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World Radio History

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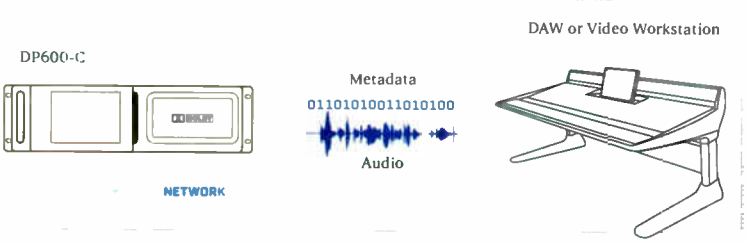

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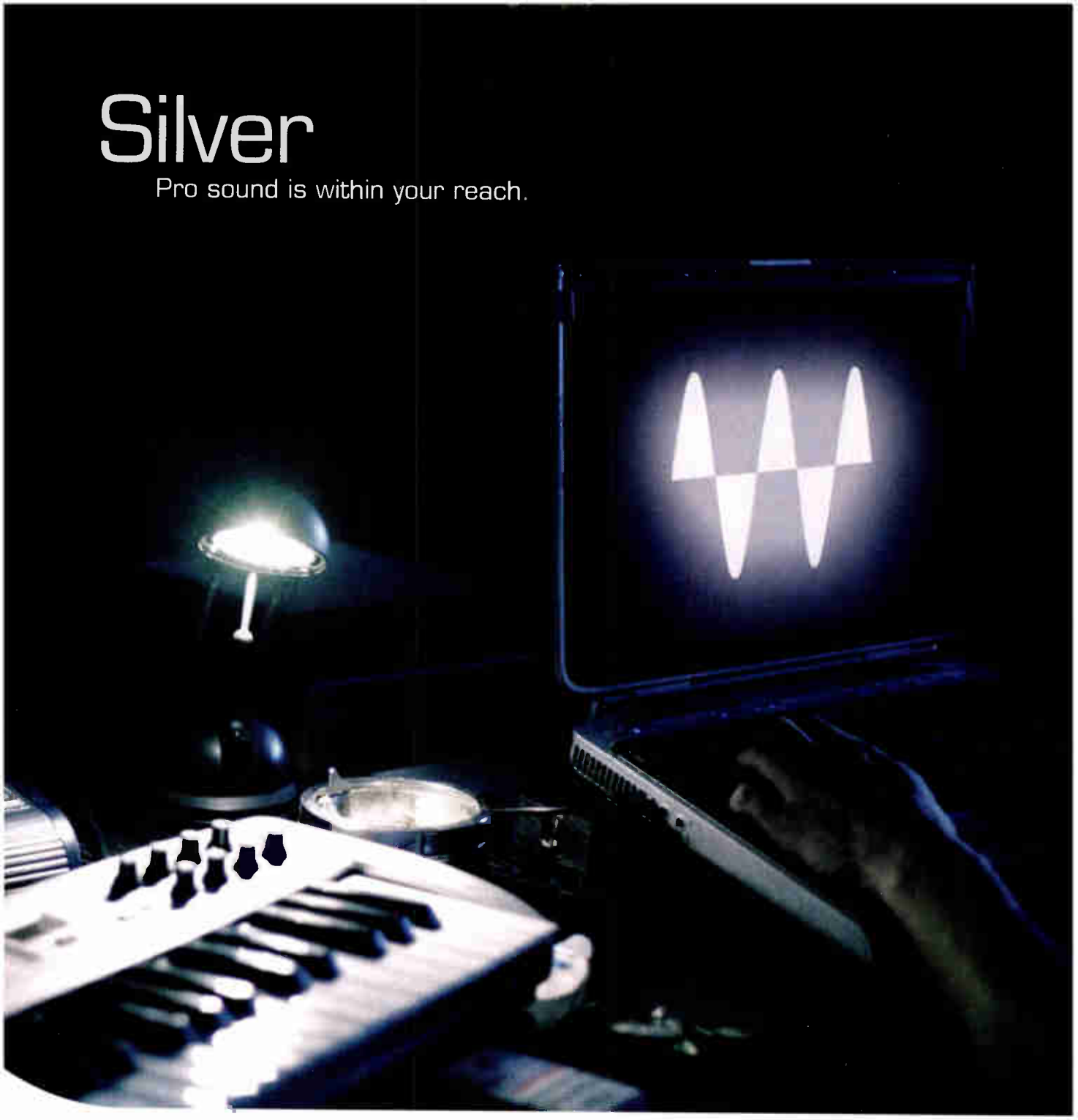

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To see the entire list, please go to **http://www.lynxstudio.com/10reasons.**

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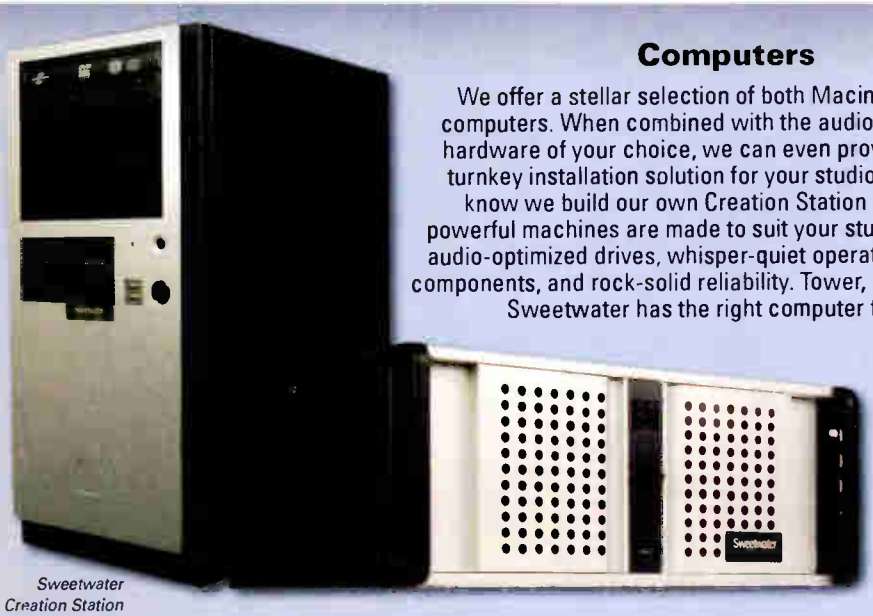

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Apple Mac Pro

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CONTENTS

MIX NOVEMBER 2008, VOLUME 32, NUMBER 12

ON THE COVER

University of Massachusetts Lowell's music program offers Bachelor's and Master's degrees in audio engineering. This refurbished production studio features an API Vision console and SLS surround monitoring. See story, page 16. **Photo:** Steve Edson. **Inset:** Johnny Buzzerio.

features

Back to School

Every November, *Mix* focuses on audio education programs, investigating the ways future engineers learn their craft and gear up for professional careers in the industry. *Mix* also produces an annual directory of audio schools, available at www.mixonline.com.

32
Three Studios, Three Budgets
BY GEORGE PETERSEN, KEVIN BECKA AND ROB HANSON
Our trio of experts do some virtual shopping and offer three unique approaches to equipping a personal studio.

36
Warm It Up
BY DAVID WEISS
Mix's buyer's guide to large-diaphragm condenser mics includes options at every price point.

46
Breaking In
BY BLAIR JACKSON
Top studio owners and managers offer real-world advice for anyone embarking on a career in audio.

50
AES Highlights
BY GEORGE PETERSEN AND KEVIN BECKA
Mix brings you all of the AES product hits and trends, and this year's TEC Awards winners.

58
New Classrooms
BY BARBARA SCHULTZ
Take a look inside audio schools around the U.S., where you'll find some of the newest high-end studios.

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CONTENTS

music

61 **Plain White T's** by Elianne Halbersberg

64 **Taj Mahal** by Chris J. Walker

66 **Classic Tracks: Three Dog Night's "Mama Told Me Not to Come"** by Gary Eskow

live

73 **Nine Inch Nails** by Sarah Benzuly

76 **Soundcheck:** The Mars Volta, Ravinia Concert Series, Road-Worthy Gear and More

78 **All Access:** Nick Cave & The Bad Seeds by Barbara Schultz

tech

86 **New Products**

90 **Review:** Solid State Logic Mynx

94 **Review:** Chameleon Labs 7720 Stereo Compressor

98 **Review:** Tube-Tech RM8 Signal Processing Rack

102 **Review:** Prism Sound Orpheus FireWire Interface

108 **Tech's Files:** No Track Left Unrecorded by Eddie Ciletti

sfp

81 **'Australia'** by Blair Jackson

84 **The Wrecking Crew Documentary** by Blair Jackson

departments

10 **from the editor**

14 **talkback**

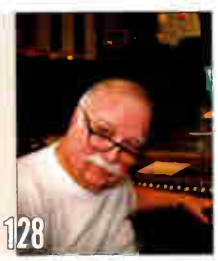
18 **current**

22 **sessions**

113 **marketplace**

120 **classifieds**

128 **Q&A: Bruce Swedien**



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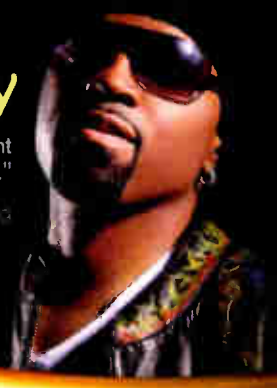

Michael Wagener

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Skid Row, Kingdom X, Ozzy Osbourne, Motörhead, Alice Cooper, Lone Justice

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Investing in the Future

Last month's AES convention epitomized our industry's strange dichotomy, where "old-fashioned" analog thrives alongside cutting-edge digital. It's a realm where century-year-old magnetic tape technology continues to coexist with silicon semiconductors. But this time, we also noticed a lot of talk about education on the show floor—from the inaugural METAlliance education summit to a breakfast hosted by the Recording Academy P&E Wing geared toward strengthening alliances with schools. And it's apparent that manufacturers of old- and new-school technologies are increasingly targeting...schools.

Why is the recording community making this big push now? Lower-cost technology certainly makes it easier for manufacturers to make inroads into the education market; a school that might have used up its entire budget on a large-format console back in the day can now outfit an entire studio for the same price.

Most mature industries eventually form relationships with academia, whether on a Foundation level or through R&D pacts; the partnerships tend to benefit all involved. In the recording industry, schools are putting real-world technology in the hands of students, and manufacturers are able to expand their product reach. From a pure business standpoint, manufacturers know that they need to connect with the community—not just the schools themselves as a new sales channel, but with grads who form the link to emerging markets. (Think game audio and mobile applications.)

Also, users often form preferences early on, and smart manufacturers want to be there at the learning stage. Computer companies like Apple and Microsoft have pushed heavily to be in schools with laptop programs across the country. And MI companies have long known the value of aiming right down to the grade-school level. How many musicians out there took piano lessons in a room full of Yamaha Clavinovas or watched kids fumble with primitive recordings on My First Sony machines?

Of course, no amount of gear-fluency will replace a fundamental understanding of signal flow or critical-listening skills. But today, it's also essential to be fluent in specific console and DAW systems. There's a reason why classes that offer certification in everything from plug-ins to videogame engines are flourishing. Even at the entry level, skill sets need to be platform-specific. The Pro Tools operator is the new tape op.

George Massenburg, when talking about METAlliance's education summit at AES, equated g ving students access to technology with providing them an opportunity to be heard: "It's a new world, and it's going to require all of us in the professional recording business to understand that everybody will have access to tools that we had to beg for when we were coming up," he said. "This access can only improve the access to that genius out there who has something to say musically and wouldn't ordinarily find himself in a recording school. Give everybody a voice."

Is an industry/academic partnership a good thing? We think so. If a studio manager is looking to hire interns and assistants, they'll be better equipped with gear skills they can put to use right away. And if a student is looking to get a job as an audio engineer, more tools are available—hands-on—than ever before.

Thanks for reading,

Sarah Jones
Editor

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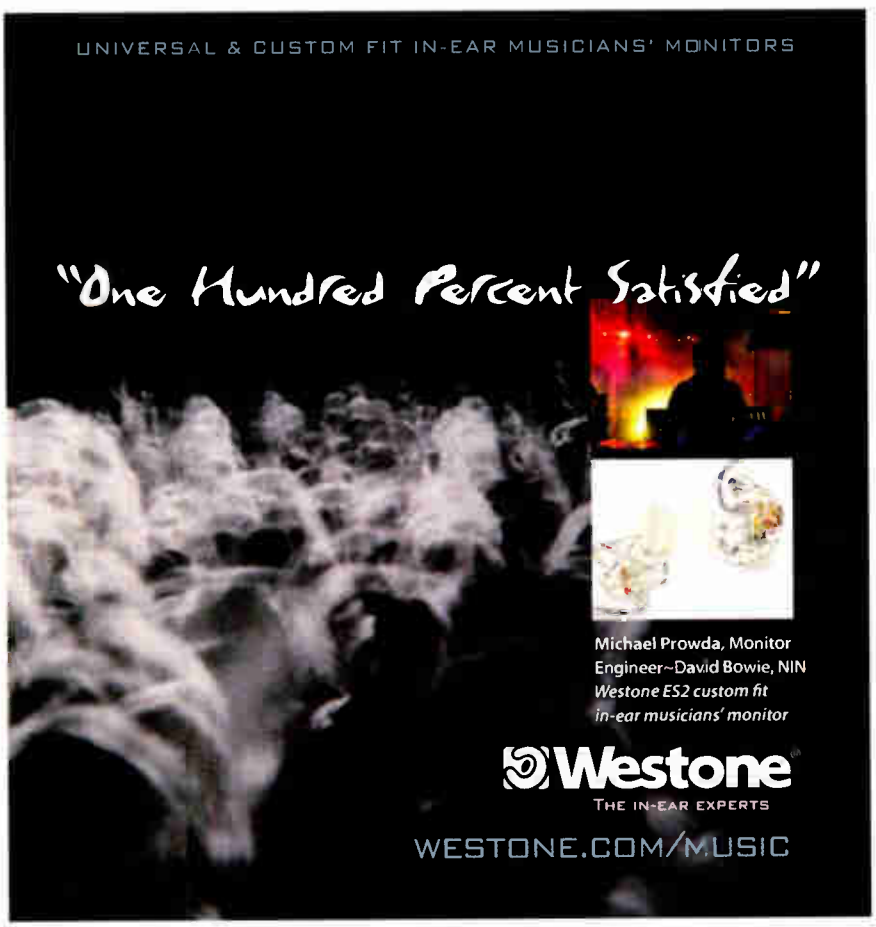

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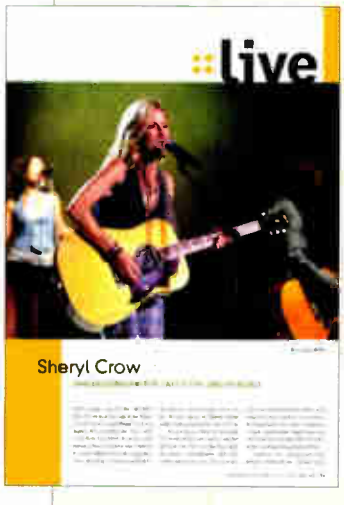
The New-Look *Mix*



Sheryl Crow

I think the new *Mix* looks great! I have been reading *Mix* since the '70s and thought it needed an update. I just wish the covers with mixing consoles would be more contemporary. I would also like to see more articles with classic engineers and producers, and more articles on where sound is going, and how to improve the current recordings to make them as good as the records of 35 years ago! What about the trend of the young people going back to vinyl because they are starting to get it that their MP3s sound like crap? Check out the stats for vinyl sales for the last year. It shows some promise.

Keep up the improving work.

Bruce Berman

From a longtime reader (1982?): I love the new *Mix* layout in the September issue! It seems "clean" and sophisticated, professional, also colorful at the right moments. The varied text looks sharp, too. And I like the section and column headings.

Thanks for making *Mix* magazine an even better read.

Paul J. de Benedictis

TECnology History Lessons

While I admit that selecting gear for the "2008 TECnology Hall of Fame" (September 2008) is a daunting task to say the least, I would like to impart a few things.

The Kurzweil 250 didn't emerge until 1984, and Opcode, while it had some interesting innovations in 1990, was eclipsed by MOTU Performer, which was released in 1985 and is still one of the three main music software programs on the planet.

I hope these get nominated in 2009: Yamaha SPX90; TC Electronic 2290 Dynamic Digital Delay; Roland S770 sampler; Mackie HR-824 powered monitors—the most popular near-field since the NS10; Manley Vari-Mu; ARP 2600; BLUE Bottle; Apple Logic 8 with the Apogee Symphony system—still redefining the DAW; E-mu Proteus; and Empirical Labs' EL8 Distressor.

Keith "Plex" Barnhart
The MusicPlex

The TECnology HOF is a continuing project, so eventually we'll get some of the products you mentioned, such as Empirical Labs' Distressor. Some, like Apogee Symphony and Mackie HR-824s, are not eligible until 10 years after they come out—our way of looking at products in a longer-term, historical context.

The Kurzweil 250 didn't ship until 1984, yet it was a sensation when it was unveiled at AES in 1983. Most people had never heard sampled piano, strings and choirs of that quality and it set the standard for years. Opcode's Studio Vision didn't survive like MOTU's DP, but its combining of MIDI and digital audio was historic.

We only induct 10 to 15 products a year, and 2008 had some very overdue entries, such as the Telegraphone, Neumann CMV3 Bottle Mic, Shure Unidyne, Yamaha NS-10s, Studer A800, etc. Manley's Variable Mu is another great suggestion. However, if that was inducted before the UREI 1176 and David Blackmer's dbx 160, I'd probably get strung up by an angry mob at AES.

Time heals all wounds, especially when it comes to history. We'd be happy to receive suggestions for future inductees from all Mix readers. Let us know your faves!

—George Petersen, executive editor

San Francisco Music Memories

In honor of the recent 125th AES Convention in San Francisco, Mix readers share their favorite music memories while in the Bay Area. For the editors' product picks from the show, check out the show report on page 50.

Taking the train from Palo Alto [Calif.] to the city in the fall of 1967 to hear the Jefferson Airplane, Grateful Dead and Big Brother play at Winterland. The ticket was $3.00. My ears are still ringing from Janis' shrieking emanating from the stacks of Marshall amps.

Jim Hewitt

I am a Bay Area violinist who has worked in every genre of music for more than 35 years, both live and in the studio. I'm still in there pitching, mostly playing weddings, and branching out into sound recording with my new little studio, which is why I'm coming to the AES show for the first time.

I have a lifetime of stories and "magic moments," but one of my favorites is taking part in Boz Scaggs' Paramount Theatre [Oakland, Calif.] shows in mid-1975, and the later New Year's Eve run in the same venue. Imagine: a 30-year-old longtime rock music fan (though classically trained) working as assistant concertmaster of a huge rock 'n' roll orchestra in the classiest venue in the Bay Area.

Also, we were playing some arrangements from Boz's *Moments* album that had been lost, but I "reconstituted" them for him. It's about as close to pop music heaven as I'd been up to that time, and it has seldom been equaled (although some of the Bammie Award shows that I played every year for a decade, a 1986 national tour with Van Morrison, and Bjork's show at the Paramount a few years ago, all came close).

John Tenney

Mix's December issue will focus on mastering. We'd like to hear from mastering engineers—tell us about your most interesting mastering project. E-mail us at mixeditorial@mixonline.com.

World Radio History

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World Radio History

By Barbara Schultz

University of Massachusetts Lowell

Pictured on the cover of *Mix*'s annual education issue is the refurbished student production studio at University of Massachusetts Lowell. This versatile facility was originally designed in 1989 by architect/acoustician Bob Alach of Alactronics to be the heart of UMass' then-young Sound Recording Technology program. Alach was brought in to redesign the room to accommodate surround sound and a new API board.

"We completely renovated that control room space to accept the new API Vision console, but also to provide for accurate surround sound playback," explains Professor William Moylan, who has directed the program since its inception. "One of the wonderful things about the API console is the ability to mix in surround and 2-track simultaneously. We reconfigured the room to be an accurate surround sound playback space, as well as a space for 2-track monitoring and playback."

The updated studio is used for small-class instruction and student projects.

"The initial room wasn't designed for sound to be arriving from the rear of the room," Alach explains. "There were a lot of hard surfaces that had to be changed so that the rear channels behaved as close as possible to the front channels."

Alach's new design made use of some of the existing older-model RPG acoustical products in the room, as well as new custom treatments.

As with a commercial studio, the remodel had to be planned carefully to minimize downtime. Fortunately, a university has a built-in gap between sessions—better known as summer vacation. "As soon as students were done with their projects in mid-May [of 2006]," Moylan says, "we started gutting the studio, and we had it back up and running in October of that year. It was extraordinarily fast, and Bill Carman, our facilities director, made it happen. API was also extremely cooperative and understanding, and Bob Alach was very helpful in producing what we needed on time."

Moylan further explains that the remodel required adjustments to the geometry of the room to expand the sweet spot within the new SLS surround monitoring system. The studio is also equipped with a Studer 24-track machine, a Steinberg Nuendo system and an array of processing gear that's designed to give students broad hands-on experience with the breadth of audio technologies available. He also stresses that the Vision console is a core teaching tool in itself.

"With the analog board, students can trace and learn signal flow in a tangible way," he says. "We also selected the API for the integrity of the signal and the transparency of the sound. One of the distinctive parts of our curriculum is our focus on ear training and listening skills, and it was apparent to me that this device does not alter the sound quality as it goes through the signal path. That's important. It allows it to be a more meaningful teaching tool for us.

"It's critical that we remain current in our technology," Moylan continues, "but it's also critical that we remain clear in teaching concepts and not tools. The basic structure of our undergraduate program hasn't changed in 25 years, but all of the course syllabi change almost every year because of changes in the tools that we are using."

UMass Lowell's Bachelor's degree program requires that students take six semesters of instrument lessons, as well as music history and theory, and ear training before branching off into engineering courses. Sound Recording Technology majors also fulfill a 15-week internship requirement, working a minimum of 20 hours per week in a segment of the audio industry that interests them.

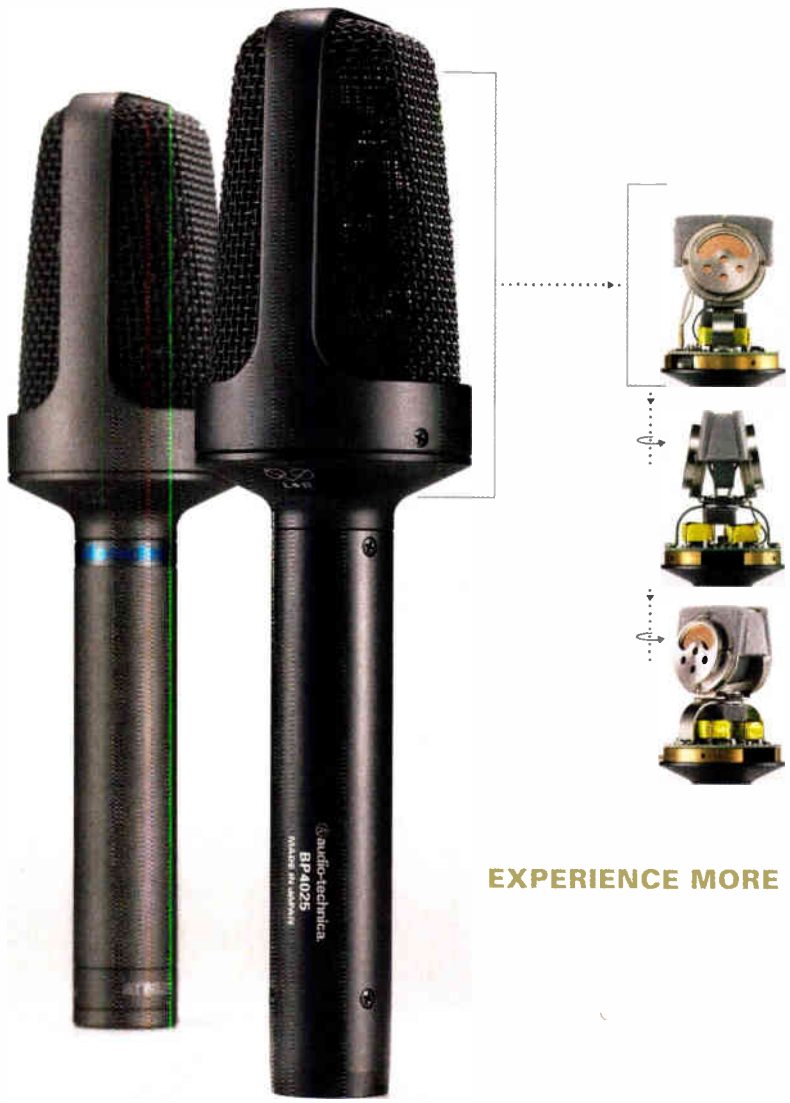
In addition to serving UMass Lowell's undergrads, the renovated production studio is also used by students in the university's three-year-old Master's degree program—the only Master of Music program in audio technology in the U.S.

"The concept behind our program has been to use technology as a musical instrument," Moylan says, "to bring the students to an innate understanding of technology by taking studies in calculus, engineering and computer science, and physics to get a basic understanding of technology, but simultaneously to get a thorough understanding of musicianship so that they can learn audio theory and production techniques in a way that a creative artist would if they have a thorough understanding of their instrument."

"We've done work for schools, corporations, universities and individuals, and the UMass faculty has built a program over the past 25 years that's truly exceptional," Alach says. "Their commitment makes you want to do your best and give them something equally extraordinary." III

Barbara Schultz is Mix's copy chief.

World Radio History



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World Radio History

CURRENT

compiled by Saran Benzuly

Get Schooled at *Mix*

This month, *Mix* focuses on education for audio professionals—whether you're just getting your feet wet or have been behind the board for more years than you can count and want to get up-to-speed on the latest technologies. Log on to mixguides.com/education for a full list of North American schools offering audio programs, and links to helpful resources such as Webcasts, basic how-tos and other articles from the pages of *Mix* that focus solely on education.

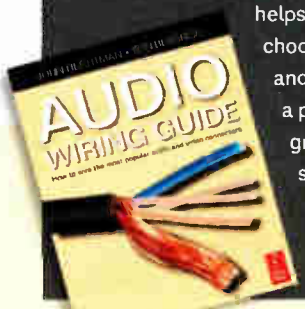
A Decade of Audio Education

The New England Institute of Art (Boston, www.artinstitutes.edu/boston) celebrated 10 years of its audio program with an event that brought back graduates to congratulate longtime audio program chairman Rob Lehmann. School trustee Dave Moulton and longtime CBS recording engineer/educator Don Puluse spoke about Lehmann's expertise and ability to place 90 percent of his grads into audio industry jobs.

From left: NEIA trustee Dave Moulton, chairman Rob Lehmann and faculty member Don Puluse

Bookshelf

John Hechtman's *Audio Wiring Guide* explains the basics of audio wiring—from repairing a guitar plug to wiring a studio—in an easy-to-follow format. The reference guide features information on organizing and laying out the job sequence and on choosing and buying tools. It also provides tips for avoiding common errors and helps users choose, design and document a proper grounding scheme. Focal Press, $39.95.



Ithaca Records Hank Roberts

Jazz cellist Hank Roberts recently performed at Ithaca College in New York. Using Roberts' personal DPA mics (one mounted on the body of the cello and one on the stage), a selection of Neumann KM and TLM Series mics, and Audio-Technica small-capsule condensers on surround duties, Ithaca College School of Music's manager of music recording technical support Brian Dozoretz recorded, mixed and mastered the artist's live concert to both stereo and surround formats on the school's new SSL Duality console. Other gear included SSL XLogic Alpha-Link and Delta-Link interfaces, NHT 5.1 monitors, locally made Benchmark mic pre/converters and locally made Glyph hard drives.

World Radio History

Last Play at Shea

Shea Stadium hosted its last concert on July 18, featuring hometown favorite Billy Joel with guest appearances by Tony Bennett, John Mayer, John Mellencamp and Don Henley. Sir Paul McCartney (who played at the stadium's first concert with The Beatles on August 15, 1965), helped Joel close the show by accompanying the headliner on piano with a surprise version of "Let It Be." Joel's tour, including this show, used gear supplied by Clair Showco; the crew comprised longtime front-of-house engineer Brian Ruggles and production manager Bobby Thrasher (working with the artist for 33 and 27 years, respectively), as well as monitor engineer Mike Pirich. Soundcraft Vista 5 SRs were seen at both FOH and monitors. Also spec'd were Crown Macro-Tech 3600VZ amplifiers and Clair Showco's custom JBL-loaded S4 loudspeakers.

Brian Ruggles

onthemove

Kenny Segal,
Elias Arts' composer/chief studio engineer

Main Responsibilities: writing original music for TV and film, running recording sessions.

Previous Lives:

- 2004-2006, J.U.I.C.E. music production coordinator
- 2001-2003, tomandandy freelance composer
- 2002, The Boat runner/assistant engineer

The coolest project I've worked on was... my newest album, *Ken Can Cook*. I was able to combine two passions: music and cooking. Each artist I did a song with came over to my house, I cooked them a meal and then we recorded a song.

Currently in my iPod: Abstract Rude's *Mood Pieces*, Forss' *Soulhack*, Flying Lotus' *1983*, Take's *Earthtones and Concrete*, Madlib's *Beat Konducta Vol. 1-2*, The Books' *The Lemon of Pink*

When I'm not in the office, you can find me... making music at home!

seen&heard

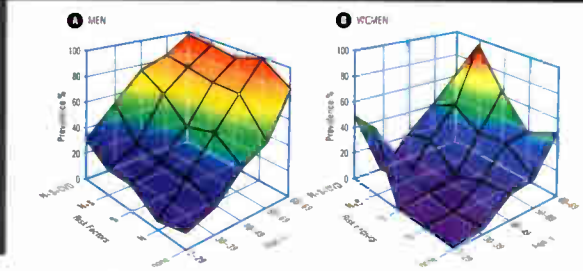
"There aren't too many songs that echo an empty sentiment; that has no place in my writing and my life."

—*Wayne Brady on creating his album,* A Long Time Coming

$121 million

the amount Best Buy paid for Napster in an all-cash deal in September

HEARING LOSS–IT'S NOT JUST THE EARBUDS



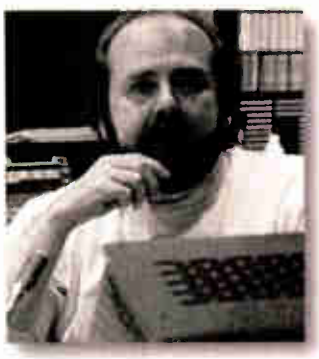
According to a recent report by the American Medical Association, in 2003 to 2004, 16.1 percent of U.S. adults (29 million Americans) had speech-frequency hearing loss. In the youngest age group (20 to 29 years), 8.5 percent exhibited hearing loss, and the incidence seems to be increasing among this group. Odds of hearing loss were 5.5 times higher in men vs. women. Increases in hearing loss occurred earlier among participants exposed to smoking, high noise levels and cardiovascular risks.

None=no risk factors; **N**=noise exposure only; **S**=smoking only; **N+S**=noise exposure and smoking; **N+S+CVD**=noise exposure, smoking and cardiovascular risks

World Radio History

Tim Butler, 1953-2008

Longtime Chicago Recording Company (CRC) engineer Tim Butler passed away on Monday, September 29. CRC offered a remembrance to *Mix*. An excerpt is printed here; read the entire text at mixonline.com. "Butler was a fixture at Chicago Recording Company for nearly 30 years. His studio was host to some of the greatest radio writers and voice actors of a generation. The reason was simple: In a business where excellence and perfection are too often just clichés, Tim was one of the few who walked the walk. He didn't just have a commitment to excellence, he also had an expectation of excellence.



"Tim's intelligence allowed him to talk about much more than the work in front of him. Films, music, literature, technology and politics were subjects he loved to discuss. He engaged others with difficult questions and challenged them with puzzling issues, just to have an interesting debate.

"Tim's family was his dog that he brought to work every day, as well as his co-workers at CRC. His work was his life. Inside and outside of CRC, Tim challenged everyone to do their best. And always stood up to do his.

"Those who worked with him will miss his passion, his knowledge and his insight."

AND THE EMMY GOES TO...

1990 Full Sail grad Marc Fishman won a 2008 Creative Arts Emmy Award in the category of Outstanding Sound Mixing for a Miniseries or a Movie for his work on the HBO film *John Adams*. Fishman is credited with working on more than 100 films; he has been a member of Todd-AO since 1999 and has worked on such titles as *We Were Soldiers*, *Nacho Libre* and *Crash*.

Zaxcom president Glenn Sanders and chief engineer **Howard Stark** were awarded a Primetime Emmy Engineering Award for the Deva location sound

recorder. Here's what some sound pros have said about Deva in the pages of *Mix*:

Richard King on *Master & Commander*: It really puts you in the room. You have a creak in the right front and it will move to the right surround; you really feel like you're inside of something. —*December 2003*

Eric Potter: I've had that machine in extreme heat and extreme cold, and it's always performed very well. It had some vibration problems: Riding on an M-1 tank and having it sitting on a chair, it would have a little seizure. [Laughs] Or, one time recording a tilt-a-whirl for [M. Night Shyamalan's] *Unbreakable*, John [Fasal] and I had to do a little fancy suspension of the unit to record that. But in general, it's been a real workhorse. —*July 2005*

Industry News

At **Harman Music Group** (Sandy, UT), **Reed Grothe** has been promoted to executive VP of sales and marketing and **Buzz Goodwin** to VP of domestic MI sales...Executive VP of sales at **JBL** (Northridge, CA) is **Stephen Morris**...In addition to expanding its facility, **Immediate Music** (Santa Monica, CA) added composers **Mark Phillips** and **John Samuel Hanson**, and director of operations **Emily Weber**...Director of licensing, TV network division at **615 Music** (Nashville) is **Shelly Walker**...**Fishman** (Wilmington, MA) named **Scott Lombardo** as VP of retail sales...

John McMahon

Shelly Walker

Stephen Morris

Meyer Sound (Berkeley, CA) appointments: **John McMahon**, executive director of digital products, and **Károly Molnár**, technical support director for Asia-Pacific and Middle East...Distribution deals: **Apogee Electronics** (Santa Monica, CA) selected **SCV Audio** as a distributor in France; **Allen & Heath** (UK) named **John Hornby Skewes & Co. Ltd.** as the exclusive distributor for the PA and ZED Series of mixers; and **Global Marketing Management** (Asia-Pacific countries except India, Singapore and Thailand) is now distributing for **One Systems** (Nashville).

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World Radio History

Carne Cruda—Grooving at The Annex

Engineer John Greenham (left) and producer Greg Landau at The Annex

In March 2008, upstart Oakland, Calif., band Carne Cruda (www.carnecruda.com) headed across the San Francisco Bay to record their second release, *Oakland's Tight* (Round Whirled Records), in Menlo Park at The Annex (www.theannexstudios.com). The band tracked in Studio A during two 10-hour sessions—live and with minimal overdubs or edits. "We recorded 10 songs on the second day," notes Camilo Landau, Carne Cruda's founder, lead singer and guitarist. "But the band was well-rehearsed, so we were able to pull it off."

Oakland's Tight showcases the five-piece band's energetic and eclectic repertoire. "I formed Carne Cruda because I had an idea for a particular blend of Latin music," Camilo Landau says, "incorporating Cuban and Puerto Rican influences, but also cumbia, soca, Palo de Mayo, rock, funk and other kinds of music. From there it turned into a blend of everything we hear walking down the street, and we try to say something of value while not taking ourselves overly seriously."

Oakland's Tight was produced by three-time Grammy Award nominee Greg Landau (Camilo's uncle) and engineered by John Greenham, a two-time Grammy winner who took up residence in The Annex's Studio C about a year ago. "[Studio A] has two iso booths and another separate room, so we could have the whole band playing together at once and get some isolation," Greg Landau says. Drummer David Flores set up his kit in front of the control room window, facing out into the room, while baritone saxophonist Charlie Gurke and trombonist Luke Kirley occupied an iso booth. Camilo Landau's guitar amp was placed in a separate concrete room, and Ayla Davila's bass was recorded direct through an Avalon VT-737sp tube channel strip.

Studio A is outfitted with a 60-input Neve V3 console, Pro Tools HD2 system, UREI 813 monitors and a wealth of premium outboard gear. "We used Millennia preamps on the overheads; the horns and guitar went through the board pre's," Greenham says. Flores played electronic sounds live using snare and kick triggers, as well as a Roland SPD-S sampling pad. "Greg Landau's sample library sounds were used to enhance the drum sounds—claps, 808 drums, et cetera," Greenham says. "They help support the acoustic sounds, and if blended correctly, it sounds natural."

