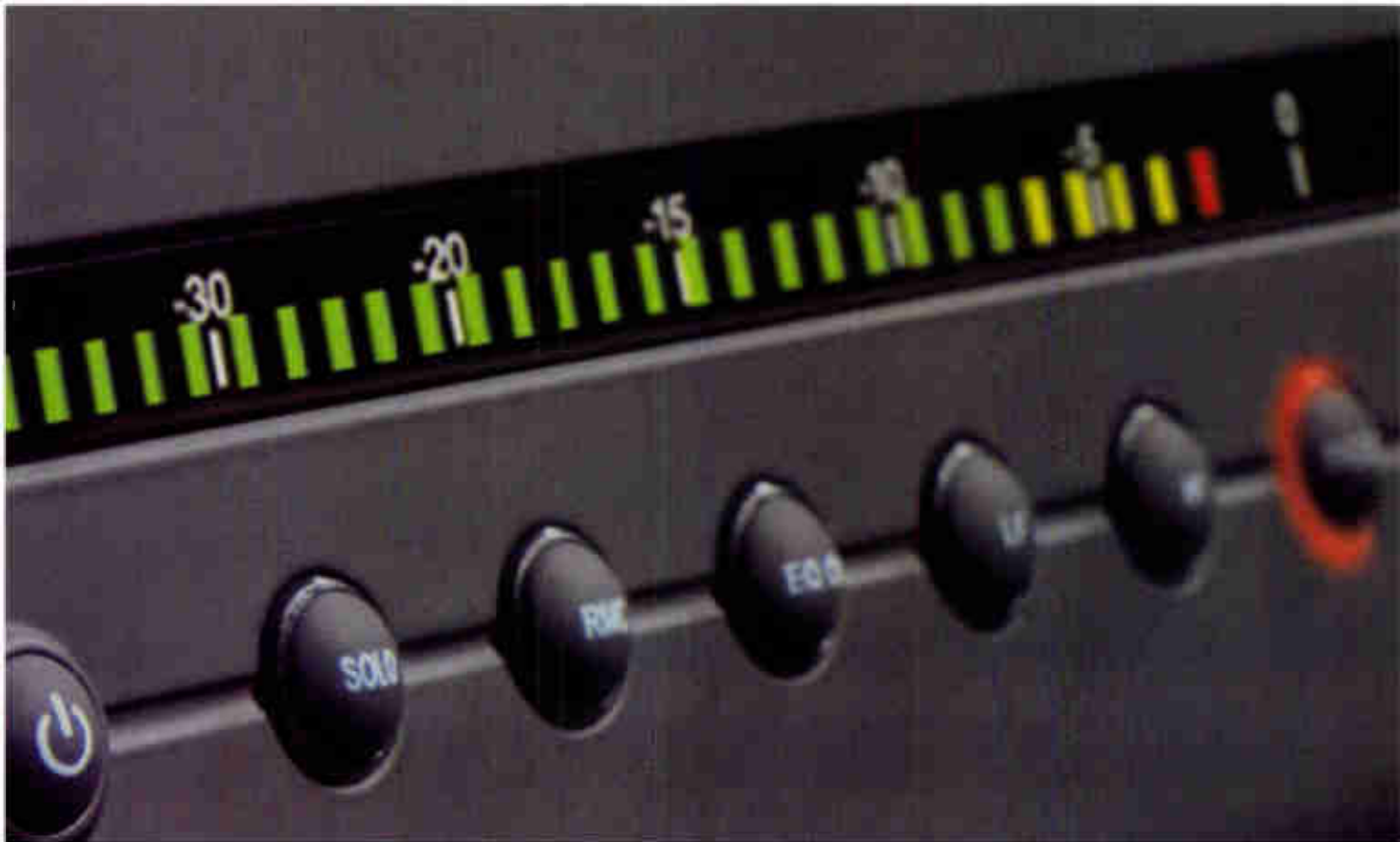


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World Radio History



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World Radio History

MIX

PROFESSIONAL AUDIO AND MUSIC PRODUCTION

November 2005, VOLUME 29, NUMBER 12



features

32 Speech and Song

In our past installments of the "Recording the Band" series, technical editor Kevin Becka has provided tips and techniques on recording drums, guitar, piano, bass and horns. In our final installment, Becka tackles the money channel—vocals—from selecting the perfect mic and placement (for both solo artists and choirs), through the signal chain and working within the mix.

40 AES Report and TEC Awards Winners

It was one of the best AES Conventions in recent memory, with plenty of product introductions, a wealth of papers and an increased emphasis on live sound and retail partners. The *Mix* editorial team brings the hits to those who couldn't make it to New York. Plus, the winners of the 21st Annual Technical Excellence & Creativity Awards.

51 The Vocal Channel Processor

Whether you're working on a large-format console or directly "in the box," a sonically pleasing front end is key to a great-sounding track. And when you're recording vocals, mic choice is only the beginning. Expand your production palette with one of this year's crop of vocal channels, all-in-one boxes that perform the triple-duty of preamping, EQ and compression—all while maintaining the cleanest signal possible.

68 Education Directory

Every year, *Mix* publishes its directory of North American audio education programs to aid prospective students—and professionals looking for extended learning opportunities—in finding the right path toward becoming a professional in the audio world. Listed alphabetically by region, this guide is only a starting point, offering the school's location, degrees and/or certificates offered and a course description. If a school strikes your fancy, we suggest contacting that program for additional information, a campus tour and—better yet—sitting down to talk with former students about their experiences at the school and post-graduation.

68 Eastern Schools

76 Central Schools

80 Western Schools



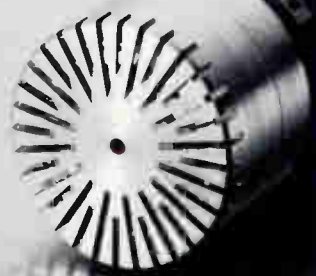
On the Cover: The SSL 4036 G Studio A at Berklee College of Music, Boston, is complemented by 12 more studios and dozens of music labs. This past year, Berklee launched an online curriculum. See directory beginning on page 68. **Photo:** Phil Farnsworth. **Inset Photo:** Steve Jennings.



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EXTRAS

Visit www.mixonline.com for bonus materials and audio clips for "Speech and Song," "Walk the Line," "Classic Tracks" and more! Also, get full AES coverage and read the Blog and nightly e-newsletters at mixonline.com/aesny.

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IT'S WHAT'S INSIDE THAT DEFINES YOU
PREPARE TO BE REDEFINED 2006

We Say Goodbye...You Say Hello

We don't often talk about our own here at *Mix*. In many ways, we consider our journalistic intent to be much the same as the producers and engineers we cover: We stay in the background and get the story, letting the subject and the project take center stage. But this month, we would like to make an exception because our Los Angeles editor, Maureen Droney, is moving on to become head of the Producers & Engineers Wing of the Recording Academy. We will sorely miss her insight, her knowledge, her humor and her talents. But our loss is the industry's gain, and in the months and years to come, perhaps even more people will recognize the talents and charms that have made Maureen such an integral part of the *Mix* team.

It's all a little hazy up here on whether we initially approached Maureen or she approached us. But in March 1994, she began her first "L.A. Grapevine" column with the simple statement, "My name is Maureen Droney, and I'll be writing the 'L.A. Grapevine' from my home in Woodland Hills." Straight, succinct and to the point. She then described a fire threat at SSL's holiday party, covered the inaugural meeting of an L.A. chapter of SPARS, talked about the need to diversify by showcasing Studio 56 and Ground Control, and broached the coming format war in film sound between DTS, Dolby and SDDS. A lot to cover, and Maureen made it all make sense.

During the next 11-plus years, Maureen's writing developed and her sense of story and context turned her into one of the finest columnists in audio. So we started to use her on more and more stories, from live sound pieces to film sound features. Perhaps her finest work came from a question and answer series that she proposed and named "Mix Masters." The idea was to bring an engineer's take on engineering, and with credits including Santana, En Vogue, George Benson and many others, Maureen was a natural interviewer. I, for one, was always jealous of her ability to ask the precise follow-up question, as if she were one step ahead of her subject. Those engineers she interviewed are the *crème de la crème* of modern recording. You can find many of those pieces today in her book, *Mix Masters: Platinum Engineers Reveal Their Secrets for Success*, from Berklee Press.

Whether managing a studio, writing on deadline or dealing with angry egos, Maureen has that rare sense of calm and charm that the best engineers and producers exhibit. She treats all subjects equally, whether the multi-Platinum producer, the chief engineer in the machine room or the runner bringing in coffee. Whenever I needed a quick b.s. meter, or an alternate take on a story or quote, I called Maureen.

But we've come to praise Maureen, not to bury her. She has been a longtime friend of the *Mix* family, to the point that this editor much prefers to stay in her and Ken's "Tom Kenny Memorial Guest Room" rather than a Sunset Strip hotel. No doubt our relationship with her will continue through her work with NARAS, and no doubt we and the industry will benefit from the talents she brings to her new position.

All the best, Maureen, from your friends at *Mix*! It may be a new number, but you're still in our speed-dial.



Tom Kenny
Editor

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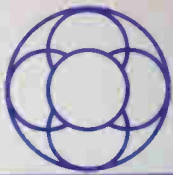
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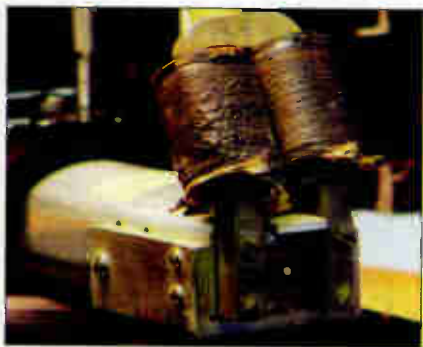


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Letters to Mix



WORKING WITH HISTORY

Your article in the September *Mix*, "The 2005 TECnology Hall of Fame" was right on! Especially the piece on Western Electric/Bell Labs, Electrical Recording (1925). I think your readers might like to see some pictures of this recorder. They are from our upcoming book, which will be a companion to our two videos on disk recording, now in production. This will be in addition to our series *Classic Microphones From the Golden Age of Radio*.

In October 1931, at a meeting of the SMPTE, H.A. Fredrick of Bell Telephone Laboratories presented a paper, "Vertical Sound Records—Recent Fundamental Advances in Mechanical Records on Wax." In it, he described Bell Labs' progress in improving the fidelity of current records and the advantage of vertical over lateral modulation. Both *World [Broadcast Service]* and *Associated* implemented these improvements in their 16-inch transcriptions. Mentioned in the paper was an improved D-Spec vertical cutter that went out to 10,000 cycles. The enclosed pictures of the D-95230 recorder are of this hi-fi cutter. I have cut records with this cutter, and it actually goes out to 15,000 cycles with low distortion.

Barry J. Brose
Highland Laboratories
San Francisco

WE TAKE HISTORY HOME THROUGH TECHNOLOGY

I just finished reading the TECnology article ("The 2005 TECnology Hall of Fame")—excellent! Are you a history buff? If so, my grandfather, the Albert in Uncle Albert's, worked with Edwin Armstrong in France during World War I. They were in the Signal Corps; Armstrong worked on airplane radio design and Duke Silva designed the first tank radios. I have the original requisition papers, [dated] 1918, for the first superheterodyne set. Armstrong stayed in Paris after the war to study electronics

and Duke brought the set back to the States. I have most of his work papers.

Did you know that David Sarnoff (RCA) set Armstrong up in the Empire State building for his FM station? RCA didn't see a use for FM until TV. They took his system. Armstrong sent his wife to her sisters', put on his overcoat and hat and walked out of a 13-story window. *Ouch!* He passed away February 2, 1954; my grandfather died on February 14, 1954.

Kevin Silva
Uncle Albert's

Kevin,

Thanks for the great letter and info on your granddad!

It's sad, but audio history is transitory and fades quickly. Part of our push behind the Hall of Fame was to recognize some of these innovators before they're forgotten. These days, there are engineers and producers who have never worked outside of a multitrack DAW and never felt the rush of setting up a couple mics on a hot band and letting the tape fly.

Thanks again,
George

GUITARIST FINDS SWEET SPOT WITH IN-EAR MONITORS

I read Mark Frink's article ("Making the Wedgeless Transition") in the August issue of *Mix* concerning in-ear monitors (IEMs) with interest and found it to be very informative. However, I felt that guitar players were taking more heat than they deserve by stating, "Guitarists are the hardest bandmembers to please." [The actual quote is, "Guitar players have the hardest time because they're used to having a sweet spot that they can step into and it's a whole new way of listening."—Eds.]

I made the decision to use IEMs about 18 months ago as a logical and ergonomic choice to employing wedge speakers/amps for my monitor setup. I use a very simple system comprising Shure E5s powered by a Shure FP-22 fed by a mono source from a Mackie board. My primary gig is performing live using an electric guitar through a Line 6 P.O.D. accompanied by backing tracks recorded on Pro Tools in my home studio. This works extremely well, as the balance and clarity of the IEMs perfectly mirrors the FOH, requiring little or no adjustments during the entire performance.

Although I don't face the adversity of multiple musicians competing for sonic territory or complex stage monitor mixes as per the article,

I feel that anyone (especially guitarists) should give IEMs a try. They will never go back!

Dave Pryor
Starlight Productions

TIME ALIGNMENT, "TECH'S FILES"—STYLE

First let me say that I have been enjoying Eddie Ciletti's writing now for about 10 years—pretty much my entire professional career. Thanks for all the fine work.

I have a question/observation about his article in the (August 2005) issue about time alignment and multi-mic drums ("The Slide Rules"). First, he didn't provide a starting point for alignment. Do you align the overheads to each other and then align everything to them? Do you align everything to the kick? Snare? It can get confusing. Because the kick and snare are never directly in the center at the same time, what do you do? Usually for me, the snare is dead-center and the kick is a tad left or right, depending on the overhead mic positions. Then what? The kick will be a little ahead in either the left or right overhead. Also, what about cymbal smearing when you start moving the time relationship between the overheads? What about a 14-mic setup on a five-piece kit? It gets crazy.

None of this is criticism; it's just stuff that runs around my brain and I rarely, if ever, get to share these with any engineers who give a crap. Glad to see that there are others that think about these things. I would have posted this topic in Eddie's forum but could not find a way to add a topic.

Anyway, thanks for all the great insight.
Andrew M.

LOVE LETTER TO OUR COLUMNISTS

(The June 2005 issue was the) best issue ever. Stephen St.Croix's writing ("The Fast Lane") has never been more on-point, conscience and strong. Thank you (to him) for having the courage to stand up with his own opinions and say, "Screw that" to the b.s. that sometimes comes with the territory of song and music production.

Also, (Paul) Lehrman's article ("Do You Hear What I Hear?") was just as fascinating, very insightful, very helpful to all who strive to accomplish a product of quality and good work.

Isaac

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World Radio History

SOUND ON SOUND AND RIGHT TRACK MERGE



Right Track's
Simon Andrews

Observers of the rapidly transforming New York City recording scene were probably intrigued—although not surprised—to discover that in early November (just a few days before the AES Convention), yet another change had taken place. This time, the announcement was not of a closing but of a merger—between Sound on Sound Recording (www.soundonsoundstudios.com) and Right Track (www.rightrackrecording.com).

Sound on Sound will move its entire staff and key pieces of equipment from its West 45th Street location to Right Track's headquarters on 48th Street. Sound on Sound's founder Dave Amlen was matter-of-fact about the circumstances that led him

to join forces with his respected colleague/business rival Simon Andrews, who started Right Track in 1976. "This is a mature industry, and it was only a matter of time before consolidations and mergers would happen," Amlen comments. "Studio owners tend to be very territorial about their babies. Simon and I have known each other for a number of years, and we've both been public about what we were going through. We didn't hide our problems; they were out in the open.

"No studio at all has had a great go in the last couple of years," he

continues. "It's just been a very tough time. We talked about how we might come out of this better, weather the storm and over time have a more stable situation so that if there were dips, it would not take the kind of toll you've seen in the last couple of years across the country."

Both Amlen and Andrews were fiercely committed to executing the merger without layoffs, meaning that Sound on Sound's 16 full-time staffers and Right Track's 27 employees will all remain on the job. Although Amlen acknowledges the emotional strain of leaving the world-class facility he constructed from the ground up, he is happy to have access to Right Track's considerable assets, including the incredible 4,600-square-foot orchestral studio at its 38th Street location.

"I have an attachment to these rooms," says Amlen of Sound on Sound. "I literally built the first one myself. But at the end of the day, it was about keeping everyone active and in the business. This was a way to stabilize the recording of music in New York. Ultimately, it's two companies with niches in overlapping but non-competing segments joining forces so they can be stronger together."

—David Weiss



Sound on Sound's
Dave Amlen

CREATIVE COMMAND



Creative Domain's sound mixer Steve Harrison at the D-Command

L.A. FACILITY TAKES IN A D-COMMAND

Creative Domain (www.creativedomain.com) is the first L.A.-based audio facility to install Digidesign's D-Command mixing console. D-Command, the newest work surface from the company's ICON family, features ICON-exclusive Pro Tools functionality, dedicated center-section panels for EQ and dynamics plug-in editing, and per-channel control over many processing functions, routing and automation modes.

Creative Domain's VP of production, Dan Korobkin, said, "The installation of Digidesign's D-Command mixing console with our Pro Tools|HD software creates a more collaborative workflow between our mix room and editorial bays. This equipment allows our audio mixers to dedicate more time and detail to the creative aspects of each of their mix sessions."

CALE VISITS OCEAN WAY



John Cale (left), Herb Graham Jr. (green shirt) and Mickey Petralia

John Cale (Velvet Underground producer/co-founder) completed his new album, *blackAcetate*, in Ocean Way Recording's (Hollywood) Studio B. Tracking took place at The Lair Studios with Cale and co-producer Herb Graham Jr. playing the majority of the instruments and engineering and programming; Lair studio owner Larry Goetz handled additional engineering. Piano and vocal overdubs and mixing took place at Ocean Way with mixer Mickey Petralia, who was assisted by Scott Gutierrez.

SCHEINER, MASSENBURG 'TEACH' BERKLEE STUDENTS

In an environment where students are just as likely to memorize an album's production credits as its lyrics, the arrival of engineer/producer Elliot Scheiner at Berklee College of Music (Boston) jam-packed the studio—even more so when he announced Kathy Mattea as the artist and the school's Herb Alpert Visiting Professor George Massenburg as his assistant! Scheiner was at the school at the behest of Music Production and Engineering department chair Rob Jaczko to present his new Foo Fighters album. Mattea was brought in that week by another department. It was just luck that Massenburg, Scheiner and Mattea were at Berklee on the same day (September 30) to pull off a "teaching session" such as this.

Songwriters/Berklee students Erin Barra and Jared Salvatore collaborated with the threesome to produce an exclusive new song. The engineers employed a live feel to capture the comfortable style of recording everyone together. They tracked to analog, though Massenburg snuck in a simultaneous Pro Tools file. In the mix process, only the vocal was transferred from tape. Student musicians accompanied Mattea as she sang and played tin whistle.

In the vaguely rectangular Studio A, the drums were placed a bit out of a corner, with the bassist (sitting next to the drummer) playing straight through an Avalon DI. The percussionist, acoustic guitarist, harpist and pianist were arrayed around the studio. Mattea (who sang through a U47), the only musician isolated with gobos, was originally closer to the drums and against the control room window. Bleed and slapback off the glass forced her to shift farther away and be barricaded in a gobo fort. Two Cole 4038s miked the piano (one inside and one out), while an Aguilar DI and Telefunken 47 were used on the guitar; a Schoeps CMC6-U was pointed down over the Celtic harp. A 414 was used in the percussion overdubs, and room mics were Josephson C42s. The drum kit took an AKG D112 (kick), SM57 (snare), 4050s (overheads), 421 (tom) and 469 (hi-hat).

During the recording process, Scheiner ran the SSL console while Massenburg concerned himself with the performers. Studio etiquette gems shone throughout the process, with the students taking a bit of abuse, but as Massenburg said, "They won't fear anyone in a studio now! I think it is going to be a mistake if you say, 'Now I am a trained engineer. Now I am going to work in a studio.' That's not how it works. You are going to go out and do everything."

—Marimikel Charier



George Massenburg leans over the SSL board while Elliot Scheiner and a Berklee student look on—true studio etiquette!

ON THE MOVE

Who: D. Dino Virella, principal of VirellaPro Sales & Marketing
Main Responsibilities: sales and marketing of pro audio and MI product lines to resellers.

Previous Lives:

- 2002-2005, Focusrite North America sales manager
- 2000-2002, Universal Audio VP sales and marketing
- 1992-2000, various positions at Digidesign
- 1988-1989, Sam Ash Professional division director
- 1986-1988, E-mu Systems Eastern sales manager
- 1984-1986, Akai Professional Midwest sales manager

My favorite thing about attending an AES convention is...seeing what's new and maintaining industry relationships. Our industry has some of the best personalities!
The last great movie I saw was...*Million Dollar Baby*. I like rooting for underdogs.
If I could do any other profession, it would be...coaching little kids in sports and/or life. I love to teach.

Currently in my CD changer: Eddie Palmieri's *Listen Here!* and *Les Pal and Friends* compilation CD.

When I'm not in the office, you can find me...doing some sort of outdoor activity with my girlfriend.



STUDENTS GET A DIGITAL UPGRADE

In addition to a working studio, Boston's WERS-FM (www.wers.org) plays host to broadcasting students from Emerson College's School of the Arts and Communications (Boston). The college recently overhauled its broadcast media equipment and the WERS facility, including the post-production room and the studio. Parsons Audio served as the audio vendor, while Sound Construction and Supply provided furniture for the studio's centerpieces—a console table to house a new 54-channel Yamaha PM5D and a side rack to hold interfaces and patchbays for a Pro Tools|HD 192 system.

"One of the goals at Emerson is to expose students to products that are used in 'real working-world' situations," WERS assistant chief engineer Bruno Caruso (pictured) said. "The upgrade was a long process, but definitely worth it. Our students can get their hands on the latest gear and 'do it themselves'—not just

look over a teacher's shoulder. We're pretty proud of that."

An Aviom Personal Mixing System fed through a Y1/Yamaha A-Net Output Card in an expansion



slot of the PM5D allows the engineer to assign and send 16 channels of digital audio directly from the console surface to external modules and daisy-chained Cat-5 connectors.

AN EXCESS OF GEAR FOR INXS



Mark Burnett Productions' (*Survivor*, *The Apprentice*, *Contender*) *RockStar:INXS*, which searched for the next INXS lead singer (the winner, J.D. Fortune, was picked in late September), relies on musical director Paul Mirkovich to pull the show's audio elements together, including the theme song—a new version of INXS' "New Sensation." "I recorded the basic tracks in my home studio on Nuendo using a mixture of live and virtual instruments," said Mirkovich. "Steinberg's The Grand is the main piano on the theme song, and all the synths are virtual." Mirkovich also used Native Instruments Reaktor, B4, Pro53, Giga libraries through ReWire, Atmosphere and Steinberg's D'cota.

"With Nuendo, I'm able to edit each arrangement down to a minute-and-a-half, mix it, export to MP3 and upload it to a network so each bandmember and the production crew can learn it for the next show," he reports. Once the show is live, Mirkovich uses a variety of virtual instruments via a Muse Receptor for playback. "Everything in a show like this happens very fast, and the musical elements that are key to the entire production must be done quickly and in high quality to go on air."

PHOTOS: COURTESY MARK BURNETT PRODUCTIONS



The *RockStar:INXS* house band, from left: Rafael Moreira, Sasha, Jim McGorman, Paul Mirkovich and Nate Morton

Amplifying all of this power was an SLS Loudspeaker system, run by front-of-house engineer Andrew Fletcher, broadcast music mixer Randy Faustino and broadcast production audio mixer Michael Abbott. The house line array comprised 12 RLA/1s, six RLA 1.5s, four RLA/2s, four RLA/3s, four TSR full-range, three-ways and eight US118XEL subwoofers (single-18). Onstage, SLS provided 22 112RM wedges, 10 US8190 wedges, four PS84 powered two-ways and four S84 compact two-ways.



Steve Jones, technical director

Meanwhile, finalists recorded a single with the band at Los Angeles-based Westlake Studios. For these sessions, INXS technical director Steve Jones used a Mackie monitoring system based around the TT24 digital live console and Mackie Active loudspeakers. "We didn't have space for a traditional monitor system and the usual racks of amplifiers and parametric EQs that go along with passive speakers," Jones said. "The TT24 was a perfect fit for the control room. There was limited available space with the 72-channel Neve and the large amount of outboard gear already there. We positioned the TT24 behind and to the side of the Neve, with a Mackie SRM350 alongside as a local monitor speaker." The TT24 ran in Aux mode, with Jones putting a wedge on a send. The inputs were fed from a combination of tape and insert sends from the Neve so that there were no splits involved and everything could be recorded through the main console.

For the main room, Jones selected five Mackie SRM450 Active P.A. speakers for the band, an SWA1801 sub and an additional SRM 450 for the drum monitor. A Mackie Onyx 1620 was brought in as an effects submixer in the control room and as a keyboard submixer in the tracking room. An Onyx 800R rackmount mic pre provided eight channels of mic and line amplification and digital conversion.

INDUSTRY NEWS

JBL (Northridge, CA) appointed David Scheirman as VP of tour sound and Ted Leamy to VP of installed sound...William Antonace, Steve Horn and Roxanne Khazarian joined Gibson Guitar (Nashville) as COO, CMO and senior VP, general counsel & secretary, respectively...Rick Naqvi has been promoted to PreSonus' (Baton Rouge, LA) VP of sales and marketing, while Michael Logue fills the newly created position of software products manager...DK-Technologies (Herlev, Denmark) named



Christos Desalernos

William Boxill as VP of its U.S. subsidiary, DK-Technologies America Inc. (Felton, CA)...LOUD Technologies' (Woodinville, WA) announcements: Gary Reilly, senior VP of product engineering, and Karen Macdonald, senior marketing manager...New intercontinental sales director at Crown (Elkhart, IN) is Jaime Abors...Christos Desalernos is Furman Sound's (Petaluma, CA) domestic sales manager in the pro division...Richard Hulston joins Meyer Sound (Berkeley, CA) as sales manager for the Middle East region...Overseeing all manufacturing operations in Biamp's (Beaverton, OR) U.S. facilities is Robert Yeager, manufacturing and facilities manager...L.A.-based Craig Sibley is Aviom's (West Chester, PA) new product specialist.

MARK YOUR CALENDARS!

On Saturday, November 19, 2005, the AES L.A. section will host a technical workshop entitled "Here Come the Hits! Building a Project Studio" at the Beverly Garland Holiday Inn in North Hollywood. The all-day event will cover outfitting a studio in a spare bedroom, a garage or temporary environment. A "Vendor Showcase"—where attendees can receive one-on-one demonstrations of recording and acoustic treatment products—will also be available. Full details are at www.aes.org/sections/la.

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Berklee College of Music

By Tom Kenny

The Berklee College of Music turned 60 years old this year, and there still isn't any school in the world quite like it. With more than 4,000 students, 12 (soon to be 16) studios, countless performance spaces and a pedigree rich in tradition yet focused on the next century, Berklee has seemingly forever been in a unique position to merge the worlds of musicianship and recording.

And while it would be simple at this point to sit back and rely on the tried and true, coasting along with an international reputation and thousands of applicants, the leaders at Berklee are doing just the opposite. During the past few years, with the support of new president Roger H. Brown and the leadership of dean Stephen Croes and chairs Kurt Biedewolf and Rob Jaczko, the Music Technology Division has torn down and rebuilt its entire curricula and developed four new studios (opening this coming spring) in the soon-to-be-renamed Music Synthesis Department.

"When I came onboard, I saw so much creativity, so much activity and receptivity, it was like a volcano spewing out lava—just so much invention every day," says Croes, who joined as dean in 2002 after a multifaceted performing and composing career in L.A. "The credit has to go to the completely remarkable engineer/educator Don Puluse, who had the vision to establish the whole Music Production & Engineering program in the 1980s."

As dean, Croes is responsible for Music Production and Engineering, started by Puluse in 1983, and Music Synthesis, started in 1986. While students can major in any of 13 disciplines, from film composition to music therapy, music technology remains the only division where students must apply for entry. The interest is so high that only about 45 percent get into either department. While this helps keep class sizes small, the division hopes to expand facilities and allow more students.

Currently, Jaczko runs 11 studios and an edit production suite, all booked by students and open 22 hours a day, seven days a week. But that doesn't mean that freshmen jump right on the SSL; like all things Berklee, the curriculum starts and ends with music.

"Music is the currency in which we trade," Jaczko says, re-emphasizing that all students who get into Berklee, regardless of major,

must be proficient in an instrument. "Harmony, ear training, critical listening. As much as technology is changing, with the ease of computer-based recording, so much of what we do is based on universal truths—knowing where to put a mic, thinking about dynamics, working with an acoustic space. The musical community here is what makes this all work. If someone needs to add an African frame drum at 4 in the morning, they can probably find it on campus."

During the past two years' curriculum review, the MP&E department focused primarily on rebalancing coursework, with an even greater emphasis on foundational skills and a deeper push into critical listening. Over in Music Synthesis, however, the changes were far more extensive, including a name change (soon to be announced).

"The music synthesis area had always been at the forefront of musical education," Croes says, "but it was ready for a sprucing up to make it more modern and fresh. The role of producing has really changed to one of creating. Many of the students want to design compositions for video, film, games, wherever, and the tools are emerging to make that possible. We have visiting artists like BT and Gary Chang, and the students see this new model. So to honor its 20th year, we're giving it a name change, we re-did the curriculum and we're opening four new electronic studios."

The studios were designed into an old Back Bay building, one Croes calls "a rat's maze in a 1906 structure." He enlisted the help of an old Los Angeles friend, designer Todd Wilson, whom, he says, "builds studios where you shouldn't build studios. Perfect for this project. Just brilliant design." After bouts of laughter at the initial walkthrough, including the discovery that the space was a former pizza bakery, the two collaborated via iSight and ended up with three Pro Tools|HD-equipped control rooms, a tracking room and a modern teaching lab.

"These kids in Music Synthesis have never had their own studio space," Croes says. "They've always worked on headphones and



The Studio A tracking room

PHOTO: PHE FAIRSWORTH

they desperately needed an environment."

Simultaneous to the two-year overhaul of the two departments, Berklee launched a highly successful online education program that Croes says has been a real victory for the college in outreach. The school also increased the numbers and visibility of the visiting professionals series, last year awarding the Herb Alpert Visiting Professorship to George Massenburg and hosting Elliot Scheiner, Nathaniel Kunkel and Tony Maserati, and landing John Storyk for an advanced acoustics course in 2006. Croes is already making overtures to join the Internet2 consortium so students can participate in research activities and focus on collaborations exploring immersive environments.

Still, with all the emphasis on the changing landscape of production and the creative use of technology, music is what informs everything that goes on at Berklee. "We are really an arts institute," Croes says. "We don't teach tools; we use tools to teach process. And we base it on the individual. A student leaving Berklee will have learned how to learn, and they will leave knowing two things: One, music is about relationships with people, and we look for partnerships that work. And two, we try to teach them how to become an artist, to embrace risk, to stay close to the art experience. We want them to leave with the core understanding of what brought them here. And that is the music."

MIX
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Tom Kenny is the editor of Mix magazine.

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Attack of the Pod People

Podcasting, Public Radio and You



ILLUSTRATION: JAMES YANG

Okay, pop quiz: Podcasting is a) the next big thing; b) the current big thing; c) no big thing; or d) How the heck should I know?

The correct answer is "d." Podcasting is an intriguing new use of some not-so-new technology, and in the first year or so of its existence, it has taken on as many forms as a Ridley Scott space creature. But where podcasting is going to end up and how it fits into the business of audio distribution of the future is anybody's guess.

The world these days, as the cliché goes, comprises two kinds of people: those who "get it," who are not only listening to podcasts daily but are also thinking about—if they haven't already done so—creating their own; and those who don't see the point of it. But everyone's heard of podcasting. Even my mother, age 82 (although remarkably hip and perceptive), recently asked me, after reading about it in *The New York Times*, whether it's something she should be interested in.

For those who've been off the grid for a while, podcasting is making audio files available online so that people can download them into their computers and transfer them to portable music players like Ap-

ple iPods—hence, the name. That's all there is to it.

What makes it different from downloading music from MP3.com or iTunes is that the content is made to be given away for free—almost no one charges for a podcast, and no one violates anyone's copyright by listening to one. It's also, by and large, not music. Most podcasts are spoken word-oriented like the early days of radio, when people actually listened to it.

What makes it different from getting radio programs off of a streaming server like the BBC's or NPR's is that you can get the file at any time, not just when the originator sends it. Even more importantly, you don't have to record the program in real time the way you do with a stream: A 10-minute program encoded as an MP3 will take only as long as it takes your broadband connection to download a 10MB file.

What kind of new technology do you need to get podcasts? Well, if you're up to date with your Web browsing tools, the answer is none. Veteran radio producer Tony Kahn calls podcasting "the love child of blogging." It uses the same technology that bloggers use: RSS, or Real Simple Syndication. An addition to the RSS protocol allows

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"enclosures" that, like e-mail attachments, can be files of any type, including audio.

Podcasting was born a little more than a year ago when ex-MTV veejay Adam Curry wrote an Applescript that downloaded an MP3 file onto his Mac and copied it over USB to his iPod. Now, there are literally dozens of applications on all platforms to do the same thing. To podcast, all you need is access to a Web host with RSS capability. And if your existing host isn't set up for it, there are companies cropping up that will handle your feeds and your file storage.

Kahn has been in radio for more than 30 years and jumped on the podcasting band-

wagon as soon as it started rolling. Kahn's pretty well-known in the world of public radio. He's a contributor and sometime host of *The World*, the daily news program co-produced by the BBC World Service and Boston's public-broadcasting behemoth WGBH, as well as one of the panelists on NPR's hysterical weekly quiz show, *Says You*. (He's also a friend, and he and I have done a number of radio and film projects together.) But for the past year or so, Kahn's primary job has been producer and creator of a weekly series of short spoken-word broadcasts called *Morning Stories*. These tightly edited personal stories from a wide

variety of contributors, accompanied by sound effects and music, are broadcast over WGBH-FM during its *Morning Edition* slot. Over the airwaves, they don't go any farther than the Boston area.

"When I first heard about podcasting," Kahn says, "the term was about three days old. I contacted Adam Curry, the godfather, who was in Brussels at the time, and sent him a clip of one of our broadcasts and asked if he thought it would work as a podcast. About a half-hour later, and this was around 5:30 a.m. my time, he got back to me and told me all I needed was an RSS feed. I had no idea what it was, so that morning, I spoke to our head of Web development and new programming ideas and asked if we had one. He said, 'Not yet, but let's get one.' A couple of days later, we were doing the first public radio podcast."

While the on-air broadcast of *Morning Stories* has to fit the *Morning Edition* slot, the podcast version doesn't. "We have two different production lines," Kahn says. "We can run them at any length, but we limit them to the time a person would take a jog or have a quick commute in the car. I comment on the story with my right-hand man, Gary Mott, and we can go into the archives to find other things that might be relevant. We're dropping new life forms into the pot and seeing what evolves."

What's also evolving is a huge audience. About 50,000 people listen to the *Morning Stories* FM broadcast, but downloads of the podcasts have numbered in the millions by listeners all over the world. "We get e-mail from people who are listening on the Tube in London or tending their sheep in Scotland or riding on their gondola," Kahn says with a laugh. "There's a high degree of communication between the podcaster and the listener. It's much more of a conversation than a radio show, where you generally just hear back from listeners on what they like and what they don't like. These listeners tell you something about their lives and experiences and why they appreciate what you do, and they expect to hear back from you. Broadcasting is more speaking down, but podcasting is more speaking with peers at the same level."

"It's as much a movement as it is a developing marketplace or new medium. Between 5,000 and 7,000 podcasts are now available that have been created by amateurs. They're all from people who are enthusiastic about something, and the audience can be 10 or 50 or 1 million. This is a really early phase in which things are fascinating. When you're having fun innovating, it's often because you can implement what you're thinking about right away."

—CONTINUED ON PAGE 144

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Rolls provides the ideal portable battery-powered mixer for your specific need. The MX34 LiveMix, MX54s ProMix Plus, and the MX124 ProMix IV each feature stereo outputs, provide ultra clean mic preamps, panning controls, phone/auxiliary outputs, phantom power and more. The MX54s and MX124 also feature balanced XLR outputs and Low-Cut switches. Perfect for most any remote audio/video recording application, these units all have side brackets for a shoulder strap.



For the real high-end pro, Rolls offers the MX422 Field Mixer. It features four channels of clean mic preamplification each with pan controls, phantom power, and low cut switching. Two backlit VU meters indicate the audio levels and battery life. The stereo outputs are balanced XLR, and two headphone/earphone outputs provide monitoring.

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Speech and Song

Capturing the Strength and Beauty of the Human Voice

We all know that voice is king. Of the six instrument categories we've explored in our "Recording the Band" series, the voice is arguably the most powerful. It's how we communicate. It is also one of the first sounds we hear as humans. It drives us to remember a song, and even where we heard it and what was going on in our lives *when* we heard it. Because the voice is the focus of most listeners' attention, recording and mixing it correctly is crucial to the production process.

MIKING THE VOICE

Some tried-and-true vintage mics are first choices for engineers. The Neumann U47 comes to mind as a first-call mic, as does the Telefunken 251 and AKG C12. Other choices include the SE Electronics Gemini, Audio-Technica 4050, DPA 3541, Crowley and Tripp Studio Vocalist, BLUE Bottle, Shure KSM44 and the AKG 414. However, an inexpensive dynamic mic such as the Shure SM7 or Sennheiser 421 can also be perfect for the job. Generally, a cardioid pattern is best to keep the vocalist in, and the room out of, the mix. In addition, a cardioid pattern brings the proximity effect into play, allowing you to adjust the low frequencies by moving the singer away from the mic until the desired blend is achieved.

Your recording space is a crucial factor, whether you're recording a single vocalist or a small section. It's important for the vocal to be as isolated as possible: If the room is small and reflective, then the mic will pick up slightly delayed reflections along with the source vocal, causing phase problems. If the room is large, then the echo can create an ambience that may not work in the track. In either case, it's a good idea to remove room problems by building a small "room" around the singer(s) with the dead or diffusive side of some gobos. This "mini room" can be adjusted to the size of the group and room by moving the gobos closer to or farther from the singer(s) as needed. In addition,

placing an area rug under the singer(s) eliminates foot-tapping noise and provides additional absorption. The music stand is resonant and reflective, causing phase issues. Placing a piece of carpet or acoustic foam across the stand, under the music or lyric sheet, will take care of this problem. If the room has an ambience that you wish to keep for a surround mix or to add to a stereo mix, then it's best to capture it with dedicated room mics.

When miking a single vocalist, the performance and style you wish to convey will dictate how close to mike the performer. Is it a Tori Amos-like approach where every breath is in your face or a Broadway show-style vocal recording where you want to hear the singer belt it out to the bleachers? The intimate approach requires a close-mic placement—within three to six inches of the singer's mouth. This configuration may lead to stray "p" or "t" plosives that cause puffs of air to hit the capsule, making for nasty low-frequency booms or pops. This is where a pop filter can help immensely, although it is not acoustically transparent—there is some loss of high frequency. An alternative is to record without a filter and aim for a placement that eliminates the majority of the pops and leaves whatever gets recorded to be addressed later. This means you wouldn't have to add as much EQ to overcome the pop filter's effect, causing less potential phase shift.