—*Matt Gallagher*

Carne Cruda, clockwise from left: David Flores, Charlie Gurke, Luke Kirley, Camilo Landau and Ayla Davila

project studio

Tonysound

by Matt Gallagher

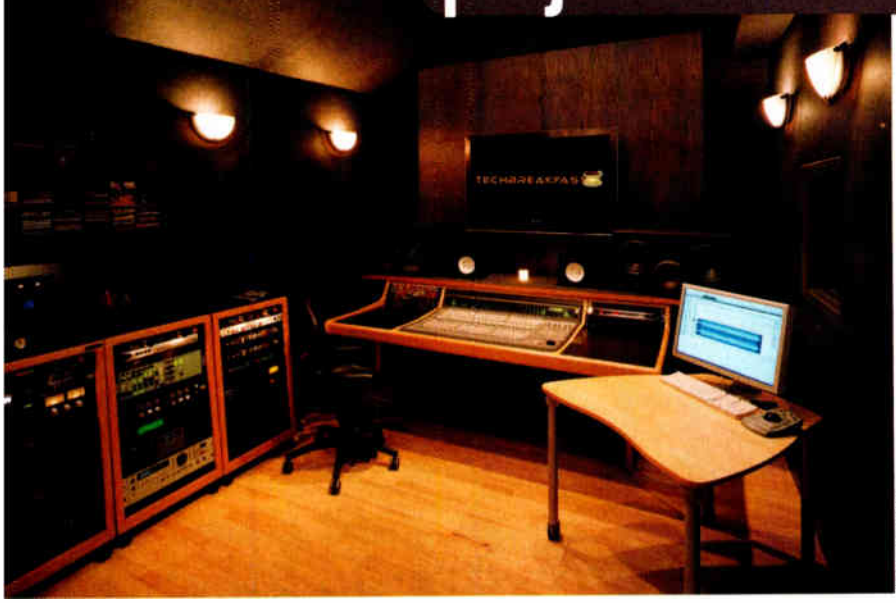


PHOTO: ED COLVER

Engineer/producer Tony Shepperd made a life-changing decision in 1999: Following a particularly grueling stint in a commercial facility—and having had enough of long commutes and time away from his family—Shepperd transformed the garage of his San Fernando Valley, Calif., home into Tonysound (www.tonysound.com).

This is Shepperd's fourth project studio, and it provides the ideal setting for his recording and mixing projects, including work for Kenny Loggins, Take 6, Whitney Houston, Barbra Streisand, the Backstreet Boys and many others. "It took me a year to build this studio," Shepperd recalls. "It was a 17-by-19-foot garage with an off-center A-frame roof. I kept saying to myself, 'I'm going to do this [with] cash,' because so many of my friends had typically taken out second [mortgages] on their houses [to build a studio]. So I'd get a little spare change here and there, and built everything for $35,000.

"We floated the floors, the walls, the ceilings," Shep-

World Radio History

Jupiter Rising

Keeping It Real, With Synths

Spencer Nezey (left) and Jessie Payo of Jupiter Rising in the control room at House of Blues Studios with producer/engineer Greg Ogan

PHOTO: KEVIN ESTRADA

At press time, urban pop duo Jupiter Rising—beatboxer/vocalist/co-producer Spencer Nezey and singer Jessie Payo—were in House of Blues Studios (Encino, Calif.) tracking, editing and mixing songs in Pro Tools for a new album to be titled *The Quiet Hype*. The artists spent a month on pre-production in The Writing Camp, engineer/co-producer Greg Ogan's (Britney Spears, Ashley Tisdale, Brandi) personal studio, before going into HOB with Ogan and session musicians Brent Paschke (guitar), Mike Shapiro (drums) and Mike Garcon (keyboards). Ogan took time out to give *Mix* a few details:

"The sound of this new album is rooted in programmed-electro, but we're putting a lot of live instruments on it. We're keeping it live and raw, but also a little futuristic with synthesizers. We've been tracking live drums on almost every song and tracking guitars on almost every song, and playing piano and keyboards, but also doing programs with synthesizers and soft synths, and tricks with vocodors and vocals.

"Mike Shapiro is a great drummer who's giving us a lot of different sounds. Sometimes they're tight and funky like disco sounds; sometimes they're big Led Zeppelin drum sounds, and if we combine programmed drums with live drums and synthesizers with guitars, that turns out to be the formula of getting the sound of these songs. Sometimes we use up to four room mics and lots of compressors to really get things sounding big and halting and pumping, and we have a lot of real estate at the House of Blues, so we're experimenting—throwing up mics and playing with shifting the phase, changing the relative distance between the mics to get small, narrow sounds or a big open sound."—*Barbara Schultz*

Track Sheet

Chicago-based engineer/producer Nick Eipers launched a new subscription-only jazz label, Chicago Sessions (www.chicagosessions.com), which is designed to release one album per month each year. The first release, **Larry Gray**'s *1.2.3*, was engineered and produced by Eipers at **Studiomedia Recording** (Evanston, IL)...**Sam Berkow** of **SIA Acoustics** tuned producer/mixer **Bruce Botnick**'s studio, **UnitEye** (Ojai, CA). While Botnick worked on sound design for the film *Eragon* at **Skywalker Sound**, Berkow made acoustical improvements before Botnick returned to work on additions to The Doors' catalog and a Broadway Cast recording of Disney's *The Little Mermaid*...**Hilary Gilbert & The Kentucky Horse Thieves** recorded their recent single, "Tall Sudsy Longneck," at **NRG Studios** (North Hollywood) with producer **Sammy Oriti** and engineer/mixer **Jay Baumgardner**. Oriti and Baumgardner also worked at NRG with artist **Ricky Harlow**, recording and mixing the song "Unstoppable," which is currently available on iTunes...At **The Laboratory Recording Studio** (Milwaukee, WI), **Kevin Sucher** completed the 5.1 mix for an **Eric Benet** DVD due later this year on Friday/Reprise...In his **Blue Seven Audio** (Fremont, CA), engineer/producer **Chris Scott Cooper** has been working with artists from prog-rockers **New Sun** to the **Tom Povse Jazz Trio**.

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

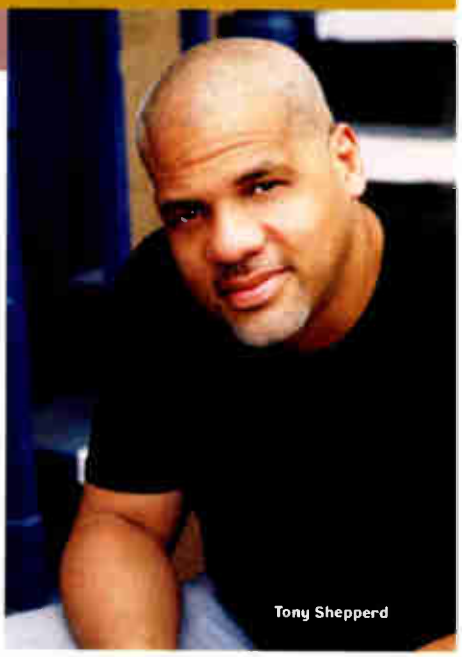
Standing, from left: guitarist John Moulder, assistant engineer Maya Kuper and drummer Charles Heath IV. Seated are producer/engineer Nick Eipers (left) and Larry Gray.

perd continues. "There are no standing waves because there are no parallel surfaces in this room. I built sound traps into the wall. I built this room around my main source of monitoring. I knew that the NS-10s were going to sound good in here because every step along the way, I'd listen."

Tonysound comprises three rooms. "One is a control room that is 12-and-a half feet in the front and 12-and-a-half feet on the back, and it's 16 to 17 feet long. I have an entryway that's 6-by-6 feet, which also houses all the [noisy] gear. Then I have an iso [room] that's 6-by-10 feet. We've tracked drums, acoustic guitars, vocals and strings in there. We tracked the Tower of Power horn section in there."

The studio offers a Mac G5 and Pro Tools HD6 system with Digidesign 192 interfaces and a C|24 control surface. Since 2001, Shepperd has mixed entirely inside the box, and now employs analog summing and processing as needed using multiple Tonelux hardware modules and A-Designs' HM2EQ Hammer dual-mono 3-band tube EQ. He also has an A-Designs Pacifica solid-state mic pre, Neve 1073s, Tube-Tech CL1B compressor and Bryston SST Series amps. Along with the NS-10s, he uses Westlake BBSM-10 monitors. Shepperd's mic cabinet includes an AKG C 12 VR, Neumann M149 and Sony C800G, as well as models from CAD, Electro-Voice, Shure, Marshall and Sennheiser.

Shepperd uses Gefen Extender systems and Cat-5 cables to connect the computer stored in the entryway to the monitor and QWERTY keyboard on a mobile desktop. "I can move it anywhere," he says. "When I'm tracking I like to face the iso. When clients come in, I can move [the desktop] all the way to the right and let the clients sit in the middle and listen to the mix in the sweet spot. And I can still sit on the side and make changes that I need to make." ■



Tony Shepperd

World Radio History

by David Weiss

We all know cover-ups are occurring everyday, with the CIA, the FBI, the military and...Michael Jackson? You better believe it. With the 25th anniversary of *Thriller* past, it may seem surprising that no 5.1 surround version of one of the greatest albums of all time has ever been released—especially because the 6-channel mix for much of the album has been in existence since 2001.

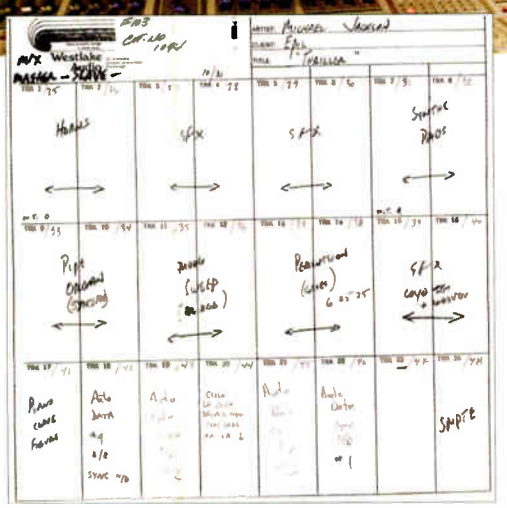
The intrigue began seven years ago, when mixer Mick Guzauski (www.jdmanagement.com) got a call from Tommy Mottola and Al Smith at Sony Records: Would he be interested in doing a surround mix of the Quincy Jones–produced *Thriller*—the album that has sold an estimated 100 million copies and won seven Grammys? "I said, 'Yeah!'" Guzauski recalls. "*Thriller* has great production, great music, great parts. I thought something like that could really work in 5.1."

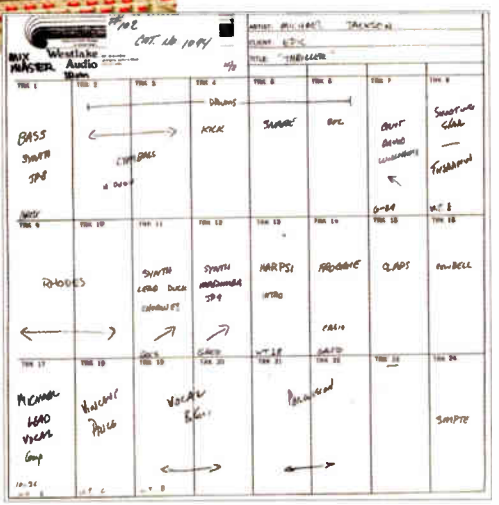
Early on, however, Guzauski got the feeling that things might not move smoothly for *Thriller*. "There were arguments going on within Sony," he says. "Some people thought strongly that it should be left as is and not mixed in surround, and some thought that it should. While that was going on, there were all the well-publicized problems between Michael and Tommy, and Michael and the law."

Nonetheless, later in the year, Guzauski's Lawrence Swist–designed Barking Doctor Recording studio (Mount Kisco, N.Y.) received a prized shipment in the form of the raw *Thriller* sessions, transferred from 30 ips analog to Sony 3348 48k/24-bit digital tape.

Working with his longtime assistant Tom Bender (*Thriller* engineer/stereo mixer Bruce Swedien was invited but was unavailable), Guzauski hunkered down behind his Sony Oxford console and got to work on converting *Thriller* from stereo to multichannel.

"The approach wasn't to change anything," he explains. "Bruce did an incredible job recording that album. Naturally, [my approach] is going to be a little different—different studio and different mixer—but I wanted to give the album a little more space to live in while staying true to the original mixes."





Grammy-winning engineer Mick Guzauski in his Barking Doctor studio. Inset: Bruce Swedien's original track sheets.

Mixing down to six tracks in Pro Tools, Guzauski began to sink his teeth into the hits that make up *Thriller*, giving the surround treatment to "Billie Jean," "Thriller," "The Girl Is Mine," "Baby Be Mine," "Wanna Be Startin' Something" and "Beat It."

"The appeal of surround is there's so much more space to place stuff in," says Guzauski. "Where *Thriller* benefited most from this was mainly in the vocal arrangements. There are so many cool things in the background that didn't draw your attention in the stereo mix, but really helped in 5.1.

"The song 'Thriller' gave us the most opportunity to be expressive with the surround soundfield: the door slamming, the guy walking around—all the effects there were fabulous."

Listening on five Tannoy SRM 10B monitors and a JBL subwoofer, Guzauski reached mostly for outboard gear such as his EMT 140 plate, Sony DRE777 and Eventide SP2016 reverbs. "There actually weren't a lot of reverbs and delays on that record," he observes. "Michael's vocals were very well-recorded, so there wasn't any dynamics correction needed. It was just finding the balance and positioning, and getting it to fit in the mix."

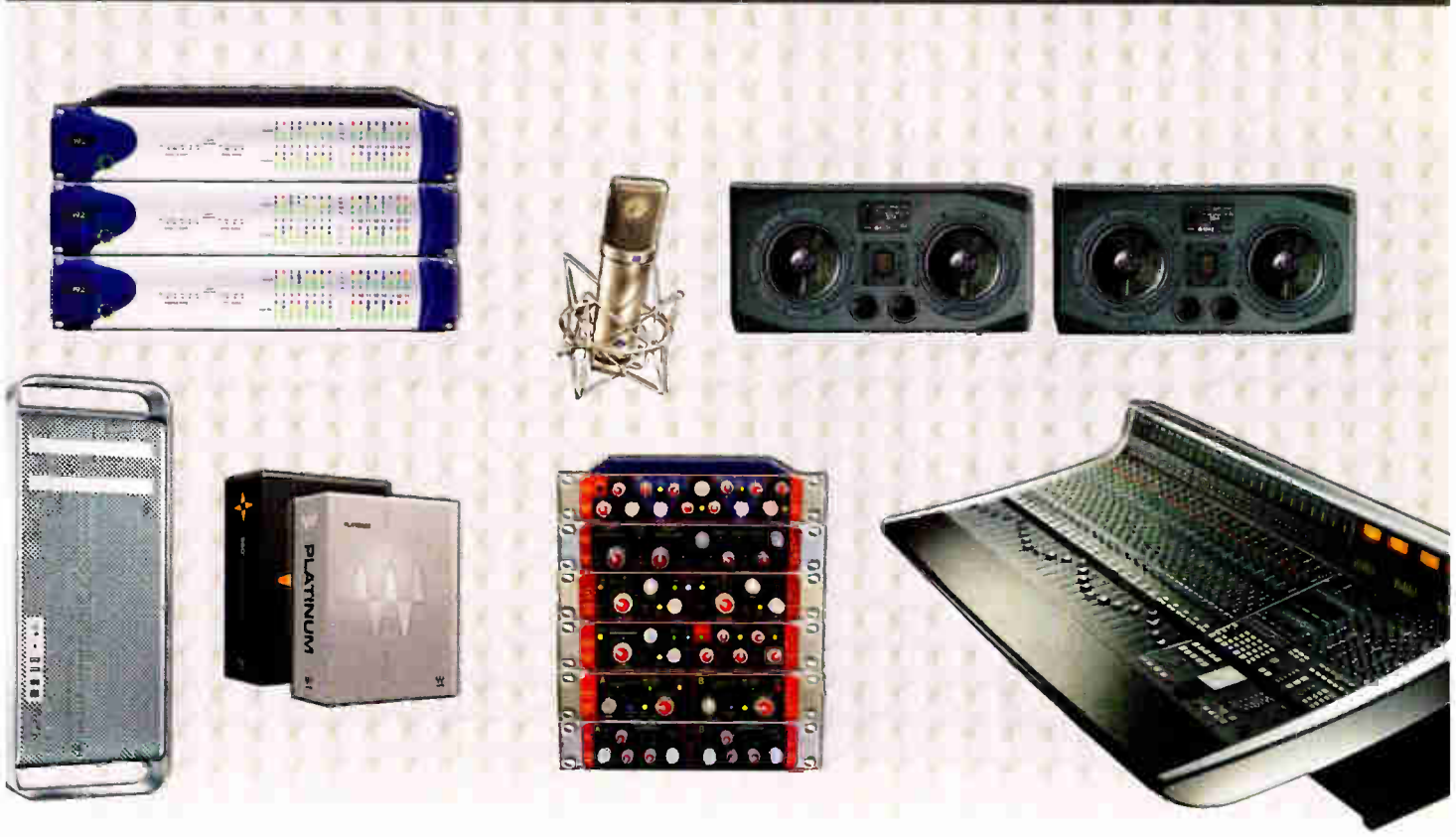
Into 2002 and in the middle of mixing "Beat It," Guzauski got another call from Sony. "They put a hold on it," he reports, "and said, 'We don't know if we're going to finish it.' They said they'd restart it several times, but the last time was in 2004, when I got a call saying, 'We want to finish *Thriller*. What would it cost?' Two hours later, it came on the news that Michael's Neverland ranch had been raided for a second time. That's the last I heard about it."

In the wake of label infighting, legal wrangling and Jackson's personal problems, the only place in the world to hear true 5.1 surround mixes of *Thriller* is sitting next to Guzauski at Barking Doctor. "It's one of the most classic records ever made," he says, "and it works great in 5.1. I just know a lot of people would love to hear it like that."

Send New York news to david@dwords.com.

World Radio History

Some things are too important to just click together



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NASHVILLE Skyline

by Peter Cooper

The economy is out of whack, the future of recorded music is indistinct, recording budgets are shrinking—and so Ira Blonder decided this is as good a time as any to purchase the Southeast's biggest recording facility.

"What a time in the industry—when everything is in flux—to grab hold of one of the top facilities in the country and maybe put my own stamp on it," says Blonder, who recently purchased The Sound Kitchen after the studio's Texas-based owner, Weston Entertainment, resolved what was described as "internal litigation."

Artist/producer Alan Parsons (left) with new Sound Kitchen owner Ira Blonder

Blonder is now the owner of a 19,000-square-foot facility that is situated in Cool Springs, a community that's a 10-minute highway drive from the Music Row business center. His purchase might at first seem to be akin to buying a gas-guzzling SUV as soon as pump prices hit $4 per gallon. And Blonder—a real estate man who has brokered the sales of Ocean Way, the Quonset Hut, Omni Studios and other businesses—is quick to assert he sees little room in the market for big studios that follow a traditional business plan.

"If you're big and single-focused, I don't believe you can exist," he says. "We have to evolve." Blonder's planned evolution in some ways harkens to old Hollywood days, when movie studios had writers, actors, producers and directors all working on one large lot.

"I want to create a campus environment, and I want to start developing artists," he says. "Studios are often like hotels, where when there are vacancies you're not making any money. We're talking about taking dark time and doing something productive, and we're going to have long-term benefits that go beyond renting out space by the hour. Why not take staff that is here already, put them into something creative, pull in some writers and match them up with a fresh new artist, and try and create something?"

Blonder envisions something like a studio version of the record companies' much-discussed "360 deals," but he doesn't intend for the writing, publishing and artist-development activities to compromise the Kitchen's main objective, which is to record music. The Kitchen has been home to recordings by Bruce Springsteen, Keith Urban, Rascal Flatts, the Dixie Chicks and plenty of others, and the summer brought country-soul growler Wynonna, teenaged country starlet Taylor Swift, heavy-metal band Trivium and Disney sensation Miley Cyrus. Such activity was both welcome and necessary for a facility that was battling an industry perception that it was either closed or closing.

"There's definitely more opportunity here now than before," says Chad Hannah, who works to book the Kitchen and to set up the new internal structure. ("We're working on figuring out my title," he says with a laugh.) Hannah weathered last January's financial uncertainty when Blonder took over operational control after the Weston Group's situation imploded. And Hannah stayed through the departure of popular studio manager Sharon Corbitt-House. "This place is going to still be known as a studio, but also as a hub of the music community."

The Kitchen's signature room is The Big Boy, which features 3,000 feet of tracking space and an 80-input API Legacy Plus board with Flying Faders. It is large enough to record an orchestra, and Blonder sees it as a natural fit for a film industry that is taking interest in Nashville. The Big Boy is a calling card for The Sound Kitchen and it's a spot where artists can make music and film music: Swift, Cyrus, Rascal Flatts and others have made videos there, and the Cyrus video (for Wal-Mart's online *Soundcheck* Series) proved that Big Boy is not only large enough for an orchestra, but it's also large enough to fit an audience of 150 question-asking, autograph-seeking teen and sub-teen girls. Now *that's* a multi-use facility.

Aside from Big Boy, the Kitchen has five other substantial tracking or mixing rooms, and a couple of digital studio spaces. Blonder and Tim Coyle have been surveying the building's equipment, from consoles to rolling chairs, photographing and cataloging everything and making decisions about upgrades.

"I think we're ready to make some moves," Blonder says. "We're going to move out equipment that doesn't fit the vision."

The vision of the recording artists and producers comes into play in studio choices at the Kitchen. Rock acts often prefer to mix in Studio C, which has a punchy SSL 4000G with Ultimation. J.R. McNeely has mixed major Christian rock albums for Relient K and UnderOath in C. Hannah's favorite room is the self-contained Studio E, with its basement vibe and an SSL that matches C's. At least the boards match for now: Blonder is open to input and eager for change, and he won't let emotional attachments to gear get in the way of a positive move. Sound boards, studio walls and old-school business plans are about as secure under Blonder as Yankees managers under George Steinbrenner.

"This isn't just a studio, it's a canvas," he says. "I can't sing and I don't play an instrument, but that doesn't mean I can't come from outside an industry and help it to change. And I want to meet people who want to go in on this, who want to own a piece of the Kitchen and have input on operations and equipment and the future. I'm a blank slate, just like this place is."

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L.A. Grapevine

by Bud Scoppa

The most gratifying careers begin when passion lines up with aptitude. For film-trailer composer/producer Yoav Goren, the co-founder of Immediate Music, it started with getting hooked as a kid on Beatles mind-benders like "A Day in the Life" and "Strawberry Fields Forever," along with the sweeping scores of widescreen epics like *Lawrence of Arabia* and *Dr. Zhivago*. Throw in some childhood classical piano training and studies at NYU Film School, and you've got the building blocks for a vocation.

Immediate Music founders Yoav Goren (left) and Jeffrey Fayman have moved their company into new Santa Monica headquarters.

Meanwhile, out in L.A., Goren's future business partner Jeff Fayman was drumming in local prog-rock bands and becoming aware of a nascent facility for manipulating electronic instruments while studying percussion and basic theory at CalArts. By the time the two hooked up in 1991, each was a budding composer with dreams of writing for the movies. The pivotal moment came when Fayman was hired to create a piece for a trailer.

"A lot of people didn't know then that that area even existed," says Fayman. "A friend got me the opportunity to try it—he told me it was fun writing to picture—and it seemed like a good first step toward doing music for films. But after doing a few non-high-end trailers, I realized that if it started taking off, it would be a really demanding job, working around the clock. They'd want John Williams' score replaced using the gear that was available 15 years ago, which was not nearly as sophisticated as now. In the beginning, I was using an Atari with three Mackies chained together. So to get something that didn't hurt your ears and sounded a little like an orchestra was a challenge.

"I'd met Yo, we started playing music back and forth, and we realized we had a facility to finish each other's pieces quickly," he continues. "We put together a demo on a cassette and sent it to the half-dozen trailer companies that existed back then—now it's more like 60—and one of them responded. Within a year or so, we had more work than we could handle."

A decade-and-a-half later—until this year working out of their homes—Goren and Fayman have built Immediate Music into one of L.A.'s chief suppliers of original music for major-studio movie trailers, specializing in cranked-up hybrid pieces combining orchestral and electronic elements. Some jobs call for custom scoring, but a good many projects draw from a now-sizable library of original pieces in the full spectrum of modes—Goren refers to these pieces, composed free of deadline pressure, as "imaginary trailers."

In recent months, the partners have created music for the trailers of such biggies as *Hancock*, *The Incredible Hulk*, *Iron Man*, *The Chronicles of Narnia: Prince Caspian*, *Pirates of the Caribbean 3*, *Hellboy 2*, *The Mummy: Tomb of the Dragon Emperor*, *Dragonball* and the upcoming *Harry Potter and the Half Blood Prince*. Those pictures further beef up a fat CV that includes the *X-Men*, *Spider-Man* and *Harry Potter* franchises. Their extensive work in TV has included the creation of original music for the Beijing Olympics on NBC, their third straight Olympic foray, after snagging a 2007 Emmy for their work on *The XX Olympic Winter Games: The Stories of Torino*.

All this activity has prompted a major expansion, as Goren and Fayman moved into an airy Santa Monica commercial space that now encloses two newly built studios, as well as offices for a staff of seven, from composer and technical expert John Samuel Hanson to director of operations Emily Weber, who spent the past five years at RipTide Music. Engineer/sound designer Greg Townley is not on staff but is an essential part of the team.

To get that "massive" sound people are looking for these days, the company scouts up superior acoustic environments from So-Cal to Seattle, from college halls to churches, sends in a crew and creates a remote 5.1 scoring soundstage. Townley chooses the locations, oversees the setups and captures the sounds, a process that can take as much as 10 days and involve as many as 90 musicians recording dozens of pieces. Working with a Pro Tools template he designed himself, Townley records at 96k using high-end Neve, Millennia and Grace preamps.

The hub of the main room at IM's new headquarters is an SSL AWS 900+ board and a pair of 64-bit dual quad-core Mac Pros running Pro Tools HD4 and using MIDI over LAN and MADI for audio streaming, all of it hooked up to a superfast fiber network. The interface combines Digital Performer (for sequencing and tempo-based instruments), Logic (the host for the sample library and all non-time-based soft synths) and Pro Tools.

"The biggest frustration for a composer," says Goren, "is to sit down at a workstation, and say, 'Why am I not getting sound out of this thing? Is the MIDI working? Am I on the right drive?' So part of what Greg is designing are these templates where everything is there, and you just click on whatever sound you want or whatever track you want played, and you've got it."

Goren at the new SSL AWS 900+ board

The wicked-clever interface enables anyone working at the SSL or any of the composing stations simultaneously and seamlessly to access data off any drive in the system. Simply by addressing their own needs, these guys may have come up with something unprecedented. Says Hanson, "West L.A. Music handled the installation, and they told us no one else had done anything like this. That was surprising to us because it seems like such a logical thing to do—to cut down on your computers, cables—all this stuff—*and* make it better."

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3 Studios, 3 Budgets

Outfitting Your Facility? Start With Our Virtual Shopping Lists

We asked three gearheads to select the equipment for a recording room. Each was given a different virtual budget—$20,000, $60,000 or $175,000—for his favorite goodies. Despite spending imaginary cash, a lot of thought and creative wrangling went into the process, and with appropriate substitutions, additions and/or deletions, the studios presented here should provide useful insights into equipping *your* facility, whatever the budget. It should be noted that the emphasis here is strictly on gear rather than acoustic treatments, room construction, etc. As in all endeavors, your mileage may vary. Happy shopping!

SERIOUS ENTRY LEVEL
The $20k Project Studio

By Robert Hanson

My imaginary setup is an "entry-level" $20k project studio that can handle composing, sound design, voice-over and mixing in stereo. The system leans heavily on software instruments and processing, while incorporating several different DAWs for working across multiple formats. (All prices will be the actual retail or approximations thereof unless noted.)

I'll start at the Apple store. The main computer is a dual 3GHz quad-core Mac Pro for $3,599 and a refurbished 23-inch Apple Cinema HD display for $749. To save a few

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Lexicon PCM96
Bricasti M7 reverb
KRK E8B monitors

bucks, I'll skip any extra factory RAM, hard drives or extras, mousing over to www.otherworldcomputing.com to score 16 GB of RAM (using 4GB modules) for $919 and two 1TB Seagate Barracuda 7200.11 SATA II hard drives at $151 each, which augment the Mac Pro's standard 320GB drive. With this configuration, four open RAM slots and one open hard drive bay remain, should you need to upgrade down the road.

The goal of this studio is to be able to work across several different DAWs based on project/client needs. Converters have a profound effect on the quality of your creations, so this is no place to skimp. My main audio interface is an Apogee Ensemble ($1,949), supplemented by a $1,200 Digidesign Digi 003 Rack. In terms of DAWs, the Apogee is tailor-made to work with Logic Studio ($499)—an obvious choice for composing. For working with loops, alternate arrangements and sound design, Ableton Live 7 ($499) is another go-to product. On the Pro Tools front, the 003 includes the latest version of Pro Tools LE, but to up the track count to 48 and get some of the pro features (Multi-Track Beat Detective, SoundReplacer, etc.), I added the $495 Music Production Toolkit option.

Now there's approximately $10k left for monitors, outboard, mics, controllers and additional software. For monitoring, a cost-effective option that delivers professional accuracy is Blue Sky's ProDesk 2.1 for $1,258. This system uses two audio interfaces, and switching cables behind a desk is a nightmare, so Mackie's $299 Big Knob lets me switch between audio interfaces while providing talkback capabilities and allowing for another set of monitors in the future. Outboard needs here are fairly minimal. Both audio interfaces have decent onboard preamps, but for critical recording, a dedicated, boutique-quality channel strip is a must. My pick for this application is Universal Audio's LA610 Mk II ($1,599), offering a preamp, EQ and optical compressor in a 2U chassis. For miking vocals, single acoustic instruments (guitar, winds, etc.) and possibly the occasional guitar cab, these three microphones should cover things nicely: BLUE Blueberry ($999), RØDE NT4 stereo condenser ($529) and a pair of Shure SM58s ($160 each).

Composing and sound design are at the forefront of this setup, and M-Audio's Keystation Pro ($499) master MIDI keyboard features a hammer-action keyboard, 59 assignable controls (faders, knobs, etc.) and 10 rewritable presets. Now some cool software instruments and effects will take this system over the top. For instruments, samplers and guitar amp emulation, the Native Instruments Komplete 5 bundle for $1,149 includes all 11 major NI products including Reaktor 5, Guitar Rig 3, Kontakt 3, Akoustic Piano and the like. Most composers would be hard-pressed to run out of fodder with this package. For mixing chores and to access some classic hardware emulations, Universal Audio's $699 UAD-2 Nevana 32 package offers more than twice the DSP power of the older UAD, and it includes 32 channels of Neve 88RS and a host of other UA plug-ins. And finally for restoration chores, I'll spend a little extra on the Waves Restoration Bundle ($1,800)—as any user will attest, this bundle includes some of the finest noise, hiss and pop-removal tools available.

The total comes in just under the $20k mark, so with tax, cables and other unmentionables I'm slightly over budget. However, I've included a few luxury items—especially on the software front—that could be omitted without seriously affecting the functionality of this imaginary project studio.

LEAN, MEAN PC MACHINE
The $60k Package

By George Petersen

As my cohorts spec'd Mac systems, I'm going for the pure power and speed of a PC. The emphasis is a hybrid of traditional and virtual production, while keeping my eyes—and ears—on performance and serious fidelity. And with $60k in (virtual) cash to spend, I'm going first class.

At the heart of the studio is a PCAudioLabs Standard Black (no frills) enclosure. Don't let its drab exterior fool you. Under the hood of this $2,585 beast is an Intel Core2 quad 3GHz Q9650 CPU, with 4GB RAM, 320GB system drive, two 1TB data drives, dual DVI ATI Radeon HD3470 graphics, Pioneer 20x DVD burner, Silent Treatment sound deadening, FireWire 800 card and the ever-stable, dependable Win XP Pro. Options include Vista, AMS chipsets, rackmount case and many more. Display-wise, I have two 22-inch Viewsonic VX2240W LCDs

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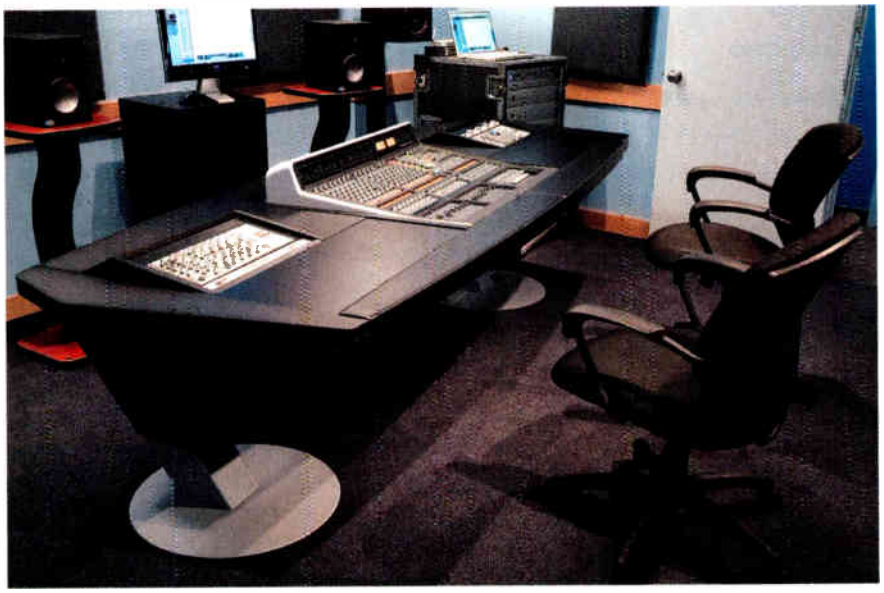

The mid-priced studio would put an SSL Matrix into an Argosy Mirage housing.

with DVI interfacing—each at $409 list.

On the DAW software side, I choose Cakewalk SONAR 8 Producer's Edition ($619), but everybody has their faves, whether it's Steinberg Cubase, Nuendo, Magix Sequoia or SAW Studio.

The all-important interface here is RME's FireFace 800 ($1,999), routing to 28 outputs simultaneously with 24/192 clarity. It also boasts a great sound, solid drivers and four respectable onboard preamps. Upping the ante is Focusrite's ISA828 ($2,999) with eight mic/line inputs (four with DI jacks) and optional ADC card. For the money channel, I splurged on a $4,000 Manley VoxBox—one channel of tube mic pre, compression and EQ, but it makes any input (mic or DI) sound like heaven. Another flavor is Groove Tubes' The Brick—mostly as a tube direct box, but it's equally useful as a mic preamp and line driver—and it's a deal at $499.

The centerpiece is Solid State Logic's new Matrix line mixer/router/DAW controller ($25,995) set into Argosy Console's Mirage Matrix housing ($5,645), which makes the package look a half-million, while keeping everything tidy and adding 12 rackspaces (six per side) for outboard goodies. Those with more can add Argosy's matching 11-space sidecar(s), but with all of my plug-ins, I won't need it.

I also bought the $3,365/pair JBL 6328P-Pak powered room-correction monitor system (no sub, but it's optional) on two Argosy 42-inch X-stands ($259/pair) with a couple Primacoustic RX9-DF down-firing Recoil Stabilizers ($150 each) set at a 5-degree downward slope to optimize the listening area. Speaking of listening, I added the Aphex HeadPod 454 headphone amp ($249) with four channels of loud, distortion-free—and minimal fatigue—playback and three beyerdynamic DT770 closed-back studio phones at $299 each.

Even though SONAR, Cubase, et al, ship with powerful DSP suites of their own, he who dies with the most toys wins, so I added Waves' new $900 Silver Collection. The latter's 16 plugs include the Renaissance Compressor, Renaissance Equalizer, Renaissance Axx, IR-L Convolution Reverb, L1 Ultramaximizer, C1 Parametric Compander, S1 Stereo Imager, Q10 Paragraphic Equalizer, MaxxBass, MondoMod, Enigma, TrueVerb, SuperTap, Doubler, DeEsser and Paz Analyzer—a deal at $50-plus-change apiece. One gotta-have plug is SPL's sweet new Analog Code Transient Designer—shipping now in RTAS/VST/Audio Units for $299. A more unusual plug-in selection is the Peterson Strobosoft 2 guitar-tuning software—a bargain studio essential at $49.

I really went wild with mics, selecting 14 classic and future-classic models. In the sweet-vocals-but-great-on-anything department, the selections are Neumann TLM 49 ($1,998), the RØDE K2 tube ($999), BLUE Baby Bottle ($799) and the Cascade Fat Head II Stereo Pack—two ribbon mics, stereo bar and Blumlein mount in a nice case for a bargain $400. For applications where versatility is a must, the selections are Audio-Technica's small-diaphragm AT4041/SP stereo pair ($795) and four gotta-have-'em Shure SM57s ($140 each). More specialized is the $179 Audix I-5 (perhaps the new standard on snare), Sennheiser's $154 E-609 (remake of the MD-409, a guitar amp classic) and the Electro-Voice N/D 868 kick drum mic ($388).

There are still a few loose ends. At $310, Furman's P8 Pro 20-amp power conditioner offers protection and peace of mind. I also budgeted $2,000 for some miscellaneous purchases, such as mic stands and cabling—both XLRs for mic/lines (from various suppliers) and Planet Waves' new DB-25 breakout snakes, which are ideal for SSL Matrix interfacing.

It's a tidy $60,000, although with all prices MSRP, you can probably come in a good deal lower and pick up that Les Paul Custom you've always wanted.

HIGH-END APPROACH

The $175k Room

By Kevin Becka

The biggest-budget studio is a tracking/overdub room that can cater to both the old and new school. It's DAW-based but has some incredible analog hardware. The $175k budget presupposes items such as interconnects, patchbay, mic stands, furniture and accessories. I shopped around for the best price on all gear, so strike the word "retail" from your vocabulary.

Recording will be to a Digidesign Pro Tools HD3 system ($13,000) through 24 channels of Lynx Aurora converters ($4,990) addressing Pro Tools through Lynx's LT-HD cards ($700). The system will be clocked by the rock-solid Grimm CC1, offering 16 word clock outs and 90 dB of jitter suppression at 10 kHz ($1,750). This DAW will run on an Apple Mac Pro with four 3.2GHz quad-core Intel Xeon processors, 8GB RAM, two 500GB 7,200 rpm Serial ATA 3Gb/s hard drives and two 23-inch Cinema HD displays ($7,947). AC power will be handled using the Balanced Power Technologies BP-10.5 Signature Plus ($2,999). There are lots of extra slots with Digidesign's 6-card PCIe expansion chassis ($2,395), giving me five open slots for expansion. I'll use one of those slots for SSL's Duende PCIe system ($1,295) offering 64 channels of processing on Duende's dedicated DSP and plug-ins.

The centerpiece of this studio will be the Tree Audio Console ($38,750), which, due to its modular nature, assures a variety of sonic colors. The 24-channel desk has three tiers available to accept 500 Series modules. I'll start building the desk by choosing some vintage flavor with four API 512C preamps ($760). Next, I chose four Shadow Hills Mono GAMA mic preamps ($795) with switchable output transformers and added four Chandler Germanium 500 preamps with their tone-bending feedback control ($950). I plan on putting some sweat equity into the room by building four Eisen Audio D.I.Y. 500 Series

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preamps, which lets me choose from a wide variety of op amps, I/O transformers; this is an inexpensive, custom way to add more variety to the front end (about $400 each, depending on parts). Finishing out the first tier, four Atlas Pro Audio Juggernaut ($895) preamps with switchable input impedance promise even more tonal options and four OSA MP1-L3 Big Daddy ($650) pre's with Lundahl transformers.

EQs on the second tier of my console include four Speck ASC-V ($735) 4-band EQs. I'll put in more solder time and save more dollars by building four kit-based EQSM1 EQs from S and M Audio ($350). Next are four Purple Audio Odd Inductor EQs ($735), four API 550B EQs ($1,195) and eight pricey-but-sweet A Designs EM-PEQ ($1,235), promising a tip-o-the-hat to the classic Pultec EQP-1A.

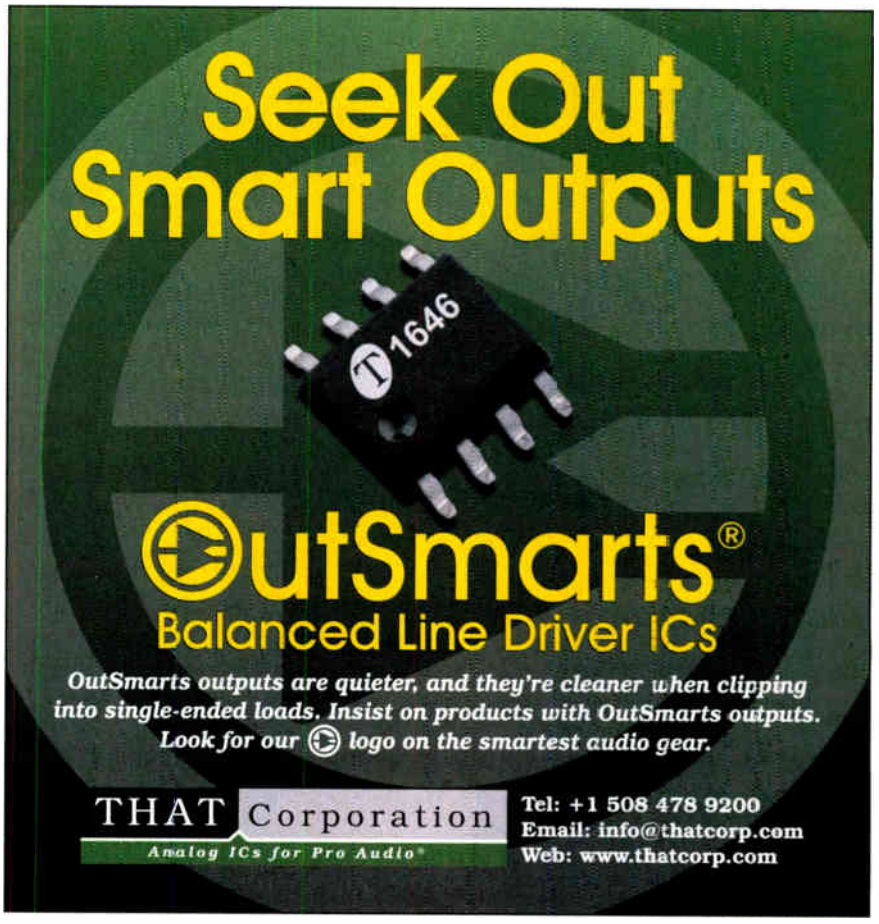
Rounding out my 500 Series module purchases, I bought a variety of dynamics controllers including four of the versatile Burgin/McDaniel Komits ($750), four Purple Audio Action FET compressors ($675), four API 525 discrete compressors ($1,195), four AnaMod AM660 ($1,295) compressors modeled after the coveted Fairchild 660 and four Empirical Labs DerrEssers ($649) for taming stray sibilance. For mixing purposes, I added another two AM660s across the stereo bus in the Tree Console.

For effects while recording, Lexicon's PCM 96 hardware effects box ($2,999) works as a stand-alone unit or within Pro Tools via the included software. For more clean ambience is the Bricasti M7 high-resolution digital reverb ($3,695).

Mic choices include two R92 ribbon mics from AEA ($1620), two Royer 121s ($2,590), four PR30 dynamic moving coil mics from Heil ($996), a Yamaha SubKick ($369) and four SM57s from Shure ($400). For use on drum overheads, piano, strings, guitars and vocals, I'll have two Sennheiser MKH-800s ($5,400), a Korby Audio KAT Red ($3,495), the DPA 3521 compact stereo kit ($3,500), two SE Electronics SE-4s ($698), two new AKG C214s ($1,198) and two Mojave MA-200 tube mics ($1,990).

This means nothing without great playback, so I've chosen KRK E8B speakers ($5,000) and M-Audio's Studiophile DSM2 monitors ($1,498) as an alternate listening source. For direct recording, I'll use the DI inputs on the console's preamps in the control room or two Radial JDI DI boxes ($800) and a pair of A Designs REDDI Tube DIs ($1,430) for studio use.

All this comes to $174,884, excluding tax, license, undercoating and pin stripes on the muffler. III



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Warm It Up

New Large-Diaphragm Condenser Mics Are Versatile and Affordable

BY DAVID WEISS

With autumn in the air, it's only natural to start thinking about the warm stuff: spicy apple cider, pumpkin pie and—of course—large-diaphragm condenser microphones. Once upon a time, large-diaphragm condensers (LDCs) existed only in the rarified air of elite audio equipment such as the Neumann U47. Such studio treasures brought warmth and definition to the voices of the Golden Age of recording, and are still coveted and capable of setting a facility back a pretty penny. However, thanks to mass manufacturing, prices of new LDCs have gone down to as little as $100. As a result, some affordable and terrific-sounding LDCs are popping up in new places. Originally earmarked for vocal use, they're now used in a wide variety of applications—both in studios and onstage—capturing acoustic guitars, strings, drums, amps, or room or audience ambiences.

Although potential uses for LDCs are on the rise, other options concerning these mics are shrinking—but not in a bad way. Upscale models have variable polar patterns—cardioid, hypercardioid, omni, figure-8—but these choices also increase complexity, adding moving parts and cost. An alternative is the fixed-pattern version, such as AKG's recently released C 214, a cardioid-only version of its venerable C 414.

Also watch for LDCs' potential for expansion into the digital realm. The Neumann TLM 103 D has just arrived, and with AES42-compliant live and studio preamp/mic controllers from DiGiCo and RME now available, it's clear the market is anticipating that this trend will continue both in the studio and on the road.

Focusing on recent releases, *Mix* surveyed manufacturers worldwide for their entries in the field of large-diaphragm (1-inch or more) condenser mics. All of the microphones included in the charts that follow were introduced in the past 18 months. Obviously, there's been a lot of activity in this area; our charts list details for more than 100 models. Whatever your next project will be, there's certainly an LDC out there that's just right for warming up your next recording. ■

David Weiss is Mix's New York editor.

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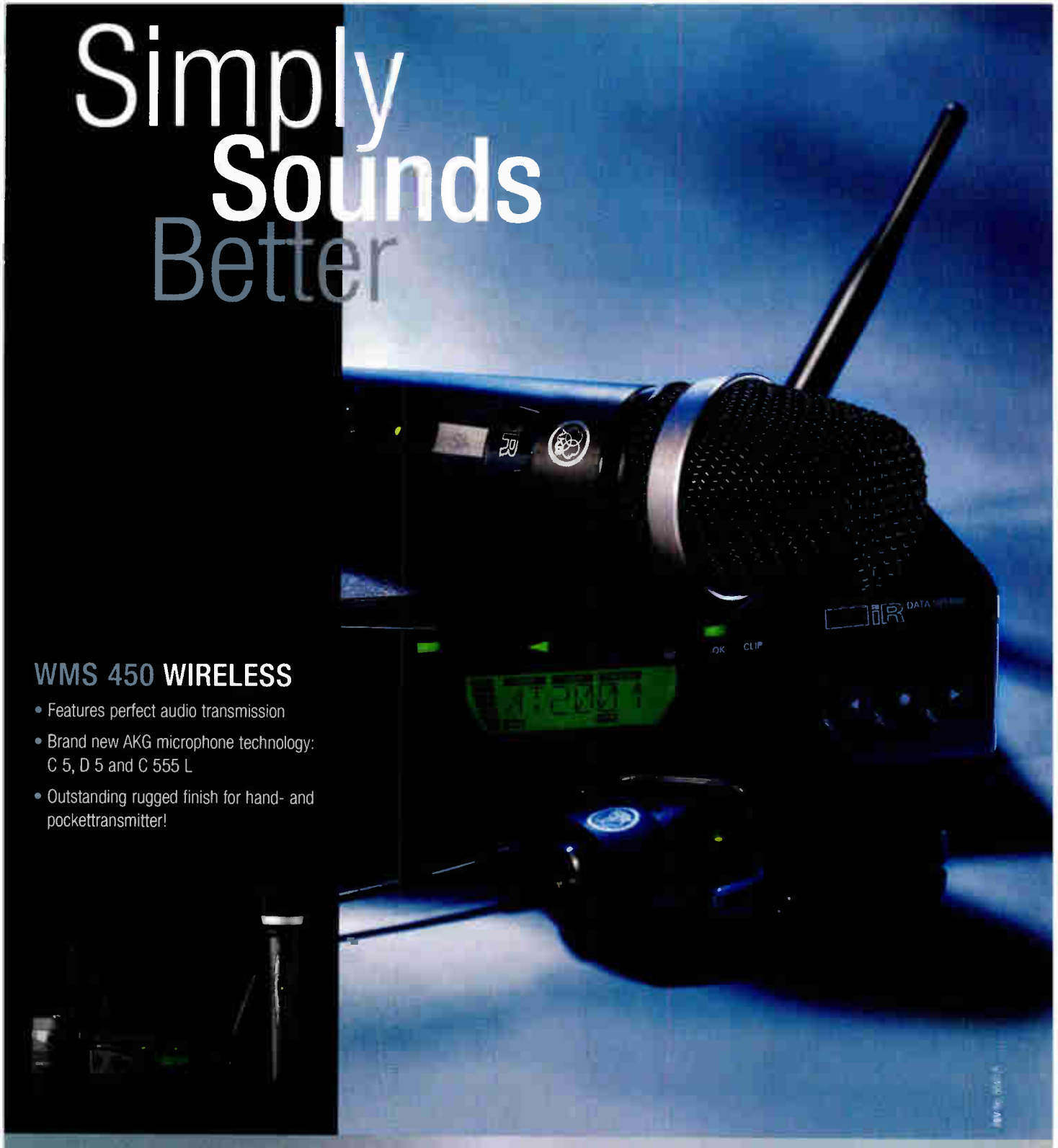

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New Large-Diaphragm Condenser Mics

Manufacturer	Model	Type	Polar Pattern*	LF Filter	Pad	Max SPL	Retail	Notes
ADK Microphones www.adkmic.com	A6	solid-state	C	no	no	131 dB	$399	Includes wood case.
ADK Microphones	S-7	solid-state	C	100/150 Hz	8/18 dB	150 dB	$479	Includes wood case.
ADK Microphones	S-7B	solid-state	C	100/150 Hz	8/18 dB	150 dB	$499	Includes wood case.
ADK Microphones	S-7C	solid-state	C	100/150 Hz	8/18 dB	150 dB	$489	Includes wood case.
ADK Microphones	Vienna Mk8	solid-state	C	89 Hz	14 dB	140 dB	$599	Includes wood case.
ADK Microphones	Hamburg Mk8	solid-state	C	89 Hz	14 dB	140 dB	$599	Includes wood case.
ADK Microphones	SL	solid-state	C	no	no	135 dB	$479	Includes case, shock-mount and windscreen.
ADK Microphones	TL	solid-state	C/HC/O/Fig-8	no	no	135 dB	$599	Includes case, shock-mount and windscreen.
ADK Microphones	TC-AU	tube	C/O/Fig-8	no	no	125 dB	$999	Includes case, shock-mount, pop filter, 7-pin cable, XLR cable and PS.
ADK Microphones	TT-AU	tube	C/O/Fig-8	no	no	125 dB	$1,699	Includes case, shock-mount, pop filter, 7-pin cable, XLR cable and PS.
ADK Microphones	Vienna II-AU	solid-state	C	100/160 Hz	8/16 dB	134 dB	$1,199	Includes case, shock-mount and pop filter.
ADK Microphones	Hamburg II-AU	solid-state	C	100/160 Hz	8/16 dB	134 dB	$1,199	Includes case, shock-mount and pop filter.
ADK Microphones	CS-1	tube	C/O/Fig-8	no	no	125 dB	$2,999	Includes case, shock-mount, pop filter, 7-pin cable, premium XLR cable and power supply.
AKG www.akg.com	C 214	solid-state	C	160 Hz	20 dB	156 dB	$649	Includes shock-mount, windscreen and case.
AKG	Perception 420	solid-state	C/O/Fig-8	300 Hz	20 dB	155 dB	$579	Includes shock-mount and case.
AKG	Perception 220	solid-state	C	300 Hz	20 dB	155 dB	$349	Includes shock-mount and case.
Applied Microphone Technology www.appliedmic.com	AMT 350	solid-state	C	no	no	130 dB	$399	Includes custom case.
Audio-Technica www.audio-technica.com	AT2035	solid-state	C	80 Hz	10 dB	158 dB	$249	Includes shock-mount and protective pouch.
Audix Corporation www.audixusa.com	CX212	solid-state	C/O/Fig-8	120 Hz	n/a	132 dB	$599	Includes shock-mount. Also offered in $1,349 (list) matched pairs.
Avant Electronics www.avantelectronics.com	Avantone CV-12	tube	9 patterns	80 Hz	10 dB	136 dB	$499	Has 32mm dual capsule and remote pattern control. Includes shock-mount, wood box, flight case and two extra tubes.
Avant Electronics	Avantone CK-7	solid-state	C/O/Fig-8	80 Hz	10 dB	139 dB	$269	Has 35mm dual capsule. Includes shock-mount, wood box and flight case.
Avant Electronics	Avantone CK-6	solid-state	C	80 Hz	10 dB	136 dB	$179	Has 32mm cardioid capsule. Includes shock-mount, wood box and flight case.
Avant Electronics	Avantone CK-33	solid-state	stereo cardioid	no	n/a	146 dB	$369	Has two 32mm cardioid capsules. Includes shock-mount, wood box, flight case, stereo cable and 1x2 splitter.
Avant Electronics	Avantone CK-40	solid-state	stereo C/O/Fig-8	80 Hz	10 dB	147 dB	$599	Has two 35mm dual capsules. Includes shock-mount, flight case, foam wind filter, stereo cable and 1x2 splitter.
beyerdynamic www.beyerdynamic-usa.com	MC 834	solid-state	C	80/160 Hz	10/20 dB	150 dB	$1,499	Includes elastic suspension and transport case.
beyerdynamic	MC 840	solid-state	C/HC/WC/O/Fig-8	80/160 Hz	10/20 dB	147 dB	$1,999	Includes elastic suspension and transport case.
Blue Microphones www.bluemic.com	Joe	solid-state	C	no	no	n/a	$499	Discrete Class-A amplifier, hand-built diaphragm and floating swivel mount.
Bock Audio www.bockaudio.com	195	solid-state	C	20 Hz	10 dB	129 dB	$1,200	Fat 10-400Hz boost switch. Includes shock-mount and wood box.
Bock Audio	151	tube	C	no	no	129 dB	$3,450	"Brite/Normal" HF attenuator. Includes 6-pin Tuchel cable, wood box and shock-mount.
Bock Audio	251	tube	C/O/Fig-8	no	no	129 dB	$5,350	Includes 6-pin Tuchel cable and wood box.
Brauner Microphones www.brauner-microphones.com	Phanthera	solid-state	C	20 Hz	no	142 dB	$2,320	Includes shock-mount, Vovox XLR cable, case.
Brauner Microphones	Phantom Classic	solid-state	C	20 Hz	no	142 dB	$2,080	Includes shock-mount, Vovox XLR cable, case.
Brauner Microphones	Phanthera V	solid-state	C/O/Fig-8	20 Hz	10 dB	142 dB	$3,850	Includes shock-mount, Vovox XLR cable, case.
Brauner Microphones	Phantom Classic Basic	solid-state	C	20 Hz	no	142 dB	$1,740	Includes stand mount.
Brauner Microphones	Phanthera Basic	solid-state	C	20 Hz		142 dB	$1,980	Includes stand mount.
Cascade Microphones www.cascademicrophones.com	M20u	solid-state	C	100 Hz	10 dB	140 dB	$129	Discrete, low-noise, Class-A FET/bi-polar transformer-coupled design. Includes shock-mount.
Cascade Microphones	Elroy	tube	C/O/Fig-8	80 Hz	10 dB	133 dB	$299	Includes yoke, 6J1 tube, power supply, case.
Cascade Microphones	V57	solid-state	C	80 Hz	10 dB	137 dB	$259	Ultralow-noise transformerless design. Includes shock-mount and molded case.
Chameleon Labs www.chameleonlabs.com	TS-2	tube	infinitely variable	no	10/20 dB	126 dB	$789	Has tube heater voltage control on power supply and infinitely variable pattern selector on mic. Ships with shock-mount, power supply, 7-pin cable and carry case.

* Key to Polar Patterns: C = cardioid; O = omnidirectional; HC = hypercardioid; WC = wide-cardioid; SC = supercardioid; Fig-8 = figure-8.

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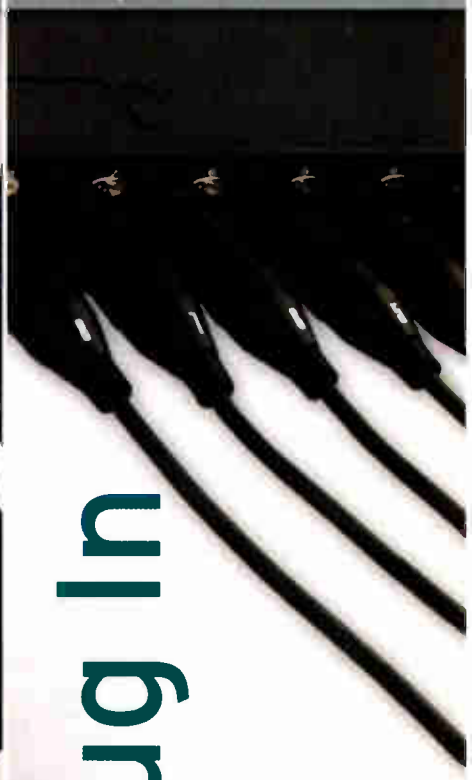
Step 3:



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New Large-Diaphragm Condenser Mics

Manufacturer	Model	Type	Polar Pattern*	LF Filter	Pad	Max SPL	Retail	Notes
DPA Microphones www.dpamicrophones.com	4041-S	solid-state	O	no	no	144 dB	$3,331	Requires DPA 130/200V power supply/mic amp model HMA5000; low-noise 7dBA design; available as single mics, matched pairs and model 3541-S "suitcase" edition with stereo bar, HMA5000, etc.
DPA Microphones	4041-T2	tube	O	no	no	144 dB	$3,331	Requires DPA 130/200V power supply/mic amp model HMA5000; low-noise 9dBA design; available as single mics, matched pairs and model 3541-T2 "suitcase" edition with stereo bar, HMA5000, etc.
DPA Microphones	4041-SP	solid-state	O	no	no	134 dB	$3,331	Standard 48VDC phantom version; low-noise 8dBA design; offered as single mics, matched pairs and Model 3541-SP "suitcase" edition with stereo bar and more.
Equation Audio www.equationaudio.com	F-20	solid-state	SC	80 Hz	16 dB	150 dB	$599	Includes gooseneck pop filter.
Groove Tubes www.groovetubes.com	GT50	solid-state	C	75 Hz	10 dB	144 dB	$399	Has 3-micron diaphragm and nickel-core output transformer. Includes stand adapter and case.
Groove Tubes	GT60	tube	C	75 Hz	10 dB	140 dB	$699	Has 3-micron diaphragm, nickel core output transformer and auto-load-compensating PS for extended cable runs. Includes stand adapter, shock-mount and case.
innerTUBE Audio www.innertubeaudio.com	MMx2	tube	two variable pattern capsules	no	no	140 dB	$6,995	Dual-tube M/S-X/Y stereo mic. Includes shock-mount and power supply.
Josephson Engineering www.josephson.com	C720	solid-state	continuously variable at mix	no	no	136 dB	$5,090	Two XLR outputs via included breakout cable. Includes Pelican-brand flight case.
JZ Microphones www.jzmic.com	Black Hole (BH-1)	solid-state	C/O/Fig-8	no	5/10 dB	134.5 dB	$2,295	Two 27mm capsules; discrete Class-A electronics. Includes shock-mount and wood box.
JZ Microphones	Black Hole SE (BH-2)	solid-state	C	no	5/10 dB	134.5 dB	$1,895	Discrete Class-A electronics. Includes shock-mount and wood box.
JZ Microphones	Black Hole PE (BH-3)	solid-state	C	no	5/10 dB	134.5 dB	$1,995	Discrete Class-A electronics. Includes shock-mount and wood box.
Korby Audio Technologies www.korbyaudio.com	KAT 1-5	tube	multipattern	no	no	118-120 dB	$4,500-$7,999	Interchangeable mic heads (47, 67, 251, 12, C800) available. Includes shock-mount, power supply, flight case and extra tube.
Korby Audio Technologies	Neon Blue	tube	C (multi-optional)	no	10 dB optional	125 dB	$3,000	Includes flight case; multipattern version available at $3,500.
Korby Audio Technologies	Neon Red	tube	C (multi-optional)	no	10 dB optional	125 dB	$3,000	Includes flight case; multipattern version available at $3,500.
Korby Audio Technologies	Neon White	tube	C (multi-optional)	no	10 dB optional	125 dB	$3,000	Includes flight case; multipattern version available at $3,500.
Korby Audio Technologies	KAT FET	FET	C	no	10 dB optional	130 dB	$2,000	Includes flight case; omni version also available.
Lauten Audio www.lautenaudio.com	LT-381 Oceanus	tube	variable (O to C to Fig-8)	no	no	120 dB	$1,599	Has dual 31.25mm diaphragms, vintage-style power supply, shock-mount, Gotham mic cable, wood box and flight case.
Lauten Audio	FC-357 Clarion	solid-state	C/O/Fig-8	no	10 dB	140 dB	$999	FET design, dual 28.25mm diaphragms, +10dB gain switch, custom output transformer, shock-mount, windscreen, flight case and wood box.
Marshall Electronics www.mxlmics.com	Genesis	tube	C	150 Hz	no	140 dB	$995	Has Mullard 12AT7 tube. Includes shock-mount.
Marshall Electronics	V88	solid-state	C	no	no	138 dB	$700	Includes shock-mount and flight case.
Microtech Gefell www.microtechgefell.com	UM930 Twin	solid-state	C/WC/HC/O/Fig-8	no	no	142 dB	$6,873	System combines switchable pattern and fixed-cardioid condensers. Includes shock-mount and case.
Microtech Gefell	M990 Art	tube	C	no	no	118 dB	$4,234	Anniversary model in aluminium case with power supply, cable, elastic suspension and windscreen.
Microtech Gefell	M930 Art	solid-state	C	no	no	142 dB	$1,864	Anniversary model in wood case.
Mojave Audio www.mojaveaudio.com	MA-201fet	solid-state	C	no	no	125 dB	$695	Includes shock-mount.
Nady Systems www.nady.com	SCM 960	solid-state	C/O	no	10/20 dB	125 dB	$94	Gold-sputtered 1" condenser diaphragm. Shock-mount optional.
Neumann www.neumannusa.com	TLM 67	solid-state	C/O/Fig-8	no	10 dB	131 dB	$3,459	Has 80th-anniversary Georg Neumann emblem. Also available packaged with shock-mount, windscreen and cable.
Neumann	TLM 103 D	solid-state	C	40/80/160 Hz	6/12/18 dB	134 dB	$2,650	Digital mic with AES-42 output, stand mount and wood box.
Neumann	TLM 49	solid-state	C	no	no	140 dB	$1,998	Includes shock-mount.
Nevaton www.nevaton-microphones.com	MC47	solid-state	stereo cardioid	100 Hz	no	135 dB	$1,695	Includes wood box, break-out cable and isolation clip.
Nevaton	MC48	solid-state	stereo cardioid	100 Hz	no	135 dB	$1,795	Includes wood box, break-out cable and isolation clip.
Nevaton	MC51	solid-state	WC/C/O/Fig-8	no	10 dB	150 dB	$1,295	Includes wood box and isolation clip.
Pearl Microphones www.pearl.se	ELM-A	solid-state	C/O/Fig-8	no	no	126 dB	$3,348	Outputs from two cardioids can be used simultaneously or combined at mix to create several patterns.
Pearlman Microphones www.pearlmanmicrophones.com	Church Microphone	tube	C/O	no	no	n/a	$4,500	Reissue of the 1950s Stanley Church/MGM mic with Neumann capsule, 6072 tube, Triad xformer, shock-mount, flight case and Mogami cable.

* Key to Polar Patterns: C = cardioid; O = omnidirectional; HC = hypercardioid; WC = wide-cardioid; SC = supercardioid; Fig-8 = figure-8.

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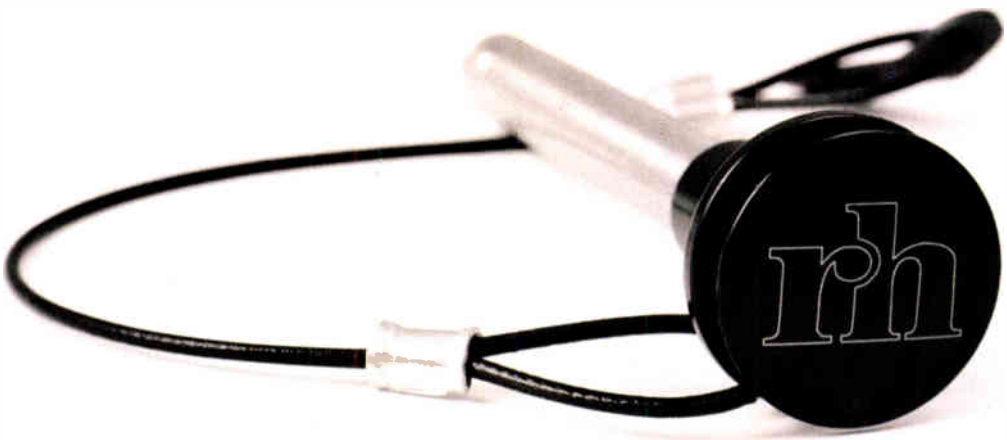

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New Large-Diaphragm Condenser Mics

Manufacturer	Model	Type	Polar Pattern*	LF Filter	Pad	Max SPL	Retail	Notes
Peluso Microphones www.pelusomicrophonelab.com	VTB	tube	9 polar patterns	no	no	n/a	$1,496	Low-noise (15dBA) tube bottle mic design. Includes wood box, shock-mount, power supply, 7-conductor cable and flight case.
Samson www.samsontech.com	CL7	solid-state	C	100 Hz	10 dB	144 dB	$194	Swivel stand mount included.
Samson	CL8	solid-state	SC/O/Fig-8	100 Hz	10 dB	147 dB	$225	Swivel stand mount included.
sE Electronics www.sonicus.net	sE4400a	solid-state	C/HC/O/Fig-8	60/120 Hz	10/20 dB	130 dB	$999	Includes flight case and shock-mount. Matte rubberized finish ideal for applications that require lighting
sE Electronics	Z5600a II	tube	9 patterns	100 Hz	10 dB	130 dB	$999	Includes flight case, wood box, shock-mount, cable and remote pattern-changing power supply.
sE Electronics	sE2200a	solid-state	C	100 Hz	10 dB	130 dB	$399	Includes flight case and shock-mount.
sE Electronics	Z3300a	solid-state	C/O/Fig-8	100 Hz	10 dB	130 dB	$599	Includes flight case and shock-mount.
sE Electronics	USB2200a	solid-state	C	100 Hz	10 dB	130 dB	$499	USB or conventional XLR output; USB 2 or 48V-powerable; headphone jack for zero-latency monitoring
Sennheiser www.sennheiserusa.com	e 965	solid-state	C/SC	500 Hz	10 dB	152 dB	$878	Includes MZQ800 stand clip.
Sontronics www.sontronicsusa.com	Helios	tube	continuously variable	75 Hz	10 dB	125 dB	$949	Includes power supply, yoke mount, cable, wood box and flight case.
Sontronics	Omega	tube	C	75 Hz	10 dB	125 dB	$799	Includes power supply, shock-mount, cable, wood box and flight case.
Sontronics	Orpheus	solid-state	C/O/Fig-8	no	10 dB	125 dB	$699	Includes yoke mount and wood box.
Sontronics	STC-2	solid-state	C	75 Hz	10 dB	125 dB	$499	Comes in black and silver. Includes shock-mount and flight case.
Sterling Audio www.sterlingaudio.com	ST51	solid-state	C	no	no	134 dB	$200	Includes HM2 hard mount.
Sterling Audio	ST55	solid-state	C	75 Hz	10 dB	144 dB	$500	Includes HM2 hard mount.
Sterling Audio	ST66	tube	C	75 Hz	10 dB	140 dB	$700	Includes shock-mount, PS and 7-pin PS cable.
Sterling Audio	ST77	solid-state	C	no	no	134 dB	$1,000	Includes shock-mount and foam windscreen.
Sterling Audio	ST79	solid-state	C/O/Fig-8	150 Hz	10 dB	140 dB	$1,100	Includes shock-mount and foam windscreen.
Studio Projects www.studioprojects.com	CS5	solid-state	C/HC/WC/O/Fig-8	50/75/150/300 Hz	5/10/15/20 dB	136 dB	$500	Includes shock-mount and flight case.
Studio Projects	CS1	solid-state	C	50/75/150/300 Hz	5/10/15/20 dB	134 dB	$400	Includes shock-mount and flight case.
Violet Design www.violetusa.com	Amethyst Standard	solid-state	C	no	no	134 dB	$1,171	Single-diaphragm design. Includes wood box.
Violet Design	Amethyst Vintage	solid-state	C	no	no	134 dB	$1,396	Dual-diaphragm design. Includes wood box.
Violet Design	Black Knight	solid-state	C	no	no	134.5 dB	$498	Dual-diaphragm design. Includes wood box.
Violet Design	Flamingo Junior Standard	solid-state	C	no	no	134 dB	$1,016	Single-diaphragm design. Includes shock-mount and wood box.
Violet Design	Flamingo Junior Vintage	solid-state	C	no	no	134 dB	$1,016	Single-diaphragm design. Includes shock-mount and wood box.
Violet Design	Flamingo Standard	tube	C	no	no	134 dB	$5,692	Dual-diaphragm design. Includes shock-mount, PS and wood box.
Violet Design	Flamingo Vintage	tube	C	no	no	134 dB	$5,692	Dual-diaphragm design. Includes shock-mount, power supply and wood box.
Violet Design	Flamingo Magic Ear	tube	C	no	no	134 dB	$7,418	Dual ear-shaped diaphragms. Includes shock-mount, power supply and wood box.
Violet Design	Flamingo Stereo	solid-state	C	no	no	133.5 dB	$3,881	Two single-diaphragm capsules. Includes shock-mount and wood box.
Violet Design	Globe Standard	solid-state	C	no	no	134 dB	$1,948	Dual-diaphragm design. Includes shock-mount and wood box.
Violet Design	Globe Vintage	solid-state	C	no	no	134 dB	$1,948	Dual-diaphragm design. Includes shock-mount and wood box.
Violet Design	Grand Pearl	solid-state	C	no	no	136 dB	$810	Dual-diaphragm design. Includes wood box and mic holder.
Violet Design	The Wedge	solid-state	C	no	no	136 dB	$654	Single-diaphragm design. Includes wood box and mic holder.
Violet Design	Global Pre/VIN26	solid-state	C	no	no	134 dB	$1,802	Single-diaphragm design. Includes wood box and shock-mount.
Violet Design	Global Pre/VIN12	solid-state	C	no	no	134 dB	$1,802	Single-diaphragm design. Includes wood box and shock-mount.
Violet Design	Global Pre/VIN27	solid-state	C	no	no	134 dB	$1,802	Dual-diaphragm design. Includes wood box and shock-mount.
Violet Design	Global Pre/VIN67	solid-state	C	no	no	134 dB	$1,843	Dual-diaphragm design. Includes wood box and shock-mount.
Violet Design	Global Pre/VIN47	solid-state	C	no	no	134 dB	$1,843	Dual-diaphragm design. Includes wood box and shock-mount.
Violet Design	Global Pre/VIN44	solid-state	Fig-8	no	no	134 dB	$1,802	Single-diaphragm design. Includes wood box and shock-mount.
Violet Design	Global Pre/VIN55	solid-state	O	no	no	134 dB	$1,802	Single-diaphragm design. Includes wood box and shock-mount.
Wunder Audio www.wunderaudio.com	CM7GT/K47	tube	C/O/Fig-8	no	no	128 dB	$3,495	Includes quarter swan oak box, PS, cable and shock-mount.
Wunder Audio	CM7GT/M7	tube	C/O/Fig-8	no	no	128 dB	$3,695	Includes quarter swan oak box, PS, cable and shock-mount.
Wunder Audio	CM49	tube	C/O/Fig-8	no	no	114 dB	$6,995	Includes quarter swan oak box, PS, cable and historic yoke mount.
Wunder Audio	CM50	tube	O	no	no	114 dB	$6,995	Includes quarter swan oak box, PS, cable and historic yoke mount.

* Key to Polar Patterns: C = cardioid; O = omnidirectional; HC = hypercardioid; WC = wide-cardioid; SC = supercardioid; Fig-8 = figure-8.

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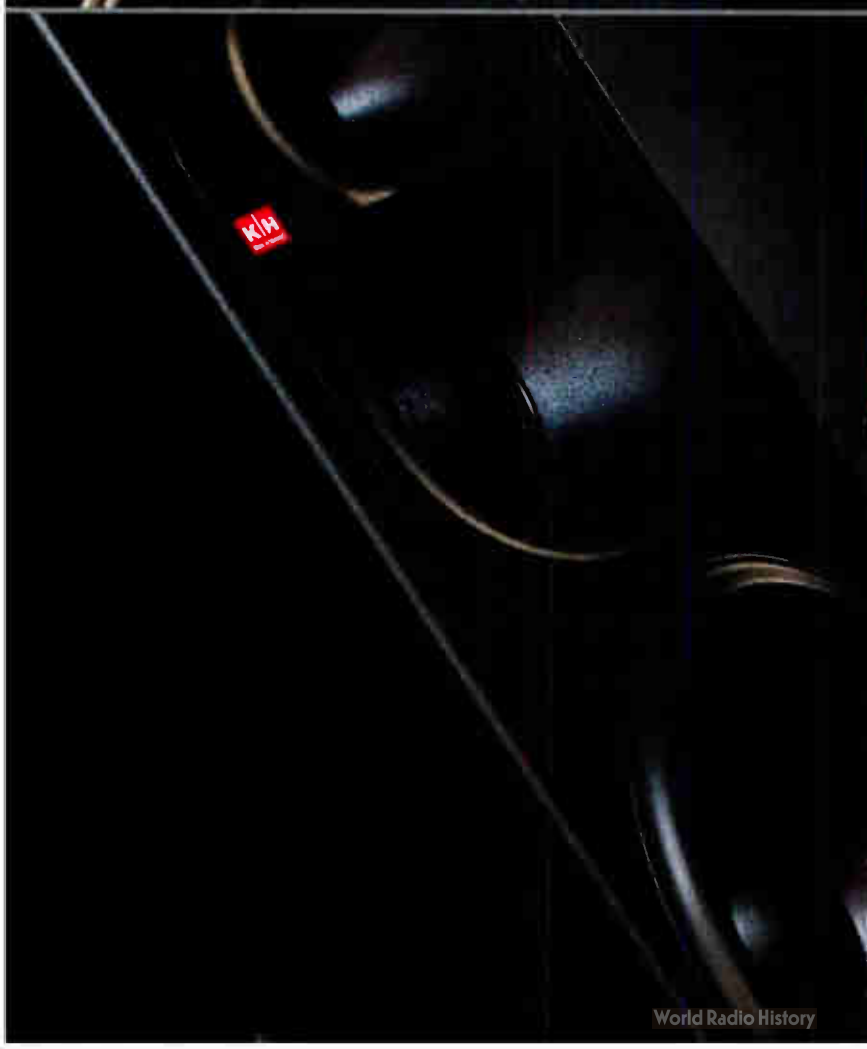

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World Radio History

BREAKING

By Blair Jackson

You don't need us to tell you that this is a challenging time to be entering the audio business. Commercial recording studios have been vanishing at an alarming rate for several years, triggered by the rise of home studios and a decline in the fortunes of the record business. The live touring industry has been rocked by increased expenses for nearly everything, from gas to hotels to equipment, often cutting into the pay of sound personnel. And at the same time, there has been a boom in recording schools and audio programs in colleges and universities, so there are more talented, qualified people looking for work in the industry than ever before.