When close miking, face the mic toward the singer's mouth, oriented from the area above the mouth in front of the nose. This position lets puffs of air go under the mic, while still capturing the voice. If recording a singer from a distance, then place the mic in front and above the vocalist, anywhere from one to three feet away from the singer's mouth and six inches to a foot above.

MIKING VOCAL GROUPS

The mic models mentioned above also work well for recording vocal groups. When recording two or more

BY KEVIN BECKA





als. Some take a hands-off approach, letting the mic and signal chain bear the burden of accurately capturing the signal. However, sometimes you don't have the luxury of using the best of the best in your chain or room, so as a corrective measure, it might be necessary to add some top end or to roll-off some bottom if the situation calls for it. Just don't paint yourself into an EQ corner by going overboard.

EQ approaches can change when recording is in different formats. Analog tape, for instance, can lose higher frequencies overnight—as well as lose some of the luster that sounded so good during the session. If you have to add “air” later, you will also bring up the noise floor, so adding some preemptive top can help fight the laws of entropy as the tape changes over time.

Digital recordings, however, don't have this problem: If it sounds good today, it will sound very much the same tomorrow. Less is more here. Go with your ears. If you don't think it needs EQ, don't add it—you can always do it later. If, however, you need to tweak, adding a few dB at 10k with a shelving EQ can brighten the track. Filtering out the extreme low end starting at 100 Hz or so can also take some of the tubbiness out and remove low-frequency room noise.

Careful use of a good transparent compressor can make a vocal track sit down in the mix and allow every word to be heard without sounding crushed to death. In gen-

eral, you want to compress lightly while recording and then add more during the mix. This approach keeps you from getting heavy-handed during the mix and makes the process more transparent because you're performing it in stages.

On a full-featured compressor, try setting the attack to 40 milliseconds and the release to 400 with a 3:1 ratio. Then set the input/threshold so you're getting about 7 to 10 dB at the maximum peak. Setting the attack to a lower number and lowering the threshold while increasing the ratio will render a more “crunched” sound, one that is very popular in pop (Kelly Clarkson, Avril Lavigne, etc.). For a very dynamic track, some engineers will use a compressor for overall gain reduction and then use a limiter set to a higher threshold to catch the odd phrase that gets through. This technique creates an overall smoothness that the compressor alone cannot provide.

Remember that every compressor has a distinct personality. A Universal Audio LA-2A will not sound like a Behringer Compressor or a Waves Renaissance Compressor plug-in. Find your favorite for a specific application and add that personality to your bag of sonic tricks.

COMPING AND TUNING

The recorded performance has to be up to snuff for the mix. This is where editing and tuning come into play. A popular way to get a great vocal performance is to make a comp. This is when a singer

performs a number of passes of the song onto separate tracks and then the producer and artist listen to each pass line by line, deciding which versions go into the final master track. The individual parts, which can be as short as syllables and as long as complete lines, are then recorded to a new track called the comp, which is then used as the master.

Once the master track has been established, whether it's a single track or a comp, some tuning might be in order. Automated pitch correction is a relatively new process, and both software- and hardware-based tuners are available to handle the job. Antares Auto-Tune software is widely used, especially in country and pop. Other tuners include Celemony Melodyne, Apple Logic 7 pitch utility, SoundToy PitchDoctor, Serato Pitch N' Time and T.C. Helicon Intonator. Whichever tools you choose, use with taste and in moderation. Some believe that heavy tuning sucks the life out of a vocal and makes it sound mechanical and inhuman.

Combining a tuning plug-in with automation can save valuable time in a pinch. First, find the problem spots and set the tuner's parameters until the problem is fixed. Then, automate the master bypass function. Write the plug-in to bypass for the entire mix and then only turn it on during the problem areas. If there is one particular bad note, then you can automate other parameters so the plug-in tracks better. This process saves time rather than dealing with each note individually.

The Story Behind the Sound

CAPTURING THE VOCAL HARMONIES OF THE LITTLE RIVER BAND

Producer John Boylan has produced a string of hits for vocal-heavy bands and artists such as Linda Ronstadt, Pure Prairie League, Boston and The Dillards. Boylan was initially impressed by the Little River Band's vocal strengths. “When they first approached me, the thing that struck me was that their sound was an interesting twist on that California country rock three-part harmony,” he says. “They had that strident middle guy who gave it more of a Hollies thing, which made for a nice combination of those two ideas.” Tracks for the band's 1977 record, *Diamantina Cocktail*, the first of four albums Boylan would produce for the band, were recorded at Armstrong's Studio (later named AAV) in South Melbourne, Australia, with staff engineer Ross Cockle. Boylan found that his recording technique evolved past those records. “When I first got down there, I used what I had used in L.A., which was an amalgam of techniques I refined over the years working with different background singers including Venetta Fields, Clydie King and Mary Clayton,” says Boylan. “They always sing around one mic, taking one ear off the headphones so they could blend themselves in the room.” He decided that placing the singers in a semicircle in front of a cardioid-pattern mic provided the best opportunity for the singers to balance themselves.

By the third LRB album, the recording budget expanded, as did the number of tracks available, so the tracking technique changed.

“We refined it to individual mics (and tracks) for each singer, as well as custom self-mixing monitor systems,” says Boylan. The strength of this approach was that a different mic could be used on each individual singer. The mics were placed in a triangle and each singer sat in front of their mic so they could see the other singers. This approach worked very well, allowing singers to mix their own headphone feed and hear exactly what they needed to nail the part. However, Boylan feels that the original single-mic technique also has merit. “There's something magic about the blend in the room—moving around until the phasing and everything is just right,” says Boylan. “Great singers do it instinctively, although it is harder on the singers because one bad note can ruin a long take.” Boylan found that the technique on the later records changed the way he and the mix engineer worked in the booth. “The individual approach is harder during the mix because you're getting the blend yourself in the control room,” he says. However they recorded it, once the track was completed, the singers would then double the track, resulting in the thick vocal sound that launched such hits as “Reminiscing,” “Lady,” “Lonesome Loser” and “Cool Change.”

—Kevin Becka



MACKIE
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24-bit/192kHz digital outputs, as well as tweaky features like a Mid-Side Decoder and Variable Mic Impedance control, which lets you "tune" the preamp to get the most out of any microphone.

So how does the 800R sound? "Classy and versatile," says *Sound on Sound*; "Modern, clean and accurate," raves *Tape Op*; and "Extremely quiet and very revealing," according to *Resolution*. We couldn't have said it any better ourselves.

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World Radio History



TEC AWARDS 2005

The Broadway Ballroom at the Marriott Marquis was sold out Saturday night, October 8, as the Mix Foundation presented the 21st annual Technical Excellence & Creativity Awards. More than 800 audio pros were treated to the amped-up comedy of host Will Lee, a serenade by Chaka Khan to her producer and TEC Hall of Fame inductee, Arif Mardin, and a special tribute to Les Paul Award winner David Byrne, with a guitar presented by the 90-year-old master himself. Without further ado, the winners...



Arif Mardin, Ahmet Ertegun, Les Paul, Al Schmitt and Phil Ramone

OUTSTANDING CREATIVE ACHIEVEMENT

STUDIO DESIGN PROJECT

Jazz at Lincoln Center Studio, NYC
Architect/Studio Designer: Walters-Storyk Design Group
Acousticians: Russell Johnson, John Storyk, Sam Berkow
Studio Owner: Jazz at Lincoln Center

TELEVISION SOUND PRODUCTION

24, Fox
Supervising Sound Editor: William Dotson
Re-Recording Mixers: Michael Olman, Kenneth Kobett
Production Mixer: Bill Gocke
Audio Post Facilities: Universal Studios, Universal City, CA; Wilshire Editorial Inc., Burbank, CA

FILM SOUND PRODUCTION

Ray
Supervising Sound Editors: Karen Baker Landers, Per Hallberg
Sound Designer: Scott Sanders
Re-Recording Mixers: Bob Beemer, Scott Millan, Greg Orloff
Production Mixer: Steve Cantamessa
Score Mixer: Geoff Foster
Audio Post Facility: Soundelux, Hollywood, Sony Pictures Studios, Culver City, CA

REMOTE PRODUCTION/RECORDING OR BROADCAST

Crossroads Guitar Festival
Remote Engineers: Elliot Scheiner, Ed Cherney, Kooster McAllister, Greg Ondo
Music Mixers: Mick Guzauski, Neil Dorfsman
Remote Facilities: Remote Recording, NYC; Record Plant Remote, Ringwood, NJ; MTV Networks, NYC

TOUR SOUND PRODUCTION

U2, Vertigo Tour, Clair Brothers

Tour Company: Clair Brothers, Lititz, PA
FOH Engineer: Joe O'Herlihy
Monitor Engineers: Robbie Adams, Niall Slevin, Dave Skaff

SURROUND SOUND PRODUCTION

Crossroads Guitar Festival DVD
5.1 Mixing Engineers: Neil Dorfsman, Mick Guzauski
Mastering Engineer: Darcy Proper
Producer: John Beug
Mixing Facilities: Barking Doctor Recording, Mount Kisco, NY; Hit Factory, NYC
Mastering Facility: Sony Music Studios, NYC

RECORD PRODUCTION/SINGLE OR TRACK

"American Idiot," American Idiot, Green Day
Recording Engineers: Doug McKean, Chris Dugan, Reto Peter
Mixing Engineer: Chris Lord-Alge
Mixing Facility: Image Recording Studios, Hollywood
Producers: Rob Cavallo, Green Day
Recording Studios: Ocean Way Recording, Capitol Studios, Hollywood; Studio 880, Oakland, CA
Mastering Engineer: Ted Jensen
Mastering Facility: Sterling Sound, NYC

RECORD PRODUCTION/ALBUM

Genius Loves Company, Ray Charles
Recording Engineers: Terry Howard, Seth Presant, Ed Thacker
Mixing Engineer: Al Schmitt
Mixing Facility: Capitol Studios, Hollywood
Producers: John Burk, Phil Ramone, Terry Howard, Herbert Waltl
Recording Studios: Ocean Way Studios, Hollywood; RPM International Studio, Los Angeles
Mastering Engineers: Doug Sax, Robert Hadley
Mastering Facility: The Mastering Lab, L.A.

OUTSTANDING TECHNICAL ACHIEVEMENT

Ancillary Equipment

Mackie Big Knob

Digital Converter Technology

Apogee Electronics Rosetta 200

Amplifier Technology

Crown Commercial Audio Series

Mic Preamplifier Technology

Focusrite The Liquid Channel

Microphone Technology/Sound Reinforcement

Sennheiser e900 Series Backline Mics

Microphone Technology/Studio

AKG C414B-XLS/C414B-XLII

Wireless Technology

Shure SLX Series Wireless

Sound Reinforcement Loudspeaker Technology

JBL VerTec VT4888DP

Studio Monitor Technology

Genelec 8050A

Musical Instrument Technology

Tascam GigaStudio 3

Signal Processing Technology/Hardware

TC Electronic Mastering 6000

Signal Processing Technology/Software

Waves L3 Maximizer

Workstation/Recording Technology

Digidesign Pro Tools 6.7

Sound Reinforcement Console Technology

Yamaha PM5D

Small Format Console Technology

Mackie Onyx 1640

Large Format Console Technology

Solid State Logic AWS 900



GEO S Series

Newsworthy

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Breaking News

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BY THE MIX STAFF

The pre-show buzz? This AES was gonna be big. And despite constant rains and a (somewhat dubious) terrorist subway attack scare, the show delivered—big time. With 452 exhibitors and more than 20,000 attendees jamming the aisles, business was booming and the joint was packed. At one point, it was so crowded that a bystander commented that AES looked like “Winter NAMM crowds, without the tattoos and piercings.”



“It’s nice that this show still exists, as a good portion of the record business seems to have been sucked down the Internet,” said Bob Clearmountain, who was preparing his lecture on “the good and bad effects of the Internet on the recording/mixing business.” Indeed, everyone seems to be showing signs of adapting to the changing model of the recording industry. As in the year’s earlier shows, there was increased presence from the likes of Apple, Intel, Texas Instruments and AMD, who continue to push brand visibility in the pro audio market.

While this AES wasn’t rife with earth-shattering debuts, the consensus is the bar has been raised and the overall quality level of products at the show was at a high. Not a lot of dogs here.

BIG CONSOLES!

Once relegated to the fossil section of the Natural History Museum, big consoles are back. New company co-owner Peter Gabriel was at AES to help launch the C300, SSL’s (www.solid-state-logic.com) digital console for fast, assignable sweetening and mixing. Previewed in last month’s *Mix*, the C300 includes multiple layers of DAW control in a scalable package that can range from 16 to 128 faders controlling up to 512 channels/80 buses and up to three-operator configurations.

AMS Neve (www.ams-neve.com) announced its digital 88D music production console, which combines a 1,000-track, 96kHz DSP engine with Neve preamps, multisource 8.1 monitoring, Encore Plus automation, Pro Tools/Pyramix/Nuendo integration, classic EQ and dynamics plugins, and the power of 40-bit floating-point processing. But what really turned heads at AES was its 8816, a 16x2 (and cascadable for more) summing box in a 2U case. Sweet!

Fairlight’s (www.fairlightau.com) Constellation-Anthem console blends a familiar analog-style music console surface with the power of digital. “It combines three mixing paradigms in one console,” says Fairlight’s John Lancken, “a classic split mode with 48 inputs and 96 monitor returns, a traditional in-line console with up to 96 long faders and 96 short faders, and a Constellation post-production mode. The console reconfigures in seven seconds for a new task, so studios can diversify their business opportunities and operations to do music, film, television and post—all on one platform.”

Harrison’s (www.glw.com) Trion digital console made its AES debut. It’s offered in versions for film/video post, broadcast and live, and features a traditional surface

Hits You May Have Missed

Auralex pArtScience: These affordable acoustical products developed by the Russ Berger Design Group for Auralex Acoustics include the \$119 AudioTile, offering a unique blend of absorption, diffusion and reflection; and the \$399 SpaceArray, combining hemispherical diffusion with a wood finish. www.auralex.com

Centrance Universal FireWire Driver: It’s not quite “peace and happiness for all people,” but the idea of a universal driver for multiple ASIO FireWire audio devices on the Windows XP platform comes pretty close to our idea of nirvana. www.centrance.com

MSR/StudioPanel Salon Acoustics: Take a 2-inch-thick absorption panel, wrap it in printed fabric (with stock or custom designs), add a frame and you’ve got acoustical material that looks and sounds great. www.msr-inc.com

MusicXPC: The Professional M3 is a Pentium-based laptop customized for audio production with features such as fanless CPU cooling technology. www.musicxpc.com

PreSonus Inspire 1394: Small in size (yet big in features), this four analog input/two analog output, 24-bit/96k FireWire interface features two preamps with phantom power and dual-mono line-level (or RIAA phono) ins. A simple (Mac/PC) software panel provides access to all controls. Street is \$199. www.presonus.com

RSS Digital Snake: The S-4000 from Roland’s commercial division is a modular and adaptable snake system that handles up to 40 channels of analog/digital audio over a single Cat-5e line. www.rssamerica.com

SNS globalSAN X-4 for Pro Tools: Priced at \$6,999 with 1.6 Terabytes of SATA storage, this is finally the storage area network solution for the rest of us. www.studionetworksolutions.com



PreSonus
Inspire

rather than a central, shared-knobs approach. Running on the company's IKIS™ platform, Trion uses a 15-inch monitor for every eight faders, offering a view of each channel's information, along with Harrison's PreView™ waveform envelope display.

The first console from Oram Digital Developments (www.oram.co.uk) is The Light, a co-design of John Oram and Dr. Danish Ali. The mixer offers recallable, fully automated digital control over high-end analog electronics, can double as a controller for DAWs and is priced from \$57,800. Oram also announced The Movies retrofit console moving fader automation, with 40 channels priced around \$17,500.

ANALOG TAPE RETURNS!

AES shows seem to move in trends. A year ago, tape was pretty much declared dead. Well, fuggitaboutit! Tape seems to have made a resurgence in terms of new sources. Quantegy (www.quantegy.com) showed a full line of studio products, with GP9, 499, 456 and a range of digital, from DASH to ADAT stock. Those whose tastes run to Euro flavors were pleased to see RMGI (www.rmgi-usa.com) showing favorite Emtec formulations, beginning with ¼-inch SM911, to be followed later with SM900 and others. And ATR Magnetics (www.nothing-soundliketape.com)—a spin-off of ATR Service Corp.—previewed its lines of pro analog tape in all widths due to come from a new state-of-the-art facility. This revival is great news, especially for those of us who crave that fat, sweet sound of analog tape. Just don't forget to print alignment tones on the head of your next project!

DAWS ON THE MARCH

Digidesign's (www.digidesign.com) Pro Tools 7 has Windows XP and Mac OS X versions for Pro Tools|HD, LE and M-Powered systems. Features include all-new Instrument Tracks for improved integration with virtual instruments and MIDI sound modules, new real-time MIDI processing, REX and ACID file support, host processing optimization for running more instances of RTAS processing/instrument plug-ins and a streamlined, reorganized menu structure.

Steinberg's (www.steinberg.net) Cubase SE3 is a steal at \$159, especially with 48 audio

and unlimited MIDI tracks, 32-bit audio engine offering 24-bit 96kHz recording and playback—including delay compensation—and a full range of VST instruments, virtual effects and MIDI effects.

When are you going 64-bit? Probably faster than you think. Cakewalk (www.cakewalk.com) is leading the revolution by shipping the 64-bit SONAR 5, and other manufacturers are following suit, including Open Labs' (www.openlabs.com) NeKo Gen2 keyboard

Fairlight Anthem

workstations and Edirol's (www.edirol.com) new 64-bit drivers.

"Most of you don't have x64 systems yet, but trust me, within the next year or two you will," says Cakewalk's Ron Kuper. "Every new CPU being made by Intel and AMD



Top 10 Live Sound Picks from AES

BY MARK FRINK

With a renewed focus on live sound that included workshops on all aspects of production, AES returned to the Javits Center for its best showing yet. Here are my picks for the top 10 live sound products at the show.

Adamson's (www.adamsonproaudio.com) T-21 Sub has two SD-21 Symmetrical Drive™ kevlar/neodymium dual voice-coil, 3,000-watt drivers mounted back-to-back and ported out each end of the front. The 58x36x23-inch cabinet flies above the Adamson Y18 line array or stand-alone using the five splay angles of Adamson Integrated Rigging™ captive hardware.

AKG (www.akg.com) married its K171 supraural and the TEC Award-winning K271 circumaural closed-back headphones with its popular Micromic miniature goosenecks to create the HS171 and HS271 broadcast-quality headsets. Four models provide a choice of a dynamic or condenser cardioid capsules. A single-muff version will also be available.

Allen & Heath (www.ilive-digital.com) debuted its iLive digital mixer. The iDR-64 mix engine holds 8-channel cards for 64 inputs and 32 outputs, which can be groups, auxes, matrixes or mains, and can be used as a stand-alone mixer. Available control surfaces have 28, 36 or 44 faders, and house four more cards for eight assignable and eight mix inserts. Custom-color backlit displays over each fader provide good visual cueing. The selected channel section has an analog feel and is placed at eye-level beside an LCD touchscreen.

APB-Dynasonics (www.apb-dynasonics.com) is about to begin deliveries of its Spectra-C and Spectra-T analog consoles, available in 24/32/40/48/56 mono input frames, with a 24-input expander offered. Spectras feature input and output VCA control, 4-band EQ, Burr-Brown preamps, 10 aux buses, optional redundant power supplies and more.

Eastern Acoustic Works (www.eaw.com) sought input from hundreds of end-users to help define its new umx.96 digital mixing solution. The result is a mixer with everything but the kitchen sink, and the answer to most questions is "It's in there." An onboard 3x12 speaker processor, integrated SmartLive, 15-inch touchscreen, tri-color assignment buttons, a 24/96 mix engine, 48 mic pre's, eight stereo line inputs, 24 aux/group buses, 16x8 matrix, four stereo multi-effects... the list goes on, and it's expandable to double the number of inputs.

Glyph Technologies' (www.glyphtech.com) GPM-216 Personal Monitor is a 16-channel digital mixer with two local inputs split to feed a main mixer, while also being digitally mixed via Cat-5 to other units in a peer-to-peer fashion for onstage or studio monitoring, without the need for connection to a digital console. It runs on Linux and has a built-in reverb and tuner. Rear connections include inserts for the two local inputs and the mix, plus speaker outputs. The 2U front panel has a large LCD screen, bass/treble/volume controls and 16 illuminated

—CONTINUED ON PAGE 48



EAW umx.96



Allen & Heath iLive digital mixer

REMIX HOTEL LOS ANGELES



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Remix magazine and partners present three FREE days of technology master classes, panels, demos and clinics about music production and performance for electronic- and urban-music producers, engineers, musicians and DJs. The Remix Hotel offers exposure to and training on the hottest products available for the production and performance markets.

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World Radio History

AES 2005

is going to be 64-bit-capable. And the performance gains are huge and worth the transition." Kuper cites benchmark tests in which SONAR ran 10 to 30 percent faster on the same box in x64 mode when compared to x86 mode. That 1-terabyte RAM capability doesn't hurt things, either. In other developments, a 64-bit double-precision mix engine is now available in all versions of SONAR.

PLUGS, APPS AND STUFF

Dolby Media Producer is a Mac OS 10.3 "Tiger" suite of HD and DVD creation tools from Dolby (www.dolby.com). The package includes Dolby Media Encoder, Dolby Media Decoder and Dolby Media Tools. Each software app is available separately or as a suite and handles codec and metadata chores in Dolby Digital, Dolby Digital Plus, MLP and Dolby True HD, for compatibility with Blu-ray, HD-DVD and standard DVD formats.

Yeah, it has a hot new console, but SSL's new LMC-1 plug-in, based on the Listen Mic Compressor from the SL 4000 Series console series, was the surprise booth hit. "Over 2,000 customers in the first 48 hours make this one of the most popular products we've ever launched," notes SSL's Niall Feldman. Part of the success may be due to the fact that it's free—at least for now.

CEDAR (www.cedaraudio.com) joins the Pro Tools PC crowd, offering Retouch, Declip and Auto-Dehiss from its Cambridge workstation. Available as AudioSuite plug-ins on the Pro Tools (PC) platform, each process is quick and simple to use.

Waves (www.waves.com) debuted two new native format plug-ins: Tune advanced pitch-correction (\$600) and DeBreath (\$350), which can identify and remove unwanted breath sounds from voice or narration tracks. Tune offers deep user control for editing and defining any pitch work with a simple piano roll interface; DeBreath can operate nearly automatically, while offering complete manual control.

Indecisive plug-in shopper? The UAD-1 Flexi-Pak from Universal Audio (www.uaudio.com) gives you the accelerator card, throws in some staple effects and lets you flesh out the bundle by auditioning from the online library and using the included \$500 voucher to pay for the goodies you want.

Drawbar tweakers, rejoice! Native Instruments' (www.nativeinstruments.com) many new AES debuts included the B4 II,

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featuring an overhauled rotary speaker section and cool extras such as realistic tone wheel leakage. New from IK Multimedia (www.ikmultimedia.com), AmpliTube 2 models more than 80 guitar amps, cabinets and more. IK also released details of its first hardware product, the AmpliTube StompIO USB foot controller. Spectrasonics (www.spectrasonics.net) debuted a 1.5 update for its Stylus RMX, which adds Windows RTAS support, hundreds of new patches and

an embedded help system. The company was also showing its New Orleans Strut Library, giving 100 percent of that product's proceeds to benefit Hurricane Katrina victims.

BIAS' (www.bias-inc.com) Master Perfection Suite collection, originally released in Peak Pro XT 5, will be available stand-alone next quarter. McDSP (www.mcdsp.com) showed Revolver 1, a cool new convolution reverb, and an LE version of the Analog Channel tape emulation plug-in.

M-Audio (www.m-audio.com) showed ProjectMix, an 18x14 control surface/FireWire interface, offering eight fader

channels and transport controls, plus support for popular workstation apps (including, of course, the new Pro Tools 7 M-Powered).



HHB FlashMic

LITTLE RECORDERS

Besides the existing pro-quality field recorders from Nagra, Sound Devices and Fostex, AES saw a number of new entries. Priced at \$2,000, Sony's (www.sony.com/professional) PCM-D1 is a handheld stereo model featuring a titanium body, two condenser X/Y mics, 24/96 linear PCM recording, 4GB internal Flash memory, removable Memory Stick Pro storage and USB 2 interfacing. Tascam's (www.tascam.com) hi-def stereo HD-P2 records up to 192 kHz/24-bit to CompactFlash, with FireWire loading to your DAW. Also standard are XLR mic inputs with phantom, RCA analog I/O, S/PDIF digital I/O and a SMPTE input for timecode sync. The \$499 M-Audio Microtrack 24/96 records stereo .WAV and MP3 files to microdrives or CompactFlash with USB 2 interfacing. The coolest mini recorder was HHB's (www.hhb.co.uk) FlashMic, which combines a Sennheiser omni condenser capsule, 48kHz/16-bit .WAV linear or MPEG 1 Layer 2 recording (stored to 1 GB of Flash memory) and USB offloads—all built within a handheld mic body.

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JBL LSR4328P

MONITORS

JBL's (www.jblpro.com) LSR4300 Series brings its acclaimed RMC Room Mode Correction monitors to a new price point and adds new features. The 6-

inch woofer LSR4326P (\$1,399/pair) and 8-inch LSR4328P (\$1,699/pair) use HiQnet networking, allowing all speakers to be controlled from the mix position via (included) software or a wireless remote. Parameters include global volume control, mute, solo and input switching from analog or 24-bit/96kHz digital sources. Speaker front baffles include a meter display and illuminated controls for all user functions. A companion sub is in the works.

Canada's Energy Speakers now has a pro division, run by former Tannoy N.A. head Bill Calma and distributed by Bryston (www.bryston.ca). EnergyPro's first offerings are the reference E7a (\$1,295/pair) and E9a (\$1,899/pair) powered two-way near-fields with analog and digital inputs. The monitors use digital user bits (rather than bit-rate reduction) to remotely control system volume, so listeners aren't subjected to 8-bit playbacks at low levels. Powered subs (with accelerometer control of cone motion) and passive monitors are also available.

E-mu (www.emu.com) enters the monitor world with its PM5 Precision Monitors (\$349.99 each), bi-amplified near-fields featuring discrete Class-A input and MOSFET output stages. In a different direction, high-end monitor manufacturer ATC (www.atc.gb.net) announced the PA65ASL, an active three-way system designed for sound reinforcement and priced at \$7,500/speaker.



Groove Tubes SuPRE

GOING OUTBOARD

Plug-ins were everywhere, but rack gear was hot. Here are a few of our faves: Groove Tubes (www.groovetubes.com) SuPRE stereo preamp removes a few frills (such as rise time control) from its ViPRE and puts two preamp/DIs based on its flagship into a \$1,495 unit. Rupert Neve Designs (www.rupertneve.com) showed its Portico line, including the 5042 tape emulator/line driver and the 5043 stereo comp/limiter. The first *non-tube* product from Pendulum Audio (www.pendulumaudio.com), the PL-2 is a stand-alone version of the dual peak limiter in the company's popular Quartet II Tube Recording Channel, with a choice of MOSFET or JFET sounds.

Universal Audio's Solo Series tube Solo 610 and the Solo/110 Class-A mic

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single-channel mic pre/DI combos use the classic Putnam 610 and Precision 110 designs at an under-\$1,000 tag. Part of Ivor Drawmer's signature series, the Drawmer (www.drawmer.com) S3 is a 3-band, stereo opto-compressor with 10 tubes in a Class-A design. Formed by industry vets, Bricasti Design (www.bricasti.com) is a new company with decades of experience. Its world-class M7 Stereo Reverb offers up to 192kHz clarity and 100 presets of classic and new ambiences. Manley Labs (www.manleylabs.com) unveiled the Langevin Mini-Massive Stereo Equalizer, based on the passive EQ sections of Manley's Massive Passive but in a 1U chassis and at \$2,800—about half the price.

MIC, MICS, MICS

Past shows have exhibited a lot of "every new mic looks the same," yet this AES offered lots of new and different designs. The BLUE (www.bluemic.com) \$1,699 OmniMouse puts a small omni condenser capsule within an M50-style spherical grille in a rotating mount. RØDE's (www.

Top 10 Live Sound Picks from AES

—FROM PAGE 43

channel-select buttons.

LA Audio's (www.laaudio.co.uk) CAN-D stereo headphone delay is packaged in the same six-sided aluminum extrusion as the company's other interface boxes. A three-digit display shows delay times up to its maximum of 678 ms, or in meters or feet. Alternatively, it can be used to delay near-field monitors. It's about time.

Sennheiser's (www.sennheiserusa.com) SKM5200 handheld UHF transmitter offers interchangeable capsules with six Sennheiser and two Neumann elements. It provides two channel banks: one group with 32 fixed frequencies and a second custom bank of 20 frequencies that can be used over its 36MHz-wide bandwidth. In addition to the usual RF and battery info, its LCD shows a 6-character name.

Shure (www.shure.com) announced its UHF-R network wireless system with a choice of capsules, including the KSM9 that was beta-tested with several top touring acts this summer. A network interface scans for optimum frequency assignment, and the system operates across one of three 60MHz bands, employing onboard filtering that tunes along with the frequency. Up to 40 systems can be used together in a single band.

Yamaha's (www.yamahaproaudio.com) M7CL digital console puts all the faders on one page and a touchscreen LCD. Offered with 32 or 40 mic input channels with recallable mic pre's, there are four stereo inputs and internal processing provides four stereo effects and eight graphic EQs. Beyond the LCR bus, there are 16 mix buses, eight matrix outs and three expansion slots on the rear panel. Files can be stored on a USB memory stick or synchronized and stored to an XP PC using an editor from within Yamaha's Studio Manager over an Ethernet cable.

Mark Frink is Mix's sound reinforcement editor.

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Audio Scope	\$ 200
USB Audio Preamp	\$ 800
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rodemics.com) \$499 NT-6 is a small-diaphragm mic with the cardioid condenser capsule separated from the body by a 3-meter Kevlar-covered cable—ideal for hanging or difficult placements. Possibly the most awaited mic of all time, Schoeps (www.schoeps.de) finally unveiled its first shotgun, the CMIT 5U, which features a featherweight (3.125 ounce) design and blue-anodized housing. Breaking ground (at least from a price point) are DPA's (www.dpamicrophones.com) new 4090 and 4091 models, which are designed for capturing instruments and retail around \$600.

Two years ago, you could nearly count



Schoeps CMIT 5U

all the ribbon mics in the industry on one hand; after this AES, the number nearly doubled. Crowley and Tripp (www.soundwaveresearch.com) showed The Vocalist, Soundstage Image and Proscenium—three U.S.-made ribbon models. SE Electronics (www.seelectronics.com) launched the \$749 SE Ribbon model; Groove Tubes showed its Velo8; and Royer Labs (www.royerlabs.com) announced the R-122V tube ribbon mic, which takes the technology of its R-121 and R-122 combined with a triode-driven circuit to raise the mic's sensitivity to -29 dB. And to keep new and vintage ribbon mics sounding great, Wes Dooley of AEA (www.ribbonmics.com) unveiled a high-gain, no-phantom preamp optimized for ribbon mics with 84 dB of quiet gain.

New players in the live mic arena included audio legend Bob Heil demo'ing his Heil Sound (www.heilsound.com) PR40 cardioid dynamic with extended low end, while Bob Avenson of Avenson Audio (www.avensonaudio.com) announced the TVM, a cardioid tube condenser for handheld vocals.

AND MORE...

We'll feature other cool debuts from AES in our new products section in the months to come. Meanwhile, AES returns to San Francisco from October 6 to 9, 2006. See you there!

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The Vocal Channel Processor

A Flexible Front End For the Most Crucial Signal Path

BY STROTHER BULLINS

In the pre-DAW world of music recording, a "channel strip" meant one thing to most engineers: one of the many narrow, vertical tactile interfaces offering individual channel control within an analog console. With a microphone preamp, some sort of equalization adjustment and sometimes onboard compression, a channel strip might have comprised the complete line between an audio source and a recording medium. Vocal tracks were often patched to and from complementary outboard processing units before hitting tape; certainly during mix sessions, a vocal track would typically venture far from its console channel strip and into the producer's desk, side rack or machine room for some added flavor.

Today, modern recording engineers are just as likely to think of channel strips as horizontal, all-in-one rack units featuring at least one preamp, equalization, compression/limiting and—sometimes—onboard digital processing and A/D converters. Those built to capture the essence of the human voice are plentiful for good reason: Vocals are important.

(The chart on the following pages highlights a collection of vocal channel processors that were announced in the past year that feature at least a mic preamp, an EQ section and a compressor. Of course, vocal signal chains are regularly recorded without compression and/or EQ, but for our purposes here, the more available features, the better. While each of the following products are well-suited for being a vocal track's sole front end for recording and/or a great processing path for mixdown, each channel strip's capabilities, construction and price varies widely.)

FRONT-END FLEXIBILITY

It's no mystery that large-format analog consoles are becoming less common in modern music production environments; consequently, fewer of their respective feature-packed channel strips are available for use. Though many engineers today have a tactile digital controller or simply a mouse for mixing, there has been a recognized need for the front-end sound, just a few channels at a time and without all the real estate.

Thanks in part to the recent influx of



Aphex 230 Master Voice Channel Processor



Buzz Audio ARC1.1 Analog Recording Channel



Focusrite ISA 430 MKII Producer Pack



Joemeek oneQ



Toft Audio Designs ATC-2



Universal Audio LA-610

New Vocal Channels, At a Glance:

PRODUCT/WEBSITE	PRICE	CHANNELS	INPUT/OUTPUT	SOLID-STATE OR TUBE	PREAMPLIFIER	EQ TYPE
ADT Audio Toolkit (dist. by LasVegas ProAudio, www.lasvegasproaudio.com)	\$4,400	1	XLR and TRS in, XLR out	solid-state	high-gain, low-noise, transformer-balanced microphone preamp with 48V, pad and phase reverse; separate DI preamp	5-band, three parametric midrange bands
Aphex 230 Master Voice Channel Processor (www.aphex.com)	\$799	1	XLR input; XLR and TRS, AES, S/PDIF and optical digital outputs	solid-state, tube preamp	transformerless, NPN active balanced, tube second stage with 48V, pad and phase reverse	1-band parametric midrange EQ. "Big Bottom" low-frequency adjustment, "Aural Exciter" HF adjustment
Buzz Audio ARC1.1 Analog Recording Channel (www.buzzaudio.com)	\$3,000	1	XLR, TRS sidechains, front panel TRS line input	solid-state	Buzz BE40 Class-A with 48V, phase reverse and +15dB boost; line preamp with -10dB cut	4-band parametric with high- and low-shelving sections
Focusrite ISA 430 MKII Producer Pack (www.focusrite.com)	\$2,995	1	XLR, TRS line input, front panel TRS line input, key inputs, word clock, AES-S/PDIF and optical digital	solid-state	transformer-based with variable impedance, Air feature, 48V and phase reverse	expanded version of the ISA 110: low-mid and high-mid parametric with low- and high-shelving sections
Joemeek oneQ (www.joemeek.com)	\$799	1	XLR and TRS inputs, front panel TRS line/instrument input, word clock I/O, AES-S/PDIF (RCA phono connectors) and optical digital	solid-state	switchable Burr-Brown IC or transformer, 10 to 60dB variable, with 48V and phase reverse	4-band parametric with high- and low-shelving sections
Joemeek twinQ	\$999	2	XLR and TRS inputs, front panel TRS line/instrument input, word clock I/O, AES-S/PDIF (RCA phono connectors) and optical digital	solid-state	switchable Burr-Brown IC or transformer, 10 to 60dB variable, with 48V and phase reverse	4-band parametric with high- and low-shelving sections
PreSonus Eureka (www.presonus.com)	\$699 (optional AD192 card: \$249)	1	XLR and TRS inputs, front panel TRS line/instrument input (optional AES/EBU and S/PDIF output card with word clock I/O and balanced TRS line input)	solid-state	Class-A, transformer-coupled preamp with 48V, 20dB pad and phase reverse	3-band fully parametric with variable bandwidth per band
Solid State Logic XLogic Channel (with new 192kHz ADC card) (www.solid-state-logic.com)	\$3,600 (optional 192kHz ADC card: \$650)	1	XLR and TRS in, XLR out (optional AES/EBU and S/PDIF output card with word clock I/O and XLR input)	solid-state	XL 9000 K Series with 48V, pad and phase reverse; selectable instrument input with front panel XLR/TRS jack	4-band parametric midrange bands, shelving high- and low-bands, fully parametric mid-bands; G/E Q/gain selection
Toft Audio Designs ATC-2 (www.toftaudio.com)	\$1,299	2	XLR and TRS inputs, front panel TRS line/instrument input	solid-state	Burr-Brown IC preamp with 48V and phase reverse	4-band parametric, shelving low- and high-band
Toft Audio Designs EC-1 2	\$799	1	XLR and TRS inputs, front panel TRS line/instrument input	solid-state	Burr-Brown IC preamp with 48V and phase reverse	4-band parametric, pre/post-compressor-switchable
Trident 4T Celebration Channel Strip (www.tridentaudio.co.uk)	\$999	1	XLR and TRS inputs, front panel TRS line/instrument input	solid-state	Class-A Trident S20/S40 mic preamp with continuously adjustable gain, 48V and phase reverse	4-band parametric, shelving, low- and high-bands; EQ Magic—100Hz/10kHz shelving EQ for DI signal
Universal Audio LA-610 (www.uaudio.com)	\$1,749	1	XLR and TRS inputs, front panel TRS line/instrument input	tube (three 12AX7As and one 6072A)	Bill Putnam 610 tube mic preamp with separate and selectable mic/DI impedances, 48V, -15dB pad and phase reverse	shelving, low- and high-bands with three selectable frequencies each

Comparing This Year's Crop

FILTERS	COMPRESSION PARAMETERS	OTHER FEATURES	ADDITIONAL NOTES
highpass, 24dB/octave slope, 20 to 600 Hz; lowpass, 12dB/octave slope, 25 to 1.5k Hz	threshold, ratio, attack, release, gain, envelope, crest, knee adjustment	independent noise gate, peak-stop limiter, second output with level control	The ADT Toolkit, built by German firm Analoge + Digitale Tonstudiatechnik, is one of the more comprehensively equipped channel strips.
none	"Easy Rider" compressor featuring fixed threshold, 4:1 ratio, program-dependent attack/release, gain and medium-hard knee	logic-assisted gate, split-band de-esser, word clock I/O, soft mute, 24-bit/96kHz A/D	Built for use in broadcast audio, the Aphex 230 is a low-cost, fully featured channel strip that is well-suited for budget DAW-based music recording.
highpass, 12dB/octave slope, 25 to 450 Hz	pre/post-EQ SOC1.1 optical compressor with threshold, 4-position soft-knee ratio, 3-position attack, 5-position release, make-up gain, FET limiter with threshold	12-segment LED I/O indicators; output section with gain, phase reverse, mute, Clean/Tranny selector	The ARC1.1 offers a Clean/Tranny switch in its output section, offering an option of a signal path transformer to introduce low-frequency harmonics for tonal variation.
lowpass, 18dB/octave slope, 400 to 22k Hz; highpass, 18dB/octave slope, 20 to 1.6k Hz	multiformat, switchable compressor (VCA or optical circuits) with threshold, ratio, soft-knee slope, attack and release	Class-A VCA noise gate expander, soft limiter, optical de-esser, optional 24-bit/192kHz stereo A/D converter	The ISA 430 MKII Producer Pack is somewhat a "Best of" offering from Focusrite, incorporating such features as selectable VCA or optical compression circuits and high-resolution digital output.
highpass, 12dB/octave slope below 80 Hz	variable threshold and ratio, attack and release	optical de-esser, enhancer, 24-bit/96kHz A/D converter	Like its big brother—the twinQ—the oneQ offers a front panel Iron switch, which selects between the mic preamp's Burr-Brown IC or transformer for greater flexibility in sonic coloration.
highpass, 12dB/octave slope below 80 Hz	variable threshold and ratio, attack and release	optical de-esser, enhancer, 24-bit/96kHz A/D converter	The twinQ offers twice the processing power of the oneQ and the same digital output features.
switchable highpass, 3dB shelf at 80 Hz	variable threshold, ratio, attack and release; make-up gain; and highpass sidechain filter	variable Saturate control, EQ pre/post-compressor, output fader, up to 24-bit, 192kHz A/D converter (optional)	The Eureka is one of the least expensive of all feature-packed vocal channels available. The optional AD192 card further increases the unit's value.
highpass, 18dB/octave slope, 20 to 500 Hz; lowpass, 12dB/octave slope, 35 to 3k Hz; "DYN SC" dynamic sidechain	RMS "over easy" compressor with variable threshold, ratio and release; fast attack; peak-sensing; and hard-knee modes	expander/gate with switchable gate ratios and independent hold/release controls; variable output; optional 192kHz A/D converter	Having the XLogic Channel as a DAW front end is like having an SSL 9000 K-equipped studio, but only one channel at a time—great for vocal recording applications. A new ADC provides 192kHz capabilities.
lowpass shelf at 50 Hz	variable attack, release and ratio; make-up gain; stereo pair link	front panel VU meter	The ATC-2 incorporates Malcom Toft's EQ design from the original Trident 80B console.
none	variable attack, release and ratio; make-up gain	front panel VU meter	For the ATC-2, Malcolm Toft incorporated the exact EQ design from the MTA 980 console.
none	variable threshold and release, 4:1 and 30:1 selectable ratios	built-in monitor mixer, mic/DI internal mixing, blue/green backlit VU meter for output and gain-reduction levels	John Dрам's Celebration Channel Strip—built to recognize Dрам's 40 years of pro audio involvement—offers classically styled features.
none	T4 optical compressor with adjustable peak reduction and gain; compressor/limiter selector	built-in monitor mixer, mic/DI internal mixing, VU meter for preamp, compression or output levels	The all-tube LA-610 combines the mic pre/EQ/DI section of a UA 610 with a T4 opto-compressor based on the classic LA-2A.

all-inclusive, affordable and high-quality channel strips as DAW front ends, increased creative flexibility is feasible for most every recording situation and especially in tracking vocals. Such tracks may involve inexpensive microphones recorded to a low-cost DAW via laptop, or could just as easily be big-budget "pro" productions with a large room and a quiet booth. Whether through console or strip, there's nothing new about skipping a console's multiple gain stages via outboard processors to increase fidelity and lower noise levels.