To get a better sense of the job landscape that awaits aspiring audio types, we talked recently with several studio operators and job-placement coordinators at audio schools: Kirk Imamura is president of Avatar Studios in New York City; Rose Mann-Cherney is president of Record Plant Studios in Los Angeles; Becky Sullivan is operations manager of of the Hollywood post facility Soundelux, and is a successful supervising sound editor; Chris Haseleu is chairman of the Recording Industry program at Middle Tennessee State University (MTSU) in Murfreesboro, Tenn.; and Jayson Khademi is the director of student services at the Conservatory of Recording Arts and Sciences (CRAS) in Tempe, Ariz.

Paying Dues

The first illusion to be shattered is that a fresh-faced kid graduating from a recording school/program—much less coming off the streets without any training—can waltz into a studio, land a good-paying job as an engineer and in short order be setting up mics for Bono and The Edge. Much more likely is the prospect of working as an intern for free for a while and then getting a low-wage position as a runner ("go-fer" has such an unappealing ring to it), which *might* include helping with documentation of Pro Tools sessions in between getting coffee and bagels for the engineers. This naturally raises the question: "I paid *x*-thousand bucks for an audio education to do *that*?"

Yup. 'Twas ever thus. Sure, we've all heard stories about the assistant to the assistant engineer who suddenly finds himself sitting at the console one day because everyone else in the studio is gone or sick and, say, David Bowie really wants to track that day. So the kid gets his shot, somehow sweats his way through the session (because he'd learned so much from osmosis just being in the studio), Bowie likes him and in no time the kid has graduated to a full-fledged engineer. Well, dare to dream, but it rarely happens that way.

"So many kids today know a lot about recording even before they come to a school," says MTSU's Haseleu. "They've all done recording at home, whether it's GarageBand or Cakewalk or something, and many of them are even at the Pro Tools LE level. There's good news and bad news with that. They come in conversant with the technology, but a lot of them have learned some really bad habits as well because they're usually recording in bad environments.

"But even with this base of knowledge and then with what they learn here, I think they understand it's going to be a tough road out there," Haseleu continues. "They don't come in with high expectations about the job market. It's still one of those things where you have

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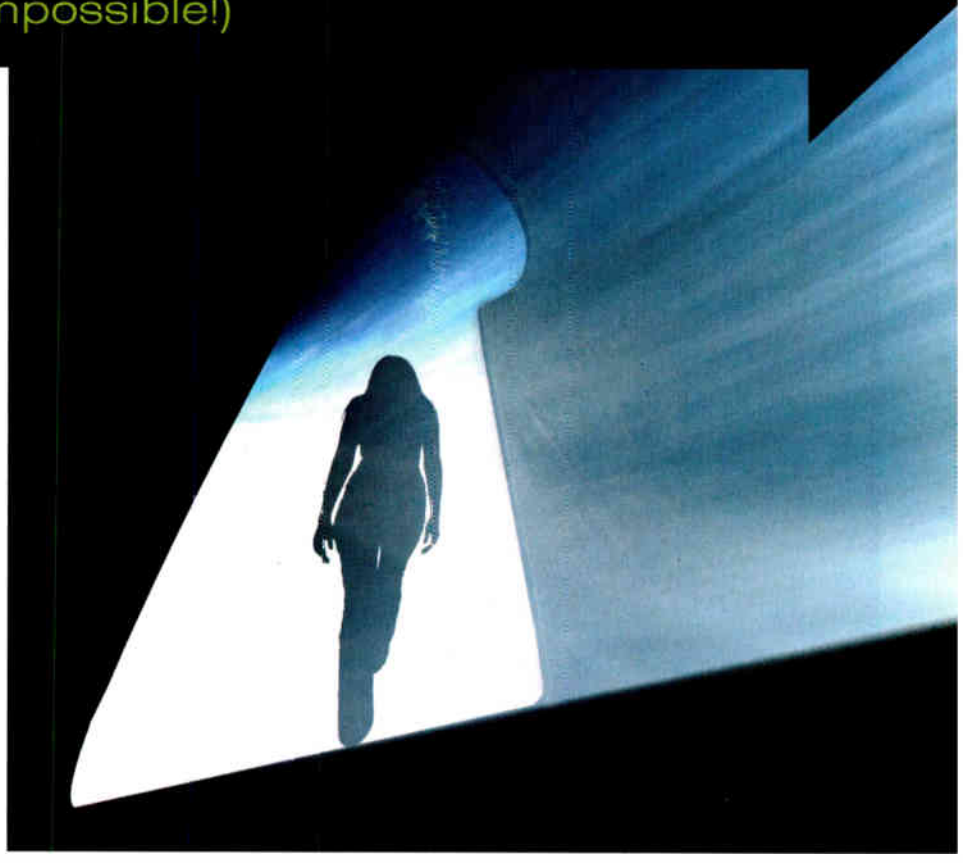
Getting a Foothold in the Audio Industry Is Tough (But Not Impossible!)



to have the passion to make it in the business. Nothing gets handed to you."

"Our production assistant interns know that they're basically getting a runner position," notes Avatar's Imamura, who has taken on many former audio students for three-month internships and had some move on to real positions at the studio. "But it's still important work for the studio, and you're *in* the studio, seeing what goes on and helping out however you can. We've found that the people who can't tolerate that fall by the wayside. You do get some people who think they're going to walk in and be producing in a few months—that type usually doesn't survive. There's nothing wrong with feeling that way about yourself—maybe you *will* be a great producer—but that's not what it's going to be about at the entry level." Imamura says it typically takes two or three years to work up to the assistant engineer level.

Know the Basics and More!

CRAS' Khademi says, "Regardless of what that entry-level position might seem like, a lot of the time it's still the way you break in usually, and the people who get those jobs are still expected to know about recording. They still need to know the basics—signal flow and miking and all that—but these days, too, they're expected to know so much more because of computers. Understanding digital patching is important—making sure this program talks to that program. We've had people come here who had literally never sent an e-mail before, but when they leave they're Pro Tools whizzes.

"There's a lot to learn," he continues, "but first and foremost what studios ask us about when we're talking about students is *attitude*. The skills are almost secondary because they need somebody who can be cool and fit into the studio. They want cool people who can sit in the back and not get in the way. But they also have to be smart when the time comes for them to shine."

Although Haseleu agrees that traditional theory, recording techniques and knowledge still form the basis of a quality audio education, he says, "No one gives a stitch about analog magnetic recording anymore unless you want to work for a restoration lab or something. These days, the more different DAW platforms you know the better off you are because so much of the work is going to be platform-specific, and they're going to ask you, 'Do you know Nuendo? Do you know Pro Tools? Do you know Logic?' And you have to be able to say you have some experience on it."

Still, it's not an *entirely* digital world, particularly at the upper levels. Rose Mann-Cherney from Record Plant notes that "old-school" knowledge "is important, as all our clients still use analog boards and outboard gear. Knowledge of signal flow is just as important as it was 30 years ago. Analog tape machines are not used as often, but are still requested from time to time. Having the knowledge of 'old-school' recording and knowing the limitations that engineers were faced with can only enhance modern techniques."

And Avatar's Imamura says, "Our studio is more analog, so we need people who understand what that's all about. We don't want people who are just going to sit in front of a screen. Believe it or not, we still use tape!" That said, he adds that today's production assistant, rather than labeling and organizing tape boxes, spends more time keeping track of hard drives and what's on each of them. "There's actually more documentation than ever before," he says. "It's really an important part of the digital world." And that's one reason Imamura looks for people "who seem to be really conscientious and detail-oriented because the job, whether you're a production assistant or an engineer, is very detail-oriented. Every job in a recording studio involves tremendous focus. We also look for people with good common sense, which can be in short supply," he chuckles. "So it's not just about knowledge or ability. It's temperment and desire. They really have to *want* to do this."

What intangibles is Mann-Cherney looking for? "Self-motivation, passion, patience, sense of humor and knowing how to be invisible.

"The business is changing," she adds, "and engineers need to be more versatile and wear different hats. Because of this, the job of assistant has totally changed. Assistants need a strong

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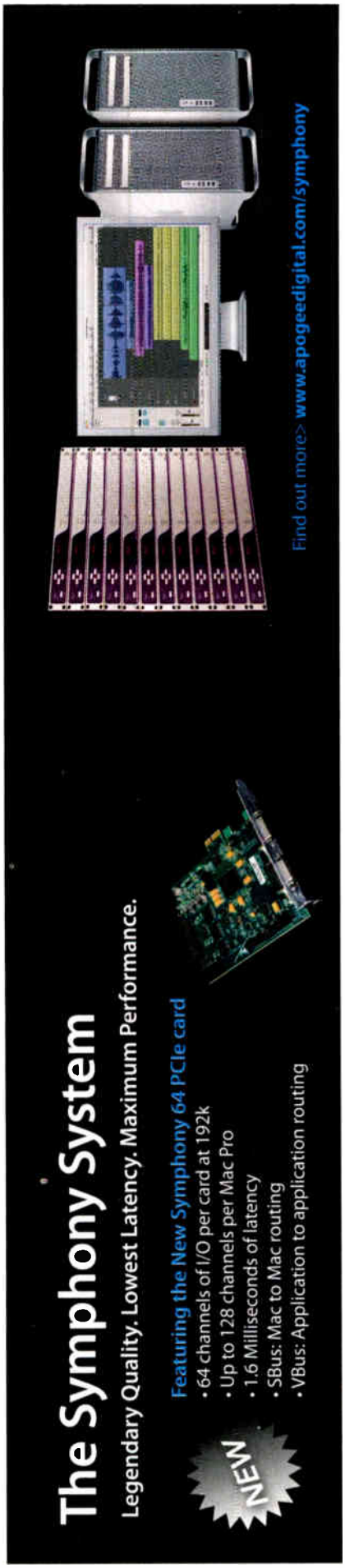

knowledge of not only engineering, but music theory, the music industry and technology in general."

Reality Check

No doubt, many students envision themselves working their way up the ladder at places like Record Plant or Avatar, or some other glamorous major studio, but the odds of that happening are, frankly, not in their favor. So what is a more realistic path to jumping into the audio world? Well, you need to expand your horizons and be flexible.

Imamura notes that "some small studios provide a really good training ground. We've had people come from working at owner-operated studios who are really well-trained and they get up to speed here really fast. If you know where to look, you can sometimes find situations like that, and it becomes a good way to get your foot in the door."

Another way to get some experience is to look beyond traditional recording studios. Now, some people really *do* want to be the next Steve Albini or Jimmy Iovine and can't see beyond that big studio control room to envision themselves in some other audio-related position. But increasingly, the jobs are elsewhere.

According to CRAS' Khademi, "A lot of people come here thinking they want to work in a studio, but then they get exposed to other things, and suddenly they say, 'Hey, I really want to get into live sound!' I've seen more kids getting hired into live sound sooner than kids going into studios because the turnover rate in live sound is higher. There are so many more entry-level jobs there. They're young and they're not afraid to bust their butts, which you're definitely going to do in live sound! But we encourage it, because even though it's not a studio, it might be right for you, or you could view it as a way to meet people in the industry and get paid a little bit while you're working toward a studio gig.

"There are lots of other places to look for jobs in audio," Khademi continues. "We've placed people with the Library of Congress and in forensic audio. We've gotten people into game audio, though most [job] applications there require one to two years of experience, so we encourage people to also get into post-production, which is fairly closely related. We have courses here where students can learn some post basics, learn about commercial production, Foley, dialog replacement. Those are all possible job areas for some people."

Becky Sullivan of giant post house Soundelux says that they very rarely hire people directly out of school: "Most of the editors here have been here for 10 years-plus, so we don't bring in a lot of 'green' people. In sound editing, it's really important that they get out there and learn their craft. Sound editing is not just being able to run a Pro Tools computer. It's a real craft and that takes experience to learn how to do it well—how to layer the sounds and have it work for the emotion of the picture and work for the mixers and be good.

"A lot of times, I'll tell young people who are trying to break into film sound, 'Go to some of the smaller companies in Burbank or Santa Monica and tell them you'll work for free and do whatever needs to be done to get in, and really learn your craft and earn your stripes.'" Unfortunately, because of union restrictions, Soundelux does not currently have an internship program. "The union doesn't like free labor," she says. "If an intern came in and cut a reel of dialog, I'd have to throw it in the trash because I cannot prosper from his free labor. But a lot of the smaller independent companies use interns." So, she advises, don't be afraid to do the legwork to find out who might need some help. You'll get a lot of "no's," but one "yes"—even in a field that might seem tangential to what you really want—might lead to an exciting career path you never expected.

"Studio gigs are few and far between," is Haseleu's sober assessment, "but our folks seem to be finding jobs in emerging markets, so we've had a number of people go into broadcast audio because there's so much more work in hi-def and broadcast engineers aren't sure what 5.1 is, and so on. Then also, new media like Internet companies and game support. A couple of people have gone to places like [Electronic Arts] and applied to the production department and gotten assistant gigs.

"One thing I would say about the more traditional recording studio career, though, is that it's maybe a little easier to make what I would call a 'middle-class living' for an artist, engineer or producer," Haseleu adds. "You don't have to be working in Hollywood with a major act to make a decent living. You could be working out of your house. Your product may end up on a band's CD that they're selling with their shows or distributing off Internet sites. Maybe the band is playing the college circuit, which is not too exciting for somebody who had visions of being the Rolling Stones or whatever, but string some of those kinds of jobs together and you *can* make a living doing it. It's hard, no doubt about it, but it's worth it if it allows you to do what you love to do." ■

Blair Jackson is Mix *magazine's senior editor.*

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ANALOG COMES ALIVE IN A DIGITAL WORLD

By the Mix Staff

Technology Highlights From AES 2008

Never mind the economic doom and gloom! Returning to San Francisco from October 2 to 5, this year's AES show saw huge numbers—more than 400 exhibitors and nearly 18,000 attendees—and hundreds of product debuts, proving it's still the top tradeshow for high-performance pro audio technology. We found plenty of interesting new products to check out, and after you dig into this report, visit the AES video page on our Website for more action and on-the-scene-coverage (mixonline.com/ms/aes/videos).

One of the themes at this year's show was the resurgence in analog—from ATR's Master Analog tape beating out worthy competitors for the Recording Devices TEC Award to the sheer amount of analog gear on the floor—and not just in "boutique row." Digital debuts were also hot—as evidenced by the throngs packed in at demos of the latest workstations.

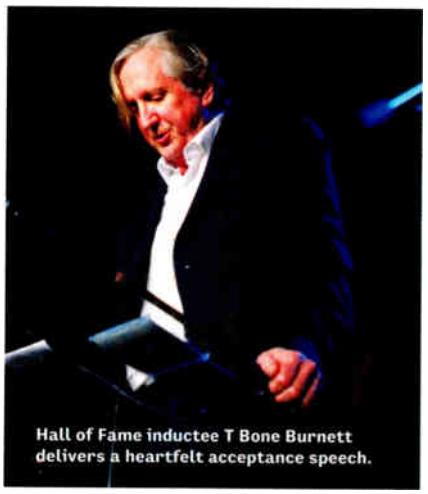
Speaking of DAWs, Digidesign's (www.digidesign.com) Pro Tools 8 has a new user interface, dozens of new bundled plug-ins, fully integrated MIDI and score editors, and expanded editing features. The look features a more modern color palette and higher-contrast text and graphics, while new touches—such as dockable Editor windows and a configurable Edit window toolbar—simplify navigation. The software will be available in late 2008 for Windows Vista (32-bit Business or Ultimate), Windows XP- and Mac OS 10.5–based Pro Tools HD, Pro Tools LE and Pro Tools M-Powered systems.

24TH ANNUAL TEC AWARDS

HIGHLIGHTS, WINNERS

A sold-out house honored the industry's top talents at the 24th Annual Technical Excellence & Creativity Awards, held October 3, in San Francisco.

The production teams behind Robert Plant and Alison Krauss' *Raising Sand*, The Police's reunion tour, *Halo 3* and *The Bourne Ultimatum* were among the many Creative Achievement winners, while Rupert Neve Designs, Audio-Technica, Euphonix, Earthworks and Telefunken were among the winners for Technical Achievement.



Hall of Fame inductee T Bone Burnett delivers a heartfelt acceptance speech.

TEC PHOTOS: DAVE VANN

The evening's highlights included the induction of musician and producer T Bone Burnett into the TEC Awards Hall of Fame, and the presentation of the prestigious Les Paul Award to the "King of Western Swing," musical artist Ray Benson. The Asleep at the Wheel founder received a surprise video tribute from his old friend, actor/director/musician Billy Bob Thornton. Twenty-one-time Grammy winner Krauss and rock legend Plant presented the Hall of Fame award to Burnett—together delivering a moving poetic tribute to his knowledge of American musical history and dedication to the craft of recording.

Musical highlights included Larry Batiste and the 2Cold Chili Bone TEC Band backing a crowd-pleasing performance of "I'll Fly Away" featuring San Francisco's own Bonnie Hayes and Teresa Trull, with Dick Bright and Tommy Dunbar; a rousing "All Night Long" featuring former Back in the Saddle frontman Frank Cefalu; and a rockin' rendition of "Route 66" by Benson and Asleep at the Wheel.

Mix would like to congratulate all of the winners:

Presenters Robert Plant and Alison Krauss accept their own TEC Award for *Raising Sand*.

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SONAR V-Studio 700 from Roland and Cakewalk (www.cakewalk.com) features a control surface with nine touch-sensitive moving faders, jog/shuttle wheel, T-bar control, 20 rotary encoder/switches, surround joystick, transport controls and 70 lighted buttons. It's paired with a two-rackspace, 24-bit/192kHz VS-700R I/O box with eight preamps, multiple digital I/Os, word clock, USB 2 and 14 analog outputs, onboard Fantom VS hardware synthesizer, DV-7 and V-link video control of mixers, switchers, recorders, etc., for a complete audio/video/music production system. Street price is around $4,000, with shipping set to start in January.

The Connie II and Connie III worksurfaces from Fairlight (www.fairlight.au) port the Xynergi controller technology—formerly only available as a desktop unit—throughout the entire Constellation range. Connie II is a two-bay Constellation mixing system configured with a 12-fader panel, Pyxis Track SD video and a new Fairlight Monitor Arm panel, while Fairlight's Connie III takes the modular concept a stage further by providing a three-bay Constellation mixing system configured with a 12-fader panel, Monitor Arm panel and Pyxis Track SD.

Version 2 of Jazzmutant's (www.jazzmutant.com) hypercool Lemur introduces new controller objects, including Gesture, an emulated trackpad with gesture recognition; Breakpoint, a multisegment envelope editor; and Tabbed Containers, which let users add different page tabs to a graphic-controller module. Lemur can also double as a mouse and QWERTY keyboard.

iZ Technology's (www.izcorp.com) AD/DA converter system features touchscreen control, 8/16/24 channels of conversion, and optional direct interfacing with Logic, Pro Tools, Neundo, REAPER and other DAWs. It offers fully customizable I/O ratios, 24-bit/96kHz operation, Nyquist converter cards, MADI digital I/O standard and optional HD card for direct Pro tools interfacing.

Plug-Ins Keep Coming

Universal Audio's (www.uaudio.com) successor to the UAD-1 Powered Plug-Ins, UAD-2 offers three flavors of cards—Solo, Duo or Quad—providing 2.5, 5 or 10x the power of the original UAD-1 for tracking, mixing or mastering at sample rates from 44.1 to 192 kHz.

Analog Code™, the first plug-ins from SPL (www.spl-usa.com), includes Transient Designer and a set of three EQs (Vox Ranger, Bass Ranger and Full Ranger, based on the passive graphic EQs of the SPL RackPack)—all available in RTAS, VST and Audio Units versions; TDM versions are planned.

Focusrite (www.focusrite.com) ported its Liquid Mix technology to Pro Tools HD, offering classic emulations, including 40 compressors and 20 EQs, and featuring latency of just 12 samples and more than 100 simultaneous mono instances run at 44.8 kHz on an HD3 system. There's also full Control Surface Mapping for ICON and VENUE and the ability to create a 7-band super-EQ built out of separate classic EQ bands.

Certified Hits

Here are our picks for the Top 10 Certified Hit products from AES, listed alphabetically:

Allen & Heath ZED R16
Cakewalk SONAR V-Studio 700
CLASP (Closed-Loop Analog Signal Processor)
DiGiCo SD8
Digidesign Pro Tools 8
JBL EON 500 Series
Korg MR-2000S
Neutrik ConvertCON
Soundcraft Si3
Universal Audio UAD-2

Minnetonka's (www.minnetonkaaudio.com) Dolby Media Meter plug-in for AudioTools AWE is designed to eliminate the annoying differences in loudness and dialog between programs, commercials or channels. The Audio Workflow Engine provides a variety of offline functions including EQ, SRC, normalization and more. Available directly from Dolby at www.dolby.com.

The Ozone 4 mastering suite from Izotope (www.izotope.com) updates and expands Ozone's processing algorithms, optimized for today's low-latency DAWs. Features include Intelligent Loudness Maximizer, Perfect Reconstruction crossovers, mid/side processing for superior control over the soundstage and a new True Envelope dynamics processing mode.

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Signal Processing Technology/Software
Waves The API Collection

Signal Processing Technology/Hardware
Universal Audio 2-LA-2

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Digidesign Pro Tools 7.4

Musical Instrument Technology
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SONAR V-Studio 700 from Cakewalk and Roland

Sonic Studio's (www.sonicstudio.com) No-NOISE FixIt™ combines elements of Manual De-Click™, Manual DeCrackle™, Broadband DeNoise™ and Sonic EQ™—all in one low-cost bundle.

Sweet Analog Outboard

Among the bright new ideas at AES was CLASP (Closed-Loop Analog Signal Processor, www.endlessanalog.com). The brainchild of Nashville producer/engineer Chris Estes, CLASP turns a 2-inch analog deck into a tape-flavored "plug-in" for your DAW. The system comprises a hardware interface, a VST plug-in (one for every channel) and a sync cable between the box and recorder. Run the session from the DAW as usual and CLASP performs real-time, synched transfers from the desk's repro head.

SSL (www.solid-stage-logic.com) brought old and new together with legacy E-Series EQ and compressor modules for its X-Rack/Mynx SuperAnalogue mixing and processing system. (See the review on page 90.)

Benchmark's (www.benchmarkmedia.com) slick MPA1 preamp's gain range is controlled automatically using relay switches when the gain-control switch passes above or below its last or first position. The MPA1 also includes Benchmark's signature HPA2 headphone amp.

CharterOak's (www.charteroakacoustics.com) first outboard piece, the 2-channel SCL-1 solid-state compressor/limiter, is an all-discrete design with variable control over all parameters and can provide a constant output level regardless of input level or frequency.

The ECS-410 Everest channel strip from Summit Audio (www.summitaudio.com) offers a tube/solid-state pre, 3-band passive EQ and a compressor with Tight or Classic modes. Its Drive Bus Master multiple gain stages for tube or discrete transistor allow output overdriving, while TouchPatch gold-contact relays route to/from any section at the touch of a button.

Geoff Daking (www.daking.com) represented green-minded innovators both in color and design with his Mic-Pre One, a desktop preamp featuring 70 dB of gain and DI input. The box

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A Brief History of Analog Computing

1945: The Atomic Bomb

2007: Greg and Dave introduce the ATS-1 Analog Tape Simulator

2008: The Fairchild 660 in a 500 Series module

I wonder what comes next?

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Digidesign's Pro Tools 8 features a redesigned interface.

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Multiple gain stages in Blackmer Sound's (www.blackmersound.com) Tube E tube preamp/channel strip let users push the signal at several saturation or overload points. Tube E also has a DI in, photonic compressor, several shaping filters and a dynamic audio display that shows clipping/gain reduction/overall signal at a glance.

On the digital side, the ADAC-2 2-channel, 24-bit, 192kHz AD/DA and sample-rate converter from ATI Audio (www.atiaudio.com) is a problem-solver/time-saver, as all three processes can be performed simultaneously. Features include dedicated I/O for each converter section, headphone output and ultralow jitter clock.

Step Up to the Mic

AES continued its tradition of mics—*lots* of new mics. Josephson Engineering (www.josephson.com) celebrates its 20th anniversary with the C720 limited-edition condenser. Its dual-diaphragm capsule has two audio outs, each feeding separate XLRs so users can tweak polar-pattern variations in the mix. The hand-built Bock 5-ZERO-7 from David Bock (www.bockaudiodesigns.com) uses a large elliptical capsule paired with tube electronics and a vintage-style power supply. Pearlman (www.pearlmanmicrophones.com) demoed its $4,500 remake of the 1950s Stanley Church/MGM mic, created using a vintage Neumann K47 capsule and dual 6072 tube electronics. Cascade's (www.cascademicrophones.com) C77 $499 studio mic has a 2.5-micron-thick ribbon element, Lundahl transformer and bandwidth out to 18 kHz. BLUE Microphones' (www.bluemic.com) new BLUE Bottle Rocket Stage 1 (solid-state, $899) and Stage 2 (tube, $1,999) are compatible with BLUE's Bottle Caps interchangeable capsule line.

Audio-Technica's (www.audio-technica.com) $749 BP4025 pairs two large-diaphragm capsules in a single-point X/Y stereo arrangement. The supercardioid 4099 Guitar, 4099 Sax, 4099 Trumpet and 4099 Violin instrument-mount condensers from DPA Microphones (www.dpamicrophones.com) feature secure, removable mounts designed not to mar or scratch the finish of valuable instruments.

On the live side, Bob Heil of Heil Sound (www.heilsound.com) unveiled a series of interchangeable mic heads featuring his PR20, PR22 and PR 35 capsules, machined to fit Shure handheld wireless transmitters. Telefunken USA's (www.m80mic.com) $239 M 80 handheld dynamic cardioid has a thin Mylar diaphragm and AM1/TAB-Funkenwerk output transformer. Expanding its headset mic offerings, Sennheiser's (www.sennheiserusa.com) MKE 1 has a matchhead-sized omni capsule, yet offers a natural, full sound.

Studio Monitors

M-Audio's (www.m-audio.com) affordable precision near-fields come in 6.5-inch woofer (DSM1) and 8-inch DSM2 versions, each with analog/digital ins and room correction via rear panel DIP switches. Focal (www.focalprofessional.com) CMS 50 and CMS 65 compact monitoring systems combine a 5- or 6.4-inch woofer with an aluminum/magnesium inverted-dome tweeter. Both feature a decoupling rubber sole, four rubber spikes and two height-adjust spikes. Equator Audio (www.equatoraudio.com) expands its digitally controlled, room-compensation coaxial monitor line with the Q8, which features a 1-inch compression driver coupled onto an 8-inch woofer in a 13x13-inch enclosure. The smallest ADAM Audio (www.adam-audio.com) powered monitor is the A5, combining its trademark A.R.T. folded-ribbon tweeter with a 5-inch woofer.

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Eminent Technology's (www.eminent-tech.com) TRW-17 rotary woofer looks like a tabletop propeller, but has a frequency response (±4 dB) between 1 and 20 Hz at 130 dB.

Live Sound Rocks AES

The console news was about live mixers. Soundcraft's (www.soundcraftdigital.com) Si3 has 64 mono ins, four stereo ins and 35 output buses (24 aux/group, eight matrixes and L/C/R main mix outs) in a single chassis. Standard: four Lexicon effects processors, 12 VCA groups, eight mute groups, a Virtual Channel Strip with rotary encoders, and OLEDs and FaderGlow multicolor LEDs along the fader track to indicate active functions.

DiGiCo's (www.digiconsoles.com) SD8 provides the major functionality and remote preamps of its D Series in a smaller, $49k package, with 37 moving faders, electronic labeling, touch-sensitive TFT display and a 48x8 Stage Rack that connects via a 100-meter MADI digital snake. Its Stealth Digital Processing, combining Super FPGA and Analog Devices' Tiger SHARC chipsets, can run 60 mono/stereo channels with full DSP.

ZED-R16 from Allen & Heath (www.allen-heath.com) combines an analog mixer with 18 FireWire I/Os, 16 ADAT I/Os, 4-band EQ (with parametric mids), dual-function audio/MIDI faders, MMC transport controls, control room and alt speaker outs, plus two separate artist monitor feeds. ZED-R16 also operates as a live mixer with its four aux buses becoming monitor feeds and FX sends and the main analog XLR outs feeding the P.A., while the FireWire outs are used for live recording.

The new generation of JBL's (www.jblpro.com) successful—nearly 1 million sold—EON Series is the EON500. The bi-amped 15-inch EON515 has a total of 450 watts from Crown Class-D amps and weighs less than 33 pounds; the 280-watt, 10-inch, two-way EON510 weighs only 17 pounds. A 500W powered EON518S single-18 sub is optional.

Intended for groundstacking or flying with a M'elodie array, Meyer Sound's (www.meyersound.com) 500-HP compact high-power subwoofer can also be used with systems such as the UPJ-1P VariO and UPA-1P/2P. It has twin 12-inch woofers and onboard Class-AB/H amps for 134dB peak SPLs.

Wedges were alive and well. Adamson's (www.adamsonproaudio.com) M215 is a high-output monitor with dual ND-15 neodymium woofers and smooth, multilayer Kevlar cone HF. Designed as a stage monitor, it doubles as a drum/stage-fill or can be used vertically on a pole mount. Community (www.communitypro

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JBL EON 500 Series

.com) has improved its popular M12 high-performance/low-profile stage monitor with rubber pocket grip handles and a larger, easier-to-access connector base.

Sometimes a simple solution is best. Radial Engineering's (www.radialeng.com) SW4 club and festival switcher is a brilliant one-rackspace box that can feed three consoles, a DJ mixer and CD player into a system. It can route walk music to the house P.A. while an FOH mixer is tearing down, and a mic input allows announcements and evacuation safety.

Audio Must-Haves

Korg (www.korg.com) expands its MR Series with the rackmount MR-2000S, a 1-bit ultrahigh-res recorder that records/plays in superlative 1-bit formats (1-bit/2.8MHz or 5.6MHz), as well as various multibit PCM resolutions (16-bit/44.1 up to 24-bit/192kHz). The MR2000S has RCA S/PDIF jacks for PCM sources, word clock sync, includes AudioGate format conversion and editing software, and multiple units can be synched for more tracks.

Auralex Acoustics (www.auralex.com) showed its eco-friendly, 2x2-foot-by-1-inch art panels made of recycled polyester fibers and available in the same colors as its other panels. Customers can choose artwork from a catalog or have their own art printed on the fabric covering the absorptive panels.

Bruel & Kjaer's (www.bkhome.com) showed its slick, fourth-gen, Type-2250 handheld analyzer that can host a number of software modules; extras include a built-in camera for visually recording tests and a sound recording option for logging data live from the field.

Ultrasone's (www.ultrasone.com) PRO900 headphones feature new 40mm titanium-plated drivers, S-Logic PLUS technology, low-emission Mu-metal shielding and velvet ear pads.

Neutrik (www.neutrikusa.com) introduced the world's first unisex male/female 3-pin XLR connector. By simply sliding the housing back and forth, ConvertCON (NC3FM-C) is transformed from a male to a female connector. Also, its improved chuck-type strain relief makes assembly easier/faster and provides a higher pull-out force. III

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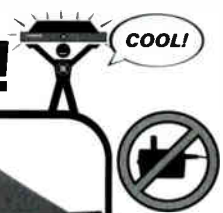

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New Classrooms

SOME OF THIS YEAR'S BIGGEST STUDIO OPENINGS HAPPENED AT SCHOOL

Studio designers, equipment providers and contractors know as well as instructors do that audio education is big business. Every year, we see more schools open, and existing programs add new and upgraded recording studios. Here, we take a look at some of the new studio facilities to come online within schools. For *Mix*'s comprehensive directory of North American audio education programs, visit www.mixonline.com.

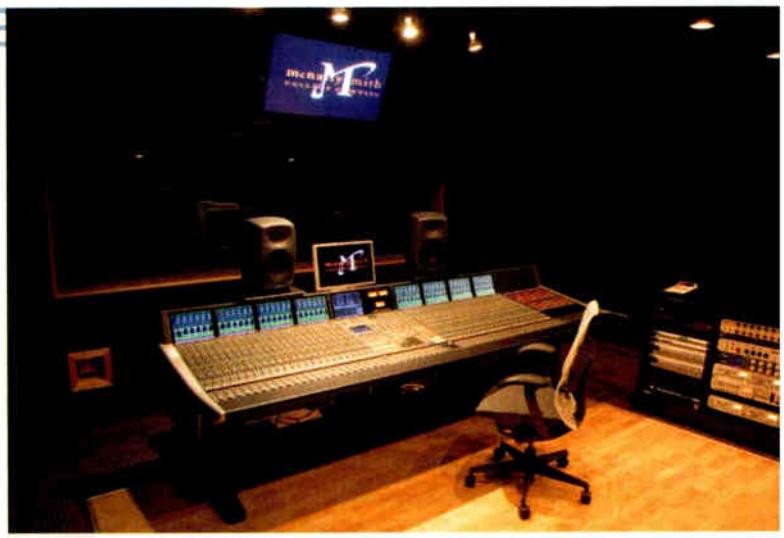
PHOTO: ROB JACKO

Berklee College of Music

The redesigned Studio C at Berklee College of Music (Boston, www.berklee.edu) features a new 32-fader Digidesign ICON console with XMON monitor section. The studio is used for the college's Mix Techniques II course, which focuses on in-the-box Pro Tools–based mixing methods, as well as for classes in Post-Production, Remixing of Records; Music and Sound Production for Games; and Vocal Production. Also installed as part of the redesign were Dynaudio surround monitors (BM6As with BM12 sub). Stereo monitoring is via Genelec 1031s and Yamaha NS-10s. The acoustical redesign by college staff includes treatments by RPG and Auralex.

McNally Smith College

McNally Smith College of Music (St. Paul, Minn.; www.mcnallysmith.edu) refurbished two main control rooms that serve music technology students. Studios 1 and 2 now have matching 48-input SSL Duality consoles, Pro Tools HD2 systems and Studer 827 2-inch machines. New acoustic treatments were designed by acoustics instructor Thomas Day and his students. McNally Smith houses five additional commercial-level studios and two smaller project rooms. Bryan Forrester, the school's chair of music technology, says that students in his program begin their studies using Trident 80B analog boards and 2-inch machines to gain "a deeper understanding of signal flow" before working in the Duality rooms.



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The Art Institutes

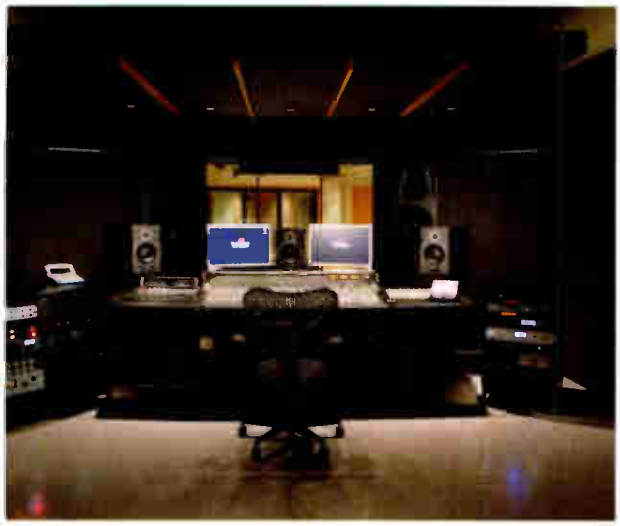

PHOTO: WALTER SMALLING

The Walters-Storyk Design group designed new audio facilities within two of the Art Institutes' (www.artinstitutes.edu) 40 North American campuses. The first is a 1,200-square-foot facility within the Art Institute of Washington (Washington, D.C.), including a 500-square-foot live room and a 350-square-foot control room (pictured, left) centered around an SSL AWS 900 console and Dynaudio and Genelec monitoring systems, as well as a sound lock, iso booth and machine/storage room.

The second studio (right) was designed for the Art Institute of Nashville and features an SSL Duality console and Dynaudio AIR 15 surround monitors. Both rooms were designed to accommodate small-class instruction in audio production and post-production, as well as individual student projects. WSDG is also slated to design new studios for the Art Institutes of Austin, Texas, and San Diego, Calif.

PHOTO: EMMA FREEMAN PHOTOGRAPHY

Ex'pression College for Digital Arts

Artist/producer Alan Parsons was on hand this past July for the ribbon-cutting ceremony celebrating the opening of Ex'pression's (Emeryville, Calif.; www.expression.edu) Alan Parsons Studio Two. The studio was conceived as a hybrid recording/mixing/mastering room, and is centered around a Pro Tools HD3 system with C|24 control surface. Monitoring is via ATC SCM150ASMs. The studio also features an impressive collection of outboard gear, such as Chandler and Neve mic pre's, Manley EQs, mic and line mixers, API 550A 3-band EQs and 525 compressors, and more.

Duderstadt Center, University of Michigan

The Duderstadt Center at the University of Michigan (Ann Arbor, www.music.umich.edu) offers an electronic music studio, a digital media tools lab, a virtual reality "cave," multimedia rooms and a recently overhauled recording studio, which includes this control room, plus a tracking room, two iso booths and an amp room. At the heart of the WSDG renovation is a 48-channel API Vision console that lets students mix in stereo and surround simultaneously. The flexible control room is equipped with variable wall panels, a movable producer's desk and a large selection of outboard gear. Any member of the university community can be certified to use the studio by taking a multiweek course after having using the Electronic Music Studio for one semester. III

PHOTO: DAVID GREENSPAN

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PHOTO: JOHNNY BUZZERIO

L-R: Tim Lopez, De'Mar Hamilton, Mike Retondo, Dave Tirio and Tom Higgenson

By Elianne Halbersberg

Plain White T's

POP BAND MOVES PAST "DELILAH"

Following up a hit record puts pressure on even the most established artists, but when that hit record is a band's first major-label release and they've charted a Number One single in 10 countries, the pressure is seriously on—particularly if the bandmembers feel like they've got something to prove.

The Plain White T's breakthrough release, *Every Second Counts* (Hollywood Records), sold more than a million-and-a-half copies worldwide and earned two Grammy® nominations. This Chicago-based group—vocalist Tom Higgenson, guitarists Dave Tirio and Tim Lopez, drummer De'Mar Hamilton and bassist Mike Retondo—went into their follow-up, *Big Bad World*, determined to surpass what *Every Second Counts* had accomplished and to break free of being "The 'Hey There Delilah' Band."

Clocking in at just under 35 minutes, *Big Bad World* doesn't contain "Delilah, Part 2," and that was important to the band. "It was such a huge song that it overshadowed who we really are," says Higgenson. "A lot of people know us

World Radio History

only by that one song. It's up to us now to make them want to know our entire catalog." A prolific writer with a flair for melodies, he found himself crafting much of *Big Bad World* on the road—in airplanes, on buses and in hotels, a far cry from the days of an indie band with no deadlines. The result is pure pop-flavored rock music, with clever lyrics, unique twists and multipart harmonies somewhat reminiscent of Higgenson's favorites: The Beatles. "We're trying to bring that back—the real songs, the classic kind of feel," he says. "We want to create songs that speak to more than 2008."

To make the album, the band again worked with *Every Second Counts* producer Johnny K. With his help, they pared down the 30 songs they had written and headed out on a cross-country trip. First, they rented a house in Malibu, Calif., to use for tracking. With a truck and trailer, the equipment made the trek from Chicago to Malibu. "We loaded a 20-channel Neve Melbourne with 33114A modules," says Johnny K. "I have a couple of those consoles, so I do rent that equipment; it is part of the studio. I had a couple of my studio guys pack and drive to California while I was finishing a Staind record in Massachusetts

with my other Neve Melbourne.

"I brought a pair of Genelec 1032 main monitors, used KRK powered V6s and tracked on those," he explains. "I was really impressed; it was the first time I tracked a record with those speakers, and they're inexpensive and did a nice job. They brought the monitors and KRKs, a folding banquet table with a blanket on it, I put the speakers on Auralex foam decouplers and we got a great sound. There was no subwoofer or anything. Most of the record was tracked on those speakers, and Andy [Wallace, mix engineer] said there was minimum EQ. I had a rack of API modules, a couple of old Neotek Series II modules, LA-2As, an 1176 vintage, a couple of Distressors, and that was it. And a slew of mics:

PHOTO MIKE VENEZIA

Vocalist Tom Higgenson looks over notes with producer Johnny K.

a vintage C-24, Blue Bottles on overhead, Blue Kiwis for room mics, standard drum stuff, and for vocals a Neumann M 149.

"We approached this record differently," Johnny K says of the production. "The last one, I set the band up in the recording studio, isolated everything, overdubbed—a standard procedure. With this record, they were all in one room with the P.A. and monitors, monitor wedges, no headphones. You hear everything all together. Tim, Mike and Tom sing harmony, and they all had mics with monitors. We wanted the warmth and ambience, and we recorded the whole album that way.

"Pre-production, rehearsals and most of the recording were done in the house we rented in Malibu," Johnny K continues. "We recorded in May and June, and I got back to Chicago on June 20. I opened a 'B' room in my new building with a Neve 8128, and the first session I did here was Plain White T's on June 20. The Neve came from Sound Emporium in Nashville. We put a remote patchbay near the producer's desk where it originally was, reconfigured it and finished the album. We did all the strings, vocal overdubs, horns and percussion here. We tracked an entire song, '1234,' in Chicago, and it came out great.

"Even though we recorded to Pro Tools HD, I approached it like an old recording. I didn't layer the guitars; I let the ambience of the room fill out the recording rather than layers of performance. One of the philosophies we had going into it, Tom wanted to hear the parts. Layering misses the nuance of the performance. Using bleed and ambience, the performances are very individual—not layered, not doubled."

"Johnny definitely added certain things," Higgenson adds. "He came through with ideas. For example, in 'Meet Me in California,' toward the end there's a nice break line where the chorus is just guitar parts, this really pretty thing that wasn't in the song before. We had modulated the chorus and Johnny came up with letting the guitars shine. Several ideas on the album are his, and he gave the songs magic moments. He put a lot of himself into this album; that's what a producer's job is, and he nailed it."

Johnny K produced and mixed *Every Second Counts* but brought in longtime colleague Andy Wallace to mix *Big Bad World*. "Andy's instinct for the music is so right on the money right off the bat," Johnny K notes. "If there are any tweaks or changes, we have a very good connection, so it seems pretty easy—the best working relationship I've had with any mixer as far as getting what I want. Before I became a producer, what I thought were good-sounding records, he had mixed them.

"I trust his judgment," he continues. "I sent extra tracks and deferred to his opinion as to whether they should be included or excluded—for instance, a piano part and where it should come in. The band and I have faith in Andy. He made the call on some things, and ultimately, if a change was made, everybody agreed it was a smart change. He has great intuition and is a legendary mixer—one of the best ever."

Wallace acknowledges similarities in the way he and the producer work, and in how they developed their expertise: "Johnny comes from the same recording and production style I've done," he says. "I built my own studio. I was self-taught, if you will, and cut my teeth by doing tons of sessions. That's what he did, producing local bands for peanuts, and that's how he learned. We have similar miking tech-

World Radio History

niques, similar philosophies on how to record basic tracks, and similar experiences on how to record live tracks.

"A lot of producers record drum machines, or if it's live they quantize the live drums," Wallace continues. "There's an art to recording live drums so they don't sound like a prerecorded sample. His raw tracks remind me of the way I record tracks, and it's nice that there's a more natural thing to work with and I don't spend time working on something I don't like or have trouble separating sound between mics. Because our general style and approach to recording and producing is compatible, and his is similar to mine, it makes it nice to work on; it's like mixing my own tracks."

With the band in Chicago at Johnny K's studio and Wallace at Soundtrack in New York City, tracks were uploaded and mixes came back in "real time" via iTunes, iChat and videoconference—a first for Johnny K. "I hook Pro Tools up to my computer, we get videoconferencing, he's at the board, I push Play, the mix comes up and I hear it immediately," he explains. "It's pretty exciting. The videoconference is running on my laptop and a live broadcast is coming out of the SSL in New York City directly into the outputs of the console in Chicago. He can hit the guitar track in his New York console and I hear it on mine in Chicago. If there are any changes, I talk to him on videoconference.

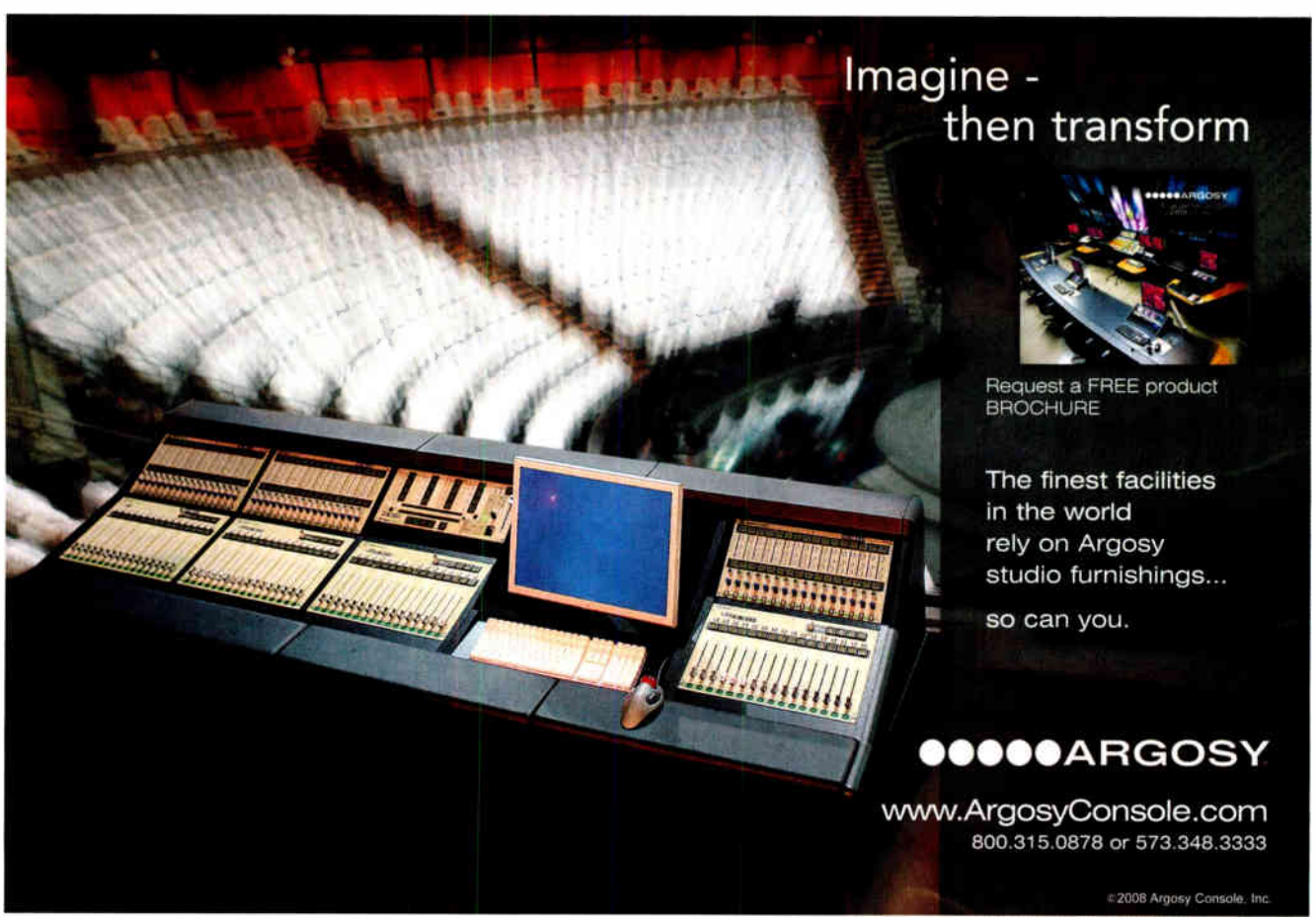
"I felt like I was there. I'm looking at him and talking to him, we both have Genelec speakers going, and the band at one point was still in the studio and we were all listening to the mix. In theory, basically you can get an iTunes radio thing, get a secure password and you have your own thing rolling. It goes through iTunes, but it's a broadcast. It's pretty cool."

"Generally, things come in Pro Tools and I mix on an SSL J console here in Studio G at Soundtrack," Wallace says. "I have various outboard gear, not tons—probably far less than a lot of mixers do. I mix into Pro Tools and Masterlink, and use Pro Tools as a recording medium and do some editing and effects in it.

"This CD has a live band feel," Wallace continues. "You're not just hearing leakage between mics. You can tell things were played together, there's definitely a 'real band' live performance feel; it's not overly arranged. I get tracks sometimes with way too much on them from an arrangement point of view. The Plain White T's album was very well-arranged and there's not a lot of stuff on it. What's on there was intended to be there, and it all works together like a nice painting. It's attributable to the band and their compositional abilities, and Johnny's ability as a producer.

"The music came to me sorted out. Even the overdubs made sense. The tracks were cut anticipating what overdubs were coming. A lot of it was just dealing with the sonics, making sure the dynamics were good, making interesting architecture, combining things but making all the sounds big. It's further engineering, but I didn't have to rescue any bad-sounding tracks."

Higgenson says that the band couldn't be happier with the results, and credits Johnny K with much of the creative outcome. "Johnny came straight off of Three Doors Down into Staind into Plain White T's," he says. "He's been working for the past year straight, so Malibu was pretty good for him, as well. He was right there with us. We all had a crazy year, and we all took advantage of the [Malibu] setting without losing track of the goal at hand." III



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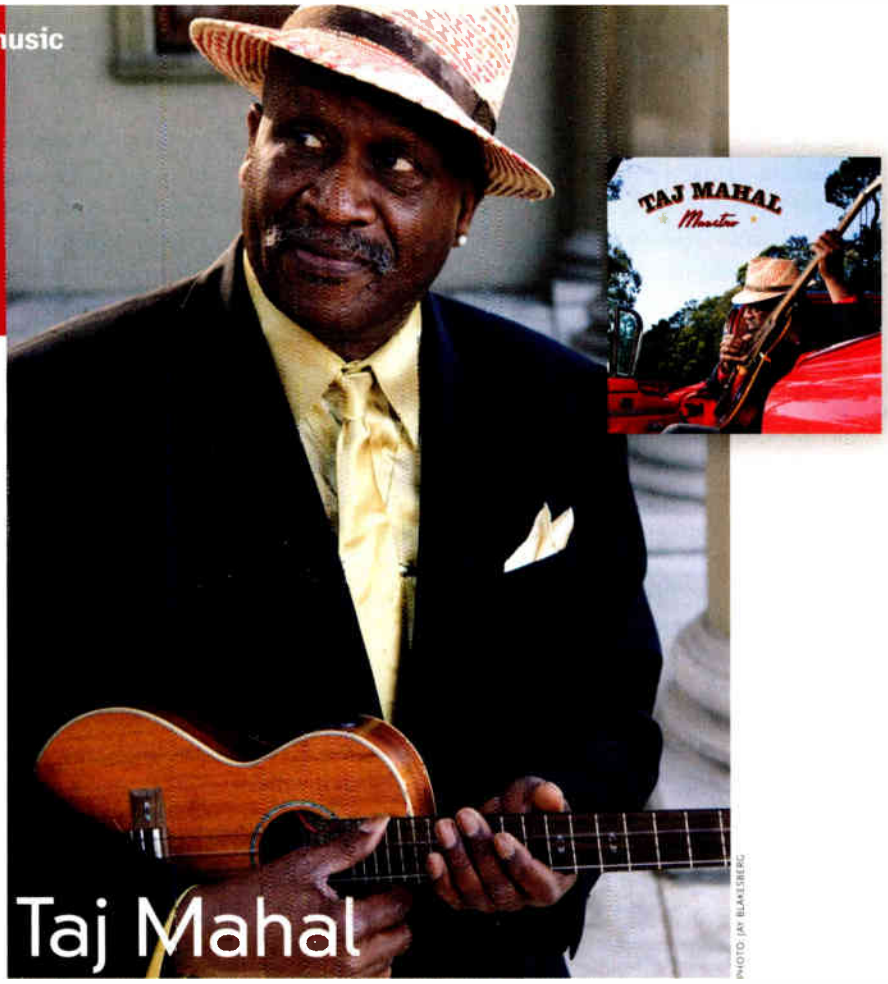

ALL-STAR DISC OFFERS WORLD OF FUN

By Chris J. Walker

During the 1960s, the Rolling Stones, Paul Butterfield Blues Band, Canned Heat, John Mayall & The Bluesbreakers and Janis Joplin were widely credited with sparking mainstream interest in the blues. Working a little more quietly—but no less authentically—was one Henry St. Clair Fredericks, now better known as Taj Mahal. Born in New York City but raised in Springfield, Mass., Taj Mahal first achieved notoriety in Los Angeles with the Rising Sons, a group he co-founded with Ry Cooder, but he would make a name for himself as a solo artist with a series of superb and influential Columbia albums in the late '60s, including *Natch'l Blues* and *Giant Step*.

Those discs showed Mahal's affinity for both country and urban-blues styles, but later recordings found the gruff-voiced but easygoing singer/guitarist exploring West Indian, Latin, New Orleans, Hawaiian, African, reggae and other styles.

"When I started out doing what everyone thought was crazy in the '70s has now turned into what is called 'world music,'" Mahal says from his San Francisco Bay Area home. "Every time I go out, I'm just trying to clear more space to work in and always making sure the imprints [influences/innovators] don't get lost." *Maestro*, his latest in a 40-year recording career, offers a broad overview of styles, featuring diverse guests recorded at a half-dozen studios. "Those 'get-together' records are really not my favorite thing," he comments, "but I've been really careful to pick people who were doing something that made some sense on the record."

For a year, beginning in May 2007, Mahal worked with Ben Harper at Capitol Studios in Hollywood (Danny Kalb, engineer); Ziggy Marley at Westlake in Los Angeles (Marc Moreau, engineer); Los Lobos and Mahal's daughter, Deva Mahal, at Sonikwire in Irvine, Calif. (Mark Johnson, engineer); and his own Phantom Blues Band at Ultratone in Studio City, Calif. Tracks featuring Jack Johnson, Angelique Kidjo and kora player Toumani Diabate were done at those artists' respective studios as files. Additionally, Mahal went to The Shed in New Orleans, where engineer Gordie Johnson recorded Mahal with an all-star band featuring Ivan Neville on B3 organ, George Porter on bass, Leo Nocentelli on guitar, Henry Butler on piano and Raymond Weber on drums. "I want things to be as live as possible," Mahal stresses, "with a band playing and somebody singing. I don't like a lot of overdubs."

Keeping everything organized and doing prep work was Johnny Lee Schell's role. He owns Ultratone, is a former member of Mahal's band and played guitar on tracks with the Phantom Blues Band. Schell converted his detached garage into a studio, with a 20x20 control room for his own projects, but due to the room's popularity he hardly ever gets to use it.

Schell's equipment includes Pro Tools HD3 Accel, a Control|24 surface, Neve 8816 16x2 summing mixer, Alesis Masterlink, 10-inch speakers, API and Neve preamps, and a healthy selection of vintage and new microphones, including a number of DPA condensers. Among the instruments are a Hammond B3, Wurlitzer, a grand piano and an array of guitars. For these sessions, drums sat in a 10x18-foot iso booth, while everyone else was in the main studio together. "Taj loves working in my little place," Schell says, "and I do all the drum setup and miking. That makes it easy for [engineer] Joe McGrath to just come in, set the levels and mostly record without EQ or a lot of processing. I know Joe was using Altiverb for reverb, and he likes Bomb Factory's Pultec EQ a lot, and the 1176. When we're tracking, I play through Amp Farm and the same for Taj's guitar. Taj decides what he wants to record and we'll try a few different things. Then we listen back till we're happy, go to the next song and get between two to four done in a day."

McGrath notes, "Just about any mic sounds good on Taj's voice, and he's a performer. Once you hit Record and the song is over, that's pretty much it, except for maybe a few horn and percussion touchups. He'd listen and make a couple of comments, mostly about the low end. He wanted to make sure that was pumping."

McGrath, who was about to begin working with Green Day when we spoke, mixed *Maestro* at Ultratone in May of this year. "It was a very painless process," he notes. "Taj was around for 90 percent of it. 'I Can Make You Happy' with Los Lobos was really fun to mix, with growling guitar and a funky groove. While 'Zanzibar,' recorded in Africa featuring kora and ngoni, was the most challenging, with Taj giving me special instructions. Mixing was really interesting and fun because the CD is very eclectic and every day was something different."

Mahal concludes: "I love the CD and one of the high points was my daughter writing and singing 'Never Let You Go' with Los Lobos. But I'm thrilled with everyone on the record and *none* of it is window dressing." III

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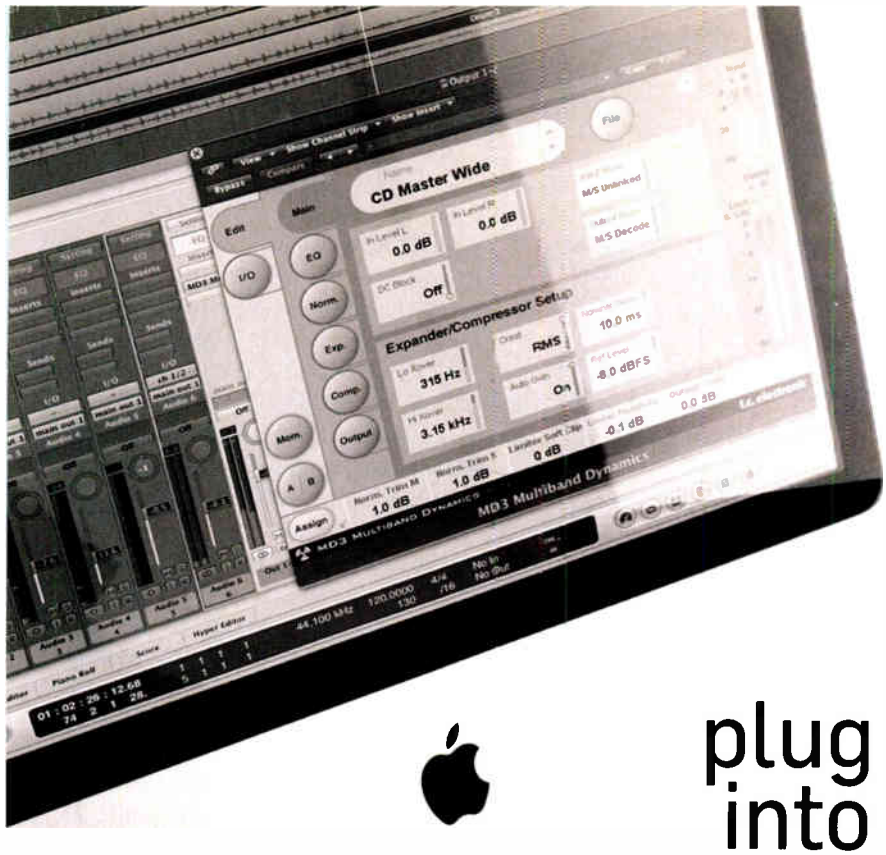

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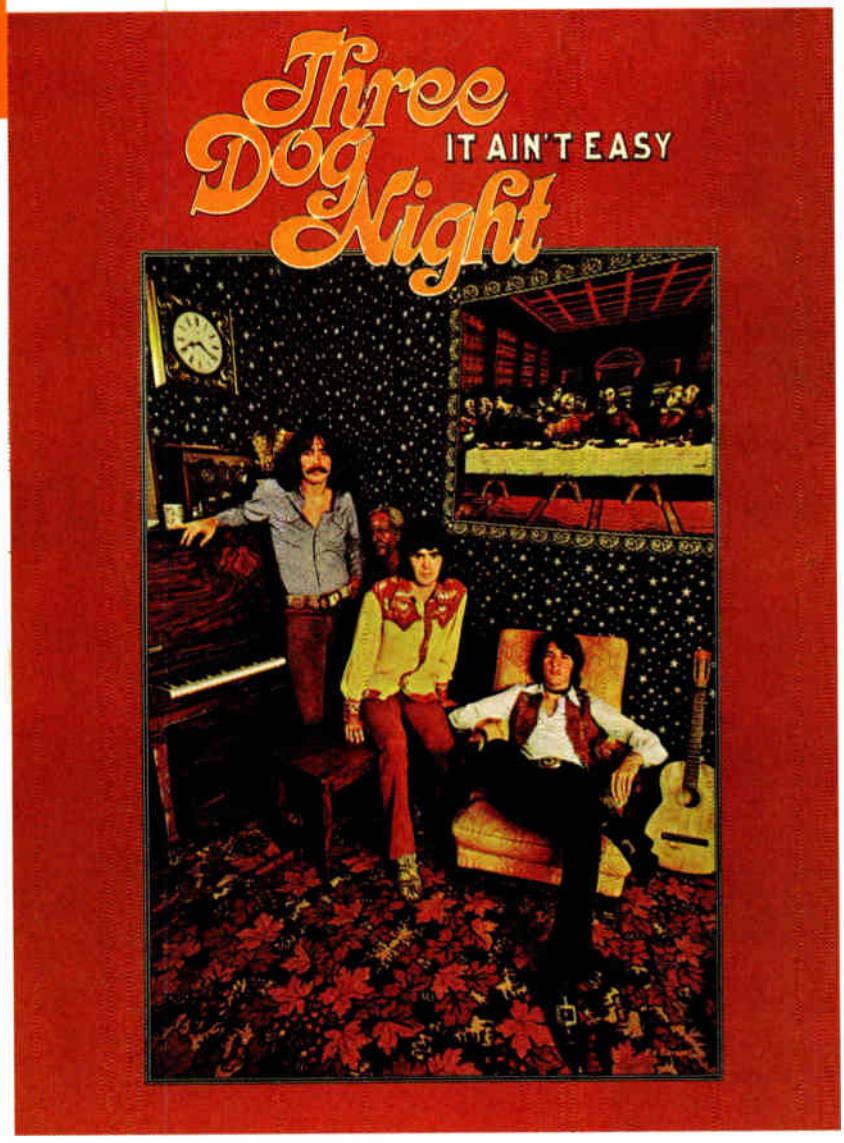

Three Dog Night

"MAMA TOLD ME NOT TO COME"

By Gary Eskow

In this Amy Winehouse, post-Kurt Cobain era, it may be hard to imagine a day when ingesting illegal drugs was not de rigueur. Back in the mid-1960s, however, drugs were still just beginning their tiptoe march toward the broader youth culture. While many people slapped on a cooler-than-thou front, it often masked an understandable fear of the unknown. Leave it to sardonic songwriter Randy Newman to roll all of it—the excitement, apprehension, the unshucked need for parental approval—into one giant spliff of a pop song. Newman, whose quirky performance style would eventually bring the talented writer hits of his own, was unable to make a dent with "Mama Told Me Not to Come" when he gave it to The Animals to record in 1966, and his own version four years later fared no better. For another group, however, the song became a vehicle to superstardom. With Cory Wells handling the lead vocal, "Mama" was the first Number One hit for L.A. band Three Dog Night.

"Mama Told Me Not to Come"—from the 1970 ABC/Dunhill *It Ain't Easy* LP—begins with a post-boogie-woogie piano figure played by keyboardist Jimmy Greenspoon on a Wurlitzer electric piano that was miked directly into the console by producer Richie Podolor and engineer Bill Cooper. Its shifting meter—highly unusual for a mainstream pop record—immediately establishes the unsettled nature of the song. The powerhouse trio, whose cut-through-a-canyon vocals stamped the Three Dog Night sound, was formed by Wells along with Danny Hutton and Chuck Negron. Hutton says that Wells fought hard for the song.

"I talked to the guys about this," says Hutton. "I don't remember when I first heard 'Mama,' but Cory says that he tried to get us to record it for three albums before he was able to wear us down! Randy's publishing company used to send us a lot of demos, but to tell you the truth, I wasn't bowled over when I heard the song for the first time. When we fleshed it out in rehearsal, it started to come together, but besides Cory, the rest of us remained lukewarm until we actually got down to tracking it. By the time we'd finished making the record, though, we knew we had something special."

Podolor says that prior to recording their first album, which was produced by Gabriel Mekler, neither he nor his partner, Bill Cooper, had heard of Three Dog Night. "We cut that initial record [*Three Dog Night*] in just a few days. It was essentially a live album." The group's version of Harry Nilsson's "One" leapt off the album and put Three Dog Night on the map.

After returning to Podolor's American Recording Company to cut a second album [*Suitable for Framing*], Three Dog Night asked him to produce their third album, also cut at American. "One of the most important decisions we made was to sonically treat the four instruments as equals to the voices," Podolor says today. "It would have been easy—given the hugeness of their sound—to make everything subservient to the vocals, but we thought that would be a mistake.

"The players—[keyboardist] Jimmy Greenspoon, guitarist Mike Allsup, drummer Floyd Sneed and bassist Joe Shermi—are sometimes overlooked. That's a pity because they contributed mightily to the sound and success of Three Dog Night. We spent a lot of time on the parts. I remember working for about an hour with Floyd on the bass drum part he played on 'Mama,' making sure that it kept the track moving."

Cooper's memories of the session are vivid.

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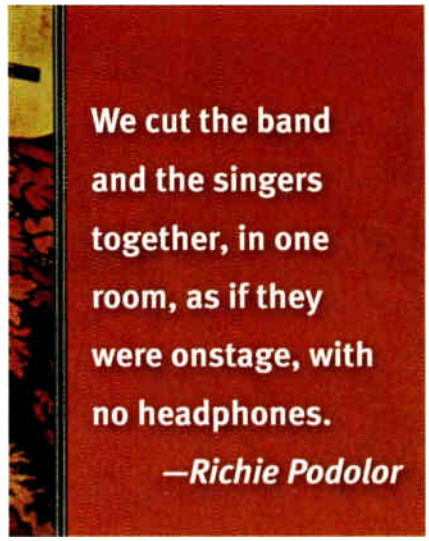
"The interaction of the bass and drums was unique on many Three Dog records, and that was certainly the case with 'Mama.' Joe had a Latin influence and he liked to push the down beat slightly. Floyd was one of the slyest drummers I ever heard. He listened to a lot of tribal drum recordings and would incorporate elements of that style into his playing—tom fills starting on an upbeat, for example. Together, they took a groove that could have been ordinary and turned it into something infectious, with a feel that pushed the song forward constantly."

The character Wells created for "Mama Told Me Not to Come"—a confused but excited party-down initiate, delivering his thoughts in sing-speak with a hard to pinpoint accent—perfectly matched Newman's ironic lines. Although Podolor and Cooper say that Three Dog Night routinely entered the studio well-rehearsed, they nonetheless recall spending hours recording Wells' vocal and creating a comp track from multiple performances. "Today, of course, vocal comping is a breeze," says Cooper. "Back in 1967, Richie was way ahead of the game. On the 'Mama' lead, there's a take change every three or four words.



"Cory talked, or acted, every word of that song. We got maybe three great complete takes from him and then comped them together. Three or four years ago we re-recorded all of Three Dog Night's hits in the studio using Pro Tools. I looked at waveforms of the guys' vocal lines and it was very interesting. Most professional singers produce a smooth waveform, but the waveforms from all of the singers in Three Dog Night—Danny and Cory in particular—were fat and fuzzy! That's why they have that huge sound!"

"The guys didn't have a classic blend," says Podolor, "not the kind that you'd want from a choir, or a perfectly blended pop group like The Association. That sound lets you stack harmonies forever. But Cory, Chuck and Danny each have distinct vibratos and different textures to their voices. We had to pay a lot of attention to their use of vibrato in particular and tame it when it became problematic. We had the guys sing together around a single mic whenever we could, particularly on choruses."

"It gives a much better sound than using separate mics on different tracks," adds Cooper. "Visuals are important. When the guys are close around a mic, they can see and communicate with each other easily. Phrasing and balance improves naturally, and the guys can mimimize vibrato issues on their own."

"Let me underscore that point," Podolor says. "The importance of the visualization element can't be overstated with regard to Three Dog Night recordings. We cut the band and the singers together, in one room, as if they were onstage, with no headphones. Drummers should never be forced to use headphones unless it's absolutely necessary. Floyd could hear nuances in his snare sound within the overall timbre of a track. But the moment you put headphones on him—or any other drummer—his dynamic tends to become unvarying and the color of his sound deteriorates."

Podolor and Cooper used the Scully 8-track

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recorder they described in an earlier "Classic Track" article (July 2008) on the "Mama" session: "It's the same one we used when we recorded 'Born to Be Wild,'" says Podolor. "We're always ready to modify any piece of equipment to get the sound we're looking for. But it's important to know when to leave things alone. Jimmy had an old Wurlitzer electric piano. Most Wurlitzers sounded like the one Ray Charles used—nice and clean. This one had a nasty tone. It was perfect for the character of 'Mama,' so we didn't touch it. We just directed its mono output right onto a track, adding maybe a touch of EQ on the way in."

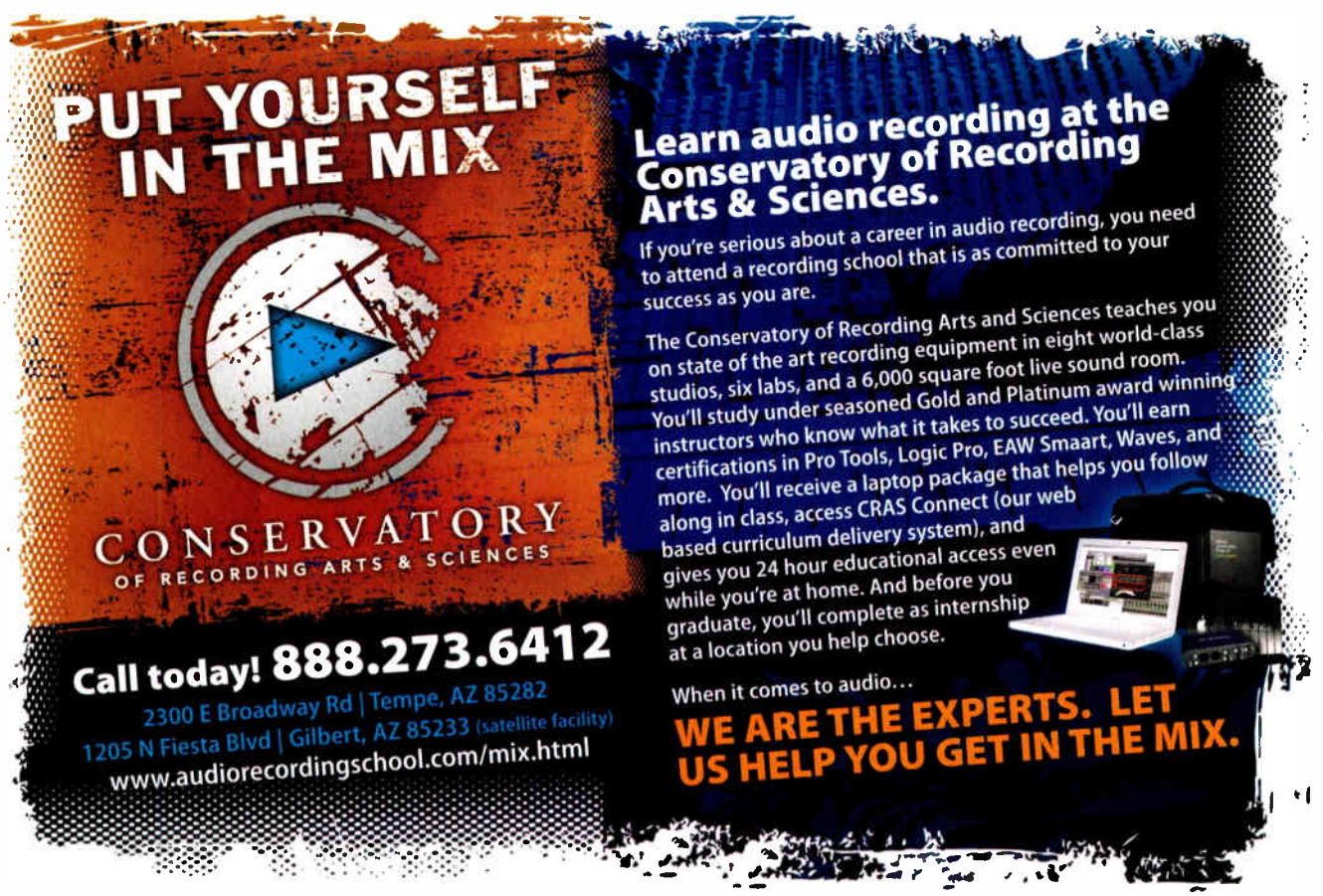
Mike Allsup's violin-like guitar lines add an important texture to the record. "Mike played a Les Paul," says Podolor. "We tried Strats and other popular guitars, but the Les Paul give the biggest finished sound to his playing. At the time, the group was endorsed by Bruce, a company that made big, solid-state amplifiers. Mike went through a Bruce and a Fender Blender, which was a combo device that had fuzz and other effects. Next to it was a scaled-down revolving Leslie speaker. We'd 'Y' the output of Mike's guitar and record him direct, and through the effects as well. That was his signature sound, the one he always used, unless he was playing a rhythm part."

"Those records were a true collaborative effort," says Hutton. "We were all looking for places to introduce different sounds. Mike's weepy guitar part added a lot, of course. I added a little whistling part with my hands in the middle. At the start of the third verse we recorded an extra bass part using the pedals on the studio's B3. A friend of mine from grammar school was at the session, and he and I double-tracked the choruses twice, changing positions the second time to help fatten the sound."

"When we were just about through laying down tracks, we felt that we needed something special on the ride-out," says Podolor. "Bill handed out individual mics to the singers and they went out in the room and ad-libbed their closing lines."

Over the course of about five years, Three Dog Night was, by the numbers, the most popular band in America. The group wracked up 21 consecutive Top 40 hits, 12 straight Gold LPs and a whopping total of almost 50 million records sold. However, Hutton is less pleased with Three Dog Night's place in the pop-music pantheon. "We've never been given much credit for anything!" he says with a laugh. "The critics certainly didn't like us. We were on the cover of *Rolling Stone* once, standing in front of our jet plane. At that point, we had more hits than Creedence, more Gold than the Stones and took in larger purses than Elvis, but the only angle that the article explored was how huge a money-making machine we'd become. Nothing about how we made records. But we were involved in everything—working with Richie and Bill to create effects we'd never heard before, like the pre-Frampton creation of a vocoder effect, running a vocal through a Leslie to make it shimmer, Mike's creative guitar sounds. In the age of the singer/songwriter, I think the fact that we didn't write our own material worked against us. What critics failed to appreciate was our ability to take songs other people wrote and arrange them in ways that were fresh and ear-catching."