CUSTOMIZATION, PORTABILITY

It seems that vocal sessions can happen anywhere today. A single album project may involve the same vocalist in seven or eight different rooms. It's a fast-paced, on-the-go music production world, and many DAW-dependents benefit greatly by having one comprehensive analog front end that's on the same quality and feature level as a channel from, say, a very non-portable SSL 9000 K.

Constructing a perfect vocal chain is often an involved process for engineers;

having everything you need in one box can make it easier for those looking for a signature sound. Particularly in "console-less" all-DAW productions, tracking may be the last time a vocal isn't zeroes and ones, so a vocal channel processor's analog signal path may provide just the right type of desired color.

After 40 years of successfully selling large-format consoles, John Oram—of Oram Pro Audio and Trident Audio Ltd.—recognizes that while sales of big analog desks have dwindled, engineers still seek their most appealing characteristics: superior signal paths. "From my point of view, we wanted to create channel strips that had the same—or greater—sonic performance as a large-format console," Oram explains. "Obviously, as a console manufacturer, you have to rethink your entire company philosophy because it's quite obvious that the days of spending lots of money on a large-format board is over for many. Yes, digital is brilliant for editing, but now, guys also want the best analog front end to compensate for some of the inadequacies of digital recording."

CHOOSING A CHANNEL

In shopping for the best vocal channel processor for a specific need and budget, engineers have a wide variety of features from which to choose. These include one or more channels of analog and/or digital circuitry; comprehensive analog and digital I/O; solid-state and/or tube operation; Class-A electronics; preamps of various noise and gain levels; fixed, parametric, semi-parametric or shelving equalization; bandpass filtering; detailed compression control with various ratio, attack, release and band-based parameters; gates; de-essers; enhancers; tape-saturation modeling; and—*whew!*—I/O level adjustment for the various stages of processing. As a matter of fact, carrying a few vocal channels can be quite the same as lugging around a rackful of outboard gear—*sans* trouble, back pain and exorbitant freight charges.

Even if an engineer is shopping with a limited budget, offerings with plentiful features abound. For instance, the Drawmer MX60 Front End One—a 1U channel strip offering mic preamp, gate, de-esser, compressor, limiter, 3-band EQ and multiband tube saturation—lists for less than \$1,000, as do a variety of other similarly equipped offerings. On the high end of the price and build spectrum, the

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World Radio History

popular all-tube Manley VoxBox includes a mic preamp, Variable MU compressor/limiter, 3-band/33-frequency EQ and an ELOP-based de-esser/limiter; it's priced at \$4,000 and well worth the money for those with the budget.

Reid Mason—director of marketing for PMI Audio Group, distributors for Joemeek and Toft Audio Designs, among others—says that as of late, the needs of DAW users in particular have helped his company's business thrive.

"In terms of features, end-users are looking for new channel strips to have all the basics: mic pre, EQ, compressor—and a de-esser gets extra points," Mason explains. "But in addition, they want the mic pre to be flattering to their recordings. The EQ not only needs to be flexible and sound great, they want to be able to position it pre- or post-compressor. Accurate metering seems to be universally in-demand, as well. A quality instrument-level input that properly handles high-

impedance signals is always a plus. They're not only asking for digital outputs—up to 24-bit/192 kHz—with great converters, but a way to interface it directly with their computer. FireWire seems to be most in-demand, followed closely by USB. An intuitive panel layout gets high marks, allowing the engineer to focus on the artist, not the gear."

It doesn't seem like a lot to ask for. On second thought, yes it does, especially when you consider that most engineers out there want all of those features to be the best in the store and come in for less than \$1k.

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Although offering considerable sonic flexibility, all-in-one vocal channels are just that: one thing. If engineers fall back on the same channel strip and setting for a variety of sources—especially when tracking lead and background vocals—tracks can tend to have a quality of "sameness" when compared to those whose signals were processed through varied microphones and processing paths.

"I like several of the all-in-one boxes," comments one prolific professional engineer, who, from fear of being pegged "an elitist old-schooler," asked to be quoted anonymously. "But with so many of them available, I think that a lot of people don't think about getting a certain sound through better choices and fewer components. They just tweak and twist their signals till it gets there. What they don't realize is that their music could sound much better if they just did their homework."

Duly noted, but the ideal environment where this engineer most likely cut his teeth is not representative of a growing segment of today's music recording situations. Many commercially successful modern recordings have not necessarily come about because some engineer raided a cabinet of great vintage microphones and had access to racks of classic preamps, equalizers, compressors and limiters during vocal tracking sessions. In many cases, it's likely that only a few microphone and processing choices were available, and all signal paths may have resided completely within one flexible processor—one the engineer considers the best for the artist, the best for the sound. ■

Strother Bullins is a North Carolina-based freelance writer specializing in the pro audio, music and entertainment industries.



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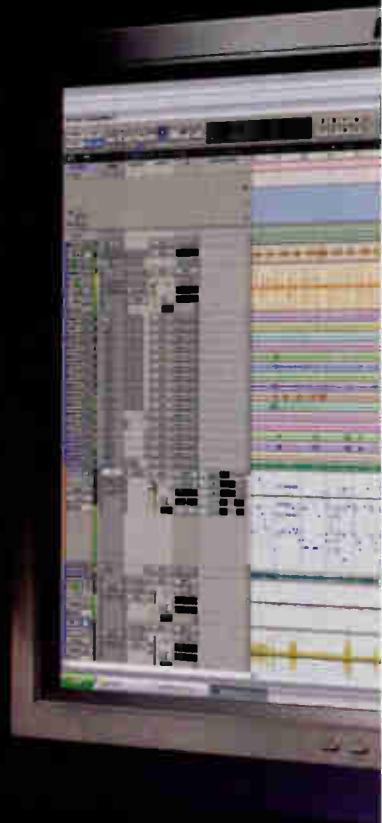
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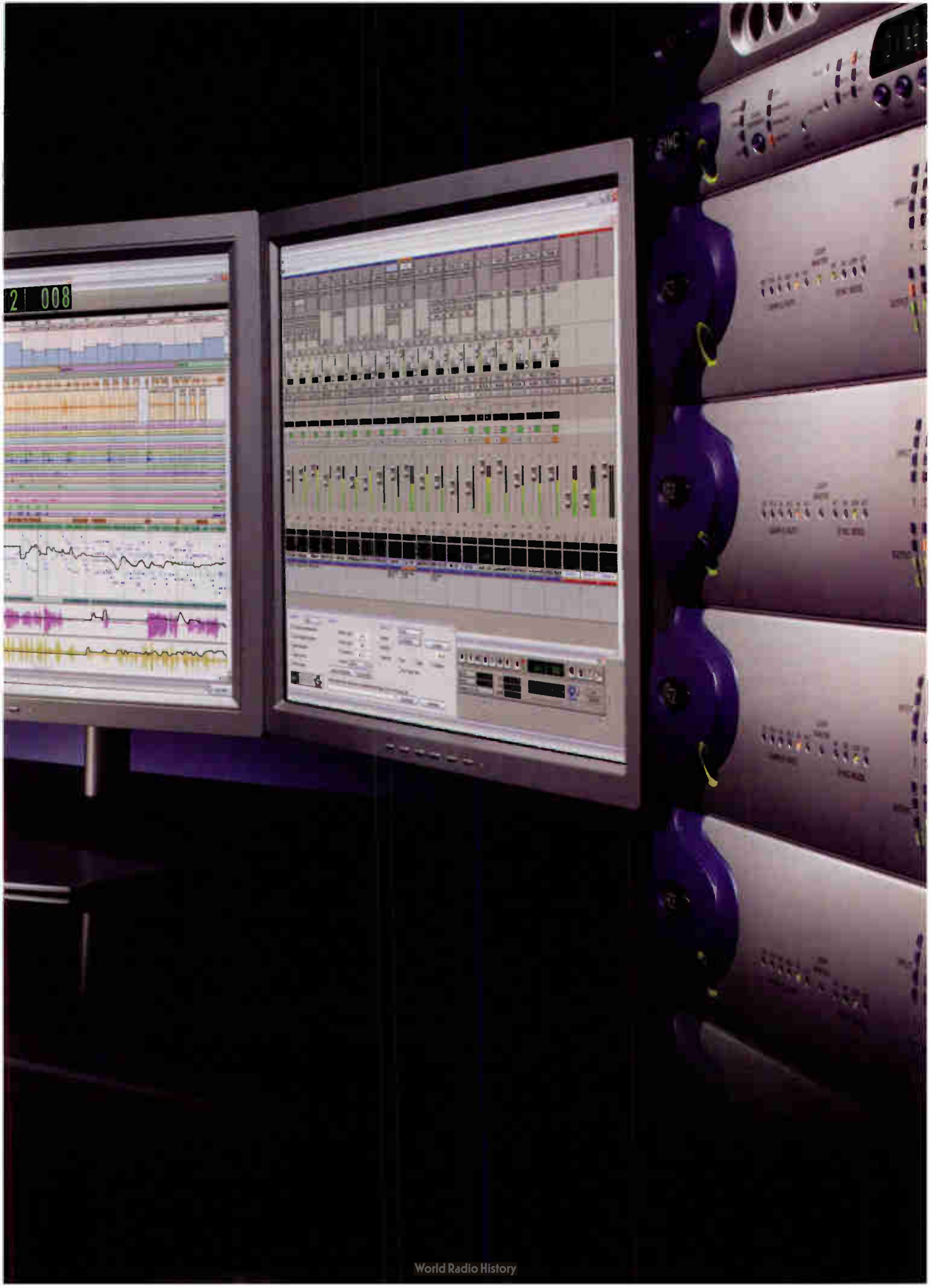
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Kung Fu Bakery

Portland Studio Cooks Up Analog Vibe

On a cozy commercial strip in Portland, Ore.'s southeast quadrant lies a nondescript brick building that houses two storefronts. Walk around the corner, however, and you'll find the entrance to one of the city's most well-appointed new studios, Kung Fu Bakery (www.kungfubakery.com). In its three years of operation, the studio has hosted sessions with MTV rockers Everclear, the internationally beloved independents Pink Martini and indie pop stalwart Stephen Malkmus, as well as a slew of Pacific Northwest singer/songwriters.

The studio is a partnership of sorts: Its three main owners are Tim Ellis, Dave Friedlander and Dave Stricker. A fourth member, Bob Stark, maintains his own control room in the building, from which he is able to access tracking rooms when necessary. Before the Bakery, the four had all worked in various capacities at Portland's now-defunct White Horse studios.

When the building that housed White Horse was sold, Ellis, Friedlander and Stricker intended to continue on together as a new business. Their original plan to build a modest production studio grew in nature when Ellis found a sizable commercial building on the market, one that had formerly been occupied by a kung fu studio and, of course, a bakery. Stark, who had planned to build his own mix room in another location, opted to build into this space. They put together an offer to purchase a good deal of White Horse's equipment and some instruments.

The renovation took two-and-a-half years, with the members providing design input—addressing everything from layout to aesthetics. It helped that Stricker is a licensed contractor and headed the construction phase. The current layout feels spacious and stylish, but one of its chief assets is a floor plan that sets the two control rooms side-by-side, separated by a common machine room. To the side of these rooms are three tracking rooms of various sizes and liveness. All of the rooms have large windows—one can see virtually every tracking area from either control room. In addition, most of the rack gear is easily movable and available to either room, depending on where it's needed at the time.

While the A room houses an SSL 6056E/G and Studer 820 and 807/Ampex ATR102 analog setup, both rooms record primarily to Pro Tools|HD2 Accel through 16 channels of Lavry converters (on two LE4496s). Stark's room houses a Sony DMX-R100.

Stark and Friedlander are just as comfortable producing as engineering, and will happily take on either role. "I try to create an arc to the songs I produce, an interesting flow," Stark says. "The responsibility to create that flow obviously falls on the writer and performer of the song, but it also falls on me as a producer. But I don't want my thumbprint on it. I want it to feel like it's something natu-



From left: Bob Stark, Dave Stricker, Dave Friedlander and Tim Ellis

ral, something that the artist would have come up with."

Stark refers to recent clients Intervision 5: "They're a young band with good players; very easy to work with. I spent about a year going out and listening to these guys, offering suggestions on their songwriting. Still, once we got into the studio, we found we were still editing structure, cutting measures to get to lyrics quicker, adding bridge transitions or harmony lines to accent a lyric."

Stark also mixed Tracy Grammer's *Flower of Avalon*, which has found success in the folk world since its release earlier this year. Ellis, on the other hand, works primarily with singer/songwriters who are often sans band. Because of this, he says, "Part of my job is to add color and texture that work with the artist. I want a timeless sound, one that retains its dynamics. Another thing that we're trying to retain is the sense that a song has been played from beginning to end, rather than a song where someone has come up with a lick and expanded it into a song."

Ellis and Stark's recent work with local artist Stephanie Schneiderman was an effort to strip down the basic tracks to provide space to maneuver in the mix. "Initially, the band was trying to rock out and Stephanie had to yell to get her voice heard over the clatter," Ellis says. "I wanted her to be able to back off and focus on telling a story. If you're able to strip the basics a bit, then during the mix, you have some room to move to add something cool."

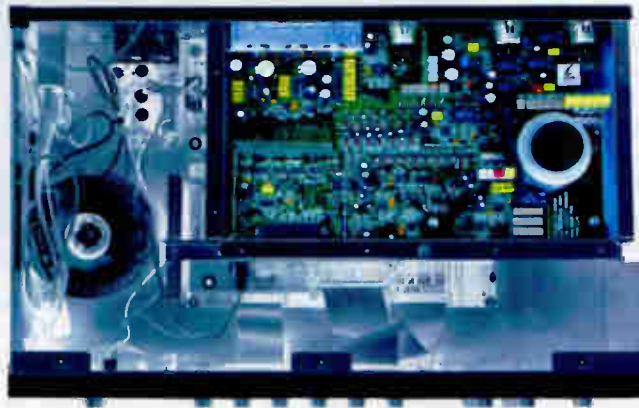
The Bakery staff finds that their approach can have effects that extend beyond the time clients spend there. "A lot of times, after recording with us, the artists find themselves taking the same approaches that we've worked on in the studio and incorporating them into their live performance." ■

Rich Wells is a musician and freelance writer based in Portland, Ore.

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analogue heart



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And finally: The signal is then ready to be processed through the dynamic convolution section which features a number of the world's most powerful SHARC chips. 688 million samples are required for 1 second of emulation at 192kHz. Here begins the other half of the story (with its total recall happy ending).



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John Shanks' Midas Touch

Grammy Winner on Pop Songwriting and Recording

John Shanks is one of the hottest pop producers around. For four years in Studio C at Los Angeles-based Henson Studios, the guitarist, songwriter and producer has worked with some of the biggest names in the business, from Sting to Sheryl Crow to Santana. Equally sought after for his songwriting skills as his studio expertise, Shanks seems to have the Midas touch, and his name has graced several chart-topping albums and more than a dozen Top 20 singles in the past year-plus. His Number Ones include Crow's cover of "First Cut Is the Deepest," Kelly Clarkson's "Breakaway" and Ashlee Simpson's "Pieces of Me" (which he co-wrote). A former VP of A&R at Atlantic between 2001 and 2003, the three-time Grammy nominee finally won one of the coveted statuettes this year for Producer of the Year, Non-Classical in February.

Shanks, a lifelong guitarist, began his career as a session and touring musician, and by 1995, he had played on albums by artists including Fleetwood Mac, Chris Isaak, Rod Stewart, Curtis Stigers and Melissa Etheridge. His decade-long touring and, later, recording tenure with Etheridge, which actually began in 1988, culminated in his producing the rock icon (and co-writing the Grammy-nominated song "Angels Would Fall") for her Grammy-nominated album *Breakdown* in 1999. He also recorded and toured with Stewart for two years.

Since then, Shanks has parlayed his success and skills into valuable musical capital, working with artists in pop (Michelle Branch, Alanis Morissette), rock (Robbie Robertson, Bon Jovi) and country (Keith Urban, SHEDAI). While he has worked with plenty of veteran artists during the years, Shanks has also become known for injecting a rock edge into the pleasing pop sounds of young female artists such as Clarkson, Hilary Duff and Lindsay Lohan. When Shanks and his longtime engineer and co-mixer, Jeff Rothschild, took time out from their heavy production schedule to speak with *Mix*, they were working on Crow's new album and Simpson's sophomore release, and had just wrapped up the latest Bon Jovi CD, *Have a Nice Day*.

For you, what makes a great pop song?

John Shanks: A great chorus. To me, there are three things—the music, the melody and the lyric—and when you can match all three and connect them, hopefully you come up with a great song. When the music matches



John Shanks (left) and Jeff Rothschild in their natural habitat—at the board

the emotion of the lyric and the melody, you've got something special.

I always like it when every section of a song matters.

Shanks: Absolutely. When Jeff and I are working, we try to make every section [count]. It's almost like a movie or a ride. You should put on those headphones or sit between those speakers, and it should take you somewhere emotionally. That's why we're very concerned with each section: the intro, the verse, things coming in and out. When we sit down and listen to records that we like from producers who we like, there's always a little something—ear candy—that's coming in and out that we think is great. That little guitar comes in during the second chorus, or that other background vocal comes in during the second chorus, and [during] the third chorus, this counterpoint starts happening. That's what makes stuff exciting.

Given the thousands of pop songs that have been released, how do you find something new to do or say with the format?

Shanks: There are certain songs like "Breakaway" that I produced and Jeff engineered, and then we mixed it. That was a song where you go, "Here's a really strong song, how do we get it to the next level? How do we keep it true to where the song is coming from and yet make it sound exciting?"

Jeff Rothschild: I think you're always taking on influences, but also keeping things fresh.

Someone like Sheryl Crow has more of a timeless sound for some people, being rooted in classic rock.

Rothschild: Then you take those influences and [give

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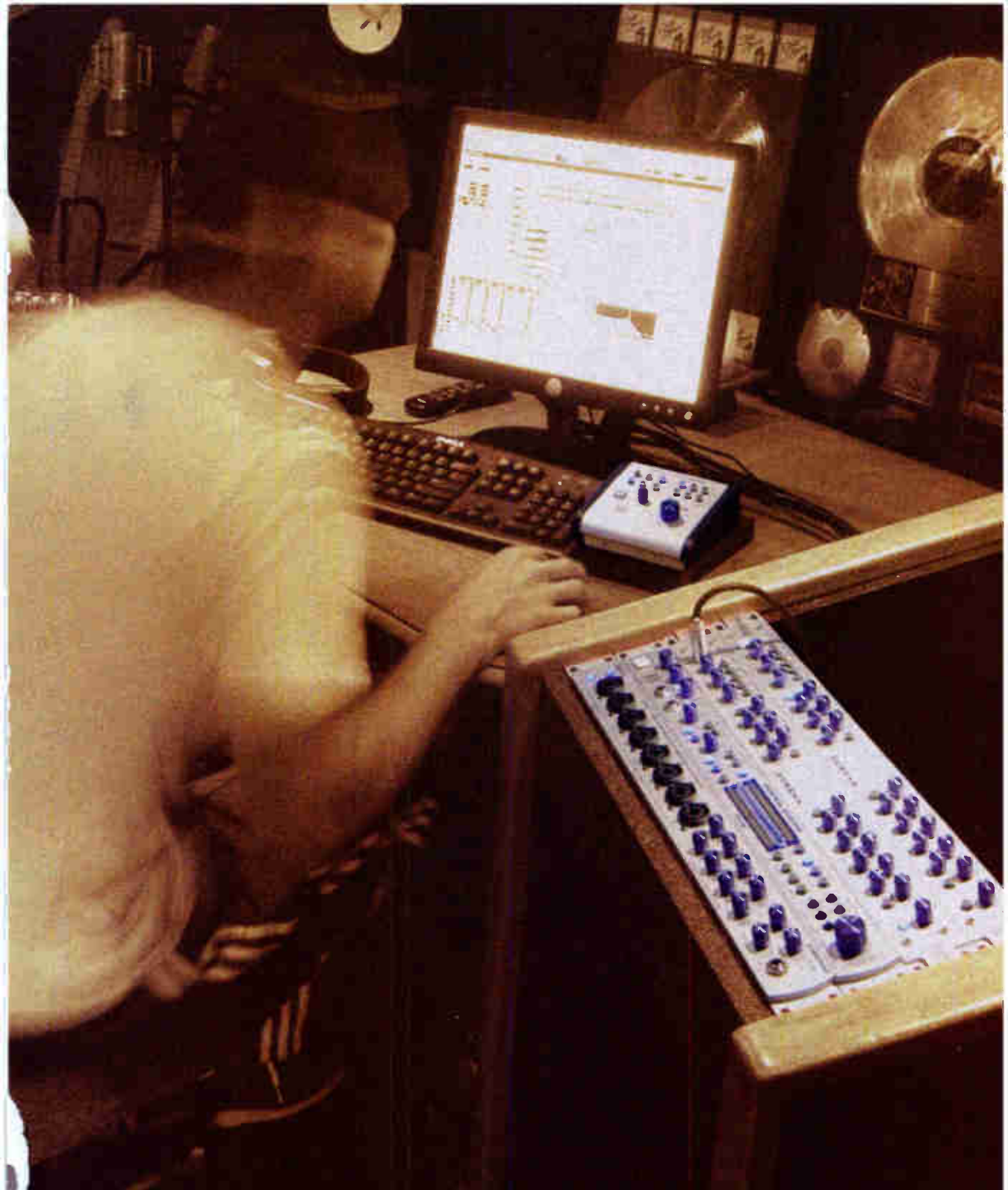
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that?" You can put a Stratocaster into any guy's hands, but it's what they do with it. I might have the information, but over years and years of collectively building it up is where you start developing your style.

When I was producing all these baby bands, Melissa wanted me to produce her album, and she got nominated for two Grammys on that record [*Breakdown*]. It was a big thing; for me, it was an entry card into this world. To have somebody that big give you that blessing, you're off and running. Now, it's what you do with that ticket.

Have you ever taken on a project that turned out to be more challenging than you thought it would be?

Shanks: No. It's always different. Bands are challenging in a certain way because you're dealing with more personalities in a room than [working with] a solo artist. In that respect, that's what makes it different.

A lot of times, what makes it challenging is the politics of the record companies or some of the choices by the artists themselves at the end of the project: what they decide to put on the record or what they don't put on the record. Sometimes I don't always agree with it, but at the end of the day, I'm working for them. It might be frustrating, but if they feel that's what best represents them, it's their record. It's their name on the album cover. I might disagree and think this song is better than that song, and sometimes I have to step back as a writer because, sometimes, they're my songs. But I think once you work on a record and get involved in that record, after a while, I forget whose songs are what, whether we wrote one together or it's one of their songs. I'm doing the best I can.

A lot of musicians coming up think they will achieve instant fame. We are starting to see a return to artist development, particularly in the rock world, where many bands have been toiling away for years and building up a legitimate following.

Shanks: I grew up playing in clubs. I grew up lugging gear into my little Rabbit. I think there is something to be said for that. I see it in certain people that walk in through this door that are singer/songwriters. You can tell when they have gone through the trenches. I try to give some of these other artists coming up some of my experience. "When you do this, don't be afraid to ask for that. When this happens to you, it means this." Because they haven't [had the experience]. They've been studying singing. They have a gift, but are they songwriters? Do they play in rock bands and sit in a van? I don't know. Some of them have and some of them haven't.

Does that mean that one is better than the other? That's not for me to judge. All I can judge when somebody walks in this door is their work ethic and how disciplined and focused they are. Some of them come in and are extremely focused, and you see why they're successful. Don't think these kids aren't working hard.

Do you worry about egos with some of the bigger artists?

Rothschild: Those who have been around the longest seem to have the least ego.

Shanks: Sting, Annie Lennox, Melissa Etheridge, Sheryl Crow. These people come in and it's a breeze because they're pros—they know what they want, they're easygoing, they've done it all.

Rothschild: You can see why they have such careers, too.

Once you work on a record and get involved in that record, after a while, I forget whose songs are what, whether we wrote one together or it's one of their songs.

—John Shanks

Shanks: You see their work ethic. You see how focused and gracious they are. They treat people well and it's inspiring. Joe Perry came in and sat in with us with Melissa and was a doll. I've hung out with Jimmy Page—a doll.

Which is funny because when they were younger, they had reputations for being bell-raisers.

Shanks: Listen, I was a knucklehead in my 20s. I'm sure we've all gone through it.

How did you react to the Ashlee Simpson controversy, when she aborted her lip-synch performance on Saturday Night Live after someone played the wrong song on the CD?

Shanks: You know, I'm very protective of Ashlee. I love Ashlee.

What about the comments made about her singing off-key on tour?

Shanks: You know what? The tour got great reviews. She sold out everywhere she went. The merchandising was more than a lot of other artists. I'm starting her second record right now. I think she's gotten stronger as an artist. She got thrown into the fire, and my defense to [the *SNL* thing]: It's Saturday night, it's 11:15, you've been in New York all week and you lose your voice. She had three nodes on her vocal chords. What are you going to do? Are you going to cancel

the show? No, you're going to be a pro and you have to lip-synch. Now, was the bummer when someone pushed the wrong button on the second song? Yeah, that was a disaster. Was it her fault? Does that mean that she didn't write those songs or sing on the record or bust her ass 14 hours a day?

She just walked in the door two seconds ago. She's here and she's early. She's supposed to be in at 2, and it's 1:30. There's someone who is very focused and disciplined and wants to succeed. Is that a bit of bumpy artist development? Yeah. I've seen the biggest bands in the world and sat in the audience and gone, "Jesus, where are those keyboards coming from? Where are all those background vocals coming from?" Everybody does it. Everyone's got to lighten up.

In this era of Pro Tools, many new and

veteran artists are recording at home. The results can often be great, but they can also fall flat. What do you think this means for the future of professional recording studios and the process of recording music?

Rothschild: I think the big studios will always be here. You're always going to need rooms for drums and things. Certain artists will not want to sit in someone's living room. They'll want to come into a professional place. For mixing, you need a proper room to listen to what you're doing.

John, how did winning the Grammy change your career beyond the obvious recognition?

Shanks: I think it just keeps my name visible and out there. I think it lets people trust me a bit more. I'm still doing the same thing I've always done, and I will continue to do it regardless. Is it a dream come true? Absolutely. Is it exciting? Yes, it's a gift. But I was back here at 11 o'clock the next morning working, whether I won or lost. It's like guitar players. It's the kiss of death with guys who are like, "Yeah, man, I'm cool. I got it all down." You never have it all down. I learn something every day. It's a journey. ■

Bryan Reesman is a freelance writer based in the New York metro area.

them] the impact that works on radio—you take the best of both worlds.

Shanks: You can use “First Cut Is the Deep-est” as an example. Here’s a song that was a hit in the ’70s. How do you keep it true and yet make it fresh and contemporary? Sometimes there are subtle things that we do—whether it’s in the drum groove or the way the guitars or harmonies are layered—that make it sound fresh.

When did you two first meet and how has your relationship evolved since then?

Rothschild: We have a room at Henson Studios, and I used to work for the studio as an assistant. I actually started as a runner, was an assistant for a while and then started engineering for John here and there. It just became more and more often, and then I got to the point where it was pulling me both ways, so I basically left the studio.

Shanks: It got to the point where we started getting into a rhythm in working on projects in this room. We work off a Euphonix [CS-3000] board here on Pro Tools, and it was great that while a lot of these guys were learning SSLs, Jeff was also learning the Euphonix. So he really had an advantage of not only being a great engineer and great with computers, but he knew about miking and recording and engineering and working with Pro Tools. These guys are the new generation of engineers, to a certain degree, who have respect for the past but also have their eye on the future, which is incredibly valuable. With what I do as a writer, someone who is very fast with Pro Tools gets the ideas developed that much quicker.

Initially, I was hiring Jeff as an engineer—as a Pro Tools operator—because early on, it got to the point where engineering was too much for me: playing guitar and punching myself in with a foot pedal or whatever I had to do. It was just nuts.

You can tell when guys come in as second engineers who have the drive and the discipline and the focus. You can tell who wants it and who doesn’t mind putting in the time and the hours and just loves the process. Jeff is one of those guys who is very driven. His first session was with Lindsey Buckingham. He was stepping up from a second engineer to an engineer and recording Fleetwood Mac. Then it got to the point where the studio needed him on other sessions. I said, “Listen, as long as I’m working, we’re going to be working.” So it was a big step three years ago. He was like, “Screw it, let’s do it.” Thank God we haven’t stopped.

Now it’s branched off into mixing more because we record these albums, and the record companies get used to hearing the way these roughs sound. To us, they’re not

roughs at all—we’re making records. If I’m writing a song and we’re doing a demo, it’s always a record.

We go back and sweeten it and tweak it and tighten it. If it’s now the single on someone’s record, we go in and get meticulous on it. I did Michelle Branch’s first record in a little mastering room. We’ll go in the big room and do drums and strings and pianos and Hammond, but for the most part, Studio C is a very small environment. It’s where Joni Mitchell’s *Blue* and Carole King’s *Tape-*

stry were done. It’s a very small live room, small control room, so it’s great for a more controlled environment when you’re writing and recording songs because you can focus on each aspect of the recording process.

Is your process together generally smooth or do you often argue or debate?

Rothschild: We’ve been working together so long that we have a system down with each other. It gets stressful, but there are never any problems on the technical side.

Shanks: The great thing about the [Euphonix] board that we use is we can jump around from song to song within a project or other projects. For example, today we’re working on a project and we’re sending out another song to be mixed. Or we just have to import some strings from another studio where we cut strings last night. Everything becomes very seamless because we can snapshot mixes, and we can pick up where we left off on a song we worked on three days ago. It makes it very convenient. Any time we butt heads, it’s usually about silly things like, “Can this be better?” or, “Can we check this out?”

So you work in the same room all the time?

Shanks: I’ve been in Studio C in Henson for four years, so all my guitar amps, all the keyboards and all the guitar racks are set up. Every amp is miked. The vocal mics are all set up. The drum mics are always set up.

Rothschild: There’s really no setup time. We can jump around from acoustic guitar to vocals to electrics to bass without any down time.

Do you consider yourselves to be analog, digital or hybrid men?

Rothschild: We’re definitely hybrid. There are racks and racks of outboard gear and we

still use all that stuff. Then there’s Pro Tools and a digitally controlled analog console.

Shanks: We’re recording through APIs and Neves [preamps] all the time. That’s just the way it is. Old mics. All the gear is vintage Tweed amps, vintage Vox amps, vintage Marshall amps, a vintage Gretsch kit. We have about 100 vintage guitars and pedals.

For a guitarist, it must be like being a kid in a candy store.

Shanks: We just did Bon Jovi’s record, and it was great. Richie [Sambora] came in here

There are subtle things that we do—whether it’s in the drum groove or the way the guitars or harmonies are layered—that make it sound fresh.

—Jeff Rothschild

and used all my guitars and amps. We had a blast.

John, you have a strong pop background, while Jeff has also worked with some metal bands like Motörhead and Spineshank. Do you think having diverse production backgrounds augments your synergy?

Shanks: Yeah. I’ve done rock stuff, but to me, it’s always about the song. It doesn’t matter what it is—if it’s country or Nordic speed metal. If there’s a good lick, that’s what I gravitate toward. Those amps still have to be miked and it depends on what amp you’re using. We’ve got everything from AC30s to Boogie and Diesel amps. I’ve got seven-strings and detuned [guitars], so it really depends on the song and the artist you’re working with.

John, how did working with Melissa Etheridge influence your work as a producer?

Shanks: While working with Melissa, we did a few albums with [producer] Hugh Padgham. I used to be a session player, too, so I got to work with a lot of different producers around town—you really learn who’s a great producer, and you learn their rhythm and what separates different guys. For me, someone like Hugh Padgham was a great mentor and teacher.

By the end of those records, it was always myself and Melissa doing guitars and vocals, and I was playing some of the keyboards at times. So I got to really ask him every goofy, geeky question about miking and compression, and I saw how he made records and was not afraid to ask. Even when I would work with other producers, they would get some great guitar sound or great vocal sound, and I would ask, “How did you do

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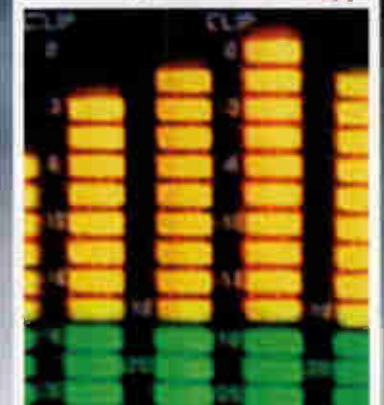


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New York, NY; www.92y.org. Music technology lab featuring eight iMac 1.8GHz G5 workstations with Logic, Reason, Pure Data and GarageBand.

AMERICAN UNIVERSITY

Washington, D.C.; www.american.edu. 4-year B.S. in audio technology, minor in audio technology, concentrating on music and audio production, recording and computer/electronic systems. Facility with 2-inch/24-track analog, Pro ToolsHD and a large mic collection.

APPALACHIAN STATE UNIVERSITY

Boone, NC; www.music.appstate.edu/recording. The Hayes School of Music 4-year B.S. in music industry studies offers training in music/sound recording and audio post. Other concentrations: arts management, music merchandising/manufacturing. Facility offers digital mixing, editing workstations and industry-standard peripherals. Off-campus internships.

AUDIO MAGIC RECORDING STUDIOS

Buffalo, NY; www.recordingstudio.com. 12-week certificate programs in audio basics, Pro Tools and advanced mixing techniques. Full-time commercial studio with multiple rooms and workstations. Instruction covers sonic principles, consoles, mics and effects to digital editing and advanced techniques in mixing and mastering on Pro ToolsHD. Courses cost \$450 each, plus workbook.

AUDIO RECORDING TECHNOLOGY INSTITUTE

Islandia, NY; www.audiotraining.com. Certificate offered for graduates of 8-month, 170-hour program. Classes limited to five students during the hands-on portion. Experience on 24-track digital equipment including 5.1 mixing course with Mac G4 computers. Qualifying graduates secure their first job at the school as members of the Recording Engineers Association.

A.R.T.I. ORLANDO

www.audiocareer.com. 640-hour program certifies graduates for music production/sequencing, sound editing for film and TV, sound effects design and mastering, film post in a THX pm3-certified mixing theater. Studios are well-equipped, from ProControl to SSL digital. Placement assistance is provided; financial aid is available. An accredited member of ACCSCT.

When using this directory, please note that only North American programs have been included. All of the information presented here was supplied by the schools. Specific programs may change, so contact the school/program for up-to-date information.

BARTON COLLEGE

Wilson, NC; www.barton.edu. B.A. in Mass Communication (audio recording technology concentration) includes hands-on training in a 32-track recording studio. Low student/teacher ratio. Curriculum includes studio recording, electronic music, DAW recording/editing/mixing, production and post audio for film/video, and an internship program.

BELMONT UNIVERSITY

Nashville, TN; www.belmont.edu. The Mike Curb College of Entertainment and Music Business offers a Bachelor's of Business Administration with emphasis in music business with an award-winning faculty and a program combining classroom experience with real-world application. We own three renowned recording facilities, including the multi-Platinum Ocean Way Nashville, historic RCA Studio B and the Center for Music Business. Students have access to eight state-of-the-art recording studios and a full range of digital and analog recording equipment.

BERKLEE COLLEGE OF MUSIC

Boston, MA; www.berklee.edu. 4-year Bachelor's of Music or professional diploma. Berklee College of Music is the world's largest independent music college. More than 3,900 students and 460 faculty members interact in an environment designed to provide the most complete learning experience possible. The college offers 12 majors, more than 270 ensembles, six recital halls, 300 practice rooms, 12 professional recording studios and media center with current industry technology.

BETHUNE-COOKMAN COLLEGE

Daytona Beach, FL; www.cookman.edu/music. The Bachelor of Arts in music with a concentration in music technology includes music computer applications, music theory, arranging and orchestration, digital audio production, sound reinforcement, audio recording/editing, MIDI, music business, merchandising/marketing, digital video, multimedia, audio for video. Our campus provides recording studio rooms equipped with 40-plus computer music workstations.

CASPER COLLEGE

Casper, WY; www.caspercollege.edu. Now in our 25th year of audio education, CC offers 2-year AA degrees in music performance, music education, multimedia and theater tech. Non-degree students welcomed. Our recording studio has analog, hard disk and Pro Tools LE recording. Top-rated music department, aligned with NASM.

BLOOMFIELD COLLEGE

Bloomfield NJ; www.bloomfield.edu/cat/musicmajor.asp. 4-year B.A. in music technology provides a highly individualized program for students aspiring to be producers, artists or engineers. State-of-the-art Mac-based music lab and campus Pro Tools studio. Dept. chair professor Chris White brings years of music industry experience having worked with such notables as Dizzy Gillespie and Nina Simone.