Critics be damned, Three Dog Night continues to play 85 shows a year to enthusiastic audiences. Their catalog has secured them a place in the firmament. And Hutton, Podolor and Cooper are currently working on a round of new material. III



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PHOTOS: ANTHONY PIDGEON

By Sarah Benzuly

Nine Inch Nails

LONGTIME ENGINEER COHORTS TAKE ON ELECTRO-ROCK HEROES

When Nine Inch Nails finally hit the stage on a rare hot evening at the Oakland Coliseum in September, the fans were ready for a blistering three-set show, and so were their engineers: front-of-house engineer Pete Keppler and monitor engineer Michael Prowda. With all systems go moments before the band launched into tracks from their new album, *The Slip*, both engineers had their hands on the faders, their ears at attention and were confident they could rely on each other after years of working side-by-side.

Keppler and Prowda mixed David Bowie's tours for many years before hooking up with NIN (in 2004 for Prowda and 2006 for Keppler). "Trent [Reznor, lead vocalist, multi-instrumentalist] saw a few Bowie shows in 2004 and asked me to join the NIN crew in early '06," Keppler says. "I'm sure Mike was behind this somehow,

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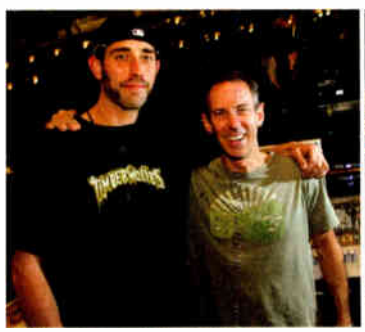
Above: The incredibly lit stage; inset: Justin Meldal-Johnson (left) and Robin Finck (right).

too!" At that time, Prowda was also on the Bowie tours and had mixed for the 1995 Bowie/NIN tour, "so I had seen what it was all about." Prowda says. "The working chemistry is great. We work out what we need to get done and get results. Anyone who has had the Nine Inch Nails experience knows it's a very technical and intense show, which keeps all of us—including Todd Tiedemann, who has the 'front line' job of dealing with Trent's mics, stands and other bits of things—on our toes, start to finish."

Having worked together for many years, Keppler and Prowda are able to focus their time on their own mixes, knowing that there is no slack to be taken up. "I think one of the most important elements of the show, especially because the monitor system is entirely in-ears, is the stage mixes," Keppler says. "Mike is an artist in his own right, and he has this show dialed in. If the performers can't hear themselves properly, I'll have a lot less to work with mixing at FOH. Mike and I have worked a lot of tours together, and it's to the point where we barely even need to talk about it. It comes together very quickly. I never have to wonder if the band's hearing what they like, and that takes a lot of stress out of the day."



From left: Todd Tiedemann, Michael Prowda and Pete Keppler

LITTLE GEAR TO PACK

Like most bands traveling on the festival circuit, NIN is carrying a slim-and-trim rig to keep footprints small and make it easy to get in and out of gigs. Both FOH and monitor worlds see Digidesign Profile boards. Keppler recently used the Profile during a Rufus Wainwright tour. "I found I like the horizontal EQ layout and the faders being closer together," Keppler explains. To also help create a smaller FOH footprint, Keppler is not carrying any outboard, using all onboard FX, including Digidesign's ReVibe, Reverb One, Reel Tape Suite and Flanger, SansAmp, Smack! and Echo Farm; third-party plug-ins include Waves' Live Bundle, McDSP MC2000 and FilterBank, and Crane Song Phoenix. "I'm anxiously awaiting SoundToys' D-Show-ready plug-ins, as I've been using their software in the studio for years and it rocks!" Keppler adds.

Prowda also has a long history with the board—and the manufacturer. "When I started with the *With Teeth* project," he says, "Digidesign asked me if I was interested in demoing a pre-production VENUE. The OS software was in its infant stages, but I liked the way the console sounded and have grown with Digi in its development. When I first began using the VENUE, I went plug-in-manic and was able to try out a lot of different options. I have some favorites that I've stayed with, and some new things such as the Sony Oxford reverb and the Tube-Tech CL1B limiter. Others include the ReVibe, D-Verb, Smack! and Impact, which makes a great stereo dynamic solution. Properly mixing in-ear monitors requires a high level of dynamic control and reverbs to make realistic spaces. I feel it's possible to find all I need in the plug-ins available for this mixing platform."

However, Prowda does carry a few choice pieces of outboard: Aphex Dominator IIs, which he's been using since he began mixing in-ear monitors. He calls them his final dynamic control stage before the stereo mixes go to the Sennheiser G2 IEM radios. "They are a broadcast-specific device and have been used in the radio industry to control modulation," Prowda explains. "Used properly, they are most effective—I can use all the help I can get."

As can most engineers, who are watching frequencies become harder and harder to lock into during load in. "Sennheiser and Shure have a database of TV stations on a city-to-city basis," Prowda says. "I'm using Sennheiser and start with their data on what to expect when I get into the venue. By the nature of the construction material used in each building, there is a degree of built-in shielding from external TV sources. This helps a lot in the presently expanding frequency battle. This is keeping the manufacturing side of things on its toes, and we will see new products available soon to help us deal with what was once an easy part of our jobs.

"Once I've gotten to the venue," he continues, "I have an RF scanner that I use: the PST 1301 T. It's a cost-effective handheld device that I've found to be efficient and good enough for what I'm using it for. This is the reality check as to what is really going on RF-wise. We have to go to frequencies that are not used by the local TV stations, and at this point I use Sennheiser's SIMF calculator to set up my 10 intermodulation-free frequencies. Sometimes it's easy, and sometimes not so easy. I also use the Sennheiser Neti, which networks all my radios and works with my Mac running Parallels Windows OS, which means I don't need a device-specific Windows computer to run this one piece of software. SIFM also runs

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on Windows. After this, I do a walk-around and check to make sure I've made the proper decisions as far as frequency allocation."

While Prowda is searching for a free frequency, Keppler and FOH tech Chris "Radar" Russo are busy soundchecking the JBL VerTec array with Version 4 presets, "designed by the amazing Paul Bauman at JBL," Keppler enthuses. "I had used the VerTec previously with both Bowie and Nine Inch Nails, but Paul has definitely taken this P.A. to the next level."

The standard configuration comprises 28 VerTec 4889 full-range boxes (14 per side) for the front arrays, with 16 flown 4880a subs (eight per side). There are 16 to 20 more 4889s for the side arrays and another 12 to 14 4880a subs on the floor, with six to eight 4887s for front fill. Crown iT 6000 and 8000 software handle speaker management, crossover and protection duties, all controlled by System Architect. System zoning/tuning are handled by Dolby Lake Processors, while Keppler tunes with a wireless tablet.

Onstage, there is a guitar cab for Robin Finck, a drum system and a ButtKicker for Josh Freese and two small L-Acoustics dV subs on either side of the stage. "This combination gives us the cleanest stage sound for a brilliant front-of-house mix and the right feel for the band," says Prowda. "Simplest is most often times the best. It's not at all loud onstage."

Mike 'Em Up

Drums: Royer R-121; Shure 91, Beta 57, SM57, KSM32; Sennheiser 902, 904, 509, 905
Guitar: Sennheiser 509
Vocals: Shure Beta 58
Percussion: Royer SF-24; Shure KSM32, Beta 98; Sennheiser 509

ENTER THE BAND

Straying from previous Nine Inch Nails outing, the band has divvied up its show into three segments (tracks from their recent album, acoustic [aka *Ghosts*] and classic NIN tunes)—plus an incredible display of lighting and video technology. While this may pose some serious mixing issues for Keppler and Prowda, these engineers are up to the challenge.

"All three sections of the show can be intensely dynamic, so I have to be ready for that, but overall, the acoustic portion of the show is the most different. Trent is often playing five and a half-octave marimba, while Justin [Meldal-Johnson] is playing upright bass, Alessandro [Cortini] is playing harmonium, Robin is playing flutes/mandolin/guitars and Josh is playing bells, timpani, glockenspiel and a drum kit made of trash cans and found objects."

"Miking a marimba turned out to be one of the most challenging aspects, and our friends at Royer Mics helped us find the best alternative to contact pickups we could find," Prowda adds. "For that situation, the Royer SF-24 stereo ribbon mic was the most elegant, best-sounding option."

"There's a large number of live mics onstage during this section, and they're mostly on quiet(er) instruments," Keppler continues. "This can be challenging for leakage issues, but sometimes it's difficult just trying to keep the SPLs up above the audience. They love this part of the show, and often I can hear the cheering from the front rows coming through the stage mics." ■

Sarah Benzuly is the managing editor for Mix, EM *and* Remix *magazines.*

World Radio History

SOUNDCHECK

Mixing the Mars Volta

PHOTOS: RALPH HEINZ

Stage setup at the Hammerstein Ballroom, New York City

By George Petersen

Hardly the "typical" rock act, the Mars Volta weave rock, jazz and Latin music into a highly spontaneous live show. Working with the Mars Volta is like "mixing the first song all night," says front-of-house ace Toby Francis (pictured), whose clients include ZZ Top, Guns N' Roses, Smashing Pumpkins, Jane's Addiction, Limp Bizkit and Velvet Revolver, to name a few. "A good deal of it is improvised, so it's like two-and-a-half hours of being ready—every night."

Digidesign's Profile was the "perfect console for this band. You can get around on it really fast," says Francis, ever-mindful of the band's constantly changing show, which also keeps him busy with a Pro Tools HD system for recording all the dates. But the rig offers other advantages: "With Pro Tools, we can be prepared to mix a band before you even get to rehearsals," Francis explains. "With the Mars Volta, I only had a couple days before going out. I set up in the corridor, tracked the band the first day and worked on the mixes for a couple hours the next morning before they came in. We went out the next day, and those two hours I had before that rehearsal saved me."

A big part of achieving the right sound for the Mars Volta live comes from plug-ins. "I couldn't do it without them," says Francis, who among his faves lists Crane Song's Phoenix. "It's absolutely essential. I use it across the mix bus, the drums and percussion, and a couple of the keyboards. I also like Drawmer's TourBus gates. I use Serato as a dynamic EQ. I have AmpFarm and Eleven on quite a few channels. We've eliminated amps on all the keyboards. We create the amps in the console, and it sounds like an isolated amp instead of another open mic onstage."

The Mars Volta has a long-standing relationship with Rat Sound, which supplied Renkus-Heinz' new VLX3 line array—compact dual-12 cabinets with co-entrant MF/HF horn technology, which were successfully used at this summer's Sturgis Buffalo Chip Music Festival (featuring ZZ Top and Alice Cooper). The Mars Volta took the VLX3s out on the units' first public tour.

"I really like the sound of the box and the array," says Francis of the 20-cabinet VLX3 rig powered by Lab.gruppen PLM 10000Q amps with onboard Dolby Lake processing. "I was surprised by how little I had to do—EQ-wise—to make the VLX3s sound the way I wanted. I would describe the sound as a V-DOSC-type, where the low-mids are really clear. It's amazingly realistic. The Renkus box is a little less bright than V-DOSC, but it's natural-sounding and gets as loud as any P.A. out there. There's an amazing amount of low end coming out of the VLX3s. I'm getting a lot of punchy kick drum from the main hangs and hardly using the subs at all."

VLX3 offers other pluses: "It's effortless to fly. Everything's up, in place and cabled in under a half-hour, which is as fast as I've ever seen a P.A. go up. And it's small, especially important in terms of truck space. This is a one-truck tour. We're carrying full P.A., and in the space left over we're carrying some of the backline and a moving light package.

"I love this band. It was hard at first, but it's really helped my chops," Francis explains. "This whole digital mixing thing has really allowed all of us to rethink how we do things and reset our goals for what we want to achieve."

tour log

Keb' Mo' is filling halls across several continents—sharing the stage with Taj Mahal and Robert Cray—in support of his latest, *Suitcase*. *Mix* caught up with Mo's longtime FOH engineer, John Schirmer.

How much gear are you carrying?

We were carrying everything except for racks and stacks. We carried two Digidesign Profile consoles—one for house and one for monitors. I also traveled with a Pro Tools HD rig to record 48 tracks

of audio every night at 48 kHz straight from the Profile. We tried to keep our snake needs to a minimum by traveling with two Digidesign Stage Racks that both lived on the deck and were linked together by a Schubert Systems splitter, and then routed to FOH and monitors by BNC co-ax cable. We also carried a full in-ear rig (Shure PSM 700s with Ultimate Ears UE 11s) and some supplemental QSC-powered L-Acoustics HiQs for keys and Keb's vocal position.

What is the biggest part of the mix?

By far the most important part is "feel." There are aspects of every song that drive the performance to the audience; if you get it wrong, the audience lets you know.

Tell me about the recording chain.

Mic to cable to stage box to splitter to Digidesign Stage Rack to FOH rack to Digidesign HDX card to Digilink to Pro Tools HD. Other than the SM57 and KSM32 on both guitar cabinets, I also take a direct line pre-guitar amp and post-pedals so that if I don't like the tone of the amps that day, my tracks are not completely shot and I can re-amp the DI tracks.

Where are you when you're not touring?

Rock climbing in Yosemite or Joshua Tree parks [in California], riding a mountain bike or in the studio working on our live record or one of many other projects.

fix it

FOH engineer Adam Fisher, Polyphonic Spree

It's all about making everything fit into the spectrum of frequencies. If you subtract something from one instrument, it might be wise to add it to another. For instance, if I take the upper mids out of a guitar so it won't thrash your ears as much, I'll add the same back to the cello. The cello produces a lot of low end anyway, so that just makes it come out more.

World Radio History

Masque Sound Specs Ravinia Fest

By Sarah Benzuly

A Sound Choice and Masque Sound provided the audio gear for the 2008 Ravinia Festival located in Highland Park, Ill., just 20 miles north of Chicago. A fixture of the city's summer entertainment scene since 1904, The Ravinia Experience features three venues: the 3,200-seat open-air Pavilion; the 850-seat Martin Theatre and the 450-seat Bennett Gordon Recital Hall. Performers during the 2008 season included dozens of genre-spanning artists such as James Taylor (pictured), Lyle Lovett, the Emerson String Quartet, Backstreet Boys and Chicago blues icon Buddy Guy.

According to A Sound Choice principal Mike Gotshall, tech guru Paul Klimson performed extensive tests throughout the venue to formulate a package. Masque co-principal Geoff Shearing developed a program that enabled Sound Choice to rent everything needed while staying within their budget.

"Our gear package for Ravinia is designed to serve a multiplicity of performance needs—from the soft jazz to hard rock to full symphony orchestra," Klimson says. "Because optimum flexibility was a priority, the system can provide full FOH mixing capabilities for artists who travel without consoles or function as a 'guest position' for self-contained acts."

Gear spec'd includes Yamaha PM5DRH digital consoles at FOH and monitors, L-Acoustics wedges, a Meyer Sound P.A. and a full list of high-end mics.

From left: Will Huffman, Local 2 monitor engineer; Tom Carlson, A Sound Choice FOH system tech; Mike Gotshall; Norm Krueger, Local 2 FOH engineer; Tim Christenson, A Sound Choice monitor system tech; and Sam Amodeo, Local 2 master sound technician.

load in

Sound crew chief/FOH engineer Billy Flores at one of two Yamaha PM5D boards for the Rock the Bells hip-hop festival

ClairShowco has changed its name to **Clair** as part of a complete rebrand...Local crew **ShowTec** (Poway, CA) has taken delivery of a **WorxAudio** TrueLine Series system, which will be used for corporate industrials and other special events...**King Crimson** completed a string of American dates, with a **Midas** XL8 console at FOH, manned by **Ian Bond**...**Gand Concert Sound** (Glenview, IL) supplied 140 **Nexo** GEO T boxes for such concerts as **Dicky Betts, Jo Dee Messina, Pat Benatar, Merle Haggard, REO Speedwagon** and many other acts...Engineer **Bernie Kirsch** placed **Royer Labs** R-122 Live Series mics on guitarist Al DiMeola's two amp cabs during the recent **Return to Forever** tour...University of Massachusetts has upgraded its stadium's sound system with **Community** R6-51 loudspeakers and RSH-462 systems...**PRG Audio** brought out **JBL** VerTec line arrays for N8C's "Toyota Concert Series on TODAY," which included such acts as the **Pussycat Dolls** and **Katy Perry**...Ambient sound engineer **Bill Fontana** created "Speeds of Time" with a **Meyer Sound** system.

road-worthy gear

Lectrosonics HM

The HM is a new plug-on transmitter that converts any standard microphone into a wireless unit. The HM features an LCD and membrane switches for setting and monitoring, and 100mW RF output for long range, and it runs on two AA batteries for extended operation. The HM's flat 40 to 20k Hz (±1dB) response is ideal for use with measurement mics for audio system analysis when used as part of the Lectrosonics TM400 system.

www.lectrosonics.com

Atlas Sound CD Horns

Atlas Sound's new line of constant-directivity re-entrant horns are now available in 90x40, 60x40 and 40x20-degree configurations. These units are designed to offer greatly improved uniform sound coverage over conical designs with predictable and tight pattern control. Model CD64, CD94 and CD42 horns are constructed from a tough polyester resin and Fiberglas laminate. Each horn has a heavy-duty, steel-mounting bracket and an integrally molded, die-cast zinc throat section to accommodate Atlas' PD Series drivers.

www.atlassound.com

Mackie PPM Powered Mixers

The ultralightweight powerful reincarnation of Mackie's powered mixers, each PPM model features dual Class-D Fast Recovery amps (up to 1,600 watts), 32-bit RMFX+ processor with an arsenal of "gig-ready" usable effects, premium mic preamps, 3-band active EQ, dual 7-band graphic EQs, built-in DI boxes, dedicated in-line channel compression and a precision passive EQ switch that's matched to Mackie's C200/C300/S200 passive loudspeaker line.

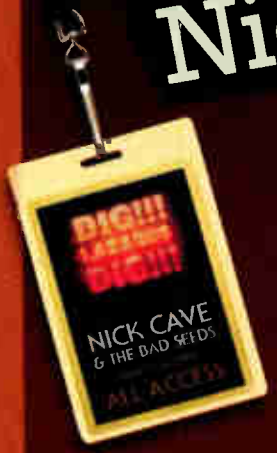
www.mackie.com

World Radio History

ALL ACCESS

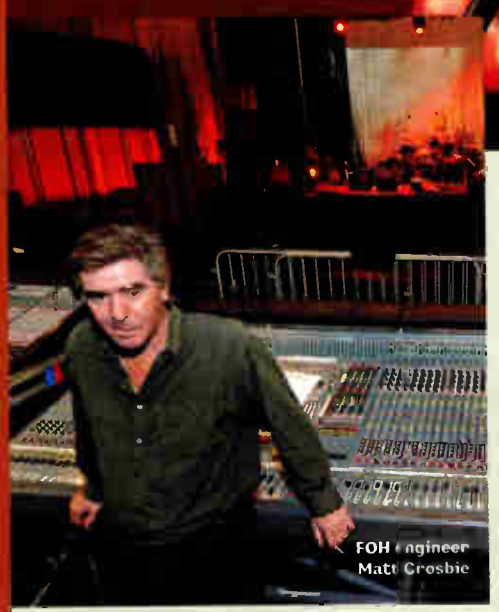
Text by Barbara Schultz. Photos by Steve Jennings

Nick Cave & The Bad Seeds



Nick Cave & The Bad Seeds deliver the songs from their new album, *Dig, Lazarus Dig!!!*, with the same dark conviction that infuses Cave's signature songs, such as "The Weeping Song" and "The Mercy Seat." Cave is riveting with his demented-preacher-demanding-your-soul persona, and the band sound rocks in a way that monitor mixer Simon "Davros" Blanch calls "chaotic, in a good way." The vibe in the freshly refurbished Warfield Theatre (San Francisco) was anything but church-like as Cave and his powerful group of multi-instrumentalists led fans into the disturbed narrative world of *Lazarus*.

Cave sings into a hard-wired Shure Beta 58A. His monitors of choice are Nexo PS15 wedges, and Blanch says he gives him a mix of his own lead vocal, drums and "instruments that carry the melody that he needs to pitch off of." Other bandmembers use L-Acoustics 115XT HiQ wedges. "There is nothing wireless on our stage," Arsenault says simply.



FOH engineer Matt Crosbie

Front-of-house engineer Matt Crosbie mixes on a Midas XL4 console provided by sound company PRG (Las Vegas). This Nick Cave tour was one of the first to make use of the new mix position at the historic Warfield. Whereas the FOH console used to be installed in the theater's balcony, mixing is now done from the center of the ground floor. Tour production manager Peter Arsenault says the new position is "a good trade-off. The board is a bit close to the stage, but mixing in the balcony was logistically very difficult."

The Warfield's P.A. was also replaced as part of the remodel; the Cave crew were pleased to take full advantage of the new Meyer Sound MILO rig installed by Pro Media/UltraSound. The new cabinets comprise line arrays of 10 MILO and one MILO 120 loudspeakers each, left and right. Low frequencies are covered by four 700-HP subwoofers per side under the stage; three additional 700-HPs are centered to cover upper-balcony. The under-balcony is served by six M1D line array loudspeakers. Two CQ-1s per side provide front fill, and a Galileo loudspeaker-management system is used for system drive and processing. "The coverage was outstanding, right up to the back row of the balcony," Arsenault says.

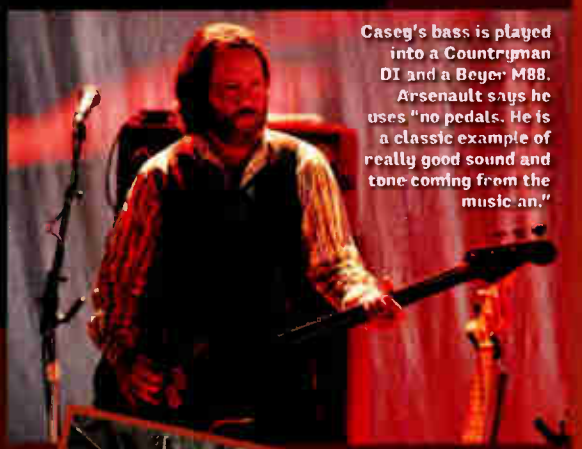
World Radio History

L-R: Mick Harvey, Thomas Wydler, Conway Savage, Martin Casey, Nick Cave, Jim Sclavunos, Warren Ellis

Drum tech Des Hill checks out Jim Sclavunos' kit during soundcheck.

Guitar tech Ross Malloy

Multi-instrumentalist Warren Ellis plays an arsenal of strings—violin, mandolin, viola—and samples that by turns add mood, humor and edge. String instruments are all sent DI and miked with Shure SM57s. Amps are Mesa/Boogie MkIII or Marshall 12s. Samples are amplified with a MkIII, which is miked with a Beyer M88 and sent direct.



Casey's bass is played into a Countryman DI and a Beyer M88. Arsenault says he uses "no pedals. He is a classic example of really good sound and tone coming from the musician."

Strings and band tech Anthony Oates

Monitor tech Kevin Wetter (left) and monitor engineer Simon "Davros" Blanch

Monitor mixer Simon Blanch, better known as Davros, is mixing on a PRG-provided Yamaha PM5D. "It's a most accessible board, and Yamaha electronics are always reliable," he says. "And I like the digital recall. Nick's wedges blew up one night in Chicago, and I had to replace them on extremely short notice. I was able to pull some old settings from a library to facilitate the new setup."

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PHOTO JAMES FISHER

By Blair Jackson

'Australia'

THE LAND IS ALIVE IN EPIC FILM

Director Baz Luhrman's highly anticipated November release, *Australia*, not only marks a significant departure from his stylized "Red Curtain Trilogy" that began with *Strictly Ballroom* in 1992 and included *Romeo and Juliet* (1996) and *Moulin Rouge* (2001, his most recent film), it embraces the sweep, grandeur and vibrant storytelling of the great latter-day epics, from *Lawrence of Arabia* and *Dr. Zhivago* to *Out of Africa* and *A Passage to India*. The simple title hints at the film's ambition—to tell a tale that says something about the power of this massive, fascinating and largely unpopulated land. At its heart, though, is a more intimate human drama about an Englishwoman in the mid-1930s, Lady Sarah Ashley (Nicole Kidman), who follows her husband to the Belgium-sized cattle station he owns in Australia's Northern Territories and which she inherits. A few years later, to save her land she

World Radio History

and a local cattle drover (Hugh Jackman), with whom she falls in love (of course) undertake a long and perilous cattle drive north to the port city of Darwin, which is bombed relentlessly by the Japanese beginning in February of 1942 (two months after Pearl Harbor), eventually prompting a large exodus south to escape the horrors of war. Along the way they encounter a number of interesting and unusual characters—including aboriginal natives—and travel through a variety of breathtaking terrains, from the desolate Outback to incredible gorges.

The film has been a thoroughly Australian production—shot (mostly on location) and posted there with nearly the entire crew culled from Down Under, with the notable exception of L.A.-based re-recording mixers Andy Nelson and Anna Behlmer—who were flown in and did their work in a new mix room outside of Sydney—and Shawn Murphy, who mixed David Hirschfelder's score in a studio at the Sydney Opera House. Nelson and Behlmer were Oscar-nominated for their work on *Moulin Rouge*, as was *Australia*'s production sound mixer, Guntis Sics; *Australia*'s supervising sound editor Wayne Pashley didn't work on that film, but was an FX editor on *Strictly Ballroom* years earlier and has since proven himself working as a supervisor on such internationally popular Australian productions as the two *Babe* films and the recent animated smash, *Happy Feet*. In separate interviews—Pashley and Behlmer from the mix stage at Atlab, right outside of Sydney; Nelson at Fox in L.A., where he was working on the final mix for *Madagascar 2* in between jaunts across the Pacific to work on *Australia*—the post principals stressed two main points: that Luhrmann's film really does represent an unabashed return to an earlier epic style of filmmaking and that Australia itself is a major character in the film, which required special treatment from the sound team.

Of course, technology has come a long way since Paddy Cunningham took a mono Nagra out into the desert to record ambiences for *Lawrence of Arabia*. To capture the unique sound of *Australia*'s myriad natural locations, Wayne Pashley had more modern tools at his disposal, including Sound Devices 744T recorders and, most significantly, a SoundField surround microphone.

"It's B-format," he says of the SoundField SPS 200, "so it's W-X-Y-Z configuration [central reference, front/back, left/right, up/down], which was fantastic, particularly in the Outback, because it gave us a huge amount of length and height and width, and the sub channel was terrific as well on all the winds and on the dynamics between high-end bird life and the winds that were going through eucalyptus trees and across salt plains."

Pashley notes that filming in desolate areas posed an incredible challenge to Luhrmann and the crew. "No one has really filmed extensively up there in the Kununurra region near the border of Western Australia and the Northern Territories. And to actually maneuver a crew of this size—some 300 to 350 people—to an area like that, with all that heat and dust, was quite remarkable. I imagine that when David Lean was filming *Lawrence of Arabia*, it was a similar exercise. Plus, we had all the livestock that was brought in [for the cattle drive]: 1,500 head of cattle and the brumbys [Australian wild horses]. It was quite a logistical feat."

From left: supervising sound editor Wayne Pashley with re-recording mixers Anna Behlmer and Andy Nelson

Pashley did his ambience recordings in many of the same locales where Luhrmann and company were shooting, "sometimes following a day behind so it would be as quiet and pristine as possible. Also, I'd go further afield," which sometimes involved a certain amount of peril: One day, traveling alone, he drove 50 kilometers off an already obscure dirt road to record the wild sounds of a particular river bed and some distant falls. "I knew there were a lot of crocs and deadly snakes there," he recalls, "so I had to be very careful, and the sun was going down so I'd have to work quickly. At one point, I turned around and the tire was flat in about three feet of dust; the tire was completely covered. And I didn't have a satellite phone and there was no cell phone reception, so I thought here's a 50k walk!" Fortunately, he did have a spare tire and lying in the dust he managed to change the flat, and eventually ease out of the perilous location, finally arriving back at his base at around midnight.

The SoundField was also used in many other settings, Pashley reveals. "Every evening at the 'homestead' set, I'd get the mic out as the sun was setting, and we'd have 150 brumbys come hurtling around the homestead and I'd be doing the pass-bys and all the whinnies." At one point, too, he had the SoundField mic mounted on the back of a rider to record the brumbys so they would "thunder through the audience's ears." He adds, "I also did all the vehicles in 5.1 because it was so quiet, there was no traffic or aircraft, so it was the perfect opportunity to get all the pass-bys on the dirt roads with all these 1930s vehicles, from Chevrolets and Fords to army vehicles."

Pashley says that recording with the SoundField gave him more flexibility than more conventional stereo recordings because the mic "comes with a plug-in called the Sound Zone that imports the digital B-format file and lets you select not only 5.1, but 6.1 or 7.1, and you can also go stereo or mono fold-down within its own infrastructure, so when something is more of a spot effect, I would then make a choice as I was listening to it—whether to focus it, push the sub. You can actually re-shape the recording as you mix it down to whatever format you like."

The film was also a novel experience for mixers Nelson and Behlmer, who left their comfortable home turf at Fox in L.A. for a new mixing room called Deluxe StageOne Sound. The duo has worked together for about 14 years now, growing into perhaps the most respected mix team in Hollywood and earning Oscar nominations for such diverse films as *Blood Diamond*, *War of the Worlds*, *The Last Samurai*, *Seabiscuit*, *The Thin Red Line* and *Evita*. Nelson says, "We went down and looked at a couple of other facilities in Sydney and I went to look at the facility that mixed *Happy Feet*, and I liked it a lot but the room itself was rather small—sort of like our predub room here at Fox, which is a bit small for a big-scale picture. So this studio called Atlab, on the outskirts of Sydney—it's actually a printing laboratory and they have DI suites

World Radio History

and everything—said, 'Look, we have this huge space out back where we were thinking of building a mix room—maybe we could do it in time for *Australia*.' So I went back to L.A., thinking, 'Gosh, this is a huge step; will it really happen?' Sure enough, it happened. I went down there to do some fine-tuning, and it turns out it's a really great room; without a doubt, the premier room in Sydney.

"It's a little smaller than the big room here at Fox," he continues, "but it's got the Neve DFC console we use, the Pro Tools recorders and the acoustic design work was done by David Schwind [of Charles M. Salter Associates] out of San Francisco, who's a top designer and did our room here [in L.A.]. They really jumped in with both feet so I'm really excited about it. I don't think there's any doubt that many resident Australian directors are jumping to get in there, which is great for them. But we are the first."

Anna Behlmer agrees: "It's a beautiful room. The console is a little smaller—a two-section instead of a three—but it's got the new metering that lets you know on the screen whether EQ is in or if you've got an aux send in or any processing in the strip; it lets you know just by looking at the meter bridge.

"The room sounds a little different than what we're accustomed to and that took a little time to adjust to. When we first walked in, it seemed a little dry, but Andy was here a few weeks before me and he was on top of it in terms of getting the Dolby rep out and putting up some baffling and getting it to soften up a bit. But it's improved, and we've actually taken some of the material we've done back to our room in L.A. and played it to see that it's translating well, so that's been comforting. To open a new room and do a big film like this in it is a big deal, and it's gone really, really smoothly."

Nelson, who mixes dialog and music, says that much of the former was replaced through ADR. Though everyone agrees that production mixer Guntis Sics did a fine job on set, there were often natural elements (wind, animal sounds, etc.) or man-made factors (wind machines, the director barking instructions on a megaphone and such) conspiring against getting a totally clean production track. As is increasingly common with large productions that stretch over many months, "ADR was done all over the place; wherever the actors are," Nelson says. "Nicole's been in a few places, Hugh has been mainly in Sydney. Wherever they are, though, they've got to get back in character and that can be tough for them. I don't think the actors like it, but often there's not much choice. [The dialog] has been prepared to go either way [production or ADR], and I'm sure Baz is no different than most directors—he'll try to use as much of the original recording as they can. But there are definitely a lot of places in the film where, for various reasons, it's better if we go with new loops.

"I'll show Baz the best I can get [the production track], and then it's up to him to say, 'It's not good enough, let's go with the loops.' Or he might say, 'Even though it's not great, let's stick with it because the *feeling* is so good.' I have to wear the two hats of either being the purist, saying, 'Nothing beats the production from the performance standpoint,' or being the realist, who says, 'If no one can hear it, what good is it?' And, of course, the danger with working on dialog is the more familiar with it you are, the more you assume people will understand it. But if it's even borderline, there's a good chance they won't understand it, so you might have to lose a few percentage of the performance but gain the clarity [with ADR]. If you're an audience member, there's nothing worse that saying, 'What did he say?'"

PHOTO JAMES FISHER

Pashley adds that it was important to him "to have the dialog *leap* from the screen and be strong and clear—and to transcend the thick Australian accents and the pidgin dialect [spoken by the aborigines]. I want the dialog to be as bold as the land because we're telling a story here."

From her standpoint, too, FX re-recording mixer Behlmer suggests, "More replaced dialog gives me a little more leeway. It allows more of the effects to be used because they're not provided in the production tracks, and it creates greater width and space in the track because when you've got a heavy production track, it tends to suck all the sound into the middle. When you *don't* have that, you have a greater sense of space and your surrounds play better and clearer, so it's a good opportunity."

Pashley says that Behlmer made a complete separate predub of the 5.1 atmospheres he'd recorded "because it's such an important element," Pashley says. "As I've said, we're almost treating the land as a real character; it needed a predub based around it like it was a single character, almost like it's a dialog track."

And though the atmospheres that Pashley provided were rich and detailed, there was still plenty of room for Behlmer to get creative, adding more stereo atmospheres, touches of reverb, synth tones, different winds or other evocative elements to individual scenes. "I'm still using a [Lexicon] 960," she says, "and I'm using a couple of synthesizers to enhance the low end to the boom channel and even in the mains a little bit to give size and weight to it, like in the cattle stampede, which is a great scene where you really want to *feel* what's going on up on the screen."

Behlmer also notes that "the film has a theme of mysticism and spirituality that runs through it—with the aborigine characters—and in some of those scenes, the sound treatments are sort of surreal and we're trying to give those situations more of a magical feel, using ambiences in interesting and unusual ways. There are mysterious characters who have their own special signature sound, and situations where the world sort of goes away and we're focused on an event in an interesting way." Including the bombing of Darwin, which could have been handled as a straightforward munitions extravaganza, a lá the film *Pearl Harbor*, but which Luhrmann has chosen to depict partially from the far-off perspective of aboriginal natives seeing what was once exclusively *their* homeland destroyed from a distance.

In an informative podcast on the official www.australiamovie.com Website, Luhrmann also weighed in on the importance of the creative use of the ambience tracks: "Layering that atmosphere is very important. In a naturalistic sense, you might just reproduce what's there [visible in the scene]. But it can [also] be employed to create drama. For example, in a

—CONTINUED ON PAGE 85

World Radio History

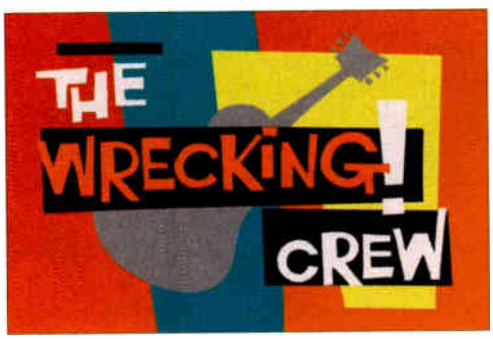
Tommy Tedesco and Carol Kaye in session, mid-'60s

'The Wrecking Crew'

DOCUMENTARY BRINGS STUDIO CATS INTO FOCUS

By Blair Jackson

Denny Tedesco says that the decision to make his extraordinary new documentary, *The Wrecking Crew*—about the L.A. session musicians who played (anonymously) on a zillion hits through the '60s—was prompted by the revelation in the mid-'90s that his father, legendary studio guitarist Tommy Tedesco, had been diagnosed with cancer. "When that happened, I thought, 'Okay, I've gotta do this *now*,'" Denny Tedesco says.



But "now" can take a long time in the world of independent documentary filmmaking. Thirteen years after Tedesco started work on this dream project, *The Wrecking Crew* has won awards and critical plaudits at film festivals worldwide, yet as of early October, it still doesn't have a U.S. distributor in place, nor a deal to eventually release the film on DVD, where it will be a sure-fire winner.

Tedesco, who these days works mainly as a commercial producer but has a long history in various capacities in film, says that *The Wrecking Crew* project began humbly: "Once I decided to do it, I got a couple of 16mm cameras, I put together a small crew of friends and we shot four players from the Wrecking Crew—my father, [bassist] Carol Kaye, [drummer] Hal Blaine and [saxophonist] Plas Johnson—sitting at a round table telling stories. That was our first day of shooting. It came out really well because it sort of felt like they'd just put down their instruments for a few minutes and were talking informally, teasing each other and laughing; they're like a quartet. It was very warm."

Next, Tedesco managed to snag interviews with a few "names" who had been associated with the Wrecking Crew at one time or another, including Cher (who worked as a backup singer on Wrecking Crew dates before she hit the big time and the musicians backed *her* on Sonny & Cher records), Dick Clark and Nancy Sinatra (who was backed by the Crew on her biggest hit, "These Boots Are Made for Walkin'," as well as the Number One smash she recorded with her father, "Jackson"). In hopes of attracting some financing, Tedesco put together a 14-minute reel from those interview sessions, and while it didn't exactly open the money floodgates (he ended up mostly self-financing the project), it did open the doors to further work on the film, and in the end nearly everyone he approached to become involved with *The Wrecking Crew* agreed to do it. Now, scattered across the 90-minute film, which was expertly edited by Claire Scanlon, are interviews with Brian Wilson (the Wrecking Crew played on some of the Beach Boys' best albums), Herb Alpert (Tijuana Brass), Glen Campbell (a Crew guitarist before becoming a popular solo artist backed by the group), songwriter Jimmy Webb, engineers Bones Howe and Larry Levine, and many others. The creative use of stock footage from the '60s and a slew of great photographs of the musicians at work at various studios around town (there is almost no existing film footage of the Crew in action) help place the story in a lively historical context.

The film notes that the Wrecking Crew—a sobriquet they were given years after their heyday—was not a fixed group of players, but rather an amorphous collection of a couple dozen studio pros who, over the years, became the first-call players on a staggering number of records made in L.A. There were *several* different drummers, guitarists, bassists, keyboardists and horn players who could rightfully claim to be part of the Wrecking Crew's proud legacy, and Tedesco is careful to shine the light on many of them (and list *all* of them in the credits). At the same time, he uses the stories of his original foursome—Tommy Tedesco, Carol Kaye, Hal Blaine and Plas Johnson—to tell the saga of what life was like for hard-working studio cats in that exciting era. We hear in detail what went into Phil Spector's Wall

Brian Wilson and Wrecking Crew drummer Hal Blaine confer in the studio.

World Radio History

of Sound and Brian Wilson's fabulously eccentric productions. We see Carol Kaye demonstrating the unusual bass line she created for "Good Vibrations," and later sit in with Joe Osborn as he plucks the sinewy bass part for the Fifth Dimension's "Aquarius." There's lots of "inside" stuff like that throughout the film, but it's never boring or pedantic.

Of course, at the heart of *The Wrecking Crew* is the music, and obtaining the rights for 131 cues was no easy task. "That definitely was the biggest struggle," Tedesco says. "Everyone said, 'It's not going to happen; it's *impossible*.' Because if you licensed these songs for a regular feature film, it would be prohibitive. People said, 'Why don't you get it down to 20 songs?' And I said, 'You *can't*. The whole point is how *much* they did, from Sinatra to The Chipmunks to The Mamas & The Papas to the Beach Boys, and so on. They went from date to date to date for *years* and I wanted the music to be wall to wall, no pun intended.

"Once I got a cut together, if there was a problem with someone not wanting to sign off, I might make a QuickTime of that scene and send it off to whoever the publisher was, and say,

Director Denny Tedesco

'C'mon, help me out! Please!' 'All right, fine.'

"In the end, I was very fortunate. It took a lot of work, but almost everyone came through. If it wasn't for the record companies and publishers coming together, this never would have happened." III

For more, check out www.wreckingcrew.tv.

—*FROM PAGE 83*

scene where, say, Lady Sarah Ashley is inside her bedroom, she can hear noises outside, but the dominant sound is [the aborigine known as] King George chanting, and there's also the night sound of the crickets and the feeling that the world is vast and broad and she's a tiny person in this huge space."

When the interviews for this article were conducted at the end of September, there was still a long way to go in the post process, including layering in David Hirschfelder's score—which Nelson describes as "a mixture of classical orchestral and a really interesting weaving of aboriginal music"—and the overall final mix. But it was clear from speaking to some of the sound principals that Luhrmann has achieved something special with this thoughtful and involving paean to his native land.

Nelson says, "There's something about this film that is refreshingly nostalgic—I don't like the word 'throw-back' because it's not that. But it's great storytelling in the classic sense. It's a way of taking you to a place you normally wouldn't experience. It accomplishes what the great movies have always done." III

Heavy Audio Command and Control

Steinberg Cubase 4.5 Music Production Software

Having released its MR816 CSX/X I/O box and CC121 controller, Steinberg (www.steinberg.net) has stepped up with a new higher-powered version of its Cubase software, which promises better integration with the new hardware units. Version 4.5 ($779.99) works uniquely with the MR816 CSX/X, and its True Integrated Monitoring offers real-time, no-latency mixes with VST3 DSP FX from different audio input sources within Cubase. The software also addresses the MR816's onboard DSP chip, which includes Yamaha's REV-X reverb and the Sweet Spot Morphing channel strip plug-in. Controlling Cubase from the CC121 simply requires moving the mouse over a parameter, after which the AI knob picks up the controls without the need to click, hold or make other moves. Also standard is improved support of Yamaha hardware, including the Motif-Rack XS/XS6/7/8, with integration through FireWire; any Yamaha Motif unit connected via the computer is automatically configured and ready to use as an external VST3 instrument.

Cubase 4.5 also introduces VST Sound™, an improved universal media-management format that's a fundamental part of Steinberg's VST3 standard. This lets you manage any sound from any software or hardware synth under a single, unified user interface and search sounds by category, type, style and more. Using VST Sound to manage VST effects, engineers can organize and categorize presets into an effects library.

Cubase 4.5 comes with 45 new instruments for HALion One, including the S90ES Grand by Yamaha. Other extras are drums, basses, guitars and other instruments by Sonic Reality, and 250 loops by Big Fish Audio. The update also offers full compatibility with Steinberg's entry-level Sequel 2 music creation and performance software, as well as the new Rock, Hip-Hop and Industrial Content Sets.

Version 4.5 is available now as a download for all U.S. registered Cubase 4 and Cubase Studio 4 customers from www.steinbergupgrades.com.

Portable I/O Box Can Take a Pounding

Edirol UA-25EX Audio Interface

With a chassis constructed of high-grade aluminum, the Edirol (www.edirol.com) UA-25EX ($279) can withstand hard impacts and is shielded against high-frequency interference from other electrical components. It operates up to 24-bit/96kHz and has twin phantom-power mic preamps fed by a pair of Neutrik combo XLR/TRS jacks, a hi-Z port for DI apps, S/PDIF optical I/O and MIDI I/O. Features include an onboard analog compressor/limiter with variable attack and threshold control, and Cakewalk's Production Plus Pack, a software bundle comprising SONAR LE, Project 5 LE and Dimension LE. It ships with the latest WDM and ASIO 2 drivers for Windows XP and Vista (both 32-bit and 64-bit versions available), and Core Audio (universal binary) drivers for Mac OS X.

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Speed and Good Looks, Too

OWC Mercury **On-the-Go 320GB 7,200 rpm Drive**

Hard drive speed affordability and portability seldom come in the same package—until now. The desktop, bus-powered 2.5-inch Mercury On-the-Go ($239) drive from OWC (www.otherworldcomputing.com) offers models available with USB 2, USB 2/eSATA, FireWire 400/USB 2 and FireWire 800-400/USB 2 interfaces. All combine the latest Hitachi 7K320 mechanism with OWC's custom bridge interfaces, and include full retail versions of the Prosoft DataBackup III for OS X and NovaStor NovaBackup for Windows. The drives include a carrying case, connecting cables and one-year warranty, and are compatible with Mac OS 8.5 through 9.2.x; Mac OS X (including the latest OS 10.5.x); and Windows 98SE, ME, 2000, XP and Vista.

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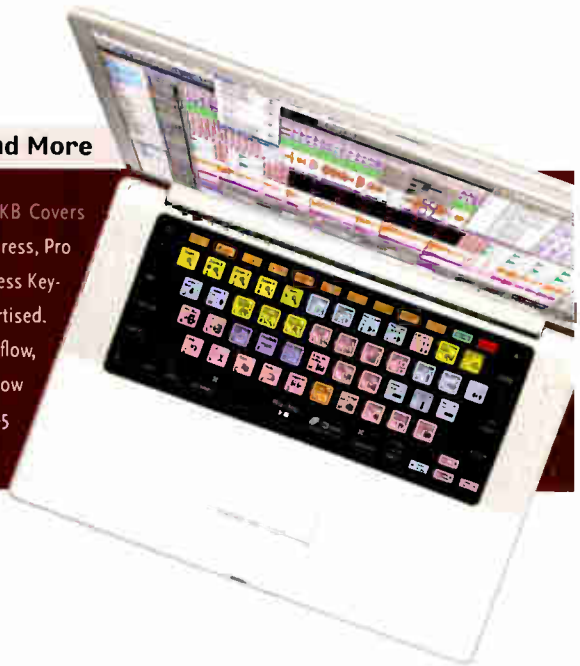

These ultrathin, comfortable keyboard covers for laptop and desktop applications from KB Covers (www.kbcovers.com) instantly convert your Apple Keyboard for custom use with Logic Pro/Express, Pro Tools, Final Cut, Sibelius and more. Molded to fit the 109-key Apple Keyboard and Apple Wireless Keyboard, we tried one of these durable, 0.5mm silicone covers at *Mix* and they delivered as advertised. They're comfortable, easy to type on and made to last. The covers promise accelerated workflow, making it easier to write, record, edit and mix. Keyboard shortcuts are color-coded so users know when to use modifier keys like Shift/Command/Option to get the desired result. Prices: $29.95 (MacBook/MacBook Air and MacBook Pro) or $39.95 for desktop keyboards.

Remote Possibilities

Bricasti Design **Model 10 Controller**

For remotely controlling up to eight Bricasti (www.bricasti.com) M7 stereo reverb processors, the Model 10 connects to the first M7 via an included 30-foot, 9-pin RS-422 serial cable. A simple loop-thru connects additional M7s in a daisy-chain, supplying DC power via the serial cable; no external supplies are required for installations of shorter than 100 feet. Eight meters display levels for four stereo audio sources, simultaneously metering four connected Model 7s. A dedicated Setup key provides access to the M10's local memory, configurations and settings.

Gimme Some Space

D16 Group **Fazortan Retro Phaser**

The Fazortan controllable space phaser from D16 Group (www.d16.pl) emulates '70s-era analog allpass phase shifters. It features a GUI offering full control over two LFOs, endless contour diversity, consecutive allpass stages and a feedback knob. Other features include presets organized into groups, a MIDI Learn function and 64-bit internal processing. Fazortan is available in VST and Audio Units formats for both PC and Mac, and supports Windows 2000/XP or Mac OS 10.4.3 or later. Price: 29 Euros (Website only; conversion to USD made at time of purchase).

World Radio History

By Michael Cooper

Solid State Logic Mynx

Tabletop Unit Offers Big Console Processors and Pre's

Solid State Logic's new Mynx puts the manufacturer's SuperAnalogue processing on fire sale. It's a tabletop, powered chassis that accommodates up to two X-Rack modules, but without Total Recall capability. For this review, I tested the Mynx with the Channel EQ and VHD Input single-slot modules, and the two-slot Stereo Buss Compressor module installed in turn. Other X-Rack modules that the Mynx can accept include the Mic Pre, Dynamics, Eight Channel Input, Four Channel Input and the Master Buss. The latter provides mixing and monitoring facilities.

VHD Input Module

SSL provides the necessary screws and hex wrenches to install modules quickly and easily. An external power supply connects to the Mynx via a cable terminated with a multipin connector. The Mynx has no on/off power switch, a minor disappointment. While some modules require a D-Sub terminated snake with XLR fans, all of the modules I reviewed use standard balanced XLR connections.

The first module tested offered the VHD (Variable Harmonic Drive™) mic preamp based on the Duality console and a separate switch-selectable line-input signal path. Mic input and line input and output connectors are on the module's rear panel.

All rotary controls on the module are continuously variable. The rotary VHD control adds second harmonic distortion (similar to what tube circuits produce) to the mic-input signal when set fully counter-clockwise. As the knob is turned clockwise, the distortion increases and becomes progressively dominated by third harmonic distortion, producing the trashy sound of transistors overloading when the knob is at full-clockwise position.

Only the mic-input stage can access the VHD section, but line signals can be accommodated by routing them to the module's mic-input connector and activating a high-impedance switch. Switches for +48-volt phantom power and a 20dB pad serve the mic section only. A phase switch serves either mic or line input. Other features include defeatable and independent high- and lowpass filters and the highly idiosyncratic "Listen Mic" Compressor originally from SSL's E Series console.

Channel EQ Module

This module provides four bands of EQ, with continuously variable rotary controls for boost/cut and frequency selection. The top and bottom bands can be switched to provide either high and low shelving filters, respectively, or bell-curve filters with fixed Q. The two middle bands are fully parametric, having rotary Q controls that range continuously in value from about 0.5 to 2.5.

Users can select either SSL's E Type or G Type equalization for all bands. E Type gives a more exacting response for shelving filters and a constant frequency bandwidth at different gain settings for peaking filters. G Type EQ produces a little resonant undershoot (when boosting) or overshoot (when cutting) at a shelving filter's corner frequency and a narrowing frequency bandwidth with increasing gain applied to bell-curve filters.

Adjacent bands provide generous overlap in their frequency ranges. Mynx provides 16.5 or 20 dB of boost/cut for each band, depending on the band selected, and all gain controls are detented at unity gain. Although a global bypass switch is provided, the module lacks individual band-bypass switches and a global output gain control.

The Mynx accepts two X-Rack modules but doesn't support Total Recall.

Stereo Buss Compressor Module

This beauty is based on the bus compressor in the XL 9000 K Series console. Separate left- and right-channel line and key inputs and line outputs are provided along with -10/+4dB switches on the module's rear panel. Either or both of the key inputs can be used to insert an equalizer, for example, to condition the sidechain for de-essing applications, or to insert the mult of a track to trigger ducking action. (Depressing a Key switch on the front panel sends the conditioning signal to the sidechain.) Alternatively, two or more Stereo Buss Compressor modules may be linked by daisy-chaining line outputs to key inputs and depressing Link switches on the modules' front panels. Whether using the key or link function, the loudest signal always determines the compressors' action.

Strangely, the key and link switches are untitled. Joining them on the front panel are five rotary controls: continuously variable threshold and makeup-gain pots and stepped attack, release and ratio controls. Stepped controls have six settings each. Ratios range between 1.5:1 and 10:1, while attack settings go from 0.1 to 30 ms. Manual release values are between 0.1 and 1.6 seconds; alternatively, you can choose an Auto setting for program-dependent release times.

PRODUCT SUMMARY

COMPANY: SOLID STATE LOGIC
WEB: www.solidstatelogic.com
PRODUCT: Mynx
PRICE: Mynx, $595; Channel EQ, $975; VHD Input, $1,055; Stereo Buss Compressor, $2,595; Mic Pre, $975; Dynamics, $975; Eight Channel Input, $975; Four Channel Input, $1,055; Master Buss, $1,255

PROS: Superb sound quality. Modular and portable. Wide range of modules available. Reasonably priced.

CONS: No Total Recall capability. No power switch. Not rackmountable. XLR input connectors don't latch. Channel EQ module has no bypass switches for individual bands.

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Thankfully, a bypass switch is provided, which makes all controls—including makeup gain—inactive.

The Tracks of My Gear

The VHD Input module made everything it touched sound golden. Female lead vocals miked with a Lawson L47MP tube mic sounded stellar with the VHD circuit disabled. Warmth, detail, clarity, depth and perfect spectral balance—it had it all. On amplified electric guitar recorded with a Royer R-122 ribbon mic, the VHD circuit wowed me by adding a rich, velvety texture. And on a Strat recorded via DI (plugged into an upstream Demeter Tube Direct Box), a little VHD processing added sweet sparkle.

Line signals also benefited from VHD processing. Pre-recorded kick, snare and bass tracks took on more size and luster. When processing a drum room mic's signal with the Listen Mic Compressor, I got an appropriately trashy sound in which ambience was increased, and lows and highs were rolled off.

Having a choice of E and G Type equalization made tweaking various tracks with the Channel EQ module a real treat. I generally preferred the G Type EQ on kick and snare, as it made the kick sound a hair more punchy and made the snare drum pop a tad more than with E Type EQ applied.

The E Type EQ, on the other hand, was my fave on electric bass guitar. The lack of overshoot on low-shelving boost lent an even tone across all notes and sounded absolutely huge. This EQ reaches deep.

My Favorite Squeeze

Simply put, the Stereo Buss Compressor is hands down the best stereo compressor I've heard on strummed acoustic guitar. Dialing in a 10:1 ratio, 30ms attack, and 0.8sec release for 8dB gain reduction on peaks, the sound was absolutely stunning—and unlike anything I could achieve using other gear. The instrument sounded huge and very tightly controlled, with no unwieldy blooming of low frequencies.

On banjo (miked at the bridge with a Royer R-122 and on the neck with a condenser mic), a 5:1 ratio and fast release time produced stellar results. The compressor evened out the level of all notes, making the instrument sit much better in the mix. It also mellowed the glassy bite of the condenser mic.

The Stereo Buss Compressor also sounded phenomenal on a drum-kit subgroup. Eight to 15 dB of gain reduction produced spanked, slammin' drums with a big but tight and extended low end and warm and scintillating highs.

My only complaint with this module is that the name of each control is printed below its knob, making it difficult to see.

Wow!

A fully loaded Mynx isn't exactly inexpensive, but it puts SuperAnalogue processing within reach of all but the most modest budgets. That processing is the sound heard on hit records—which makes the Mynx a certifiable hit. III

Michael Cooper has written more than 300 articles about pro audio over the past 20 years.

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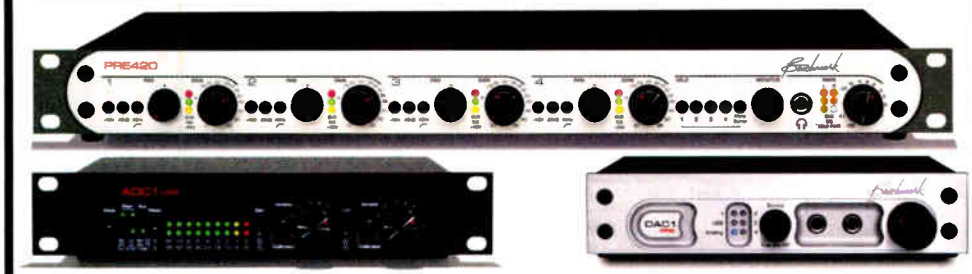

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By Steve La Cerra

Chameleon Labs 7720 Stereo Compressor

Mid-Priced Dynamic Controller for Clean, VCA-Based Leveling

In terms of pricing, the current market for outboard compressors is rather polarized. There are plenty of single- and dual-channel units priced above $1,200 and below $400, but few models priced in-between these points. Addressing this void is Chameleon Labs' 7720 stereo compressor, designed to provide a clean audio path by using a minimal number of electronic components and employing VCAs manufactured by THAT Corp.

The 7720 is housed in a single-rackspace chassis. Given its price, the 7720's construction is better than you'd expect. The front panel is almost ¼-inch thick and all of the knobs and switches have a very solid feel. Under the hood, the 7720 features a circuit board that's well laid out, with socketed 5534, TL072 and THAT 2180LA ICs, and 1-percent metal film resistors for low noise.

The front panel offers one set of controls for both channels; the rear panel sports left/right I/O and sidechain input.

Out Front and Back

Front panel controls include meter select, highpass filter, threshold, attack, release, ratio and output gain. Its single VU meter can be switched to show left-or right-channel input level, left- or right-channel output level, or amount of gain reduction. The highpass filter has 60/90/130/200/440Hz settings and is applied to the compression detection circuit rather than the audio path. Its purpose is to reduce the detection circuit's sensitivity to low frequencies so that pumping can be avoided when processing signals with a large amount of LF content. Also on the front panel are controls for power, compression in/out and sidechain-engage switches with respective LED indicators.

The rear panel has balanced XLR I/Os for each channel, plus a single XLR sidechain input that keys both channels. Also present are two power supply inputs: One is used with the included "line lump" transformer; the other accepts Chameleon Labs' CPS-1 dual-rackmount power supply ($110), which can power two 7720s or a 7720 and Chameleon's 7602 mic pre/EQ. For my tests I used the supplied line lump AC/DC adapter, which—other than posing the same minor annoyance as any similar style power supply—worked fine.

Flavorful Crunching

The 7720 is a stereo compressor in the true sense of the term. If you inject discrete signals into the left and right channels, a strong signal in one channel can trigger compression in the other channel. With one set of controls governing both channels, there's no dual-mono mode, although one side of the 7720 can be used on a mono signal.

I used the 7720 in a variety of live and studio situations. First up was lead vocal. The 7720 easily tamed the dynamics of difficult lead vocalists without making its presence known under most circumstances. With careful attention to settings, I achieved 10 dB of transparent gain reduction by choosing one of the slower attack settings (e.g., 3 ms) and one of the gentler ratios (1.5:1 or 2:1). When processing any source, selecting the 7720's fastest attack setting can make compression audible, but if the threshold is set just right, you can slam a lead vocal without making it sound compressed. It is also possible to crush the life out of any signal by setting the threshold very low and the ratio high—in which case, subtlety goes out the window.

Next up was a low-frequency synth bass that formed the foundation of a pop/dance tune, and contained a bit of an upper-midrange attack component that at times distracted from the lead vocal. Using a 4:1 ratio and attack, and 0.3ms release settings, the 7720 reined the sound into the mix, making the synth track louder so that it could rhythmically drive the mix without getting in the way of the other instruments. I didn't notice that the synth was being compressed nor could I hear any tonal coloration from the 7720. The highpass filter was a critical part of the 7720's success in this application. Without it, the low notes pulled down the synth's high-frequency component. Setting the filter to 200 or 440 Hz solved this problem.

On a crunchy-sounding guitar, the 7720 was smooth and subtle, bringing out the sustain of an arpeggiated part. I set the unit to a 2:1 ratio, attack at 0.1 ms, release on "auto" and threshold almost all the way down. Even with gain reduc-

PRODUCT SUMMARY

COMPANY: CHAMELEON LABS
WEB: www.chameleonlabs.com
PRODUCT: 7720 stereo compressor
PRICE: $679 each

PROS: Sounds great, solid construction, affordably priced.

CONS: One set of compression controls for both channels hinders operation in dual-mono. Line-lump power supply.

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tion in the vicinity of 10 to 20 dB, I could not hear any side effects. Raising the ratio to 10:1 resulted in the guitar "popping" on the attack, but at no time did the guitar become dull—as is often the case using other compressors. In one instance, I triggered the sidechain from a lead vocal to duck the guitars. Whenever the lead vocal entered, the 7720 compressed the guitars a bit, dropping their level and making room for the lead vocal.

Goin' Stereo

On stereo drum overheads, the 7720 is capable of providing two distinct flavors. First I set the ratio at 10:1, attack at 0.1 ms and the release at 0.3 ms. With the threshold cranked down and the highpass at 400 Hz, the 7720 kept the level of the kit consistent and smooth without crushing the cymbals whenever the kick drum hit. But if you're looking to achieve a heavy pumping effect, simply bring the highpass filter down to about 60 Hz (or off) and the kick hits will trigger compression.

The highpass filter proved invaluable when using the 7720 on the stereo bus. In one instance, just a few dB of compression caused a lead vocal to dip too low in the mix on heavy kick drum and bass hits. Setting the highpass filter to 200 Hz returned consistency to the vocal and made the compression unnoticeable. In such cases, the HPF almost behaves like a crossover control, letting you fine-tune the amount of pumping caused by the signal's LF content.

Used across my mixes where the chorus was thick with instrumentation, the 7720 did not get muddy or distorted. When set to provide 6 to 10 dB of gain reduction, the 7720 can provide that "radio-ready" vibe: With the attack at its fastest and the highpass filter disengaged, you can easily create FM/Top 40 radio–type of limiting (which I don't care for). And as much I hate to use the word, adding the 7720 to the stereo bus results in increased "punch."

Versatile, Affordable Unit

Chameleon Labs' 7720 is well-made and easy to use, and it fills a niche in a price range that does not otherwise have a lot to offer. The 7720 has the ability to create both transparent and effect-type compression. It sounds great and is absolutely worth a listen. ■

In addition to being Mix's sound reinforcement editor, Steve La Cerra is the front-of-house engineer for Blue Öyster Cult.

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World Radio History

By Barry Rudolph

Tube-Tech RM8 Signal Processing Rack

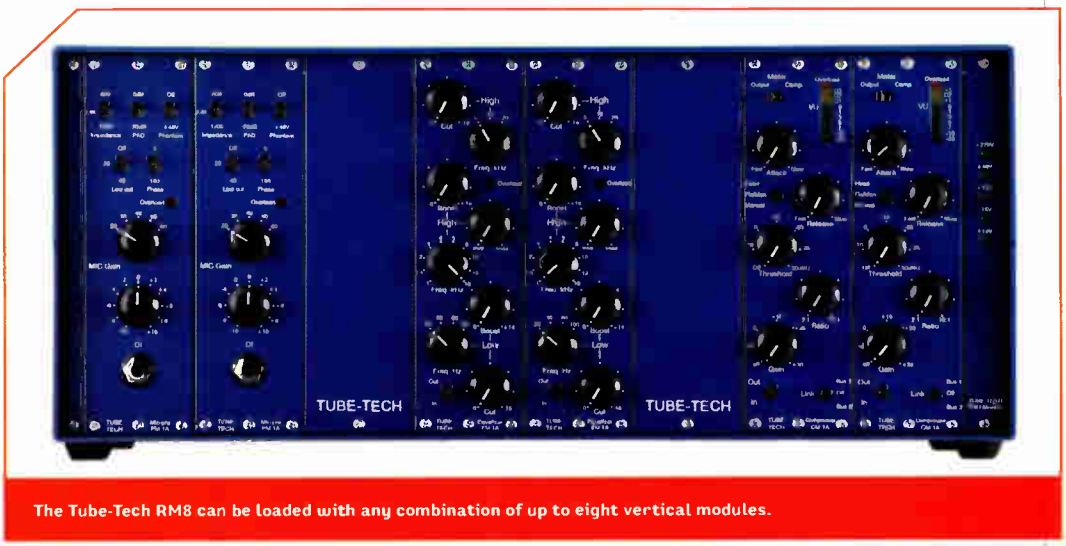
Signature Tube Outboard Gear and Preamp Go Modular

Most audio pros are familiar with the look of Tube-Tech's blue faceplates and large vintage-style knobs. The company has now released the RM8, a tabletop frame (with optional rack-mounts) that holds up to eight new vertical module versions of its all-tube MP 1A mic preamp, PE 1C program equalizer and CL 1B optical compressor units.

A common power supply, smaller knobs and toggle switches allow these processors to be miniaturized—but not compromised—in features and performance. All modules use the same tubes, circuitry design and input/output transformers as their stand-alone counterparts, but are renamed as the PM 1A preamp, EM 1A equalizer and CM 1A compressor to differentiate them from the originals.

sides are shielded and protected from electrical hazard and mate to the rear backplate via DB25 connectors. Audio I/O connections to the RM8's rear panel use two DB25 jacks wired in parallel with two rows of eight XLRs each.

and two each of the CM 1A and EM 1A modules. I was pleased to discover these modules worked and sounded identical to the larger stand-alone versions. The rear panel XLRs are perfect for wiring up a signal chain with a few short cables. As each module will drive levels up to +26 dBU



The Tube-Tech RM8 can be loaded with any combination of up to eight vertical modules.

Built Tough

The RM8's frame is built like a tank of electroplated steel with aluminum top/bottom covers. The RM8 contains a sealed power supply to generate the +270, +48, +15, -15 and +12VDC regulated voltages necessary to run the tube modules. A separate front panel module monitors power supply status. The processor modules' tubes are mounted in ceramic tube sockets; their printed circuit

PRODUCT SUMMARY

COMPANY: TUBE-TECH
WEB: www.tube-tech.com
PRODUCT: RM8 frame; PM 1A microphone preamp, EM 1A equalizer; CM 1A optical compressor
PRICE: RM8, $2,200; modules, $2,000 each

PROS: Vertical units are considerably cheaper than rack units, while offering a quality build and identical sound to the originals.

CONS: No trim pot for calibrating meters; the EM 1A's midrange frequencies are boost-only.

Vertical Doppelgangers

As stated, the three modules are the same in design/function as the originals. The PM 1A preamp has a 20 to 60dB coarse-gain rotary switch (10dB steps) and ±10dB fine-stepped rotary (2dB steps) for repeatable setups. Up to 70 dB of gain is available to drive 600-ohm loads with up to +26 dBu of output level at 1-percent THD. Also present are switches for polarity ("phase"), +48-volt phantom power, -20dB pad and a highpass filter with 20- or 40Hz corner frequency choices.

The EM 1A is a single-channel, passive equalizer followed by a tube makeup amp. It has a low-frequency shelving filter with 20/30/60/100Hz corner frequency choices and simultaneous boost (+14 dB) and cut (-18 dB). Next is a mid/high-frequency boost-only section (up to +18 dB depending on Q setting) with 10 frequency points and variable 0.5 to 1.8 Q.

Impressive in the Studio

I tested the RM8 with a single PM 1A preamp

into 600 ohms separately, one "undocumented" feature is that you can use the DB25 connections to "tap" into anywhere along the signal chain.

My first session with the RM8 involved recording a bass guitar direct for a rock band. I tried both a Tobias bass with Bartolini pickups (active pickups requiring 30dB gain) and an old Music Man Sting Ray (hot passive pickups requiring 24dB gain) plugged into the PM 1A's DI input. Using XLR patch cables, I connected the output of the PM 1A to the input of the EM 1A EQ—its output then fed the CM 1A compressor.

Both instruments that were sent through the RM8 chain produced a fat, direct-recorded bass sound. A lot of rock bassists play very hard, causing the midrange and highs of the instrument to overwhelm whatever low-frequency content is present. And just like an old Pultec, the EM 1A's ability to boost and cut low frequencies lets you create unique and great-sounding equalization scenarios. I boosted as much as +12 dB at 100 Hz and cut at the same time up to -18 dB. This

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contorted EQ curve probably looked technically terrible, but it sounded massive.

The CM 1A put a lid on the craziness, with compression as strict (or not) as I wanted. Because my bass player was very steady with his nondynamic technique—just flat-out loud all the time—he sounded best when I used a 3:1 ratio, the fastest attack, medium release and about 2 to 4dB maximum gain reduction.

I used the same signal chain for acoustic guitar and lead vocals. Recording a mahogany Martin D-15 acoustic, I used a Heil PR40 dynamic mic. The PR40 has 600-ohm impedance, so I selected that input impedance on the PM 1A. It's interesting to hear the different tonality changes available by changing the input impedance—the guitar sounded brighter at 2,400 ohms. At 600 ohms, I used 50 dB of gain and added +3 dB at 3 kHz; broad Q; and +2 dB at 100 Hz. The PM 1A's low roll-off setting took some of the subsonic body "bump" out. The CM 1A was set to 0dB threshold and 3:1 ratio. For a dynamic mic, this setup produced a very present acoustic guitar sound that worked great for hard rhythm playing.

Next I tried using the two EM 1As followed by the two CM 1As as a stereo mix processor. As a program equalizer, the EM 1A is very gentle and subtle—a "tone" control that works well for warming up mastering recordings that don't require intense EQ surgery. You cannot make an awful sound with it, but the overload LED immediately lets you know you've exceeded the +26dBU output. Boosting and cutting at the same bass frequency can bring the kick out over the bass instrument or vice versa; on a particularly strident-sounding demo mix, I felt its inability to cut the midrange frequencies.

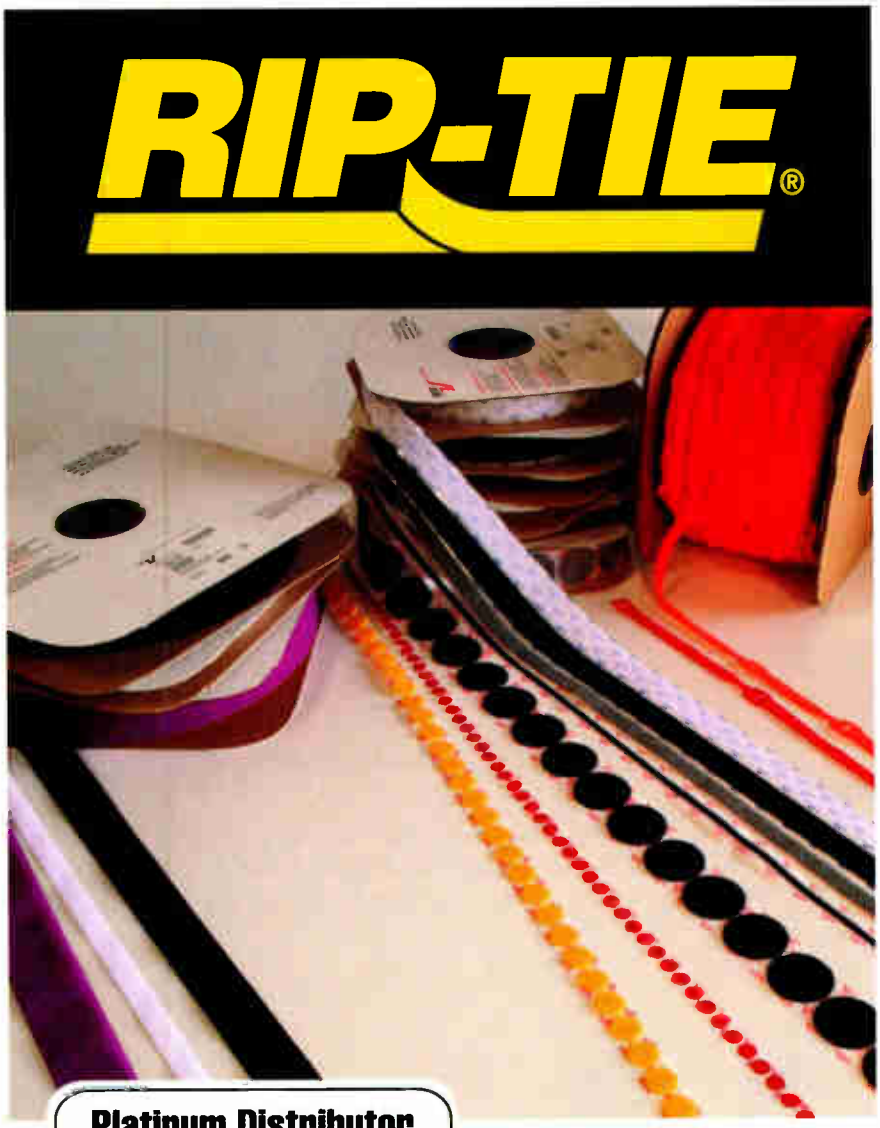
For bus compression, the CM 1A is so smooth that, on first listen, it is hard to hear it working. I found moderate control with superhigh fidelity using the CM 1A at up to 4:1 ratios. Pumping tracks for maximum loudness isn't the CM 1A's forte: The CM 1A will bring up the average level and curb slight peaks, but you'll need to follow it with a peak limiter if you're looking for Major Squeeze and his faithful companion, Captain Hard Clamp.

You can stereo-intercouple two CM 1As by switching them both to sidechain bus. The CM 1A module that's compressing the most drives the other, but the ratio, attack and release must be set identically on each compressor. I would like to see a recessed front panel trim pot for zeroing the GR meters together, especially for stereo operation. They are adjustable, but the trim pots are internal on the circuit boards.

Svelte and Solid

The RM8 is a great way to get into the polished, all-tube sound of the Tube-Tech line in a compact and modern way. Just like the stand-alone units, all the modules performed superbly and produced dependable results. The PM 1A preamp is very quiet and clean: I could hear down to the noise floor of my room—A/C, computer fans across the room, etc. The EM 1A can provide the right touch while recording—just enough EQ to get the vocals and instruments shaped to fit the track. The CM 1A at the end of the chain controls level without being too noticeable, except when controlling an occasional errant loud peak. All this plus considerable cost savings over the original units make the RM8 and accompanying modules a winning proposition. III

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



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~ Will Lee

(George Benson, Dave Matthews, Bob James, Billy Joel, Spyro Gyra)

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~ Tommy Emmanuel

(Certified Guitar Player, Two time Grammy nominee)

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~ Dave Natale

(The Rolling Stones, Fleetwood Mac, John Mellancamp, Tina Turner)

"My JDV DI is crystal clear and easily configures to the most elaborate set-ups. I love it and use it every day!"

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(Steve Vai, Mr. Big, David Lee Roth, Greg Howe, Paul Gilbert)

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~ Rob 'Cubby' Colby

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~ Paul Boothroyd

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World Radio History

By Tony Nunes

Prism Sound Orpheus FireWire Interface

High-End DAW I/O with Solid Sound, Preamps, Converters and Mixer

Prism Sound has been making high-performance, no-compromise pro audio production and test/measurement gear for 21 years. The company's latest offering is Orpheus—a multichannel Mac/Windows AD/DA FireWire interface with mic preamps and built-in software mixer that can perform as a DAW front-end or as a stand-alone converter or mic preamp. While this genre of product is nothing new, Prism Sound sought to bring its pedigree and vision into the world of the "all-in-a-box" FireWire interface.

Orpheus delivers eight AD/DA converters, four mic preamps, two instrument inputs, MIDI I/O, word clock I/O and other expected fare. However, what sets Orpheus apart from standard DAW interfaces are its interesting extras, such as RIAA equalization on inputs 1/2, an M/S decoder, an excellent software interface and high-end features that are found in Prism's other products.

Orpheus' front panel with assignable rotary control, two headphone outputs and meter panel. The rear panel is packed with I/O including mic/line, S/PDIF/AES, word clock, FireWire and Lightpipe.