CAYUGA COMMUNITY COLLEGE

Auburn, NY; www.cayuga-cc.edu. 2-year A.A.S. degrees in audio production, radio/TV broadcasting and telecommunications technology with concentrations in video production, digital and interactive media, broadcast journalism and electronic publishing. 32-track studio, FM radio station, TV studio, remote truck and digital media lab. Industry internships required. Cayuga is a unit of the State University of New York.

CENTRAL CAROLINA COMMUNITY COLLEGE

Sanford, NC; www.cccc.edu. 1-year diplomas in radio production and TV production; 2-year Associate degree in broadcast production technology. Radio production students study analog and digital audio recording, mic techniques and multitrack production. Additionally, students operate the college's 3,000-watt FM station.

THE CITY COLLEGE OF NEW YORK

New York, NY; <http://sonic.arts.cuny.edu>. The Sonic Arts Center offers 4-year B.F.A. in music with a concentration in audio technology, providing an in-depth curriculum emphasizing real-world skills with a project-based approach. Students receive solid theoretical grounding in audio technology. In addition, students pursue studies in music theory, performance and musicianship.

CLIVE DAVIS DEPARTMENT OF RECORDED MUSIC NYU TISCH SCHOOL OF THE ARTS

New York, NY; www.clivedavisdept.tisch.nyu.edu. 4-year B.F.A. program in all aspects of contemporary recorded music and the art of identifying musical talent and developing creative material. The program recognizes music recording is both a creative medium and a complex business enterprise, and students master both aspects.

COLLEGE OF SAINT ROSE

Albany, NY; www.strose.edu. 4-year B.S. in music with music industry emphasis (and part-time M.A. in music technology) covers technology, music business and commercial music. The on-campus studio is equipped with Pro Tools, analog 24-track and a MIDI lab with 15 Mac-based DAWs.

COMMUNITY COLLEGE OF BALTIMORE COUNTY

Baltimore, MD; www.ccbcmd.edu. The Essex campus offers a 2-year, 30-credit certificate in music production and audio recording technology.

DUQUESNE UNIVERSITY

Pittsburgh, PA; www.music.duq.edu. The Mary Pappert School of Music offers 4-year B.M. degrees in sound recording technology/technology performance/technology composition; a Masters of music technology; and summer recording seminars. Campus facilities include two 24-track automated digital studios, mastering lab, digital music tech lab and workstation lab with 28 DAWs.



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FANSHAWE COLLEGE

London, Ontario; www.musicindustryarts.com. Music Industry Arts offers a 2-year education providing myriad career options, with 24/7 access to two recording studios with Pro Tools and 2-inch machines. Our studios and 10-station MIDI facility offer dual-processor G5s and the latest software. The Digital Applications Program accepts graduates from other programs.

FINGER LAKES COMMUNITY COLLEGE

Canandaigua, NY; www.fingerlakes.edu. 2-year A.S. music recording technology degree. Provides a recording facility with two recording rooms and a spacious control room. Single instruments to a full symphony orchestra can be accommodated in the 2,000-plus-square-foot recording room. Installed in the control room are a Mackie Digital 8-Bus console and 24 tracks of Tascam DA-88s. Editing and mastering are done via MOTU 2408 using Samplitude Studio.

FIREDOG STUDIOS MUSIC TECH CENTER

Spotswood, NJ; www.firedogstudios.com. 18-week audio training program provides basic know-how and hands-on experience about recording, mixing, mic placement and more. We also offer Pro Tools 101 courses and mix the instructor-led classroom experience with live sessions in a working facility with real clients.

FITS & STARTS PRODUCTIONS

Eatontown, NJ; www.fitsandstarts.com. We are the leading provider of audio seminars in North America, having conducted more than 300 surround sound seminars. The multichannel audio seminars tour each year to 30 cities in five regions, featuring industry experts Mike Sokol and Hector La Torre. Colleges, private recording schools and studios should call to host the seminar.

FIVE TOWNS COLLEGE

Dix Hills, NY; www.fivetowns.edu. Bachelor's of music with concentrations in performance, composition/songwriting, musical theater, recording technology and music business. The college is equipped with 16/32/64/72-channel SSL 9000J audio recording studios and MIDI labs. The Dix Hills Center for the Performing Arts has been described as "acoustically perfect."

FULL SAIL REAL WORLD EDUCATION

Winter Park, FL; www.fullsail.com. Associate and B.S. programs in computer animation, digital media, entertainment business, film, game design/development, recording arts, show production/touring. Hands-on training in a multimedia complex with multiple recording studios (Ameek 9098i, SSL 9000J and Digidesign ProControl). The Recording Arts facilities feature one-on-one lab environments with industry-standard digital and analog consoles and more than 90 Pro Tools stations. Career placement assistance is provided; financial aid is available.

FUTURE MEDIA CONCEPTS

New York, NY; www.FMCtraining.com. Training center provides a complete range of manufacturer-authorized training in digital media, including Pro Tools Operator and Pro Tools Expert certifications, nonlinear editing, sound design, Web design and programming, video streaming, DVD authoring, compositing and desktop publishing.

GEORGIA STATE UNIVERSITY

Atlanta, GA; www.music.gsu.edu. GSU's School of Music offers a 4-year

B.M. in music technology and a Pro Tools training program. The campus has six recording and post-production studios.

GREEN STREET ARTS CENTER

Middletown, CT 06457; www.greenstreetartscenter.org. Classes in sound recording with Pro Tools, which meet once a week for a 3-hour hands-on lecture/lab. During the first 10-week course, learn the basics in the Pro Tools|HD studio by recording small musical projects. The second course involves more advanced recording techniques.

GUILFORD TECHNICAL COMMUNITY COLLEGE

High Point, NC; www.gtcc.edu/programs/et/faq.html. 2-year Associate of Science in entertainment technology offers study in recording engineering, concert lighting/live sound production, artist management and live performance. There are three recording studios, two Pro Tools music labs, a large concert staging auditorium, an outdoor amphitheater and a smaller indoor auditorium/staging area.

HAMPTON UNIVERSITY MUSIC DEPARTMENT

Hampton, VA; www.hamptonu.edu/academics/schools/libarts/music. 4-year B.S. in music with a music engineering technology emphasis, including multitrack audio production, stereo recording and psychoacoustics, electronic music, DAWs, music theory, music performance, electrical engineering and music business.

HARRIS INSTITUTE FOR THE ARTS

Toronto, Ontario; www.harrisinstitute.com. 1-year diploma programs in Recording Arts Management (RAM) and Producing/Engineering Program (PEP), with 84 courses relating to the business, technical and creative aspects of the music industry. The 16,000-square-foot facility includes Pro Tools in the post suite, Logic Audio in the MIDI/multitrack suite and 24-track digital multitrack in the music recording control room.

HOWARD UNIVERSITY

Washington, D.C.; www.howard.edu. The Department of Radio, TV & Film offers 4-year B.A. degrees in audio production, television production, film production, telecommunications management and a 2-year MFA in film. The department has six Pro Tools-equipped audio studios, including one state-of-the-art post facility that uses Pro Tools|HD.

INSTITUTE OF AUDIO RESEARCH

New York, NY; www.audioschool.com. 9-month diploma program in audio recording features digital audio production, analog/digital recording and mixing, signal processing technologies, post, MIDI, music business and DAW operations in a 18,000-square-foot facility in the heart of Greenwich Village. Pro studio internships and graduate-placement assistance. Licensed by NYS Education Department, approved for veterans training, accredited by ACCSCT. Financial aid for eligible students.

IN YOUR EAR

Richmond, VA; www.lobe.com/computermusiccourse.html. Program on advanced use of computers in music production. Concentrates on basics of acoustics and mic use, digital interfaces, outboard gear and computer equipment including software configuration. The heart of the course is exploring software and artists creating their musical projects.

ITHACA COLLEGE SCHOOL OF MUSIC

Ithaca, NY; www.ithaca.edu/music. 4-year program (B.M. in sound recording technology) features 24-track SSL/Pro Tools|HD recording studios, Yamaha O2R/Pro Tools production studio and three electroacoustic music studios. Training musicians to be engineers, the program includes

music theory, history, performance, liberal arts and coursework in recording/editing, electroacoustic music, repair and calibration, and recording workshops. All recording majors are hired as work-study engineers in the School of Music for four years. Very small class sizes. Audition and interview for admission are required.

LEBANON VALLEY COLLEGE OF PENNSYLVANIA

Anville, PA; www.lvc.edu/music. This private 4-year liberal arts college combines a traditional music curriculum with industry-related courses and experiences. Studies include music theory, history, performance, studio production and recording industry operations. NASM-accredited. Facilities include two 24-track recording studios (analog and digital), computer labs for audio/video/new-media development and Pro Tools production/editing/mastering rooms.

MCGILL UNIVERSITY

Montreal, Quebec; www.music.mcgill.ca/soundrecording. The Master of Music program in sound recording has provided Tonmeister education since 1979, combining practical and theoretical training in studio techniques, mic selection, digital sound processing and technical ear training. The Ph.D. program focuses on research related to the evaluation and improvement of sound recording practices and technology.

MERCY COLLEGE

White Plains, NY; www.mercy.edu/cda. 4-year Music Industry and Technology program (B.S.) and partner Music Conservatory of Westchester are located 25 miles from New York City. The facilities contains four multi-station computer labs, three recording studios and a theater to support the 170 students enrolled.

METALWORKS INSTITUTE

Mississauga, Ontario; www.metalworksinstitute.com. 12-month diploma programs in audio production and engineering and entertainment business management. This extension of Metalworks Studios capitalizes on 25 years of award-winning real-world experience. The state-of-the-art campus facilities provide students with the best tools, instructors and environment to complete their education. Eastern Canada's only Digidesign Pro School offering certification courses.

MIAMI-DADE COMMUNITY COLLEGE

Miami, FL; www.mdcc.edu/dvbeta. The School of Film and Video offers A.S. degrees in radio, television, broadcast programming and film production; a certificate in television production; and an A.A. degree in mass communication. The program stresses hands-on equipment, and students have access to high-end cameras, editing suites and video graphics animation facilities and complete portfolio-quality production.

MIDDLE TENNESSEE STATE UNIVERSITY

Murfreesboro, TN; www.mtsu.edu/~record. B.S. with concentrations in production and technology and music business, and an M.F.A. in recording arts and technology. Facilities include five studios with SSL, Sony and Studer consoles; Pro Tools, RADAR and SADIE DAWs; 5.1-channel mixing; MIDI and digital audio labs with Pro Tools, Digital Performer, mastering, post and listening laboratories; 5.1-channel classroom. Eight TEC Award nominations, NARAS Student Music Award, AES and SMPTE chapters.

MIDLANDS AUDIO INSTITUTE

Columbia, SC; <http://midlandsaudioinstitute.com>. A career-oriented program offered by the Midlands Technical College Dept. of Continuing Education. Classes include audio engineering, music business and studio

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MUSITECHNIC EDUCATIONAL SERVICES

Montreal, Quebec; www.musitechnic.com. Musitechnic is the creator of the "Computer-Assisted Sound Design 901.24" college training program, offered in French or English. A thorough exploration of the technical and artistic facets of current hardware and software.

NASHVILLE STATE TECHNICAL COMMUNITY COLLEGE

Nashville, TN; www.nssc.edu. The program emphasizes studio recording/mixing/mastering, with offerings such as music publishing, songwriting and maintenance. Facilities include a new 32-track studio and mix room and 12 new Pro Tools/MIDI workstations, with limited class size. Program offers both 1-year technical certificates and 2-year A.A.S. degrees.

NASSAU COMMUNITY COLLEGE

Garden City, NY; www.ncc.edu. Designed to introduce students to music and recording technology, this 3-semester program provides a broad perspective of the music industry and acquaints students with musical structures. Technical skills and internship training will be acquired in an off-campus professional recording studio.

NEW ENGLAND INSTITUTE OF ART

Brookline, MA; www.neia.artinstitutes.edu. The audio production program offers a solid (2-year A.S. or 4-year B.S.) education. Courses are offered in studio production, critical listening, electronics, acoustics, live sound, music theory, MIDI and a wide variety of business topics. Facilities include five multitrack production studios with SSL, Trident and Yamaha consoles and a digital audio/MIDI lab with Pro Tools, Digital Performer, Logic Pro and Reason.

NEW ENGLAND SCHOOL OF COMMUNICATIONS

Bangor, ME; www.nescom.edu. Pro Tools certification and B.A. degrees in communications. Areas of concentration: audio engineering, television, multimedia, marketing and radio. Students work in a world-class studio facility that includes seven control rooms featuring Digi ICON and D-Command consoles. There are 13 dedicated Pro Tools rooms and a computer training lab for Pro Tools and MIDI.

NY INSTITUTE OF FORENSIC AUDIO

Colonia, NJ; www.owlinvestigations.com. Programs include certification in video and audio authenticity and voice identification. Lab features the Avid Forensic workstation, which enables hands-on experience. Evidence procedures, legal questions and courtroom testimony related to the above specialties will be discussed.

NYC COLLEGE OF TECHNOLOGY

Brooklyn, NY; www.citytech.cuny.edu/academics/deptsites/enttech. Hands-on programs focus on sound for live entertainment, with a 4-year B.T. in entertainment technology and certificates in sound, lighting, scenic construction and show control. We feature low tuition and a world-class faculty.

NYU STEINHART SCHOOL

New York, NY; www.nyu.edu/education/music/mtech/. 2- and 4-year

programs in music technology and a 2-year Tonemeister honors certification sequence prepares students for careers in engineering, production and post, A/V mastering, audio maintenance/repair, synth programming, multimedia and software development. Facilities include 14 recording and computer music studios, analog synthesis studio, video digitizing/DVD authoring studio and a 20-bit Sonic Solutions digital mastering room. Audio hardware includes Pro ToolsHD and MixPlus and SSL and Tascam consoles.

NORTHEASTERN UNIVERSITY

Boston, MA; www.music.neu.edu. B.S. programs include music industry, music technology and a dual major in multimedia studies/music technology. According to *U.S. News & World Report*, Northeastern is the Number One university in the country for programs requiring students to combine classroom learning with real-world experience. You will work professionally for 18 months, alternating with semesters in school. All degree programs with co-op takes five years.

OCEAN COUNTY VOCATIONAL TECHNICAL SCHOOLS

Lakewood, NJ; www.ocvts.org. Half-year certificate program offered to high school and post-secondary students. Course: 450 hours per year, with emphasis on hands-on recording by students. Upgraded program facilities include three control rooms overlooking main studio, audio computer lab, separate mixing suite and three DAW suites.

OMEGA RECORDING STUDIOS

Rockville, MD; www.omegastudios.com. The Omega Studios School functions within the 4-studio Omega Recording Studios complex, offering five comprehensive programs, including recording engineering, electronic music synthesizers and MIDI, sound reinforcement, audio production techniques (featuring Pro Tools operator certification) and music business. Avid-authorized education center. The certificate programs are nationally accredited by ACCSCT and approved for veterans' educational benefits.

ONTARIO INSTITUTE OF AUDIO RECORDING TECHNOLOGY

London, Ontario; www.oiaat.ca. North America's longest-running immersion program dedicated to audio engineering/production offers a 1-year, college-level diploma. A full-time faculty and a 5:1 student/instructor ratio guide select students to creatively acquire industry-valued skills. Students learn in six remarkable studios of pro analog and digital gear.

PARSONS CENTER FOR AUDIO STUDIES

Wellesley, MA; www.paudio.com. Courses for audio professionals include Golden Ears, Critical Listening for Audio Professionals, Principles of Audio for Professionals, Principles of Pro Tools, Pro Tools for Pros: Intermediate/Advanced, Growing Your Personal/Project Studio, Signal Processing I & II, Acoustics for Audio Professionals, etc.

PEABODY INSTITUTE/ JOHNS HOPKINS UNIVERSITY

Baltimore, MD; www.peabody.jhu.edu/recording-arts. 5-year Bachelor's degree in recording arts and a 2-year Master's degree in audio recording and acoustics. Fully automated digital facilities with comprehensive math/science/music-based degrees in recording arts.

PENN STATE UNIVERSITY

University Park, PA; www.psu.edu. B.F.A. in Technical Theater (Sound Design) and a B.A. in Integrative Arts. Facilities include theaters (all with automation systems: AudioBox, LCS and SFX PASC), recital hall, project

recording studio, MIDI/mixdown suite, two computer labs with audio facilities. Full-time faculty in sound design and electroacoustic music, and a graduate-level program in acoustics.

RADFORD UNIVERSITY

Radford, VA; www.radford.edu/~cmt. B.M. music and technology, 4-year; M.A. computer music, 2-year. Housed in the Center for Music Technology, facilities include MIDI/audio studio, A/V surround sound studio and 13-station lab. Focus on composition, performance, mixing, software development and production techniques.

RECORDING ARTS CANADA, TORONTO

www.recordingarts.com. RAC has a one-student-per-workstation ratio. Digital sound and music facilities include more than 40 studios, workstations and labs. Digital media studios feature the latest in computer and software technologies. Dolby-certified surround mixing theaters and Foley studio have hosted acclaimed film clients.

RECORDING ARTS CANADA, QUEBEC

www.recordingarts.com. RAC is host to students from across Canada, as well as many international and American students. College-level programs combine a strong academic foundation, reinforced by extensive hands-on studio experience. More than 60 percent of our training is delivered in our studios and labs.

SAE INSTITUTE OF TECHNOLOGY NEW YORK CITY/NASHVILLE/ NORTH MIAMI BEACH

www.sae.edu. Established in 1976, SAE is one of the world's largest networks of audio and media institutes, with more than 40 locations worldwide. All U.S. locations offer a 900-hour diploma program in audio technology, featuring industry-standard equipment and innovative teaching techniques from accomplished professionals. Career development assistance is offered.

SAVANNAH COLLEGE OF ART AND DESIGN

Savannah, GA; www.scad.edu/dept/snds.

SELECT SOUND STUDIOS

Kenmore, NY; www.selectsound.com. Six New York State-accredited recording technologies programs, each 12 weeks and three credits. Select Sound Studios is a full-service recording facility specializing in education. Four production rooms let students work in 24-track analog studios, Pro Tools TDM studios, a MIDI suite and a mastering suite. Topics include the history of recording, physics of sound, studio acoustics, mic techniques, tape recorders, mixing consoles and Pro Tools Native and TDM systems. New: personnel placement program.

THE SHEFFIELD INSTITUTE FOR THE RECORDING ARTS

Phoenix, MD; www.sheffieldav.com. 6-month full-time and 1-year part-time certificate programs, with hands-on training on the latest equipment (iPro Tools and SSL). Our instructors have extensive real-world engineering experience. Graduates enter a variety of fields, including studio recording, live recording, SR engineering, audio for video, remixing, nonlinear digital audio editor, equipment sales and more.

SHENANDOAH UNIVERSITY

Winchester, VA; www.su.edu. Shenandoah University is located in a new state-of-the-art facility featuring an SSL 4000 G+ console with automation. Students in our Bachelor's of Music commercial music emphasis program get experience by recording more than 300 concerts,

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student and faculty recitals, and internal and external projects. In addition, we have two MIDI/editing suites where students use Pro Tools 24, Cubase VST and Cakewalk.

SIGMA SOUNDZ

Holland, PA; www.SigmaSoundZ.com. Former chief engineer and president of Sigma Sound and SPARS, Michael Tarsia has designed a 16-course recording program where the focus is on the art. Pro Tools is the platform the students will be taught on. Deconstructing and re-creating a mix is the final exam. Tarsia states, "To be able to use recording tools creatively and *listen* is the first step to becoming a great engineer."

STARFIELDS RECORDING/ PRODUCTION WORKSHOP

New York, NY; www.starfieldsproductions.com. Starfield's Recording/Production Workshop I is a 10-week primer on the basics of recording, using analog and digital platforms. Workshop II focuses on Pro Tools and overall DAW Integration with current audio and MIDI gear, and use of classic analog outboard gear.

SUNY COLLEGE AT FREDONIA

Fredonia, NY; www.fredonia.edu/som/srt. Accredited by NASM, this 4-year B.S. in Music with an emphasis on sound recording technology operates within the School of Music. Modeled after European Tonmeister training, competence in playing a musical instrument and in sciences must be demonstrated through audition. Five recently completed studios, SSL console, 24-track analog and digital recording, MIDI/sampling labs. Students receive a minimum of 650 hours in-studio experience. Internships are available.

SUNY COLLEGE AT ONEONTA

Oneonta, NY; www.oneonta.edu/academics/music. B. A. program prepares students for work in the music/entertainment industry, including management, marketing, promotion, merchandising, publishing, production and performance. The curriculum includes music theory, performance and history/literature. A minor in audio production focuses on the technical and artistic components of audio recording and offers Pro Tools 101 certificate.

SUNY COLLEGE AT OSWEGO

Oswego, NY; www.oswego.edu/music. B.A. program prepares students for work in the recording industry through classroom instruction, hands-on experience with modern digital recording equipment and internship opportunities. Facilities include a Pro ToolsHD-based recording studio and a 9-station, iMac G5-centered MIDI lab. Accredited by NASM.

TEMPLE UNIVERSITY

Philadelphia, PA; www.temple.edu/btmm. B.A. and M.A. in Broadcasting, Telecommunications & Mass Media program offers courses in music production and business, with internship opportunities locally, nationally and internationally. Seven studios include vintage analog and industry-standard digital technologies.

TOP HAT PRODUCTIONS

Lake Worth, FL; www.tophatproductions.net. Learn how to get your voice on radio and TV commercials, video and CD-RDM narrations, corporate training videos and more. This one-day workshop is taught by seasoned radio, TV and voice-over pros from an award-winning audio production

company. Learn script interpretation, diction and inflection, creating your demo, studio etiquette, finding work, marketing, launching your career.

TORONTO FILM SCHOOL

Toronto, Ontario; www.torontofilmschool.com. 15-month sound technology program: music production, post-production, live sound reinforcement. Facilities offer SSL, Soundtracs and Amek consoles.

TOTAL SOUND INC.

Silver Spring, MD; www.totalsound.edu. Audio engineering, Pro Tools certification, music composition and film scoring. Gear includes Pro ToolsHD3, Waves Platinum, Focusrite Red Series compressors and preamps, dbx, Drawmer, Groove Tubes VIPRE, Universal Audio, Avalon and Neve outboard.

TREBAS INSTITUTE, ONTARIO

www.trebas.com. 3-year B.A. in sound technology and 1-year diploma programs. Established in 1979 to train students in music business, audio, record production, film/TV production, post-production, interactive multimedia and computer animation. Outstanding instructors. High-tech studios and labs. Lifetime national job-search assistance. Authorized training center for Cubase and Macromedia. Companion school in Montreal.

TROD NOSSEL RECORDING STUDIO

Wallingford, CT; www.trodnossel.com. Modern Recording Techniques 1 (MRT1) is a weekly class on the basics of multitrack recording, with seven weeks of theory and five weeks of hands-on training. MRT2 is a 15-week hands-on extension of MRT1. CRT is our new Computer Recording Techniques class geared toward Pro Tools and other DAWs.

UNITY GAIN RECORDING INSTITUTE

Fort Myers, FL; www.unitygain.com. The Audio Recording Comprehensive program and Advanced Techniques in Audio Recording are two 48-week programs that provide more than 250 hours of hands-on recording. Class size is limited in the two state-of-the-art recording studios.

UNIVERSITY OF HARTFORD, THE HARTT SCHOOL

West Hartford, CT; <http://uhweb.hartford.edu/musicprod>. Music Production and Technology is a competitive B.M. program to train musicians for careers in music production. A strong academic background and music audition are required. Training includes recording engineering and production, electronic music, acoustics, electronics, music management, music theory, ear training and liberal arts. Facilities include several studios, computer lab and disk-based remote recording.

UNIVERSITY OF HARTFORD, WARD COLLEGE

West Hartford, CT; <http://uhweb.hartford.edu/wardweb/descaud.htm>. 4-year B.S. in audio engineering technology covers applied audio electronics and a track of courses in audio studio engineering, acoustics and computer programming. Example concentrations include RF communications, recording and computer programming.

UNIVERSITY OF MAINE, AUGUSTA

www.uma.maine.edu. UMA has the only music program in Maine with a state-of-the-art recording studio. Recording commercial music and advertisements is a significant part of the music industry in Maine. Internships from our B.M. in jazz and contemporary music (audio concentration) are a student's best link to employment.

UNIVERSITY OF MARYLAND, BALTIMORE COUNTY

Baltimore, MD; www.umbcrecordingstudios.org. 4-year B.A. in Music with an emphasis in recording offers a solid foundation in audio engineering, including acoustics, mic techniques, digital signal processing, mastering, plug-in applications, Pro Tools and surround sound recording. Three-studio facility with Pro ToolsHD, Genelec and Event monitoring, plug-ins and a wide selection of mics.

UNIVERSITY OF MASSACHUSETTS LOWELL

www.uml.edu/dept/music/srt. The sound recording technology B.M. and Master's programs prepare students for production-related careers in the recording industry through studies in music, EE, computer science, math and physics and a minimum of nine courses in the art and technology of recording. SRT minors to prepare students for technology-development career paths. Studies are supported by eight studios and control rooms.

THE UNIVERSITY OF MEMPHIS

<http://music.memphis.edu>. 4-year B.M. degree with concentrations in sound recording technology and/or music business. On-campus facilities include digital and 2-inch/24-track analog studio with 7.1 mixing, dedicated 5.1 mixing suite, 17-station Pro Tools music lab, MIDI-based electronic music lab and video production facilities.

UNIVERSITY OF MIAMI

Coral Gables, FL; www.music.miami.edu. Music Engineering (B.M.) program accepts undergraduate musicians who desire careers in music recording, audio engineering, audio hardware and software design, sound reinforcement and broadcasting. Graduate students who have completed a B.S. degree in Electrical Engineering or Computer Science engage in research in audio DSP programming, psychoacoustics and synthesis. Facilities include two state-of-the-art studios.

UNIVERSITY OF NEW HAVEN

West Haven, CT; www.newhaven.edu. Bachelor's degree in Music and Sound Recording and the Music Industry programs provide a unique balance of courses in music, sound recording and business, and music industry. The sound recording courses include multitrack recording, digital audio and computers in the studio. The music industry courses cover record companies, contracts, recording studio management, copyright law and music publishing.

UNIVERSITY OF NORTH CAROLINA

Asheville, NC; www.unca.edu/music. The UNCA Music Technology Bachelor's program was established in 1982. Recording facilities include two multitrack studios (with digital and analog equipment), which house a variety of consoles, microphones, signal processors, Pro Tools. The electronic music laboratory houses analog and digital synthesizers, samplers, and a Moog, Theremin, etc.

UNIVERSITY OF SOUTH CAROLINA

Columbia, SC; www.music.sc.edu/recording. Curriculum includes more than 10 classes in sound recording (pop and classical recording, mixing techniques, workstation editing, digital audio technology, audio for video) and music technology (synthesis, signal processing, sequencing, computer music). Facilities include a large recording studio with a 48-input console, 24-track digital recorder and Pro ToolsHD2, an 18-station computer music lab and two electronic music/MIDI studios.

VALENCIA COMMUNITY COLLEGE

Orlando, FL; www.valenciacollege.edu. 2-year Audio Engineering degree program develops recording skills through solid ear-training for quality



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of sound, principles of psychoacoustics and basic studio techniques, including principles of analog and digital recording and crafting of the mix. Pro Tools 101 is covered as part of the regular curriculum. The degree also focuses on advanced studio techniques, mic selection, studio equipment calibration—including analog multitrack recorders—and advanced digital audio training on Pro Tools.

YALE SCHOOL OF DRAMA

New Haven, CT; www.yale.edu/drama/admissions/sdesign.html. M.F.A., 3-year; certificate, 1-year; engineering internship, 2-year. The Sound Design program teaches the theory and practice of pro sound design, including script interpretation, introductory sound design, fundamentals of sound and music technology, advanced problem solving, sound delivery systems, advanced digital sound and music technology and a design master class. Qualified students will design for student and Yale repertory productions.

YORK UNIVERSITY

Toronto, Ontario; www.yorku.ca. Programs include B.A., B.F.A., M.A. and Ph.D. studies. Music program with digital audio and computer composition streams. Courses include composing for film, notation, alternate tunings, MIDI, digital and electronic media, etc.

CENTRAL

AEC SOUTHERN OHIO COLLEGE

Cincinnati, OH; www.socac.com. 2-year Associates degree in A/V production covers all-digital A/V production techniques and hands-on training from concept to the final master. Digital music recording studio with Mac-based Pro Tools and Alesis HD24. Location sound techniques and sound for video and film.

ALEXANDER MAGAZINE CORP

Warren, MI; www.alexandermagazine.com. Online certification program with lessons, reference materials, audio demonstrations and interactive quizzes. Free CD-ROM for high-speed study (U.S. only). Study for Recording Institute of Detroit and other recording programs.

AUDIO ENGINEERING INSTITUTE

San Antonio, TX; www.audio-eng.com. 10-week basic and advanced engineering classes taught by Gold and Platinum record-winner Marius Perron III. Basic class covers theory, mics, consoles, recorders, live recording and mixing. Advanced class covers signal processors, hard disk recording, MIDI, synths and samplers, drum machines and sequencers, audio for video, real-time analysis and equipment maintenance. The advanced course is structured with apprentices working as second engineers at studios in San Antonio.

BALL STATE UNIVERSITY

Muncie, IN; www.bsua.edu/musictech. Music technology undergraduate degree focused on four main areas: theoretical and historical aspects of sound and music; computer music; recording; and composition. The 11 studios encompass nearly 9,800 square feet.

BUTLER UNIVERSITY

Indianapolis; www.butler.edu/telecom. B.A. program in recording industry studies provides first-rate classroom instruction, hands-on technology

experience, exposure to industry professionals and internships. On-campus studios and control rooms feature Pro ToolsHD1, Pro Tools LE, Waves Platinum plug-ins, 16 mBox systems, MIDI keyboards, mics and onboard. We also have an active MEISA chapter and a record label.

CASE WESTERN RESERVE UNIVERSITY

Cleveland, OH; <http://music.case.edu>. B.A. in audio recording and a 5-year double-major with electrical engineering. State-of-the-art facilities, frequent opportunities for hands-on-studio time and Case's national reputation in electrical engineering contribute to this program's appeal.

CENTRAL MISSOURI STATE UNIVERSITY

Warrensburg, MO; www.cmsu.edu/music/musictech/mutechindex.htm. 4-year B.M. in music technology emphasizes audio engineering and musicianship, with hands-on learning with multitrack recording/editing studios, Pro ToolsHD2 and HD3 systems, sound reinforcement equipment, MIDI/synthesis studios and a 12-station computer lab. Internships required. Class sizes between 15 and 20 students.

THE CLEVELAND INSTITUTE OF MUSIC

Cleveland, OH; www.cim.edu. B.M. in audio recording or double major with instrument or composition major in five years. Courses cover classical and popular music studio techniques, mic use, surround sound, audio for video, acoustics and studio maintenance. Faculty features multiple-Grammy-winners Jack Renner and Michael Bishop, Dr. Peter D'Antonio, Bruce Egge (Azica Records) and Alan Bise.

COLLIN COUNTY COMMUNITY COLLEGE

Piano, TX; www.ccccd.edu. 2-year A.A.S. in commercial music and a 1-year certificate in audio engineering. Professional studio featuring Pro Tools 24 MIXPlus, Control 24 worksurface, Genelec 1030A monitors, a wide array of mics and six Mac G4s with Digi 001s. The MIDI/synth studio has 16 Mac G4 workstations.

COLUMBIA COLLEGE CHICAGO

www.colum.edu. Programs in recording, sound reinforcement, acoustics, sound-for-picture and sound contracting. 4-year B.A. major in audio arts & acoustics includes courses in electronics, acoustics, math and audio systems theory, with electives in music, film/video and interactive multimedia. Facilities include three audio studios, digital audio and sound-for-picture suites and labs for sound contracting and acoustics.

CUYAHOGA COMMUNITY COLLEGE

Cleveland, OH; www.tri-c.edu/rat. 2-year A.A.S. in recording arts and technology. Certified Pro Tools training center. Students train under engineer/producer/faculty members and deliver finished audio products (recordings for regional music groups, cable TV programs, RAT Records student-run label and concert sound production). Semester-length internship at local and national facilities.

DALLAS SOUND LAB

Irving, TX; www.dallassoundlab.com. Diplomas offered in audio engineering and studio techniques. Courses provide hands-on training on SSL, API, Neve, Focusrite, Yamaha and Mackie consoles. Lab sessions are held in the school's 12,000-square-foot multi-studio facility. Instructors are industry pros. Seminars include music business administration, audio engineering for film/television and music theory.

DB PRO AUDIO TOOL BOX

Cincinnati, OH; www.dbsounddesign.com. Individual novice to advanced Pro Tools training, with elements of MIDI and recording techniques in our studio, dB Recording & Sound Design.

DEL MAR COLLEGE/RADIO & TELEVISION

Corpus Christi, TX; www.delmar.edu/comm/rtv/RTVHome1.html. Radio & Television, 2-year A.A. degree. Three-camera television studio with permanent interview and news sets. Control room includes switcher and audio board. Students learn linear editing and advanced students do nonlinear projects.

DEPAUL UNIVERSITY

Chicago, IL; <http://depaul.edu>. Contained in the School of Music. B.S. in music with elective studies in an Electrical Engineering degree. DePaul SRT students are admitted with the same standard as all undergraduate programs in music and take the full musicianship sequence, applied music, large ensemble, conducting and music electives. Students take classes in analog and digital microelectronics, computer science and calculus.

EASTERN MICHIGAN UNIVERSITY

Ypsilanti, MI; www.emich.edu. Department of Communication. 4-year B.S. in Electronic Media and Film, and Broadcasting.

ELMHURST COLLEGE

Elmhurst, IL; www.elmhurst.edu. In addition to classwork in music, business and business of music, students get hands-on experience through internships, industry speakers and course tours leading to a Bachelor's degree. State-of-the-art 24-track digital studio. Courses range from music theory to MIDI.

GRAND VALLEY STATE UNIVERSITY

Allendale, MI; www.gvsu.edu. Electrical Engineering with music minor program. This program can help launch a career that can span the entire audio and music industries, from hardware design and manufacturing to performance.

HOUSTON COMMUNITY COLLEGE

Houston, TX; <http://mwc.hccs.edu/av>. A.A.S. and certificates in audio engineering and film production, and certificates in MIDI Production, with unlimited hands-on experience with eight fully equipped studios (SSL, Pro Tools, Alesis consoles, Mac G4s, Final Cut Pro, Avid). Studio II: video post & scoring. Studio VIII: 3,000-square-foot soundstage.

INDIANA UNIVERSITY, SCHOOL OF MUSIC

Bloomington, IN; www.music.indiana.edu/som/audio.A.S. or B.S. students record performances of the IU School of Music and complete more than 200 hours of project time in the multitrack studio. Four performance hall recording studios, two DAW suites, a multitrack recording studio, two maintenance labs and a computing instruction classroom.

INSTITUTE OF PRODUCTION & RECORDING

Minneapolis, MN; www.iprschoo.com. IPR is one of the nation's leading pro schools with instructors who certify to the highest level 300 in music and post-production. Facilities include multiple SSLs, 13 Digidesign Icons wired to HD Accel systems and more than 70 workstations featuring the latest in technology. Contact the school to receive an IPR tour book.

INTERNATIONAL COLLEGE OF BROADCASTING

Dayton, OH; www.icbproductions.com. Associate degrees in communication arts and video production. Diploma programs in audio engineering and broadcasting. This small, private college offers enrollment invitations based on prospective students touring the facility and demonstrating desire to be part of the broadcasting and recording fields. Small class sizes.

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TEXAS STATE UNIVERSITY

San Marcos, TX; www.txstate.edu/music/srt. 4-year B.M. in sound recording technology. Program applicants should have significant musical abilities, well-developed aural skills and ability to complete calculus and other technical courses. The curriculum emphasizes recording, music, digital media, math/science and an internship. TSU owns and operates the Fire Station, a recording facility where students participate in commercial recording sessions.

SYNERGETIC AUDIO CONCEPTS INC.

Greenville, IN; www.synaudcon.com. Syn-Aud-Con offers a variety of seminars, each taught using a multimedia approach. The fundamental principles are taught in a practical way, which allows you to use them immediately. The seminars are approved for continuing education units.

UNIVERSITY OF CINCINNATI

Cincinnati, OH; www.uc.edu. B.F.A. and M.F.A. coursework includes sound technology and production, theater aesthetics, critical listening, music, digital audio, recording, sound reinforcement and sound design. We offer a diverse season of shows, including large musicals, operas, dance and dramas. Facilities include three theaters, a sound design studio and extensive reinforcement equipment.

UNIVERSITY OF THE INCARNATE WORD

San Antonio, TX; www.uiw.edu/music/musicdegrees.html. 4-year B.A. in music with an emphasis in music industry studies program. Students take music theory, ear training, business and accounting.

UNIVERSITY OF MICHIGAN

Ann Arbor, MI; www.music.umich.edu. Our four undergraduate degrees let students study a music core curriculum while specializing in separate areas in music technology, ranging from music performance along with technology to the emphasis on electrical and computer engineering, along with music technology found in the B.S. in sound engineering. The M.A. degree integrates engineering, music and art.

UNIVERSITY OF MISSOURI

Kansas City, MO; www.umkc.edu. 3-year M.F.A. in theater sound design teaches students to create sound scores for the theater through design, technical skills, history, production and entrepreneurship.

UNIVERSITY OF NEBRASKA

Lincoln, NE; www.unl.edu. The College of Journalism and Mass Communications houses the broadcasting department with extensive audio and video production facilities and the University's FM radio station, KRNU. Courses in the 4-year Bachelor's of Journalism degree in broadcasting are devoted to audio and studio production for broadcast/cable operations and AV production careers.

UNIVERSITY OF TEXAS AT AUSTIN

<http://rtf.utexas.edu>. Undergraduate and graduate audio courses. Undergraduate classes include production and post-production sound-for-picture and audio production in radio production classes. M.F.A. thesis films are mixed by staff mixer in in-house theater. Editing stations with Pro Tools HD and LE systems; second small mix theater.

UNIVERSITY OF TEXAS AT SAN ANTONIO

<http://music.utsa.edu/technology>. Music Technology certificate program

is a 16-credit block of courses in music production, recording technology, synthesis and multimedia. The program is open to any UTSA student of any major; however, full acceptance is given only after exemplary completion of the first two courses, Computer Applications in Music and Introduction to Digital Audio.

UNIVERSITY OF WISCONSIN

Oshkosh, WI; www.uwosh.edu. 4-year B.M. with an emphasis in recording technology. Students are trained in a digital tape/hard disk/analog studio featuring a Sony 3000 Series console with automation, lock-to-video, Pro Tools with Control24, mastering DAWs and a connected MIDI lab. Auditions are required. Final requirement is a full-semester internship.

VINCENNES UNIVERSITY

Vincennes, IN; www.viu.edu. 2-year Associate's degrees in broadcasting and music recording. Students use Cool Edit Pro, Final Cut Pro, two low-power radio stations that also broadcast on the Net, 50kw contemporary music radio stations and a public TV station.

WAYNE STATE UNIVERSITY MUSIC

Detroit, MI; www.music.wayne.edu. Recording techniques and concepts for music majors, including sound design creation for video and performance. A surround recording/mixing studio with Pro ToolsHD, Neumann and DPA microphones. An electronic music lab with five Pro Tools workstations. A 165-seat recital hall, two music computer labs, 60 rehearsal spaces with pianos and larger spaces for ensembles.

WEBSTER UNIVERSITY

St. Louis, MO; www.webster.edu. Students in the 4-year B.A. audio production program work in music recording, film sound, audio for video, radio, electronic sound synthesis, theatrical sound design, sound reinforcement, audio for computers, equipment maintenance and audio facility management.