In the Beginning

I tested Orpheus using Cakewalk SONAR Version 7.02 on a 32-bit Windows Vista machine powered by a 3GHz Intel Core Extreme CPU Q6850 with 4 GB of RAM, and with Apple Logic Pro V. 8.0.2 on a MacBook 2.16 GHz Intel Core 2 Duo with 1 GB RAM running OS X 10.5.4. Initial setup was easy; thanks to Orpheus' latest audio driver/control panel, V. 1.04, ASIO and WDM drivers communicate with Windows XP or Vista 32-bit systems, while OSX 10.4 or later interfaces directly with Core Audio. Once configured, the settings are stored within nonvolatile memory, which allows Orpheus to operate independently of the host computer.

Twin FireWire 400 ports provide host connectivity and allow you to daisy-chain up to six units within a 48kHz sample rate (three units at 96 kHz and one unit at 192 kHz). Digital connectivity is via software-selectable coaxial RCA and optical Toslink connectors. The coaxial I/O is capable of 2-channel S/PDIF audio from 44.1 to 192k Hz and AES3 (AES/EBU) format using the supplied RCA-XLR adapter. The optical port offers 2-channel S/PDIF, 8-channel ADAT protocol (44.1 to 48 kHz) or 4-channel S/MUX format at 88.2/96kHz rates. Dual channel S/PDIF input and output signals can route through Orpheus' onboard sample-rate converter—a great stand-alone option for up- or down-conversion of sample rates in stereo mixes.

Four combo XLR/TRS jacks handle mic/line inputs for channels 1 to 4, while channels 5 to 8 are TRS (line only). The eight analog outputs are ¼-inch TRS. All have switchable +4dBu/-10dBV sensitivity and accept balanced or unbalanced signals. The preamps feature switchable phantom power, 10- to 65dB gain (adjustable in 1dB steps) and an M/S matrix within the Orpheus Control Panel. Additionally, channels 1/2 have front panel, high-impedance DI inputs and an RIAA de-emphasis filter for turntables.

The front panel has two headphone outs with individual volume pots and a large assignable rotary control that's useful for stereo or surround monitor control. On the metering panel are eight plasma-style meters (switchable to display the eight analog inputs or outputs) and two for the S/PDIF channels.

In Session

I first used Orpheus to record a Fender Jazz Bass patched into the front panel DI. As I adjusted the gain, I noticed the onboard meters provided only a presence-style metering, while the software Control Panel provided numerical results, which are much more accurate. The 24-bit/96kHz SONAR 7 session yielded a recording with clear string definition and a robust low end. Here, I tried Orpheus' Overkiller feature, a progressive limiter switchable across any and all eight inputs (the same used on Prism's ADA-8XR converter). I set the bass gain a little hotter than the previous recording, purposely recording digital overs. The results were as expected, with truncated waveforms and bits of distortion. With the same gain setting, I repeated the next

PRODUCT SUMMARY

COMPANY: PRISM SOUND
WEB: www.prismsound.com
PRODUCT: Orpheus
PRICE: $5,000
SYSTEM REQUIREMENTS: Windows XP and Vista 32-bit, Mac OS X 10.4.11 and later (Intel and PPC)

PROS: Excellent sound quality, excellent, clean mic preamps and DIs, RIAA phono EQ, M/S matrixing.

CONS: Must be connected to a computer to make any changes (e.g., mic pre's).

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The Input Setup Page for Orpheus' FireWire Controller software

take using Overkiller and it worked as promised, protecting against overloads up to a margin of 10 dB. Playback exhibited a big low-end while the slap transients were absorbed and rounded off.

Another SONAR 7 session at 24-bit/192kHz offered sonic bliss but was a bit sketchy in the stability department. Control Panel buffer time was set to 5,000 microseconds (or 5 ms) and latency set to 15 ms. I fed a SONAR 7 virtual instrument, Session Drummer 2, to Orpheus' Control Panel along with an acoustic guitar miked with an AKG 451E that I patched in. Working within the Control Panel, I engaged phantom power and an 80Hz highpass filter. I had a cue mix up in no time but randomly experienced a loss of communication between the Orpheus and SONAR. To fix this, I simply saved the session and re-launched the DAW. The tracks quickly revealed the combination of the 451E, Orpheus' mic preamps and SONAR, yielding an excellent recording.

The acoustic guitar sounds naturally sweet in the midrange around 1 to 4k Hz, and the Orpheus mirrored its sound perfectly. The tracks represented the guitar's pick attack and its incredibly open top-end very well. The recording did produce a few digital snats, but another overdub using an increased latency time of 25 ms gave me a glitch-free recording. Because Orpheus' mixes are established within its hardware and zero latency, the cue mix felt tight and sounded great, even with increased software latency settings.

A later mixdown session involved a Pro Tools HD 7.4 system feeding an SSL 4056G+ desk. The Pro Tools HD system used three Apogee Rosetta 800 converters that were clocked off an Apogee Big Ben Master Clock. The SSL's stereo bus, which was placed after its Quad Bus compressor, was patched back into a stereo audio track in Pro Tools for the final print. For com-

Rob Chiarelli
(Ray Charles, Will Smith, Madonna, Janet Jackson)

"A beautiful microphone for vocals and acoustic instruments. It sounds like the C800g for one-third the price. I love the sound of this mic!"

Bryan Carlstrom
(Alice In Chains, Rob Zombie, The Offspring)

The clarity and smoothness was amazing, reminding me of a really good sounding vintage U87.

JZ Microphones

"The mic is a perfect option for anyone looking for a versatile high-end mic that will work well in almost any situation."
Russ Long (Pro Audio Review)

"Black Hole is a great-sounding mic!"

"I'd definitely put this one high on the list."
Cliff Goldmacher (EQ)

"The mic is extremely detailed, which is wonderful for capturing nuances."

"Black Hole delivered everything put in front of it!"

"I was impressed with the BH-1's polar response."
George Petersen (MIX)

www.jzmic.com

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parison, I patched the same mix from the SSL into the Orpheus. This time the Orpheus was connected to a MacBook running Logic 8; both platforms were running at 24-bit/88.2 kHz. I took the two different prints back to my studio, imported them back into Pro Tools HD 7.4, which was interfaced with a Mytek Digital 8x192 AD/DA and compared. On playback, both prints sounded great, revealing only slight differences. The top end on the Orpheus mix (above 12 kHz) was very open, without a hint of harshness or digital smear. The critical midrange sounded excellent on the Orpheus; the snare drum exhibited the biggest difference between the two units. On the mix that was converted on the Rosettas, the snare sound a little dull around the 200-240 Hz region, which wasn't the case with the Orpheus. The bottom snares sounded more pronounced on the Orpheus, due to its more-detailed top-end. The more I listened, the easier it was to pick out the Orpheus mix, including its better depth of field and wider stereo image. I felt that the Orpheus' mix better reflected the final SSL desk mix.

Finally, I compared the Orpheus, a Mytek Digital 8x192 AD/DA and the Rosetta 800/Big Ben combination. I played a stereo mix from an Alesis Masterlink's analog outs into patchbay mults and fed the result directly into all three converters. Other than the converters, the mix's path was all-wire between the units and my ears.

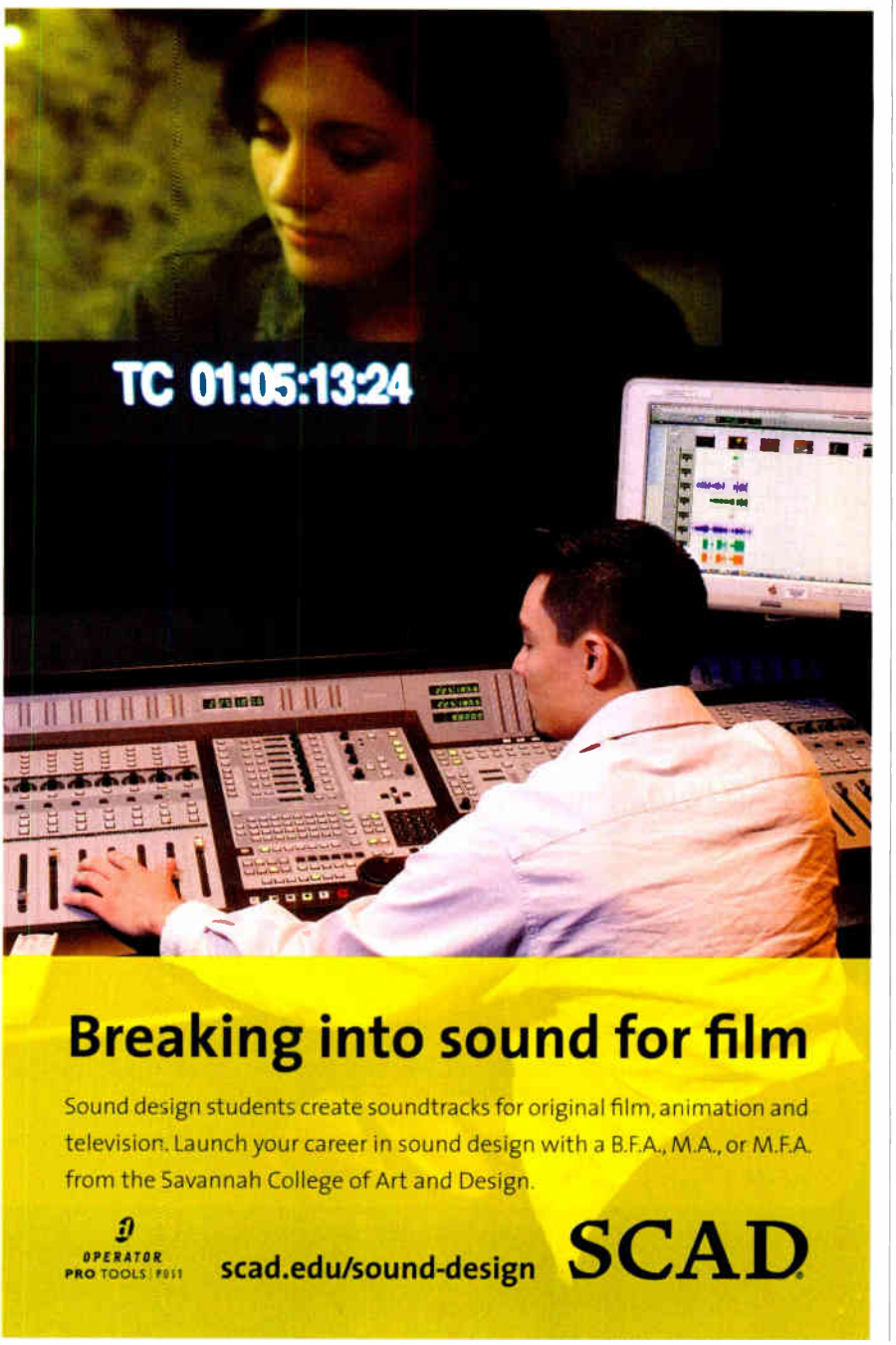
With all three systems clocking at 192 kHz, the Orpheus and the Mytek performed in an incredibly similar manner, with the Orpheus pushing forward just a bit around the 7 to 9kHz range. In both units, the stereo imaging was spot-on. The Rosetta displayed an image shift (narrowing) and a bit of strident honkiness in the midrange along with a bump around 400 Hz. I was interested in how the Orpheus would react with its Overkiller feature in the circuit. With the sample rate at 96 kHz and a slightly hotter mix, the Orpheus produced a slightly louder vocal and guitar compared with the Mytek, with the Rosetta reflecting similar results as the previous 192kHz test. This is certainly a subjective test, and the Mytek and the Orpheus were excellent contenders, but when compared to the original source material, I felt Mytek edged away with the gold.

Greek Myth or Modern Marvel?

Orpheus is a great single-box I/O solution with some nice added extras. The RIAA equalization, Overkiller circuit, M/S matrix and ability to convert sample rates in a stand-alone fashion takes it beyond your average desktop DAW interface. Its build quality is solid and the mic preamps are unbiased and clean—excellent for sources that are highly dynamic and detail-oriented. The software Control Panel is one of the best that I've ever used, with a clean GUI and great metering. Even though I lost communication a couple times with SONAR 7 during a 192kHz session using Vista, the ASIO FireWire drivers performed well, and Logic Audio 8 just loved the Orpheus. The recordings that I made using SONAR 7 and the Orpheus were effortless and sounded excellent.

Although pricey at $5k, Orpheus' extra features and sonic excellence justify the tab. Anyone looking for a high-end FireWire interface should give the Orpheus an audition. III

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



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The big record sound of the 4000 E console - now available as X-Rack modules.

25 years ago, 'big' was in. Big hair, big cars, mobile phones were the size of suitcases, even music came on 12" vinyl discs. Back then, every major studio in the world was equipped with a colossal '4000 E' SSL console - the hit making desk behind hundreds of big records.

Now, the sonic signature of the 4000 E returns in a more affordable (and practical) form. Based on the topology of the original console channel strip, the SL 611E , SSL engineers have crafted EQ and Dynamics modules for our X-Rack and Mynx modular systems that truly capture the sound of this classic desk.

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Tech's Files

By Eddie Ciletti

No Track Left Unrecorded

Or...No School Like the Olde School

An audio education is a partnership between the school and the student. The school provides educational opportunities. The student must be ready to invest time and energy to get educated and not simply waste parental or governmental "fundage."

Reality Check

The success of each class is determined by the instructor's ability to assess students' abilities and move at a pace that keeps the quick learners engaged and the challenged learners from falling too far behind. (In jazz, this is referred to as "improvising.") This is particularly applicable to teaching Studio Maintenance, an introduction to electronics. This class often reveals how little math the students have absorbed and retained from high school as well as how different a mouse is from needle-nosed pliers.

In addition to Studio Maintenance, I alternately teach Analog Technology, a recording class that emphasizes the "discipline of minimalism," starting on 4-track half-inch. These days, analog recording is now so far from the norm that it's become an exotic art form. An added plus, mic preamps built in the electronics class often get used in the "analog" class.

PHOTO: DAVID LEDGARD

Student Tom Colin operates the (very analog) 3M M80 4-track prototype that was rescued from a resale shop.

Needle Drop

Day one in Analog Technology begins with listening to a wide range of recordings, from vinyl sources whenever possible. "The analog sound," in my opinion, was dictated both by the minimalist skills that engineers honed on their way to success, along with the challenge of conforming their mixes to what was do-able on vinyl. Any sonic "thing" can be put anywhere on a CD, but on vinyl, every inch toward the spindle is more of an obstacle course for the stylus to negotiate.

Once acquainted with vintage sensibilities, the class then chooses a path based on available talent. We've recorded pop classics from the 4-track era as well as original material. Nothing says "discipline" like committing a handful of drum mics to one track, after which everyone wants to attribute our cool sounds to analog tape. But those in the control room know it sounded good before playback—you can make a bad recording no matter what the medium is, analog or digital.

New School

It's much too easy to set up as many mics around a drum kit as possible and hope for the best. I explain that these techniques evolved as part of an insurance policy—to accommodate all sorts of drumming styles and worst-case scenarios, like providing sample triggers when all else fails. That's fine as far as it goes, but it doesn't teach young drummers to be consistent and it doesn't teach mic technique. If you are only hearing three mics, each one is critical.

We spend more time tuning and trying different drums and damping tricks, then watch and listen to how differently the drummer plays. After applying "doo-rags" to the toms and snare, the drummer immediately started playing the Beatles' "Come Together," and the band didn't miss a beat, jumping right in. As much as luck favors the prepared, alternative ideas inspire students to be more creative with less. This is how a sonic foundation is built.

Our emphasis is on ensemble playing—including overdubs—all to minimize the number of bounces and tracks. We've employed many of the old tricks, like live overdubs while bouncing, using the lobby for its natural reverb, a tape machine for pre-delay and 100 percent real flanging. The ability to express emotion by controlling a purely analog effect is priceless.

Let the Music Play On

By the second half of the quarter, the students go 24-track, albeit with an undersized mixer of 12 to 16 inputs. Limiting the rhythm tracks to that amount maintains the discipline factor. We then do a stereo submix to make room for the overdubs, forcing the students to think ahead, just like when recording to 4-track. Thanks to excellent players, we've often accomplished this with tracks to spare.

Our most ambitious project was to bring in a local band, Hookers and Blow, that specializes in "music from a more permissive era," classic soul and R&B from the '60s and '70s.

Five or six tracks were used for drums, a mic for each guitar (Cascade Fathead and Sennheiser e609), SM58 on bass, Cascade Fathead on horns, DI for keys (one or two tracks), RCA "Junior" ribbon mic on slide/lap steel guitar, and Nady TCM 1050 in omni for the lobby/reverb. Lead vocals were recorded live for cover versions of Sly Stone's "If You Want Me to Stay" and The Band's "Life Is a Carnival." In four sessions, the rhythm tracks and overdubs amounted to an album's worth a material, driving home the point that our crew had to keep one step ahead of the band on every front—track sheets, session log and last-minute mic changes.

Great players allowed us to get away with fewer mics and tracks, while

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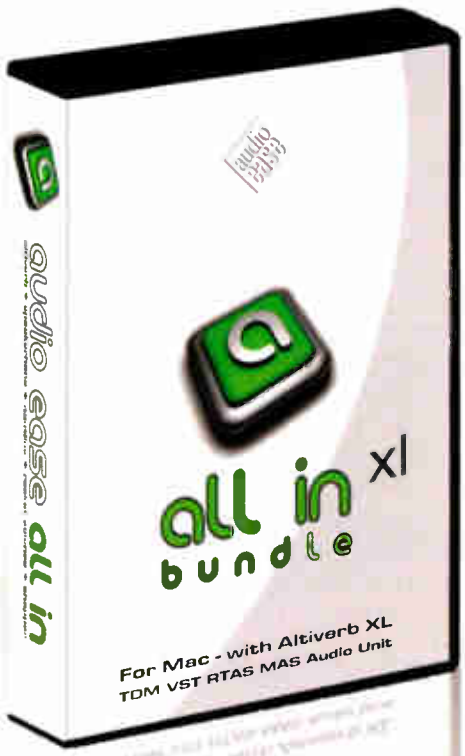
audio ease all in



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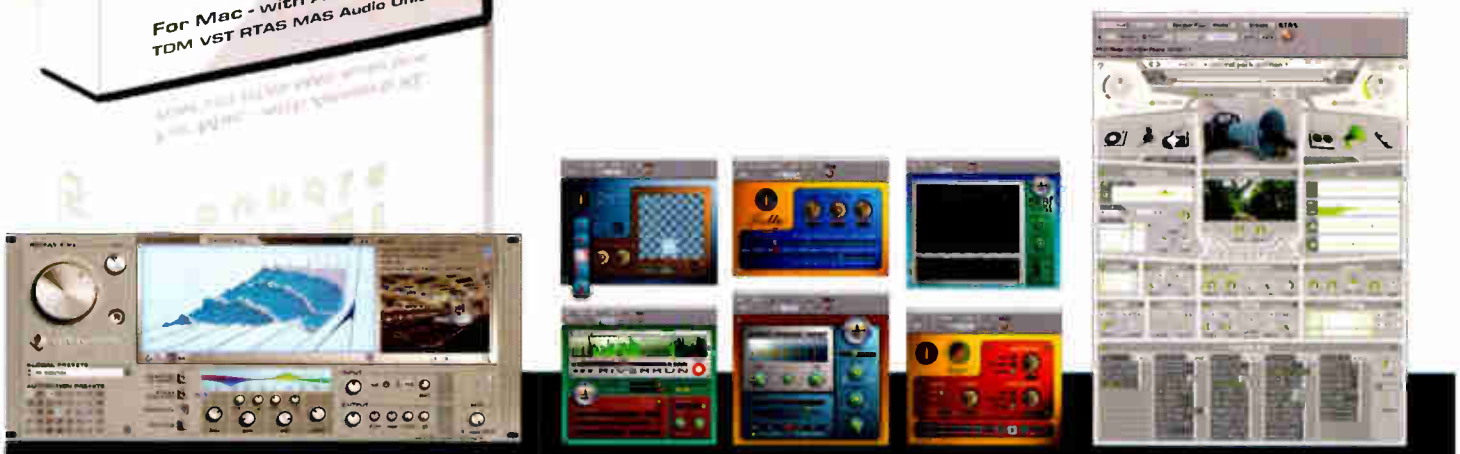

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focusing on mic choice, placement and the *music*. Not worrying about absolute isolation allowed the type of leakage that was common on records into the '70s, which is part of the magic that can't be duplicated after the fact.

Boxed Lunch

Mixing on an analog console without automation requires some rehearsal, but is faster than mixing in the box because feel takes priority over perfection. Understand that I like mixing in the box. I'm not romancing an old flame, but it is a reminder to think outside the box—you gotta get out and stretch those legs, fingers, ears and ideas. The 24-track sessions were digitized for student access and became the most enthusiastically received homework assignment ever. Sometimes homework isn't so bad after all.

Check out some of our class samples. Analog rough mixes are at www.tangible-technology.com/ipr/AE240/winter_08/HnB_songs.html. In the box mixes are at www.tangible-technology.com/music/HnB/Boxed-Lunch.html. ■

Visit Eddie Ciletti: www.tangible-technology.com.

AUDIO SCIENCE

Early Education

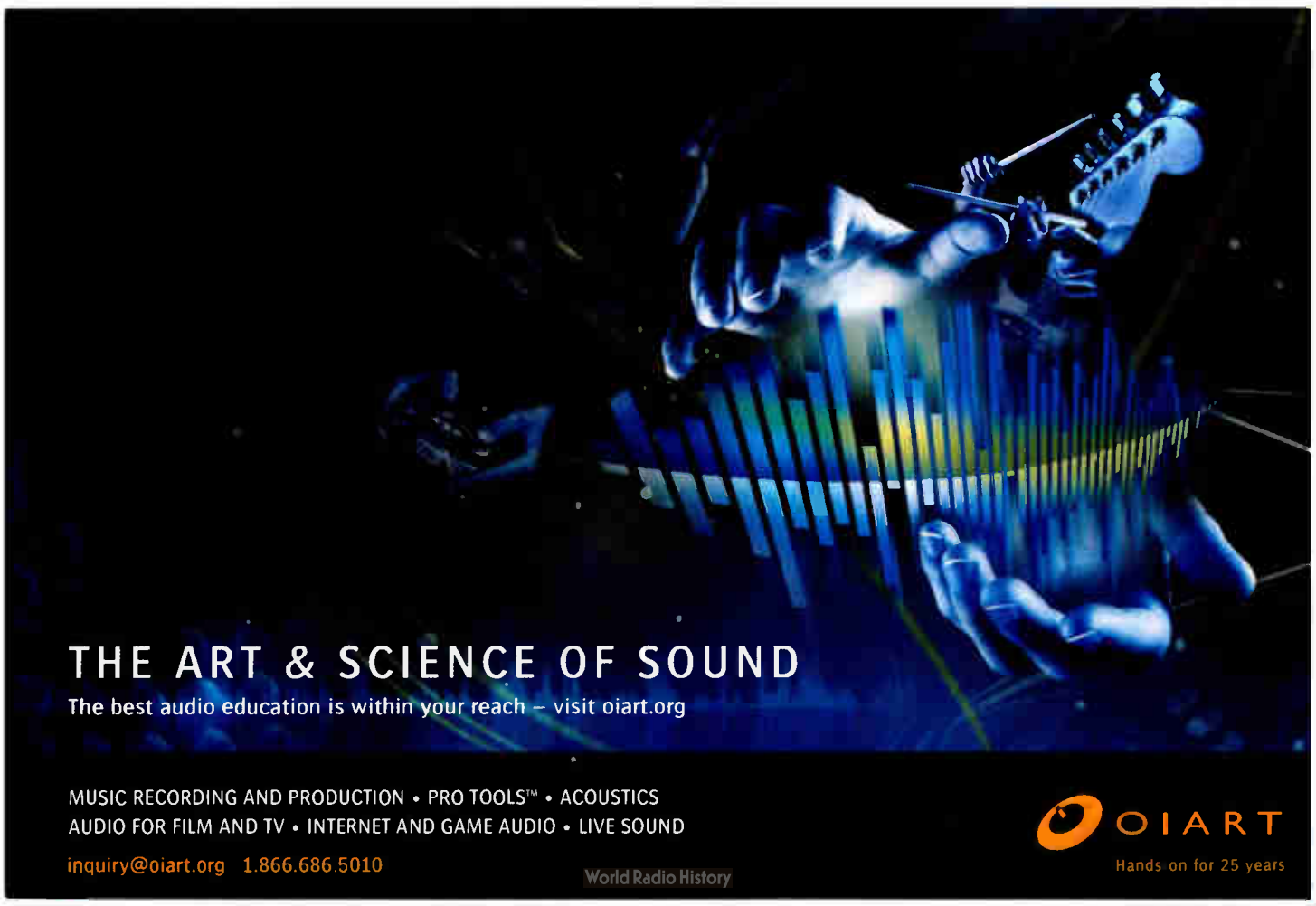
Kids can begin learning the basics of audio technology as early as middle school. During the middle- and high-school years, alternative, hands-on classes with a tangible connection to music and to "real life" can help engage kids who otherwise might tune out in the classroom.

I've taught "mini" audio and video technology classes to fourth graders. One day I had the total attention of 10 students while explaining video camera basics. That teachable moment lasted all of 15 minutes until I handed out the cameras and lost control of the class! I have since learned to withhold class materials until I've explained all of my points, even for the 19- to 29-year-old demographic.

I was surprised at how quickly the tween scene got video editing, though they ignored my instructions to zoom out and get close. (Everybody wants to zoom, but that rarely results in a Dramamine-free video experience.) In contrast, audio recording and production seemed to present a much greater challenge. Kari Peterson, a music educator at our nearby grade school, Somerset Elementary, says that music and audio are much more abstract concepts than video editing. Apparently, the transition between concrete and abstract thinking begins around age 12. (See link below.)

The ability to set up for a multitrack recording and mix it well requires fundamental knowledge and educated ears—the ability to listen critically and analyze accurately. These are acquired skills. The fundamentals can be taught, but the rest is the graduate's work-in-progress.

Link: http://tip.psychology.org/piaget.html. Psychologist Jean Piaget (1896-1980) established four human development stages: Sensorimotor (birth to 2 years), Preoperational (2 to 7), Concrete (logical) Operational (7 to 11) and Formal Operational (the development of abstract reasoning, after age 11).



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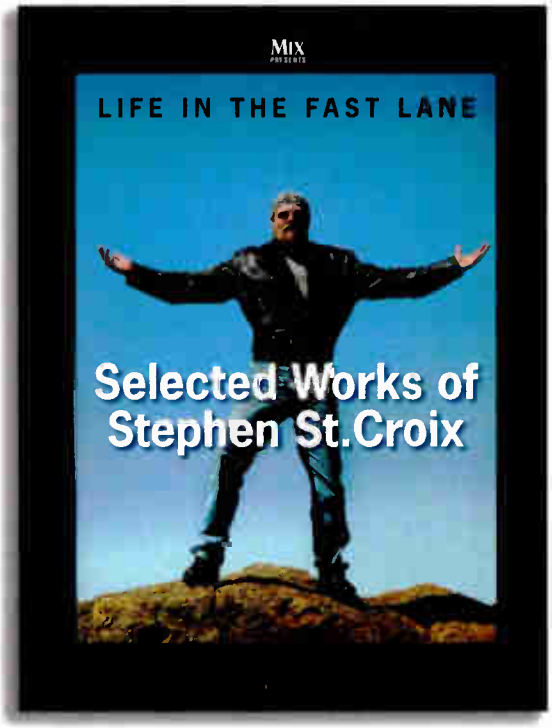

knowledge and vision, as well as a Harley-riding rock-star attitude. Now, two years after his death, the editors of *Mix* have selected the best of St.Croix's columns, presented with never-before-seen photos, notes and drawings from his personal files. This book takes "The Fast Lane" beyond the pages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

To order your copy, go to www.mixbooks.com

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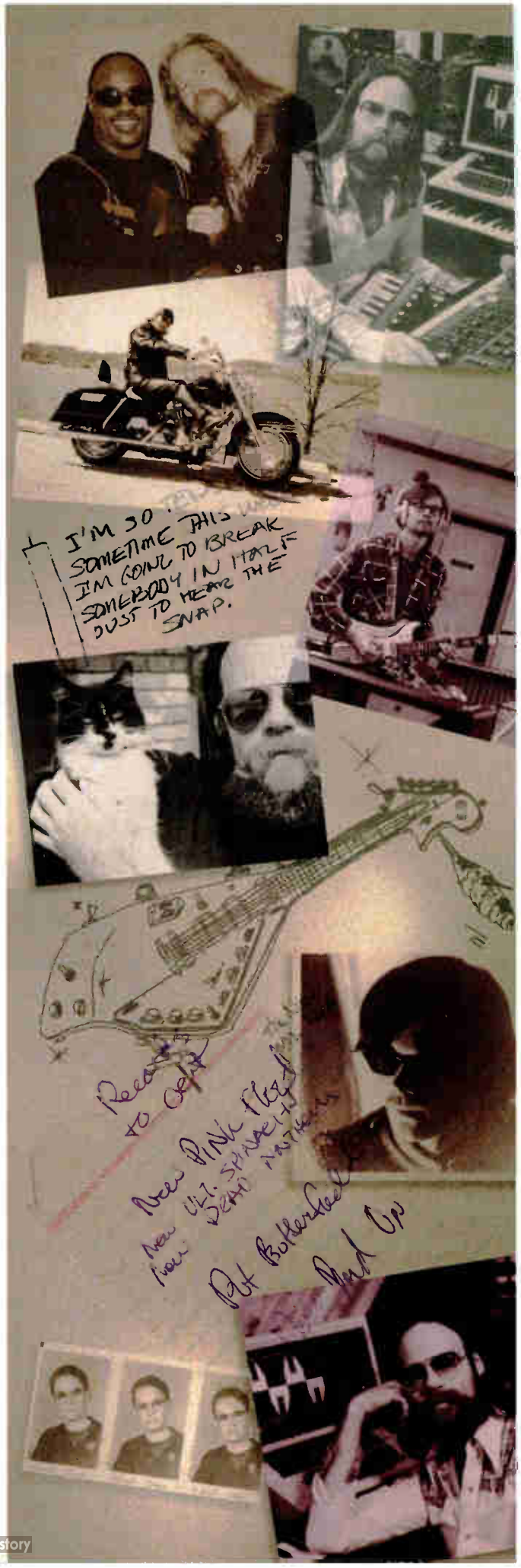

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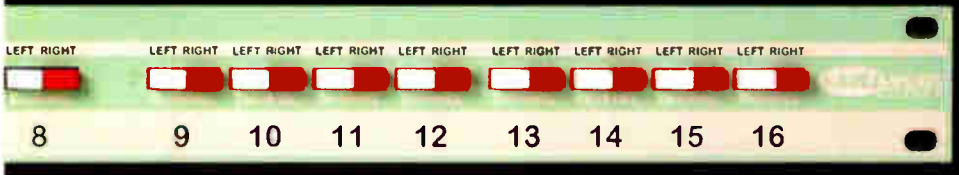

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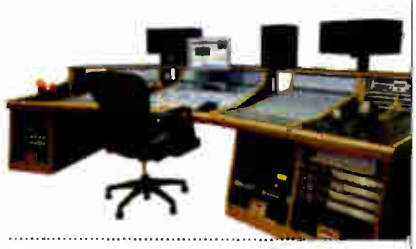

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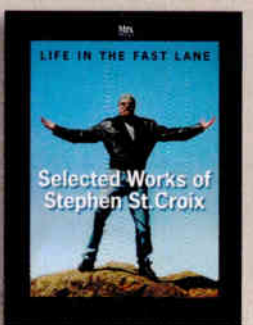

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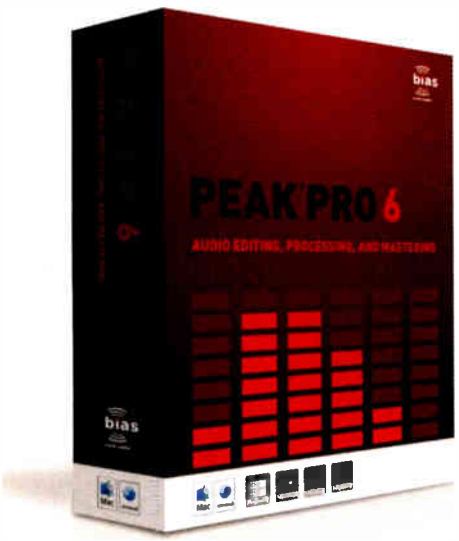

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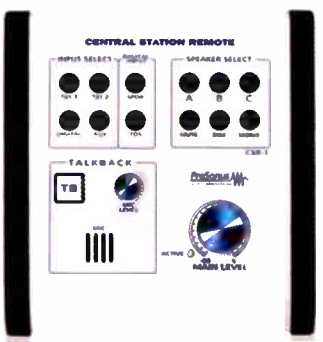

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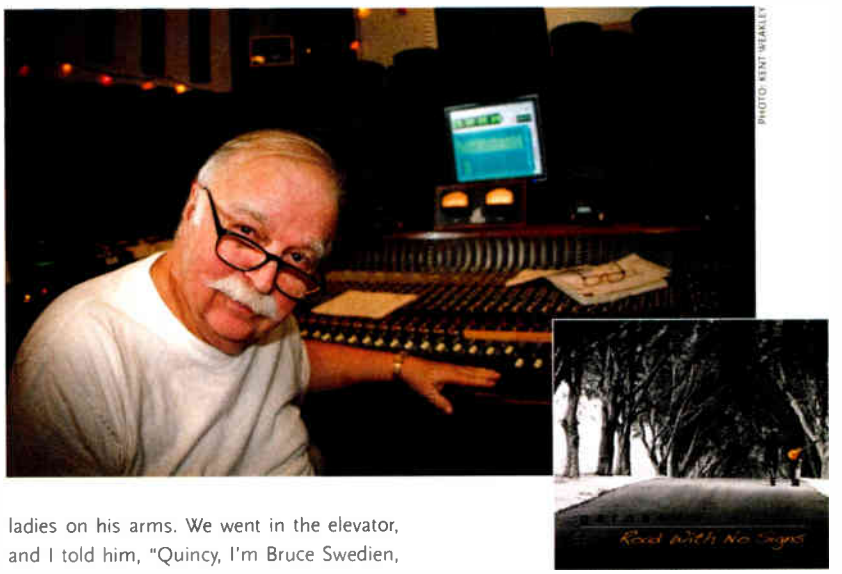
Q&A

By George Petersen

Bruce Swedien

The engineer on some of the best-selling records of all time keeps his private Ocala, Fla., studio booked solid and, at 74 years young, just completed his first outing as producer.



You just produced* Road With No Signs, *the debut CD from Garneau, a band featuring teenage virtuoso brothers Jordan and Josh Garneau, backed by top session players. How did this come about?

It started out as a demo for the band to get gigs. It was instantly apparent to me that this was a unique thing. I told them we had to turn this into an album, which I think scared them a little. [Laughs] All you have to do is listen to "New York State of Mind" to show how carefully they did their homework. And Dave Waller—the vocalist on the album—can sing his ass off. You should hear these guys play live in the studio. Jordy—the guitar player—is like working with a superexperienced musician, yet he's only 17. And [drummer] Josh can play a groove! To me, that's the name of the game, because so many of the records I'm famous for are groove records and Josh is really great. Both he and Jordy are so good—and they're right here, from Ocala!

Is that the secret to being discovered by Bruce Swedien?

No, in fact it was the other way around. They discovered me. I love that!

So with this project you finally got your start in the music business?

[Laughs] Not exactly. It was Quincy Jones back in 1958. He came into [Bill Putnam's] Universal Recording Studios in Chicago and we've been having a ball ever since. I remember that day like it was yesterday. I was out in front of Universal on 46 E. Walton Street, and this taxicab pulled up. Out popped this great-looking young dude with a couple of gorgeous young ladies on his arms. We went in the elevator, and I told him, "Quincy, I'm Bruce Swedien, and we're gonna be working together today." The first session was Dinah Washington. That's how we first met and it was like it had to be. He's the most knowledgeable person about music on Earth, and everything I've learned about the esoterics of popular music I learned from Quincy Jones. It's all about quality and doing the best you can with the project at hand. In essence, I went to the University of Quincy Jones.

So this has definitely been a transition for you, going from engineer to producer—the one who calls all the shots.

I don't do things any different now than I ever did. Because starting with Quincy, the people I'd worked with all along relied on me in the production of the album. While I didn't always get credit, I've always been paid like a producer, with royalties and all. It ended up not being a transition at all. It's all about the music. Every project I do sounds different, and I bring a piece of myself to every project, especially this great record with the Garneau band.

Did you track one instrument at a time or rehearse a rhythm section?

We did them one at a time. I usually work that way. I don't normally go for a sound and then imprint it on the project. It's usually controlled by the music at hand and I look for sonic inspiration in the compositions.

Was the band involved in the mix?

Actually, mixing is not just a phase of the project for me. I start the mix during the tracking sessions and continue building on whatever sonic values show up early in the production that I fall in love with.

Do you have any advice for someone learning the craft?

I have a couple short sayings that students seem to enjoy. A lot of people get really wrapped up in the nuts and bolts about how we record and forget about the basic value that music has to be a moving experience—especially recorded music. People don't care how the music is made, but only that it moves them.

How important is a formal audio education?

It's very important, but a lot of young people today don't have any real opportunities to hear good music in a live acoustical situation, which to me is the best ear training.

Do you have any more advice to offer?

It's much easier to be done than to be satisfied.

Doesn't that apply to a lot of things in life?

I think so, but it really applies to mixing. III

For more information about Garneau, visit www.garneauband.com. And as if Bruce Swedien needed more to do, he recently completed a book called Recording Michael Jackson, *which chronicles his experiences working with the King of Pop. It's due out early next year from Hal Leonard Publishing.*

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Date: 09/20/2008 11:25 AM
To: 'mike grace'

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