WEST

THE ACADEMY OF PRODUCTION & RECORDING ARTS

Calgary, Alberta; www.thebeachaudio.com. APRA is located within Alberta's premier recording facility, The Beach Advanced Audio. Certificate courses enable students to learn all elements of audio recording, engineering and production.

ALTA CENTER FOR COMMUNICATION ARTS

Phoenix, AZ; www.thealtacenter.com. 10-week digital audio recording diploma program is designed by Wayne Vican, a multi-Gold record-winning engineer/producer and founder of The Conservatory of Recording Arts & Sciences. Curriculum is created specifically for independent musicians, artists, producers and engineers.

ART INSTITUTE OF SEATTLE

www.ais.edu. 6-quarter A.A.A. in audio production program includes studio production, post-production, streaming media, radio production. Required internships, placement assistance. Five studios, four DAWs, two 25-seat computer labs (Windows/Sonic Foundry, Mac/Pro Tools LE). SSL 4000G+, Euphonix C3000, Digidesign Control24, Mackie D88, Yamaha O2R, Mackie 32x8. 24-track Studer/Sony analog 2-inch, 24 I/O Pro ToolsHD, 16 I/O Pro ToolsHD. 5.1 DTS room.

THE ART INSTITUTE OF VANCOUVER

Burnaby, BC; www.aivan.artinstitutes.edu. 1-year independent recording arts certificate, 2-year professional recording arts diploma. Students train for careers in music and post-production for film, video, TV and new media. The campus covers 55,000 square feet and boasts five recording studios, a mix-to-picture surround studio and automated music production facility.

ASPEN MUSIC FESTIVAL AND SCHOOL

Aspen, CO; www.aspen.com/musicfestival. The Edgar Stanton Audio Recording Institute is an intensive 4-week, full-time seminar/workshop. Provides a background in the basics of audio production. A wide range of recording and guest lecturers are noted representatives of the recording and broadcasting industries. The session is limited to 10 students.

AUDIOME

San Francisco, CA; www.audiome.com. Pro Tools training and certification for music and post. Using a combination of master instructors, world-class facilities and small class sizes, we tailor your training experience to meet your goals. In addition to Digidesign's official curriculum, Audiome offers an ICON D-Control and D-Command training program.

THE BANFF CENTRE

Banff, Alberta; www.BanffCentre.ca. Work-study program that provides a bi-weekly stipend with no tuition fee. The audio program runs alongside internationally renowned music programs. Facilities include recital hall with adjoining control room, digital multitrack recording studio, Pro Tools post-production suite, Sonic Solutions editing suite, Pyramix digital audio workstation and a multichannel research lab.

CALIFORNIA STATE UNIVERSITY, CHICO

www.csuchico.edu/mus/ra. 4-year B.A. in music industry and technology with an option in recording arts.

CALIFORNIA STATE UNIVERSITY, DOMINGUEZ HILLS

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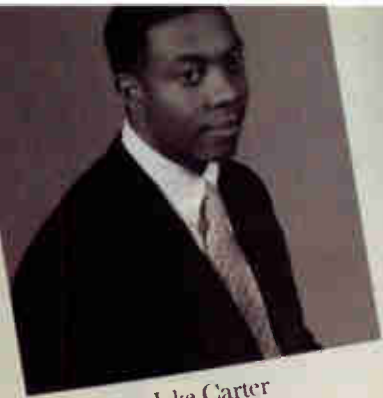
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Thomas Williams



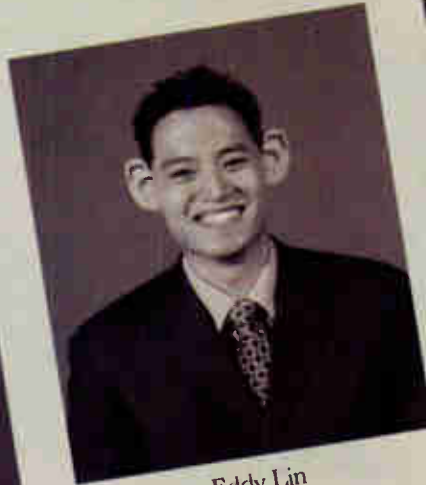
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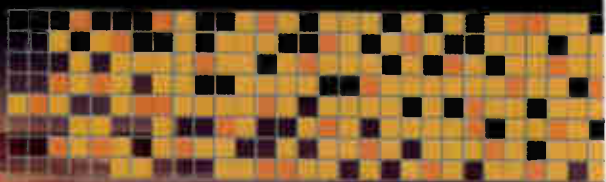
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Walk the Line

Channeling Johnny Cash and June Carter in New Music Biopic

By Blair Jackson

With the triumph of Jamie Foxx's uncanny portrayal of Ray Charles still fresh in our minds, buzz in the movie industry has now turned to the lead performances in a very different music biopic: director James Mangold's *Walk the Line*, a 20th Century Fox film about the tumultuous early career of Johnny Cash and his courtship of June Carter. Critics who have seen the film and the post-production crew who worked on it are raving about Joaquin Phoenix and Reese Witherspoon's portrayals of The Man in Black and the woman who saved him from certain infamy.

Like *Ray*, the film offers a compelling glimpse of a music world in transition; in this case, that period when country music and R&B gracefully fused to give birth to rockabilly and rock 'n' roll. But unlike the Charles film, in *Walk the Line*, the actors do their own singing, and the musical accompaniment is fresh from Nashville and L.A. studios, not plucked from old recordings (although there are plenty of those in the form of period source music). These onscreen musical performances are all new, and while some effort was made to make them sound true to the originals, music producer T-Bone Burnett and his engineer, Mike Piersante, were not obsessive about it.

"Our job wasn't really to re-create the original recordings," notes Piersante, whose

best known engineering work was the Grammy-winning soundtrack for *O Brother, Where Art Thou?*, also produced by Burnett. "Really, we were more into capturing the vibe than getting it to sound exactly the way it was."

The first step in getting the music together for *Walk the Line* occurred well before filming began, at Burnett's Electromagnetic studio in the Brentwood section of L.A. As you might expect of someone with such a keen fascination for retro sounds, Burnett's studio is centered around an old Bushnell console (with API EQs) that resided in Sunset Sound's Studio 1 until 1980, and he has a large selection of vintage outboard gear and—get this—analogue tape machines! But during the first stage, Burnett wasn't worrying about recording. Piersante says, "He had Joaquin and Reese come in for a sort of boot camp for several weeks, picking keys for the songs and rehearsing a lot before we went to Nashville to record."

The initial tracking for the pre-records that became the basis for *Walk the Line*'s music performances was done at Sound Emporium in Nashville, sans Phoenix and Witherspoon. Burnett assembled a host of fine musicians to be his "house" band, including acoustic guitar-picker Norman Blake, who had played on a number of Cash's recording sessions and been a part of the band on Cash's late-'60s TV show; electric guitarist Jamie Hartford (son of the multi-instrumentalist Cash pal John Hartford); bassist Dennis Crouch; L.A. drummer David Kemper (who was a member of Bob Dylan's touring band for many years); and producer/musician Jack Clement, who actually built the studio back in 1969 and hired its current owner, Garth Fundis, as an engineer there in the early '70s.

"Jack played some of the guitar parts where you actually stick a dollar bill in the strings and it makes this interesting sound," Piersante says. "Plus, he knows so much about how things were done in Nashville years ago. I picked his brain quite a bit: 'What

would you have done, miking-wise, on this kind of session?'"

Sound Emporium is equipped with a Neve 8128 console, "which we used basically to monitor through," says Piersante. "I rented some [Neve] 1081s and 1073s [mic pre's] to record through, and used all the standard vintage compressors: Fairchild, LA-2As. T-Bone is also a stickler about vintage guitars and amps, no transistors in the path and things like that. We recorded to a Studer 24-track like we usually do; then, if you have to go to Pro Tools, which at this point you always do if you're dealing with music for a film, at least you've got that sound [of the tape] on there." Miking included Neumann U47s as drum overheads; a FET 47 on the kick; an RCA 77 ribbon mic a few feet out in front of the kit; more 77s on guitars, autoharp and pedal steel; and an old RCA 6203 Varacoustic on Blake's guitar.

After Burnett and Piersante returned to L.A., there were still a number of pre-records to do, so they booked time at Capitol Studios' Studio B (another Neve room) and brought in a few new players, including veteran L.A. session drummer Bill Maxwell and X guitarist Tony Gilkyson. Phoenix and Witherspoon laid down most of their vocals at Burnett's studio, "but we also had them come down to Capitol and sing some things live [with the band]," Piersante says. "Also, there's a guy who plays Roy Orbison [Jonathan Rice] and one who plays Jerry Lee Lewis [Waylon Payne], and we had them come in and do live vocals with the band—that was great!" (A soundtrack album with many of the performances from the film comes out on November 15.)

Burnett also created the moody original score for *Walk the Line*, for which he and Piersante went into The Village in West L.A. with a small ensemble—guitarists Bill Frisell and Marc Ribot and drummer Jim Keltner—and laid down tracks for the different cues, usually working to picture. Burnett occasionally played guitar, too, and keyboardist Keith Ciancia added some atmospheric touches. Frank Wolf was later brought in to mix the score. Music editors



Supervising music editor Mark Jan Wlodarkiewicz, also known as Vordo, has worked on large and small features.

Terry Delsing and Bunny Andrews worked with Burnett and Piersante in preparing those tracks for later use in the mix.

The supervising music editor for the film was Mark Jan Wlodarkiewicz (pronounced vor-dar-kay-vich, but everyone calls him "Vordo"), whose 15-year career in the San Francisco Bay Area and L.A. includes music editing on a host of large and small features, including *The Mothman Prophecies* and *Shrek 2*. One of his first major tasks on the film was to take the pre-records, which had been transferred from 2-inch to Pro Tools at 96k, and make L/C/R stems that could be used in the temp mix. "We wanted to be able to spread it out a little bit," Vordo says, "and not just go for a mono sound on the music. At that point, too, I was using various plug-ins to get the Johnny Cash slapback vibe and other effects, but we knew we were probably going to work on that area [before the final]."

WORLDIZING THE TRACKS

One of the greatest challenges, Vordo says, was dealing with the many scenes in which live music is heard as essentially secondary sound: coming through walls, in an alleyway outside a club, backstage at a venue, etc. Re-recording mixer Paul Massey (an Oscar nominee for *Master and Commander* two years ago) notes, "It became apparent during the first temp mix, which I did with Mark, that we shouldn't try to artificially recreate this music though walls with EQ and filters and the normal stuff, but that we should get it recorded in different environments. So Mark took a portable Pro Tools rig and went to various locations and recorded the music in different perspectives."

"We did an extensive amount of 'worldizing,'" Vordo explains. "That's a concept that I think goes back to *Apocalypse Now*. In this case, I made a map of all the music in the film and tried to figure out where things played. Sometimes music is playing backstage, sometimes you're right up front [facing the band] and then there are

specialty things, like at the very beginning of the movie, you're in Folsom Prison and the music is reverberating all through the space. When we were temping the film, the digital reverbs felt too processed, and since we had the time and energy, it was worth trying to create some verisimilitude by putting the sound in real spaces.

"So I convinced Fox [where the film was mixed, at the John Ford Theatre on a Neve DFC] to let me have the run of the whole studio for a day: the parking garage, the scoring stage and the dubbing stages. I'm also sort of a part-time DJ and I own a pretty good self-powered Mackie P.A.—with SRM 450s—and I brought it down from the Bay Area. So I put the P.A. on a rolling cart, then we took a Pro Tools rig that was also on wheels—a MIXPlus system—and I had a little Behringer mixer and then played the split [L/C/R] music tracks through the system in various environments and recorded it with a pair of Neumann KM 140s. We recorded through an Apogee Trak2 and a little digital recorder."

Helping Vordo were a trio of friends: music editors Erich Stratmann and Nancy Tracy and picture editor Jeff Ford. "It was like one of those Huck Finn moments where everyone came out of the woodwork to help," Vordo says with a laugh. "We started at the scoring stage at Fox, which sounded really good." Rather than just using the ambience of the big room, however, "we used it like a big speaker," by putting the recording rig in the alley next to the stage, opening



PHOTO: SUZANNE TENNER

the doors to the stage and capturing the music "as it slapped around the alley. That was wonderful.

"For the source tracks that we knew were going to play backstage," Vordo continues, "we went to the Hawks Theater and had the P.A. blasting in there and had the mic sitting right outside the closed door. Another place we used was a parking structure, which was amazing. We were there on a Sunday afternoon, so there were very few cars around. We'd record [the music] from different levels, and we also went out to the grassy knoll where people have lunch 600, 700 yards away. That was truly ambient sound. Not a lot of that got used, but a little did."

"Sometimes a band mix was what we needed," Massey offers. "I used the original mixes that Mike and T-Bone provided and then added various degrees of the worldized tracks that Mark had provided on various instruments. The Folsom Prison scene was extremely

reliant on the worldized tracks—it's a huge reverberant environment. I also did the normal things a mixer would do in terms of low-end support, top-end reduction, and reverbs and delays and such. But the worldized tracks hopefully gave it a very unique and realistic feel. During the actual concert performances, having the



The Nashville crew at Sound Emporium, from left: David Ferguson, Norman Blake, Jamie Hartford, Dennis Crouch and Jack Clement

flexibility from Mike and T-Bone to vary the levels, EQs, panning and reverbs and such on each individual instrument was extremely beneficial—just slightly coloring and changing the perspectives of the mix as the shot required.”

Doug Hemphill (also Oscar-nominated in 2003 for *Master and Commander*), who mixed effects for the film, notes that director Mangold is quite interested in sound. “He will let you bring to the table your abilities and opinions, but he is very specific about the sound; we get a lot of direction.”

What sort of suggestions would he make? “It usually has to do with supporting

the story,” Hemphill says. “For instance, in the beginning, in the prison, Jim was very specific about the crowd—he wanted it to sound like a place that is about to explode because it’s a very dangerous place. So Johnny Cash is playing his music, but the prison crowd is on the verge of losing control and that dramatic element was an important sound statement for Jim.

“Crowds are always tough when I work on a film with music, and that was the case here, too,” he adds. “There are times when [Cash’s] career is starting out and the crowds are rowdy, small crowds in small towns and they have to have a certain feel to them. Then, as he gets more popular, the crowds become more respectful, so there’s a big range there. One good thing, though,

is that the musical performances are so strong that when I mixed the crowds, I didn’t need to bolster them. You feel the song and add a few [audience] accents to it, but [the crowd] doesn’t dominate it unnaturally.” Hemphill and sound designer Ted Caplan, working under supervising sound editor Donald Sylvester, assembled the different crowd ambiences, working from a combination of production material (Peter Kurland was the location mixer), some group ADR and even some library material of crowds.

Hemphill also brought in a piece of gear that ended up being important to the finished soundtrack: a Fulltone TubeTapeEcho, or TTE, which is a modern version of a classic tape delay unit like an Echoplex. “It got used on a lot of the vocals on the film,” he says. “It’s this Luddite device—it’s analog, running at 15 ips, but it’s got a great sound.”

“It gave us the analog distortion we needed,” Massey adds,

“and it worked well to give us the slapback feel that was so important to the music of that time.”

There was also a considerable amount of source music used—coming out of radios, jukeboxes and the like—and the task of choosing those songs fell mostly to Vordo, who immersed himself in every relevant period recording he could find, and was aided considerably by picture editors Mike McCusker and Quincy Gunderson, director Mangold and Burnett.

“Unfortunately, there were a lot of things we wanted to use but couldn’t afford,” Vordo says. “So we had the interesting challenge of finding things that were inexpensive that fit the time and place.”

In the end, some of the best-fitting tunes were the most obscure: Instead of Gene Vincent’s “Be-Bop-a-Lula” used as temp music in one scene, Vordo found a great track by the relatively unknown Billy Lee Riley (for whom Jerry Lee Lewis once played piano) called “Rock With Me Baby.” When songs by Eddy Arnold and Bob Wills proved too expensive (\$50,000!?) for a key scene between Cash and Carter in a diner, Vordo found “Defrost Your Heart” by Sun rockabilly pioneer Charlie Feathers “that was perfect



Engineer Mike Piersante (left) and Jack Clement

for the quiet, emotional space between the characters,” he says. “It was very delicate. Jim [Mangold] wanted it to have impact, but he didn’t want it to feel ‘scored’ because it would feel disingenuous.”

Mangold’s clear and decisive direction obviously impressed the post crew, but it wasn’t always business on the stage. As Hemphill notes, “There was also a lot of music being played. We had a bunch of guitar players and musicians [working on the film], and Del Breckenfeld from Fender supplied guitars for the movie and the stage. Jim plays banjo and guitar. It was a trip and really an extension of the work we were doing on the film. People were really inspired.”



Worldizing the music tracks at the Fox scoring stage meant playback in the room, with recording done in the alley.



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Less Than Jake



Text and Photos by Dave Vann

Getting some "fresh air" before hitting the studio for their next album, Less Than Jake is out on the road with front-of-house engineer Brett "Limo" Hopkins. *Mix* caught the show in late September at San Francisco's Great American Music Hall. "We're just picking up some small clubs," Hopkins says, adding that once the album drops in January, there will be a full-scale tour. Hopkins, who has also been stage manager and monitor

engineer for NOFX for the past 12 years, is excited to be working with Less Than Jake again.

The tour is only carrying a mic package—no desk, no racks, no stacks. "It's a stripped-down, traditional setup," Hopkins says. Instrumentation for the five-piece comprises drums, bass, guitar and a two-piece horn section. Miking the band is straightforward: Beta 98 on rack and floor, SM57s, Beyer M88 (kick) and Shure SM81s on overheads.

However, Hopkins did bring along a new toy: a wrist watch that allows him to store and save his mix via USB. "It's pretty cool and it was free," Hopkins says. It was a gift from the folks at the Reading Festival [England, where NOFX played earlier this summer]



FOH engineer Brett Hopkins

Lincoln Theater Upgrades

Home to the Napa Valley Symphony, the Lincoln Theater (Yountville, Calif., www.lincolntheater.org) required a \$20-plus-million renovation of aesthetic, structural, acoustical and technical upgrades to morph from a recreational facility to a world-class performance space. Included in the install were a Meyer Sound loudspeaker system; a Soundcraft MH3 console; Tascam source players and recorders; and Lexicon, dbx and Ashly outboard. The equipment room houses a Meyer LD-3 compensating line driver for the M2D arrays, an audio distribution system, Symetrix voice processors and a Moxia Ethernet-to-serial converter. Elton Halley of San Francisco Bay Area DECK Productions, consulted on the project and was later brought onboard as the venue's technical director. Halley used Meyer Sound's MAPP Online Pro to make the system fit hand-in-glove with the moderately reverberant, "symphony-friendly" architectural design of Auerbach and Associates.



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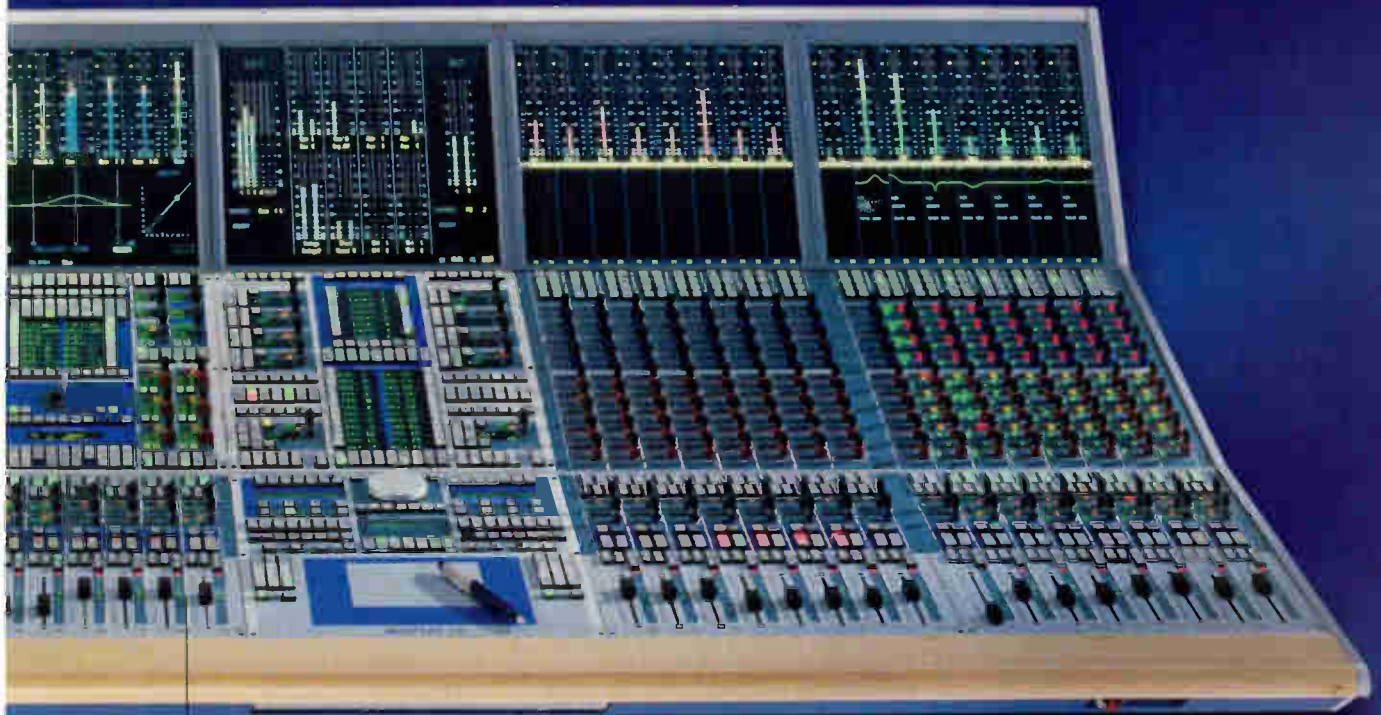
News



Duran Duran is using XTA D2 stereo dynamic EQs on vocalist Simon LeBon. Says monitor engineer Leon Dalton (pictured), "Simon has a very flamboyant vocal style. The ability that the D2 gives me to choose which frequencies I compress and how much is incredibly helpful."

The **Amarillo Opera** (Amarillo, TX) is now miking its opera singers with **Lectrosonics Venue**, a wireless system that helps search and reassign for available frequencies. The system features a Venue Receiver Master, 256 synthesized UHF frequencies per receiver module, antenna multi-coupler, LCD interface, USB/RS-232 computer interfacing, and **Countryman IsoMax E6 EarSet** mics and Digital Hybrid Wireless LM belt packs... **DiGiCo** (www.digico.org) recently opened a new demo facility in Chessington, England, with three rooms: Silver, Black and Blue. Each of these rooms is outfitted with a range of DiGiCo consoles and **Meyer Sound** speakers. White Glove Master Classes will be offered, and demo rooms are available for booking on an individual basis... London's **Up All Night Music** promotions and P.A. company was out using its new **Allen & Heath GL3800** live sound console at the Reading Festival. The board was installed at a VIP tent to support groups such as Echo & The Bunnymen, Black Rebel Motorcycle Club, Funeral for a Friend and Mondo Generator. Says sound engineer Ed Shackleton, "The GL3800 performed flawlessly. I particularly love the new EQ, which has a great range and is very responsive, and the new mic pre's, which are really quiet."

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On the Road

Oasis

Currently out supporting their *Don't Believe the Truth* release, Oasis is playing to packed amphitheatres in the U.S. and abroad. Sound is supplied by SSE Hire in the UK and Fire House Productions and Thunder Audio in the U.S. *Mix* caught up with FOH engineer Bruce Johnston when the band was on its way to the U.S. after a string of UK dates.

Tell me about the P.A.

When Nexo brought out the Geo T system, I got straight into using it. The system is quite different to any of the other line arrays as it has a cardioid functionality. The system cancels most of the low/mid out the back and gives 80 percent less sound onstage. This has the great effect of making the stage incredibly clear and gives me the ability of mixing as loud as I want without any interaction with the monitor system. We used 96 Geo T and 48 C-D 18 subs for our UK stadium tour. Amazing sound. [The tour's second U.S. run-through is using a V-DOSC system from Masque Audio, as the Geo T was unavailable at the time.]

Is there anything new at FOH?

I finally took the plunge into the digital world with the DiGiCo D5 console. After a few weeks of pulling and throwing and getting used to the vibe, I'm now a big fan. I've purchased the console and we're traveling with it worldwide. The size and weight have been a great advantage in making this possible.

How do you mix the band?

Oasis is pretty much a meat-and-potatoes band. I use a couple of Amek 9098s for the vocals and dbx 160X compressors for the drums. Apart from using an SPX900 for my drums, I'm using the [D5's] board processors for the rest.

What do you do off the road?

I'm at home in Melbourne, Australia, and I run my audio company, Johnston Audio Services (www.johnstonaudioservices.com). This keeps me pretty busy.

Now Playing

Jesse McCartney

Sound Company: Masque Sound
FOH Engineer/Console: Lorne Grabe/Cadac R-Type
Monitor Engineer/Console: James Good/Yamaha DM2000
P.A./Amps: Meyer Sound MILO 120/EAW 850 and 857 sub sidefills
Monitors: Shure PSM700
Outboard Gear: Focusrite Red tube comps, Lexicon PCM91/480, TC Electronic M300/2290, Drawmer comps, Valvotronics tube rack, Lake Contour drive system
Microphones: Shure SM58
Other Crew: systems engineer Brian Post, production manager Mitchell "Mr. Bubbles" Keller



Pearl Jam

Sound Company: Rat Sound
FOH Engineer/Console: Greg Nelson/Yamaha PM5D
Monitor Engineer/Console: Karrie Keyes/Midas Heritage 3000
P.A./Amps: L-Acoustics V-DOSC, dV-DOSC, ARCs, Kudo, MTD 108A/Crest, Chevin
Monitors: Rat Sound Wedge, Microwedge 12, Sennheiser IEM300G2
Outboard Gear: BSS Audio DPR-901, FCS 960; Empirical Labs Distressor; XTA DP226;

Apex 720; Klark-Teknik DN410
Microphones: Shure, Audix OM6
Other Crew: crew chief Tommy LBC; system technician Brian Teed; assistant technicians Jamie Harris, Taka Nakai and Peter Baigent; tour manager Mark Smith; production manager Lyle Centola

New Board Brings Smiles to CBGB

Infamous New York club CBGB has been issued an eviction notice by its landlord, the Bowery Resident's Committee (BRC), after 32 years of business. A venue that fostered the careers of punk and rock artists such as The Ramones, Talking Heads, Blondie and Patti Smith, among others, the club has recently hosted a series of benefit concerts to raise awareness and public support of its legal battle. According to its Website, www.savecbgb.org, among its goals is to remain in the current location at 315 Bowery St., while allowing "the BRC to fulfill its mission of taking care of the homeless and mentally ill [who reside above the club]."

Artists who have played in support of the club include The Misfits, Circle Jerks and The Exploited. For these concerts, Soundcraft loaned a MH2 console to the venue, which replaces the 10-year-old board the venue had on-site. Says CBGB engineer Jamie Gorman (pictured), "When [touring engineers] come in and see this beautiful brand-new board equipped with VCAs, tons of aux sends, dedicated effects returns and fully sweepable EQs, they're pretty damn happy. Everyone's smiling; it's really changed the mood in here."



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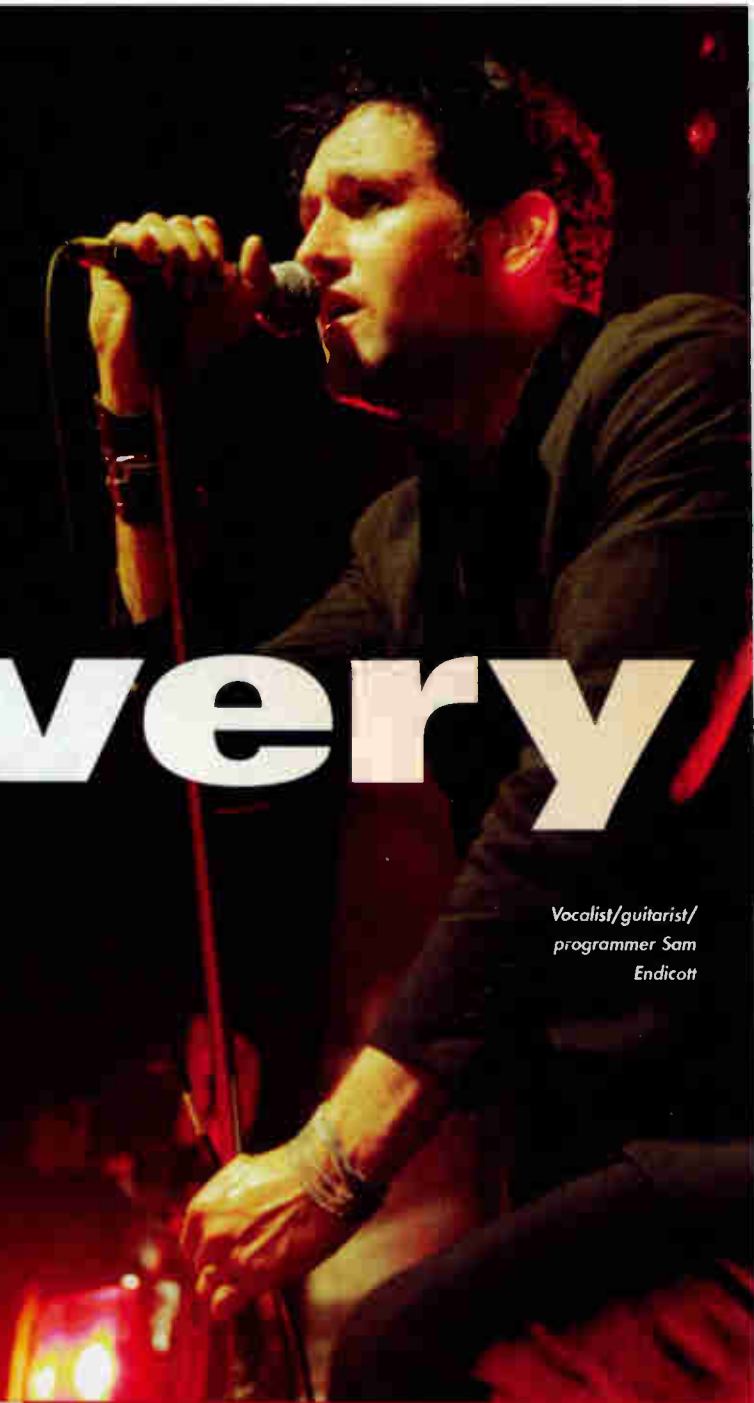




The Bravery

New York City-based The Bravery is touring in support of their first album (self-recorded and produced), bringing the same post-punk sensibilities that seethe through their self-titled release to the stage. The band is selling out clubs across the U.S. (including some dates as the opening act for Depeche Mode) before heading over to the UK. *Mix* caught up with FOH engineer/tour manager Keith Danforth and monitor engineer Scott Eisenberg at the Galaxy Theater in Santa Ana, Calif., in mid-September.

Vocalist/guitarist/
programmer Sam
Endicott



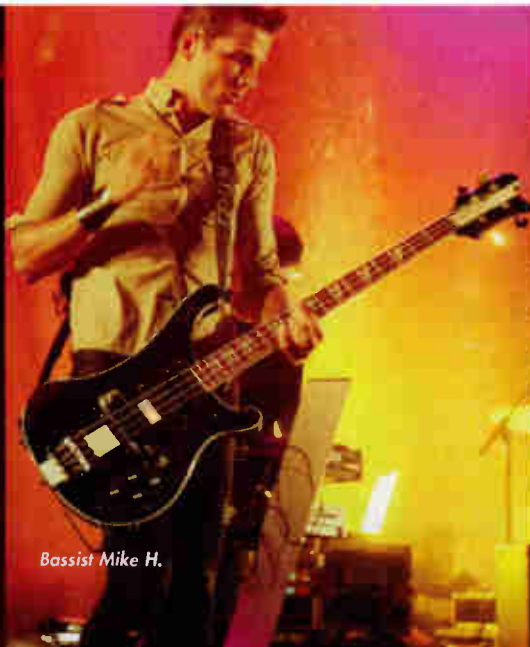
FOH engineer Keith Danforth

Photos and text by Steve Jennings

For the U.S. leg of the tour, front-of-house engineer Keith Danforth is relying on club-provided gear, including consoles. "If I am renting, it's the Midas H3000," Danforth says, using only 24 board inputs. However, Danforth carries a rack of gear, including an Eventide H3000, TC Electronic reverb, a Roland delay, dbx 160 compressors and a Drawmer quad gate, as well as a 24-track Alesis hard disk recorder. "We use it on shows we want to keep a record of. It might be if they play new songs or they play in a cool part of the world. We recorded most of our Asian dates and a couple of shows in Australia.

"Most of our soundcheck time goes to monitors," he continues. "Giving the band what they want onstage is important: They play better and my job gets easier. The first couple of days I worked with them, the band's manager, Peter Galli, was with us and helped familiarize me with some of the cues for solos and key parts.

"This band rocks! They give a lot at every performance and the crowd responds by going off with them. There is a lot of energy going back and forth at every show."



Bassist Mike H.



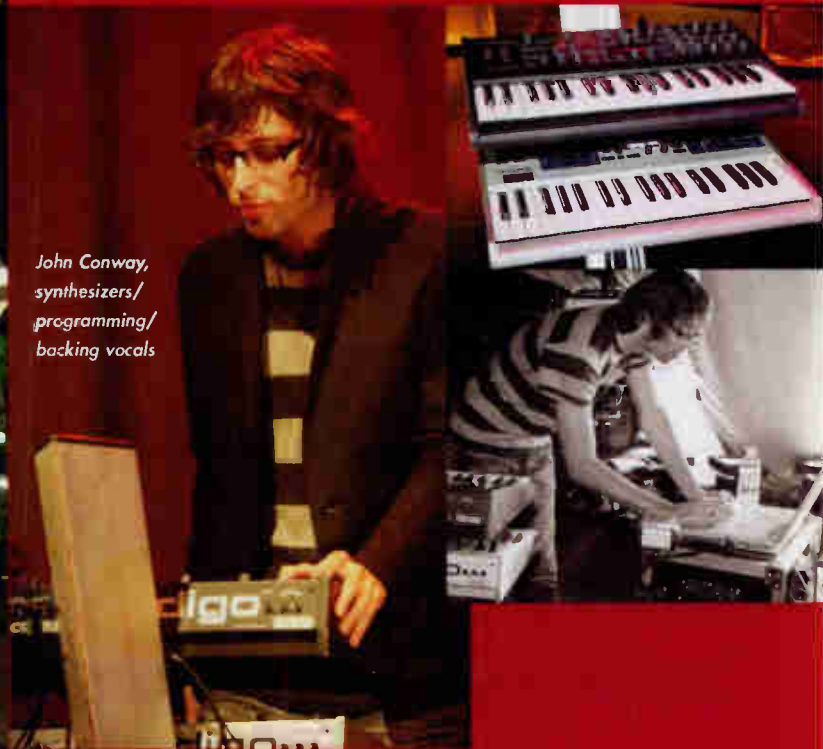
Anthony Burulich,
drummer/backing vocals

Drummer Anthony Burulich is using a small Yamaha MG102 mixer. He takes a couple of direct lines from a Mac G4 Powerbook running Digital Performer through a MOTU 828. Monitor engineer Scott Eisenberg also sends him two separate lines: a

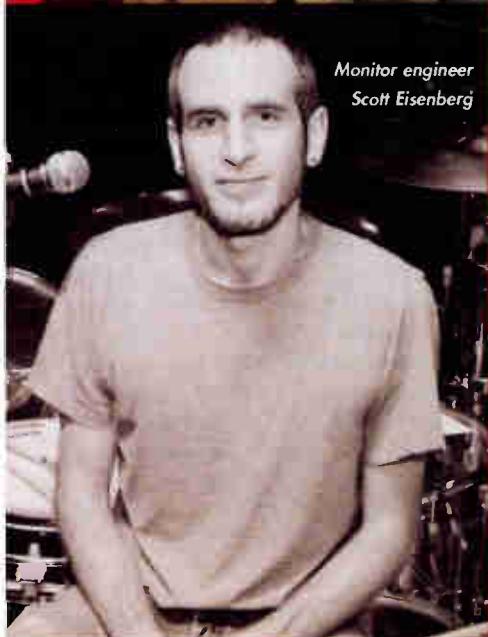
mix of his drums and another line of just his vocal. "He can then control the balances between those lines for his in-ears against the mix in the monitor," Eisenberg says. Drum mics include SM91, Beta 52, SM57, Beta 98 and Audio-Technica AT2021.



Guitarist Michael Zakarin



John Conway,
synthesizers/
programming/
backing vocals



Monitor engineer
Scott Eisenberg

"When *Mix* caught up with monitor engineer Scott Eisenberg, the band had just started using Ultimate Ears IEMs, using a Crest board for the mixes. The toughest part? "This was all put together on the road since we've been touring pretty much non-stop," Eisenberg says. "It's taken a bit to work out the kinks, and the monitor mixes are constantly evolving as the guys start figuring out what they want in their ears. Everyone except Anthony [Burulich, drums/backing vocals] is wireless. I definitely have seen a drop in the overall stage volume even though we're still using wedges and sidefills for [bassist] Mike H. The vocals don't have to be screaming and there's less competition for volume."

Singer Sam Endicott and guitarist Michael Zakarin are using Shure Beta 58s, while Burulich uses an SM58 for his vocals. "I think the Betas work well for Sam because he's got a wide dy-

amic range and they output a little hotter," Eisenberg explains. "Anthony really belts it out, so the regular 58 suits him well, plus the pickup pattern works out better with the angle where his monitor usually sits. We're using a combination of in-ears and open monitors. I was impressed with the durability of Sam's mic—it hits the floor about 10 times a night at varying speeds. In the last month, I think he's demolished three of them."

"From a production standpoint, it's tough for bands at this stage of the game, especially when the band isn't just guitar, bass and drums," Eisenberg concludes. "You're in a drastically different venue every night, with a different P.A., a different house crew and a relatively small touring crew. So a lot of it is making the best out of every crazy situation. We all try to help each other out because it really takes everyone to make the show go."

BOOM THERAPY

Eminem (right) rapping
with a member of G-Unit

Lil John takes to the stage with his
East Side Boyz—sans Crunk Juice

Eighth Day Sound crew chief/systems
engineer Mark Brnich

Monitor engineer
Sean Sturge

Tim Colvard,
Eminem FOH

ALL PHOTOS: FUBZ

Eminem's Anger Management Tour Crunks With Low End

BY BILL MURPHY

A five-day August heat wave has just broken, but temperatures are rising at the Tweeter Center Pavilion in Philadelphia. Earlier in the day, Lil John has crunked it up with the East Side Boyz, and 50 Cent's blistering set—with G-Unit's Tony Yayo, Lloyd Banks and newly signed rap veterans Mobb Deep and M.O.P. among the special guests—has raised the sweat factor a few degrees. As the capacity crowd anxiously awaits the arrival of the real Slim Shady, huge video screens on either side of the stage fire up a quick documentary primer on Eminem's rise to fame, and within moments, the man himself emerges to the trunk-bumping rhythms of "Evil Deeds," the feverish opener from last year's multi-Platinum album *Encore*. The effect is sheer pandemonium.

"It's on!" squeals an excited teenager as she attempts to squeeze her way with about a dozen of her closest friends toward the front. Meanwhile, behind the mixing desk about

40 rows from the stage, the crew from Eighth Day Sound is on point, filling the semi-enclosed amphitheater with a pristinely mixed bed of subsonic boom and crystalline bap as Eminem's rapid-fire vocal soars over the top. Front-of-house engineer Tim Colvard, at the controls of a DiGiCo D5 console, hobs his head to the beat, while crew chief and systems engineer Mark Brnich calmly monitors levels and EQ on a wireless tablet that controls a bank of Lake Contour digital speaker processors onstage. After a solid three months on the road with *Anger Management 2005*, these guys have it down to a science.

"Tim and I have worked on quite a few gigs over the last few years," Brnich explains backstage before the show. "We did the Up In Smoke tour with Dr. Dre a few years ago; we've worked with Eminem and with 50 Cent before; and Tim has done a lot of Earth, Wind & Fire gigs with equipment similar to what we have now. And over that length of time, we've actually gone back to the idea of 'less is more'

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Kenn Hughes, Musical Director for Denver & The Mile High Orchestra

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when it comes to getting a good live sound."

At the heart of that sound is the L-Acoustics V-DOSC line array system, which Eighth Day acquired back in 2001. Powered by Lab.gruppen amplifiers, the rig was configured on this night into two 16-cabinet clusters on the left and right, with smaller arrays of dV-DOSC enclosures to help fill in the sides of the venue.

"You get a lot of control with the V-DOSC system, as far as being able to aim into the room and get an even coverage from front to back," Brnich says. "Plus, you get a lot less surface reflection than you would with a multiple-box system." The wireless controller also allows Brnich to walk anywhere in the venue, "even way out on the lawn if I need to." It also allows him to make micro-changes to EQ, gain, delay and other parameters. With an almost completely digital signal path from microphone to P.A. (only the output from the Lake Contours to the amplifiers runs in analog), the Eighth Day setup is stripped-down, state-of-the-art and, for a tour this size, now practically the industry standard.

HIT ME WHERE IT HERTZ

As soon as Lil John takes the Philly stage to get the party started, it hits you: a ribcage-rattling rumble from an 808 kick drum that seems to make the earth move, but without any of the deafening roar or painful midrange distortion that can come from an unduly overdriven bass tone. For Brnich and Colvard, this is the payoff from their years of hard work and experimentation. They've been tweaking the system to the point where the lower registers—such a crucial part of a real hip hop experience—exert a huge, gravy-thick and wide presence that was unheard of a decade ago.

"Until recently, I never thought I'd be trying to get so much low end out of the P.A. without pushing the gear," Brnich admits, marveling at how much the demands on today's sound systems have changed. "It's a very important part of getting a good show with hip hop, so you need to get that as tight-sounding as you can. Tim and I have worked a lot on subwoofers, using delays and phasing and time alignment to get the most out of the system."

Throughout the tour, the Eighth Day crew have availed themselves of dV-DOSC subs, some of which are flown with the main P.A. hang, with more positioned on the ground. Using Soundweb Designer (which toggles on and off with JBL Smaart software on one of the three monitor displays near the D5 console), the air and ground subs are phase-corrected, depending on the venue's size and shape.

"We use Smaart mostly for reference and monitoring during the show," Brnich explains, "and we might also use it for select EQ touchups from day to day. But for the low-end adjustments and time alignment in particular, Soundweb works really well for us. There's a phase module inside it, and I've built some presets in there so I can quickly switch between different settings and check out which one works best. This especially helps when you're playing different sheds and arenas, where the roof is not the same every night. The distance between speaker clusters might

be slightly different, but I can fix that by picking the best preset and then making very minute adjustments to get the subs as close together as I can."

Of course, there are times when a little effects-driven juice can help drive the bass home, too. "Tim uses a dbx 120 sub-harmonic synthesizer on some songs for Eminem," Brnich says, "and there are some other effects we might use on other parts of the mix, but nothing really unusual. We have a couple of Yamaha SPX-990s, an Eventide Harmonizer and a TC Electronic 6000 reverb and a 2290 delay. It's all stuff that Tim is really familiar with, so we haven't really bothered too much with the internal effects on the DiGiCo."

RHYME POWER

As virtually all of the backing tracks at most headlining hip hop tours come from pre-recorded sessions, it has often been assumed—mostly by grizzled road dogs of the arena rock era—that it takes a lot more preparation and effort to mix a live rock band than it does a rap group with a DJ. But as Brnich tells it, nothing could be further from the truth.

"If anything, it can be more of a challenge," he asserts. "If you've got a band up there—let's say you have bass, drums, guitar and keyboards—these guys are playing the same instruments the whole time, so you can kind of get a blend of what their sound is and maybe float a lead singer on top of that. But when you've got six or eight guys up there, like we do for a couple of songs during 50 [Cent]'s set, and they're all lead singers trading verses during a rap, it can be much busier onstage. One song might have six guys and the next might have a different group altogether, and they all have different qualities to their vocals. So it can be a real challenge trying to keep the sound clean and clear between all of them.

"We used to always use Shure mics," Brnich says, "but with hip hop and rap, most of the guys tend to handle the mic really close up and cover it a lot, so you get kind of a 'skronk' sound coming from it. We've been using Sennheiser [SKM-5000s] for at least four years or so, going back to the Up In Smoke tour, and have stuck with them ever since. They seem to be built for that kind of mic technique and the EQ that we can get on them works a lot better—you can get everyone clear and separated from one another."

Compression certainly helps in some cases. As monitor systems engineer Sean Sturge has mentioned in past interviews with *Mix* ["Up In Smoke," December 2000], the onstage volume can get loud, which undoubtedly ups the energy level for the performers and inspires a louder, more intense vocal delivery. "For Eminem, there's an Avalon [VT-737SP tube pre-amp/compressor] inserted on his vocal," Brnich says, pointing to the rack unit next to the mixing console. "All the mics go directly [via wireless] into the desk, so compression is usually the only thing that we'll use. We've been doing very similar things on a lot of other gigs. The DiGiCo's got full compressor gates in it, so we'll use those for vocals, but there's nothing external



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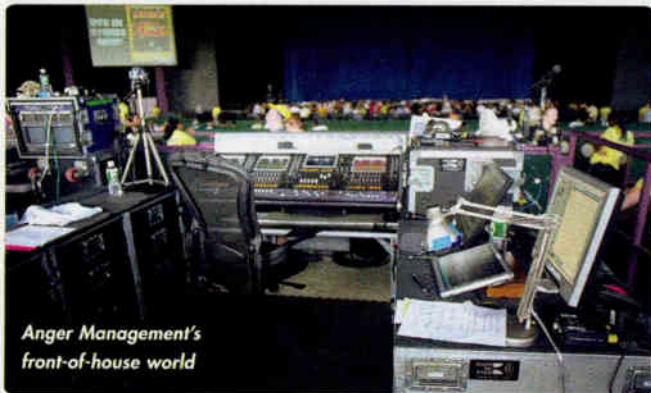
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50 Cent sharing the stage with Tony Yayo



Anger Management's front-of-house world

except for the few effects we have here. It's very in-and-out, with not much in-between."

BACK ON THE FLIGHT DECK

Brnich takes the controls for 50 Cent, and he's all business as G-Unit's DJ Whoo Kid cues up tracks from the stage. If sunlight happens to reflect off any of the D5's four built-in screens, Brnich can switch the same displays to another monitor angled next to the console to get a better look at what's happening. Meanwhile, the second of the three monitor displays (the other being designated, as noted above, for Soundweb and JBL Smaart) shows the progress of Steinberg Nuendo as it records the show live to hard disk. These recordings are mostly for reference to soundcheck at the next stop on the tour, but there are always four audience mics positioned at every show in case there is ever a future need to do a mixdown for a live album.

After the set, Brnich takes a break to stress the point once again that although this may look easy, a significant amount of hard work and dedication has gone into making Anger Management a consistent draw and a top-flight tour. "Like you just saw," Brnich says, "when you have five or six singers trading off, you need to be able to have them cut through and still keep that well-rounded mix. And as I've said, it's sometimes a lot harder to deal with that than it is with a full band. The most important thing is preserving that big, low-end sound. Everyone who comes here expects to experience a great show, and that's what we're here to give them." ■

Bill Murphy is a frequent contributor to Remix magazine, a Mix sister publication.

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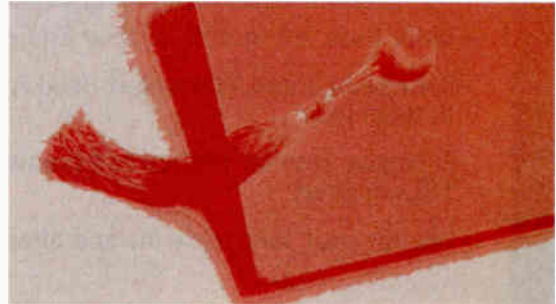
Preparing the Entrepreneurial Graduate

For years, the November *Mix* has focused on audio education, and in the past, I've written on the subject as an outsider. However, after a year of part-time teaching, I have a new perspective.

There were few audio schools when most seasoned audio pros began their careers, leading some to be pessimistic about the value or necessity of a formal audio education. Today, it's becoming more difficult to place an increasing number of graduates at a dwindling number of major recording facilities, so the question is whether audio schools provide the skills and experience to succeed as an audio professional.

Prior to this past year, I often answered this question by suggesting buying some gear and learning by doing. In reality, it's probably easier to get a loan for college than it is to secure a loan for equipment and far easier for a parent to justify an investment in education rather than buying some very expensive toys.

Pro audio has always been an entrepreneurial industry—many people begin by freelancing, eventually starting their own businesses—and so for some, the goal is to be self-employable. It may be the hardest job to master, but it's the most effective way to learn. As an added benefit, you can't pass the buck: There's no one to blame but yourself for lack of success.



But whatever path is chosen, experience is still the best teacher. There's far more to learn than simply running the gear, not the least of which is that gear alone is not the key to one's success.

THE TREASURE MAP

Some students really need help in terms of direction, focus and staying the course. The educational environment provides the map, focusing a student's attention on the essentials: technique, hardware, software and hopefully some psychology and business skills. Schools let students make mistakes without the pressure of earning a living and without the scrutiny of paying customers. It also helps students determine which facet of the biz they are good at. One close-to-graduating student learned that his strength was not engineering, production or

Career Tips for Real-World Employment

By Scott Legere

Beyond the traditional recording industry jobs, there are new opportunities each day, from newly emerging distribution channels to the explosion of digital content development (such as ring tones). Here are some tips and techniques to assist the process of preparing your resume; think of it as "pre-production" for your career path.

Don't lie on your resume. Be real about who you are and the work you do. To quote producer Rick Rubin, "Be the type of person that others want to open doors for." Each time you apply for a new position, compile your most up-to-date personal and technical skill sets and distill your essence into a resume form. Save your enthusiasm for the personal interview.

When an opportunity arises, research everything you can about the artist, band or company before walking in the door to meet them. Understand a company's "culture." Know what they offer clients and the industry niche they service.

Avoid expressing too many career aspirations in early encounters with possible employers. Whichever job you take, focus on the value you'll bring to the project or the

company—don't constantly talk about becoming the hottest producer on the planet.

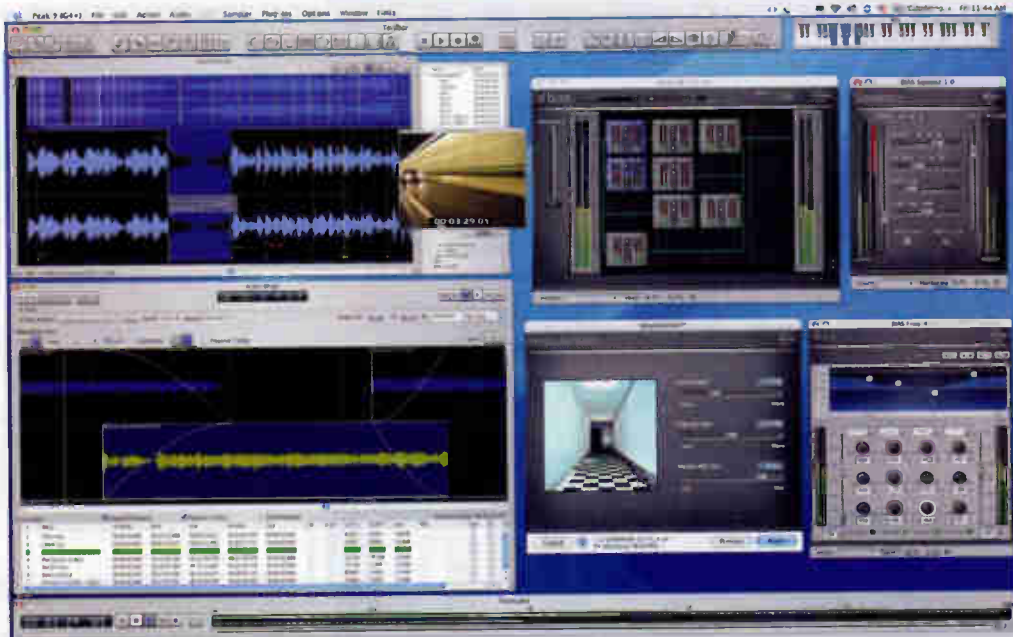
Networking is not solely about the quantity of people you meet, but about developing quality relationships. The nature of your compassion can be equally demonstrated outside a professional relationship by asking about someone's family, how they're doing, et cetera. Remembering someone's coffee preferences and presenting a cup to them *before being asked* once made me \$26,000.

Be optimistic. No one wants to work with a bore or complainer. Smile. Keep negative opinions of others to yourself. You're not going to get along with everyone, but understand that it's a small, small world and demeaning commentary is hardly professional.

In reference to the above, never send out angry e-mails late at night. It takes approximately 23 seconds for that e-mail to be forwarded to the next 50 people who could have hired you. If there is a real concern, deal with the problem professionally and in person in a private environment.

—CONTINUED ON PAGE 106

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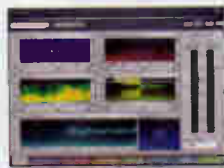
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maintenance, but business. Fortunately, our school was able to nurture that facet. (See "Career Tips for Real-World Employment.")

Before recording schools became common, our industry attracted music and audio enthusiasts. Going to school may be the fast-track to learning the essentials—certainly easier and more fun than cleaning ashtrays at the Record Plant—but the reality check occurs when it's time to find a job. For as much love and passion anyone can have for this career choice, it still requires as much tenacity as you can muster.

Trust your instincts. Anything that makes you work too hard is reason to stop and regroup. Try to be picky about the people you work with. That may seem like a tall order, but working with quality people makes you look better as an engineer. ■

Eddie Ciletti teaches Advanced Production and Studio Maintenance at the Institute of Production and Recording in Minneapolis. Visit him at www.tangible-technology.com.

Career Tips

—FROM PAGE 104

No one likes to talk about money, but it is the first order of business. I started a practice of billing clients and updating their tab every day. With that consistency, everyone knows where the money is being spent and how fast. Because the subject is always out in the open, issues that come up can be dealt that same day while the facts are still fresh in everyone's memory.

The most important client you have is the one you're currently working with. A happy client's word-of-mouth support may be worth more than that of the rich client you've been salivating over for months.

Also, it may be time to trade-in your old "koolkid17@hotmail" for the more professional "you@yourcompany.com." Apply the same graphic design elements to your Website, business cards and demo reel.

After sending the resume and cover letter, follow up in person. If you really want a job that's way out of town, you must be willing to risk airfare and hotel accommodations—even for an entry-level position. ■

Scott Legere is the entertainment business curriculum coordinator at the Institute of Production and Recording.

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Family Tree.

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DM2000

For once, the cliché truly applies. DM2000 is the "industry standard" small format digital console. So powerful and versatile, that the number of studios, artists, tours and venues relying on DM2000 wouldn't fit on this page. 96 inputs, 96kHz performance, on board mix automation, 6.1 surround mixing and monitoring, DAW and machine control. Not to mention, internal effects for days, stunning new Add-On Effects, THX pm3, and several other engaging qualities too numerous to mention. Truly, our pride and joy.

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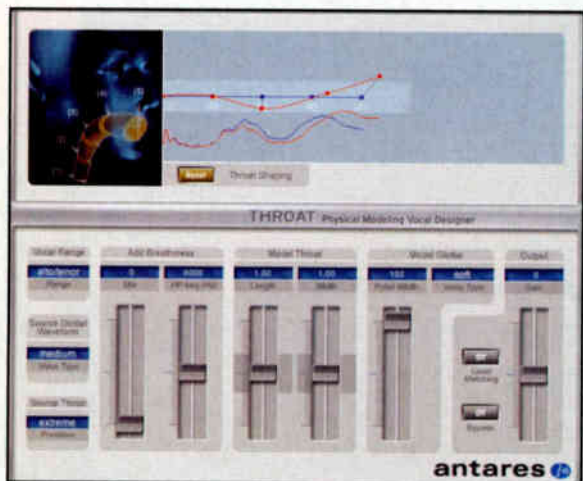


DM1000



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Tools of the Trade



ANTARES AVOX VOCAL PROCESSOR

This slick-looking vocal toolkit from Antares (www.antarestech.com) comprises five separate vocal processing plug-ins. Throat allows the user to process a vocal track through a physical model that can be subtle or beyond the limits of physical

Sybil is a de-esser using a compressor with threshold, ratio, attack and decay controls, and a sidechain. AVOX supports RTAS (Mac OS X and PC), VST (OS X and PC) and AudioUnits (OS X). Price: \$599.

DRAWNER 3SUM

Drawmer's (www.drawmer.com) 3SUM (\$1,295) multiband split and sum device enables individual processing of up to three bands prior to re-summing.

The stereo signal is split into two or three frequency-adjustable bands, which can be sent to external processors before returning to the 3SUM where they are re-combined. The 3SUM employs a high-quality signal path culminating in a variable threshold, brickwall limiter section with bypass

quality. The OCX-V locks to PAL, NTSC and 20 HDTV standards. International pull-ups and pull-downs are also supported. Format conversion is simplified with a built-in video sync generator and a unique video Gearboxing mode.

COYOTE MUSI-CAN64

Coyote R&D (www.coyoterd.com) has released the "little computer that can": the Musi-Can64 (\$1,395). The new single-rackspace unit is an all-new 64-bit version of its multimedia rackmount PC that promises faster speeds, more disk storage and whisper-quiet operation. Every Musi-Can64 comes with the company's exclusive cross-platform NetMIDI drivers and remote-control software, enabling 256 MIDI ports per machine over high-speed network for both Macs and PCs, plus high-speed, low-CPU-utilization remote-control software, eliminating the need for a separate monitor, mouse and keyboard.



human anatomy. Duo is an auto-doubler that uses Antares' vocal-modeling and vibrato processing technologies to create a doubled part that sounds like a second singer. The Choir Vocal Multiplier turns a single voice into four, eight, 16 or 32 distinct, individual unison voices, each with its own pitch, timing and vibrato variations. Punch gives a vocal more dynamic impact through a combination of compression, gain, limiting and overload protection.

facility. The limiter employs a two-stage design, applying high-frequency processing to the material's high-frequency content. In applications where the material's dynamics need to be retained to create an open sound, the limiter is used for catching peaks.

ANTELOPE ISOCHROME OCX-V

The latest clock from Antelope (www.antelopeaudio.com), the OCX-V (\$2,695) is based on a discrete oven-controlled crystal oscillator, and provides up to 8x lower jitter and 100x higher stability than other master clocks, and can lock to atomic clock for ultimate precision. The unit features Antelope's proprietary Jitter Management Module, which reduces jitter to undetectable levels while noticeably improving any connected device's sound

DIGIDESIGN SURROUND PANNER

This new panner from Digidesign (www.digidesign.com) is made specifically for the ICON D-Control work surface. It features an integrated 640x480 high-resolution color LCD touchscreen, two touch-sensitive joysticks with associated punch buttons, two touch-sensitive rotary encoders with 15-segment LED rings and six mode buttons for each panner. In addition, it offers a custom assign mode for controlling non-pan-specific parameters with the touchscreen and joysticks, AutoGlide automated panning features and touchable onscreen speaker icons to place sounds at discrete sources and for "snap" automation moves. Price: \$4,995.

NEVE PORTICO 5042

The latest audio device from the mind of Rupert Neve (www.rupertneve.com) is a 2-channel, single-rackspace "true



tape" emulator and line driver. The unit incorporates an actual tape drive circuit that feeds a tiny magnetic "head," which, in turn, is coupled to a correctly equalized replay amplifier. Record and Replay controls are counter-ganged to keep overall input-to-output level approximately constant; it only changes as it would in a real tape recorder, with varying drive levels to the circuit eventually resulting in saturation. The frequency response and distortion performance of the Portico 5042's tape circuitry is tailored to that of a typical analog tape recorder. Each of the unit's two channels is equipped with input level control, tape saturation level control, a 7.5 ips/15 ips switch and an independent bypass switch that toggles between the tape and line amplifier function, with the input level control remaining in circuit. An 8-LED meter displays input or drive level to the tape circuit. Price: \$1,435.



FOCUSRITE SAFFIRE

This vertically oriented desktop FireWire interface from Focusrite (www.focusrite.com) features onboard DSP and 24-bit/192kHz processing. The unit features four inputs (two S/PDIF) and 10 outputs



(two S/PDIF), two Focusrite preamps and MIDI I/O. Also included is a suite of plug-ins featuring compression, EQ, amp modeling and monitor path reverb. Free accompanying software allows the engineer to create up to five unique stereo mixes of all incoming and recorded tracks. In addition, plug-ins are also available for use within the user's software platform. Price: \$499.

ROLLS MX56C

The Rolls (www.rolls.com) MX56c (\$110) desktop mixer is an upgrade from the MX56s and features four inputs, including a mono 1/4-inch line input, a stereo 1/8-inch (3.5mm) line input, a balanced XLR microphone input with phantom power and a stereo RCA line input. For output, the unit features stereo RCA outs, a front panel stereo 1/8-inch (3.5mm) headphone output and a 1/4-inch unbalanced mono line-level out. The unit is powered via a 9V battery or the Rolls PS27 12VDC adapter (included).

KORG D3200

Proving that recording keeps getting better and cheaper, Korg's (www.korg.com) D3200 (\$1,799) digital multitrack recorder operates at 16- or 24-bit resolution at sample rates of either 44.1 or 48 kHz, provides up to 32 tracks of digital audio playback and can record up to 12 tracks at once. The surface features two new ways to facilitate operation: a 4x4 Knob Matrix of assignable real-time control knobs and ClickPoint, an innovative new three-axis fingertip navigation tool. In addition, a

high-resolution 320x240-pixel tilt-up LCD provides a clear icon-driven display that uses four-level grayscale shading and backlit illumination for enhanced visibility. The unit offers a flexible 12-bus, 44-channel mixer with up to 69-bit internal processing resolution; a 4-band parametric peak/shelving EQ on 24 channels and the master outputs; automated mixing; 100 scene memories; and sophisticated digital editing. There are also 11 high-quality effects (eight insert, two master and one final) with 128 presets and 128 slots for user entries.

OBEDIA TECH-IN-A-BOX

Need a tech or training for digital audio gear? Call Obedia (www.obedia.com). The remote tech company has now made it easier than ever to get your gear in order with "Tech-in-a-Box." The new product allows customers to create their own Obedia account and then use the hotline to dial directly into Obedia's team of technical experts and receive a response in a guaranteed time of 10 minutes or less. It features a "tips and tricks" reference card for both Mac and Windows users and a phone card with a unique direct-dial hotline number. Tech-in-a-Box comes in two formats—60 minutes and 140 minutes—both offering significant savings over standard rates. Each card can be recharged anytime with extra minutes at the rate by simply calling the hotline and giving your account number. The first time you recharge, you also get an extra 10 minutes free. Prices: \$99, 60 minutes; and \$199, 140 minutes. ■

InnerTUBE Audio Dual Atomic Squeeze Box

High-End Stereo Compressor/Limiter

We've all been here before: You slam a snare drum track with a compressor to put a point on it and then suffer the tedium of gating the resulting pumping hi-hat bleed. An obligatory ritual? Not anymore. The InnerTUBE Audio Dual Atomic Squeeze Box can nuke percussive and other types of tracks while keeping gain-modulation artifacts to virtually zilch.

From its etched front panel and stalwart 2RU chassis to its beefy, positive-action controls and curved VU meter cutouts, the Dual Atomic Squeeze Box oozes quality. A Link switch and duplicate rotary controls for its two channels accommodate either true stereo or dual-channel operation. Continuously variable input and output level attenuators adjust respective gain from maximum down to infinity cut. The squeeze (threshold) and attack time controls are also continuously variable, whereas the release time and slope (ratio) controls are stepped. For each channel, the release time's range can be modified by two three-way switches: mode (marked slow, medium and fast) and hold (a release time multiplier marked 1x, 2x and 3x).

Each channel's VU meter is backlit and has a recessed calibration trim to zero it. A beefy toggle switch for each meter selects either output level or gain-reduction amount to be displayed. Rear panel I/O connections for each channel are via 3-pin XLRs. A 4-pin XLR provides connection to a 56-inch-long cable serving the outboard power supply, which is a weighty affair sporting a power switch and indicator, carrying handle and IEC receptacle (the latter for its detachable AC cable).

TOP SECRET

InnerTUBE Audio declined to divulge what type of gain-control circuitry the Dual Atomic Squeeze Box uses, but the company told me it wasn't a VCA, opto-electronic cell, variable-Mu tube, FET—or *anything* else ever used before. As there is no owner's manual for the unit, a "cut sheet" and some chats with designer Stayne McLane were my only informational sources about the unit.

Octal dual triodes and nickel-core input and output transformers serve the Dual Atomic Squeeze Box's all-tube audio path.



Attack and release times aren't titled with time-based references on the front panel, in part because they are program-sensitive. In fact, all of the rotary controls are titled with arbitrary numbers (1 through 10 or 11). The slope controls effect ratios from 1:1 to roughly 2:1, adjusted in equal steps. The unit can deliver more than 20 dB of compression and handle at least +20dBm input level (conservatively rated).

FUN IN THE STUDIO

I quickly discovered that the Dual Atomic Squeeze Box's release and slope switches have no end stops, which is neat because you can switch back and forth between extreme settings without having to step through intermediate ones. The unit's Slope switch incorporates a wiper with two half-moons; at the crossover between them, the control switches between two high voltages, causing a crackling noise as you switch between the two corresponding slope settings. It's a minor annoyance.

The Dual Atomic Squeeze Box put a heightened point on kick and snare drum tracks, which—when the processed results were combined with the dry source tracks—really made the drums rock. Amazingly, I could hear no pumping of the snare track's hi-hat bleed, even with up to 20 dB of gain reduction!

On quadruple-tracked background vocals, dialing in a very fast attack, very slow release and high slope slammed the tracks with more than 20 dB of gain reduction without thinning their tone—just what this arrangement needed for the background vocals to sit unobtrusively at ear-candy level in the subsequent mix.

Next up was electric guitar, blowing through a cabinet miked with a Royer R-122. Setting very fast attack and release times and sky-high slope for 8 dB of

gain reduction on peaks, the sound was dynamite—warm, crunchy and in-your-face, but again, with no hint of pumping.

The unit also lent excellent dynamics control—characteristically not unlike that provided by an opto-compressor—to lead vocals. I heard some loss of depth with 6 dB of gain reduction, but no pumping.

The Dual Atomic Squeeze Box sounded really incredible on stereo room mics for drums. Dialing in 10 dB of gain reduction—using ultra-fast attack and release times and a high slope setting—produced absolutely slamm' tracks. But what amazed me was that there was only very mild pumping on crash cymbal hits. The unit's Link switch kept the stereo image rock-solid.

I found the unit's lowest slope setting above 1:1 to be too drastic for most 2-bus applications. Also, the review unit had no bypass switches, making A/B comparisons difficult without using a console equipped with insert switches. (InnerTUBE Audio says the next production run will include channel bypass switches.) Just for grins, I dialed in 20 dB of gain reduction on a broadband percussive mix to see if I could make it pump. Not a chance. I was dumbfounded.

NUCLEAR WINNER

The Dual Atomic Squeeze Box is unequalled for stereo applications in which transparent yet heavy compression may be desired, such as on room mics for drums. It also does a stellar job on a variety of mono tracks. At \$6,750, it's not inexpensive, but it does what no other compressor I've ever heard can do.

InnerTUBE Audio, 805/688-8286, www.innertubeaudio.com.

Mix contributing editor Michael Cooper is the owner of Michael Cooper Recording, located in beautiful Sisters, Ore.



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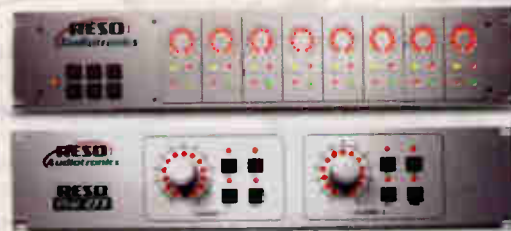
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Earthworks DK25/R DrumKit

A Three-Mic Solution for Capturing Drum Sounds

Getting a great drum sound is an art that lies somewhere between science and black magic, with myriad variables complicating the process. Techniques vary from one-mic-per-drum to a single-mic overhead for the entire kit, depending on the desired sound. Earthworks takes on the challenge with its DrumKit™ System, a three-mic solution offered in two flavors for stage and studio use.

Intended for recording, the DK25/R package reviewed here includes two Earthworks TC25 omnis for overheads, an SR25 cardioid condenser for kick drum, a KickPad™ and windscreen. The DK25/L bundle is designed for stage use and includes three SR25s (two for overheads, one for kick), a KickPad and windscreen. Both versions list for \$2,100. The KickPad is also available separately for \$120.

RIPPING INTO THE BOX

The SR25 has a 50 to 25k Hz (± 2 dB) response. The TC25 is an omnidirectional condenser with a 9 to 25k Hz (+1/-3 dB) response. Both mics require 48V phantom power and can handle a max SPL of 145 dB.

Rather than design a mic specifically for kick drum, Earthworks created the KickPad as an external passive processor to optimize the sound of the SR25 (or any mic) when used on kick. The KickPad is housed in a cylindrical tube roughly the diameter of an XLR connector and connects in-line between the SR25 and a mic pre. The SR25 can also be used on guitar, bass and other instruments.

Earthworks provides a guide with the DrumKit that illustrates placement of the overhead and kick mics. Similar to other condensers, the SR25 is sensitive to large bursts of air, so I used the windscreen and placed the mic as per recommendations in the manual, initially leaving the KickPad out. I found optimum placement pretty close to the suggestion on the manual, akin to the manner in which you would mike a floor tom: mic inside the rim pointed toward the head at an angle of about 45 degrees.

IN THE FIELD

Without the KickPad, the SR25 sounded bland, lacking the top-end snap and fat

bottom typical of contemporary recordings. Placing the KickPad in-line extends the low frequencies, adds the requisite “smack” and applies a cut to the lower-mids. (It also reduces level by roughly -10 dB.)

As with many condenser mics, the SR25's output is high as compared to that of a dynamic mic, so care must be taken not to overload the mic preamp. I found that some of my preamps could not handle the SR25's output, even with the preamp's pad on and gain turned all the way down.

As an experiment, I tried placing the SR25 directly in front of the hole in the kick drum's front head. The mic handled the SPLs without a problem, but I preferred the smoother HF response of the off-axis placement. Fans of the Metallica kick drum sound are not going to get it here without adding considerable EQ. The SR25 proved more useful on recordings in which accuracy was more important than hype, especially with jazz and acoustic sessions.

I tried the KickPad with other mics, including the Audix D6, Sennheiser MD421 and Shure SM57. Generally, adding the KickPad was an improvement, although the difference was negligible with the Audix D6, a mic with a response tailored specifically for kick drum. With the SM57, the KickPad turned an ugly duckling into a nice kick mic, adding roundness and attack while removing the 57's papery quality. As with the SM57, adding the KickPad to the MD421 gave the impression that the drum was moving more air.

The manual offers a variety of possibilities for placing the overheads; however, the manual shows an X/Y placement, but doesn't mention that this technique works better with the (cardioid) SR25 overheads supplied with the DK25/L. There's certainly no harm in positioning the studio package's TC25 omni pair in X/Y stereo, but I had far better results with the TC25s as a spaced pair and in another configuration recommended in the manual. The latter suggests pointing the mics straight down, one between the snare and hi-hat and the other between the floor tom and kick drum, both five feet high. This placement yielded



extremely realistic reproduction with an incredible sense of being in the room with the drums and great LF extension on the floor tom.

Components of the kit were perfectly balanced, and the TC25's omnidirectional pattern evenly covered the kit without hot spots. As the mics were directly above the drums, room ambience was controlled, giving the snare and toms presence without isolating them from the kit. Placing the TC25's in spaced pair—five feet high, two feet in front of the kit—gave a similar sense of space and realism with somewhat diminished L/R separation and a higher percentage of room ambience. Either placement delivered outstanding detail (you could easily hear a rattling wing nut) and quick response to transients, especially noticeable on snare drum.

THE RESULTS ARE CLEAR

Detail and realism is where the Earthworks DrumKit excels. The set will undoubtedly appeal to engineers more interested in capturing the sound of drums as opposed to artificially creating that sound. The microphones' excellent transient response and ability to capture low-level detail make them a natural for acoustically oriented music, while fans of the John Bonham drum sound will find them equally useful.

Earthworks, 603/654.6427, www.earthworksaudio.com.

In addition to contributing to Mix, Steve La Cerra is the tour manager and front-of-house engineer for Blue Öyster Cult.

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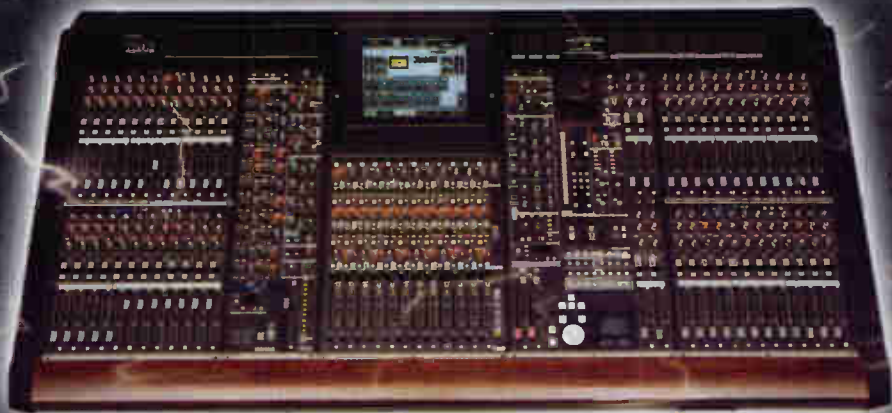
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PreSonus ADL 600 High-Voltage Tube Preamp

Modern Package With the DeMaria Touch

The PreSonus ADL 600 is proof that marriage is a beautiful thing. The dual-channel, all-tube preamp was designed by Anthony DeMaria of boutique tube gear manufacturer Anthony DeMaria Labs and engineered and manufactured by PreSonus. The result is a 2RU mic, instrument and line preamp with a distinctive vintage character, sporting a striking blend of retro and modern cosmetics.

HEY, GOOD LOOKIN'

The ADL 600 features large rotary controls and toggle switches, and both VU and LED metering on its gorgeous front panel. A rotary input control selects among instrument, line and mic inputs for each channel, and mic inputs have a further choice of four different impedance settings to sculpt the signal's tone. Another rotary switch for each channel selects a 40, 80 or 120Hz highpass filter setting, which is activated by an associated toggle switch. Gain is adjusted for each channel via rotary gain switch and continuously variable rotary trim control. The gain switch provides up to 35 dB of boost in 5dB increments, while the trim control allows a ± 10 dB gain change, which is useful for fine-tuning or riding gain. Different sensitivities for mic, line and instrument inputs result in varied and eminently useful gain adjustment ranges for each: +18 to +72 dB for mic; -12 to +40 dB for line; and -5 to +42 dB for instrument outputs.

Each channel also sports separate toggle switches to activate regulated +48V phantom power, polarity inversion, -20dB pad and the aforementioned highpass filter. A beautiful blue status indicator lights above each activated toggle switch. A backlit VU meter, 8-segment LED (peak-reading) meter and $\frac{1}{4}$ -inch instrument input phone jack for each channel complete the front panel. The ADL 600's rear panel offers separate XLR connectors for mic and line inputs and +4dBu nominal line output for each channel.

THE INSIDE STORY

Three tubes (one 12AT7A and two 6922s) serve each channel's audio path. With the exception of the transformerless instrument inputs, all I/Os are transformer-balanced.



The 600V power rails give the ADL 600 an impressive +30dBu headroom for line and instrument inputs, and allow +25dBu maximum input level for padded mic inputs. The maximum output level is specified to be +23 dBu (for 0.5% THD+N). The EIN for mic inputs is a quiet -125 dBu (A-weighted). The unit's frequency response is stated to be 10 to 45k Hz, ± 1 dB.

MAKING TRACKS

When recording electric guitar tracks with a Royer R-122 ribbon mic patched into the ADL 600, I got the most buttery tone and highest gain using the preamp's highest impedance setting (1,500 ohms). The sound was lush and exhibited a wonderful balance between warmth and smooth presence. Very high frequencies were nicely understated, precluding any glassiness. Setting the ADL 600's gain switch higher and lowering the trim control enhanced the track's crunchiness, resulting in an electric guitar timbre to die for. In an A/B test with my Universal Audio 2-610 mic pre (also set to its highest impedance setting), the electric guitar track recorded through the ADL 600 sounded a tad warmer and more compressed (pleasingly so). But on DI'd electric bass, the 2-610 produced a significantly deeper bottom end, while the ADL 600 lent a more forward midrange band.

Next up was a country production, in which the bell-like tones of a DI'd electric guitar were called for. Midrange frequencies sounded most prominent on Strat tracks played through the unit's instrument input. High frequencies were understated. The overall sound was very lush, but the same guitar played through my Demeter Tube Direct and HV-3D mic preamp produced more scintillating highs and fuller low mids, resulting in a more balanced tone overall. I was also disappointed in the ADL 600's performance recording a Taylor XXX-

MS acoustic guitar in stereo using a spaced pair of B&K 4011 mics. The "twing" of pick strikes was too understated, resulting in a track that lacked detail.

On lead and background vocals (recorded with AKG C 414 B-TLII and Lawson L251 mics), the ADL 600 produced pleasing tube saturation and a soft top end to the tracks. The unit's highpass filter control helped me sculpt the perfect bottom end. I only wish the ADL 600 produced more top-octave sparkle on the lead vocal tracks.

Patching my 02R's stereo bus outputs into the ADL 600's line inputs to process a digital mix, the preamp broadened the mids beautifully, resulting in a warmer, fatter, more analog-like sound. On the downside, the sound was also a little less open, detailed and precise as compared to that of the unprocessed mix. The preamp's trim controls were useful in balancing the left- and right-channel output levels. In all applications, the unit's LED meters were slightly difficult to read, as both lit and unlit LED segments sport somewhat pale and related colors that are washed out by the adjacent VU meters' backlighting.

CONCLUSIONS

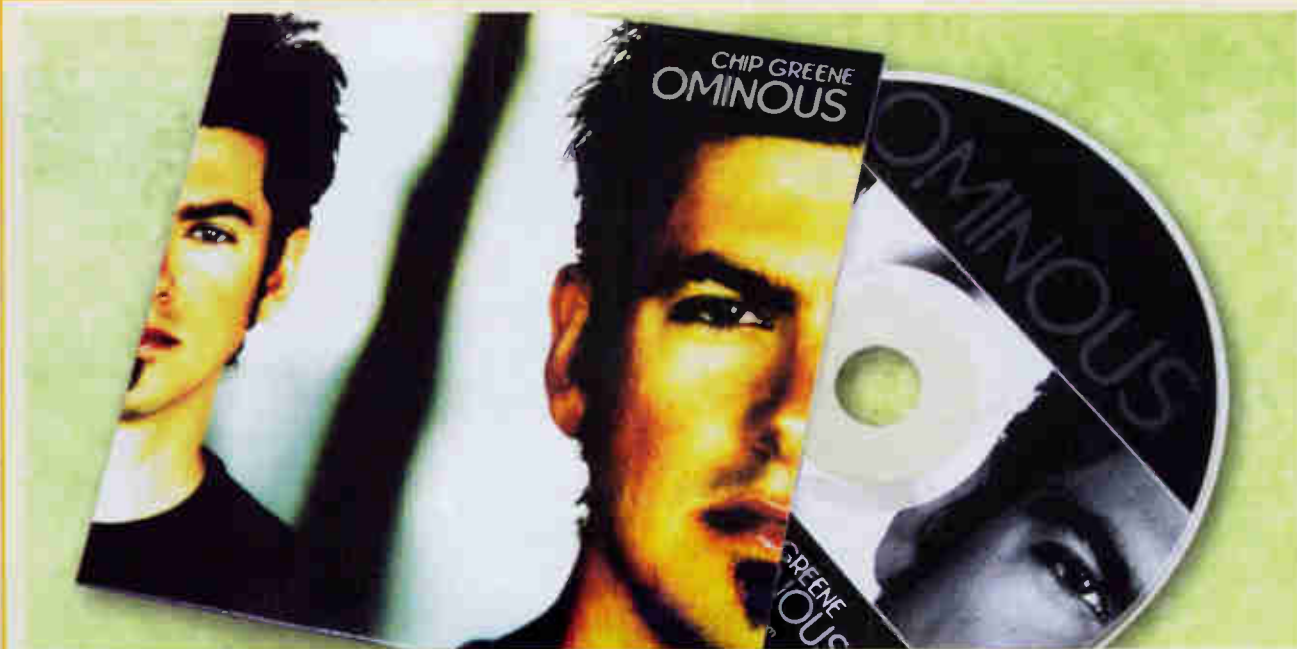
Because of its distinctive coloration, the ADL 600 does not flatter in all applications. However, few if any preamps do. Fans of Anthony DeMaria Labs' tube gear will love the PreSonus ADL 600's trademark sound, which can most easily be described as vintage-like with lush overtones and a soft top end. The unit sounds awesome on miked electric guitar, and the line inputs warm up edgy or thin tracks beautifully.

Reasonably priced at \$2,295 list, the ADL 600 has a unique and interesting tone that will find favor with many tube gear aficionados.

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Apex 460 Tube Microphone

Price-Busting Nine Polar Pattern Condenser

In a sea of inexpensive mics, there is a new contender for your dollars: the Apex 460. Squarely aimed at the engineer on a tight budget, it offers features and functionality never before found at this price point. The Apex 460, made in China, is a 1-inch-diaphragm, multipattern tube mic that comes with a power supply, connecting cable, shock-mount and IEC power cable—all for \$229.

ANATOMY OF THE MIC

The 460 offers an unimpressive S/N ratio of 76 dB and a self-noise of 20 dB (A). This mic is not at its best when used on quiet sources. The power supply carries an on/off rocker switch, IEC cable input and voltage selector on the back; on the front are a 7-pin XLR input and a standard 3-pin XLR.

Patterns are switched in nine increments between omni on the left and figure-8 on the right via a rotary knob, which is also on the power supply's front panel. Similar to any mic using a thin multipin XLR connector, care must be taken not to force the plug.

SITTING IN THE MIX

I first tried the 460 on a tenor sax. I've worked with this particular sax player in the past and he has good ears and is very picky about microphones. On various sessions, I've heard his sax through a Neumann 147 and U87, AEA R84 and various other mics, and he hasn't fallen in love with any of them. However, for him, the Apex was love at first listen.

I set up the mic pointing just above the bell and ran it through an SSL 4000 G+ Series preamp directly to a Studer A827 multitrack at 30 ips. On a number of tracks, the tone of the sax was balanced, not strident; it sounded good in the mix without requiring EQ. The sax player even bought a stereo pair of the 460s for his own use.

The Apex also shined on acoustic guitar. This particular part was a combination of strumming and single-note lines interspersed. The result was pleasing, and like the sax, the guitar sat nicely in the mix without needing much EQ. It's

not blazing on the top end, and there's not a significant low-end bump—it's just right. Switching the patterns produced varying degrees of room in the mix—a nice way to alter your tone and ambience feed with minimal effort.

The mic was a solid winner on male lead vocals when put up against another Chinese-manufactured tube mic and a much more expensive ribbon vocal mic. The Apex had a nice top end that wasn't overbearing and the bottom was not tubby, but a tad too thin for my tastes. Adding a couple of dB at 100 Hz took care of that.

The Apex worked nicely as a secondary mic pulled back from a guitar amp that was miked with a closely placed Shure SM57. The Apex is not very accurate off-axis, so it wouldn't be my first choice as a room mic, but it works fine when used as a trashy room feed that you can compress and add to the final mix.

I didn't care for the Apex as a stereo pair of drum overheads. Compared to a pair of BLUE Bottles used the same day in a later setup, the 460s couldn't handle the loud sonic complexity provided by the cymbals and toms. The Bottles outclassed the 460s, but at \$5,000 each, they should.

Using the 460s as room mics produced the same results, although they didn't sound bad when the drummer was playing the ride cymbal: The crashes were washy and the stereo image was poor. I wouldn't recommend them in this application.

It also did a decent job on a pair of congas. The player was not a banger, so the transient issues experienced with the drum application wasn't a problem. It was good, but not great here—certainly good enough to bang into a mix in a supportive role.



DON'T HATE ME BECAUSE I'M CHEAP

Think of the Apex 460 like your first car or guitar: It's not a Ferrari or a Fender, but it is functional and fun. Functional, because you can throw it up on something as a flavor mic: an extra feed from a guitar amp or as a room mic to crush to a lo-fi death and add to taste in a mix. The 460 also sounded pretty good on tenor sax and acoustic guitar.

Bottom line: At \$229, the Apex 460 is a phenomenal buy and although it will never replace its higher-end brothers, it stands up in its own right and does a decent job in a number of applications.

Besides, at this price, it's one that you wouldn't mind opening up to dink around with the electronics or to change the tube. I've already seen modded units available online with a lower output and quieter tube, along with some capacitor changes. This is not a mic aimed at the high-end user, but at the hobbyist and/or home studio owner. For that large chunk of the recording public, owning this mic is a no-brainer.

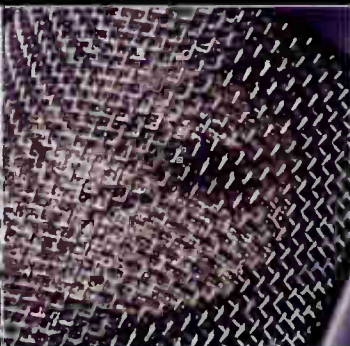
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Kevin Becka is Mix's technical editor.

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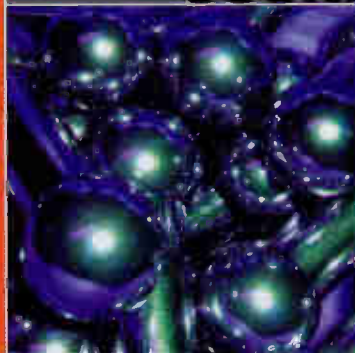


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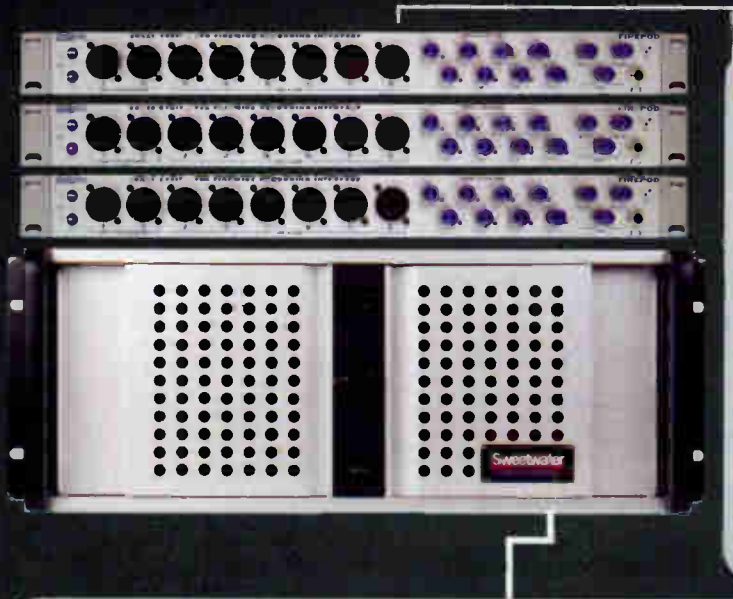


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JON BRION

PRODUCING HIP HOP WITH KANYE WEST?!

By Mr. Bonzai

Friday nights here in L.A., producer Jon Brion hosts a (humorous) musical variety show at Cafe Largo. Improvisation, new tunes, oldies done with a devilish twist, surprise guests, retro instruments, colorful rock and tasteful roll. You might hear Brion playing "Sympathy for the Devil" on an accordion. At his request for song ideas, someone shouts out, "This guitar string is wrapped around my heart," and Brion weaves a believable song around it.

Born in the rough woodlands of New Jersey, Brion has been living in L.A. for the past 15 years, gathering accolades for his ability as a multi-instrumentalist with an eclectic collection of string and keyboard instruments, odd electronic gear and choice vintage mics. As a producer, the albums include work with Rufus Wainwright, Aimee Mann and Fiona Apple. In the film world, he has created memorable soundtracks for *Magnolia*, *Punch-Drunk Love*, *Eternal Sunshine of the Spotless Mind* and *I Heart Huckabees*.

The surprising news is that Brion has produced his first hip hop album: Kanye West's Number One smash, *Late Registration*. Brion collaborated with West on creating the new songs, as well as playing guitar, keyboards and providing string arrangements. Guest vocalists include Cam'ron, Brandy, The Game, Jamie Foxx, Jay-Z and Maroon 5's Adam Levine. Brion's longtime engineer, Tom Biller, gave me a tour of the funky Grand Master recording studios, where tons of strange instruments were being hauled out of storage to get the job done. Then I sat down and talked with Brion.

How did all this materialize with Kanye West?

I was standing in a music store and got a call. "Hey, man, it's Kanye. Thought we should get together." His last album wasn't just boasting, as is common with rappers. He stayed on topic; he is focused on the songs. That's why I like working with artists

like Fiona Apple and Aimee Mann.

He came in with the basic samples and drum beats, and sometimes a verse of the raps. We're doing all sorts of things with real instruments. Turns out he liked the soundtrack to *Eternal Sunshine* and



PHOTO: MR. BONZAI

the second Fiona record. He liked the fact that I got sounds that were different from the norm

I discovered that he is a great drum programmer and great at manipulating samples. I introduced him to the Celeste and it blew his mind, and then to the Chamberlin. I said, "Here is the original sampler, invented in 1946, and there's a tape player under every key, with recordings on this one of the Lawrence Welk Orchestra recorded in the late '50s." I put my hand on the keys and you could see fire shooting out of his eyes, he was so excited. So here we are with the instrument collection, and we are following my obsession of making new sounds appear in a very organic way.

You finally have all your instruments out of storage?

Yes, here at Grand Master recording studios, famous for sessions with Ringo Starr, Billy Preston, Harry Nilsson and Beatles-related '70s-era stuff. I came in to do a little instrumental project, and Kanye came by the very next day. He brought along some Pro Tools files, but I didn't really know what he wanted to do. I introduced him to The Pile, which is what we call this collection of instruments and old electronic gear. Within half-an-hour, he was playing me rough mixes and I was suggesting things we could add. A microphone came up, and two days later, we had worked on three or four songs. He looked up at me and said, "Are you producing?" I looked at Tom and we both laughed, and I said, "Okay."

Did you go back and study his previous work?

I knew the last record, and I am incredibly impressed by his instincts. He will do his rap, and then sing a chorus, sing an octave above it, then come in and listen. He tells me, "I need somebody with a reedy voice to do the top part and somebody with a huskier voice for the bottom part. He starts mentioning people he has in mind. I said, "You just wrote the chorus and you figured out mentally how it should be presented." He thinks in frequency ranges.

—CONTINUED ON PAGE 128



PRODUCER/ENGINEER

MARK LINETT

PLENTY TO "SMILE" ABOUT

By Blair Jackson

Call it the George Martin Syndrome: The famed producer enjoyed a glorious career spanning five decades and dozens of acts ranging from classical to comedy to jazz, yet he will forever be known, first and foremost, as "The Beatles' producer." And why not—his Fab Four productions changed the world. For L.A.-based engineer Mark Linett (yrplace@earthlink.net), it's a different problem: "I don't really mind being pigeonholed as the guy who only works with Brian Wilson and the Beach Boys—I love and am proud of all those projects," he says good-naturedly. "But I did just finish tracking a new album for the Red Hot Chili Peppers, which is pretty far from a Brian Wilson production. Although," he adds with a chuckle, "[producer] Rick Rubin asked me to do that project because he loved the sound of *Smile* so much."

Having worked with Wilson for nearly 20 years, Linett has become inextricably linked with the Beach Boy's remarkable recorded legacy. He spent much of the past two years devoted to Wilson's famed *Smile* project: a completely new construction of his never-completed "Teenage Symphony to God," which Wilson worked on but was ultimately forced to abandon in the mid-'60s. A huge band that could play the elaborately arranged tunes live was put together (and recorded at the premiere performance in London) and then the actual album was cut in Los Angeles (earning Linett a richly deserved Grammy nomination for engineering). This was followed by more live shows, including one at Carnegie Hall, which was broadcast by NPR and has been nominated this year for a TEC Award.

If that's not enough, he also engineered and produced the music for Wilson's superb DVD of *Smile* (which also includes a documentary about the project), which was released in the spring of 2005. Finally, last spring he engineered Wilson's Christmas album, which was released last month on J Records. And all this was on top of many years of engineering and producing numer-



Mark Linett in his studio, *Your Place or Mine*

ous Beach Boys releases—remastering their entire catalog, supervising anthologies and live recordings, and shepherding a variety of Wilson's other projects, from solo albums to *Pet Sounds Live*.

But in an audio career dating back to the early '70s, Linett has engineered, produced and mixed a plethora of fine albums by top-name artists and talented indies alike, including Rickie Lee Jones, Jane's Addiction, Torn Petty & The Heartbreakers, Dave Alvin, Ry Cooder, Michael McDonald, Arlo Guthrie, Paul Simon, Randy Newman, Jimi Hendrix (posthumously, of course), Eric Clapton, The Blasters, Beat Farmers, Rosanne Cash, Buckwheat Zydeco, Crash Test Dummies, Jerry Lee Lewis, Los Lobos and a whole mess o' others. Besides his recent tracking dates with the Peppers, Linett had just finished a live album for Alvin (with whom he won a Grammy in 2002 for his album *Public Domain*), another for the X and Blasters spin-off, The Knitters, and he's about to work (again) with Los Straitjackets on a live DVD.

Linett hails from the genteel New York suburb of Scarsdale, where his early tech experience included creating psychedelic light shows for local bands and later running his own concert sound company called Nightshade and Dark. "We did a lot of things on the East Coast college circuit," he says. "We worked with Livingston Taylor, Seals & Crofts, Sha Na Na—lots of bands. I did that for a few years.

"I first came out here [to L.A.] in about 1972 and worked at a number of small studios—a place called Artist Recording, which is long gone, and at Mystic, which was the former Delfi Studios—and got

some basic studio experience, although they weren't exactly great studios.

"I stayed in L.A. for two years," he continues, "but eventually returned to New York, where I started working for Ed Chalpin, who's best known as the guy who signed Hendrix to a \$1 contract and ultimately made millions from that 'investment.' I worked at Chalpin's studio for only a few months. They specialized in Top 40 soundalikes for the European market. After that, I went back to college at Boston University for a while, still knocking on doors trying to get jobs in recording."

Linett caught a major break when he got an emergency call to fill in for Frank Zappa's tour mixer, who had fallen seriously ill before a show in Hartford, Conn. "I flew down on a little prop plane, got there between sets and was told to go out to the [board]," he remembers. "So I'm watching and suddenly the other guy just disappeared! He came back once for about 10 minutes and then was never seen again. So I mixed the rest of the show and they hired me on the spot. I worked for Frank for the next two years, mixing live and then running the P.A. During that time, I also toured with ELO [Electric Light Orchestra] as part of Zappa's production company."

After working "a big, long grueling" tour with Earth Wind & Fire and a brief (and more pleasant) stint with Journey, Linett finally made the transition back to studio work at L.A.'s Sunset Sound. "In those days, they had two second engineers for every studio because they constantly ran double shifts. Thanks to a recommendation from George Massenburg, when they opened Studio 3, they hired me and I ended up working there for about two

—CONTINUED ON PAGE 129

LUTHER VANDROSS' "HERE AND NOW"

By Gary Eskow

When Luther Vandross succumbed several months ago to the effects of a stroke that he suffered in 2003, the world lost a great singer and a top-tier tunesmith. Those who worked with Vandross remember a perfectionist who would coax, cajole and demand the best out of others—and himself.

Born in the Lower East Side of Manhattan, Vandross met Nat Adderley Jr.—who would co-write and produce a number of Vandross' classic hits, including "Stop to Love" and "Give Me the Reason"—while both were attending the prestigious High School of Performing Arts in Manhattan. "We were in a group called Listen My Brother, which was like the Voices of East Harlem," says Adderley, who seemed a bit stunned to be speaking of his friend entirely in the past tense. "There were 10 or 12 great singers in the group—Luther certainly wasn't the top singer—and we did political skits and songs about peace and love. We all became friends."

While attending Yale, Adderley received a call from Vandross asking him to play keyboards on one of his friend's early records. This effort led to a career-long collaboration that included work on Vandross' first Grammy-winning smash, "Here and Now," in 1989. The song came to Vandross through Dionne Warwick, one of his earliest idols. "She played him a tape of a song that her son, David Elliott, had written with his partner Terry Steele," Adderley says. "None of us could believe how good it sounded! And I'm not just talking about the song itself; the arrangement was nearly all there. Luther and I added the bridge to give the tune a lift, and I wrote the string arrangement the night before we recorded it at Westlake Studios in L.A., but there was really very little that needed to be done to help the song."

Marcus Miller, another longtime collaborator, has similar recollections. "When Luther played me the demo, it was obvious that it was already a hit," says Miller from the south of France. "You could tell that it was a sentimental, beautiful and honest song, and that it was perfect for Luther."

"I'd been working with Luther since 1983, so we had our work process down by this time," Miller continues. "I played synth bass on 'Here and Now,' but I hung around the studio all the time. If they needed me to play a sound or help get a sound with Jason Miles, I was there. I always wanted to make sure that I lent my full abilities to any track I was a part of with Luther."

"I laid the synth bass against the main Rhodes piano that Nat had laid down and a drum track. There might also have been a scratch vocal in place. I knew the song well enough to put my fills in the right places. I do remember that I laid down the bass part in one track with a few overdubs."

"Luther was the funniest guy you'd ever meet," Miller



PHOTO: MATTHEW ROLSTON

continues. "As long as everyone was doing their job, we'd be laughing all day long! That's what I'll remember most about him—how much fun we had making those records. He was also the first guy I met who had a vision about who he was and who made that vision a reality. He'd invest his own money when it was necessary, and that was inspiring to me. Once, he went on tour and he told me that he was going to pump his own money into it to make it an extravagant experience for his fans. He believed that would keep them coming to his shows, and he was right!"

"Like Marcus said, we knew the song would be a smash the first time Luther played it for us," says keyboardist Miles. "Back then, it took some effort to overcome the problems with MIDI timing and make things groove. I used a Roland SBX-80 to move notes around and offset timings in the sequencer. There was some real science going on!"

"Luther was funny. He'd hear Marcus and me discussing all of this technical stuff—which he didn't understand or care about in the least—and shake his head. One day, he comes up to me, and says, 'Jason, write down five technical things, so that when Marcus walks in, I sound like I know what I'm talking about.' I think I wrote that we need to offset the vocal by four bits and quantize this or that part. So Marcus walks in and Luther pulls him aside, looks at the paper and says, 'Marcus, let me ask you a question. Can we offset the vocal by four bits?' and starts cracking up. But he really embraced technology; he wanted the coolest synths on his records. R&B was Luther's love, but he wanted to be on the cutting edge of pop."

"As far as the programming on 'Here and Now' went down," Miles continues, "it was obvious that the Rhodes sound was going to be prominent on the record. I'd walk Nat through the MPC 60 sequencer I had. Nat has a way of

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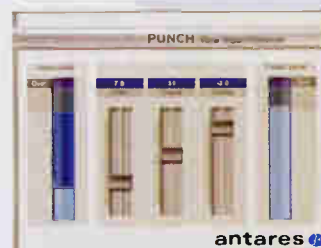
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working chords from the inside on an R&B ballad that's quite good, and he understood Luther's attitude toward ballads.

"Nat played the basic keyboard part into the sequencer using a standard DX7 Rhodes sound, and I layered different sounds to create the texture that was used on the record."

Ray Bardini, Vandross' longtime engineer, took a break from mixing Dr. John's new record at Sound on Sound to share his memories of the "Here and Now" sessions. "The basic tracks were recorded at The Hit Factory in Studio A2, I believe. We recorded onto an analog 2-inch 24-track machine at +6 and eventually transferred it to 48 tracks.

"In those days, most people worked the same way we did: We printed all of the drum machine parts and then Nat played the main keyboard part. This Rhodes-style sound was a combination of synths that Nat and Jason Miles MIDI'd together. Next came Marcus' synth bass part, and then the drummer, Ivan Hampton, was brought in to add live cymbal overdubs. All of this work was tracked on the Hit Factory's SSL 4000 G+. Everything went through some outboard processors; we took in the drum machine kick and snare through some Neve mic pre's, and some API and Massenburg EQs were also used.

The keyboards and cymbals came through the console only, but we did record Marcus' synth bass through a dbx 160 and a Massenburg EQ.

"From there, we headed out to L.A. because we'd already recorded two multi-Platinum albums there and we liked [Westlake Studios]. I made a slave tape to record the string section, which was split out to four tracks: first violins, second violins, violas and cellos. Luther liked to use the traditional string panning and no room mics; he liked the closer, fuller sound. We also recorded Paul Jackson Jr.'s guitar track at Westlake.

"Next, we added additional synth overdubs using Jason Miles' synth rack. Nat and Marcus would program a part, and Jason was responsible for making it sound unique. Luther knew what he wanted, but he gave us all the time and creative freedom to try things.

"After this work was completed, everyone cleared out except for Luther and me and we got down to work on his main vocal. I remember that this was on July 3, 1989. That session, he told me that he wanted to start tracking the bridge first so that he'd know what he'd be working toward dramatically. We worked for a number of hours and he told me that there was not going to be a day off for the Fourth of July;

we came in and Luther began singing.

"He worked for a little while and then said, 'Ray, do I sound as bad as I think I do today?' I told him yes! He laughed and said, 'Let's just call everyone up and have a barbecue at my house'; he was living in Beverly Hills at the time. We had a great time, and the next day he came back to the studio and sang the song as you hear it on the record. We used an AKG 414 on his voice with a Neve 1074 mic pre, a dbx compressor and a Massenburg EQ. We'd have the same chain wherever we recorded Luther's vocals. The mix was done at A&M on an SSL console.

"Luther was one of the most generous guys you'd ever want to meet," Bardini concludes. "I recall that several days after we finished this record, a tuxedo arrived at my door, along with a note from Luther thanking me and telling me that the tux was for me to wear to the Grammys. We worked together for 22 years, and he was one of the most amazingly talented artists you'll ever meet."

At 54, Vandross was too young to pass away, but his enormous talent and fierce dedication led him to create a body of work—including "Here and Now," for which he won the Best Male R&B Vocal Performance Grammy Award in '91—that will endure.



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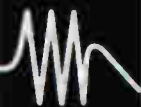
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JON BRION

FROM PAGE 122

I can recognize when someone sees music architecturally, which is how I work. I see it as a spatial thing: left to right, front to back, up and down. It's animated and it's moving in real time. Kanye has that. He said, "I see things in my head and they are complete and then I have to put it together in the recording." He tries things out until it fits, until it sits where it is supposed to sit and everything has the correct emotional function. He has real instincts like any great record-maker.

You've never made a hip hop record.

No, and I've wanted to make one for 10 years. The influence of that music is all over everything I do. The first record I produced, for Aimee Mann, has tons of the influence of listening to hip hop and rap records. Nobody ever gets it because they see the Beatlesque pop things and recognize that. They



Jon Brion's engineer, Tom Biller, slaving away at the board

PHOTO: MR. BONZAI

hear some of the wackier stuff and know I have a love of early jazz and stride piano.

In the late '80s and early '90s, I was attracted to hip hop because, unintentionally, they were playing with different eras of fidelity at the same time: Here's this bit from the '60s and something current right next to each other. Rock records were either all

modern or all retro. I hated the way reverb and samples were used on records in the '80s and even today. Generally, I don't like digital reverb. I was reacting against that and how records had "spatialness" based on how wet it was. The only wetness they knew was bright, hissy and awful. Multi-relays on guitars. And it obscured what was originally there.

I started doing things as a result of hip hop influences, those accidental combinations of fidelity. What if we had something that sounded like it came off a Nelson Riddle record and just in the left speaker? And over here we have some-

thing from this era. I wanted to make sure that people realized it wasn't strictly retro. That Aimee Mann record [*I'm With Stupid* in 1995]—not a mid-'60s melodic pop record—has lots of stuff that is decidedly modern with some left-field material.

You're a troublemaker; aren't you?

Yeah. Going back to the second Fiona

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Apple record, it was very much an experimentation of the influence of both electronic music and loop music, but not looping things—using synthesizers for the most part. Everything is played on that record. Those aren't drum loops; Matt Chamberlain is playing those drum parts, except for one Optagon part that was looped. If there was a repetitive keyboard part, I played a three- to five-minute performance. It still has the hypnotic effect, but it has the human element, too—like a weird combination of electronic music, Reich and Eno influenced, modern and feeling classic because you have the human element.

I thought this kind of sound would be great on hip hop records because it feels as solid and tight as a machine, but is human and funky. Kanye is the first person to make the connection on a purely sonic level. He noticed some sonic signposts. And his decisions are intuitive and not random. Once he was here, it freaked him out that I was playing parts-oriented stuff for the whole take rather than playing chords or noodling.

He came up with a great part the other day when I set up a weird old early sampling keyboard, the 360 digital keyboard—the first commercially available sort of sample player. We are bringing out a lot of early '80s technology because he relates to the synths and drum machines. What's interesting is that our tastes are similar, but not in specifically the records we listen to but what we listen *for*: Quality of experience. How it connects with the body. When there is a decisive change in the record to keep your interest up.

All those little things are the intrinsic heart and soul of record-making. It's why Rick Rubin and Dr. Dre are the producers of their generation. I don't think anyone else is even close. It is no accident that they have had careers nearly two decades long, consistently hitting the mark. They have a sense of what a record is supposed to be about and they bring that to the studio.

With hip hop, the notion is that you always have to have the latest "thing." But what's funny to me is that the sounds that everyone likes are coming off these old records. The sounds went through multiple tape generations before going to the mix and then to vinyl, and then the records were kicked around for 20 years before they were sampled. That's a lot of generations to have the EQ softened, for it to get grainy. But that's what works.

Me with my piles of instruments, with knives and forks stabbed into them to keep them working—these crazy half-working instruments—actually help to make the

sounds that hit the spinal chord in the way that Kanye wants. And Kanye is loving it. I have an excited artist. One of the reasons I collect old equipment is because of the way different artists react as they come into this unfamiliar environment. We get new sounds that are very, very interesting. They want to experiment, they start playing around and that's when I like to start recording. ■

MARK LINETT

FROM PAGE 123

years and managed to build up the clientele I was thirsting for. I worked with a lot of great engineers: Bill Schnee, Humberto Gatica and Don Landee. I worked with Hall & Oates, the Doobie Brothers, Jimmy Webb—there was a lot of pop coming through the studio in those days." Nearly three decades later, Linett would cut *Smile* there.

After working as an independent for a while, Linett landed a job with Warner Bros. at Amigo Studios under veteran engineer Lee Herschberg. "That was a great place to work," he says. "It had a DiMedio API console in Studio A, and Studio E had a Harrison. We did the first two Los Lobos records, I worked with Michael McDonald, did Randy Newman's *Trouble in Paradise*, I got to work with Eric Clapton and I also did several of Rickie Lee Jones' records there. I was at Amigo until it closed in 1984, and then I stayed with Warners until 1985."

I ask Linett what in his personality allowed him to work smoothly with artist-types like Jones, Zappa, Newman and, later, Wilson. "I don't know," he answers. "They're all completely different. Rickie could be very demanding—she had high expectations of what she wanted from everybody—but we always got along great. Frank was always an extremely nice guy; even when he would let somebody go, he was never unpleasant. And Randy is so much fun to work with. I was a huge fan, so to work with Randy and [producers] Lenny [Waronker] and Russ [Titelman] was just about the most fun I ever had making a record, with the possible exception of working with Randy. Lenny, Steve Martin, Chevy Chase and Martin Short doing *The Three Amigos* soundtrack." Linett also engineered some of Paul Simon's *Hearts and Bones* for Waronker and Titelman during this period, and he also was the mix engineer on numerous Hendrix releases, including acclaimed live albums from the Monterey Pop Festival and Winterland.

Linett's departure from Warners also coincided with the construction of a large studio

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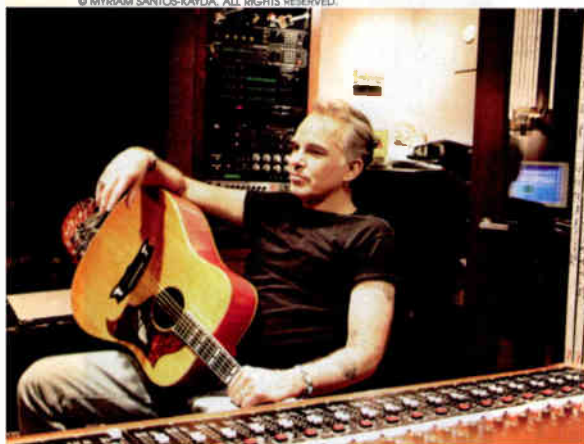
L.A. GRAPEVINE

by Maureen Droney

I dropped in at The Cave, Billy Bob Thornton's Beverly Hills studio, to chat about *Hobo*, his latest release, only to find him working away on a whole new batch of songs. This guy just plain loves making music. If he's not directing, acting—or both—he's writing, recording or performing his original music with bunches of very cool musicians.

The Cave, it's rumored, was originally a speakeasy, part of a neighborhood

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Billy Bob Thornton at home in The Cave

network of private clubs built during Prohibition. When you're down there with master storyteller Thornton and friends, it's easy to believe that the tales are true. The studio itself was built for the home's previous owner, guitarist Slash, by studio designer/tech Art Kelm and engineer Jim Mitchell, a mainstay engineer for Slash and now for Thornton.

Co-written by Thornton and songwriter/guitarist Randy Mitchell, *Hobo* was co-produced by Thornton and the two (unrelated) Mitchells. It's an evocative record, an amalgam of poetry and music with a smoky, hipster sound.

Although *Hobo* was written, recorded and mixed almost entirely at The Cave, its beginnings were in a Chicago hotel room. "I was talking on the phone to my mom," Thornton recalls, "about how my grandmother used to feed hobos at the

back door. That led to a song about a street person in Santa Monica [Calif.] whose grandmother fed hobos and realizes he's become one."

A string of other songs ensued about California and those who come here pursuing dreams. The music, which sounds like it was performed live by a band, was, in fact, almost entirely played by Mitchell, who composed loops and beats and then overdubbed guitars and both electric and keyboard bass; Matt Laug added live drums. The result is moody, groovy and picturesque.

"The album is a story," says Thornton, "in the sense that the songs are all about the pilgrimage to California. But they also all stand on their own. I come by this stuff honestly; I was practically a street person myself for a while. I came to California without much of anything and I starved for 10 years before things started to happen."

Because he's a director, it's no surprise that Thornton writes songs from a visual standpoint. "If you tell the story well enough," he explains, "it should cause people to not only listen to the sounds, but also to conjure up images."

The tracks, originally recorded by Randy Mitchell on a Digidesign Mbox, were transferred to Pro Tools for drum recording by Jim Mitchell. Mixing took place on The Cave's Trident Series 80B desk to an ATR Services 1-inch 8-track (rented from Design FX) on Ampex 456 tape at +3. Joe Gastwirt mastered the project at Joe's Mastering Joint.

Digging deeper: Time and space intervened and September's "Sound for Picture" story on *Family Guy*, Fox Television's outrageous animated feature, fell short in describing the show's fundamental: dialog recording. Fortunately, I got to take another trip to the Wilshire District for a tour of the Fox

—CONTINUED ON PAGE 138

NASHVILLE SKYLINE

by Rick Clark

New Orleans may be a long day's drive from Nashville, but the double whammy of Hurricanes Katrina and Rita (and the influx of so many displaced musicians, artists, engineers, producers and studio owners into Nashville, Memphis, Austin, Atlanta and Houston) caused me to meditate on how each of our communities are so intertwined. We need to do everything we can to hold each other up and, in this case, help restore this incredibly important city and support its priceless contributions to our culture.

The Nashville music industry and many artists quickly began working overtime trying to raise money to assist victims of Katrina, from Mötley Crüe and Linkin Park collaborating on a new version of "Home Sweet Home" at Ocean Way, and blues musician Chris Thomas King, songwriter/producer Tommy Sims and other musicians from the Jazz and Blues Festival recording a song at Platinum Labs for charity. King and his family, by the way, lost everything to the hurricane.

The Red Cross has been amazing, but what about the mechanisms that help those in New Orleans and the region that are associated with our specific industry? I spoke to Reid Wick, who is now working at the Memphis Chapter of the Recording Academy's assistance program, MusiCares. Wick told me his own amazing story of surviving Katrina—volunteering at a hospital where his wife worked and trying to get the attention of helicopter pilots to airlift patients from the hospital for several days while armed looters were trying to break in all around. "When I left New Orleans, I left everything," says Wick, who owns a beautiful old house he had just finished restoring that was seriously flooded. "I bought some new clothes in Baton Rouge [La.], but I'm one of the fortunate ones. There are people still in shelters."

Reid notes that MusiCares and The Recording Academy have established the MusiCares Hurricane Relief Fund, a \$1 million commitment of charitable funds to be distributed to music industry people

NEW YORK METRO

by David Weiss

directly affected by this disaster. This fund will provide basic living expenses such as shelter, food, utilities and transportation; medical expenses; clothing and toiletries; musical instrument and recording equipment replacement; relocation costs; school supplies for students; cell phone service; insurance payments; and more. He also stated that it would be provided on a first-come, first-served basis due to the crush of requests. To qualify, applicants have to prove five years of professional experience in the music industry and loss of livelihood or housing due to the effects of Hurricane Katrina. Anyone who qualifies can call toll-free at 877/626-2748 to apply.

NAPRS (Nashville Association of Professional Recording Services) is pooling donations from all of its members to be distributed to MusiCares and the Red Cross. There is also an organization called New Orleans & Houston (NOAH), which comprises a group of Houston musicians whose mission is to reach out and support the displaced New Orleans musicians by providing them with housing, venues in which to perform, instrument replacement, etc. NOAH is currently compiling a database of names of displaced musicians from New Orleans, instruments, work experience, present location and contact info to be posted online (www.tiannahall.com/SHONOF.html). The NOAH helpline

—CONTINUED ON PAGE 138



Chet Atkins (left) and Alan Toussaint inspired one another for many decades.

To those who sniff at the recording scene in the state of New Jersey, that dreary-looking land Tony Soprano drives through on the way home, we say, "Ever heard of Menlo Park?" That's right, Thomas Edison made the world's first audio recording—reciting "Mary Had a Little Lamb" into a phonograph—in New Jersey in 1877. The cradle of audio engineering is in the Garden State.

The evolution of Bennett Studios (www.bennettstudios.com) in Englewood, N.J., is a perfect barometer for why operating just west of New York City is an increasingly attractive option. When *Mix* first visited Dae Bennett's expansive facility four years ago, the Grammy-winning engineer had just opened the doors on September 6, 2001. World events and the recording industry both got scary soon after, but Bennett's location and relentless business savvy have helped him out. "In New Jersey, the advantage here is that there's a lot less overhead than in Manhattan and we get to pass that on to the clients," he explains. "There's just not as many 60-day album projects as there used to be. But the way I look at it is a day sold is a day sold—that's our strategy and it works."

While only several minutes away from the George Washington Bridge that connects New Jersey to northern New York City, Bennett can afford to continuously expand his operations. In addition to his world-class North (Neve VR60) and South (SSL 4080) music studios, hosting recent clients Trey Anastasio and Rob Thomas, Bennett's converted 100-year-old Victorian railroad station accommodates live TV production and a DVD production suite. Upping the ante is a 64-channel fiber-optic link to the 1,400-seat John Harms Theater a block away.

"We built this place with foresight and a diversified approach," says Bennett. "Going into this, I didn't think the studio-as-a-room-for-hire on an hourly basis would cut it anymore, so we came in with this diversified business plan, which is paying its dividends now. We produce DVDs and sell them through our Internet store.

PHOTO: DAVID WEISS



Julie (left) and Rob Harari of HarariVille

We've also done a couple of QVC music productions: they just pulled the truck up and we had my father [Tony Bennett] come in here and perform while they sold \$500,000 worth of stuff in an hour. I'm always thinking outside the box in terms of music delivery, and infomercials are something with a lot of untapped potential. Why the music industry isn't using that I have no idea."

Bennett acknowledges that although New Jersey carries a blue-collar stereotype with some New York City sophisticates, those attitudes usually melt away after the first visit. "You say New Jersey, they think 'Podunk,' and then they realize it was quicker to get here than to downtown. Sometimes you have to physically get them out here first and then they see that the ancillary costs of producing a TV show or a record is 20 to 30 percent less than in Manhattan. There's tons of parking, and with so many great restaurants here, you don't even need to do catering—just per diem everybody."

With his mile-long track record, Bennett could work anywhere, but New Jersey feels just right. "There's a lot to be gained from coming out here," he says. "There's a few of us with studios on the Hudson River who have sustained really well. You've got the quality product and it's just so much more cost-effective."

Moving downriver from the GW Bridge to the Lincoln Tunnel is another ambitious

—CONTINUED ON PAGE 142

MODESTO SOUND STUDIO RECORDING FOR TEENS AT STUDENT PRICES

I don't know which would be more nerve-racking for a high school student: auditioning in front of a group of stern music instructors or performing your work in a studio, knowing that every note, every *breath* is being recorded in the next room by some strange engineer. Thankfully, teenagers in the Modesto, Calif., area don't have to stress out while working at Modesto Sound Studio (www.modestosound.com), a new home-based operation launched by engineer Brenda Francis. A former Modesto Symphony Youth Orchestra manager and familiar face around Modesto High School, Francis caters specifically to youth ages six to 18 and offers them a ridiculously low rate (\$15 an hour). Students gain invaluable studio experience and walk away with a CD that they can either use for auditions or just keep for themselves and play for their friends.

A Digi 002 system equipped with Pro Tools LE software, an iMac G5 with a 20-inch screen and a Focusrite Octo Pre comprise the basis of Francis' studio setup. She also owns an AKG C414 for vocals, Octava MC012s for overheads and "a whole bunch of 57s" for everything else. A drum set, keyboards and bass guitar are on-hand for impromptu overdubs.

Francis recently recorded a Modesto High student's violin performance for her

ModestoSymphonyYouth Orchestra audition. "It only took an hour," says Francis, "and she left with two CDs: one for the school and one for herself. And it only cost her \$15."

As part of the Stanislaus Arts Council, Francis can run the studio as a non-profit organization. She also participates in the council's after-school "Stars" program, giving lectures to junior high and high school classes on the difference between analog and digital, what an MP3 is, how to legally download music and the various careers available in the music business.

Francis notes that her previous experience working with young adults not only helps on a "calming nervous students" level, but also on a more technical level. "Being the manager of the youth orchestra gave me a chance to hear all of the band and orchestra instruments many times, so I know what each one should sound like when I am mixing. I am also a drummer, which is beneficial when I'm mixing those."



A Modesto High student records her audition



Brenda Francis at Modesto Sound Studio's control center

BEHIND THE GLASS

JOAN BAEZ ROCKS OUT S.F. DJ TRACKS AT PYRAMIND

Renowned folk singer Joan Baez spent the afternoon at Pyramind (www.pyramind.com), a San Francisco-based digital audio training center, to record vocals for Bay Area-based artist/DJ Rocker T's newest song for peace, "The Way Life Should Be." Pyramind president Greg Gordon engineered the session in The Vault, one of the facility's three studios, which offers a Pro Tools|HD rig with a Control 24 mixing desk and Genelec 5.1 monitoring. In addition to its existing Digital Producer and Post-Production certificate programs, the school recently launched its Electronic Music Producer (EMP) certificate, an eight-month program that includes courses in various music software, songwriting, music theory, mixing and music business. The school also offers night certification programs in Digidesign Pro Tools and Apple Logic Pro 7.



From left: engineer/Pyramind president Greg Gordon, Rocker T and Joan Baez

BARBER SHOP CUTS CHERRY SUEDE RECORDS DEBUT

Ottawa, Ontario-based rock band Cherry Suede recently teamed with co-producer Rick Slater to record their debut disc, tentatively scheduled for an early 2006 release. The group tracked and mixed at Barber Shop Studios in Lake Hopatcong, N.J. (go online at blog.mixonline.com/barbershopstudios), with Slater handling production, engineering and mixing duties. During the session, Slater was deemed the first producer to use the studio's ATR 1/2-inch machine. "Cherry Suede has a lot of heavy '80s influences and we're trying to include some of those vintage cut rock sounds," Slater says. "We'll be able to capture that sound using the ATR half-inch recorder."




From left: assistant engineer Austin Briggs, Cherry Suede member Randy Young, co-producer/engineer Rick Slater and bandmember Randy Scott

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BRANTLEY ROARS AT RUBY RED



From left: Scott Taylor, producer/engineer Russ-T Cobb, Tim Brantley and guitarist Brent Kinney

Atlanta artist Tim Brantley recorded his second collection of piano-driven rock, *The Lion of Truth*, with producer/engineer Russ-T Cobb at Ruby Red Productions (Atlanta, www.rubyredproductions.net), the "red-hot" studio owned by producer/songwriter Butch Walker. "Recording *Lion* was great because we had an amazing group of musicians playing well-crafted songs, along with Tim's compelling voice," says Cobb. Visit www.timbrantley.com to hear the album's debut single, "Gold."

SNOW IN BURBANK!

A MEAT PUPPET VISITS DOG BONE



Pioneering alt-country producer Pete Anderson (right)—known for his Grammy-winning work for Dwight Yoakam and records by Roy Orbison, k.d. lang, Michelle Shocked, Lucinda Williams, Jim Lauderdale and Rosie Flores, among others—recently wrapped up *Snow*, the new album from Meat Puppets frontman Curt Kirkwood (left). The album was recorded, mixed and mastered at Anderson's Burbank, Calif., studio, The Dog Bone, with Sally Browder and Tony Rambo sharing engineering duties. The album was released October 4 on Anderson's Little Dog Records.

TRACK SHEET

SOUTHERN CALIFORNIA

At Sunset Sound (Hollywood), Rick Rubin produced a new Dixie Chicks album with engineer Jim Scott and then oversaw Audioslave overdubs with engineer Brian Virtue. My Morning Jacket came in with producer/engineer John Leckie to mix, Bob Rock tracked a new Nina Gordon album with engineer Eric Helmkamp and producer/engineer Tony Hoffer mixed the new Belle & Sebastian album...Anne E. Dechant recorded her debut with producer Andy Ackland at Rolling Thunder Studios (San Diego)...At Laurel Canyon Studios (Hollywood), Ryan Hewitt engineered the new Red Hot Chili Peppers' record...Ross Hogarth recorded Val Emmich (Epic) and Mandy Moore (with producer John Fields) at Track Record (North Hollywood)...Josiah Gluck mixed Erin Boheme's Concord debut at G Digital Studios (Burbank).

NORTHWEST

Jazz pianist/arranger Bill Bell worked on tracks at Bay Records (Berkeley, CA) for his own trio and for vocalist Robin Gregory with engineer/studio owner Michael Cogan; Victor Krummenacher, David Immerglück, Bruce Kaphan and drummer John Hanes cut tracks for a John Fahey tribute album; and jazz faves Eddie and Madeline Duran worked on tracks with engineer Phil Edwards...One Union Recording (San Francisco) engineers Andy Greenberg and Joaby Deal mixed four spots for Fox Sports' NFL Sunday Football.

MIDWEST

At Up on the Roof Recording (Lombard, IL), Irish tenor Gavin Coyle and violinist Roddy Chiong recorded for studio owner Mark Blas' publishing company...Aberdeen Recording (Aberdeen, SD) recent projects: Quarter to Nine, Sierra Dawn and Justin Haigh, all produced/engineered by Tim Anderson...J of The J Project recorded her new album at ImagiVision Studios (Minneapolis); LaSalle Gabriel produced and Travis Wilhelmi engineered...Balthazar de Ley produced Bang Bang at Engine Music Studios (Chicago). Brian Deck and Colin Studybaker mixed a project for The Safes and tracked/mixed a new album for Blood Shot Records band Dollar Store...Ex-Flying Burrito Brothers John Beland produced tracks for Kristine Seeley at Frontier Studios (Copemish, MI) with Scott Zylstra at the board.

SOUTHEAST

YKP dropped by Patchwerk Recording (Atlanta) with producer Rocko to mix three songs with engineer Mike Wilson. Wilson also mixed songs



Kirk Franklin mixed his new album at Luminous Sound (Dallas). From left: engineer Chris Godbey, mix engineer John Jaszcz, Kirk Franklin, assistant engineer Eric Hartman and producer Sean Martin

for Lil B. Producer Slick B also enlisted Wilson's mixing talents. Westcoastanostra enlisted Josh Butler to mix two songs of theirs at the studio, while Leslie Brathwaite mixed projects for T Pain, Swerv, Juvenile, Floetry and Bun B...Noel Goff produced/engineered a demo for rapper Phoenix Jones at G&G Studios (Atlanta)...At Sound of Music Studios (Richmond, VA), producer John Morand (Cracker, Gibb Droll, Sparklehorse) wrapped up a new album for Belgian band Mint; Alan Weatherhead mixed.

SOUTHWEST

Local talent show winner J.J. Worthen wrapped up a couple of songs at SugarHill Studios (Houston) with producer/engineer Dan Workman. Chief engineer Andy Bradley tracked and mixed three songs for J.R. Commentary.

NORTHEAST

David Gray, Bob Mould, Liz Phair, Missy Higgins and Hootie & The Blowfish have all tracked on the *Live At VH1.com* set at Dubway Studios (NYC); Jason Marcucci engineered. Dubway engineer Emery Dobyms mixed the new Patti Smith album—a live version of her landmark debut, *Horses*—with guidance from bassist Tony Shanahan. Julia Joseph began tracking her debut with producer Bruce Brody and owner/engineer Mike Crehore...At Avatar (NYC), artist Megan McCauley overdubbed with producer Will Baker and Avatar engineer Ross Petersen. Jane Monheit recorded a Christmas record with producer/engineer Al Schmitt. Producer John Alagia cut tracks with Liz Phair with engineer Brian Scheuble...Producer Tony Visconti handled 5.1 album mixes for Trapt and FeFe Dobson at Looking Glass Studios (NYC).

Correction: In the Jessica Simpson caption in September's "Sessions and Studio News," the console in The Village's Studio F is a Digidesign ICON and Dan Shea was the producer, not the keyboardist. *Mix* regrets the error. ■

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L.A. GRAPEVINE FROM PAGE 132

Animation suites where the hard-working crew records and edits dialog in studios of their own design for *Family Guy* and its sister production, *American Dad*.

Emmy-winning production mixer Dan Cubert, who's been with *Family Guy* since its very first recording, showed me around.

PHOTO: MAUREEN DRONEY



Emmy-winning production mixer Dan Cubert, a "Family Guy" since day one

Set in the middle of an office building with an open floor plan, *Family Guy*'s vocal production studios comprise modular, prefab booths that look as solid as bank vaults.

"We had to get a studio up and going as quickly as possible without any construction," explains Cubert. "Mike Sirna and Charles Rowe of Acoustic Systems put together these rooms for us. They went up in two days and then we did the wiring and install in a half-day. Acoustic Systems modified things for us, and thanks to the plug-and-play nature of today's equipment—and RSPE and Russ Beltary, our equipment suppliers—it was two-and-a-half days from nothing to a real studio. For our application, which is recording the absolute cleanest possible dialog, it's perfect."

One booth serves as the control room, another as the main recording space and a third as a smaller iso. "The modular booths are incredibly cost-effective," says Cubert. "They're not inexpensive, but they can be moved, stored and re-used in another location. And the building's management loves them because they're so unobtrusive."

The recording chain is the same for everyone: Neumann TLM 193 microphones through the Yamaha DM1000 console's preamps and Aphex 661 compressors, "the piece I insist on," notes Cubert. "The TLM requires zero EQ, other than rolling off everything below 80 Hz. [*Family Guy* and *American Dad* creator] Seth [MacFarlane] likes it, and he knows music. It has a high mid bump that cuts right through."

Recording to Pro Tools|HD is "straight-ahead," with no plug-ins involved. "We use

very light compression with the Aphex," states Cubert, "and we use limiting in the sense that we like to keep our levels between -6 and 12 [on a zero to -20 reference] so there's at least 6 dB of headroom."

The current crew includes Steve Dierkens, who records and edits for *Family Guy*, and Shawn Kerkhoff, who does the honors for *American Dad*. Cubert himself, until, as he says, "I lost my mind," recorded and edited both shows. Also in the loop has been "dialog editor Daniel Ben-Shimon, who came into the process on the second episode of *American Dad* for the first season and a part of the second season." MacFarlane (the voice of multiple characters on both shows) is a perfectionist. Each script goes through several rewrites, with new bits added up until the very end. Cubert gives high marks to the show's coordinators and *Family Guy* production supervisor Brandee Stilwell for keeping all in order.

What is it like working with MacFarlane doing voices for Stewie, Brian, Peter and Tom Tucker—all at the same time? "He just goes," Cubert says with a laugh. "It's a weird thing. Logically, we know it's all Seth, but we refer to [the characters] as different people. I've worked on animated cartoons for years, but I've never been on a show that makes me laugh so much. I crack up while recording, I crack up during editing. This show makes me laugh every time." ■

Mix would like to extend a heartfelt congratulations to Maureen Droney, who has accepted a position with The Recording Academy's P&E Wing. Tune in for her last "Grapevine" column in the December issue.

NASHVILLE SKYLINE FROM PAGE 133

is 713/522-2299 and the donation line is 713/805-9118.

After talking with these organizations, I began calling around to New Orleans studio owners to find out how they fared in the storm. Nat Franklin, owner of Vault Recording and Bank on It Records, told me, "The studio went underwater. I lost over 500 songs and two albums I was working on. I was in the building when I saw the water rising. We have an upstairs [floor], but when I first tried to go up, there was a vacuum pressure within the building that was so great I couldn't get my door open. The water hadn't gotten that high at that moment, but I had a glass door at the front and I didn't want to take any chances by standing there and it breaking, which it did minutes later. When the glass broke, it really poured in.

What the pros are saying about Gefell:

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Dave Bottrill - Peter Gabriel, Deep Forest, King Crimson, Robbie Robertson, Tool, Silverchair, Tony Childs, Joni Mitchell, Trey Gunn, Youssou N'Dour, Kid Rock, Roger Eno and the "Philadelphia" soundtrack.

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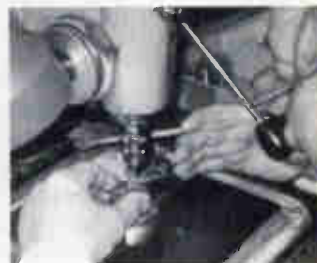
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I had all my gear loose, so that if I needed to, I could take it upstairs, but the water rose too fast. I stayed in the building for two days and left when the water started to go down a little bit. At that time, it was chest-high. I walked five or six blocks to the interstate—the place where you saw the pictures of everybody sitting. I was just trying to stay positive, but that first 36 to 48 hours, when I knew all my stuff was gone, I was in really bad shape.”

Piety Street Recording (www.pietystreet.com), on the other hand, was almost unscathed, thanks to being a block-and-a-half away from the Mississippi River where the ground was higher.

The studio on many people’s minds, though, was Ultrasonic, a legendary facility that was located on some of the city’s lower ground. After a few calls, I managed to locate Ultrasonic owners Steve Reynolds and David Farrell. They noted that their studio was under about five feet of toxic sludge and lost most of their valuable instruments, but at least they had prepared for the worst by backing up their library of work.

“We’ve been working on Pro Tools since 1999, and we’ve been backing up all the data on AIT-format storage tapes,” says Reynolds. “We instituted that as insurance for our digital storage. David grabbed those—more precisely 140-something 50-gigabyte tapes—when we left, so we pretty much have all the work we have done since 1999. That is high and dry with us. The rest of the stuff—the nice equipment and a really fine organ and piano—[can be found] everywhere, but the clients’ performances and all of our work

back to 1999 is irreplaceable. So it could have been worse.”

When I last talked to Farrell, he and Reynolds were on the run from Hurricane Rita, where they had just begun setting up shop at Dockside Studios in Lafayette, La. Meanwhile, more water flooded into New Orleans via the newly breached levees. “At this moment, we are very highly motivated, highly qualified independent audio engineers for hire,” says Reynolds.

During Katrina and its aftermath, the great and highly influential New Orleans producer/songwriter/arranger/musician Allen Toussaint was one of many thousands who had trouble getting out of town, before he eventually settled in a New York hotel. I once had the good fortune to hook up with Toussaint for a “Mix Interview” [November 1997], and once Katrina blew in, I decided to revisit those transcripts of my conversations with him and meditate on the richness of New Orleans and how we in the major music cities of the South have helped feed each other’s communities.

Toussaint shared with me how he got much inspiration listening to WLAC-AM in Nashville late at night as he was growing up in New Orleans. “They had a couple of theme songs like ‘Blues for the Red Boy,’ which was a slow, mournful kind of piece with a sax, and there was this boogie-woogie piano piece that just knocked me off my feet when I heard it called ‘Swanee River Boogie.’ I liked Red Foley, Little Jimmy Dickens and people like that. I heard a lot of hillbilly music on the radio as a boy, so subsequently, I played a lot of hillbilly and had a great

time with it. It was all very soulful, as far as I was concerned.”

Toussaint reminded me that his first solo album, *The Wild Sounds of New Orleans*, was released in 1958 on RCA at a time when Chet Atkins was a major force at the label in Nashville. Atkins was an incredibly astute diviner of great talent and quickly identified Toussaint as an artist with great compositional skills. Atkins was instrumental in landing Toussaint’s first big song cut, “Java,” which became a hit by Al Hirt and was also recorded by Floyd Cramer and Boots Randolph.

“I admire [Toussaint] so much,” recalled Atkins in a conversation I had with him a number of years ago. “I was sent his first album, which had a black-and-white picture of him when he was very young. It was all instrumentals, and I think almost every instrumental on that album was as good as ‘Java.’”

It would be many years later when Atkins and Toussaint would actually meet face-to-face during the making of a 1994 Tony Brown and Don Was-produced project called *Rhythm Country & Blues*. Of course, during those ensuing years, Toussaint went on to become a hugely successful songwriter, arranger, musician and producer. He would eventually be inducted in the Rock and Roll Hall of Fame in 1998.

Finally, one of the most troubling of the many calls I got after Katrina hit concerned the news of the passing of the legendary Clarence “Gatemouth” Brown. He was suffering mightily from complications due to lung cancer and heart disease, but I’m certain the evacuation from his bayou-side

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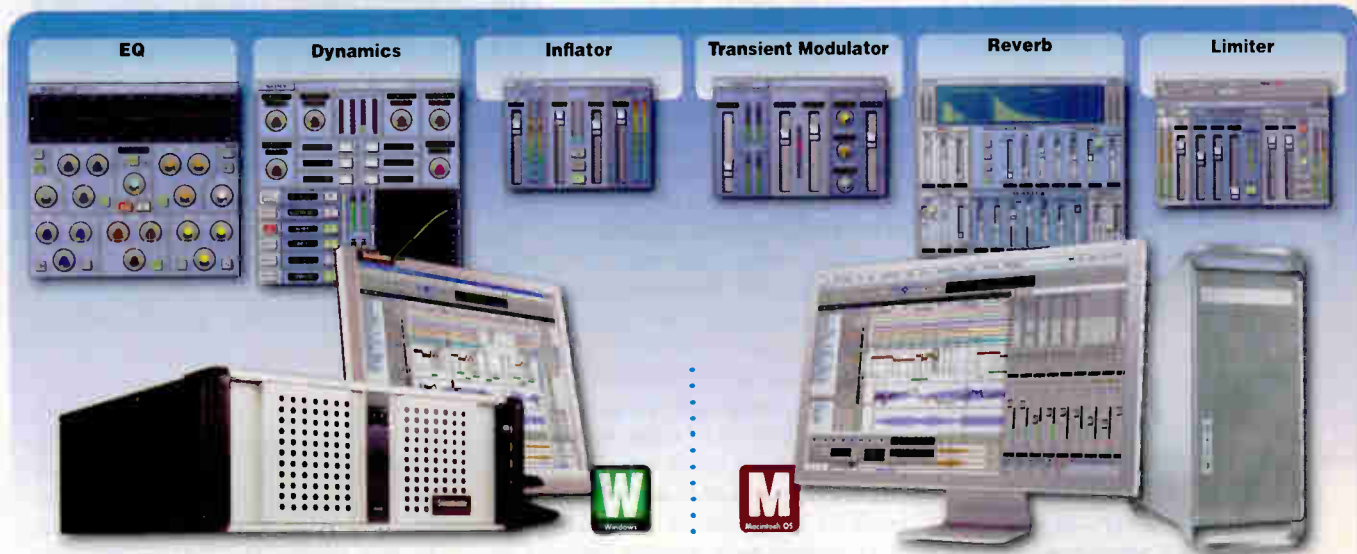
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home in Slidell, La., and the knowledge that he lost everything (including his beloved instruments, pictures and awards) was heartbreaking. Sad, indeed. ■

Send your Nashville news to mrblurge@mac.com.

NEW YORK METRO FROM PAGE 133

New Jersey facility, HarariVille (www.harariville.com). Originally designed by producer/engineer Rob Harari in 1998 as a place to fulfill his own production needs, the spacious skylit studio in Weehawken has steadily developed a reputation for technical excellence, as well as a relaxed atmosphere that can be hard to find in The Big City.

"I knew any studio I built had to have an aesthetic value that allowed a lot of creative freedom," Harari says of the atmospheric space housed in a former furniture factory. "It's very clean and has an open feeling. I wanted to build a space where every part could multitask, so it didn't matter where you were in the studio, you felt like you belonged there."

A meticulous audio expert, Harari worked with acoustic designer Steve Vavagiakis of Bang Zoom Productions to make the 20x24-foot control room exactly accurate. At the center of things is a serious Mad Labs Neve VR60, extensively modified by John Musgrave in 2001. "Neves of this generation bring power to the first bucket, so by the time it gets to the sixth bucket, it's anemic," says Harari. "[Musgrave] split all the power distribution from the center section so it went to every bucket, then put a capacitance circuit behind every EQ circuit on every module so there's the same punch in every channel. Ultimately, some of his designs went into the 88R, and he used my board as the R&D for some of those modifications."

Whether mixing or recording from the 20x24-foot live room with 16-foot sloped ceiling, the Hararis are glad they've opened their intensely inspirational New Jersey space to the world. "This studio was always meant to be a personal studio, but it's so creatively energizing that we felt this was something we needed to share with the larger musical community," Harari says. "It was born out of the need for a production tool, which became such a wonderful place that it became a business."

Moving down past the river and toward

the even deeper New Jersey territory known as "The Shore" lies the artistic town of Red Bank, where the audio obsessions of Retromedia Sound Studios (www.retromedia.net) are satisfied. Founded by John Noll in 1984, Retromedia has been in its current location since 1998, offering artists a haven where analog is clearly king and the aesthetic is uniquely compelling.

"We're in it for the sound," Noll says. "We've always had a thing for analog recording and vintage equipment. Nowadays, why do people use Pro Tools? Because of the convenience. You can do incredible stuff, but you have to work harder to make it sound good. People are always using plug-ins to emulate, but our theory is that if you want to use the real thing—tape, vintage mics and outboard—we have it."

For those who want to feel good while

PHOTO: DAVID WEISS



John Noll of Retromedia Sound Studios—an analog haven

they're working with goodies such as Telefunken/TAB V72a or Éclair Electronics Evil Twin mic pre's, Melcor GME-20/SME-20 or Siemens W295b EQs, or an EMT 140 stereo plate, Noll's sharp interior design instincts make the 24x26x11-foot live room an extremely inviting place in which to create. "There's a lot of stuff in there, but I make it so the room feels as big as possible. Everything is thought-out and very comfortable and synergistically correct. It is a feng shui thing, although I don't think of it that way."

With Philadelphia, New York City and a thriving local music scene all in proximity, Noll knows that Retromedia is in a state of natural balance. "We offer a peaceful atmosphere, but it's an urban environment near the beach and parks," he says. "Red Bank is a cultural and artistic center of the Jersey Shore, and there's a very vital scene. There's a lot of stuff going on here other than Bruce Springsteen and Bon Jovi." ■

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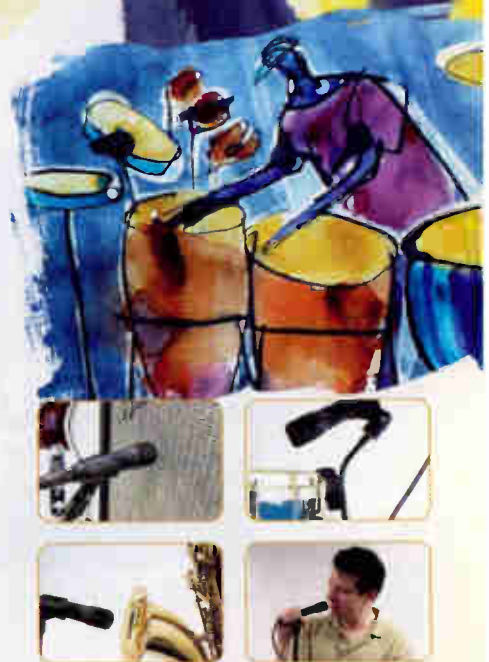
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World Radio History

—FROM PAGE 30, ATTACK OF THE POD PEOPLE

One of podcasting's most intriguing aspects is that ownership of the material is far more fluid than in other media. "We've been introducing our listeners to some podcasts and podcasters we enjoy listening," Kahn says. "We'll take pieces of other podcasts or clips that people send us and incorporate them into our podcast, and there's nothing to stop anyone from taking my podcast and editing and including it in theirs."

"As a broadcaster, we're always aware of rights. Many things we have at WGBH we have broadcast rights to, but not Web distribution rights. There has to be a new agreement for using intellectual property on podcasts. We've watched the evolution of the Creative Commons concept. The Berkman Center at Harvard Law School is doing a lot of work on this. Everything we produce and use is cleared through Creative Commons."

Indeed, looking at the rapid growth of podcasting, one can't help but think that radical change might be around the corner. Like the Internet, the commercialization of podcasting could take it in another direction. *Forbes Magazine* recently ran an article on four ways to monetize podcasting, and some independent broadcasters are trying to get paid subscribers to sign on. Apple re-

cently added links to some 15,000 podcasts through its iTunes store. They're all free for now, but that may not last.

"Frankly, I was a little scared that when Apple started offering them, 500 million people would start getting podcasts, a flood of big money and consolidation would follow and it would put an end to the experimental period," Kahn says. "But it didn't happen. They did a significant thing to move it forward: They got about 2 million new people the first two days, but they're still offering them for free."

"There are people who are interested in making investments in podcasting, but they are those who have already made investments and had success in previous Internet and broadcast media," he adds. "Hardware people are looking to make devices that can do it all when it comes to receiving and producing podcasts—something people can carry with them so they don't need a computer to edit, download and upload files."

What happens when you get 1 million podcasts that no one listens to? Kahn isn't worried. "As long as there are enough real enthusiasts who are passionate about what they're doing," he says, "there will be enough quality content and original material around to attract an audience willing to support it."

From a technical standpoint, it isn't difficult to produce a podcast. At WGBH, the same tools are used to create the *Morning Stories* broadcasts as the podcasts—although there's an interesting twist. "*Morning Stories* is on the air when WGBH is broadcasting in mono," Kahn explains. "But since most people are listening to the podcasts on earbuds and that's an ideal way to hear stereo, sometimes we'll recut it and add stereo imaging and effects."

People have been listening to music on headphones for many years, but very little audio material has been produced for binaural listening. Podcasting may be the medium that changes that. "One of our engineers, Antonio Oliart, came up with a gadget that puts a pair of tiny mics on eyeglasses," says Kahn. "That allows you to walk around and record what's out there around you, as well as your voice. I used it to record an interview with a podcasting singing group called the Lascivious Biddies at their rehearsal, looking at each singer as I was talking to them. I also did an intro for a story about driving, in which I left the studio, got into my car and started up into traffic."

Does this mean that podcasting will create a market for binaural production tools? Bill Gardner, the maker of one of those tools,

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World Radio History

hopes so. An MIT Media Lab graduate, Gardner is the founder of WaveArts, which produces a range of high-end multiformat audio plug-ins. WaveArts' Panorama 4 plug-in is an impressive set of tools for 3-D spatialization, room definition and source movement that works spectacularly well on headphones.

"I always wanted to put together a general-purpose, 3-D processing plug-in that would incorporate room acoustics, head-related transfer functions and doppler shift," says Gardner. "I thought it would appeal to high-end audio geeks, researchers and people doing headphone programs like audio guides in museums. When I listen to these things, I never hear binaural techniques, they're just straight stereo. I think they're missing out on a big opportunity. About the same time, we started hearing about podcasting and we started advertising on the podcasting Websites as a tool for them.

"We found that converting files to MP3 or AAC or most of the popular codecs doesn't really affect the 3-D effect. People are sensitive to low-frequency phase differences between the ears, even more so than amplitude differences, so that's very important."

While Kahn thinks that most of his listeners are using earbuds or headphones, Gardner isn't so sure. "I don't know if podcasting

engineers think their audiences are listening over headphones," he says. "A lot of them seem to be listening in the car," using a gadget that was popular years ago and has made a bit of a comeback: a little FM transmitter that plugs into an MP3 player's audio output and sends the signal to the car radio.

"One of the problems with 3-D techniques is that there is no compatibility mode that handles speakers and headphones," Gardner explains. "If you listen to crosstalk-canceled audio [i.e., optimized for speakers] over headphones, the low frequencies are out of phase and it sounds like your head's being sucked out. The current plug-in has a switch for one or the other."

So where's all this going? Only time will tell. According to Kahn, "Like most complex phenomena, it's totally unpredictable. A factor that will be huge two weeks from now will be something that isn't on the screen yet. Technology doesn't mature until it has a relationship with the user."

Kahn sees two factors that will define podcasting's role in the future. One, it will have to become easier for people to listen to the programs. As a baby boomer, Kahn says, "A lot of people our age are still not getting the experience—the technology is still complex enough to turn many people

off. The tools need to be there to get people to podcasts in a simple, straightforward way. Somebody needs to sit them down and have them listen to a podcast, and then the light goes on and they say, 'Oh, I like this. How can I get more?'"

The other factor is video podcasts. "Video bloggers are looking at podcasting," Kahn says. "iTunes is on the verge of including video on their podcasts, if they haven't already." Many industry folks are predicting that Apple will soon announce a video iPod, maybe even by the time you read this, and video-equipped cell phones are a ready market for potential podcasters.

On the content side, making a quick video and getting it online couldn't be easier. "People are using Final Cut Pro in ways they wouldn't think of five years ago," says Kahn. "I was doing an interview with a video blogger at a conference, and he whipped out a tiny camera, shot the interview, edited it on Final Cut on his laptop right in front of me and uploaded it using WiFi in the hall. Within a half-hour, this interview, which looked as good as any interview on the evening news, was now available to download anywhere in the world." ■

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Function:

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Required capabilities:

- 10 years minimum professional experience as a recording engineer with national/international recognition.
- Expertise in technical areas such as: electronics, signal flow, acoustics and systems design.
- Mastery of MIDI and DAW systems including but not limited to: Pro Tools, Logic Digital Performer and Nuendo.
- Excellent communication/interpersonal skills.
- Ability and willingness to work with a diverse faculty and student body.
- Musical ability and background preferred.
- Classroom teaching experience required.

Please submit a cover letter, resume, discography, and a CD compilation of representative recordings to:

MP&E Faculty Search Committee
C/O Rob Jaczko

Chair, Music Production and Engineering Department, MS-150 MPE
Berklee College of Music, 1140 Boylston St., Boston, MA 02215

All application materials must be received
no later than **January 6, 2006**.

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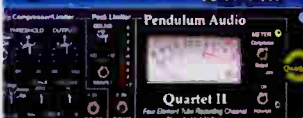
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Function:

This Full Time Faculty member in Music Production and Engineering will provide upper- semester MP&E students instruction in advanced production and recording engineering practices and techniques.

Required capabilities:

- 20 years minimum professional experience as a recording engineer with national/international recognition.
- Considerable major label/major studio recording and engineering credits
- Mastery of non-linear digital formats including but not limited to: Pro Tools, Logic, Digital Performer, Nuendo. Fluency in Solid State Logic console operation and analog techniques.
- Expertise in technical areas such as electronics, signal flow, acoustics, and systems design.
- Excellent communication/interpersonal skills.
- Ability and willingness to work with a diverse faculty and student body.
- Musical ability and background preferred.
- Classroom teaching experience preferred.

Please submit a cover letter, resume, discography, and a CD compilation of representative recordings to:

MP&E Faculty Search Committee
C/O Rob Jaczko

Chair, Music Production and Engineering Department, MS-150 MPE
Berklee College of Music, 1140 Boylston St., Boston, MA 02215

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Your DP mastering and processing lab awaits you: **BIAS Peak Pro 5** delivers award winning editing and sound design tools, plus the world's very best native mastering solution for Mac OS X. With advanced playlisting, superb final-stage processing, Disc burning. Plus PQ subcodes, DDP export (optional add on), and other 100% Redbook-compliant features. Need even more power? Check out our Peak Pro XT 5 bundle with over \$1,000 worth of additional tools, including our acclaimed SoundSoap Pro, SoundSoap 2 (noise reduction and restoration), Squeeze-3 & 5 (linear phase multiband-compression/limiter/upward expander), Reveal (precision analysis suite), PitchCraft (super natural pitch correction/transformation), Repli-Q (linear phase EQ matching), SuperFreq (4, 6, 8, & 10 band parametric EQ) and GateEx (advanced noise gate with downward expander) — all at an amazing price. So, when you're ready to master, Peak Pro 5 has everything you need. It's the perfect complement to DP. Or, perhaps we should say, it's the perfect finishing touch.

Call the MOTU system experts.



The faders.

Imagine the feeling of touch-sensitive, automated Penny & Giles faders under your hands, and the fine-tuned twist of a V-Pot™ between your fingers. You adjust plug-in settings, automate filter sweeps in real-time, and trim individual track levels. Your hands fly over responsive controls, perfecting your mix — free from the solitary confinement of your mouse. Mackie Control delivers all this in an expandable, compact, desktop-style design forged by the combined talents of Mackie manufacturing and the MOTU Digital Performer engineering team. Mackie Control delivers Studio A prowess to your Digital Performer desktop studio, with a wide range of customized control features that go well beyond mixing. It's like putting your hands on DP itself.

The monitors.

The Mackie HR Series Active Studio Monitors are considered some of the most loved and trusted nearfield studio monitors of all time, and with good reason. These award-winning bi-amplified monitors offer a performance that rivals monitors costing two or three times their price. Namely, a stereo field that's wide, deep and incredibly detailed. Low frequencies that are no more or less than what you've recorded. High and mid-range frequencies that are clean and articulated. Plus the sweetest of sweet spots. Whether it's the 6-inch HR-624, 8-inch HR-824 or dual 6-inch 626, there's an HR Series monitor that will tell you the truth, the whole truth, and nothing but the truth.



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Propellerhead Reason 3

Tweaks for the Virtual Studio Rack

Although it's now at Version 3, Propellerhead's Reason is as easy to use as ever. However, there are a number of cool things you can do with it that go beyond the obvious. Many of these tips work with older versions of the program, but I suggest upgrading to the most recent version, which is 3.0.4 at the time of this writing.

TWISTS AND TURNS

Adding a little spice to your sequences with subtle variations at the ends of phrases makes for a nice finishing touch. Reason can create these twists for you with the Change Events function. Select the range of notes you want to change and choose Change Events from the Edit menu. At the bottom of the dialog box is the Alter Notes function, which lets users set the amount of change as a percentage: The higher the number, the more of a change you'll hear. (Seventy percent and above is a good place at which to start.) When you hit Apply, you'll hear a turn-around in the music that is based on notes and timing you recorded. You can use the Alter Notes function on multiple tracks, as well, which results in a greater amount of variance and adds more of an interactive ensemble feel to your track.

SLICE, DICE AND STRETCH

Take your ReCycle files to the next level by individually processing each slice. Load your file into the NN-XT sampler. Select each slice and tweak its parameters. For example, you can adjust the settings for the filter, the modulation and amplitude envelopes, and the LFOs, as well as change the playback direction and sample start or loop points of the individual slices. Next, create a Dr.REX Loop Player and call up the *unedited* loop. Select the NN-XT track, but push the To Track button in Dr.REX. When the warning dialog box appears, select OK. Now you're ready to play your tricked-out creation. This technique is also useful if you want to send individual slices to separate outputs.

You can create a time-stretching effect using the NN-19 sampler. Take your sample and, using the root note, program a 64th-note roll for the duration of one beat using the Piano Roll edit mode. Use Copy and Paste to create a bar or two of the roll. As you play

the sequence, twist the Sample Start knob to get the time-stretch effect: Clockwise creates a forward stretch effect, while a counterclockwise turn creates a backward effect.

ENVELOPES PLEASE

When you have Reason slaved to another application, you may want to use that application's automation envelopes to control Reason devices. For example, you can use a MIDI Clip Envelope in Ableton Live to control the filter cut-off of Reason's Subtractor synth. You can do that with ReWire routings; more conveniently, you can set up the MIDI master application (Live, in this example)

as a generic MIDI remote-control surface. To do that, you need to use a MIDI bus other than ReWire that goes from the source (in this case, Live) to Reason. Next, in Reason's Control Surface and Keyboard preferences, add that bus as a generic MIDI controller. On a Mac, you can use one of OS X's IAC buses; on the PC, use a MIDI routing utility such as Hubi's MIDI Loopback.

After you've enabled the bus as a control surface, MIDI messages sent over the bus will automatically be routed to the Reason device that is currently selected for MIDI input. The MIDI messages will be mapped to that device's control according to Reason's generic MIDI Controller mapping (documented in the MIDI Implementation Charts PDF). You can also see (and edit) the generic routings by selecting the module in Reason's rack and choosing Remote Override Edit Mode from the Options menu. This method differs from using ReWire—which can also be used for automation—in that ReWire routings are always locked to a specific device. The multichannel options in the setup dialog should not be used because they require that you manually set up all MIDI assignments.

TIPS FOR V. 3

The Combinator function can help you save patterns on a device that cannot save patterns on its own, such as the ReDrum drum ma-



You can tweak the parameters of individual REX file slices in the NN-XT sampler to get that Aphex Twin/Squarepusher sound.

chine. Begin by creating your patterns using your favorite drum kit. Pack it into a Combinator by selecting the ReDrum device and then choosing Combine in the Edit menu. Save the Combinator patch by clicking on the floppy disk icon in the Combinator. If you modify the pattern, then save it as a patch and your changes will be kept. This technique also works with the Matrix Pattern Sequencer.

If you want to do simple frequency-based processing, you can use the MClass Stereo Imager to divide a stereo signal into upper- and lower-frequency bands. Set the center frequency using the X-Over control to divide your signal into high and low bands. On the rear panel, use the separate out jacks and select Hi Band or Low Band to select the band you want to process. Use the stereo spread control to tighten or widen the stereo image of the signal leaving the separate out jacks.

When you want to use an audio signal as a control voltage, call up the MClass Compressor. On the rear panel is a gain-reduction CV output. You can use the CV signal to control a knob or to duck the signal on a mixer in time with an instrument that has sharp transients (such as a kick drum). ■

Laura Pallanck is a freelance musician based in Northern California. Special thanks to James Bernard and Len Sasso for their assistance.

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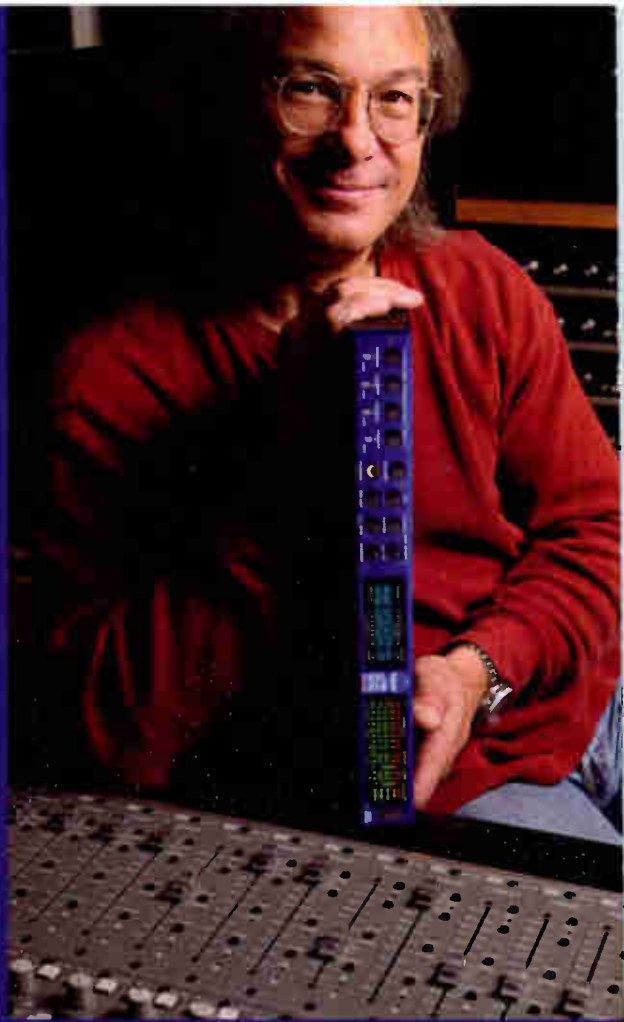
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